Roncada Consultoria

# Programa VENTGAS
# Despressurização de Gasodutos
## Versão 1


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**ÍNDICE**

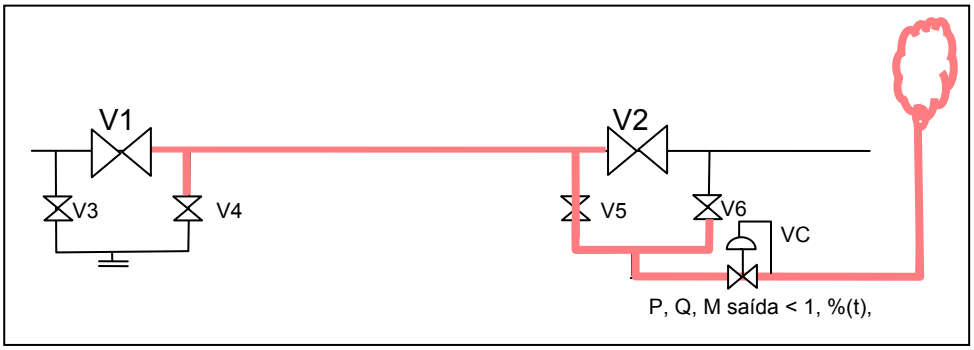
## 1.0 OBJETIVO

Este documento tem por objetivo descrever a versão 1 do programa **VENTGAS** para a avaliação da operação de despressurização de gasodutos contendo gás natural em alta pressão através de linhas de pequena extensão e diâmetro menor que o duto a ser despressurizado, bem como as premissas e métodos utilizados para a simulação da operação.

## 2.0 DESCRIÇÃO SIMPLIFICADA DA OPERAÇÃO

Gasodutos em operação que transportam gás natural em alta pressão normalmente necessitam ser despressurizados para que se possa efetuar uma manutenção, preventiva ou corretiva, ou a sua desativação. Normalmente estes dutos têm válvulas de bloqueio ao longo de sua extensão, que são dotadas de instalações de by-pass que possuem derivações que permitem que o gás contido no duto seja encaminhado para o meio-ambiente, onde será queimado ou simplesmente lançado na atmosfera. A operação de despressurização é feita no trecho a ser mantido ou desativado contido entre duas destas válvulas de bloqueio fechadas.

A figura a seguir mostra um trecho de um gasoduto entre duas válvulas de bloqueio V1 e V2, com suas instalações típicas de by-pass. Este trecho está sendo despressurizado junto à válvula V2. As válvulas V1, V2, V3, V4 e V6 estão fechadas e a válvula V5 está aberta. O by-pass da válvula V2 está ligado a uma chaminé onde é feita a queima ou dispersão do jato de gás na atmosfera, passando por uma válvula de controle VC para que a operação possa ser controlada dentro dos limites estabelecidos pelo procedimento operacional. Normalmente o trecho entre o by-pass e a chaminé tem que ser instalado para a realização da operação.




O programa VENTGAS simula a despressurização em apenas uma extremidade do duto, analisando o escoamento de gás natural no trecho marcado em vermelho na figura acima e estimando a força na extremidade da chaminé exercida pelo jato de gás.

Esta versão do programa VENTGAS permite diversos tipos de controle da operação. A variável controlada pode ser a pressão de saída da válvula, a vazão de blowdown ou a manutenção do Número de Mach na descarga para a atmosfera em um valor menor que 1 para garantia de escoamento subsônico neste ponto. Também se pode definir um escalonamento da abertura da válvula em função do tempo decorrido da operação.

Além da análise do escoamento, esta versão do programa VENTGAS faz uma análise do nível de ruído gerado na válvula de controle e na descarga do gás para a atmosfera, bem como de sua combinação. Ainda, analisa preliminarmente a dispersão do jato de gás na atmosfera. Também analisa as condições mínimas para a operação de purga do gás restante no duto após a operação de despressurização (volume morto) com o uso de nitrogênio.

Havendo necessidade de reduzir o tempo de operação a despressurização pode ser feita simultaneamente nas duas extremidades do duto. Neste caso, pode-se simular a operação considerando-se apenas a metade do comprimento do duto a ser despressurizado, desde que as instalações de blowdown sejam similares nas duas extremidades, e se não o forem serão necessários dois cálculos, assumindo-se que a pressão no meio do duto a ser despressurizado varie igualmente nos dois casos, o que é uma aproximação.

## 3.0 PROPRIEDADES DO GÁS NATURAL

O programa VENTGAS estima pelos métodos da referência {1} as propriedades termodinâmicas do gás natural com base apenas na sua densidade relativa em relação ao ar e na sua pressão e temperatura. Estima as propriedades físicas pelos métodos da referência {2}.

## 4.0 MODELAÇÃO DO ESCOAMENTO

Para a simulação do escoamento de gás natural na despressurização o programa VENTGAS considera que no trecho entre as válvulas V1 e V2, inicialmente parado, desenvolve-se um escoamento em regime monofásico isotérmico e no trecho entre a válvula V5 e a extremidade da chaminé (linha de blowdown), inicialmente vazio, desenvolve-se rapidamente um escoamento em regime monofásico adiabático com fricção e sem troca de calor com o meio ambiente.

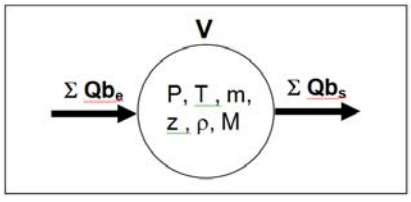
### 4.1 ESCOAMENTO NO DUTO A SER DESPRESSURIZADO

Para a simulação do escoamento em regime transiente no duto a ser despressurizado utiliza-se o método de nós e tramos. O duto é dividido em 2 nós, cada um considerado um recipiente com metade do volume do trecho de duto a ser despressurizado e um tramo com o diâmetro do duto e o comprimento do trecho a ser despressurizado. Inicialmente a pressão dos 2 nós é a pressão inicial do trecho a ser despressurizado e a vazão no tramo é zero. A temperatura do gás é considerada constante em todo o processo da despressurização e igual à temperatura inicial do trecho a ser despressurizado, tanto para os nós como para o tramo.

#### 4.1.1 Derivada da Pressão de um Nó em Relação ao Tempo

A cada instante de cálculo avalia-se a variação de pressão dos nós através do descrito a seguir:

Considere-se um nó de volume **V** que contém uma massa **m** de gás de peso molecular **M**. O gás está na pressão **P** e temperatura **T**, absolutas, quando apresenta um fator de compressibilidade **z** e uma massa específica ρ. A soma das vazões volumétricas, nas condições de referência, que entram no nó é $\Sigma \mathbf{Qb_e}$ e a das que saem do nó é $\Sigma \mathbf{Qb_s}$. Considere-se que **V**, **T** e **M** são constantes no tempo.




Da equação do gás real: $$\frac{P}{z} = \frac{R\,T\,\rho}{M} = \frac{R\,T\,m}{MV} \quad [1]$$

Derivando [1] $$d\left(\frac{P}{z}\right)=\frac{RT}{M}d\rho \quad [2] \quad \textbf{e} \quad \frac{d\left(\frac{P}{z}\right)}{dt}=\frac{RT}{MV}\frac{dm}{dt} \quad [3]$$

Na referência {1} é deduzida a seguinte equação para o diferencial total da pressão do gás em um processo infinitesimal em função dos diferenciais de temperatura dT e densidade dρ:

$$dP=\frac{R\rho D_1}{M}\cdot dT+\frac{RTD_2}{M}\cdot d\rho$$

Onde $D_1$ e $D_2$ são funções termodinâmicas de ponto derivadas de z dadas por:

$$D_1=z+T\left(\frac{\partial z}{\partial T}\right)_\rho \quad \textbf{e} \quad D_2=z+\rho\left(\frac{\partial z}{\partial \rho}\right)_T$$

Como o processo é isotérmico dT=0: $$\frac{dP}{D_2}=\frac{RT}{M}\cdot d\rho \quad [4]$$

Comparando [2] e [4]: $$d\left(\frac{P}{z}\right)=\frac{dP}{D_2} \quad [5]$$

Pela conservação da massa: $$\frac{dm}{dt}=\rho_b\left(\sum Qb_e-\sum Qb_s\right)=\frac{MP_b}{RT_bz_b}\Delta Q \quad [6]$$

Em [6] o subscrito b refere-se às condições de referência do gás, 20°C e 1 atm.

Com [5] e [6] em [3] e com $z_b$=1: $$\frac{dP}{dt}=\frac{P_bT\,\Delta Q}{T_bV}\,D_2 \quad [7]$$

Com [7] pode-se avaliar, de forma explícita, a pressão no nó para um novo instante de cálculo a partir da pressão no instante anterior por:

$$P_{t+\Delta t}=P_t+\frac{dP}{dt}\Delta t=P_t+\frac{P_bT\,\Delta Q}{T_bV}\,D_2\Delta t \quad [8]$$

Para que haja estabilidade na solução o intervalo de tempo $\Delta t$ tem que ser relativamente pequeno.

### 4.1.2 Vazão no tramo

Com a pressão dos nós para os novos instantes de cálculo a vazão do tramo é estimada pelo método estabelecido na referência {2} considerando-se o escoamento em regime permanente monofásico isotérmico. Notar que o programa VENTGAS usa o fator de fricção de Darcy-Weisbach como modificado pela AGA e uma rugosidade absoluta constante de 0,0018 pol.

## 4.2 ESCOAMENTO NA LINHA DE BLOWDOWN

Para o esvaziamento de um recipiente pressurizado com gás através de um tubo de pequeno diâmetro e relativamente curto normalmente se utiliza o **Modelo de Fanno** que considera fluxo unidimensional adiabático com fricção em um tubo de área constante sem trabalho externo. Considera o fator de atrito constante e o gás com comportamento de gás ideal.

Com as premissas adotadas Fanno demonstrou que o fluxo pode ser descrito por três parâmetros adimensionais. O primeiro é a relação f L/D, onde f é o fator de fricção de Darcy-Weisbach considerado constante, L o comprimento do duto até o ponto em que se quer

caracterizar o fluxo e D o diâmetro do duto. O segundo é a relação k entre os calores específicos a pressão constante e a temperatura constante. O terceiro é o Número de Mach que é a relação entre a velocidade do gás **v** no ponto e a velocidade de propagação do som **a** no meio gasoso.

Para um gás ideal a velocidade de propagação do som é dada por:

$$a = \sqrt{k\frac{P}{\gamma}} = \sqrt{k\frac{Pg_c}{\rho g}}$$

Tendo-se a pressão absoluta **P** e a temperatura absoluta **T** em um ponto do duto, com a densidade relativa do gás natural G pode-se calcular a relação **k** entre os seus calores específicos à pressão constante e a volume constante (k=cp/cv) e a sua densidade ρ pelas relações desenvolvidas na referência {1} e com isso se determinar a velocidade do som **a** no ponto.

A vazão mássica **W** fluindo em um duto com diâmetro interno **D** e área de fluxo **A** em um ponto com densidade ρ e velocidade **v** é dada por:

$$W = \rho v A$$

Considerando-se a vazão volumétrica diária nas condições de referência, 20° C e 1 atm, a vazão mássica também pode ser expressa por:

$$W = \frac{Q_b \rho_b}{86400}$$

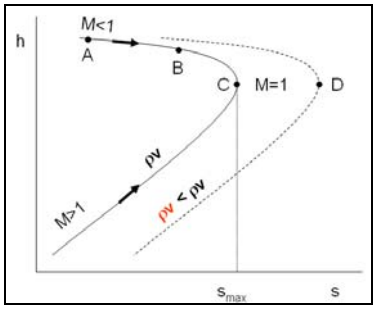
Desse modo a velocidade é dada por:

$$v = \frac{Q_b \rho_b}{86400 \rho A} = \frac{4 Q_b \rho_b}{86400 \rho \pi D^2}$$

Assim o Número de Mach M é dado por:

$$M = \frac{v}{a} = \frac{Q_b \rho_b}{21600 \pi D^2 \sqrt{\frac{kP\rho g_c}{g}}}$$

Num diagrama hs pode-se plotar linhas com vazão mássica constante, ou seja, produto ρ.v igual a uma constante, obtendo-se as chamadas linhas de Fanno. A parte superior é para o escoamento subsônico e a parte inferior é para escoamento supersônico. Estas linhas apresentam um máximo na entropia que corresponde ao escoamento sônico. Quanto menor a vazão mássica maior é a entropia no escoamento sônico. A figura a seguir ilustra o acima exposto:




Na figura estão representados dois pontos de um duto desenvolvendo um escoamento subsônico (pontos A e B) com Números de Mach crescentes e chegando ao escoamento sônico no ponto C. Por ser um processo irreversível a fricção aumenta a entropia e a tendência é o fluxo ir na direção de M=1, onde a entropia é máxima. Dependendo da pressão disponível e

do diâmetro e do comprimento da linha de blowdown pode-se atingir o escoamento sônico na saída desta linha para a atmosfera. A pressão manométrica na saída para a atmosfera tem que ser maior ou igual a zero.

Para dois pontos 1 e 2 com diferentes Números de Mach **$M_1$** e **$M_2$**, situados a uma distância **L**, em um tubo de diâmetro interno **D** e considerando-se o fator de fricção **f** constante a equação básica desenvolvida por Fanno é:

$$\frac{fL}{D} = \frac{1}{kM_1^2} - \frac{1}{kM_2^2} + \frac{k+1}{2k}\ln\left[\frac{M_1^2}{M_2^2}\left(\frac{2+(k-1)M_2^2}{2+(k-1)M_1^2}\right)\right]$$

As equações básicas que relacionam as propriedades **P** absoluta, **T** absoluta, **v** e **ρ** entre dois pontos com diferentes Números de Mach **$M_1$** e **$M_2$** são:

$$\frac{T_2}{T_1} = \frac{2+(k-1)M_1^2}{2+(k-1)M_2^2} \qquad \frac{v_2}{v_1} = \frac{\rho_1}{\rho_2} = \frac{M_2}{M_1}\sqrt{\frac{T_2}{T_1}} \qquad \frac{P_2}{P_1} = \frac{M_1}{M_2}\sqrt{\frac{2+(k-1)M_1^2}{2+(k-1)M_2^2}} = \frac{M_1}{M_2}\sqrt{\frac{T_2}{T_1}}$$

Partindo-se de um ponto com Número de Mach **M** pode-se calcular o comprimento crítico **L*** para que se atinja o escoamento sônico na saída (M=1) pela seguinte equação:

$$\left.\frac{fL^*}{D}\right|_{\max} = \frac{1-M^2}{kM^2} + \frac{k+1}{2k}\ln\left[\frac{(k+1)M^2}{2+(k-1)M^2}\right]$$

Para todas estas equações foram desenvolvidas funções proprietárias para o cálculo de variação das propriedades e do comprimento crítico de modo a poder simular o escoamento pelo Modelo de Fanno. No regime transiente considera-se que o escoamento é constante entre dois intervalos de cálculo. Na referência {3} pode-se visualizar o desenvolvimento dessas equações. Notar que nela é usado o fator de fricção de Fanning que é igual a um quarto do fator de fricção de Darcy-Weisbach adotado pelo programa, daí as expressões mostrarem 4fL/D em vez de fL/D. Notar que o fator de fricção é calculado para uma rugosidade absoluta de 0,0018 pol.

## 5.0 VÁLVULA DE CONTROLE

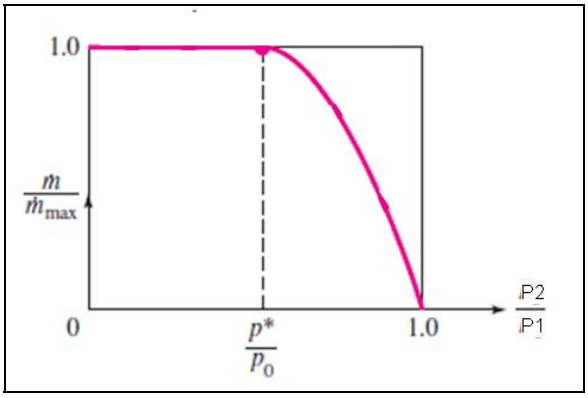
A válvula de controle mantém a variável controlada no valor estipulado nos dados de entrada através da variação de sua abertura. Quando atinge sua abertura máxima é mantida aberta até o final da simulação, funcionando então como um elemento gerador de perda de carga localizada. A cada instante de cálculo é calculado o CV da válvula, com base nos dados correntes de pressão, temperatura e vazão.

### 5.1 RELAÇÃO CRÍTICA

Existe uma relação crítica RC entre a pressão de saída P2 e a de entrada da válvula P1, quando o escoamento na vena-contracta do fluxo na válvula atinge o escoamento sônico (fluxo choked). Esta relação crítica é função apenas da relação entre calores específicos do gás. É definida como:

$$RC = \frac{P^*}{P_o} = \left(\frac{2}{k+1}\right)^{\frac{k}{k-1}}$$

Abaixo desta relação crítica a vazão da válvula independe da pressão de saída conforme ilustra a figura a seguir para uma pressão de entrada $P_1$ constante:




## 5.2 FLUXO CHOKED

Quando a relação entre as pressões de saída e de entrada for menor ou igual que relação critica RC (fluxo choked) o CV da válvula é calculado pela seguinte expressão:

$$CV = \frac{q\sqrt{G(T+460)}}{660P_1}$$

onde:

| | | |
|---|---|---|
| q | = | Vazão volumétrica de gás, scf/h @ 14,7 psia e 60°F |
| G | = | Densidade do gás em relação ao ar (ar=1), adimensional |
| T | = | Temperatura absoluta na entrada da válvula, ° F |
| $P_1$ | = | Pressão absoluta na entrada da válvula, psia |

Para essa condição notar que a CV da válvula é função apenas da pressão de entrada da válvula.

## 5.3 FLUXO NÃO CHOKED

Quando a relação entre as pressões de saída e de entrada for maior que relação critica RC (fluxo não choked) o CV da válvula é calculado pela seguinte expressão:

$$CV = \frac{q\sqrt{G(T+460)}}{1360\sqrt{(P_1-P_2)P_2}}$$

onde:

| | | |
|---|---|---|
| q | = | Vazão volumétrica de gás, scf/h @ 14,7 psia e 60°F |
| G | = | Densidade do gás em relação ao ar (ar=1), adimensional |
| T | = | Temperatura absoluta na entrada da válvula, ° F |
| $P_1$ | = | Pressão absoluta na entrada da válvula, psia |
| $P_2$ | = | Pressão absoluta na saída da válvula, psia |

Para essa condição notar que a CV da válvula é função das pressões de entrada e saída da válvula.

## 5.4 TEMPERATURA DE SAÍDA

Nos dois tipos de fluxo é considerado que o gás sofre uma expansão isoentálpica na válvula com a temperatura de saída da válvula sendo estimada por:

$$T_2 = T_1 - C_{JT}(P_1 - P_2)$$

onde:

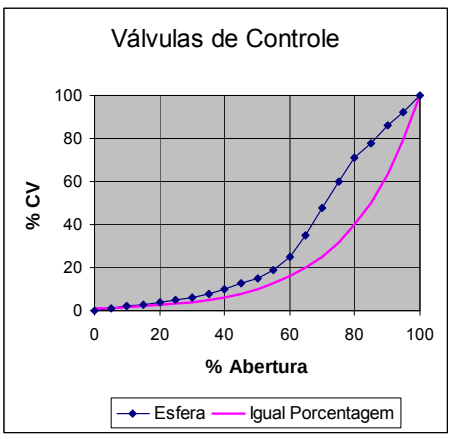
$T_2$ = Temperatura na saída da válvula, ° C
$T_1$ = Temperatura na entrada da válvula, ° C
$C_{JT}$ = Coeficiente de Joule Thomson do gás na entrada da válvula, °C/(kgf/cm$^2$)
$P_1$ = Pressão na entrada da válvula, kgf/cm$^2$
$P_2$ = Pressão na saída da válvula, kgf/cm$^2$

O coeficiente de Joule Thomson do gás é estimado pelas expressões da referência {1} considerando-se a densidade relativa G do gás em relação ao ar e as condições na entrada da válvula.

## 5.5 CURVAS CARACTERÍSTICAS – CV X % ABERTURA

Com o CV calculado determina-se a porcentagem de abertura da válvula conforme a curva característica estipulada nos dados de entrada. O programa VENTGAS permite escolher entre uma válvula de esfera típica e uma válvula de controle genérica com curva de igual porcentagem, ou seja, a porcentagem de variação do CV da válvula é igual à variação da porcentagem de abertura da válvula.

A figura a seguir ilustra as curvas características dos dois tipos:




A tabela a seguir mostra alguns valores típicos de CV para válvulas de controle e de esfera, na condição de totalmente aberta (CV máximo):

| Diâmetro Nominal da Válvula, pol | Válvula de Controle | Esfera |
|---|---|---|
| 4 | 275 | 2300 |
| 6 | 595 | 5400 |
| 8 | 1080 | 10000 |
| 10 | 1700 | 16000 |
| 12 | 2475 | 24000 |
| 14 | 2700 | 31400 |

Para se determinar a porcentagem de abertura de válvulas de esfera faz-se uma interpolação linear entre os pontos mostrados na curva e para as válvulas de igual porcentagem utiliza-se a seguinte equação:

$$\frac{CV}{CV_{\max}} = 100^{(\%abert-1)} \text{ com \%abert entre 0 e 1}$$

5.6 COEFICIENTE DE RESISTÊNCIA DA VÁLVULA

O programa VENTGAS estima a pressão na saída da válvula de controle quando estiver totalmente aberta substituindo-a por um trecho de tubo de comprimento equivalente, avaliando o fator L/D através do coeficiente de resistência $K_h$ da válvula totalmente aberta pela seguinte expressão da referência {4}, com o diâmetro interno D em polegadas:

$$CV_{\max} = \frac{29{,}9D^2}{\sqrt{K_h}} \text{ e portanto } K_h = \frac{894{,}01D^4}{CV_{\max}^2}$$

Como:

$$h_f = f\frac{L}{D}\frac{v^2}{2g} \quad \text{e} \quad h_f = K_h\frac{v^2}{2g} \quad \therefore \quad K_h = f\frac{L}{D} \quad \text{e} \quad \frac{L}{D} = \frac{K_h}{f}$$

## 6.0 FORÇA NA EXTREMIDADE DE SAÍDA

Segundo a referência {5}, API RP 520, Parte 2, Item 2.4.1.1 a força de reação na extremidade de saída para a atmosfera pode ser avaliada por:

$$F = \frac{W}{366}\sqrt{\frac{kT}{(k+1)Mw}} + AP$$

onde:

| | | |
|---|---|---|
| F | = | Força de Reação no ponto de descarga para a atmosfera, lbf |
| k | = | Relação entre os calores específicos (cp/cv) nas condições de saída |
| W | = | Vazão mássica de gás ou vapor, lb/h |
| T | = | Temperatura absoluta na saída, ° R |
| Mw | = | Peso molecular do gás |
| A | = | Área da saída no ponto de descarga, $in^2$ |
| P | = | Pressão manométrica no interior da saída no ponto de descarga, psig |

## 7.0 RUÍDO

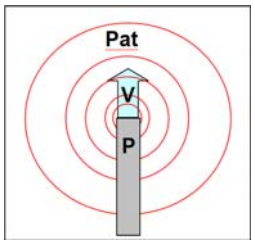
7.1 DESCARGA PARA A ATMOSFERA

A descarga para a atmosfera na operação de blowdown gera um jato de fluido em uma expansão adiabática. São geradas ondas de choque que dissipam a energia do jato gerando um intenso ruído.

As fotos a seguir mostram, respectivamente, a leitura de 93 dBA em um medidor do nível de pressão sonora durante uma operação de blowdown de um duto de uma estação de compressão nos Estados Unidos e a grande distância do ponto de medição até a estação.


Foram obtidas de vídeo feito por moradores próximos da estação que se sentiam incomodados pelo alto nível de ruído e pela freqüência com que estas operações eram realizadas para documentar sua reclamação junto ao órgão regulador.

O ruído gerado irá se propagar em ondas esféricas no ambiente externo ao duto com a velocidade de propagação do som no ar, Essa propagação se dará com diferentes intensidades sonoras em cada direção, pois o som gerado nessa descarga é altamente direcional, com o ruído se propagando com diferentes intensidades sonoras em cada direção



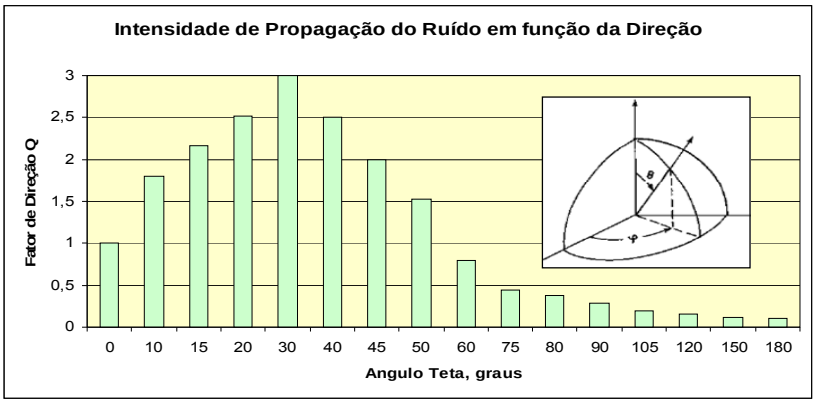

O ruído gerado é o resultado de mistura turbulenta na região de altas tensões de cisalhamento próximo ao plano de saída do tubo de descarga. Nessa região os vórtices turbulentos são pequenos e são gerados predominantemente ruídos de alta freqüência. O ruído irradiado pelo jato de gás em pontos mais afastados do plano de saída, onde os vórtices turbulentos são maiores, são de freqüência mais baixa. A referência {6} menciona que a freqüência em que a potência do som é máxima é dada por:

$$f_0 = \frac{0{,}2c}{d}$$

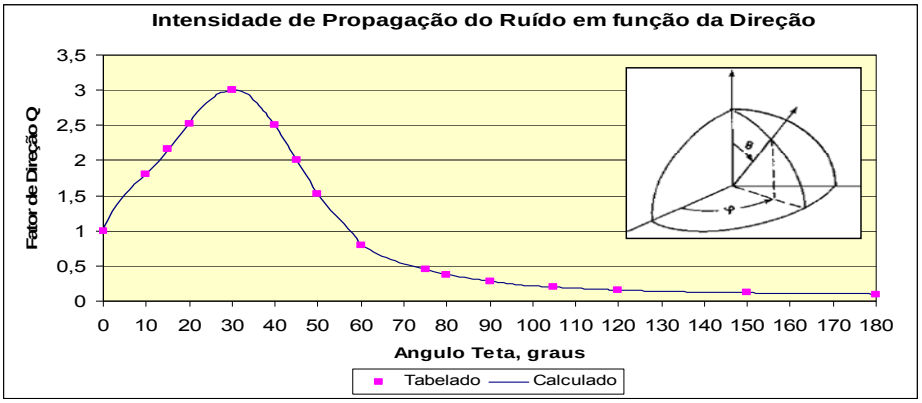
onde:

$f_0$ = Freqüência na qual a potência sonora é máxima, Hertz
c = Velocidade do som no gás nas condições de descarga, m/s
d = Diâmetro interno do tubo de descarga na saída para a atmosfera, m

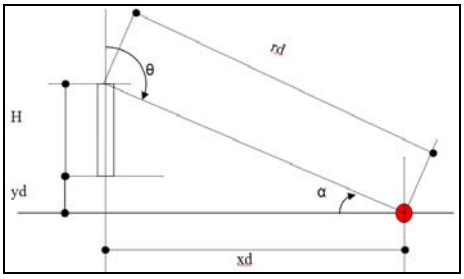
A referência {6} também mostra uma tabela do fator de direção Q em função da direção dada pelo ângulo θ em relação ao eixo do tubo. A figura a seguir mostra os valores tabelados. Pode-se ver que a intensidade para o ângulo θ de 30° é 3 vezes maior que a intensidade do eixo do tubo de descarga e para o ângulo θ de 90° a intensidade é de 29% da intensidade do eixo do tubo de descarga. Notar que o ângulo φ não influi no fator de direção Q.




Com base nos valores tabelados, foi desenvolvida correlação para o fator de direção Q em função do ângulo θ em relação ao eixo do tubo de descarga que reproduz esses valores com boa precisão conforme pode ser visto na figura a seguir:




Considere-se um observador situado em um ponto com distância vertical yd em relação à base de um tubo de descarga de altura H e a uma distância horizontal xd do eixo do tubo de descarga como mostra a figura a seguir:




A distância do observador à fonte de ruído é dada por:

$$rd = \sqrt{xd^2 + (H + yd)^2}$$

Os ângulos α e θ, em graus, são dados por:

$$\alpha = arctg\left(\frac{H + yd}{xd}\right)\frac{180}{\pi} \quad \text{e} \quad \theta = 90° + \alpha$$

### 7.1.1 Energia Dissipada no Jato na Unidade de Tempo

A energia cinética dissipada no jato, na unidade de tempo, que é uma medida de potência, é dada por:

$$E_c = \frac{1}{2}\dot{m}V^2$$

onde:

| | | |
|---|---|---|
| $\dot{m}$ | = | Vazão mássica, kg/s |
| V | = | Velocidade do jato, m/s |
| Ec | = | Energia cinética do jato na unidade de tempo, W |

### 7.1.2 Potência Sonora

Considerando-se que toda a energia dissipada no jato na unidade de tempo seja transformada em ruído, desprezando-se a transferência de calor, no ponto de descarga a potência sonora do ruído é dada por:

$$W = E_c$$

A potência sonora de referência $W_{ref}$ é 1E-12 W.

### 7.1.3 Intensidade Sonora

Conforme a onda sonora do ruído se propaga ao longo do duto sua intensidade (potência/área) é atenuada, sendo dada por:

$$I = \frac{QW}{4\pi r^2}$$

onde:

| | | | |
|---|---|---|---|
| I | = | Intensidade sonora do ruído | $W/m^2$ |
| Q | = | Fator de Direção | adimensional |
| W | = | Potência sonora do ruído | W |
| r | = | Distância do observador à fonte do ruído | m |
| $\pi$ | = | Número pi = 3.14159 ... | adimensional |

### 7.1.4 Pressão Sonora

Os medidores de nível de som não medem a amplitude da onda de pressão, Pmax, e sim a raiz quadrática média P da pressão observada.

$$P = \frac{P\max}{\sqrt{2}}$$

O aumento local do quadrado da raiz quadrática média da pressão na frente de onda sonora é função da intensidade e é dado por:

$$P^2 = \rho_a c_a I$$

onde:

| | | | |
|---|---|---|---|
| P | = | Pressão sonora | Pa |
| $\rho_a$ | = | Densidade do ar | $kg/m^3$ |
| $c_a$ | = | Velocidade do som no ar | m/s |
| I | = | Intensidade sonora do ruído | $W/m^2$ |

A pressão sonora de referência $P_{ref}$ é 20E-6 Pa, nível mínimo de percepção do ouvido humano de um som de freqüência 1000 Hz.

Devido à larga faixa de valores para W e $P^2$, usa-se uma escala logarítmica para expressar os níveis relativos aos valores de referência. Estas propriedades por serem referentes à energia são quantidades escalares e aditivas podendo ser combinadas da mesma maneira em todos os níveis. Na prática os níveis são expressos em decibéis (dB) usando-se:

$$L_W = 10\log(W/W_{ref}) = 120 + 10\log\left(\frac{1}{2}\dot{m}V^2\right)$$

$$L_P = 10\log\left((P/P_{ref})^2\right) = 20\log(P/P_{ref})$$

Do acima exposto tem-se:

$$I = \frac{QW}{4\pi r^2} = \frac{P^2}{\rho_a c_a} \text{ e portanto } P^2 = \frac{QW\rho_a c_a}{4\pi r^2}$$

Introduzindo os valores de referência de W e P tem-se:

$$\frac{P^2}{P_{ref}^2} = \frac{QW\rho_a c_a W_{ref}}{4\pi r^2 W_{ref} P_{ref}^2}$$

Tirando o logaritmo dos dois membros e multiplicando-os por 10 tem-se:

$$20\log(P/P_{ref}) = 10\log(W/W_{ref}) + 10\log(Q) - 20\log(r) - 10\log\left(\frac{4\pi P_{ref}^2}{\rho_a c_a W_{ref}}\right)$$

Exprimindo-se r em metros e considerando-se que o ar a 25°C e 1 atm tem uma densidade de 1,184 kg/m$^3$, que a velocidade do som no ar nessas condições é de 346,1 m/s e levando-se em conta os níveis de referência de W e P pode-se calcular o valor de 10,9 dB para o último fator da expressão acima.

Com este valor e com a definição dos níveis de W e $P^2$ tem-se a expressão geral para o cálculo do nível de pressão sonora em dB em um ponto distante r metros de uma fonte sonora de potência W, segundo uma direção que faz um ângulo θ em relação ao eixo do tubo de descarga, considerando-se uma atenuação desprezível e que a propagação do ruído se dá em ambiente não confinado no ar a 25°C e 1atm:

$$L_P = 109{,}1 + 10\log\left(\frac{1}{2}\dot{m}V^2\right) + 10\log(Q) - 20\log(r)$$

7.1.5 Faixas Padronizadas e Escala A

O ouvido humano é sensível a sons com freqüências na faixa de 16 Hz a 16 kHz. Por não ser prático medir o nível de potencia sonora em cada freqüência desta faixa os instrumentos de medição acústica geralmente medem a energia acústica em faixas de freqüência padronizadas.

A mais utilizada como medida do dano à audição, incômodo causado pelo ruído e atendimento aos regulamentos e normas, é a escala A projetada para corresponder à resposta do ouvido humano para uma pressão sonora de 40 dB em todas as freqüências. Os níveis de pressão sonora indicados pela escala A são denominados LA e a unidade é dBA.

A tabela a seguir mostra as faixas padronizadas (freqüência mínima $f_1$, freqüência central $f_c$ e freqüência máxima $f_2$) e os fatores de conversão CFA que permitem calcular o nível de pressão sonora na escala A em dBA tendo-se os valores dos níveis de pressão sonora em dB em cada faixa de freqüência, ou por medição ou por cálculo:

| Freqüência, HZ | | | CFA |
|---|---|---|---|
| $f_1$ | $f_c$ | $f_2$ | |
| 22 | 31,5 | 44 | -39,4 |
| 44 | 63 | 88 | -26,2 |
| 88 | 125 | 177 | -16,1 |
| 177 | 250 | 355 | -8,9 |
| 355 | 500 | 710 | -3,2 |
| 710 | 1000 | 1420 | 0 |
| 1420 | 2000 | 2840 | 1,2 |
| 2840 | 4000 | 5680 | 1 |
| 5680 | 8000 | 11360 | -1,1 |
| 11360 | 16000 | 22720 | -6,6 |

Notar que a freqüência central $f_c$ é a média geométrica entre as freqüências mínima e máxima da faixa:

$$f_c = \sqrt{f_1 f_2}$$

Notar que para cada faixa a freqüência máxima é o dobro da freqüência mínima e, portanto:

$$f_1 = f_c / \sqrt{2} \quad \text{e} \quad f_2 = f_c \sqrt{2}$$

7.1.6 Pressão Sonora nas Faixas

Entretanto, como foi dito acima o ruído é gerado em uma gama de freqüências sendo a potência máxima gerada na freqüência $f_0$. A referência {6} mostra como determinar para cada faixa padronizada o nível de pressão sonora em dB gerado por uma descarga de gás para a atmosfera utilizando-se a seguinte conversão:

$$L_P(faixa) = L_P - CF7$$

Os valores de CF7 são dados pela seguinte tabela:

| Freqüência | CF7 |
|---|---|
| $f_0/32$ | 26 |
| $f_0/16$ | 21 |
| $f_0/8$ | 15 |
| $f_0/4$ | 10 |
| $f_0/2$ | 7 |
| $f_0$ | 5 |
| $2f_0$ | 7 |
| $4f_0$ | 10 |
| $8f_0$ | 17 |
| $16f_0$ | 25 |
| $32f_0$ | 31 |
| $64f_0$ | 37 |

Como exemplo, o fator CF7 correspondente a $f_0/8$ deve ser aplicado para a faixa padronizada que inclua a freqüência $f_0/8$ e o fator CF7 correspondente a $16f_0$ deve ser aplicado para a faixa padronizada que inclua a freqüência $16f_0$, sendo $f_0$ a freqüência que gera a potência máxima como definido anteriormente.

Assim, caso $f_0$ seja 440 Hz o fator CF7 de 15 deve ser aplicado para a faixa padronizada de $f_c$ igual a 63 Hz que inclui a freqüência de 55 Hz e o fator CF7 de 25 deve ser aplicado para a faixa padronizada de $f_c$ igual a 8000 Hz que inclui a freqüência de 7040 Hz.

### 7.1.7 Conversão de dB para dBA

Após a determinação do valor da pressão sonora em dB para todas as faixas de freqüência padronizadas, o nível de pressão sonora na escala A em dBA é calculado, com a soma feita em todas as faixas padronizadas de freqüência, por:

$$L_A = 10\log\left(\sum 10^{(L_P(faixa)+CFA)/10}\right)$$

## 7.2 VÁLVULA DE CONTROLE

A referência {6} mostra correlação desenvolvida pela Fisher Controls Co para a predição do nível de ruído gerado por uma válvula de controle, com base em medições dos níveis de pressão sonora na Escala A, em dBA, numa locação que distava 1,424 m ($r_0$) da válvula.

Para esta distância a correlação desenvolvida para o nível de pressão sonora em dBA gerado por válvulas de controle, operando com gás e instaladas em tubos de aço, é :

$$L_A(r_0) = 17{,}4\log\left(\Delta P / \Delta P_0\right) - 32{,}4\log\left(t / t_s\right) + L(C) + 22{,}5\log\left(C_g\right) - 24.4$$

onde:

| | | | |
|---|---|---|---|
| $\Delta P$ | = | Perda de pressão na válvula | psig |
| $\Delta P_0$ | = | 1 | psig |
| t | = | Espessura de parede do tubo | pol |
| $t_s$ | = | Espessura de parede de um tubo SCH 40 de mesmo diâmetro nominal | pol |

O fator L(C) é função da perda de pressão através da válvula $\Delta P$ e da pressão de entrada na válvula. A tabela a seguir mostra como é avaliado para válvulas de controle e de esfera:

| Válvula de Controle | | Válvula Esfera | |
|---|---|---|---|
| $\Delta P/P1$ | L(C) | $\Delta P/P1$ | L(C) |
| <= 0,151 | 0 | <= 0,093 | 0 |
| > 0,151 | $L(C) = 17{,}4\log\left(\Delta P / P_1\right) + 14{,}3$ | > 0,093 | $L(C) = 9{,}4\log\left(\Delta P / P_1\right) + 9{,}7$ |

O fator $C_g$ é o fator de capacidade para gás da válvula e está correlacionado com o fator de capacidade para líquido CV conforme mostrado na tabela a seguir:

| Válvula de Controle | Válvula Esfera |
|---|---|
| 35 CV | 20 CV |

Para válvulas situadas em ambientes não confinados, considerando a atenuação pelo ar desprezível, e para uma distância r o nível de pressão sonora em dBA é calculado por:

$$L_A = L_A(r_0) - 20\log\left(r/r_0\right)$$

7.3 PRESSÃO SONORA TOTAL

Segundo a referência {6}, quando se tem n fontes sonoras o nível de pressão sonora conjunto em um observador é obtido pelo cálculo do nível de pressão sonora de cada fonte individual considerando a distância do observador à fonte de ruído, combinando-os pela seguinte expressão:

$$L_A = 10\log\left(\sum_{i=1}^{n} 10^{L_{Ai}/10}\right)$$

## 8.0 DISPERSÃO DO GÁS NA ATMOSFERA

Quando o gás é lançado na atmosfera ele se mistura com o ar e inevitavelmente serão formadas misturas dentro da faixa inflamável. Na maior parte dos casos quando o gás é lançado para cima na atmosfera por tubos verticais esta zona inflamável estará confinada em uma região definida situada acima do nível da descarga.

Devido à alta velocidade do gás na saída as forças devido à quantidade de movimento do jato de gás são usualmente dominantes. Nessas condições a taxa de mistura do ar com o gás será muito alta e este será diluído para concentrações abaixo do seu limite inferior de inflamabilidade LII antes que a descarga saia dessa zona. A referência {7} cita que isto acontece se o Número de Reynolds atender ao seguinte critério:

$$\mathrm{Re} > 15400\left(\frac{\rho_g}{\rho_a}\right)$$

onde:

| | | | |
|---|---|---|---|
| Re | = | Número de Reynolds na saída do vent | adimensional |
| $\rho_g$ | = | Densidade do gás na saída do vent | kg/m$^3$ |
| $\rho_a$ | = | Densidade do ar | kg/m$^3$ |

Entretanto, alerta que este critério pode não ser válido se a velocidade do jato for menor que 13 m/s ou quando a relação entre a velocidade do jato e a velocidade do vento for menor que 10. É importante notar que estas condições serão certamente atingidas no final da operação de blowdown, quando o escoamento é subsônico.

Nessas condições ou quando o Número de Reynolds for muito baixo a mistura do ar com o jato de gás será limitada e as forças devido ao vento dominarão o fenômeno e os princípios de dispersão atmosférica determinarão a taxa de diluição e a distância em que misturas inflamáveis podem ocorrer. Estas misturas inflamáveis podem ocorrer ao nível do solo ou em fontes de ignição distantes e é necessária uma completa e rigorosa análise, que está fora do escopo do programa VENTGAS.

A referência {7} apresenta um método para determinar as seguintes distâncias em m, medidas a partir da saída do tubo de descarga, com base em fatores adimensionais de distância FY, FX,

FSI e FSS obtidos de gráficos em função da relação de velocidade do ar Va com a velocidade do gás Vg:

- YLI: distância vertical ao ponto da pluma de gás onde se atinge o limite inferior de inflamabilidade do gás LII;

$$YLI = FY.D\sqrt{\frac{\rho_g}{\rho_a}}$$

- XLI: distância horizontal ao ponto da pluma de gás onde se atinge o limite inferior de inflamabilidade do gás LII;

$$XLI = FX.D\sqrt{\frac{\rho_g}{\rho_a}}$$

- SLI: distância, medida ao longo do eixo da pluma de gás, ao ponto onde se atinge o limite inferior de inflamabilidade do gás LII;

$$SLI = FSI.D\sqrt{\frac{\rho_g}{\rho_a}}$$

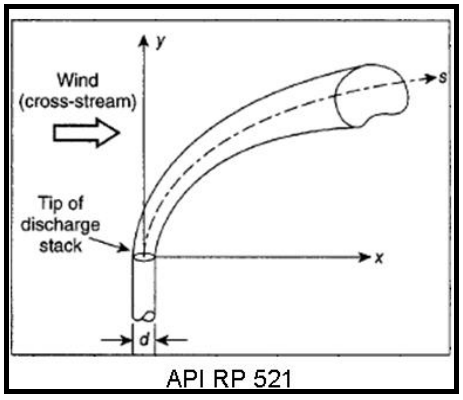
- SLS: distância, medida ao longo do eixo da pluma de gás, ao ponto onde se atinge o limite superior de inflamabilidade do gás LSI.

$$SLS = FSS.D\sqrt{\frac{\rho_g}{\rho_a}}$$

Nestas relações:

| | | | |
|---|---|---|---|
| D | = | Diâmetro interno da saída do vent | m |
| $\rho_g$ | = | Densidade do gás na saída do vent | $kg/m^3$ |
| $\rho_a$ | = | Densidade do ar | $kg/m^3$ |

A figura a seguir ilustra as coordenadas para estas distâncias:



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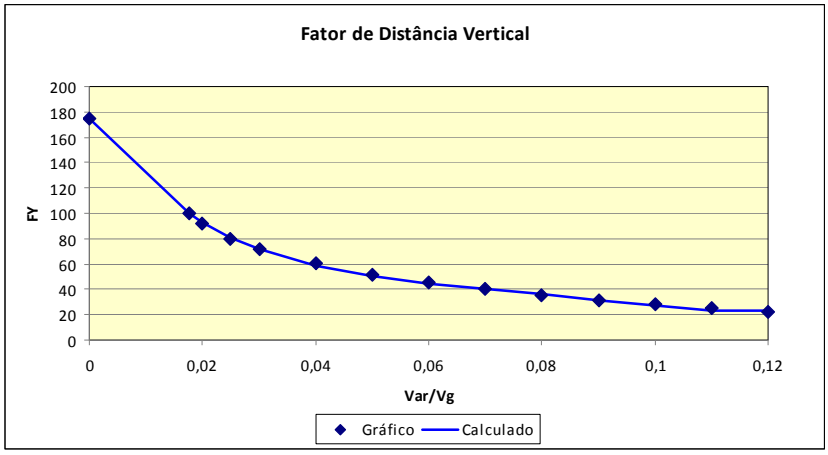
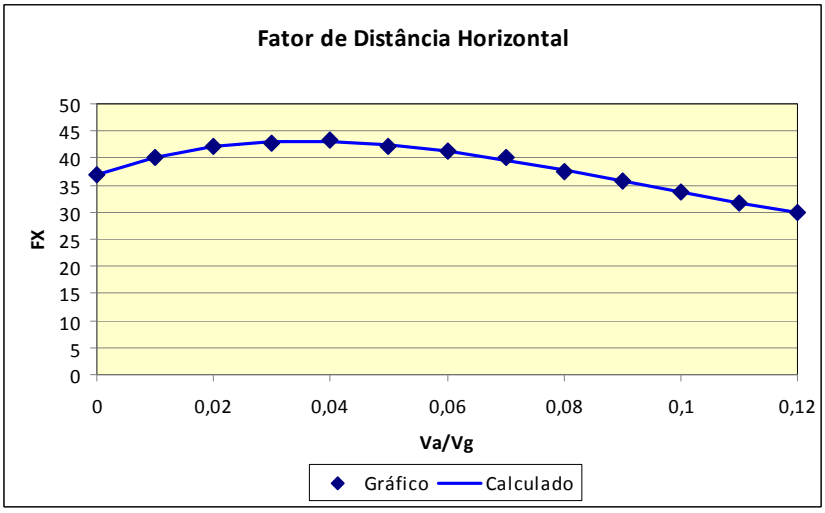
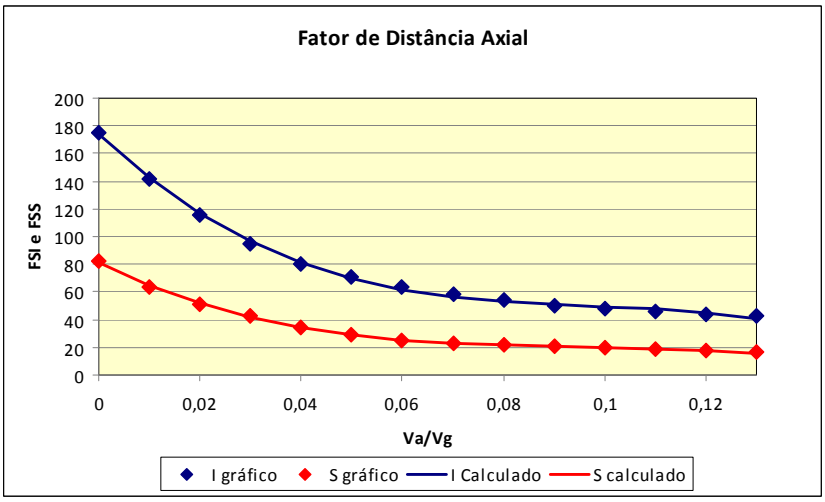
Foram obtidos pontos dos gráficos da referência {7} para o valor dos fatores de distância e geradas correlações que reproduzem os valores com boa precisão conforme pode ser visto nas figuras a seguir:




Para chamar a atenção sobre a necessidade de uma análise da dispersão do gás na atmosfera, mais completa e rigorosa, o programa VENTGAS atribui o valor zero a essas quatro distâncias quando os limites de validade do método apresentado acima não forem atendidos. Isto acontece no final da operação de despressurização.

## 9.0 PURGA DO VOLUME MORTO

Como já foi mencionado, ao término da operação de despressurização restará um volume morto de gás que tem que ser retirado da linha antes que se possam executar serviços no duto. Um método usual é por injeção de um produto inócuo deslocador em uma das extremidades do trecho despressurizado e descartar o gás deslocado para a atmosfera na outra.

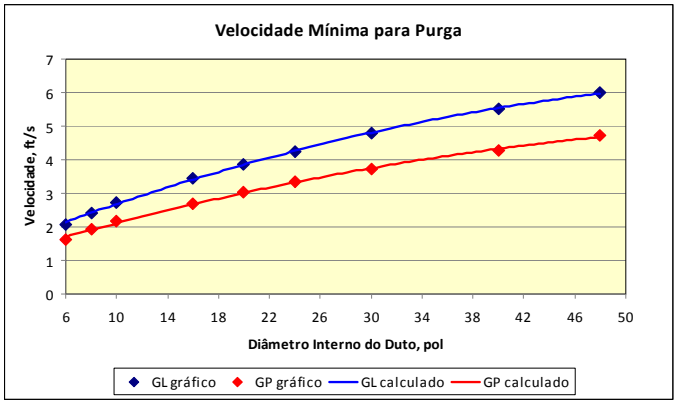
A referência {8} menciona para gasodutos os seguintes procedimentos típicos:

- Deslocamento do gás por ar formando mistura inflamável na interface;
- Deslocamento do gás por gás inerte até o enchimento total do duto;
- Deslocamento por ar com um volume tampão de gás inerte que impede o contato direto ar/gás evitando a formação de mistura inflamável.

Menciona que quanto maior a velocidade de purga maior a turbulência e, portanto menor a probabilidade de gerar um grande volume de mistura. Mostra um gráfico que dá a velocidade mínima durante a operação de purga em função do diâmetro interno do duto.

Esta velocidade mínima é para limitar a mistura de gases e criar um fluxo turbulento nas interfaces dos diferentes gases. Velocidades menores podem gerar mistura excessiva e estratificação. Evitar isto é primordial quando o ar está em contato com o gás inflamável como é o caso do primeiro procedimento.

Foram obtidos pontos das curvas para gases leves (GL, com G=0,5) e pesados (GP, com G=0,7) para o valor da velocidade mínima e geradas correlações que reproduzem os valores com boa precisão conforme pode ser visto na figura a seguir:




O programa VENTGAS analisa a purga do gás pelos dois últimos procedimentos considerando que o gás inerte utilizado é o nitrogênio.

### 9.1 DESLOCAMENTO DO DUTO POR GÁS INERTE

Para o enchimento total do duto com gás inerte a referência {8} menciona que a injeção rápida de um volume de gás inerte 10% a 50% maior do que o volume do trecho a ser deslocado garantirá o enchimento total da linha. Recomenda que a velocidade da operação seja maior que a mínima mostrada acima.

O programa VENTGAS calcula a velocidade mínima pela correlação desenvolvida para gás leve. A seguir calcula, com base em um modelo de escoamento isotérmico, a pressão mínima no interior do duto, no ponto de injeção oposto ao ponto de descarte para a atmosfera, para garantir esta velocidade mínima, considerando que todo o duto está cheio de gás inflamável, que a válvula de controle está toda aberta e que pressão manométrica no ponto de descarga é igual a zero. Esta pressão será muito baixa, próxima da pressão atmosférica. O volume mínimo de gás inerte necessário nas condições normais de temperatura e pressão (0°C e 1 atm), o tempo máximo para a injeção e a vazão de injeção mínima são calculados pelas seguintes equações:

$$Vol_{min} = 1{,}5\frac{\pi D^2 L}{4}\frac{273{,}15}{273{,}15+T}\frac{p_{min}+1{,}033}{1{,}033}$$

$$t_{max} = \frac{L}{3600 v_{min}}$$

$$Q_{min} = \frac{Vol_{min}}{t_{max}}$$

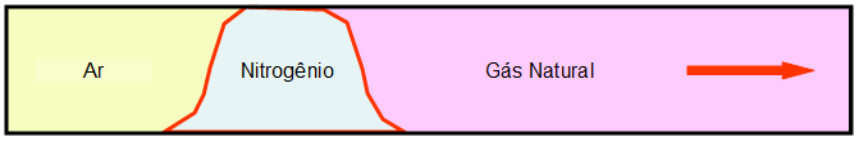
Nestas relações:

| | | | |
|---|---|---|---|
| $Vol_{min}$ | = | Volume mínimo de gás inerte | $Nm^3$ |
| D | = | Diâmetro interno do Duto | m |
| T | = | Temperatura do gás no Duto | °C |
| $p_{min}$ | = | Pressão mínima no início do Duto | $kgf/cm^2$ g |
| L | = | Comprimento do Duto | m |
| $t_{max}$ | = | Tempo máximo de injeção | h |
| $v_{min}$ | = | Velocidade mínima | m/s |
| $Q_{min}$ | = | Vazão mínima de injeção de gás inerte | $Nm^3/h$ |

## 9.2 DESLOCAMENTO POR AR COM VOLUME TAMPÃO DE GÁS INERTE

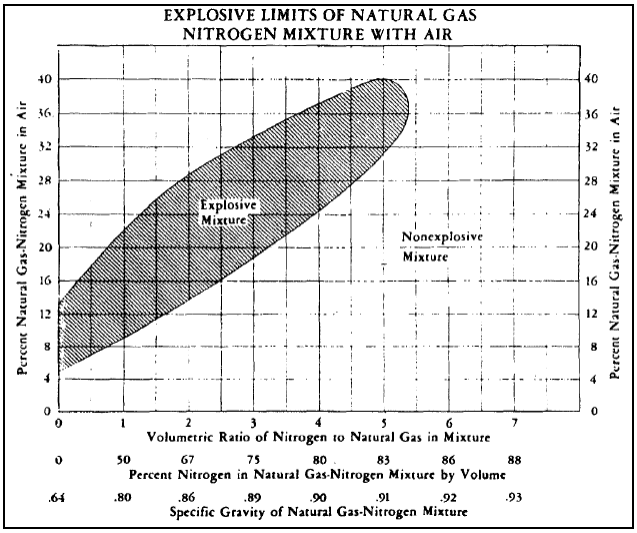
A referência {8} menciona que a formação de misturas inflamáveis durante a operação de purga pode ser evitada com gás inerte sem que seja necessário encher todo o trecho a ser purgado com este gás através da injeção de volume tampão entre o ar e o gás inflamável. Este volume tampão viaja ao longo do duto como uma massa separada evitando a mistura do gás inflamável com o ar. Menciona que para linhas curtas de grande diâmetro o volume tampão pode ser maior que o volume total da linha.

Também menciona que este volume tampão deve ocupar inicialmente um comprimento do duto suficientemente grande para permitir que ao término da operação ainda exista, pois durante todo o tempo de viagem ele se mistura com ar em uma ponta e com gás na outra, conforme mostra a figura a seguir:




Portanto, informa ser necessário estimar-se de que modo o tampão diminui ou se deteriora sob várias condições para determinar a quantidade de gás inerte necessária e a velocidade a ser mantida durante a operação de purga. Informa que o comprimento inicial do tampão para um dado diâmetro do duto depende primariamente do comprimento do duto a ser purgado e da

velocidade com que o tampão se move ao longo duto. Apresenta um gráfico do encurtamento do comprimento do tampão para alguns diâmetros operando na vazão mínima e tabela de volumes mínimos para o tampão em função do comprimento e do diâmetro do duto, incluindo um volume adicional equivalente ao enchimento de cerca de 30 m do duto para garantir que exista um volume finito do tampão ao final da operação de purga. Menciona ainda existir uma folga adicional pois misturas gás inflamável com nitrogênio com mais de 85% de nitrogênio não são inflamáveis para qualquer proporção em que seja misturadas com ar, conforme mostra a figura a seguir:




A referência {9} apresenta um modelo, com base na Lei de Fick para a difusão, para o cálculo da redução do comprimento do volume tampão, desde o início até o final da operação de purga. Menciona que este modelo foi calibrado com bases nos dados da tabela da referência {8} acima mencionada, em dados publicados da operação de gaseificação de diversos trechos do gasoduto Bolívia-Brasil e nos dados da gaseificação de um gasoduto dentre a Rússia e a Alemanha. A equação final deste modelo é:

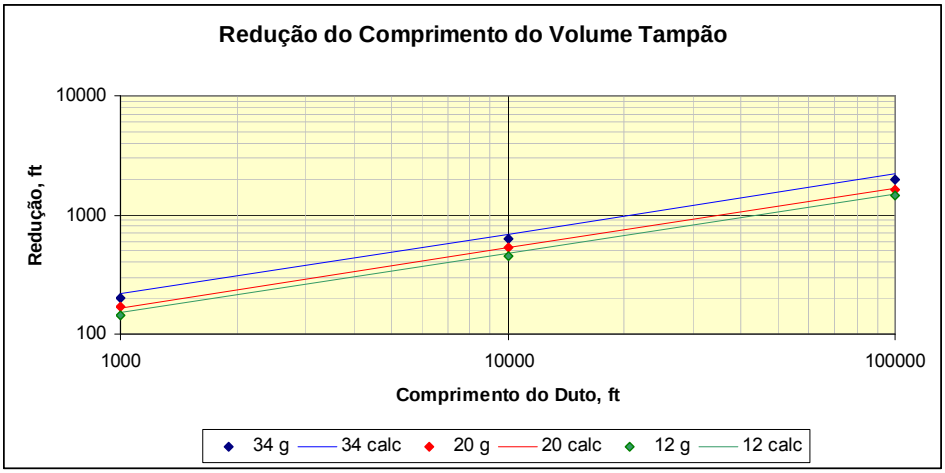
$$LS = 18{,}4K\sqrt{\frac{C_D L}{v}}$$

onde:

| | | | |
|---|---|---|---|
| LS | = | Redução do comprimento do tampão | m |
| K | = | Fator de calibração do modelo = 4,8 | adimensional |
| $C_D$ | = | Coeficiente de dispersão longitudinal | $m^2/s$ |
| L | = | Comprimento do Duto | m |
| v | = | Velocidade de purga | m/s |

Os valores de $C_D$ foram calculados para os diversos diâmetros estudados, entre 16 e 48 pol, e apresentados em diversas tabelas. Com estes valores tabelados foi desenvolvida uma correlação de $C_D$ em função do diâmetro.

Com esta correlação e com a que foi desenvolvida para a velocidade mínima mencionada acima, foram calculados 9 pontos para o valor da redução do comprimento do volume tampão com o objetivo de comparação com o gráfico da referência {8}, considerando-se que a operação se deu na velocidade mínima. A figura a seguir mostra os valores calculados e os pontos obtidos do gráfico, podendo ser visto que se obteve uma concordância dentro de variações aceitáveis e sempre do lado da segurança.




O programa VENTGAS calcula a velocidade mínima pela correlação desenvolvida para gás leve. A seguir calcula o coeficiente de dispersão longitudinal pela correlação desenvolvida. Com estes valores calcula a redução do comprimento do volume tampão (LS). Depois, com base em um modelo de escoamento isotérmico, calcula a pressão mínima no interior do duto, no ponto de injeção oposto ao ponto de descarte para a atmosfera, para garantir esta velocidade mínima, considerando que todo o duto está cheio de gás inflamável, que a válvula de controle está toda aberta e que pressão manométrica no ponto de descarga é igual a zero. Esta pressão será muito baixa, próxima da pressão. Após calcula o volume mínimo de gás inerte necessário nas condições normais de temperatura e pressão (0°C e 1 atm) para a formação do volume tampão, o tempo para a injeção do volume tampão no duto e a vazão de injeção mínima pelas seguintes equações:

$$t_{inj} = \frac{LS + 30}{60 v_{\min}}$$

$$Vol_{\min} = \frac{\pi D^2 (LS + 30)}{4} \frac{273{,}15}{273{,}15 + T} \frac{p_{\min} + 1{,}033}{1{,}033}$$

$$Q_{\min} = \frac{Vol_{\min}}{t_{inj}}$$

Nestas relações:

| | | | |
|---|---|---|---|
| $Vol_{min}$ | = | Volume mínimo de gás inerte | $Nm^3$ |
| D | = | Diâmetro interno do Duto | m |
| T | = | Temperatura do gás no Duto | °C |
| $p_{min}$ | = | Pressão mínima no início do Duto | $kgf/cm^2$ g |
| L | = | Comprimento do Duto | m |
| tinj | = | Tempo de injeção do volume tampão | min |
| $v_{min}$ | = | Velocidade mínima da operação de purga | m/s |
| $Q_{min}$ | = | Vazão mínima de injeção de gás inerte | $Nm^3/h$ |

## 10.0 REFERÊNCIAS BIBLIOGRÁFICAS

[1] Borges, P.R., "*Propriedades Termodinâmicas do Gás Natural*", Documento interno, Petróleo Brasileiro S.A.- Petrobras, Rio de Janeiro, 2003.

[2] Borges, P.R., "*Dimensionamento Termo-Hidráulico de Gasodutos*", Documento interno, Petróleo Brasileiro S.A.- Petrobras, Rio de Janeiro, 2007.

[3] MacLean, M, Ph.D., *"Detailed Derivation of Fanno Flow Relationships",* Version 1.1, October 2013, obtido na Internet.

[4] Technical Paper N° 410, "*Flow of Fluids Through Valves, Fittings and Pipe*", Engineering Division, Crane Company, 1957.

[5] API Recommended Practice 520, "*Sizing, Selection, and Installation Of Pressure-Relieving Devices in Refineries- Part II-Installation*", American Petroleum Institute- 4ª edição, Dezembro 1994.

[6] Barron R.F., "*Industrial Noise Control and Acoustics*", Marcel Dekker, Inc., New York, 2003.

[7] API Recommended Practice 521, "*Guide for Pressure-Relieving and Depressuring Systems*", American Petroleum Institute- 4ª edição, Março 1997.

[8] AGA Report No. XK0101, "*Purging Principles and Practice*" American Gas Association, 3ª edição, Washington, June 2001.

[9] Terenzi, A. et alli, "*Nord Stream dry air purge improves nitrogen-slug use*", Oil & Gas Journal, 10/07/2013.

## 11.0 PROGRAMA VENTGAS

O Programa **VENTGAS** é uma Planilha EXCEL 2003 para a simulação da operação de despressurização de gasodutos. As macros proprietárias utilizadas foram desenvolvidas em Visual Basic do EXCEL 2003 e estão protegidas por senha contra visualização e alterações. Todas as guias e gráficos da planilha são protegidos por senha para evitar alterações.

A guia Entrada permite informar os dados para a operação a ser simulada. Somente as células marcadas em azul permitem alteração dos dados. As unidades das variáveis de entrada estão indicadas. Na mesma guia está o botão que inicia o cálculo.

A guia Inicial mostra os resultados detalhados ao longo da linha de blowdown no instante zero da simulação. São gerados, em função do comprimento da linha de blowdown, os seguintes gráficos:

- Número de Mach;
- Velocidade do gás;
- Pressão manométrica do gás;
- Temperatura do gás;
- Densidade do gás.

A guia Transiente mostra os resultados do transiente para algumas variáveis importantes para o entendimento da simulação, para cada 5 cálculos efetuados (dt=12 s para cada cálculo) ao longo do tempo do transiente. São gerados, em função do tempo, os seguintes gráficos:

- Vazão volumétrica de gás nas condições básicas (no duto e na linha de blowdown);
- Pressão manométrica do gás (início e final do gasoduto sendo despressurizado);

- Inventário de gás no gasoduto;
- Pressão manométrica do gás na saída da válvula de controle;
- Porcentagem de abertura da válvula de controle;
- Relação entre as pressões absolutas de saída e de entrada na válvula de controle;
- Temperatura do gás (saída da válvula de controle e saída para a atmosfera);
- Pressão manométrica do gás na saída para a atmosfera conjugado ao do Número de Mach neste ponto;
- Força de reação na extremidade de descarga para a atmosfera;
- Ruído (na descarga para a atmosfera, na válvula de controle e sua combinação no ponto de observação);
- Dispersão do gás na atmosfera (distâncias vertical, horizontal e axial aos limites de inflamabilidade).
- Número de Mach (inicio da linha de blowdown, saída da válvula de controle e saída para a atmosfera);

A guia Resumo contém informações gerais sobre a simulação efetuada e os resultados da análise da purga do gás remanescente no duto despressurizado. Nesta guia está o botão que imprime todas as guias e todos os gráficos.

## 12.0 SUBREGIMES NA LINHA DE BLOWDOWN E SUA SOLUÇÃO

### 12.1 CONTROLE DA PRESSÃO DE SAÍDA DA VALVULA DE CONTROLE

Quando a pressão de saída da válvula de controle for a variável controlada podem ocorrer os seguintes sub-regimes no escoamento da linha de blowdown durante a simulação da operação de despressurização dependendo dos valores de entrada da simulação:

A. Sônico na saída para a atmosfera (M=1), com controle de pressão na saída da válvula (P saída da válvula = P de controle) e com pressão constante, maior ou igual a zero, na saída para a atmosfera;
B. Subsônico na saída para a atmosfera (M<1), com controle de pressão na saída da válvula (P saída da válvula = P de controle) e com pressão constante, maior ou igual a zero, na saída para a atmosfera;
C. Sônico na saída para a atmosfera (M=1), sem controle de pressão (P saída da válvula < P de controle), com pressão decrescente, maior que zero, na saída para a atmosfera;
D. Subsônico na saída para a atmosfera (M<1), sem controle de pressão (P saída da válvula < P de controle), com pressão igual a zero na saída para a atmosfera.

Os sub-regimes A e B são normalmente os iniciais de uma operação de despressurização e são mutuamente exclusivos, pois dependem apenas da pressão de controle ser capaz ou não de permitir que o gás atinja o escoamento sônico na saída para a atmosfera. Notar que o sub-regime C pode ocorrer no início da operação se as condições obrigarem que a válvula de controle esteja totalmente aberta. O sub-regime D sempre é o final de uma operação de despressurização.

Estando-se inicialmente no sub-regime A, com a continuidade da operação de despressurização, deste passa-se para o sub-regime C, quando a válvula atinge o CV máximo, totalmente aberta, ou quando a pressão de entrada na válvula for menor que a pressão de

controle. Deste passa-se ao sub-regime D quando a pressão de saída da válvula é incapaz de manter o escoamento sônico na saída para a atmosfera.

Estando-se inicialmente no sub-regime B, com a continuidade da operação de despressurização, deste passa-se para o sub-regime D, quando a válvula atinge o CV máximo, totalmente aberta ou quando a pressão de entrada na válvula for menor que a pressão de controle.

## 12.2 CONTROLE DA VAZÃO DE BLOWDOWN

Quando a vazão for a variável controlada podem ocorrer os seguintes sub-regimes no escoamento da linha de blowdown durante a simulação da operação de despressurização dependendo dos valores de entrada da simulação:

E. Sônico na saída para a atmosfera (M=1), com controle de vazão (Q da válvula = Q de controle) e com pressão crescente, maior ou igual a zero, na saída para a atmosfera;
F. Subsônico na saída para a atmosfera (M<1), com controle de vazão (Q da válvula = Q de controle) e com pressão constante igual a zero, na saída para a atmosfera;
G. Sônico na saída para a atmosfera (M=1), sem controle de vazão (Q da válvula < Q de controle), com pressão decrescente, maior que zero, na saída para a atmosfera;
H. Subsônico na saída para a atmosfera (M<1), sem controle de vazão (Q da válvula < Q de controle), com pressão igual a zero na saída para a atmosfera.

Os sub-regimes E e F são normalmente os iniciais de uma operação de despressurização e são mutuamente exclusivos, pois dependem apenas da pressão na saída da válvula de controle para se obter a vazão de controle ser capaz ou não de permitir que o gás atinja o escoamento sônico na saída para a atmosfera. Notar que o sub-regime G pode ocorrer no início da operação se as condições obrigarem que a válvula de controle esteja totalmente aberta. O sub-regime H sempre é o final de uma operação de despressurização.

Estando-se inicialmente no sub-regime E, com a continuidade da operação de despressurização, deste passa-se para o sub-regime G, quando a válvula atinge o CV máximo, totalmente aberta. Deste passa-se ao sub-regime H quando a pressão de saída da válvula é incapaz de manter o escoamento sônico na saída para a atmosfera.

Estando-se inicialmente no sub-regime F, com a continuidade da operação de despressurização, passa-se para o sub-regime H, quando a válvula atinge o CV máximo, totalmente aberta.

## 12.3 CONTROLE DO NÚMERO DE MACH NA SAÍDA PARA A ATMOSFERA

Quando o Número de Mach na descarga para a atmosfera for a variável controlada podem ocorrer os seguintes sub-regimes no escoamento da linha de blowdown durante a simulação da operação de despressurização dependendo dos valores de entrada da simulação:

I. Subsônico na saída para a atmosfera (M<1), com controle do Número de Mach (M descarga = M de controle) e com pressão constante igual a zero, na saída para a atmosfera;
J. Subsônico na saída para a atmosfera (M<1), sem controle do Número de Mach (M descarga < M de controle), com pressão igual a zero na saída para a atmosfera.

O sub-regime I é normalmente o inicial da operação de despressurização. Notar que o sub-regime J pode ocorrer no início da operação se as condições obrigarem que a válvula de controle esteja totalmente aberta. O sub-regime J sempre é o final de uma operação de despressurização. Estando-se inicialmente no sub-regime I, com a continuidade da operação de despressurização, passa-se para o sub-regime J, quando a válvula atinge o CV máximo, totalmente aberta.

## 12.4 ABERTURA DA VÁLVULA CONSTANTE OU ESCALONADA

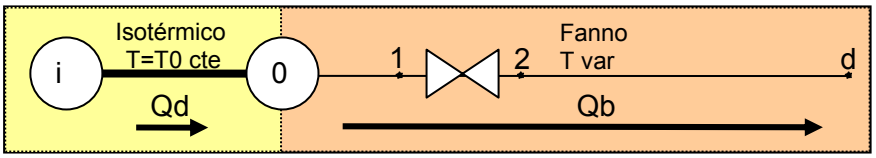
Quando a abertura da válvula de controle é constante durante toda a operação de despressurização ou quando for escalonada em patamares crescentes com tempos definidos de duração podem ocorrer os seguintes sub-regimes no escoamento da linha de blowdown durante a simulação da operação de despressurização dependendo dos valores de entrada da simulação:

K. Sônico na saída para a atmosfera (M=1), com pressão decrescente, maior que zero, na saída para a atmosfera;
L. Subsônico na saída para a atmosfera (M<1), com pressão igual a zero na saída para a atmosfera.

Dependendo das condições qualquer um desses sub-regimes pode ser o inicial da operação de despressurização. O sub-regime L sempre é o final de uma operação de despressurização. No caso de abertura escalonada crescente pode-se passar do sub-regime L para o sub-regime K e depois voltar ao sub-regime L existindo mais de uma transição Escoamento Sônico /Escoamento Subsônico (TSS) na saída para a atmosfera.

## 12.5 SOLUÇÃO

A figura a seguir mostra o duto e a linha de blowdown identificando os pontos onde as variáveis são dadas ou calculadas e os modelos de escoamento utilizados na análise da operação de despressurização:




A tabela a seguir identifica para cada tipo de controle e sub-regime quais as variáveis dadas (D), quais as variáveis calculadas (C) e o valor ou faixa de valores das variáveis, quando for o caso:

| Tipo de controle | Sub Regime | Vazão | | Duto | | | | Válvula | | | | | | | Descarga | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qd | Qb | Pi | P0 | T0 | M0 | P1 | T1 | M1 | P2 | T2 | M2 | % ab | Pd | Td | Md |
| P2 | A | C | **C** | D | D | D | C | C | C | C | D | C | C | C | C | C | 1 |
| | B | C | C | D | D | D | C | C | C | C | **D** | C | C | C | zero | C | **0 a 1** |
| | C | C | **C** | D | D | D | C | C | C | C | **C** | C | C | C | C | C | 1 |
| | D | C | C | D | **D** | D | C | C | C | C | C | C | C | C | zero | C | **0 a 1** |
| Qb | E | C | **D** | D | D | D | C | C | C | C | **C** | C | C | C | C | C | 1 |
| | F | C | **D** | D | D | D | C | C | C | C | C | C | C | C | zero | C | **0 a 1** |
| | G | C | **C** | D | D | D | C | C | C | C | **C** | C | C | C | C | C | 1 |
| | H | C | C | D | **D** | D | C | C | C | C | C | C | C | C | zero | C | **0 a 1** |
| Md | I | C | C | D | **D** | D | C | C | C | C | C | C | C | **C** | C | C | D |
| | J | C | C | D | **D** | D | C | C | C | C | C | C | C | C | zero | C | **0 a 1** |
| % abert | K | C | C | D | D | D | C | C | C | C | C | C | C | D | C | C | 1 |
| | L | C | C | D | **D** | D | C | C | C | C | C | C | C | D | zero | C | **0 a 1** |

Na tabela as variáveis marcadas em **Azul** são as variáveis resolvidas pelo método de bi-secção, entre um valor máximo e mínimo, e em **Rosa** a variável utilizada para a convergência do método. Quando esta ultima for a vazão a tolerância de convergência é 1 $Pm^3$ (20°C e 1 atm) e quando for uma pressão a tolerância de convergência é 0,0001 $kgf/cm^2$. Notar que o sub-regime A é calculado por substituição quando os valores de uma iteração são usados na próxima. Também notar que o sub-regime K é resolvido diretamente, sem iteração, por substituição da válvula de controle por um trecho de tubo equivalente.

Quando a variável de convergência for uma variável com valor dado calcula-se o valor de uma variável auxiliar do mesmo tipo e compara-se com o valor dado, iterando-se até que o valor absoluto da diferença seja menor que a tolerância.

Quando a variável de convergência for uma variável calculada comparam-se os valores calculados em duas iterações sucessivas, iterando-se até que o valor absoluto da diferença entre eles seja menor que a tolerância.

Quando a variável resolvida pelo método de bi-secção for P2 o valor máximo é a pressão P1 calculada e quando for a porcentagem de abertura da válvula o valor máximo é 100%. Nos dois casos o valor mínimo é zero.

Em cada instante de cálculo os dois modelos de escoamento são resolvidos e são calculadas as variáveis indicadas na tabela. O fator de fricção é avaliado em um ponto da linha de blowdown e considerado constante para toda a linha. No tempo igual a zero calcula-se as variáveis em pontos distribuídos ao longo da linha de blowdown. Após passa-se à impressão dos resultados. No tempo igual a zero na guia Inicial e na guia Transiente e depois somente na guia Transiente.

No final da saída de resultados calcula-se a variação de pressão nos nós para o próximo instante de cálculo, aumenta-se o tempo e reinicia-se o processo no subregime adequado em um loop até que a pressão manométrica no final do duto a ser despressurizado seja menor que 0,001 $kg/cm^2$ g. Ao final da simulação na guia Resumo são impressas informações que dão uma visão geral sucinta da simulação efetuada.

São automaticamente gerados os gráficos para o instante inicial e para o transiente pelos valores de saída nas guias Inicial e Transiente. Nestes últimos são mostrados os tempos onde ocorrem: a transição Fluxo Choked/Fluxo Não Choked; a transição Com Controle/Sem Controle na válvula de controle e a transição Escoamento Sônico/Escoamento Subsônico na saída para a atmosfera. Notar que se o tipo de controle for por abertura da válvula de controle constante ou escalonada pode existir mais de uma transição Escoamento Sônico/Escoamento Subsônico na saída para a atmosfera e o programa sempre mostra apenas a última.

Notar que restará um inventário morto de gás no interior do duto a ser despressurizado, que é avaliado com todo ele na pressão manométrica igual a zero. Este valor é mostrado no Resumo. Ao final da simulação o programa VENTGAS analisa sua purga por injeção de nitrogênio (enchimento total do duto a ser despressurizado ou apenas injeção de volume tampão). Os resultados são apresentados na guia Resumo.

## 13.0 EXEMPLOS DE ENTRADA E SAÍDAS

As páginas a seguir mostram a simulação para um mesmo duto e linha de blowdown considerando as quatro diferentes opções de controle, com a entrada e as saídas do programa:

# EXEMPLO 1

# CONTROLE DE PRESSÃO

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**PROGRAMA VENTGAS - Versão 1 - ENTRADA DE DADOS** **CASO** **1**

## GASODUTO

| | | |
|---|---|---|
| Pressão Manométrica Inicial | 80 | kgf/cm2 g |
| Temperatura | 25 | °C |
| Diâmetro Nominal | 24 | pol |
| Comprimento | 30 | km |

## GÁS

| | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |

## VÁLVULA DE CONTROLE

| | | | | |
|---|---|---|---|---|
| Tipo de Válvula | 2 | 1:Esfera, 2: Igual % | | |
| CV Totalmente Aberta | 1080 | | | |
| Tipo de Controle | 1 | 1: P, 2:Q, 3:%Ab, 4:M | | |
| Pressão de Controle | 10 | kgf/cm2 g | [1] | Usado |
| Vazão de Controle | 3000 | mil Pm3/dia | [2] | Não Usado |
| % Abertura Inicial | 10 | % | [3] | Não Usado |
| % Abertura Final | 90 | % | [3] | Não Usado |
| Tempo de Abertura Total | 160 | min | [3] | Não Usado |
| Número de Incrementos | 8 | > 0 | [3] | Não Usado |
| Número de Mach na Saída | 0,8 | 0< M <=1 | [4] | Não Usado |

## LINHA DE BLOWDOWN

| | | |
|---|---|---|
| Comprimento antes da válvula | 10 | m |
| Comprimento depois da válvula | 150 | m |
| Diâmetro | 8 | pol |

## OBSERVADOR (Ruído)

| | | |
|---|---|---|
| Distância para a válvula | 10 | m |
| Distancia Horizontal até eixo da Descarga | 50 | m |
| Distância Vertical até a base da Descarga | 0 | m |
| Altura da Descarga | 2 | m |

## DISPERSÃO

| | | |
|---|---|---|
| Velocidade do Ar | 10 | km/h |

Roncada Consultoria

# PROGRAMA VENTGAS - Versão 1 -- RESUMO DA SIMULAÇÃO

| CASO | 1 | |
|---|---|---|

Pm3 @ 20°C e 1 atm

| GASODUTO | 3 | |
|---|---|---|
| Diâmetro, pol | 24 | |
| Comprimento, km | 30,000000 | |
| Pressão Manométrica Inicial, kgf/cm2 g | 80 | |
| Pressão Manométrica Final, kgf/cm2 g | 9,731E-05 | |
| Temperatura, °C | 25 | |
| Inventário Inicial, t | 570,44373 | |
| Inventário Final, t | 6,0448289 | 0,02% |
| Inventário Morto,t | 6,0436096 | |

| GÁS | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |
| Cp/Cv | 1,2833754 | |
| Pressão Crítica, kgf/cm2 abs | 47,142502 | |
| Temperatura Crítica, °C | 202,42756 | |
| Densidade @ 20°C e 1 atm, kg/Pm3 | 0,746294 | |
| Viscosidade Inicial, cst | 0,0175711 | |
| Coef Joule-Thompson Inicial, °C/(kgf/cm2) | 0,398179 | |

| VÁLVULA DE CONTROLE | | |
|---|---|---|
| Tipo | Igual % | |
| Tipo de Controle | P | |
| Pressão de Controle, kgf/cm2 g | 10 | |
| CV Totalmente Aberta | 1080 | |
| CV inicial | 109,87978 | |
| Abertura Inicial, % | 50,374701 | |
| Abertura Final, % | 100 | |
| Pout/ Pin Crítica, % | 54,875013 | |

| LINHA DE BLOWDOWN | | |
|---|---|---|
| Diãmetro, pol | 8 | |
| Comprimento antes da válvula, m | 10 | |
| Comprimento depois da válvula, m | 150 | (com acessórios) |
| Vazão Inicial, mil Pm3/dia | 3159,1013 | |
| Vazão Final, mil Pm3/dia | 4,5255351 | |
| Pressão Inicial na Saída, kgf/cm2 g | 1,4466622 | |
| Temperatura Inicial na Saída, °C | -34,487438 | |
| Força Máxima, kgf | 1454,7341 | |

| TEMPOS ESTIMADOS | | |
|---|---|---|
| Escoamento com Controle, min | 308,4 | TCC |
| Escoamento sem Controle, min | 153 | |
| Tempo total, min | 461,4 | |
| | | |
| Fluxo Choked na Válvula, min | 277,8 | TCV |
| Fluxo Não Choked na Válvula, min | 183,6 | |
| Tempo total, min | 461,4 | |
| | | |
| Escoamento Sônico na Saída, min | 352,4 | TSS |
| Escoamento Subsônico na Saída, min | 109 | |
| Tempo total, min | 461,4 | |

| DISPERSÃO | Mínima | Máxima |
|---|---|---|
| Distância Vertical ao LII, m | 3,6463 | 40,66309 |
| Distância Horizontal ao LII,m | 4,80707 | 10,89893 |
| Distância Axial ao LII, m | 6,583771 | 42,26911 |
| Distância Axial ao LIS, m | 2,523604 | 19,37054 |
| Tempo sem Análise no Final, min | 11,4 | 2,47% |

| RUÍDO MÁXIMO | |
|---|---|
| Descarga para a Atmosfera, dBA | 132,2209 |
| Valvula de Controle, dBA | 124,848 |
| Total, dBA | 132,9511 |

| PURGA COM N2 | |
|---|---|
| Pressão Mínima de Injeção, kgj/cm2 g | 0,007935 |
| Velocidade Mínima, m/s | 1,299559 |

| Deslocamento Total | |
|---|---|
| Volume de N2, Nm3 (50% folga) | 11379,03 |
| Tempo Máximo, h | 6,412431 |
| Vazão Mínima de N2, Nm3/h | 1774,527 |

| Volume Tampão | |
|---|---|
| Volume do Tampão de N2, Nm3 (30 m de folga) | 141,7061 |
| Tempo Injeção Tampão, min | 7,187015 |
| Vazão Mínima de N2, Nm3/h | 1281,45 |

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**PROGRAMA VENTGAS - Versão 1 -- CONDIÇÃO INICIAL** **CASO** **1** Pm3 @ 20°C e 1 atm

| Trecho | | Gasoduto | Tubo | Válvula | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lequiv | m | 30000 | 10 | | 75 | 37,5 | 18,75 | 9,375 | 4,6875 | 2,34375 | 2,34375 |
| Ponto | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| D | pol | 24 | 8 | | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| x | m | 0 | 10 | 10 | 85 | 122,5 | 141,25 | 150,625 | 155,3125 | 157,65625 | 160 |
| fL/D | | | 0,693815238 | | 5,203614284 | 2,601807142 | 1,300903571 | 0,650451786 | 0,325225893 | 0,162612946 | 0,162612946 |
| M | | 0,031687384 | 0,031701575 | 0,239177108 | 0,313214302 | 0,397852898 | 0,488380432 | 0,578804016 | 0,663406372 | 0,738037109 | 1 |
| P | kgf/cm2 g | 80 | 79,96372045 | 10 | 7,36792363 | 5,553086653 | 4,302692349 | 3,439644691 | 2,841816362 | 2,425951159 | 1,446662241 |
| T | °C | 25 | 24,999962 | -2,862664529 | -4,407419219 | -6,648797832 | -9,579189893 | -13,01959909 | -16,6657108 | -20,19428338 | -34,48743793 |
| ro | kg/m3 | 69,42059403 | 69,38952235 | 8,949323083 | 6,853506343 | 5,418143882 | 4,438290604 | 3,76960248 | 3,312170028 | 2,997934893 | 2,277878189 |
| v | m/s | 12,17865993 | 12,18411337 | 94,47081073 | 123,3601845 | 156,0404865 | 190,4899617 | 224,2808921 | 255,2555575 | 282,0107298 | 371,1567243 |
| ro*v | kg/(m2.s) | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 | 845,4498071 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Qb | mil Pm3/dia | 3159,101342 | | CV | | 109,8797781 | | YLI | m | 40,66308804 | |
| W | t/dia | 2357,618377 | | % abertura | % | 50,3747009 | | XLI | m | 10,89893063 | |
| Re | | 391742,7609 | | | | | | SLI | m | 42,26911338 | |
| f | | 0,014064842 | | Ruído Descarga | dbA | 132,2208538 | | SLS | m | 19,37054262 | |
| vsom | m/s | 384,3378115 | | Ruído Válvula | dbA | 124,8480323 | | | | | |
| Inventario | mil Pm3 | 764,3686374 | | Ruído Total | dBA | 132,951114 | | Força | kgf | 1454,734077 | |
| | t | 570,4437279 | | | | | | | | | |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 80 | 80 | 570,4437279 | 0 | 3159,101342 | 79,96372045 | 10 | 109,8797781 | 50,3747009 | -2,86266453 | 13,62153917 | 1,446662241 |
| 1 | 79,84607081 | 79,75719224 | 568,806714 | 1563,503535 | 3158,668302 | 79,72079468 | 10 | 110,1952141 | 50,43694887 | -2,79612723 | 13,66251585 | 1,446662241 |
| 2 | 79,64817873 | 79,55816059 | 567,169875 | 1577,641985 | 3158,31196 | 79,52166594 | 10 | 110,455151 | 50,48811091 | -2,74135131 | 13,69628919 | 1,446662241 |
| 3 | 79,44976567 | 79,35945875 | 565,5332213 | 1578,227517 | 3157,954975 | 79,32286626 | 10 | 110,7159003 | 50,53931202 | -2,68645559 | 13,73017368 | 1,446662241 |
| 4 | 79,25123391 | 79,16068312 | 563,8967533 | 1578,08745 | 3157,596632 | 79,12399201 | 10 | 110,9779976 | 50,59065646 | -2,63132969 | 13,76423905 | 1,446662241 |
| 5 | 79,05260471 | 78,9618113 | 562,2604718 | 1577,907023 | 3157,236891 | 78,92502137 | 10 | 111,2414845 | 50,64215102 | -2,57596745 | 13,79849052 | 1,446662241 |
| 6 | 78,85387871 | 78,76284152 | 560,6243776 | 1577,723679 | 3156,875753 | 78,72595181 | 10 | 111,5063756 | 50,69379722 | -2,5203684 | 13,83293003 | 1,446662241 |
| 7 | 78,65505541 | 78,56377313 | 558,9884713 | 1577,539484 | 3156,513222 | 78,5267845 | 10 | 111,7726797 | 50,74559538 | -2,46453333 | 13,86755893 | 1,446662241 |
| 8 | 78,45613426 | 78,36460556 | 557,3527536 | 1577,354553 | 3156,149297 | 78,32751646 | 10 | 112,040413 | 50,79754728 | -2,40846152 | 13,90237928 | 1,446662241 |
| 9 | 78,25711469 | 78,16533824 | 555,7172254 | 1577,168893 | 3155,783981 | 78,12814785 | 10 | 112,3095874 | 50,84965382 | -2,35215319 | 13,93739265 | 1,446662241 |
| 10 | 78,05799614 | 77,96597059 | 554,0818872 | 1576,982506 | 3155,417276 | 77,92867894 | 10 | 112,5802146 | 50,90191584 | -2,2956086 | 13,97260057 | 1,446662241 |
| 11 | 77,85877806 | 77,76650205 | 552,4467399 | 1576,79539 | 3155,049183 | 77,72910775 | 10 | 112,8523094 | 50,95433476 | -2,23882745 | 14,00800501 | 1,446662241 |
| 12 | 77,65945988 | 77,56693203 | 550,8117841 | 1576,607548 | 3154,679706 | 77,52943477 | 10 | 113,1258835 | 51,00691143 | -2,18181005 | 14,04360752 | 1,446662241 |
| 13 | 77,46004104 | 77,36725998 | 549,1770205 | 1576,41898 | 3154,308846 | 77,32965947 | 10 | 113,4009501 | 51,05964689 | -2,12455651 | 14,07940986 | 1,446662241 |
| 14 | 77,26052099 | 77,16748532 | 547,5424499 | 1576,229687 | 3153,936607 | 77,1297814 | 10 | 113,6775227 | 51,11254226 | -2,06706687 | 14,11541376 | 1,446662241 |
| 15 | 77,06089918 | 76,96760749 | 545,908073 | 1576,039669 | 3153,562988 | 76,92979909 | 10 | 113,9556157 | 51,16559883 | -2,00934099 | 14,15162119 | 1,446662241 |
| 16 | 76,86117504 | 76,76762591 | 544,2738905 | 1575,848927 | 3153,187992 | 76,72971239 | 10 | 114,2352427 | 51,21881765 | -1,95137902 | 14,18803391 | 1,446662241 |
| 17 | 76,66134803 | 76,56754001 | 542,6399031 | 1575,65746 | 3152,811623 | 76,52952122 | 10 | 114,5164166 | 51,27219972 | -1,89318117 | 14,22465364 | 1,446662241 |
| 18 | 76,46141758 | 76,36734924 | 541,0061116 | 1575,465272 | 3152,433881 | 76,3292245 | 10 | 114,7991525 | 51,32574633 | -1,83474737 | 14,26148236 | 1,446662241 |
| 19 | 76,26138314 | 76,16705303 | 539,3725165 | 1575,272361 | 3152,054769 | 76,12882133 | 10 | 115,0834649 | 51,37945867 | -1,7760776 | 14,298522 | 1,446662241 |
| 20 | 76,06124417 | 75,9666508 | 537,7391187 | 1575,078729 | 3151,674292 | 75,92831206 | 10 | 115,3693671 | 51,43333773 | -1,71717218 | 14,33577431 | 1,446662241 |
| 21 | 75,86100011 | 75,766142 | 536,1059188 | 1574,884377 | 3151,292446 | 75,72769479 | 10 | 115,6568753 | 51,48738497 | -1,65803082 | 14,37324145 | 1,446662241 |
| 22 | 75,66065041 | 75,56552606 | 534,4729175 | 1574,689303 | 3150,909238 | 75,52697016 | 10 | 115,9460028 | 51,54160128 | -1,59865394 | 14,41092516 | 1,446662241 |
| 23 | 75,46019452 | 75,36480242 | 532,8401157 | 1574,49351 | 3150,52467 | 75,32613777 | 10 | 116,2367642 | 51,5959878 | -1,53904168 | 14,44882737 | 1,446662241 |
| 24 | 75,25963189 | 75,16397052 | 531,2075138 | 1574,296999 | 3150,138742 | 75,12519623 | 10 | 116,5291758 | 51,65054597 | -1,47919385 | 14,48695025 | 1,446662241 |
| 25 | 75,05896197 | 74,96302978 | 529,5751127 | 1574,099769 | 3149,751457 | 74,92414431 | 10 | 116,823254 | 51,70527716 | -1,41911039 | 14,52529594 | 1,446662241 |
| 26 | 74,85818422 | 74,76197966 | 527,9429131 | 1573,901821 | 3149,362819 | 74,72298313 | 10 | 117,1190116 | 51,76018216 | -1,35879185 | 14,56386617 | 1,446662241 |
| 27 | 74,65729808 | 74,5608196 | 526,3109156 | 1573,703157 | 3148,97283 | 74,52171171 | 10 | 117,4164652 | 51,81526231 | -1,2982382 | 14,60266309 | 1,446662241 |
| 28 | 74,45630302 | 74,35954902 | 524,679121 | 1573,503777 | 3148,58149 | 74,32032818 | 10 | 117,7156323 | 51,87051921 | -1,23744917 | 14,64168905 | 1,446662241 |
| 29 | 74,25519849 | 74,15816737 | 523,04753 | 1573,303681 | 3148,188806 | 74,11883403 | 10 | 118,0165261 | 51,92595357 | -1,17642544 | 14,68094577 | 1,446662241 |
| 30 | 74,05398394 | 73,9566741 | 521,4161431 | 1573,102871 | 3147,794775 | 73,9172266 | 10 | 118,319166 | 51,98156721 | -1,11516649 | 14,72043582 | 1,446662241 |
| 31 | 73,85265883 | 73,75506864 | 519,7849613 | 1572,901347 | 3147,399404 | 73,71550664 | 10 | 118,6235649 | 52,0373608 | -1,05367312 | 14,7601611 | 1,446662241 |
| 32 | 73,65122262 | 73,55335044 | 518,153985 | 1572,699109 | 3147,002691 | 73,51367376 | 10 | 118,9297437 | 52,09333638 | -0,99194459 | 14,80012379 | 1,446662241 |
| 33 | 73,44967476 | 73,35151894 | 516,5232151 | 1572,496159 | 3146,604644 | 73,31172699 | 10 | 119,2377156 | 52,14949458 | -0,92998176 | 14,8403262 | 1,446662241 |
| 34 | 73,24801473 | 73,14957359 | 514,8926522 | 1572,292496 | 3146,20526 | 73,10966428 | 10 | 119,5474996 | 52,20583709 | -0,86778431 | 14,88077088 | 1,446662241 |
| 35 | 73,04624197 | 72,94751382 | 513,262297 | 1572,088123 | 3145,804544 | 72,90748782 | 10 | 119,8591136 | 52,2623653 | -0,80535229 | 14,92145957 | 1,446662241 |
| 36 | 72,84435594 | 72,74533909 | 511,6321502 | 1571,883039 | 3145,402499 | 72,70519499 | 10 | 120,1725736 | 52,31908033 | -0,74268606 | 14,962395 | 1,446662241 |
| 37 | 72,64235612 | 72,54304884 | 510,0022125 | 1571,677246 | 3144,999127 | 72,50278625 | 10 | 120,4878974 | 52,37598351 | -0,67978576 | 15,00357929 | 1,446662241 |
| 38 | 72,44024195 | 72,34064251 | 508,3724846 | 1571,470742 | 3144,594432 | 72,30026124 | 10 | 120,8051025 | 52,43307614 | -0,61665156 | 15,04501479 | 1,446662241 |
| 39 | 72,23801291 | 72,13811956 | 506,7429671 | 1571,263531 | 3144,188413 | 72,09761772 | 10 | 121,1242098 | 52,49036006 | -0,55328309 | 15,08670423 | 1,446662241 |
| 40 | 72,03566847 | 71,93547944 | 505,1136608 | 1571,055613 | 3143,781075 | 71,89485666 | 10 | 121,4452353 | 52,54783626 | -0,4896809 | 15,12864974 | 1,446662241 |
| 41 | 71,83320807 | 71,73272158 | 503,4845662 | 1570,846986 | 3143,372422 | 71,69197721 | 10 | 121,7681966 | 52,60550593 | -0,42584535 | 15,17085384 | 1,446662241 |
| 42 | 71,6306312 | 71,52984544 | 501,8556842 | 1570,637654 | 3142,962454 | 71,48897949 | 10 | 122,093116 | 52,66337111 | -0,36177589 | 15,21331888 | 1,446662241 |
| 43 | 71,42793732 | 71,32685048 | 500,2270154 | 1570,427616 | 3142,551174 | 71,28586107 | 10 | 122,4200111 | 52,72143294 | -0,29747295 | 15,25604778 | 1,446662241 |
| 44 | 71,22512589 | 71,12373613 | 498,5985604 | 1570,216874 | 3142,138587 | 71,08262349 | 10 | 122,7488994 | 52,77969257 | -0,232937 | 15,29904266 | 1,446662241 |
| 45 | 71,02219639 | 70,92050185 | 496,9703199 | 1570,005427 | 3141,724692 | 70,87926453 | 10 | 123,0798032 | 52,83815188 | -0,16816768 | 15,34230645 | 1,446662241 |
| 46 | 70,81914828 | 70,7171471 | 495,3422946 | 1569,793276 | 3141,309496 | 70,67578419 | 10 | 123,4127401 | 52,89681197 | -0,10316555 | 15,38584167 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 70,61598103 | 70,51367132 | 493,7144852 | 1569,580424 | 3140,892997 | 70,47218242 | 10 | 123,7477337 | 52,95567493 | -0,03793009 | 15,42965087 | 1,446662241 |
| 48 | 70,41269413 | 70,31007397 | 492,0868924 | 1569,366868 | 3140,475202 | 70,26845864 | 10 | 124,0848 | 53,01474148 | 0,027537723 | 15,47373674 | 1,446662241 |
| 49 | 70,20928703 | 70,1063545 | 490,4595168 | 1569,152611 | 3140,056111 | 70,06461132 | 10 | 124,4239629 | 53,0740137 | 0,09323836 | 15,51810222 | 1,446662241 |
| 50 | 70,00575921 | 69,90251237 | 488,8323591 | 1568,937654 | 3139,635729 | 69,86064107 | 10 | 124,7652413 | 53,13349277 | 0,159171306 | 15,56274982 | 1,446662241 |
| 51 | 69,80211015 | 69,69854703 | 487,2054199 | 1568,721997 | 3139,214058 | 69,65654675 | 10 | 125,1086573 | 53,19318038 | 0,225336574 | 15,60768247 | 1,446662241 |
| 52 | 69,59833932 | 69,49445793 | 485,5786999 | 1568,50564 | 3138,791098 | 69,45232743 | 10 | 125,454233 | 53,2530782 | 0,291734141 | 15,6529031 | 1,446662241 |
| 53 | 69,3944462 | 69,29024454 | 483,9521999 | 1568,288585 | 3138,366854 | 69,24798236 | 10 | 125,8019906 | 53,31318789 | 0,358363949 | 15,69841461 | 1,446662241 |
| 54 | 69,19043026 | 69,08590631 | 482,3259204 | 1568,070832 | 3137,941331 | 69,04351282 | 10 | 126,1519492 | 53,37351048 | 0,425225247 | 15,74421951 | 1,446662241 |
| 55 | 68,98629098 | 68,8814427 | 480,6998621 | 1567,852381 | 3137,514529 | 68,83891656 | 10 | 126,5041336 | 53,43404806 | 0,492318407 | 15,79032112 | 1,446662241 |
| 56 | 68,78202784 | 68,67685316 | 479,0740257 | 1567,633234 | 3137,086451 | 68,63419338 | 10 | 126,8585662 | 53,49480216 | 0,559643172 | 15,83672237 | 1,446662241 |
| 57 | 68,57764031 | 68,47213716 | 477,4484118 | 1567,41339 | 3136,657102 | 68,42934326 | 10 | 127,2152689 | 53,55577424 | 0,627199208 | 15,88342616 | 1,446662241 |
| 58 | 68,37312789 | 68,26729415 | 475,8230211 | 1567,192852 | 3136,226483 | 68,22436546 | 10 | 127,5742653 | 53,61696602 | 0,69498643 | 15,9304356 | 1,446662241 |
| 59 | 68,16849005 | 68,06232359 | 474,1978542 | 1566,971619 | 3135,794596 | 68,01925853 | 10 | 127,9355805 | 53,67837942 | 0,763004946 | 15,977754 | 1,446662241 |
| 60 | 67,96372627 | 67,85722495 | 472,5729119 | 1566,749692 | 3135,361447 | 67,81402301 | 10 | 128,2992365 | 53,74001582 | 0,831254256 | 16,02538428 | 1,446662241 |
| 61 | 67,75883603 | 67,65199769 | 470,9481947 | 1566,527071 | 3134,927036 | 67,60865785 | 10 | 128,6652584 | 53,80187704 | 0,899734344 | 16,07332973 | 1,446662241 |
| 62 | 67,55381882 | 67,44664126 | 469,3237033 | 1566,303758 | 3134,491369 | 67,40316226 | 10 | 129,0336696 | 53,86396464 | 0,968444846 | 16,12159367 | 1,446662241 |
| 63 | 67,34867413 | 67,24115513 | 467,6994383 | 1566,079753 | 3134,054446 | 67,19753722 | 10 | 129,4044967 | 53,92628063 | 1,037385919 | 16,170179 | 1,446662241 |
| 64 | 67,14340144 | 67,03553877 | 466,0754005 | 1565,855056 | 3133,616271 | 66,99178066 | 10 | 129,7777633 | 53,98882648 | 1,106557074 | 16,21908942 | 1,446662241 |
| 65 | 66,93800023 | 66,82979163 | 464,4515904 | 1565,629669 | 3133,176846 | 66,78589142 | 10 | 130,1534974 | 54,05160436 | 1,175958577 | 16,26832844 | 1,446662241 |
| 66 | 66,73247 | 66,62391319 | 462,8280087 | 1565,403591 | 3132,736177 | 66,57987036 | 10 | 130,5317224 | 54,11461565 | 1,24558981 | 16,31789915 | 1,446662241 |
| 67 | 66,52681023 | 66,4179029 | 461,204656 | 1565,176823 | 3132,294264 | 66,37371678 | 10 | 130,9124649 | 54,17786223 | 1,31545067 | 16,36780506 | 1,446662241 |
| 68 | 66,32102041 | 66,21176023 | 459,581533 | 1564,949367 | 3131,851113 | 66,1674302 | 10 | 131,2957513 | 54,24134587 | 1,385540924 | 16,41804966 | 1,446662241 |
| 69 | 66,11510004 | 66,00548465 | 457,9586403 | 1564,721222 | 3131,406724 | 65,96100871 | 10 | 131,6816097 | 54,30506857 | 1,45586057 | 16,46863684 | 1,446662241 |
| 70 | 65,9090486 | 65,79907563 | 456,3359786 | 1564,49239 | 3130,961101 | 65,75445385 | 10 | 132,0700681 | 54,36903231 | 1,526409551 | 16,51956972 | 1,446662241 |
| 71 | 65,70286558 | 65,59253262 | 454,7135485 | 1564,262869 | 3130,514247 | 65,54776337 | 10 | 132,4611528 | 54,43323874 | 1,597187435 | 16,57085236 | 1,446662241 |
| 72 | 65,49655048 | 65,38585511 | 453,0913506 | 1564,032662 | 3130,066165 | 65,34093681 | 10 | 132,8548934 | 54,49769 | 1,668194284 | 16,62248848 | 1,446662241 |
| 73 | 65,2901028 | 65,17904256 | 451,4693856 | 1563,801769 | 3129,616861 | 65,1339748 | 10 | 133,2513149 | 54,56238739 | 1,739429256 | 16,67448154 | 1,446662241 |
| 74 | 65,08352203 | 64,97209444 | 449,847654 | 1563,57019 | 3129,166333 | 64,92687642 | 10 | 133,6504512 | 54,62733368 | 1,810893051 | 16,72683546 | 1,446662241 |
| 75 | 64,87680766 | 64,76501021 | 448,2261566 | 1563,337926 | 3128,714589 | 64,71964118 | 10 | 134,0523271 | 54,69253011 | 1,882584698 | 16,7795541 | 1,446662241 |
| 76 | 64,66995919 | 64,55778935 | 446,604894 | 1563,104978 | 3128,261631 | 64,51226791 | 10 | 134,4569737 | 54,75797883 | 1,954504192 | 16,83264155 | 1,446662241 |
| 77 | 64,46297612 | 64,35043133 | 444,9838667 | 1562,871345 | 3127,807458 | 64,30475638 | 10 | 134,8644248 | 54,82368245 | 2,026651995 | 16,88610171 | 1,446662241 |
| 78 | 64,25585795 | 64,14293562 | 443,3630754 | 1562,637028 | 3127,352079 | 64,09710604 | 10 | 135,2747055 | 54,88964209 | 2,09902693 | 16,93993864 | 1,446662241 |
| 79 | 64,04860418 | 63,93530169 | 441,7425208 | 1562,402029 | 3126,895491 | 63,8893163 | 10 | 135,6878526 | 54,95586069 | 2,171629787 | 16,99415644 | 1,446662241 |
| 80 | 63,8412143 | 63,72752902 | 440,1222035 | 1562,166346 | 3126,437703 | 63,68138632 | 10 | 136,1038924 | 55,0223395 | 2,244459467 | 17,04875937 | 1,446662241 |
| 81 | 63,63368783 | 63,51961708 | 438,502124 | 1561,929982 | 3125,978717 | 63,47331754 | 10 | 136,5228588 | 55,08908092 | 2,317516106 | 17,10375111 | 1,446662241 |
| 82 | 63,42602426 | 63,31156534 | 436,882283 | 1561,692935 | 3125,518532 | 63,26510643 | 10 | 136,944786 | 55,1560873 | 2,390799771 | 17,15913673 | 1,446662241 |
| 83 | 63,2182231 | 63,10337328 | 435,2626811 | 1561,455207 | 3125,057156 | 63,05675427 | 10 | 137,3697045 | 55,22336042 | 2,464309866 | 17,21492012 | 1,446662241 |
| 84 | 63,01028386 | 62,89504036 | 433,6433189 | 1561,216798 | 3124,594589 | 62,84825952 | 10 | 137,7976497 | 55,29090274 | 2,538046513 | 17,27110593 | 1,446662241 |
| 85 | 62,80220603 | 62,68656608 | 432,0241971 | 1560,977707 | 3124,130838 | 62,63962247 | 10 | 138,2286526 | 55,35871597 | 2,612009011 | 17,32769842 | 1,446662241 |
| 86 | 62,59398912 | 62,47794989 | 430,4053163 | 1560,737938 | 3123,665903 | 62,43084352 | 10 | 138,6627499 | 55,42680267 | 2,686197528 | 17,38470188 | 1,446662241 |
| 87 | 62,38563265 | 62,26919129 | 428,786677 | 1560,497487 | 3123,199789 | 62,22191977 | 10 | 139,0999757 | 55,49516494 | 2,760611714 | 17,44212156 | 1,446662241 |
| 88 | 62,17713612 | 62,06028974 | 427,1682798 | 1560,256358 | 3122,732497 | 62,01285215 | 10 | 139,5403665 | 55,5638052 | 2,835251545 | 17,49996173 | 1,446662241 |
| 89 | 61,96849904 | 61,85124473 | 425,5501255 | 1560,014548 | 3122,264032 | 61,80364045 | 10 | 139,9839578 | 55,63272563 | 2,910116707 | 17,55822705 | 1,446662241 |
| 90 | 61,75972093 | 61,64205573 | 423,9322146 | 1559,772059 | 3121,794396 | 61,59428186 | 10 | 140,4307862 | 55,70192858 | 2,985207023 | 17,61692296 | 1,446662241 |
| 91 | 61,55080129 | 61,43272222 | 422,3145476 | 1559,528893 | 3121,323594 | 61,3847788 | 10 | 140,8808886 | 55,77141634 | 3,060522239 | 17,67605354 | 1,446662241 |
| 92 | 61,34173963 | 61,22324368 | 420,6971252 | 1559,285047 | 3120,851631 | 61,17512908 | 10 | 141,3342988 | 55,84119066 | 3,136061497 | 17,73562421 | 1,446662241 |
| 93 | 61,13253548 | 61,0136196 | 419,0799481 | 1559,040523 | 3120,378505 | 60,96533337 | 10 | 141,7910627 | 55,91125509 | 3,211825838 | 17,79563966 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 60,92318834 | 60,80384944 | 417,4630167 | 1558,795321 | 3119,904224 | 60,75539011 | 10 | 142,2512123 | 55,98161104 | 3,287813955 | 17,8561053 | 1,446662241 |
| 95 | 60,71369773 | 60,59393269 | 415,8463317 | 1558,54944 | 3119,428788 | 60,54529781 | 10 | 142,7147919 | 56,05226166 | 3,364026416 | 17,9170266 | 1,446662241 |
| 96 | 60,50406317 | 60,38386884 | 414,2298938 | 1558,302882 | 3118,952204 | 60,33505818 | 10 | 143,1818367 | 56,12320869 | 3,440462206 | 17,97840819 | 1,446662241 |
| 97 | 60,29428418 | 60,17365736 | 412,6137034 | 1558,055647 | 3118,474471 | 60,12466896 | 10 | 143,6523912 | 56,1944552 | 3,51712174 | 18,04025593 | 1,446662241 |
| 98 | 60,08436027 | 59,96329773 | 410,9977611 | 1557,807734 | 3117,995598 | 59,91413104 | 10 | 144,1264931 | 56,2660032 | 3,594004236 | 18,10257483 | 1,446662241 |
| 99 | 59,87429097 | 59,75278945 | 409,3820676 | 1557,559143 | 3117,515583 | 59,70344275 | 10 | 144,6041871 | 56,33785564 | 3,671109902 | 18,16537074 | 1,446662241 |
| 100 | 59,6640758 | 59,54213198 | 407,7666235 | 1557,309875 | 3117,034429 | 59,49260283 | 10 | 145,085517 | 56,41001531 | 3,748438742 | 18,22864951 | 1,446662241 |
| 101 | 59,45371427 | 59,33132483 | 406,1514294 | 1557,059929 | 3116,552145 | 59,28161301 | 10 | 145,5705212 | 56,48248408 | 3,825989729 | 18,29241613 | 1,446662241 |
| 102 | 59,24320592 | 59,12036746 | 404,5364857 | 1556,809307 | 3116,068731 | 59,07047125 | 10 | 146,0592468 | 56,55526506 | 3,903763159 | 18,35667686 | 1,446662241 |
| 103 | 59,03255026 | 58,90925937 | 402,9217932 | 1556,558006 | 3115,584189 | 58,85917719 | 10 | 146,5517378 | 56,62836086 | 3,981758728 | 18,42143752 | 1,446662241 |
| 104 | 58,82174683 | 58,69800004 | 401,3073523 | 1556,306029 | 3115,098526 | 58,6477308 | 10 | 147,0480385 | 56,70177401 | 4,059976016 | 18,48670392 | 1,446662241 |
| 105 | 58,61079515 | 58,48658896 | 399,6931637 | 1556,053373 | 3114,611742 | 58,43613104 | 10 | 147,5481957 | 56,77550738 | 4,138414952 | 18,55248228 | 1,446662241 |
| 106 | 58,39969474 | 58,2750256 | 398,079228 | 1555,800041 | 3114,123842 | 58,22437718 | 10 | 148,0522569 | 56,84956383 | 4,217075401 | 18,61877883 | 1,446662241 |
| 107 | 58,18844513 | 58,06330947 | 396,4655456 | 1555,546029 | 3113,634831 | 58,01247017 | 10 | 148,560266 | 56,92394564 | 4,295956577 | 18,68559937 | 1,446662241 |
| 108 | 57,97704587 | 57,85144004 | 394,8521173 | 1555,29134 | 3113,144708 | 57,80040735 | 10 | 149,072276 | 56,99865633 | 4,375058981 | 18,75295091 | 1,446662241 |
| 109 | 57,76549646 | 57,63941681 | 393,2389436 | 1555,035974 | 3112,65348 | 57,58818903 | 10 | 149,588334 | 57,07369849 | 4,454382078 | 18,82083967 | 1,446662241 |
| 110 | 57,55379646 | 57,42723925 | 391,6260249 | 1554,779928 | 3112,161151 | 57,37581463 | 10 | 150,1084869 | 57,14907458 | 4,533925185 | 18,88927223 | 1,446662241 |
| 111 | 57,34194538 | 57,21490686 | 390,013362 | 1554,523204 | 3111,66772 | 57,16328497 | 10 | 150,6327911 | 57,22478838 | 4,613688936 | 18,95825482 | 1,446662241 |
| 112 | 57,12994278 | 57,00241913 | 388,4009554 | 1554,2658 | 3111,173195 | 56,95059773 | 10 | 151,1612931 | 57,30084214 | 4,693672345 | 19,02779481 | 1,446662241 |
| 113 | 56,91778817 | 56,78977555 | 386,7888056 | 1554,007717 | 3110,677579 | 56,73775329 | 10 | 151,6940461 | 57,37723899 | 4,773875298 | 19,0978988 | 1,446662241 |
| 114 | 56,7054811 | 56,5769756 | 385,1769132 | 1553,748954 | 3110,180874 | 56,52474998 | 10 | 152,2311031 | 57,45398195 | 4,854297542 | 19,16857418 | 1,446662241 |
| 115 | 56,49302111 | 56,36401878 | 383,5652788 | 1553,489511 | 3109,683083 | 56,31159002 | 10 | 152,7725201 | 57,53107436 | 4,934939109 | 19,23982715 | 1,446662241 |
| 116 | 56,28040773 | 56,15090458 | 381,9539029 | 1553,229387 | 3109,184209 | 56,09826892 | 10 | 153,3183529 | 57,60851947 | 5,015799882 | 19,31166629 | 1,446662241 |
| 117 | 56,0676405 | 55,93763248 | 380,3427861 | 1552,968581 | 3108,68426 | 55,88478974 | 10 | 153,8686514 | 57,68631959 | 5,096878741 | 19,38409775 | 1,446662241 |
| 118 | 55,85471898 | 55,72420197 | 378,731929 | 1552,707094 | 3108,183234 | 55,67114868 | 10 | 154,4234776 | 57,76447864 | 5,1781762 | 19,45713013 | 1,446662241 |
| 119 | 55,64164269 | 55,51061256 | 377,121332 | 1552,444924 | 3107,681138 | 55,45734944 | 10 | 154,9828872 | 57,84299958 | 5,259691724 | 19,53076961 | 1,446662241 |
| 120 | 55,42841118 | 55,29686373 | 375,5109958 | 1552,182071 | 3107,177974 | 55,2433868 | 10 | 155,5469392 | 57,9218857 | 5,341425083 | 19,60502553 | 1,446662241 |
| 121 | 55,215024 | 55,08295497 | 373,9009209 | 1551,918534 | 3106,673745 | 55,02926396 | 10 | 156,1156954 | 58,00114062 | 5,42337634 | 19,67990449 | 1,446662241 |
| 122 | 55,00148069 | 54,86888577 | 372,2911078 | 1551,654311 | 3106,168454 | 54,81497772 | 10 | 156,6892145 | 58,08076739 | 5,505544935 | 19,75541541 | 1,446662241 |
| 123 | 54,7877808 | 54,65465563 | 370,6815572 | 1551,389404 | 3105,662109 | 54,60052983 | 10 | 157,2675554 | 58,16076903 | 5,587930229 | 19,83156567 | 1,446662241 |
| 124 | 54,57392388 | 54,44026404 | 369,0722694 | 1551,12381 | 3105,154708 | 54,38591782 | 10 | 157,8507859 | 58,24114965 | 5,670532643 | 19,90836421 | 1,446662241 |
| 125 | 54,35990949 | 54,22571049 | 367,4632452 | 1550,857529 | 3104,646257 | 54,171142 | 10 | 158,4389676 | 58,32191242 | 5,753351616 | 19,98581918 | 1,446662241 |
| 126 | 54,14573716 | 54,01099448 | 365,854485 | 1550,590559 | 3104,13676 | 53,95620194 | 10 | 159,0321653 | 58,40306083 | 5,836386848 | 20,06393912 | 1,446662241 |
| 127 | 53,93140645 | 53,7961155 | 364,2459894 | 1550,3229 | 3103,626221 | 53,74109763 | 10 | 159,6304437 | 58,48459826 | 5,919637891 | 20,14273256 | 1,446662241 |
| 128 | 53,71691692 | 53,58107304 | 362,6377589 | 1550,054551 | 3103,114638 | 53,52582616 | 10 | 160,2338764 | 58,56652919 | 6,003105343 | 20,22220927 | 1,446662241 |
| 129 | 53,50226812 | 53,3658666 | 361,029794 | 1549,78551 | 3102,602024 | 53,31038958 | 10 | 160,8425223 | 58,64885597 | 6,086787626 | 20,30237732 | 1,446662241 |
| 130 | 53,2874596 | 53,15049568 | 359,4220953 | 1549,515776 | 3102,088375 | 53,09478692 | 10 | 161,4564578 | 58,73158323 | 6,170685396 | 20,38324607 | 1,446662241 |
| 131 | 53,07249094 | 52,93495976 | 357,8146633 | 1549,245348 | 3101,573696 | 52,87901774 | 10 | 162,0757534 | 58,81471468 | 6,254798341 | 20,46482484 | 1,446662241 |
| 132 | 52,85736167 | 52,71925835 | 356,2074985 | 1548,974225 | 3101,057992 | 52,66308 | 10 | 162,70048 | 58,89825393 | 6,339125999 | 20,54712374 | 1,446662241 |
| 133 | 52,64207137 | 52,50339093 | 354,6006016 | 1548,702405 | 3100,541268 | 52,44697425 | 10 | 163,3307078 | 58,98220443 | 6,423667687 | 20,63015204 | 1,446662241 |
| 134 | 52,42661959 | 52,28735701 | 352,9939729 | 1548,429886 | 3100,023524 | 52,23070131 | 10 | 163,9665165 | 59,06657073 | 6,508423792 | 20,7139191 | 1,446662241 |
| 135 | 52,2110059 | 52,07115608 | 351,387613 | 1548,156667 | 3099,504766 | 52,01425752 | 10 | 164,6079797 | 59,15135646 | 6,593393697 | 20,79843618 | 1,446662241 |
| 136 | 51,99522986 | 51,85478763 | 349,7815225 | 1547,882747 | 3098,984993 | 51,79764468 | 10 | 165,2551798 | 59,23656627 | 6,67857777 | 20,8837126 | 1,446662241 |
| 137 | 51,77929104 | 51,63825117 | 348,1757019 | 1547,608124 | 3098,464214 | 51,58086114 | 10 | 165,9081901 | 59,3222035 | 6,763975009 | 20,96975922 | 1,446662241 |
| 138 | 51,56318901 | 51,42154617 | 346,5701517 | 1547,332796 | 3097,942432 | 51,36390772 | 10 | 166,5670899 | 59,40827214 | 6,849585019 | 21,05658612 | 1,446662241 |
| 139 | 51,34692332 | 51,20467216 | 344,9648724 | 1547,056761 | 3097,419649 | 51,14678266 | 10 | 167,2319649 | 59,49477686 | 6,935407999 | 21,14420459 | 1,446662241 |
| 140 | 51,13049356 | 50,98762861 | 343,3598645 | 1546,780017 | 3096,895869 | 50,92948578 | 10 | 167,9028974 | 59,58172176 | 7,021443555 | 21,23262549 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 141 | 50,9138993 | 50,77041503 | 341,7551285 | 1546,502562 | 3096,371092 | 50,71201543 | 10 | 168,5799758 | 59,66911158 | 7,107691843 | 21,32186049 | 1,446662241 |
| 142 | 50,6971401 | 50,55303091 | 340,150665 | 1546,224395 | 3095,84533 | 50,49437352 | 10 | 169,2632759 | 59,75694932 | 7,194151255 | 21,41192001 | 1,446662241 |
| 143 | 50,48021554 | 50,33547575 | 338,5464744 | 1545,945512 | 3095,318577 | 50,27655835 | 10 | 169,9528984 | 59,84524101 | 7,280823096 | 21,50281615 | 1,446662241 |
| 144 | 50,26312519 | 50,11774904 | 336,9425574 | 1545,665912 | 3094,790841 | 50,05856712 | 10 | 170,6489284 | 59,9339905 | 7,367706478 | 21,59456173 | 1,446662241 |
| 145 | 50,04586864 | 49,89985028 | 335,3389143 | 1545,385592 | 3094,262126 | 49,84040317 | 10 | 171,351457 | 60,02320231 | 7,454801101 | 21,68716719 | 1,446662241 |
| 146 | 49,82844547 | 49,68177898 | 333,7355457 | 1545,104549 | 3093,732435 | 49,62206382 | 10 | 172,0605755 | 60,11288078 | 7,54210644 | 21,78064574 | 1,446662241 |
| 147 | 49,61085524 | 49,46353462 | 332,1324521 | 1544,822782 | 3093,201772 | 49,40354879 | 10 | 172,7763809 | 60,20303086 | 7,629622474 | 21,87500982 | 1,446662241 |
| 148 | 49,39309755 | 49,2451167 | 330,5296339 | 1544,540288 | 3092,670141 | 49,18485842 | 10 | 173,4989674 | 60,29365695 | 7,717348609 | 21,97027182 | 1,446662241 |
| 149 | 49,17517197 | 49,02652472 | 328,9270918 | 1544,257063 | 3092,137544 | 48,96598992 | 10 | 174,2284379 | 60,38476437 | 7,805285067 | 22,06644578 | 1,446662241 |
| 150 | 48,9570781 | 48,80775817 | 327,3248262 | 1543,973104 | 3091,603986 | 48,74694479 | 10 | 174,9648894 | 60,47635755 | 7,893431138 | 22,16354407 | 1,446662241 |
| 151 | 48,73881552 | 48,58881656 | 325,7228375 | 1543,68841 | 3091,069467 | 48,52772319 | 10 | 175,7084309 | 60,56844225 | 7,981787308 | 22,26157992 | 1,446662241 |
| 152 | 48,52038381 | 48,36969937 | 324,1211263 | 1543,402977 | 3090,533995 | 48,30832249 | 10 | 176,4591592 | 60,6610225 | 8,070352378 | 22,36056807 | 1,446662241 |
| 153 | 48,30178257 | 48,1504061 | 322,5196931 | 1543,1168 | 3089,99757 | 48,08874235 | 10 | 177,2171866 | 60,7541041 | 8,159126728 | 22,46052251 | 1,446662241 |
| 154 | 48,08301139 | 47,93093626 | 320,9185384 | 1542,829879 | 3089,460198 | 47,86898313 | 10 | 177,9826183 | 60,84769179 | 8,248109676 | 22,56145721 | 1,446662241 |
| 155 | 47,86406986 | 47,71128933 | 319,3176626 | 1542,542207 | 3088,921881 | 47,64904401 | 10 | 178,7555666 | 60,94179098 | 8,337301099 | 22,66338693 | 1,446662241 |
| 156 | 47,64495757 | 47,49146482 | 317,7170662 | 1542,253782 | 3088,382621 | 47,42892314 | 10 | 179,536149 | 61,0364075 | 8,426701203 | 22,76632722 | 1,446662241 |
| 157 | 47,42567413 | 47,27146221 | 316,1167498 | 1541,964601 | 3087,842428 | 47,2086228 | 10 | 180,3244713 | 61,1315456 | 8,516308624 | 22,870292 | 1,446662241 |
| 158 | 47,20621912 | 47,051281 | 314,5167138 | 1541,674659 | 3087,3013 | 46,98814073 | 10 | 181,1206571 | 61,22721148 | 8,606123752 | 22,97529761 | 1,446662241 |
| 159 | 46,98659216 | 46,83092069 | 312,9169587 | 1541,383951 | 3086,759243 | 46,76747548 | 10 | 181,9248239 | 61,32341038 | 8,696146016 | 23,08136036 | 1,446662241 |
| 160 | 46,76679284 | 46,61038077 | 311,3174849 | 1541,092477 | 3086,216256 | 46,54662944 | 10 | 182,7371013 | 61,4201488 | 8,786375903 | 23,18849501 | 1,446662241 |
| 161 | 46,54682077 | 46,38966074 | 309,718293 | 1540,800228 | 3085,672348 | 46,32559772 | 10 | 183,5576071 | 61,5174316 | 8,876812345 | 23,2967202 | 1,446662241 |
| 162 | 46,32667555 | 46,16876009 | 308,1193835 | 1540,507202 | 3085,127517 | 46,10438406 | 10 | 184,3864763 | 61,61526547 | 8,967455835 | 23,40605068 | 1,446662241 |
| 163 | 46,10635678 | 45,94767832 | 306,5207567 | 1540,213392 | 3084,581775 | 45,88298667 | 10 | 185,2238267 | 61,71365484 | 9,058304752 | 23,51650425 | 1,446662241 |
| 164 | 45,88586409 | 45,72641491 | 304,9224132 | 1539,918797 | 3084,035116 | 45,66140269 | 10 | 186,0698053 | 61,81260739 | 9,149360329 | 23,62809965 | 1,446662241 |
| 165 | 45,66519708 | 45,50496937 | 303,3243534 | 1539,623409 | 3083,487548 | 45,43963338 | 10 | 186,9245416 | 61,91212844 | 9,240621584 | 23,74085391 | 1,446662241 |
| 166 | 45,44435536 | 45,28334117 | 301,7265779 | 1539,327224 | 3082,939076 | 45,21767911 | 10 | 187,7881705 | 62,01222377 | 9,332087869 | 23,85478487 | 1,446662241 |
| 167 | 45,22333855 | 45,06152983 | 300,129087 | 1539,030236 | 3082,389698 | 44,99553627 | 10 | 188,6608457 | 62,11290107 | 9,423760141 | 23,96991279 | 1,446662241 |
| 168 | 45,00214626 | 44,83953481 | 298,5318813 | 1538,73244 | 3081,839425 | 44,7732084 | 10 | 189,542696 | 62,2141649 | 9,515636487 | 24,08625465 | 1,446662241 |
| 169 | 44,78077812 | 44,61735563 | 296,9349611 | 1538,433831 | 3081,288255 | 44,55069052 | 10 | 190,4338802 | 62,31602306 | 9,607717787 | 24,20383228 | 1,446662241 |
| 170 | 44,55923375 | 44,39499177 | 295,3383271 | 1538,134403 | 3080,736194 | 44,32798607 | 10 | 191,3345458 | 62,41848172 | 9,700003389 | 24,3226635 | 1,446662241 |
| 171 | 44,33751277 | 44,17244271 | 293,7419796 | 1537,834148 | 3080,183241 | 44,10509327 | 10 | 192,2448514 | 62,5215481 | 9,792493462 | 24,44276929 | 1,446662241 |
| 172 | 44,1156148 | 43,94970795 | 292,145919 | 1537,533061 | 3079,629404 | 43,88200984 | 10 | 193,16495 | 62,62522852 | 9,88518728 | 24,5641714 | 1,446662241 |
| 173 | 43,89353948 | 43,72678697 | 290,550146 | 1537,231136 | 3079,074688 | 43,65873723 | 10 | 194,0950001 | 62,72952963 | 9,978084327 | 24,68688998 | 1,446662241 |
| 174 | 43,67128643 | 43,50367927 | 288,9546608 | 1536,928366 | 3078,519091 | 43,43527335 | 10 | 195,0351727 | 62,83445919 | 10,07118495 | 24,8109476 | 1,446662241 |
| 175 | 43,44885529 | 43,28038433 | 287,359464 | 1536,624744 | 3077,96262 | 43,21161853 | 10 | 195,9856322 | 62,94002394 | 10,16448852 | 24,93636597 | 1,446662241 |
| 176 | 43,2262457 | 43,05690163 | 285,7645559 | 1536,320262 | 3077,405276 | 42,9877711 | 10 | 196,9465552 | 63,04623167 | 10,25799518 | 25,06316842 | 1,446662241 |
| 177 | 43,00345728 | 42,83323067 | 284,1699372 | 1536,014913 | 3076,847067 | 42,76373317 | 10 | 197,9181064 | 63,15308858 | 10,35170364 | 25,19137662 | 1,446662241 |
| 178 | 42,78048968 | 42,60937092 | 282,5756081 | 1535,70869 | 3076,28799 | 42,53950071 | 10 | 198,9004797 | 63,26060376 | 10,44561495 | 25,32101629 | 1,446662241 |
| 179 | 42,55734254 | 42,38532187 | 280,9815692 | 1535,401584 | 3075,728056 | 42,31507496 | 10 | 199,893846 | 63,36878343 | 10,53972763 | 25,45211064 | 1,446662241 |
| 180 | 42,33401551 | 42,161083 | 279,3878209 | 1535,093588 | 3075,167257 | 42,09045517 | 10 | 200,8984114 | 63,47763735 | 10,63404308 | 25,58468461 | 1,446662241 |
| 181 | 42,11050823 | 41,93665379 | 277,7943636 | 1534,784692 | 3074,605609 | 41,86564184 | 10 | 201,9143455 | 63,587171 | 10,72855895 | 25,71876294 | 1,446662241 |
| 182 | 41,88682035 | 41,71203373 | 276,2011978 | 1534,474888 | 3074,043108 | 41,64063221 | 10 | 202,9418611 | 63,69739417 | 10,82327644 | 25,8543729 | 1,446662241 |
| 183 | 41,66295153 | 41,48722229 | 274,6083239 | 1534,164167 | 3073,479757 | 41,41542604 | 10 | 203,9811577 | 63,80831484 | 10,9181951 | 25,99154086 | 1,446662241 |
| 184 | 41,43890142 | 41,26221895 | 273,0157424 | 1533,852519 | 3072,915567 | 41,19002414 | 10 | 205,0324293 | 63,9199401 | 11,01331362 | 26,13029319 | 1,446662241 |
| 185 | 41,21466968 | 41,03702318 | 271,4234536 | 1533,539935 | 3072,35053 | 40,96442558 | 10 | 206,0959054 | 64,0322804 | 11,10863337 | 26,2706579 | 1,446662241 |
| 186 | 40,99025597 | 40,81163447 | 269,8314581 | 1533,226404 | 3071,784662 | 40,73862951 | 10 | 207,1717801 | 64,14534211 | 11,20415219 | 26,41266364 | 1,446662241 |
| 187 | 40,76565995 | 40,58605228 | 268,2397562 | 1532,911917 | 3071,217955 | 40,51263466 | 10 | 208,2602949 | 64,25913618 | 11,29987161 | 26,55634001 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | 40,54088129 | 40,36027609 | 266,6483484 | 1532,596462 | 3070,650414 | 40,28644101 | 10 | 209,3616729 | 64,37367122 | 11,39579109 | 26,70171651 | 1,446662241 |
| 189 | 40,31591965 | 40,13430537 | 265,0572351 | 1532,280029 | 3070,082046 | 40,06004726 | 10 | 210,4761376 | 64,4889555 | 11,49190967 | 26,84882415 | 1,446662241 |
| 190 | 40,09077472 | 39,90813959 | 263,4664168 | 1531,962605 | 3069,512857 | 39,83345445 | 10 | 211,6039245 | 64,60499813 | 11,58822696 | 26,99769322 | 1,446662241 |
| 191 | 39,86544617 | 39,68177821 | 261,8758938 | 1531,644181 | 3068,942843 | 39,60665868 | 10 | 212,7452864 | 64,72180955 | 11,68474351 | 27,14835793 | 1,446662241 |
| 192 | 39,63993367 | 39,45522071 | 260,2856666 | 1531,32474 | 3068,372013 | 39,3796645 | 10 | 213,9004647 | 64,83939863 | 11,78145844 | 27,30084773 | 1,446662241 |
| 193 | 39,41423692 | 39,22846655 | 258,6957357 | 1531,004273 | 3067,800365 | 39,15246582 | 10 | 215,0697235 | 64,95777606 | 11,87837224 | 27,45519997 | 1,446662241 |
| 194 | 39,18835558 | 39,00151518 | 257,1061013 | 1530,682766 | 3067,227906 | 38,92506492 | 10 | 216,2533163 | 65,07695104 | 11,975484 | 27,61144721 | 1,446662241 |
| 195 | 38,96228936 | 38,77436608 | 255,516764 | 1530,360205 | 3066,654644 | 38,69746296 | 10 | 217,4515016 | 65,19693277 | 12,07279272 | 27,76962355 | 1,446662241 |
| 196 | 38,73603795 | 38,5470187 | 253,9277242 | 1530,036578 | 3066,080572 | 38,46965322 | 10 | 218,6645734 | 65,31773359 | 12,17029971 | 27,92976952 | 1,446662241 |
| 197 | 38,50960103 | 38,31947249 | 252,3389823 | 1529,711867 | 3065,505695 | 38,24164165 | 10 | 219,8928142 | 65,4393641 | 12,26800476 | 28,09191767 | 1,446662241 |
| 198 | 38,28297832 | 38,09172691 | 250,7505387 | 1529,386059 | 3064,930023 | 38,01342447 | 10 | 221,1364948 | 65,5618333 | 12,36590623 | 28,25610834 | 1,446662241 |
| 199 | 38,05616952 | 37,86378142 | 249,1623937 | 1529,059139 | 3064,353555 | 37,78500135 | 10 | 222,3959204 | 65,68515304 | 12,46400458 | 28,42238038 | 1,446662241 |
| 200 | 37,82917433 | 37,63563545 | 247,5745479 | 1528,731089 | 3063,776289 | 37,55636908 | 10 | 223,6714092 | 65,80933592 | 12,56230065 | 28,59077581 | 1,446662241 |
| 201 | 37,60199246 | 37,40728847 | 245,9870016 | 1528,401894 | 3063,19824 | 37,32753247 | 10 | 224,9632433 | 65,93439046 | 12,66079199 | 28,76133174 | 1,446662241 |
| 202 | 37,37462363 | 37,17873991 | 244,3997553 | 1528,071536 | 3062,619402 | 37,09848689 | 10 | 226,2717637 | 66,06033032 | 12,75947994 | 28,93409331 | 1,446662241 |
| 203 | 37,14706756 | 36,94998922 | 242,8128093 | 1527,739999 | 3062,039783 | 36,86923156 | 10 | 227,5972882 | 66,18716639 | 12,85836349 | 29,109104 | 1,446662241 |
| 204 | 36,91932397 | 36,72103583 | 241,226164 | 1527,407261 | 3061,459379 | 36,63976906 | 10 | 228,9401698 | 66,31491225 | 12,95744359 | 29,28640574 | 1,446662241 |
| 205 | 36,6913926 | 36,49187919 | 239,6398199 | 1527,073306 | 3060,8782 | 36,41009553 | 10 | 230,3007378 | 66,44357869 | 13,05671879 | 29,46604666 | 1,446662241 |
| 206 | 36,46327317 | 36,26251872 | 238,0537774 | 1526,738113 | 3060,296245 | 36,18021064 | 10 | 231,6793565 | 66,57317914 | 13,15618954 | 29,64807339 | 1,446662241 |
| 207 | 36,23496542 | 36,03295386 | 236,4680368 | 1526,401663 | 3059,713518 | 35,95011373 | 10 | 233,076391 | 66,70372646 | 13,25585561 | 29,83253406 | 1,446662241 |
| 208 | 36,0064691 | 35,80318404 | 234,8825985 | 1526,063932 | 3059,130031 | 35,71980586 | 10 | 234,4921943 | 66,83523175 | 13,35571529 | 30,01947672 | 1,446662241 |
| 209 | 35,77778395 | 35,57320867 | 233,297463 | 1525,724902 | 3058,54577 | 35,48928556 | 10 | 235,9271893 | 66,96771192 | 13,45577098 | 30,20895279 | 1,446662241 |
| 210 | 35,54890972 | 35,34302718 | 231,7126306 | 1525,384547 | 3057,960751 | 35,25855152 | 10 | 237,3817409 | 67,10117775 | 13,55602035 | 30,40101494 | 1,446662241 |
| 211 | 35,31984617 | 35,11263898 | 230,1281017 | 1525,042845 | 3057,374971 | 35,02760028 | 10 | 238,8562729 | 67,23564479 | 13,65646437 | 30,59571919 | 1,446662241 |
| 212 | 35,09059306 | 34,88204349 | 228,5438768 | 1524,699771 | 3056,788434 | 34,79643767 | 10 | 240,3511967 | 67,37112666 | 13,75710237 | 30,79311515 | 1,446662241 |
| 213 | 34,86115017 | 34,65124012 | 226,9599562 | 1524,355301 | 3056,201147 | 34,56505657 | 10 | 241,8669359 | 67,50763736 | 13,85793376 | 30,99326498 | 1,446662241 |
| 214 | 34,63151726 | 34,42022827 | 225,3763402 | 1524,009408 | 3055,613101 | 34,33345898 | 10 | 243,4039608 | 67,64519427 | 13,95896015 | 31,19622467 | 1,446662241 |
| 215 | 34,40169411 | 34,18900734 | 223,7930294 | 1523,662065 | 3055,024315 | 34,10164542 | 10 | 244,9626834 | 67,78380876 | 14,06017863 | 31,40205306 | 1,446662241 |
| 216 | 34,17168051 | 33,95757673 | 222,210024 | 1523,313244 | 3054,434783 | 33,86961279 | 10 | 246,5435978 | 67,9234987 | 14,16159069 | 31,61081397 | 1,446662241 |
| 217 | 33,94147625 | 33,72593584 | 220,6273245 | 1522,962917 | 3053,84451 | 33,63736191 | 10 | 248,1471739 | 68,0642789 | 14,26319541 | 31,82256945 | 1,446662241 |
| 218 | 33,71108113 | 33,49408403 | 219,0449313 | 1522,611052 | 3053,253496 | 33,40488871 | 10 | 249,7739185 | 68,20616658 | 14,36499332 | 32,03738793 | 1,446662241 |
| 219 | 33,48049496 | 33,26202071 | 217,4628446 | 1522,257619 | 3052,661746 | 33,17219805 | 10 | 251,4243369 | 68,34917789 | 14,46698395 | 32,25533144 | 1,446662241 |
| 220 | 33,24971753 | 33,02974525 | 215,881065 | 1521,902587 | 3052,06926 | 32,93928341 | 10 | 253,0989583 | 68,49333011 | 14,56916736 | 32,47647462 | 1,446662241 |
| 221 | 33,01874868 | 32,79725701 | 214,2995927 | 1521,545919 | 3051,476046 | 32,70614729 | 10 | 254,7983119 | 68,63863954 | 14,67154269 | 32,70088572 | 1,446662241 |
| 222 | 32,78758822 | 32,56455536 | 212,7184282 | 1521,187583 | 3050,882102 | 32,47278772 | 10 | 256,5229634 | 68,78512464 | 14,77411027 | 32,92863935 | 1,446662241 |
| 223 | 32,55623599 | 32,33163967 | 211,1375718 | 1520,827543 | 3050,287436 | 32,23920512 | 10 | 258,273476 | 68,9328026 | 14,87686933 | 33,15981 | 1,446662241 |
| 224 | 32,32469182 | 32,09850928 | 209,557024 | 1520,46576 | 3049,692046 | 32,00539585 | 10 | 260,0504506 | 69,08169276 | 14,97982024 | 33,3944785 | 1,446662241 |
| 225 | 32,09295557 | 31,86516355 | 207,976785 | 1520,102196 | 3049,095932 | 31,77136186 | 10 | 261,8545099 | 69,23181514 | 15,08296353 | 33,63272253 | 1,446662241 |
| 226 | 31,8610271 | 31,63160181 | 206,3968552 | 1519,73681 | 3048,499105 | 31,53710143 | 10 | 263,6862548 | 69,38318682 | 15,18629752 | 33,87462586 | 1,446662241 |
| 227 | 31,62890625 | 31,39782341 | 204,8172351 | 1519,369561 | 3047,901564 | 31,30261227 | 10 | 265,5463436 | 69,53582851 | 15,28982262 | 34,12027553 | 1,446662241 |
| 228 | 31,39659292 | 31,16382766 | 203,237925 | 1519,000405 | 3047,303311 | 31,06789768 | 10 | 267,4354463 | 69,68976066 | 15,39353872 | 34,36975536 | 1,446662241 |
| 229 | 31,16408697 | 30,92961388 | 201,6589252 | 1518,629296 | 3046,70434 | 30,83294876 | 10 | 269,3542815 | 69,84500639 | 15,49744717 | 34,62316494 | 1,446662241 |
| 230 | 30,93138831 | 30,6951814 | 200,0802361 | 1518,256188 | 3046,104668 | 30,59777136 | 10 | 271,3035188 | 70,00158356 | 15,60154558 | 34,88059104 | 1,446662241 |
| 231 | 30,69849682 | 30,4605295 | 198,5018581 | 1517,881032 | 3045,50429 | 30,36236225 | 10 | 273,2839108 | 70,15951542 | 15,7058347 | 35,14213314 | 1,446662241 |
| 232 | 30,46541243 | 30,2256575 | 196,9237916 | 1517,503777 | 3044,903212 | 30,12672121 | 10 | 275,2962119 | 70,318824 | 15,81031417 | 35,40789061 | 1,446662241 |
| 233 | 30,23213505 | 29,99056466 | 195,3460369 | 1517,124371 | 3044,301437 | 29,89084812 | 10 | 277,3411964 | 70,47953146 | 15,91498335 | 35,67796594 | 1,446662241 |
| 234 | 29,99866462 | 29,75525028 | 193,7685944 | 1516,742759 | 3043,698959 | 29,65473761 | 10 | 279,4197132 | 70,64166435 | 16,01984399 | 35,95247112 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 235 | 29,76500107 | 29,51971362 | 192,1914644 | 1516,358884 | 3043,095789 | 29,41839303 | 10 | 281,5325614 | 70,8052438 | 16,12489411 | 36,2315116 | 1,446662241 |
| 236 | 29,53114435 | 29,28395394 | 190,6146473 | 1515,972685 | 3042,491923 | 29,18181006 | 10 | 283,6806348 | 70,97029673 | 16,23013492 | 36,51520555 | 1,446662241 |
| 237 | 29,29709445 | 29,04797049 | 189,0381434 | 1515,584102 | 3041,88737 | 28,94499039 | 10 | 285,8648038 | 71,1368466 | 16,3355651 | 36,80366781 | 1,446662241 |
| 238 | 29,06285132 | 28,8117625 | 187,4619531 | 1515,19307 | 3041,282128 | 28,70793121 | 10 | 288,0860099 | 71,30492065 | 16,44118528 | 37,09702269 | 1,446662241 |
| 239 | 28,82841497 | 28,5753292 | 185,8860768 | 1514,799523 | 3040,676204 | 28,47063322 | 10 | 290,3451942 | 71,47454432 | 16,54699456 | 37,39539438 | 1,446662241 |
| 240 | 28,5937854 | 28,33866981 | 184,3105148 | 1514,40339 | 3040,069594 | 28,23309306 | 10 | 292,6433684 | 71,64574657 | 16,65299375 | 37,69891655 | 1,446662241 |
| 241 | 28,35896262 | 28,10178352 | 182,7352675 | 1514,0046 | 3039,4623 | 27,99530868 | 10 | 294,981568 | 71,81855622 | 16,75918308 | 38,00772592 | 1,446662241 |
| 242 | 28,12394667 | 27,86466953 | 181,1603352 | 1513,603076 | 3038,85433 | 27,75728179 | 10 | 297,3608267 | 71,993 | 16,86556119 | 38,32195905 | 1,446662241 |
| 243 | 27,88873759 | 27,62732701 | 179,5857183 | 1513,19874 | 3038,245685 | 27,51901066 | 10 | 299,7822516 | 72,16910809 | 16,97212822 | 38,64176198 | 1,446662241 |
| 244 | 27,65333544 | 27,38975513 | 178,011417 | 1512,791509 | 3037,636365 | 27,28049282 | 10 | 302,2469959 | 72,34691187 | 17,07888457 | 38,96728697 | 1,446662241 |
| 245 | 27,41774031 | 27,15195303 | 176,4374319 | 1512,381296 | 3037,026375 | 27,04172542 | 10 | 304,7562346 | 72,52644217 | 17,1858298 | 39,29869245 | 1,446662241 |
| 246 | 27,18195228 | 26,91391985 | 174,8637631 | 1511,968015 | 3036,415705 | 26,80270965 | 10 | 307,3112395 | 72,70773444 | 17,29296558 | 39,63613696 | 1,446662241 |
| 247 | 26,94597147 | 26,67565471 | 173,2904111 | 1511,551571 | 3035,80438 | 26,56344667 | 10 | 309,9131857 | 72,89081494 | 17,40028798 | 39,97978483 | 1,446662241 |
| 248 | 26,70979801 | 26,43715669 | 171,7173762 | 1511,131866 | 3035,192382 | 26,32392866 | 10 | 312,563486 | 73,07572432 | 17,50780048 | 40,32981968 | 1,446662241 |
| 249 | 26,47343205 | 26,1984249 | 170,1446588 | 1510,708799 | 3034,57972 | 26,08415705 | 10 | 315,2634811 | 73,26249556 | 17,61550181 | 40,68641849 | 1,446662241 |
| 250 | 26,23687376 | 25,95945838 | 168,5722591 | 1510,282263 | 3033,966399 | 25,84413147 | 10 | 318,0145828 | 73,45116399 | 17,72339142 | 41,04976758 | 1,446662241 |
| 251 | 26,00012332 | 25,7202562 | 167,0001776 | 1509,852148 | 3033,352415 | 25,60384801 | 10 | 320,8182966 | 73,64176865 | 17,83147018 | 41,4200659 | 1,446662241 |
| 252 | 25,76318095 | 25,48081737 | 165,4284145 | 1509,418337 | 3032,737777 | 25,3633079 | 10 | 323,6761284 | 73,83434576 | 17,93973687 | 41,79751214 | 1,446662241 |
| 253 | 25,52604687 | 25,2411409 | 163,8569703 | 1508,98071 | 3032,122482 | 25,12250733 | 10 | 326,5897019 | 74,02893654 | 18,0481923 | 42,18232076 | 1,446662241 |
| 254 | 25,28872135 | 25,00122578 | 162,2858451 | 1508,53914 | 3031,506535 | 24,88144596 | 10 | 329,5606635 | 74,22558066 | 18,15683582 | 42,57470917 | 1,446662241 |
| 255 | 25,05120466 | 24,76107097 | 160,7150395 | 1508,093492 | 3030,889936 | 24,64012111 | 10 | 332,5907548 | 74,42432086 | 18,26566775 | 42,9749073 | 1,446662241 |
| 256 | 24,8134971 | 24,5206754 | 159,1445537 | 1507,64363 | 3030,272689 | 24,39853203 | 10 | 335,6817635 | 74,62519963 | 18,37468757 | 43,38315123 | 1,446662241 |
| 257 | 24,57559902 | 24,28003798 | 157,574388 | 1507,189408 | 3029,654796 | 24,15667629 | 10 | 338,8355721 | 74,82826211 | 18,48389544 | 43,7996895 | 1,446662241 |
| 258 | 24,33751076 | 24,03915762 | 156,0045428 | 1506,730672 | 3029,036255 | 23,91455023 | 10 | 342,0541576 | 75,0335559 | 18,59329199 | 44,22478318 | 1,446662241 |
| 259 | 24,09923273 | 23,79803315 | 154,4350185 | 1506,267263 | 3028,417077 | 23,6721565 | 10 | 345,3394957 | 75,24112475 | 18,70287524 | 44,65869301 | 1,446662241 |
| 260 | 23,86076532 | 23,55666342 | 152,8658153 | 1505,799015 | 3027,797251 | 23,42948639 | 10 | 348,6937987 | 75,45102341 | 18,81264778 | 45,10171135 | 1,446662241 |
| 261 | 23,622109 | 23,31504722 | 151,2969335 | 1505,325752 | 3027,176788 | 23,18654165 | 10 | 352,1192308 | 75,66329945 | 18,92260794 | 45,55412385 | 1,446662241 |
| 262 | 23,38326425 | 23,07318333 | 149,7283736 | 1504,847289 | 3026,555689 | 22,94332056 | 10 | 355,6180986 | 75,878005 | 19,03275543 | 46,01623494 | 1,446662241 |
| 263 | 23,14423158 | 22,83107047 | 148,1601358 | 1504,363433 | 3025,933962 | 22,69982183 | 10 | 359,1928008 | 76,09519341 | 19,1430897 | 46,48836148 | 1,446662241 |
| 264 | 22,90501156 | 22,58870735 | 146,5922205 | 1503,873982 | 3025,311603 | 22,45604175 | 10 | 362,845879 | 76,31492198 | 19,25361115 | 46,97083906 | 1,446662241 |
| 265 | 22,66560476 | 22,34609263 | 145,024628 | 1503,378723 | 3024,68861 | 22,21197488 | 10 | 366,5800169 | 76,53725157 | 19,36432085 | 47,46402205 | 1,446662241 |
| 266 | 22,42601184 | 22,10322493 | 143,4573586 | 1502,877431 | 3024,06499 | 21,96762069 | 10 | 370,3979423 | 76,7622405 | 19,47521778 | 47,96827072 | 1,446662241 |
| 267 | 22,18623345 | 21,86010284 | 141,8904126 | 1502,369872 | 3023,440747 | 21,72297759 | 10 | 374,3025272 | 76,98995019 | 19,58630134 | 48,48396408 | 1,446662241 |
| 268 | 21,94627032 | 21,6167249 | 140,3237904 | 1501,855798 | 3022,815893 | 21,47804348 | 10 | 378,2967347 | 77,22044186 | 19,69756988 | 49,01149967 | 1,446662241 |
| 269 | 21,70612322 | 21,37308961 | 138,7574922 | 1501,334948 | 3022,190406 | 21,2328132 | 10 | 382,3839084 | 77,45379262 | 19,8090275 | 49,55130047 | 1,446662241 |
| 270 | 21,46579295 | 21,12919541 | 137,1915185 | 1500,807049 | 3021,564318 | 20,98728821 | 10 | 386,5671521 | 77,69005961 | 19,9206687 | 50,1037947 | 1,446662241 |
| 271 | 21,22528039 | 20,88504069 | 135,6258695 | 1500,271811 | 3020,937614 | 20,74145956 | 10 | 390,8500906 | 77,92932308 | 20,03249661 | 50,66945505 | 1,446662241 |
| 272 | 20,98458646 | 20,64062381 | 134,0605455 | 1499,72893 | 3020,310301 | 20,4953258 | 10 | 395,236348 | 78,17165611 | 20,14451013 | 51,2487599 | 1,446662241 |
| 273 | 20,74371212 | 20,39594305 | 132,4955468 | 1499,178086 | 3019,682387 | 20,2488849 | 10 | 399,7297356 | 78,41713504 | 20,25670828 | 51,84221253 | 1,446662241 |
| 274 | 20,50265843 | 20,15099664 | 130,9308738 | 1498,618939 | 3019,053878 | 20,00213491 | 10 | 404,3342537 | 78,66583896 | 20,36908995 | 52,45034104 | 1,446662241 |
| 275 | 20,26142647 | 19,90578275 | 129,3665268 | 1498,051132 | 3018,424775 | 19,7550696 | 10 | 409,0541856 | 78,91785427 | 20,48165555 | 53,07371108 | 1,446662241 |
| 276 | 20,02001743 | 19,66029948 | 127,802506 | 1497,47429 | 3017,795082 | 19,5076845 | 10 | 413,8940024 | 79,17326889 | 20,59440466 | 53,71291304 | 1,446662241 |
| 277 | 19,77843252 | 19,41454486 | 126,2388118 | 1496,888012 | 3017,164808 | 19,25997739 | 10 | 418,8583627 | 79,43217177 | 20,70733579 | 54,36856202 | 1,446662241 |
| 278 | 19,53667308 | 19,16851684 | 124,6754444 | 1496,291879 | 3016,53396 | 19,01194423 | 10 | 413,5906619 | 79,15734846 | 20,82044801 | 55,04131052 | 1,446662241 |
| 279 | 19,29474048 | 18,92221331 | 123,1124042 | 1495,685443 | 3015,902539 | 18,76357783 | 10 | 419,3222557 | 79,45620789 | 20,93374141 | 55,73185474 | 1,446662241 |
| 280 | 19,05263621 | 18,67563206 | 121,5496915 | 1495,068234 | 3015,270557 | 18,51487572 | 10 | 425,3123721 | 79,76421304 | 21,04721395 | 56,4409154 | 1,446662241 |
| 281 | 18,81036182 | 18,4287708 | 119,9873065 | 1494,439752 | 3014,638031 | 18,26583618 | 10 | 431,5808695 | 80,08192151 | 21,1608632 | 57,16925049 | 1,446662241 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282 | 18,56791897 | 18,18162714 | 118,4252495 | 1493,799469 | 3014,004954 | 18,01644652 | 10 | 438,1500955 | 80,40995776 | 21,27469049 | 57,91769323 | 1,446662241 |
| 283 | 18,32530942 | 17,93419859 | 116,8635209 | 1493,146822 | 3013,371354 | 17,76670989 | 10 | 445,0445298 | 80,74898559 | 21,38869091 | 58,68707585 | 1,446662241 |
| 284 | 18,08253502 | 17,68648258 | 115,3021208 | 1492,481219 | 3012,737229 | 17,51661262 | 10 | 452,2920339 | 81,09975916 | 21,50286549 | 59,47833105 | 1,446662241 |
| 285 | 17,83959775 | 17,43847639 | 113,7410495 | 1491,802025 | 3012,102609 | 17,26615836 | 10 | 459,9233696 | 81,4630861 | 21,61720848 | 60,29239043 | 1,446662241 |
| 286 | 17,59649969 | 17,1901772 | 112,1803074 | 1491,108572 | 3011,46749 | 17,01532951 | 10 | 467,9738807 | 81,83989293 | 21,73172141 | 61,13031123 | 1,446662241 |
| 287 | 17,35324305 | 16,94158208 | 110,6198945 | 1490,400145 | 3010,831898 | 16,76412411 | 10 | 476,4830708 | 82,23118598 | 21,84639966 | 61,99316211 | 1,446662241 |
| 288 | 17,10983019 | 16,69268792 | 109,0598113 | 1489,675986 | 3010,195856 | 16,5125374 | 10 | 485,4959498 | 82,63809279 | 21,96123906 | 62,88208646 | 1,446662241 |
| 289 | 16,8662636 | 16,44349152 | 107,5000579 | 1488,935288 | 3009,559391 | 16,26056362 | 10 | 495,0639946 | 83,06187932 | 22,0762353 | 63,7983023 | 1,446662241 |
| 290 | 16,6225459 | 16,19398949 | 105,9406345 | 1488,17719 | 3008,922521 | 16,00819098 | 10 | 505,2465809 | 83,50398139 | 22,19138534 | 64,74312749 | 1,446662241 |
| 291 | 16,3786799 | 15,94417828 | 104,3815414 | 1487,400776 | 3008,285267 | 15,75540737 | 10 | 516,1123522 | 83,96602489 | 22,30668542 | 65,7179669 | 1,446662241 |
| 292 | 16,13466858 | 15,69405417 | 102,8227787 | 1486,605068 | 3007,647676 | 15,50221167 | 10 | 527,7406345 | 84,44983897 | 22,4221272 | 66,72427435 | 1,446662241 |
| 293 | 15,89051508 | 15,44361326 | 101,2643465 | 1485,789023 | 3007,009777 | 15,24858961 | 10 | 540,2249264 | 84,95754318 | 22,53770575 | 67,76365371 | 1,446662241 |
| 294 | 15,64622275 | 15,19285145 | 99,70624512 | 1484,951526 | 3006,37161 | 14,9945295 | 10 | 553,6753999 | 85,49157363 | 22,65341404 | 68,83780811 | 1,446662241 |
| 295 | 15,40179515 | 14,9417644 | 98,14847459 | 1484,091383 | 3005,733234 | 14,7400269 | 10 | 568,2226671 | 86,05473994 | 22,7692414 | 69,94852712 | 1,446662241 |
| 296 | 15,15723607 | 14,69034756 | 96,59103502 | 1483,207321 | 3005,094698 | 14,48506647 | 10 | 584,0241365 | 86,65035202 | 22,88517915 | 71,09777511 | 1,446662241 |
| 297 | 14,91254951 | 14,43859614 | 95,03392649 | 1482,297973 | 3004,456067 | 14,22963678 | 10 | 601,2703972 | 87,28230335 | 23,00121564 | 72,28764045 | 1,446662241 |
| 298 | 14,66773976 | 14,18650506 | 93,47714903 | 1481,361876 | 3003,817401 | 13,97371696 | 10 | 620,1958339 | 87,95525445 | 23,11733991 | 73,52041109 | 1,446662241 |
| 299 | 14,42281135 | 13,93406897 | 91,92070263 | 1480,39746 | 3003,178806 | 13,71730605 | 10 | 641,0899056 | 88,67475916 | 23,23353296 | 74,798448 | 1,446662241 |
| 300 | 14,17776914 | 13,68128221 | 90,36458724 | 1479,403039 | 3002,540362 | 13,46037955 | 10 | 664,3192611 | 89,44765445 | 23,3497799 | 76,12441226 | 1,446662241 |
| 301 | 13,93261828 | 13,42813877 | 88,80880276 | 1478,376802 | 3001,902188 | 13,20292455 | 10 | 690,3523338 | 90,28235209 | 23,46605947 | 77,50111319 | 1,446662241 |
| 302 | 13,68736426 | 13,17463231 | 87,25334902 | 1477,316801 | 3001,264412 | 12,94492359 | 10 | 719,8009144 | 91,18943193 | 23,58234806 | 78,93160904 | 1,446662241 |
| 303 | 13,44201294 | 12,92075607 | 85,69822579 | 1476,22094 | 3000,627174 | 12,68635082 | 10 | 753,4824017 | 92,18246789 | 23,69861998 | 80,41925705 | 1,446662241 |
| 304 | 13,19657059 | 12,6665029 | 84,14343276 | 1475,086961 | 2999,990651 | 12,42718619 | 10 | 792,5155744 | 93,27920251 | 23,81484302 | 81,96766258 | 1,446662241 |
| 305 | 12,95104388 | 12,41186517 | 82,5889695 | 1473,912426 | 2999,355054 | 12,16741527 | 10 | 838,4805032 | 94,50346066 | 23,93097811 | 83,5807039 | 1,446662241 |
| 306 | 12,70543994 | 12,15683476 | 81,03483549 | 1472,694706 | 2998,720612 | 11,90700652 | 10 | 893,7013637 | 95,88843326 | 24,04698327 | 85,26270822 | 1,446662241 |
| 307 | 12,45976641 | 11,90140301 | 79,48103008 | 1471,43096 | 2998,087603 | 11,64593493 | 10 | 961,7594039 | 97,4821343 | 24,16280702 | 87,01835019 | 1,446662241 |
| 308 | 12,21403145 | 11,64556069 | 77,92755246 | 1470,118113 | 2997,456355 | 11,38417306 | 10 | 1048,531858 | 99,35789375 | 24,27838899 | 88,85275212 | 1,446662241 |
| 308,4 | 12,1157222 | 11,54310661 | 77,30625298 | 1469,57849 | 2991,335931 | 11,2803695 | 9,978473186 | 1080 | 100 | 24,31464729 | 89,42696948 | 1,441824099 |
| 309 | 11,96828469 | 11,39106809 | 76,37999425 | 1467,776737 | 2954,778426 | 11,13148394 | 9,845716953 | 1080 | 100 | 24,32207853 | 89,43015592 | 1,41198719 |
| 310 | 11,72344506 | 11,14441387 | 74,86119311 | 1457,007891 | 2895,48885 | 10,88994503 | 9,630315304 | 1080 | 100 | 24,33412607 | 89,43524674 | 1,363575757 |
| 311 | 11,48084236 | 10,90481236 | 73,37274226 | 1439,686267 | 2837,922112 | 10,65531488 | 9,421060085 | 1080 | 100 | 24,34582753 | 89,44026745 | 1,316545732 |
| 312 | 11,24129192 | 10,6712068 | 71,91380801 | 1418,532156 | 2782,291231 | 10,42646781 | 9,218752384 | 1080 | 100 | 24,35802338 | 89,46098158 | 1,271077159 |
| 313 | 11,0052699 | 10,44290006 | 70,48362223 | 1395,200199 | 2727,00707 | 10,20299142 | 9,017570019 | 1080 | 100 | 24,36836083 | 89,44978365 | 1,225861505 |
| 314 | 10,77305155 | 10,21946556 | 69,08163366 | 1370,663261 | 2673,389912 | 9,984199122 | 8,82237196 | 1080 | 100 | 24,3792557 | 89,45442349 | 1,181990821 |
| 315 | 10,54478218 | 10,00057442 | 67,70719476 | 1345,567858 | 2620,882176 | 9,76985552 | 8,631119261 | 1080 | 100 | 24,38992025 | 89,45893281 | 1,139006855 |
| 316 | 10,32052703 | 9,786003904 | 66,35974123 | 1320,301997 | 2569,382735 | 9,559752266 | 8,44344773 | 1080 | 100 | 24,40028992 | 89,46161954 | 1,096827755 |
| 317 | 10,10030186 | 9,575590301 | 65,03874131 | 1295,104989 | 2518,995141 | 9,353702784 | 8,259744749 | 1080 | 100 | 24,41061316 | 89,46770637 | 1,055540585 |
| 318 | 9,884091562 | 9,369225078 | 63,74374066 | 1270,112267 | 2469,365435 | 9,151663266 | 8,078714497 | 1080 | 100 | 24,42034949 | 89,46505406 | 1,01485411 |
| 319 | 9,671865013 | 9,166758564 | 62,47411315 | 1245,439187 | 2421,052339 | 8,953374268 | 7,902418171 | 1080 | 100 | 24,43050052 | 89,47609944 | 0,975231583 |
| 320 | 9,463569386 | 8,968114477 | 61,22939393 | 1221,152072 | 2373,489544 | 8,758856945 | 7,728777692 | 1080 | 100 | 24,44015716 | 89,4802461 | 0,936205956 |
| 321 | 9,259150955 | 8,773220449 | 60,00913023 | 1197,25904 | 2326,83931 | 8,568017822 | 7,558394878 | 1080 | 100 | 24,44962474 | 89,48420926 | 0,897912488 |
| 322 | 9,058552024 | 8,582002263 | 58,81285432 | 1173,777995 | 2281,085783 | 8,380779656 | 7,391216151 | 1080 | 100 | 24,45891168 | 89,48813823 | 0,860339137 |
| 323 | 8,861712272 | 8,394388549 | 57,64010191 | 1150,719523 | 2236,208545 | 8,197073163 | 7,227170917 | 1080 | 100 | 24,46801789 | 89,49193328 | 0,823470038 |
| 324 | 8,668570043 | 8,210313483 | 56,49042421 | 1128,08517 | 2192,192605 | 8,016830206 | 7,066208344 | 1080 | 100 | 24,47694907 | 89,49569395 | 0,787293766 |
| 325 | 8,479063386 | 8,029713529 | 55,36338108 | 1105,873076 | 2149,022452 | 7,839991037 | 6,908275499 | 1080 | 100 | 24,48570943 | 89,49941983 | 0,751798423 |
| 326 | 8,293130206 | 7,852528411 | 54,25854431 | 1084,081688 | 2106,681354 | 7,666495499 | 6,753314768 | 1080 | 100 | 24,49429951 | 89,50306106 | 0,716971062 |
| 327 | 8,110709395 | 7,678689773 | 53,17546658 | 1062,701853 | 2065,151852 | 7,496280003 | 6,601265755 | 1080 | 100 | 24,50272256 | 89,50656741 | 0,682798109 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 328 | 7,931738982 | 7,508143115 | 52,11374234 | 1041,734714 | 2024,422723 | 7,32928267 | 6,452090794 | 1080 | 100 | 24,51098533 | 89,51013843 | 0,649271097 |
| 329 | 7,7561587 | 7,340830457 | 51,07296288 | 1021,168461 | 1984,475489 | 7,165458847 | 6,305725351 | 1080 | 100 | 24,51908416 | 89,51347427 | 0,616375524 |
| 330 | 7,583908941 | 7,176692617 | 50,05271999 | 1000,998688 | 1945,298599 | 7,004740794 | 6,162130318 | 1080 | 100 | 24,52702797 | 89,51682446 | 0,584102599 |
| 331 | 7,414930737 | 7,0156741 | 49,05262065 | 981,2171132 | 1906,878481 | 6,847080494 | 6,021258964 | 1080 | 100 | 24,53481974 | 89,52013839 | 0,552441819 |
| 332 | 7,249166107 | 6,857719319 | 48,07227655 | 961,8171369 | 1869,198779 | 6,69241786 | 5,883054158 | 1080 | 100 | 24,54245834 | 89,52336667 | 0,521380346 |
| 333 | 7,086556905 | 6,702744137 | 47,11121452 | 942,8109235 | 1832,765321 | 6,540576319 | 5,749386447 | 1080 | 100 | 24,55080762 | 89,5532858 | 0,491338582 |
| 334 | 6,927035623 | 6,550638181 | 46,16885594 | 924,2600848 | 1797,096102 | 6,391530223 | 5,618480555 | 1080 | 100 | 24,55912663 | 89,58789789 | 0,461917537 |
| 335 | 6,770534094 | 6,401363237 | 45,24484034 | 906,1302835 | 1762,10141 | 6,245256634 | 5,490008041 | 1080 | 100 | 24,56728606 | 89,62322118 | 0,433043392 |
| 336 | 6,616990178 | 6,254878789 | 44,33882021 | 888,3891731 | 1727,77201 | 6,101720679 | 5,363937416 | 1080 | 100 | 24,57528979 | 89,65925512 | 0,40470907 |
| 337 | 6,4663459 | 6,111141343 | 43,45045322 | 871,0142599 | 1694,097183 | 5,960873361 | 5,240231621 | 1080 | 100 | 24,58313982 | 89,69609968 | 0,376906243 |
| 338 | 6,318546222 | 5,970105872 | 42,57940286 | 853,9889364 | 1661,064084 | 5,822676508 | 5,118845669 | 1080 | 100 | 24,59083617 | 89,73360488 | 0,3496248 |
| 339 | 6,173538244 | 5,831726579 | 41,72533825 | 837,3006822 | 1628,663366 | 5,687082836 | 4,999747393 | 1080 | 100 | 24,59838428 | 89,77192008 | 0,322857511 |
| 340 | 6,031276082 | 5,695952139 | 40,88793446 | 820,7828919 | 1596,883669 | 5,55403755 | 4,882897128 | 1080 | 100 | 24,60578829 | 89,81119483 | 0,296595462 |
| 341 | 5,891849867 | 5,562597632 | 40,06687583 | 803,6185223 | 1565,686128 | 5,42336704 | 4,768154024 | 1080 | 100 | 24,61306706 | 89,85167645 | 0,270806996 |
| 342 | 5,755207376 | 5,431627146 | 39,26186737 | 787,229443 | 1535,050928 | 5,295029065 | 4,655446805 | 1080 | 100 | 24,62020374 | 89,89286785 | 0,245476095 |
| 343 | 5,621241508 | 5,303059972 | 38,47261607 | 771,4231896 | 1504,984895 | 5,169050023 | 4,544802415 | 1080 | 100 | 24,62720276 | 89,93481824 | 0,220608814 |
| 344 | 5,489869696 | 5,176889879 | 37,69882729 | 756,0822318 | 1475,485952 | 5,045416466 | 4,436214947 | 1080 | 100 | 24,63406303 | 89,97762785 | 0,196203824 |
| 345 | 5,361024398 | 5,053337623 | 36,94093364 | 741,1338224 | 1439,507099 | 4,92570454 | 4,303614792 | 1080 | 100 | 24,62950713 | 89,55998332 | 0,166401994 |
| 346 | 5,234790616 | 4,93298152 | 36,20089729 | 725,2238768 | 1410,894448 | 4,807865067 | 4,198221055 | 1080 | 100 | 24,63530015 | 89,5624363 | 0,142714794 |
| 347 | 5,11114855 | 4,81480115 | 35,47557156 | 710,0892261 | 1382,803128 | 4,692154995 | 4,094720766 | 1080 | 100 | 24,64098381 | 89,56475013 | 0,119453147 |
| 348 | 4,989990833 | 4,698825956 | 34,76469874 | 695,5260452 | 1355,243141 | 4,578600869 | 3,993152328 | 1080 | 100 | 24,64656264 | 89,56717424 | 0,096625682 |
| 349 | 4,871235691 | 4,58505013 | 34,06799333 | 681,4192666 | 1328,211206 | 4,467206403 | 3,893505088 | 1080 | 100 | 24,65203373 | 89,56945843 | 0,074230005 |
| 350 | 4,754815544 | 4,473442033 | 33,38513608 | 667,7122902 | 1301,714416 | 4,357926978 | 3,79580687 | 1080 | 100 | 24,65742267 | 89,57284878 | 0,052272371 |
| 351 | 4,64067317 | 4,364009481 | 32,71595785 | 654,3076762 | 1275,708332 | 4,250786967 | 3,699894514 | 1080 | 100 | 24,66265661 | 89,5739087 | 0,030716108 |
| 352 | 4,528760802 | 4,256702389 | 32,06014545 | 641,2074286 | 1250,227446 | 4,145723544 | 3,605897239 | 1080 | 100 | 24,66781072 | 89,57607409 | 0,009590259 |
| 352,6 | 4,462664216 | 4,193321303 | 31,6729559 | 633,4835674 | 1237,361311 | 4,083252925 | 3,553532483 | 1080 | 100 | 24,6719375 | 89,64632027 | 0 |
| 353 | 4,419028224 | 4,151336359 | 31,4169781 | 628,4861874 | 1227,357836 | 4,042151781 | 3,516689585 | 1080 | 100 | 24,67392546 | 89,64637476 | 0 |
| 354 | 4,311383573 | 4,047874183 | 30,78605179 | 616,2734148 | 1202,690696 | 3,940876934 | 3,425934504 | 1080 | 100 | 24,67884704 | 89,6470613 | 0 |
| 355 | 4,205795005 | 3,946502183 | 30,16781013 | 604,1578913 | 1178,493371 | 3,841650369 | 3,337047001 | 1080 | 100 | 24,68369154 | 89,64841929 | 0 |
| 356 | 4,102243174 | 3,847164982 | 29,56201251 | 592,1886176 | 1154,754388 | 3,744425756 | 3,249987217 | 1080 | 100 | 24,6884684 | 89,65052385 | 0 |
| 357 | 4,000702427 | 3,749815151 | 28,96842396 | 580,3939077 | 1131,460894 | 3,649150544 | 3,164709514 | 1080 | 100 | 24,69317673 | 89,65345037 | 0 |
| 358 | 3,901143508 | 3,65441066 | 28,38681559 | 568,7893195 | 1108,602768 | 3,555785741 | 3,081175857 | 1080 | 100 | 24,69781921 | 89,65717925 | 0 |
| 359 | 3,803535213 | 3,560913038 | 27,816964 | 557,3825554 | 1086,171437 | 3,464293193 | 2,999353643 | 1080 | 100 | 24,70239849 | 89,66179145 | 0 |
| 360 | 3,707845386 | 3,469285915 | 27,25864991 | 546,1769556 | 1064,156433 | 3,374639093 | 2,919212858 | 1080 | 100 | 24,70691871 | 89,66734288 | 0 |
| 361 | 3,614041516 | 3,379494798 | 26,71165922 | 535,1727898 | 1042,550319 | 3,286789099 | 2,840722068 | 1080 | 100 | 24,71138127 | 89,67387016 | 0 |
| 362 | 3,522091108 | 3,291506295 | 26,17578179 | 524,368772 | 1021,345353 | 3,20070993 | 2,763852469 | 1080 | 100 | 24,71578834 | 89,68145035 | 0 |
| 363 | 3,43196189 | 3,205288015 | 25,65081174 | 513,7627073 | 1000,531813 | 3,116369121 | 2,688571256 | 1080 | 100 | 24,72014003 | 89,69005039 | 0 |
| 364 | 3,343621963 | 3,120808383 | 25,13654729 | 503,3516583 | 980,1031941 | 3,033735292 | 2,614855204 | 1080 | 100 | 24,72444019 | 89,69984379 | 0 |
| 365 | 3,257039858 | 3,038036582 | 24,63279077 | 493,1324209 | 960,0526193 | 2,952782252 | 2,542677495 | 1080 | 100 | 24,72869289 | 89,7108088 | 0 |
| 366 | 3,172184589 | 2,95694233 | 24,13934809 | 483,1016917 | 940,3707048 | 2,873475021 | 2,472008728 | 1080 | 100 | 24,73289674 | 89,7230549 | 0 |
| 367 | 3,089025684 | 2,877496169 | 23,65602964 | 473,2558771 | 921,0511334 | 2,795788644 | 2,402825019 | 1080 | 100 | 24,7370566 | 89,73660701 | 0 |
| 368 | 3,0075332 | 2,799668997 | 23,18264894 | 463,5915461 | 902,0866704 | 2,719691798 | 2,335100428 | 1080 | 100 | 24,74117299 | 89,75158657 | 0 |
| 369 | 2,927677719 | 2,723432398 | 22,71902362 | 454,1051044 | 883,4708507 | 2,64516028 | 2,268809814 | 1080 | 100 | 24,74524985 | 89,76796994 | 0 |
| 370 | 2,849430332 | 2,64875835 | 22,26497442 | 444,7932854 | 865,1963716 | 2,57216382 | 2,203927903 | 1080 | 100 | 24,74928755 | 89,7858756 | 0 |
| 371 | 2,77276266 | 2,575619473 | 21,82032604 | 435,6525117 | 847,256696 | 2,500675013 | 2,140430203 | 1080 | 100 | 24,75328759 | 89,80537799 | 0 |
| 372 | 2,697646828 | 2,503988784 | 21,38490625 | 426,6796455 | 829,6435663 | 2,43067062 | 2,078294873 | 1080 | 100 | 24,75725518 | 89,82652262 | 0 |
| 373 | 2,624055486 | 2,433840198 | 20,95854747 | 417,870975 | 812,3524166 | 2,362122571 | 2,017499047 | 1080 | 100 | 24,7611906 | 89,84945266 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 374 | 2,551961807 | 2,36514757 | 20,54108392 | 409,2234732 | 795,3745219 | 2,295004444 | 1,958016417 | 1080 | 100 | 24,76509425 | 89,87417137 | 0 |
| 375 | 2,481339453 | 2,297885677 | 20,13235434 | 400,733801 | 778,7070101 | 2,229294921 | 1,899827077 | 1080 | 100 | 24,76897087 | 89,90073394 | 0 |
| 376 | 2,412162563 | 2,232029391 | 19,73219956 | 392,3989593 | 762,3407426 | 2,164966573 | 1,84291123 | 1080 | 100 | 24,77282232 | 89,92937118 | 0 |
| 377 | 2,344405762 | 2,167554306 | 19,34046435 | 384,215763 | 746,271797 | 2,101996835 | 1,787241557 | 1080 | 100 | 24,77664841 | 89,95994911 | 0 |
| 378 | 2,278044149 | 2,104436529 | 18,95699672 | 376,181238 | 730,4925214 | 2,040361474 | 1,732799821 | 1080 | 100 | 24,78045224 | 89,99266256 | 0 |
| 379 | 2,213053304 | 2,042652468 | 18,58164735 | 368,2922143 | 714,9972176 | 1,980038469 | 1,679568603 | 1080 | 100 | 24,78423818 | 90,02767907 | 0 |
| 380 | 2,149409282 | 1,982179197 | 18,2142706 | 360,5457059 | 699,7800284 | 1,921004654 | 1,627522476 | 1080 | 100 | 24,78800528 | 90,06493855 | 0 |
| 381 | 2,087088599 | 1,922993928 | 17,85472291 | 352,9390168 | 684,8356366 | 1,863237082 | 1,576644751 | 1080 | 100 | 24,79175653 | 90,10466605 | 0 |
| 382 | 2,026068183 | 1,865074356 | 17,50286367 | 345,469382 | 670,158135 | 1,806714885 | 1,526913343 | 1080 | 100 | 24,79549357 | 90,14684385 | 0 |
| 383 | 1,966325431 | 1,808398923 | 17,15855612 | 338,1337193 | 655,7430567 | 1,751416363 | 1,478308838 | 1080 | 100 | 24,79921742 | 90,19157015 | 0 |
| 384 | 1,907838191 | 1,752946501 | 16,82166641 | 330,9292317 | 641,5808361 | 1,69732141 | 1,430816373 | 1080 | 100 | 24,80293315 | 90,23905992 | 0 |
| 385 | 1,850584783 | 1,698696069 | 16,49206265 | 323,8531737 | 627,6744373 | 1,644407928 | 1,384408724 | 1080 | 100 | 24,80663536 | 90,28914489 | 0 |
| 386 | 1,794543888 | 1,645626869 | 16,16961502 | 316,9032216 | 614,0119947 | 1,592659033 | 1,339077936 | 1080 | 100 | 24,81033524 | 90,34219243 | 0 |
| 387 | 1,739694611 | 1,593718779 | 15,85419712 | 310,0766813 | 600,5866139 | 1,542051164 | 1,29480091 | 1080 | 100 | 24,814029 | 90,39823918 | 0 |
| 388 | 1,686016489 | 1,542952576 | 15,54568668 | 303,3706282 | 587,4035748 | 1,49256581 | 1,251553691 | 1080 | 100 | 24,81771287 | 90,45710399 | 0 |
| 389 | 1,633489492 | 1,493308663 | 15,24396183 | 296,7826761 | 574,4450548 | 1,444186542 | 1,209333468 | 1080 | 100 | 24,82140084 | 90,51936261 | 0 |
| 390 | 1,582093959 | 1,44476812 | 14,94890401 | 290,3105152 | 561,7146961 | 1,396892045 | 1,168108943 | 1080 | 100 | 24,82508298 | 90,58463924 | 0 |
| 391 | 1,531810643 | 1,397312728 | 14,66039817 | 283,9515364 | 549,2098915 | 1,350665569 | 1,12786731 | 1080 | 100 | 24,82876278 | 90,65312427 | 0 |
| 392 | 1,482620708 | 1,350923957 | 14,37832972 | 277,7031335 | 536,9149583 | 1,305489631 | 1,088600624 | 1080 | 100 | 24,83244887 | 90,72525257 | 0 |
| 393 | 1,434505666 | 1,305584163 | 14,10258793 | 271,5633881 | 524,8309821 | 1,261346205 | 1,050285974 | 1080 | 100 | 24,83613702 | 90,80085512 | 0 |
| 394 | 1,387447452 | 1,261276217 | 13,83306501 | 265,5294022 | 512,9532979 | 1,218217377 | 1,012907868 | 1080 | 100 | 24,83982705 | 90,88006734 | 0 |
| 395 | 1,341428411 | 1,217982799 | 13,569654 | 259,5989466 | 501,2848268 | 1,176087062 | 0,976443208 | 1080 | 100 | 24,84351544 | 90,96260817 | 0 |
| 396 | 1,296431153 | 1,17568739 | 13,31225125 | 253,7699706 | 489,8091144 | 1,134939029 | 0,940890461 | 1080 | 100 | 24,84721218 | 91,04916856 | 0 |
| 397 | 1,252438769 | 1,13437359 | 13,06075503 | 248,0400607 | 478,528691 | 1,094757405 | 0,906225897 | 1080 | 100 | 24,85091226 | 91,13942652 | 0 |
| 398 | 1,209434674 | 1,094025586 | 12,81506646 | 242,4070895 | 467,4326841 | 1,055527111 | 0,872441298 | 1080 | 100 | 24,85462119 | 91,23373538 | 0 |
| 399 | 1,167402672 | 1,054627476 | 12,5750877 | 236,86853 | 456,5319956 | 1,017229747 | 0,8395063 | 1080 | 100 | 24,85832488 | 91,33153504 | 0 |
| 400 | 1,12632682 | 1,016163695 | 12,34072279 | 231,4230673 | 445,8008932 | 0,979854355 | 0,807431009 | 1080 | 100 | 24,86204518 | 91,43388863 | 0 |
| 401 | 1,086191635 | 0,978620436 | 12,11188245 | 226,0674851 | 435,2510578 | 0,94338291 | 0,776182178 | 1080 | 100 | 24,86576335 | 91,54006385 | 0 |
| 402 | 1,046981994 | 0,941981528 | 11,88847161 | 220,8005251 | 424,8792401 | 0,907800806 | 0,745745395 | 1080 | 100 | 24,86948051 | 91,65007501 | 0 |
| 403 | 1,008682977 | 0,906233196 | 11,67040301 | 215,6199619 | 414,6652817 | 0,87309678 | 0,716124437 | 1080 | 100 | 24,87321075 | 91,76472334 | 0 |
| 404 | 0,97128015 | 0,871361678 | 11,45759095 | 210,5234363 | 404,6236207 | 0,839254016 | 0,687286561 | 1080 | 100 | 24,87693552 | 91,88318183 | 0 |
| 405 | 0,934759334 | 0,837353225 | 11,24995068 | 205,5088927 | 394,7420263 | 0,806260238 | 0,659228007 | 1080 | 100 | 24,88066174 | 92,00590393 | 0 |
| 406 | 0,899106726 | 0,804193801 | 11,0473978 | 200,5750665 | 385,0072216 | 0,774103381 | 0,631943918 | 1080 | 100 | 24,88439662 | 92,13329658 | 0 |
| 407 | 0,864308861 | 0,771871305 | 10,84985471 | 195,7186984 | 375,4471077 | 0,742766181 | 0,605389814 | 1080 | 100 | 24,88810892 | 92,26382571 | 0 |
| 408 | 0,830352608 | 0,740372347 | 10,65724111 | 190,9385074 | 366,017367 | 0,712241794 | 0,579595241 | 1080 | 100 | 24,89183463 | 92,39953148 | 0 |
| 409 | 0,797225218 | 0,709684703 | 10,46948136 | 186,2322002 | 356,7353622 | 0,682513936 | 0,554523497 | 1080 | 100 | 24,89554976 | 92,53923641 | 0 |
| 410 | 0,764914143 | 0,679795241 | 10,28649783 | 181,5988371 | 347,5994213 | 0,65357032 | 0,530162852 | 1080 | 100 | 24,89925289 | 92,68293378 | 0 |
| 411 | 0,733407152 | 0,650693413 | 10,10822151 | 177,0357225 | 338,6072235 | 0,625399525 | 0,506500088 | 1080 | 100 | 24,90293879 | 92,83047085 | 0 |
| 412 | 0,702692454 | 0,622366517 | 9,93457847 | 172,5412317 | 329,7570229 | 0,597989278 | 0,483521795 | 1080 | 100 | 24,90660427 | 92,98171454 | 0 |
| 413 | 0,672758444 | 0,594802911 | 9,7654985 | 168,113591 | 321,0195687 | 0,571331277 | 0,461237706 | 1080 | 100 | 24,91026634 | 93,13772829 | 0 |
| 414 | 0,643593888 | 0,567991913 | 9,600915395 | 163,7502897 | 312,4190706 | 0,545410724 | 0,439613538 | 1080 | 100 | 24,91389912 | 93,2972335 | 0 |
| 415 | 0,615187864 | 0,541922939 | 9,440764243 | 159,4502813 | 303,9539942 | 0,52021605 | 0,418634759 | 1080 | 100 | 24,91749586 | 93,45993807 | 0 |
| 416 | 0,587529763 | 0,516584461 | 9,284978346 | 155,2115681 | 295,5932034 | 0,49574131 | 0,398315585 | 1080 | 100 | 24,92107783 | 93,62706273 | 0 |
| 417 | 0,56060922 | 0,491966006 | 9,133494905 | 151,0322459 | 287,3640579 | 0,471970288 | 0,378617176 | 1080 | 100 | 24,92461429 | 93,79701293 | 0 |
| 418 | 0,534416162 | 0,46805829 | 8,986255542 | 146,9106906 | 279,2335909 | 0,448898199 | 0,359555038 | 1080 | 100 | 24,92812473 | 93,97103251 | 0 |
| 419 | 0,508940965 | 0,444851961 | 8,843203065 | 142,8444945 | 271,2318456 | 0,42651027 | 0,341090345 | 1080 | 100 | 24,93157805 | 94,14735704 | 0 |
| 420 | 0,48417428 | 0,422334735 | 8,704272543 | 138,8330303 | 263,3235505 | 0,404799609 | 0,323237355 | 1080 | 100 | 24,93499522 | 94,32728635 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 421 | 0,460106752 | 0,40049879 | 8,569412197 | 134,87434 | 255,5417062 | 0,383752439 | 0,305957506 | 1080 | 100 | 24,93834396 | 94,50892545 | 0 |
| 422 | 0,436729601 | 0,379335467 | 8,438569549 | 130,9650879 | 247,8497277 | 0,363364976 | 0,289268713 | 1080 | 100 | 24,9416446 | 94,69363207 | 0 |
| 423 | 0,414034451 | 0,358835329 | 8,311691065 | 127,1051459 | 240,2826923 | 0,34362203 | 0,273129862 | 1080 | 100 | 24,94486495 | 94,87933751 | 0 |
| 424 | 0,392012905 | 0,338989283 | 8,188724232 | 123,292983 | 232,762778 | 0,32452475 | 0,257588398 | 1080 | 100 | 24,94805138 | 95,06923523 | 0 |
| 425 | 0,370657326 | 0,319788937 | 8,069620869 | 119,5250713 | 225,3650381 | 0,306053814 | 0,24257537 | 1080 | 100 | 24,95114635 | 95,25945533 | 0 |
| 426 | 0,34995998 | 0,301226389 | 7,954334011 | 115,8007558 | 218,0908652 | 0,288201002 | 0,228079898 | 1080 | 100 | 24,95414459 | 95,44951117 | 0 |
| 427 | 0,329913364 | 0,283292276 | 7,84281313 | 112,1198262 | 210,8554343 | 0,270966523 | 0,214149518 | 1080 | 100 | 24,95709106 | 95,64275588 | 0 |
| 428 | 0,310510445 | 0,265978329 | 7,735012333 | 108,4788457 | 203,7417057 | 0,254331706 | 0,200714752 | 1080 | 100 | 24,9599306 | 95,83503199 | 0 |
| 429 | 0,291744098 | 0,249278239 | 7,630891261 | 104,8779447 | 196,7062461 | 0,238294745 | 0,187796244 | 1080 | 100 | 24,96268312 | 96,02778969 | 0 |
| 430 | 0,273607968 | 0,233181848 | 7,530400564 | 101,3148468 | 189,7006097 | 0,222850533 | 0,175411997 | 1080 | 100 | 24,9653683 | 96,222597 | 0 |
| 431 | 0,256095706 | 0,217684017 | 7,433505687 | 97,78659812 | 182,863631 | 0,207977432 | 0,163464077 | 1080 | 100 | 24,96790921 | 96,41304067 | 0 |
| 432 | 0,239201008 | 0,202776578 | 7,340163351 | 94,29508861 | 176,0541091 | 0,193682807 | 0,152032479 | 1080 | 100 | 24,97037442 | 96,60463748 | 0 |
| 433 | 0,222918549 | 0,188453791 | 7,250340318 | 90,83182458 | 169,2674668 | 0,179960094 | 0,141107832 | 1080 | 100 | 24,97275816 | 96,79690516 | 0 |
| 434 | 0,207243058 | 0,174706576 | 7,163993753 | 87,4014467 | 162,6021405 | 0,166789681 | 0,130620647 | 1080 | 100 | 24,97501285 | 96,98538548 | 0 |
| 435 | 0,192168904 | 0,161528139 | 7,081086504 | 84,00170786 | 156,0082866 | 0,154169318 | 0,120591088 | 1080 | 100 | 24,9771587 | 97,17157198 | 0 |
| 436 | 0,177691257 | 0,148914667 | 7,001592554 | 80,62967989 | 149,48585 | 0,142094927 | 0,111013356 | 1080 | 100 | 24,97919407 | 97,35497356 | 0 |
| 437 | 0,163805582 | 0,136856595 | 6,925469912 | 77,28284224 | 143,0340804 | 0,130556385 | 0,101876263 | 1080 | 100 | 24,98111792 | 97,53513262 | 0 |
| 438 | 0,150507022 | 0,12534858 | 6,852688054 | 73,96386191 | 136,5968188 | 0,119552815 | 0,093199648 | 1080 | 100 | 24,98294799 | 97,71349593 | 0 |
| 439 | 0,137791903 | 0,114386101 | 6,78322239 | 70,66574142 | 130,2281038 | 0,10907442 | 0,084949117 | 1080 | 100 | 24,98466453 | 97,88758927 | 0 |
| 440 | 0,125655742 | 0,103957635 | 6,717025426 | 67,39619004 | 123,9274671 | 0,099109153 | 0,077111703 | 1080 | 100 | 24,98626835 | 98,05694972 | 0 |
| 441 | 0,114095269 | 0,094066683 | 6,654097345 | 64,13642643 | 117,6961933 | 0,089660219 | 0,069689441 | 1080 | 100 | 24,98776089 | 98,22112005 | 0 |
| 442 | 0,103107288 | 0,084700415 | 6,594390665 | 60,90336912 | 111,4735391 | 0,080719078 | 0,062693094 | 1080 | 100 | 24,989159 | 98,38146044 | 0 |
| 443 | 0,09268853 | 0,075858668 | 6,537894878 | 57,68475393 | 105,380142 | 0,072276218 | 0,056072016 | 1080 | 100 | 24,99043515 | 98,53392283 | 0 |
| 444 | 0,082835726 | 0,067526335 | 6,484555662 | 54,4900905 | 99,29399456 | 0,064325021 | 0,049858407 | 1080 | 100 | 24,99162083 | 98,68164727 | 0 |
| 445 | 0,073545347 | 0,05970144 | 6,434356486 | 51,30896625 | 93,21329747 | 0,056862955 | 0,044047394 | 1080 | 100 | 24,99271705 | 98,82411255 | 0 |
| 446 | 0,064815139 | 0,052389884 | 6,387307684 | 48,1350452 | 87,13703248 | 0,049895141 | 0,038641269 | 1080 | 100 | 24,99372496 | 98,96076065 | 0 |
| 447 | 0,05664422 | 0,045573842 | 6,343354047 | 44,97984144 | 81,19217772 | 0,043396225 | 0,033580732 | 1080 | 100 | 24,99462672 | 99,08811524 | 0 |
| 448 | 0,049029057 | 0,039261594 | 6,302509185 | 41,82897737 | 75,10248957 | 0,037373042 | 0,028939315 | 1080 | 100 | 24,9954633 | 99,21207589 | 0 |
| 449 | 0,041977782 | 0,033485421 | 6,264891321 | 38,59922223 | 68,74483376 | 0,031870304 | 0,024777308 | 1080 | 100 | 24,99625012 | 99,33390981 | 0 |
| 450 | 0,035503772 | 0,028235931 | 6,230511855 | 35,31479503 | 62,79368512 | 0,026858673 | 0,020919706 | 1080 | 100 | 24,99690902 | 99,43964537 | 0 |
| 451 | 0,029607043 | 0,023469491 | 6,199242632 | 32,06608813 | 56,71563741 | 0,022320489 | 0,017460259 | 1080 | 100 | 24,99750975 | 99,53945451 | 0 |
| 452 | 0,024281888 | 0,019190838 | 6,171080582 | 28,84242803 | 50,91322408 | 0,018242154 | 0,014314197 | 1080 | 100 | 24,99801582 | 99,62635096 | 0 |
| 453 | 0,01951961 | 0,015384029 | 6,145953247 | 25,6649217 | 44,97823744 | 0,014623669 | 0,011550316 | 1080 | 100 | 24,99846882 | 99,7066357 | 0 |
| 454 | 0,015317428 | 0,012036619 | 6,12381581 | 22,52986948 | 39,32079764 | 0,011438716 | 0,009084527 | 1080 | 100 | 24,99884141 | 99,77459763 | 0 |
| 455 | 0,011658349 | 0,009116331 | 6,10452364 | 19,52038999 | 33,94312829 | 0,008656836 | 0,006898996 | 1080 | 100 | 24,99914411 | 99,83124583 | 0 |
| 456 | 0,008525445 | 0,00664955 | 6,088104346 | 16,5146991 | 28,56884383 | 0,006311582 | 0,005064198 | 1080 | 100 | 24,99939846 | 99,87997976 | 0 |
| 457 | 0,005913853 | 0,004581553 | 6,074383103 | 13,6544916 | 23,19580594 | 0,004349475 | 0,003525989 | 1080 | 100 | 24,99960626 | 99,92061632 | 0 |
| 458 | 0,003805466 | 0,002930154 | 6,06335896 | 10,84351158 | 18,10416479 | 0,002781436 | 0,00227921 | 1080 | 100 | 24,9997615 | 99,95151241 | 0 |
| 459 | 0,002190213 | 0,001665519 | 6,054914848 | 8,066731706 | 13,57701946 | 0,001576819 | 0,001294102 | 1080 | 100 | 24,99986641 | 99,97267318 | 0 |
| 460 | 0,001039531 | 0,000776286 | 6,048933654 | 5,302753356 | 9,05136416 | 0,000733484 | 0,00060775 | 1080 | 100 | 24,99994081 | 99,98783695 | 0 |
| 461 | 0,000312582 | 0,000263292 | 6,045298053 | 3,394864427 | 4,525938239 | 0,000250334 | 0,000218886 | 1080 | 100 | 24,99998523 | 99,99695637 | 0 |
| 461,4 | 0,000158587 | 9,73065E-05 | 6,044828931 | 2,430368246 | 4,525535132 | 0,000158416 | 0,000126971 | 1080 | 100 | 24,99998524 | 99,99695637 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 0 | -34,48743793 | 1454,734077 | 0,031687384 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,220854 | 124,848 | 132,9511 | 10,89893 | 40,66309 | 42,26911 | 19,37054 |
| 1 | -34,42868577 | 1454,720269 | 0,031786488 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,22038 | 124,8465 | 132,9505 | 10,89753 | 40,65802 | 42,26381 | 19,36811 |
| 2 | -34,38031887 | 1454,708914 | 0,031868166 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,21999 | 124,8452 | 132,9499 | 10,89639 | 40,65384 | 42,25944 | 19,36612 |
| 3 | -34,33184619 | 1454,697544 | 0,031950108 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,2196 | 124,8438 | 132,9494 | 10,89523 | 40,64966 | 42,25506 | 19,36412 |
| 4 | -34,28317025 | 1454,686136 | 0,032032483 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,219207 | 124,8425 | 132,9489 | 10,89408 | 40,64546 | 42,25067 | 19,36211 |
| 5 | -34,23428563 | 1454,674689 | 0,032115303 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,218814 | 124,8411 | 132,9483 | 10,89292 | 40,64125 | 42,24626 | 19,36009 |
| 6 | -34,18519191 | 1454,663204 | 0,032198574 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,218418 | 124,8397 | 132,9478 | 10,89175 | 40,63702 | 42,24183 | 19,35806 |
| 7 | -34,13588978 | 1454,651681 | 0,032282298 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,218021 | 124,8383 | 132,9472 | 10,89058 | 40,63277 | 42,23739 | 19,35603 |
| 8 | -34,08637861 | 1454,640119 | 0,032366481 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,217622 | 124,8369 | 132,9467 | 10,88941 | 40,62851 | 42,23293 | 19,35399 |
| 9 | -34,03665859 | 1454,628518 | 0,032451126 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,217222 | 124,8354 | 132,9461 | 10,88823 | 40,62423 | 42,22845 | 19,35194 |
| 10 | -33,98672997 | 1454,61688 | 0,032536236 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,21682 | 124,834 | 132,9455 | 10,88705 | 40,61993 | 42,22395 | 19,34988 |
| 11 | -33,93659245 | 1454,605204 | 0,032621817 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,216416 | 124,8325 | 132,945 | 10,88586 | 40,61561 | 42,21943 | 19,34782 |
| 12 | -33,88624633 | 1454,59349 | 0,032707872 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,216011 | 124,8309 | 132,9444 | 10,88467 | 40,61128 | 42,2149 | 19,34574 |
| 13 | -33,8356917 | 1454,581738 | 0,032794405 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,215604 | 124,8294 | 132,9438 | 10,88347 | 40,60694 | 42,21035 | 19,34366 |
| 14 | -33,78492859 | 1454,569949 | 0,032881421 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,215195 | 124,8278 | 132,9432 | 10,88227 | 40,60257 | 42,20579 | 19,34157 |
| 15 | -33,73395689 | 1454,558122 | 0,032968924 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,214785 | 124,8262 | 132,9426 | 10,88107 | 40,59819 | 42,2012 | 19,33948 |
| 16 | -33,68277672 | 1454,546258 | 0,033056918 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,214373 | 124,8246 | 132,942 | 10,87986 | 40,5938 | 42,1966 | 19,33737 |
| 17 | -33,63138827 | 1454,534357 | 0,033145408 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,213959 | 124,8229 | 132,9414 | 10,87864 | 40,58938 | 42,19199 | 19,33526 |
| 18 | -33,57979146 | 1454,522419 | 0,033234398 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,213544 | 124,8213 | 132,9408 | 10,87742 | 40,58496 | 42,18735 | 19,33314 |
| 19 | -33,52798631 | 1454,510444 | 0,033323892 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,213128 | 124,8196 | 132,9402 | 10,8762 | 40,58051 | 42,1827 | 19,33101 |
| 20 | -33,47597308 | 1454,498433 | 0,033413895 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,212709 | 124,8179 | 132,9396 | 10,87497 | 40,57605 | 42,17803 | 19,32888 |
| 21 | -33,42375151 | 1454,486384 | 0,033504412 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,212289 | 124,8161 | 132,9389 | 10,87374 | 40,57157 | 42,17334 | 19,32673 |
| 22 | -33,37132198 | 1454,474299 | 0,033595448 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,211868 | 124,8143 | 132,9383 | 10,8725 | 40,56707 | 42,16864 | 19,32458 |
| 23 | -33,31868461 | 1454,462178 | 0,033687006 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,211445 | 124,8125 | 132,9377 | 10,87126 | 40,56256 | 42,16392 | 19,32242 |
| 24 | -33,26583923 | 1454,450021 | 0,033779092 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,21102 | 124,8107 | 132,937 | 10,87001 | 40,55804 | 42,15918 | 19,32025 |
| 25 | -33,21278579 | 1454,437827 | 0,033871711 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,210593 | 124,8089 | 132,9364 | 10,86876 | 40,55349 | 42,15443 | 19,31808 |
| 26 | -33,15952478 | 1454,425598 | 0,033964868 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,210165 | 124,807 | 132,9357 | 10,86751 | 40,54893 | 42,14966 | 19,3159 |
| 27 | -33,10605617 | 1454,413332 | 0,034058566 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,209736 | 124,8051 | 132,9351 | 10,86625 | 40,54436 | 42,14487 | 19,31371 |
| 28 | -33,05237971 | 1454,401032 | 0,034152812 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,209304 | 124,8032 | 132,9344 | 10,86499 | 40,53976 | 42,14007 | 19,31151 |
| 29 | -32,99849602 | 1454,388695 | 0,034247611 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,208872 | 124,8012 | 132,9338 | 10,86372 | 40,53516 | 42,13524 | 19,3093 |
| 30 | -32,94440462 | 1454,376324 | 0,034342967 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,208437 | 124,7992 | 132,9331 | 10,86244 | 40,53053 | 42,1304 | 19,30709 |
| 31 | -32,89010625 | 1454,363917 | 0,034438886 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,208001 | 124,7972 | 132,9324 | 10,86117 | 40,52589 | 42,12555 | 19,30487 |
| 32 | -32,83560022 | 1454,351475 | 0,034535373 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,207563 | 124,7952 | 132,9317 | 10,85989 | 40,52123 | 42,12068 | 19,30264 |
| 33 | -32,7808873 | 1454,338998 | 0,034632433 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,207124 | 124,7931 | 132,931 | 10,8586 | 40,51656 | 42,11579 | 19,3004 |
| 34 | -32,72596722 | 1454,326486 | 0,034730072 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,206683 | 124,791 | 132,9303 | 10,85731 | 40,51187 | 42,11088 | 19,29816 |
| 35 | -32,67084001 | 1454,31394 | 0,034828295 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,206241 | 124,7888 | 132,9296 | 10,85602 | 40,50717 | 42,10596 | 19,29591 |
| 36 | -32,615506 | 1454,301359 | 0,034927108 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,205796 | 124,7867 | 132,9289 | 10,85472 | 40,50245 | 42,10102 | 19,29365 |
| 37 | -32,5599653 | 1454,288744 | 0,035026516 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,205351 | 124,7845 | 132,9282 | 10,85341 | 40,49771 | 42,09606 | 19,29138 |
| 38 | -32,50421807 | 1454,276095 | 0,035126525 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,204903 | 124,7823 | 132,9275 | 10,85211 | 40,49296 | 42,09109 | 19,2891 |
| 39 | -32,44826399 | 1454,263412 | 0,03522714 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,204455 | 124,78 | 132,9268 | 10,85079 | 40,48819 | 42,0861 | 19,28682 |
| 40 | -32,39210353 | 1454,250695 | 0,035328368 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,204004 | 124,7777 | 132,926 | 10,84948 | 40,4834 | 42,0811 | 19,28453 |
| 41 | -32,33573701 | 1454,237944 | 0,035430214 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,203552 | 124,7754 | 132,9253 | 10,84816 | 40,4786 | 42,07607 | 19,28223 |
| 42 | -32,27916395 | 1454,22516 | 0,035532684 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,203098 | 124,7731 | 132,9246 | 10,84683 | 40,47379 | 42,07103 | 19,27993 |
| 43 | -32,22238472 | 1454,212342 | 0,035635785 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,202643 | 124,7707 | 132,9238 | 10,8455 | 40,46895 | 42,06598 | 19,27762 |
| 44 | -32,16539975 | 1454,199491 | 0,035739522 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,202186 | 124,7683 | 132,923 | 10,84417 | 40,46411 | 42,06091 | 19,2753 |
| 45 | -32,10820872 | 1454,186607 | 0,035843901 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,201728 | 124,7658 | 132,9223 | 10,84283 | 40,45924 | 42,05582 | 19,27297 |
| 46 | -32,05081212 | 1454,17369 | 0,035948929 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,201268 | 124,7634 | 132,9215 | 10,84149 | 40,45436 | 42,05071 | 19,27063 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 47 | -31,99320949 | 1454,16074 | 0,036054612 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,200806 | 124,7609 | 132,9207 | 10,84014 | 40,44947 | 42,04559 | 19,26829 |
| 48 | -31,93540169 | 1454,147757 | 0,036160956 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,200343 | 124,7583 | 132,92 | 10,83879 | 40,44456 | 42,04046 | 19,26594 |
| 49 | -31,87738831 | 1454,134742 | 0,036267969 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,199878 | 124,7557 | 132,9192 | 10,83744 | 40,43963 | 42,0353 | 19,26358 |
| 50 | -31,8191698 | 1454,121694 | 0,036375656 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,199412 | 124,7531 | 132,9184 | 10,83608 | 40,43469 | 42,03013 | 19,26122 |
| 51 | -31,76074615 | 1454,108615 | 0,036484024 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,198944 | 124,7505 | 132,9176 | 10,83472 | 40,42973 | 42,02495 | 19,25884 |
| 52 | -31,70211738 | 1454,095503 | 0,036593081 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,198474 | 124,7478 | 132,9168 | 10,83335 | 40,42476 | 42,01974 | 19,25646 |
| 53 | -31,64328355 | 1454,082359 | 0,036702832 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,198003 | 124,7451 | 132,916 | 10,83198 | 40,41977 | 42,01452 | 19,25408 |
| 54 | -31,58424531 | 1454,069184 | 0,036813285 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,19753 | 124,7423 | 132,9151 | 10,8306 | 40,41477 | 42,00929 | 19,25168 |
| 55 | -31,52500233 | 1454,055977 | 0,036924446 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,197056 | 124,7395 | 132,9143 | 10,82922 | 40,40975 | 42,00404 | 19,24928 |
| 56 | -31,46555485 | 1454,042739 | 0,037036324 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,19658 | 124,7367 | 132,9135 | 10,82784 | 40,40471 | 41,99877 | 19,24687 |
| 57 | -31,40590316 | 1454,029469 | 0,037148924 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,196103 | 124,7338 | 132,9126 | 10,82645 | 40,39966 | 41,99349 | 19,24445 |
| 58 | -31,34604733 | 1454,016169 | 0,037262255 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,195624 | 124,7309 | 132,9118 | 10,82505 | 40,3946 | 41,98819 | 19,24203 |
| 59 | -31,28598728 | 1454,002837 | 0,037376324 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,195144 | 124,728 | 132,9109 | 10,82366 | 40,38952 | 41,98287 | 19,2396 |
| 60 | -31,22572343 | 1453,989475 | 0,037491138 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,194662 | 124,725 | 132,9101 | 10,82226 | 40,38442 | 41,97754 | 19,23716 |
| 61 | -31,1652558 | 1453,976082 | 0,037606705 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,194178 | 124,722 | 132,9092 | 10,82085 | 40,37931 | 41,9722 | 19,23471 |
| 62 | -31,10458472 | 1453,962658 | 0,037723033 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,193693 | 124,7189 | 132,9083 | 10,81944 | 40,37418 | 41,96683 | 19,23226 |
| 63 | -31,04371005 | 1453,949204 | 0,03784013 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,193206 | 124,7158 | 132,9074 | 10,81803 | 40,36904 | 41,96145 | 19,2298 |
| 64 | -30,98263222 | 1453,93572 | 0,037958002 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,192718 | 124,7126 | 132,9066 | 10,81661 | 40,36389 | 41,95606 | 19,22733 |
| 65 | -30,92135098 | 1453,922206 | 0,038076659 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,192228 | 124,7095 | 132,9057 | 10,81519 | 40,35871 | 41,95065 | 19,22485 |
| 66 | -30,8598669 | 1453,908663 | 0,038196109 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,191737 | 124,7062 | 132,9047 | 10,81376 | 40,35353 | 41,94522 | 19,22237 |
| 67 | -30,79818006 | 1453,895089 | 0,03831636 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,191244 | 124,703 | 132,9038 | 10,81233 | 40,34833 | 41,93978 | 19,21988 |
| 68 | -30,73629067 | 1453,881486 | 0,03843742 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,19075 | 124,6996 | 132,9029 | 10,8109 | 40,34311 | 41,93432 | 19,21738 |
| 69 | -30,67419872 | 1453,867854 | 0,038559297 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,190254 | 124,6963 | 132,902 | 10,80946 | 40,33788 | 41,92885 | 19,21488 |
| 70 | -30,61190427 | 1453,854193 | 0,038682001 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,189756 | 124,6929 | 132,901 | 10,80802 | 40,33263 | 41,92336 | 19,21237 |
| 71 | -30,5494077 | 1453,840502 | 0,03880554 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,189257 | 124,6894 | 132,9001 | 10,80657 | 40,32737 | 41,91786 | 19,20985 |
| 72 | -30,48670896 | 1453,826783 | 0,038929922 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,188756 | 124,6859 | 132,8991 | 10,80512 | 40,32209 | 41,91234 | 19,20733 |
| 73 | -30,42380878 | 1453,813035 | 0,039055158 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,188254 | 124,6824 | 132,8982 | 10,80367 | 40,3168 | 41,9068 | 19,20479 |
| 74 | -30,36070656 | 1453,799259 | 0,039181255 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,187751 | 124,6788 | 132,8972 | 10,80221 | 40,31149 | 41,90125 | 19,20225 |
| 75 | -30,29740314 | 1453,785454 | 0,039308224 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,187245 | 124,6752 | 132,8962 | 10,80074 | 40,30617 | 41,89568 | 19,19971 |
| 76 | -30,23389853 | 1453,771621 | 0,039436073 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,186739 | 124,6715 | 132,8953 | 10,79928 | 40,30083 | 41,8901 | 19,19715 |
| 77 | -30,17019233 | 1453,75776 | 0,039564812 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,18623 | 124,6678 | 132,8943 | 10,79781 | 40,29548 | 41,8845 | 19,19459 |
| 78 | -30,10628557 | 1453,743871 | 0,039694451 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,185721 | 124,664 | 132,8933 | 10,79633 | 40,29012 | 41,87889 | 19,19202 |
| 79 | -30,04217756 | 1453,729954 | 0,039824999 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,185209 | 124,6602 | 132,8923 | 10,79485 | 40,28474 | 41,87326 | 19,18945 |
| 80 | -29,97786926 | 1453,71601 | 0,039956467 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,184697 | 124,6563 | 132,8912 | 10,79337 | 40,27934 | 41,86762 | 19,18687 |
| 81 | -29,91336056 | 1453,702038 | 0,040088863 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,184182 | 124,6523 | 132,8902 | 10,79188 | 40,27393 | 41,86196 | 19,18428 |
| 82 | -29,8486514 | 1453,688039 | 0,0402222 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,183666 | 124,6484 | 132,8892 | 10,79039 | 40,26851 | 41,85629 | 19,18168 |
| 83 | -29,7837423 | 1453,674013 | 0,040356486 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,183149 | 124,6443 | 132,8881 | 10,7889 | 40,26307 | 41,8506 | 19,17908 |
| 84 | -29,71863316 | 1453,659961 | 0,040491733 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,18263 | 124,6402 | 132,8871 | 10,7874 | 40,25761 | 41,8449 | 19,17647 |
| 85 | -29,65332459 | 1453,645881 | 0,040627951 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,18211 | 124,6361 | 132,886 | 10,7859 | 40,25215 | 41,83918 | 19,17385 |
| 86 | -29,58781645 | 1453,631775 | 0,040765151 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,181588 | 124,6319 | 132,8849 | 10,78439 | 40,24666 | 41,83344 | 19,17123 |
| 87 | -29,52210904 | 1453,617643 | 0,040903343 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,181065 | 124,6277 | 132,8839 | 10,78288 | 40,24117 | 41,82769 | 19,1686 |
| 88 | -29,45620239 | 1453,603484 | 0,04104254 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,18054 | 124,6234 | 132,8828 | 10,78137 | 40,23566 | 41,82193 | 19,16596 |
| 89 | -29,39009677 | 1453,5893 | 0,041182752 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,180013 | 124,619 | 132,8817 | 10,77985 | 40,23013 | 41,81615 | 19,16332 |
| 90 | -29,32379234 | 1453,575089 | 0,04132399 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,179486 | 124,6146 | 132,8806 | 10,77833 | 40,22459 | 41,81036 | 19,16067 |
| 91 | -29,25728933 | 1453,560853 | 0,041466267 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,178956 | 124,6101 | 132,8794 | 10,7768 | 40,21904 | 41,80455 | 19,15801 |
| 92 | -29,19058848 | 1453,546591 | 0,041609594 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,178425 | 124,6056 | 132,8783 | 10,77527 | 40,21347 | 41,79872 | 19,15535 |
| 93 | -29,12368889 | 1453,532304 | 0,041753983 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,177893 | 124,601 | 132,8772 | 10,77374 | 40,20789 | 41,79288 | 19,15267 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 94 | -29,05659171 | 1453,517992 | 0,041899447 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,177359 | 124,5963 | 132,876 | 10,7722 | 40,20229 | 41,78703 | 19,15 |
| 95 | -28,98929643 | 1453,503654 | 0,042045997 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,176824 | 124,5916 | 132,8749 | 10,77066 | 40,19668 | 41,78116 | 19,14731 |
| 96 | -28,92180396 | 1453,489292 | 0,042193647 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,176287 | 124,5868 | 132,8737 | 10,76911 | 40,19106 | 41,77528 | 19,14462 |
| 97 | -28,85411392 | 1453,474905 | 0,042342409 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,175749 | 124,582 | 132,8725 | 10,76756 | 40,18542 | 41,76938 | 19,14192 |
| 98 | -28,786227 | 1453,460493 | 0,042492295 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,175209 | 124,577 | 132,8713 | 10,76601 | 40,17977 | 41,76347 | 19,13922 |
| 99 | -28,71814303 | 1453,446057 | 0,04264332 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,174668 | 124,5721 | 132,8702 | 10,76445 | 40,1741 | 41,75754 | 19,13651 |
| 100 | -28,64986199 | 1453,431597 | 0,042795496 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,174125 | 124,567 | 132,8689 | 10,76289 | 40,16842 | 41,7516 | 19,13379 |
| 101 | -28,5813848 | 1453,417113 | 0,042948837 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,173581 | 124,5619 | 132,8677 | 10,76133 | 40,16272 | 41,74565 | 19,13106 |
| 102 | -28,5127112 | 1453,402604 | 0,043103357 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,173036 | 124,5567 | 132,8665 | 10,75976 | 40,15702 | 41,73968 | 19,12833 |
| 103 | -28,44384144 | 1453,388073 | 0,04325907 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,172488 | 124,5515 | 132,8653 | 10,75819 | 40,15129 | 41,73369 | 19,12559 |
| 104 | -28,37477591 | 1453,373517 | 0,043415989 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,17194 | 124,5462 | 132,864 | 10,75661 | 40,14556 | 41,72769 | 19,12285 |
| 105 | -28,30551467 | 1453,358938 | 0,04357413 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,17139 | 124,5408 | 132,8627 | 10,75504 | 40,13981 | 41,72168 | 19,1201 |
| 106 | -28,23605783 | 1453,344336 | 0,043733507 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,170838 | 124,5353 | 132,8615 | 10,75345 | 40,13404 | 41,71565 | 19,11734 |
| 107 | -28,16640608 | 1453,329711 | 0,043894135 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,170286 | 124,5298 | 132,8602 | 10,75187 | 40,12827 | 41,70961 | 19,11458 |
| 108 | -28,096559 | 1453,315063 | 0,044056029 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,169731 | 124,5242 | 132,8589 | 10,75028 | 40,12248 | 41,70356 | 19,1118 |
| 109 | -28,02651704 | 1453,300393 | 0,044219204 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,169175 | 124,5185 | 132,8576 | 10,74868 | 40,11667 | 41,69749 | 19,10903 |
| 110 | -27,95628082 | 1453,2857 | 0,044383676 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,168618 | 124,5128 | 132,8563 | 10,74708 | 40,11086 | 41,6914 | 19,10624 |
| 111 | -27,88584977 | 1453,270984 | 0,044549462 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,168059 | 124,5069 | 132,8549 | 10,74548 | 40,10502 | 41,6853 | 19,10345 |
| 112 | -27,81522476 | 1453,256246 | 0,044716576 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,167499 | 124,501 | 132,8536 | 10,74388 | 40,09918 | 41,67919 | 19,10066 |
| 113 | -27,7444059 | 1453,241487 | 0,044885036 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,166938 | 124,495 | 132,8522 | 10,74227 | 40,09332 | 41,67307 | 19,09785 |
| 114 | -27,6733934 | 1453,226705 | 0,045054858 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,166375 | 124,4889 | 132,8509 | 10,74066 | 40,08745 | 41,66693 | 19,09504 |
| 115 | -27,60218724 | 1453,211902 | 0,045226059 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,16581 | 124,4828 | 132,8495 | 10,73904 | 40,08156 | 41,66077 | 19,09223 |
| 116 | -27,53078752 | 1453,197077 | 0,045398656 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,165244 | 124,4765 | 132,8481 | 10,73742 | 40,07567 | 41,6546 | 19,08941 |
| 117 | -27,45919524 | 1453,18223 | 0,045572667 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,164677 | 124,4702 | 132,8467 | 10,7358 | 40,06975 | 41,64842 | 19,08658 |
| 118 | -27,38740993 | 1453,167363 | 0,04574811 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,164108 | 124,4638 | 132,8453 | 10,73417 | 40,06383 | 41,64222 | 19,08374 |
| 119 | -27,31543207 | 1453,152474 | 0,045925002 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,163538 | 124,4573 | 132,8438 | 10,73254 | 40,05789 | 41,63601 | 19,0809 |
| 120 | -27,24326186 | 1453,137565 | 0,046103363 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,162967 | 124,4507 | 132,8424 | 10,73091 | 40,05194 | 41,62979 | 19,07805 |
| 121 | -27,17089925 | 1453,122635 | 0,04628321 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,162394 | 124,444 | 132,8409 | 10,72927 | 40,04598 | 41,62355 | 19,0752 |
| 122 | -27,09834473 | 1453,107684 | 0,046464563 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,161819 | 124,4372 | 132,8395 | 10,72763 | 40,04 | 41,6173 | 19,07234 |
| 123 | -27,02559887 | 1453,092713 | 0,046647442 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,161244 | 124,4303 | 132,838 | 10,72598 | 40,03401 | 41,61104 | 19,06947 |
| 124 | -26,95266129 | 1453,077722 | 0,046831865 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,160666 | 124,4234 | 132,8365 | 10,72434 | 40,028 | 41,60476 | 19,0666 |
| 125 | -26,87953249 | 1453,062711 | 0,047017854 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,160088 | 124,4163 | 132,835 | 10,72268 | 40,02199 | 41,59847 | 19,06372 |
| 126 | -26,80621274 | 1453,04768 | 0,047205427 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,159508 | 124,4091 | 132,8334 | 10,72103 | 40,01596 | 41,59216 | 19,06084 |
| 127 | -26,73270242 | 1453,032629 | 0,047394607 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,158926 | 124,4019 | 132,8319 | 10,71937 | 40,00992 | 41,58585 | 19,05795 |
| 128 | -26,65900102 | 1453,017558 | 0,047585415 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,158344 | 124,3945 | 132,8303 | 10,71771 | 40,00386 | 41,57951 | 19,05505 |
| 129 | -26,58510992 | 1453,002469 | 0,04777787 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,157759 | 124,387 | 132,8288 | 10,71604 | 39,99779 | 41,57317 | 19,05215 |
| 130 | -26,51102855 | 1452,98736 | 0,047971997 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,157174 | 124,3795 | 132,8272 | 10,71437 | 39,99171 | 41,56681 | 19,04924 |
| 131 | -26,43675718 | 1452,972232 | 0,048167816 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,156587 | 124,3718 | 132,8256 | 10,7127 | 39,98562 | 41,56044 | 19,04632 |
| 132 | -26,36229622 | 1452,957085 | 0,04836535 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,155998 | 124,364 | 132,824 | 10,71103 | 39,97951 | 41,55405 | 19,0434 |
| 133 | -26,28764627 | 1452,941919 | 0,048564623 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,155409 | 124,3561 | 132,8223 | 10,70935 | 39,97339 | 41,54765 | 19,04047 |
| 134 | -26,21280699 | 1452,926735 | 0,048765658 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,154817 | 124,3481 | 132,8207 | 10,70766 | 39,96726 | 41,54124 | 19,03754 |
| 135 | -26,13777893 | 1452,911532 | 0,048968478 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,154225 | 124,34 | 132,819 | 10,70598 | 39,96112 | 41,53482 | 19,0346 |
| 136 | -26,06256175 | 1452,896312 | 0,049173109 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,153631 | 124,3317 | 132,8174 | 10,70429 | 39,95496 | 41,52838 | 19,03165 |
| 137 | -25,98715636 | 1452,881073 | 0,049379574 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,153036 | 124,3234 | 132,8157 | 10,7026 | 39,94879 | 41,52193 | 19,0287 |
| 138 | -25,91156308 | 1452,865816 | 0,049587899 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,152439 | 124,3149 | 132,8139 | 10,7009 | 39,94261 | 41,51547 | 19,02575 |
| 139 | -25,83578176 | 1452,850542 | 0,04979811 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,151841 | 124,3063 | 132,8122 | 10,6992 | 39,93641 | 41,50899 | 19,02278 |
| 140 | -25,75981273 | 1452,83525 | 0,050010233 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,151242 | 124,2976 | 132,8105 | 10,6975 | 39,93021 | 41,5025 | 19,01981 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 141 | -25,68365586 | 1452,81994 | 0,050224294 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,150641 | 124,2887 | 132,8087 | 10,69579 | 39,92399 | 41,496 | 19,01684 |
| 142 | -25,60731257 | 1452,804614 | 0,05044032 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,150039 | 124,2797 | 132,8069 | 10,69408 | 39,91775 | 41,48948 | 19,01386 |
| 143 | -25,53078171 | 1452,78927 | 0,050658339 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,149435 | 124,2706 | 132,8051 | 10,69237 | 39,91151 | 41,48295 | 19,01087 |
| 144 | -25,45406405 | 1452,773909 | 0,05087838 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,148831 | 124,2613 | 132,8033 | 10,69065 | 39,90525 | 41,47641 | 19,00788 |
| 145 | -25,37715987 | 1452,758532 | 0,05110047 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,148224 | 124,252 | 132,8015 | 10,68893 | 39,89899 | 41,46986 | 19,00488 |
| 146 | -25,30006963 | 1452,743138 | 0,05132464 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,147617 | 124,2424 | 132,7996 | 10,68721 | 39,89271 | 41,46329 | 19,00187 |
| 147 | -25,22279334 | 1452,727727 | 0,051550918 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,147008 | 124,2328 | 132,7978 | 10,68548 | 39,88641 | 41,45671 | 18,99886 |
| 148 | -25,14533154 | 1452,7123 | 0,051779335 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,146398 | 124,223 | 132,7959 | 10,68375 | 39,88011 | 41,45012 | 18,99585 |
| 149 | -25,06768403 | 1452,696858 | 0,052009922 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,145786 | 124,213 | 132,794 | 10,68202 | 39,87379 | 41,44352 | 18,99282 |
| 150 | -24,98985142 | 1452,681399 | 0,052242711 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,145173 | 124,2029 | 132,792 | 10,68028 | 39,86746 | 41,4369 | 18,9898 |
| 151 | -24,9118333 | 1452,665924 | 0,052477734 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,144559 | 124,1927 | 132,7901 | 10,67854 | 39,86112 | 41,43027 | 18,98676 |
| 152 | -24,83363072 | 1452,650434 | 0,052715023 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,143944 | 124,1823 | 132,7881 | 10,6768 | 39,85477 | 41,42363 | 18,98372 |
| 153 | -24,75524335 | 1452,634928 | 0,052954611 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,143327 | 124,1717 | 132,7861 | 10,67506 | 39,84841 | 41,41698 | 18,98068 |
| 154 | -24,67667179 | 1452,619407 | 0,053196534 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,142709 | 124,161 | 132,7841 | 10,67331 | 39,84203 | 41,41031 | 18,97763 |
| 155 | -24,59791614 | 1452,603871 | 0,053440825 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,142089 | 124,1501 | 132,7821 | 10,67155 | 39,83564 | 41,40363 | 18,97457 |
| 156 | -24,51897623 | 1452,58832 | 0,05368752 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,141468 | 124,139 | 132,7801 | 10,6698 | 39,82924 | 41,39694 | 18,97151 |
| 157 | -24,43985326 | 1452,572754 | 0,053936655 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,140846 | 124,1278 | 132,778 | 10,66804 | 39,82283 | 41,39024 | 18,96844 |
| 158 | -24,36054689 | 1452,557173 | 0,054188267 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,140223 | 124,1164 | 132,7759 | 10,66628 | 39,81641 | 41,38352 | 18,96537 |
| 159 | -24,28105762 | 1452,541578 | 0,054442394 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,139598 | 124,1048 | 132,7738 | 10,66451 | 39,80997 | 41,37679 | 18,96229 |
| 160 | -24,20138501 | 1452,525968 | 0,054699073 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,138972 | 124,0931 | 132,7716 | 10,66275 | 39,80352 | 41,37005 | 18,95921 |
| 161 | -24,12153002 | 1452,510345 | 0,054958344 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,138344 | 124,0811 | 132,7695 | 10,66097 | 39,79707 | 41,3633 | 18,95612 |
| 162 | -24,04149221 | 1452,494707 | 0,055220247 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,137716 | 124,069 | 132,7673 | 10,6592 | 39,7906 | 41,35654 | 18,95303 |
| 163 | -23,961273 | 1452,479055 | 0,055484823 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,137086 | 124,0567 | 132,7651 | 10,65742 | 39,78411 | 41,34976 | 18,94992 |
| 164 | -23,88087131 | 1452,46339 | 0,055752113 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,136454 | 124,0442 | 132,7629 | 10,65564 | 39,77762 | 41,34297 | 18,94682 |
| 165 | -23,80028802 | 1452,447711 | 0,05602216 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,135822 | 124,0315 | 132,7606 | 10,65386 | 39,77112 | 41,33617 | 18,94371 |
| 166 | -23,71952368 | 1452,432018 | 0,056295007 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,135188 | 124,0186 | 132,7583 | 10,65207 | 39,7646 | 41,32936 | 18,94059 |
| 167 | -23,63857745 | 1452,416312 | 0,056570698 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,134553 | 124,0055 | 132,756 | 10,65028 | 39,75807 | 41,32254 | 18,93747 |
| 168 | -23,55745103 | 1452,400593 | 0,056849278 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,133916 | 123,9922 | 132,7537 | 10,64849 | 39,75154 | 41,3157 | 18,93434 |
| 169 | -23,47614364 | 1452,384861 | 0,057130795 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,133278 | 123,9786 | 132,7514 | 10,64669 | 39,74499 | 41,30886 | 18,93121 |
| 170 | -23,39465584 | 1452,369117 | 0,057415294 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,132639 | 123,9649 | 132,749 | 10,6449 | 39,73842 | 41,302 | 18,92807 |
| 171 | -23,31298751 | 1452,353359 | 0,057702824 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,131999 | 123,9509 | 132,7466 | 10,64309 | 39,73185 | 41,29513 | 18,92493 |
| 172 | -23,23113926 | 1452,337589 | 0,057993435 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,131357 | 123,9367 | 132,7442 | 10,64129 | 39,72527 | 41,28825 | 18,92178 |
| 173 | -23,14911157 | 1452,321807 | 0,058287176 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,130715 | 123,9222 | 132,7417 | 10,63948 | 39,71867 | 41,28135 | 18,91862 |
| 174 | -23,06690411 | 1452,306013 | 0,058584099 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,13007 | 123,9076 | 132,7392 | 10,63767 | 39,71207 | 41,27445 | 18,91546 |
| 175 | -22,98451746 | 1452,290206 | 0,058884256 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,129425 | 123,8926 | 132,7367 | 10,63586 | 39,70545 | 41,26753 | 18,9123 |
| 176 | -22,90195147 | 1452,274388 | 0,059187702 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,128778 | 123,8775 | 132,7342 | 10,63404 | 39,69882 | 41,2606 | 18,90913 |
| 177 | -22,81920731 | 1452,258557 | 0,05949449 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,128131 | 123,862 | 132,7316 | 10,63222 | 39,69219 | 41,25366 | 18,90595 |
| 178 | -22,73628402 | 1452,242715 | 0,059804677 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,127481 | 123,8464 | 132,729 | 10,6304 | 39,68554 | 41,24671 | 18,90277 |
| 179 | -22,65318293 | 1452,226862 | 0,060118321 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,126831 | 123,8304 | 132,7264 | 10,62857 | 39,67888 | 41,23975 | 18,89959 |
| 180 | -22,56990279 | 1452,210997 | 0,06043548 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,126179 | 123,8142 | 132,7237 | 10,62674 | 39,6722 | 41,23278 | 18,8964 |
| 181 | -22,48644568 | 1452,195122 | 0,060756214 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,125526 | 123,7977 | 132,721 | 10,62491 | 39,66552 | 41,22579 | 18,8932 |
| 182 | -22,40281055 | 1452,179235 | 0,061080584 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,124872 | 123,7809 | 132,7183 | 10,62308 | 39,65883 | 41,2188 | 18,89 |
| 183 | -22,31899777 | 1452,163337 | 0,061408653 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,124217 | 123,7639 | 132,7156 | 10,62124 | 39,65213 | 41,21179 | 18,88679 |
| 184 | -22,23500853 | 1452,147429 | 0,061740486 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,12356 | 123,7465 | 132,7128 | 10,6194 | 39,64541 | 41,20477 | 18,88358 |
| 185 | -22,1508416 | 1452,131509 | 0,062076148 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,122902 | 123,7289 | 132,71 | 10,61756 | 39,63869 | 41,19774 | 18,88036 |
| 186 | -22,06649889 | 1452,11558 | 0,062415706 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,122243 | 123,7109 | 132,7071 | 10,61571 | 39,63195 | 41,1907 | 18,87714 |
| 187 | -21,98197904 | 1452,09964 | 0,062759229 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,121583 | 123,6926 | 132,7043 | 10,61386 | 39,6252 | 41,18365 | 18,87391 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 188 | -21,89728255 | 1452,08369 | 0,063106788 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,120921 | 123,674 | 132,7013 | 10,61201 | 39,61845 | 41,17659 | 18,87068 |
| 189 | -21,81241026 | 1452,06773 | 0,063458454 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,120258 | 123,6551 | 132,6984 | 10,61016 | 39,61168 | 41,16952 | 18,86745 |
| 190 | -21,72736251 | 1452,05176 | 0,063814302 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,119594 | 123,6358 | 132,6954 | 10,6083 | 39,6049 | 41,16243 | 18,8642 |
| 191 | -21,6421388 | 1452,03578 | 0,064174407 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,118929 | 123,6162 | 132,6924 | 10,60644 | 39,59811 | 41,15534 | 18,86096 |
| 192 | -21,55673993 | 1452,019791 | 0,064538847 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,118262 | 123,5962 | 132,6894 | 10,60458 | 39,59132 | 41,14823 | 18,85771 |
| 193 | -21,47116546 | 1452,003792 | 0,064907702 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,117594 | 123,5759 | 132,6863 | 10,60271 | 39,58451 | 41,14111 | 18,85445 |
| 194 | -21,38541619 | 1451,987784 | 0,065281051 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,116926 | 123,5552 | 132,6832 | 10,60084 | 39,57769 | 41,13399 | 18,85119 |
| 195 | -21,29949301 | 1451,971767 | 0,06565898 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,116255 | 123,5341 | 132,68 | 10,59897 | 39,57086 | 41,12685 | 18,84792 |
| 196 | -21,21339475 | 1451,955741 | 0,066041572 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,115584 | 123,5126 | 132,6768 | 10,5971 | 39,56402 | 41,1197 | 18,84465 |
| 197 | -21,12712161 | 1451,939706 | 0,066428917 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,114911 | 123,4907 | 132,6736 | 10,59522 | 39,55717 | 41,11254 | 18,84137 |
| 198 | -21,04067503 | 1451,923662 | 0,066821103 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,114238 | 123,4684 | 132,6703 | 10,59334 | 39,55031 | 41,10537 | 18,83809 |
| 199 | -20,95405461 | 1451,907609 | 0,067218222 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,113563 | 123,4457 | 132,667 | 10,59146 | 39,54344 | 41,09819 | 18,83481 |
| 200 | -20,86725959 | 1451,891548 | 0,06762037 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,112886 | 123,4226 | 132,6636 | 10,58958 | 39,53655 | 41,091 | 18,83152 |
| 201 | -20,78029216 | 1451,875479 | 0,068027642 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,112209 | 123,399 | 132,6602 | 10,58769 | 39,52966 | 41,08379 | 18,82822 |
| 202 | -20,69315113 | 1451,859401 | 0,068440138 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,11153 | 123,375 | 132,6568 | 10,5858 | 39,52276 | 41,07658 | 18,82492 |
| 203 | -20,60583737 | 1451,843315 | 0,068857961 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,110851 | 123,3505 | 132,6533 | 10,5839 | 39,51585 | 41,06936 | 18,82161 |
| 204 | -20,51835007 | 1451,827221 | 0,069281214 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,11017 | 123,3256 | 132,6498 | 10,58201 | 39,50893 | 41,06213 | 18,8183 |
| 205 | -20,43069049 | 1451,81112 | 0,069710004 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,109488 | 123,3001 | 132,6462 | 10,58011 | 39,502 | 41,05488 | 18,81499 |
| 206 | -20,34285825 | 1451,795011 | 0,070144443 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,108804 | 123,2742 | 132,6426 | 10,57821 | 39,49506 | 41,04763 | 18,81167 |
| 207 | -20,25485353 | 1451,778894 | 0,070584643 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,10812 | 123,2477 | 132,6389 | 10,57631 | 39,48811 | 41,04036 | 18,80835 |
| 208 | -20,16667786 | 1451,762769 | 0,07103072 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,107434 | 123,2207 | 132,6352 | 10,5744 | 39,48115 | 41,03309 | 18,80502 |
| 209 | -20,07832912 | 1451,746638 | 0,071482794 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,106747 | 123,1932 | 132,6315 | 10,57249 | 39,47418 | 41,0258 | 18,80168 |
| 210 | -19,98980935 | 1451,730499 | 0,071940987 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,106059 | 123,1651 | 132,6277 | 10,57058 | 39,4672 | 41,01851 | 18,79834 |
| 211 | -19,90111771 | 1451,714353 | 0,072405425 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,10537 | 123,1365 | 132,6238 | 10,56867 | 39,46021 | 41,0112 | 18,795 |
| 212 | -19,81225479 | 1451,6982 | 0,072876238 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,10468 | 123,1072 | 132,6199 | 10,56675 | 39,45321 | 41,00389 | 18,79165 |
| 213 | -19,7232211 | 1451,682041 | 0,073353558 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,103988 | 123,0774 | 132,616 | 10,56483 | 39,4462 | 40,99656 | 18,7883 |
| 214 | -19,63401522 | 1451,665874 | 0,073837523 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,103295 | 123,0469 | 132,612 | 10,56291 | 39,43918 | 40,98923 | 18,78495 |
| 215 | -19,54463974 | 1451,649702 | 0,074328272 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,102601 | 123,0158 | 132,608 | 10,56098 | 39,43215 | 40,98188 | 18,78158 |
| 216 | -19,45509333 | 1451,633522 | 0,074825951 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,101906 | 122,9841 | 132,6039 | 10,55906 | 39,42511 | 40,97453 | 18,77822 |
| 217 | -19,36537679 | 1451,617337 | 0,075330708 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,10121 | 122,9516 | 132,5997 | 10,55713 | 39,41806 | 40,96716 | 18,77485 |
| 218 | -19,27548967 | 1451,601145 | 0,075842697 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,100513 | 122,9185 | 132,5955 | 10,55519 | 39,411 | 40,95979 | 18,77147 |
| 219 | -19,18543238 | 1451,584947 | 0,076362074 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,099814 | 122,8847 | 132,5913 | 10,55326 | 39,40394 | 40,9524 | 18,76809 |
| 220 | -19,09520487 | 1451,568743 | 0,076889002 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,099115 | 122,8501 | 132,5869 | 10,55132 | 39,39686 | 40,94501 | 18,76471 |
| 221 | -19,00480789 | 1451,552533 | 0,077423648 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,098414 | 122,8148 | 132,5826 | 10,54938 | 39,38978 | 40,9376 | 18,76132 |
| 222 | -18,91424115 | 1451,536318 | 0,077966184 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,097712 | 122,7787 | 132,5782 | 10,54744 | 39,38268 | 40,93019 | 18,75793 |
| 223 | -18,82350534 | 1451,520097 | 0,078516787 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,097009 | 122,7418 | 132,5737 | 10,54549 | 39,37558 | 40,92277 | 18,75453 |
| 224 | -18,73260013 | 1451,503871 | 0,079075638 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,096304 | 122,7041 | 132,5691 | 10,54355 | 39,36846 | 40,91533 | 18,75113 |
| 225 | -18,64152504 | 1451,487639 | 0,079642927 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,095599 | 122,6655 | 132,5645 | 10,5416 | 39,36134 | 40,90789 | 18,74772 |
| 226 | -18,55028157 | 1451,471402 | 0,080218846 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,094892 | 122,626 | 132,5599 | 10,53964 | 39,35421 | 40,90044 | 18,74431 |
| 227 | -18,45886936 | 1451,455159 | 0,080803596 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,094185 | 122,5857 | 132,5552 | 10,53769 | 39,34706 | 40,89297 | 18,7409 |
| 228 | -18,36728848 | 1451,438912 | 0,081397382 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,093476 | 122,5444 | 132,5504 | 10,53573 | 39,33991 | 40,8855 | 18,73748 |
| 229 | -18,27553776 | 1451,42266 | 0,082000416 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,092766 | 122,5021 | 132,5455 | 10,53377 | 39,33275 | 40,87802 | 18,73405 |
| 230 | -18,18361932 | 1451,406403 | 0,082612918 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,092055 | 122,4588 | 132,5406 | 10,53181 | 39,32558 | 40,87053 | 18,73062 |
| 231 | -18,09153246 | 1451,390141 | 0,083235114 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,091343 | 122,4145 | 132,5357 | 10,52985 | 39,3184 | 40,86303 | 18,72719 |
| 232 | -17,99927754 | 1451,373875 | 0,083867236 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,090629 | 122,3692 | 132,5306 | 10,52788 | 39,31122 | 40,85552 | 18,72375 |
| 233 | -17,9068551 | 1451,357604 | 0,084509527 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,089915 | 122,3227 | 132,5255 | 10,52591 | 39,30402 | 40,848 | 18,72031 |
| 234 | -17,8142636 | 1451,341329 | 0,085162234 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,089199 | 122,2752 | 132,5204 | 10,52394 | 39,29681 | 40,84047 | 18,71687 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 235 | -17,72150479 | 1451,325049 | 0,085825615 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,088483 | 122,2264 | 132,5151 | 10,52196 | 39,2896 | 40,83293 | 18,71342 |
| 236 | -17,62857762 | 1451,308766 | 0,086499934 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,087765 | 122,1764 | 132,5098 | 10,51999 | 39,28237 | 40,82538 | 18,70996 |
| 237 | -17,53548321 | 1451,292478 | 0,087185468 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,087046 | 122,1252 | 132,5045 | 10,51801 | 39,27514 | 40,81782 | 18,7065 |
| 238 | -17,44222105 | 1451,276186 | 0,087882498 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,086326 | 122,0727 | 132,499 | 10,51603 | 39,2679 | 40,81025 | 18,70304 |
| 239 | -17,3487919 | 1451,259891 | 0,088591319 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,085605 | 122,0188 | 132,4935 | 10,51404 | 39,26065 | 40,80268 | 18,69957 |
| 240 | -17,25519507 | 1451,243592 | 0,089312234 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,084882 | 121,9635 | 132,4879 | 10,51206 | 39,25339 | 40,79509 | 18,6961 |
| 241 | -17,16143034 | 1451,227289 | 0,090045557 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,084159 | 121,9068 | 132,4823 | 10,51007 | 39,24612 | 40,7875 | 18,69263 |
| 242 | -17,06749893 | 1451,210982 | 0,090791613 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,083435 | 121,8486 | 132,4765 | 10,50808 | 39,23884 | 40,7799 | 18,68915 |
| 243 | -16,9734007 | 1451,194672 | 0,091550739 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,082709 | 121,7888 | 132,4707 | 10,50608 | 39,23156 | 40,77228 | 18,68566 |
| 244 | -16,8791353 | 1451,178359 | 0,092323282 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,081982 | 121,7274 | 132,4648 | 10,50409 | 39,22426 | 40,76466 | 18,68218 |
| 245 | -16,78470312 | 1451,162043 | 0,093109605 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,081254 | 121,6644 | 132,4589 | 10,50209 | 39,21696 | 40,75703 | 18,67868 |
| 246 | -16,69010268 | 1451,145723 | 0,09391008 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,080525 | 121,5995 | 132,4529 | 10,50009 | 39,20964 | 40,74939 | 18,67519 |
| 247 | -16,59533746 | 1451,1294 | 0,094725097 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,079795 | 121,5329 | 132,4468 | 10,49808 | 39,20232 | 40,74174 | 18,67169 |
| 248 | -16,50040438 | 1451,113074 | 0,095555056 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,079064 | 121,4645 | 132,4406 | 10,49608 | 39,19499 | 40,73408 | 18,66818 |
| 249 | -16,40530457 | 1451,096746 | 0,096400376 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,078332 | 121,394 | 132,4343 | 10,49407 | 39,18765 | 40,72641 | 18,66467 |
| 250 | -16,31003851 | 1451,080414 | 0,097261489 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,077599 | 121,3215 | 132,428 | 10,49206 | 39,18031 | 40,71874 | 18,66116 |
| 251 | -16,21460542 | 1451,06408 | 0,098138845 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,076864 | 121,2469 | 132,4216 | 10,49005 | 39,17295 | 40,71105 | 18,65764 |
| 252 | -16,1190064 | 1451,047743 | 0,09903291 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,076129 | 121,1701 | 132,4151 | 10,48804 | 39,16558 | 40,70336 | 18,65412 |
| 253 | -16,02324072 | 1451,031404 | 0,099944169 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,075392 | 121,091 | 132,4085 | 10,48602 | 39,15821 | 40,69565 | 18,65059 |
| 254 | -15,92730895 | 1451,015062 | 0,100873126 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,074654 | 121,0095 | 132,4018 | 10,484 | 39,15083 | 40,68794 | 18,64706 |
| 255 | -15,83121082 | 1450,998719 | 0,101820305 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,073916 | 120,9255 | 132,3951 | 10,48198 | 39,14344 | 40,68022 | 18,64353 |
| 256 | -15,73494678 | 1450,982372 | 0,10278625 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,073176 | 120,8389 | 132,3883 | 10,47996 | 39,13604 | 40,67249 | 18,63999 |
| 257 | -15,6385167 | 1450,966024 | 0,103771529 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,072435 | 120,7495 | 132,3814 | 10,47793 | 39,12863 | 40,66475 | 18,63645 |
| 258 | -15,54192002 | 1450,949674 | 0,104776731 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,071693 | 120,6573 | 132,3745 | 10,4759 | 39,12122 | 40,65701 | 18,63291 |
| 259 | -15,44515848 | 1450,933321 | 0,10580247 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,07095 | 120,5621 | 132,3674 | 10,47387 | 39,11379 | 40,64925 | 18,62936 |
| 260 | -15,34822979 | 1450,916967 | 0,106849386 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,070205 | 120,4637 | 132,3603 | 10,47184 | 39,10636 | 40,64148 | 18,6258 |
| 261 | -15,25113544 | 1450,900611 | 0,107918147 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,06946 | 120,3621 | 132,3531 | 10,4698 | 39,09892 | 40,63371 | 18,62225 |
| 262 | -15,15387568 | 1450,884254 | 0,109009447 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,068714 | 120,2571 | 132,3458 | 10,46777 | 39,09147 | 40,62593 | 18,61868 |
| 263 | -15,05645099 | 1450,867894 | 0,110124011 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,067966 | 120,1484 | 132,3385 | 10,46573 | 39,08401 | 40,61814 | 18,61512 |
| 264 | -14,95886102 | 1450,851534 | 0,111262598 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,067218 | 120,0359 | 132,3311 | 10,46369 | 39,07654 | 40,61034 | 18,61155 |
| 265 | -14,86110483 | 1450,835172 | 0,112425995 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,066468 | 119,9195 | 132,3236 | 10,46164 | 39,06907 | 40,60253 | 18,60797 |
| 266 | -14,76318332 | 1450,818809 | 0,11361503 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,065718 | 119,7988 | 132,3161 | 10,4596 | 39,06158 | 40,59471 | 18,6044 |
| 267 | -14,66509701 | 1450,802444 | 0,114830564 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,064966 | 119,6738 | 132,3084 | 10,45755 | 39,05409 | 40,58689 | 18,60082 |
| 268 | -14,56684736 | 1450,786079 | 0,116073501 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,064213 | 119,5441 | 132,3007 | 10,4555 | 39,04659 | 40,57905 | 18,59723 |
| 269 | -14,46843076 | 1450,769712 | 0,117344781 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,063459 | 119,4095 | 132,293 | 10,45345 | 39,03909 | 40,57121 | 18,59364 |
| 270 | -14,36985205 | 1450,753345 | 0,118645396 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,062704 | 119,2697 | 132,2852 | 10,45139 | 39,03157 | 40,56336 | 18,59005 |
| 271 | -14,27110849 | 1450,736977 | 0,119976376 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,061948 | 119,1244 | 132,2773 | 10,44933 | 39,02405 | 40,5555 | 18,58645 |
| 272 | -14,17220103 | 1450,720609 | 0,121338808 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,061191 | 118,9733 | 132,2694 | 10,44728 | 39,01651 | 40,54763 | 18,58285 |
| 273 | -14,07313054 | 1450,70424 | 0,122733827 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,060433 | 118,8161 | 132,2615 | 10,44522 | 39,00897 | 40,53975 | 18,57924 |
| 274 | -13,97389801 | 1450,687871 | 0,124162624 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,059674 | 118,6523 | 132,2535 | 10,44315 | 39,00143 | 40,53187 | 18,57564 |
| 275 | -13,87450306 | 1450,671502 | 0,125626452 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,058914 | 118,4816 | 132,2454 | 10,44109 | 38,99387 | 40,52398 | 18,57202 |
| 276 | -13,77494609 | 1450,655132 | 0,127126624 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,058153 | 118,3036 | 132,2374 | 10,43902 | 38,98631 | 40,51608 | 18,56841 |
| 277 | -13,67522838 | 1450,638764 | 0,128664521 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,057391 | 118,1177 | 132,2293 | 10,43695 | 38,97874 | 40,50817 | 18,56479 |
| 278 | -13,57535077 | 1450,622395 | 0,130241596 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,056627 | 117,6816 | 132,2124 | 10,43488 | 38,97116 | 40,50025 | 18,56117 |
| 279 | -13,47531319 | 1450,606028 | 0,131859376 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,055863 | 117,4931 | 132,2052 | 10,43281 | 38,96357 | 40,49233 | 18,55754 |
| 280 | -13,37511742 | 1450,589661 | 0,133519472 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,055098 | 117,2974 | 132,1979 | 10,43073 | 38,95598 | 40,4844 | 18,55391 |
| 281 | -13,27476562 | 1450,573295 | 0,13522358 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,054332 | 117,0941 | 132,1908 | 10,42865 | 38,94837 | 40,47646 | 18,55027 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 282 | -13,17425661 | 1450,556931 | 0,136973487 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,053564 | 116,8826 | 132,1836 | 10,42657 | 38,94077 | 40,46851 | 18,54664 |
| 283 | -13,07359472 | 1450,540569 | 0,138771082 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,052796 | 116,6623 | 132,1765 | 10,42449 | 38,93315 | 40,46055 | 18,543 |
| 284 | -12,97277905 | 1450,524208 | 0,140618357 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,052027 | 116,4326 | 132,1695 | 10,42241 | 38,92553 | 40,45259 | 18,53935 |
| 285 | -12,87181468 | 1450,507851 | 0,142517419 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,051257 | 116,1928 | 132,1625 | 10,42032 | 38,9179 | 40,44462 | 18,5357 |
| 286 | -12,77070025 | 1450,491496 | 0,144470497 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,050486 | 115,942 | 132,1556 | 10,41824 | 38,91026 | 40,43665 | 18,53205 |
| 287 | -12,66943985 | 1450,475144 | 0,14647995 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,049714 | 115,6793 | 132,1487 | 10,41615 | 38,90262 | 40,42866 | 18,5284 |
| 288 | -12,56803715 | 1450,458797 | 0,148548278 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,048941 | 115,4039 | 132,142 | 10,41406 | 38,89497 | 40,42067 | 18,52474 |
| 289 | -12,46649596 | 1450,442454 | 0,150678132 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,048168 | 115,1144 | 132,1353 | 10,41197 | 38,88731 | 40,41268 | 18,52108 |
| 290 | -12,36481896 | 1450,426116 | 0,152872325 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,047393 | 114,8097 | 132,1287 | 10,40987 | 38,87965 | 40,40468 | 18,51742 |
| 291 | -12,26300949 | 1450,409784 | 0,155133846 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,046618 | 114,4883 | 132,1222 | 10,40778 | 38,87199 | 40,39667 | 18,51376 |
| 292 | -12,16107489 | 1450,393459 | 0,157465876 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,045842 | 114,1485 | 132,1158 | 10,40568 | 38,86432 | 40,38866 | 18,51009 |
| 293 | -12,05901953 | 1450,377142 | 0,159871798 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,045065 | 113,7884 | 132,1095 | 10,40359 | 38,85664 | 40,38064 | 18,50642 |
| 294 | -11,9568496 | 1450,360833 | 0,162355218 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,044288 | 113,4058 | 132,1033 | 10,40149 | 38,84896 | 40,37262 | 18,50275 |
| 295 | -11,85457454 | 1450,344535 | 0,164919985 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,04351 | 112,9981 | 132,0973 | 10,39939 | 38,84128 | 40,3646 | 18,49908 |
| 296 | -11,752202 | 1450,328248 | 0,167570206 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,042731 | 112,5624 | 132,0914 | 10,39729 | 38,83359 | 40,35657 | 18,4954 |
| 297 | -11,64974227 | 1450,311975 | 0,170310273 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,041953 | 112,095 | 132,0857 | 10,39519 | 38,82591 | 40,34854 | 18,49173 |
| 298 | -11,54720504 | 1450,295716 | 0,17314489 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,041173 | 111,5917 | 132,0802 | 10,39309 | 38,81822 | 40,34051 | 18,48805 |
| 299 | -11,44460708 | 1450,279474 | 0,176079094 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,040394 | 111,0473 | 132,0748 | 10,39099 | 38,81053 | 40,33248 | 18,48438 |
| 300 | -11,34196152 | 1450,263252 | 0,179118295 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,039614 | 110,4555 | 132,0697 | 10,38889 | 38,80284 | 40,32446 | 18,48071 |
| 301 | -11,23928716 | 1450,247052 | 0,182268302 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,038834 | 109,8086 | 132,0647 | 10,38679 | 38,79516 | 40,31643 | 18,47703 |
| 302 | -11,13660483 | 1450,230878 | 0,185535367 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,038055 | 109,0967 | 132,0601 | 10,3847 | 38,78748 | 40,30841 | 18,47336 |
| 303 | -11,03393722 | 1450,214733 | 0,188926227 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,037276 | 108,3071 | 132,0556 | 10,3826 | 38,7798 | 40,30039 | 18,46969 |
| 304 | -10,93131278 | 1450,198622 | 0,192448153 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,036497 | 107,4233 | 132,0515 | 10,38051 | 38,77213 | 40,29239 | 18,46603 |
| 305 | -10,82876599 | 1450,182549 | 0,196109003 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,035719 | 106,4231 | 132,0476 | 10,37841 | 38,76448 | 40,28439 | 18,46237 |
| 306 | -10,72633393 | 1450,166521 | 0,199917282 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,034942 | 105,2753 | 132,0441 | 10,37633 | 38,75683 | 40,27641 | 18,45871 |
| 307 | -10,62406205 | 1450,150544 | 0,203882217 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,034167 | 103,9349 | 132,0409 | 10,37424 | 38,74921 | 40,26844 | 18,45507 |
| 308 | -10,52200367 | 1450,134627 | 0,208013827 | 0,239177108 | 1 | 391742,7609 | 0,014064842 | 132,033393 | 102,333 | 132,038 | 10,37217 | 38,7416 | 40,2605 | 18,45143 |
| 308,4 | -10,48998774 | 1446,621688 | 0,20930493 | 0,239177108 | 1 | 13892325,33 | 0,014064842 | 132,024777 | 101,765 | 132,0289 | 10,3613 | 38,70127 | 40,21852 | 18,4322 |
| 309 | -10,48342599 | 1424,989241 | 0,209313638 | 0,239177108 | 1 | 13732657,83 | 0,014064842 | 131,972716 | 101,677 | 131,9768 | 10,29792 | 38,46598 | 39,97363 | 18,32002 |
| 310 | -10,47278806 | 1389,897775 | 0,209327567 | 0,239177108 | 1 | 13473174,9 | 0,014064842 | 131,886862 | 101,5324 | 131,8909 | 10,19429 | 38,08118 | 39,57317 | 18,13655 |
| 311 | -10,46245572 | 1355,81703 | 0,209341296 | 0,239177108 | 1 | 13220604,41 | 0,014064842 | 131,80176 | 101,3894 | 131,8057 | 10,09264 | 37,70369 | 39,18032 | 17,95658 |
| 312 | -10,45168683 | 1322,876491 | 0,20939019 | 0,239177108 | 1 | 12976061,95 | 0,014064842 | 131,717823 | 101,225 | 131,7217 | 9,993416 | 37,33512 | 38,79678 | 17,78086 |
| 313 | -10,44255892 | 1290,127953 | 0,209367415 | 0,239177108 | 1 | 12732224,36 | 0,014064842 | 131,632687 | 101,1071 | 131,6365 | 9,89383 | 36,96515 | 38,41179 | 17,60449 |
| 314 | -10,43293879 | 1258,361589 | 0,209380182 | 0,239177108 | 1 | 12495313,86 | 0,014064842 | 131,548415 | 100,9671 | 131,5522 | 9,796265 | 36,60263 | 38,03457 | 17,43166 |
| 315 | -10,42352204 | 1227,245062 | 0,209392583 | 0,239177108 | 1 | 12262784,21 | 0,014064842 | 131,464192 | 100,8277 | 131,4679 | 9,69976 | 36,24398 | 37,6614 | 17,2607 |
| 316 | -10,41436566 | 1196,718664 | 0,20940084 | 0,239177108 | 1 | 12034207,53 | 0,014064842 | 131,379894 | 100,6912 | 131,3836 | 9,60416 | 35,88865 | 37,29169 | 17,09131 |
| 317 | -10,40525029 | 1166,844925 | 0,209416696 | 0,239177108 | 1 | 11810108,6 | 0,014064842 | 131,295726 | 100,5503 | 131,2994 | 9,509686 | 35,53744 | 36,92628 | 16,9239 |
| 318 | -10,39665315 | 1137,412784 | 0,209412918 | 0,239177108 | 1 | 11588862,57 | 0,014064842 | 131,211126 | 100,4222 | 131,2147 | 9,415703 | 35,188 | 36,56273 | 16,75733 |
| 319 | -10,38768984 | 1108,756821 | 0,209439868 | 0,239177108 | 1 | 11373126,66 | 0,014064842 | 131,127085 | 100,2748 | 131,1307 | 9,323292 | 34,84435 | 36,20522 | 16,59354 |
| 320 | -10,37916306 | 1080,538934 | 0,209451162 | 0,239177108 | 1 | 11160273,13 | 0,014064842 | 131,04266 | 100,1375 | 131,0462 | 9,231409 | 34,50262 | 35,84972 | 16,43065 |
| 321 | -10,37080323 | 1052,856563 | 0,209462107 | 0,239177108 | 1 | 10951092,03 | 0,014064842 | 130,95816 | 100,0008 | 130,9616 | 9,140385 | 34,16403 | 35,4975 | 16,26927 |
| 322 | -10,3626029 | 1025,70065 | 0,20947296 | 0,239177108 | 1 | 10745536,53 | 0,014064842 | 130,873589 | 99,86447 | 130,877 | 9,050216 | 33,82858 | 35,14855 | 16,10939 |
| 323 | -10,35456216 | 999,0593927 | 0,209483504 | 0,239177108 | 1 | 10543537,11 | 0,014064842 | 130,788939 | 99,72865 | 130,7923 | 8,960887 | 33,4962 | 34,80282 | 15,95098 |
| 324 | -10,34667596 | 972,9242095 | 0,209493889 | 0,239177108 | 1 | 10345048,47 | 0,014064842 | 130,704216 | 99,5932 | 130,7076 | 8,872393 | 33,16689 | 34,46028 | 15,79403 |
| 325 | -10,3389406 | 947,2861931 | 0,209504172 | 0,239177108 | 1 | 10150021,84 | 0,014064842 | 130,619419 | 99,45815 | 130,6227 | 8,784729 | 32,84062 | 34,12091 | 15,63854 |
| 326 | -10,3313556 | 922,1356902 | 0,209514209 | 0,239177108 | 1 | 9958401,568 | 0,014064842 | 130,534549 | 99,32357 | 130,5378 | 8,697884 | 32,51735 | 33,78469 | 15,48449 |
| 327 | -10,32391808 | 897,4626093 | 0,209523965 | 0,239177108 | 1 | 9770128,067 | 0,014064842 | 130,449601 | 99,18954 | 130,4528 | 8,611848 | 32,19706 | 33,45157 | 15,33185 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 328 | -10,31662209 | 873,2605593 | 0,2095337 | 0,239177108 | 1 | 9585169,713 | 0,014064842 | 130,364584 | 99,0558 | 130,3678 | 8,526623 | 31,87974 | 33,12155 | 15,18063 |
| 329 | -10,30947086 | 849,5188029 | 0,209543014 | 0,239177108 | 1 | 9403459,917 | 0,014064842 | 130,279492 | 98,92279 | 130,2827 | 8,442193 | 31,56535 | 32,79459 | 15,03081 |
| 330 | -10,30245651 | 826,2307381 | 0,209552246 | 0,239177108 | 1 | 9224964,154 | 0,014064842 | 130,194331 | 98,79017 | 130,1975 | 8,358558 | 31,25388 | 32,47067 | 14,88239 |
| 331 | -10,29557641 | 803,3885373 | 0,209561441 | 0,239177108 | 1 | 9049637,421 | 0,014064842 | 130,109105 | 98,65802 | 130,1122 | 8,275714 | 30,94531 | 32,14978 | 14,73536 |
| 332 | -10,28883155 | 780,9826978 | 0,209570338 | 0,239177108 | 1 | 8877420,771 | 0,014064842 | 130,023808 | 98,52643 | 130,0269 | 8,193648 | 30,63961 | 31,83189 | 14,58969 |
| 333 | -10,28145918 | 759,3161144 | 0,209639154 | 0,239177108 | 1 | 8710737,512 | 0,014064842 | 129,939656 | 98,35663 | 129,9427 | 8,113496 | 30,34101 | 31,52138 | 14,44741 |
| 334 | -10,27411353 | 738,1007683 | 0,209718436 | 0,239177108 | 1 | 8547319,983 | 0,014064842 | 129,855606 | 98,18027 | 129,8586 | 8,034247 | 30,04573 | 31,21434 | 14,30671 |
| 335 | -10,26690879 | 717,2832247 | 0,209799227 | 0,239177108 | 1 | 8386757,521 | 0,014064842 | 129,771483 | 98,00313 | 129,7744 | 7,955725 | 29,75314 | 30,9101 | 14,1673 |
| 336 | -10,25984152 | 696,8581856 | 0,209881667 | 0,239177108 | 1 | 8229021,249 | 0,014064842 | 129,687294 | 97,82523 | 129,6901 | 7,877933 | 29,46323 | 30,60865 | 14,02917 |
| 337 | -10,25290998 | 676,8194588 | 0,2099658 | 0,239177108 | 1 | 8074074,824 | 0,014064842 | 129,603045 | 97,64642 | 129,6058 | 7,800866 | 29,17599 | 30,31 | 13,89231 |
| 338 | -10,24611414 | 657,1595754 | 0,210051452 | 0,239177108 | 1 | 7921871,299 | 0,014064842 | 129,518735 | 97,46694 | 129,5214 | 7,724518 | 28,89141 | 30,01411 | 13,75673 |
| 339 | -10,23944919 | 637,8731506 | 0,210138901 | 0,239177108 | 1 | 7772379,9 | 0,014064842 | 129,434369 | 97,28657 | 129,437 | 7,648888 | 28,60947 | 29,72098 | 13,6224 |
| 340 | -10,23291148 | 618,953592 | 0,210228353 | 0,239177108 | 1 | 7625559,963 | 0,014064842 | 129,349951 | 97,10509 | 129,3525 | 7,573971 | 28,33016 | 29,43059 | 13,48933 |
| 341 | -10,22648436 | 600,3779351 | 0,210320623 | 0,239177108 | 1 | 7481243,552 | 0,014064842 | 129,265407 | 96,92201 | 129,2679 | 7,499695 | 28,05322 | 29,14266 | 13,35739 |
| 342 | -10,22018271 | 582,1344933 | 0,210414315 | 0,239177108 | 1 | 7339347,516 | 0,014064842 | 129,180708 | 96,73806 | 129,1832 | 7,426033 | 27,77854 | 28,85709 | 13,22653 |
| 343 | -10,2140026 | 564,2274839 | 0,21050979 | 0,239177108 | 1 | 7199913,78 | 0,014064842 | 129,095901 | 96,55325 | 129,0983 | 7,353018 | 27,50625 | 28,57402 | 13,09681 |
| 344 | -10,20794501 | 546,6558087 | 0,210607038 | 0,239177108 | 1 | 7062942,442 | 0,014064842 | 129,011009 | 96,36745 | 129,0134 | 7,280667 | 27,23641 | 28,29349 | 12,96826 |
| 345 | -10,21196785 | 525,2020592 | 0,209671994 | 0,239177108 | 1 | 6894683,586 | 0,014064842 | 128,905105 | 96,86531 | 128,9078 | 7,191511 | 26,90385 | 27,94778 | 12,80983 |
| 346 | -10,20685263 | 508,1523661 | 0,209678856 | 0,239177108 | 1 | 6761426,721 | 0,014064842 | 128,818958 | 96,74286 | 128,8216 | 7,119749 | 26,63616 | 27,66951 | 12,68231 |
| 347 | -10,20183399 | 491,4111841 | 0,209685332 | 0,239177108 | 1 | 6630448,291 | 0,014064842 | 128,732642 | 96,62119 | 128,7353 | 7,048582 | 26,37065 | 27,39351 | 12,55583 |
| 348 | -10,1969079 | 474,9846021 | 0,209691918 | 0,239177108 | 1 | 6501803,677 | 0,014064842 | 128,646218 | 96,50004 | 128,6489 | 6,978053 | 26,10751 | 27,11998 | 12,43048 |
| 349 | -10,19207696 | 458,8707763 | 0,209698381 | 0,239177108 | 1 | 6375485,557 | 0,014064842 | 128,559705 | 96,37982 | 128,5623 | 6,908173 | 25,84677 | 26,84894 | 12,30627 |
| 350 | -10,18731854 | 443,0740863 | 0,209707124 | 0,239177108 | 1 | 6251536,975 | 0,014064842 | 128,473158 | 96,25876 | 128,4758 | 6,838981 | 25,58857 | 26,58056 | 12,18328 |
| 351 | -10,182697 | 427,5680401 | 0,209710736 | 0,239177108 | 1 | 6129752,082 | 0,014064842 | 128,386465 | 96,14194 | 128,3891 | 6,770381 | 25,33256 | 26,31446 | 12,06133 |
| 352 | -10,17814594 | 412,3734171 | 0,209716739 | 0,239177108 | 1 | 6010305,515 | 0,014064842 | 128,299772 | 96,02437 | 128,3023 | 6,702482 | 25,07915 | 26,05106 | 11,94062 |
| 352,6 | -10,05106166 | 405,1467254 | 0,210090756 | 0,239176989 | 0,99810791 | 5950200,056 | 0,014064842 | 128,232779 | 95,8535 | 128,2353 | 6,670666 | 24,9449 | 25,91549 | 11,878 |
| 353 | -9,584494428 | 402,2274797 | 0,210089922 | 0,239175916 | 0,990966797 | 5903243,204 | 0,014064842 | 128,135572 | 95,80796 | 128,1381 | 6,666996 | 24,88838 | 25,86769 | 11,85476 |
| 354 | -8,435558664 | 395,0017514 | 0,210084319 | 0,239167333 | 0,973266602 | 5787372,279 | 0,014064842 | 127,891872 | 95,69406 | 127,8945 | 6,658172 | 24,74698 | 25,74861 | 11,7968 |
| 355 | -7,313291317 | 387,8741814 | 0,210072517 | 0,239149809 | 0,955810547 | 5673594,251 | 0,014064842 | 127,647402 | 95,58023 | 127,6501 | 6,649857 | 24,60562 | 25,63024 | 11,73911 |
| 356 | -6,217637825 | 380,8434483 | 0,210054517 | 0,239122748 | 0,938598633 | 5561861,906 | 0,014064842 | 127,402166 | 95,46638 | 127,4049 | 6,642046 | 24,46423 | 25,51253 | 11,68168 |
| 357 | -5,146621635 | 373,909014 | 0,210029721 | 0,239085555 | 0,921600342 | 5452120,804 | 0,014064842 | 127,155878 | 95,35243 | 127,1587 | 6,634718 | 24,32247 | 25,3952 | 11,62437 |
| 358 | -4,102090113 | 367,0684201 | 0,209997773 | 0,239037752 | 0,904846191 | 5344329,238 | 0,014064842 | 126,908823 | 95,23842 | 126,9118 | 6,627879 | 24,18052 | 25,27843 | 11,56726 |
| 359 | -3,082055721 | 360,3223073 | 0,209958434 | 0,238978863 | 0,888305664 | 5238452,564 | 0,014064842 | 126,66072 | 95,12428 | 126,6638 | 6,621512 | 24,03804 | 25,16192 | 11,51021 |
| 360 | -2,086446106 | 353,6692417 | 0,209910989 | 0,238907814 | 0,87197876 | 5134446,701 | 0,014064842 | 126,411562 | 95,00997 | 126,4147 | 6,615611 | 23,89493 | 25,04564 | 11,45321 |
| 361 | -1,115158507 | 347,1087354 | 0,209855199 | 0,238824248 | 0,855865479 | 5032281,884 | 0,014064842 | 126,161352 | 94,89547 | 126,1646 | 6,610171 | 23,75113 | 24,92952 | 11,39622 |
| 362 | -0,169877141 | 340,6390102 | 0,209790707 | 0,23872757 | 0,839996338 | 4931926,621 | 0,014064842 | 125,910411 | 94,78072 | 125,9138 | 6,605195 | 23,6068 | 24,81373 | 11,33932 |
| 363 | 0,751375066 | 334,2598862 | 0,209716678 | 0,238616943 | 0,82434082 | 4833339,608 | 0,014064842 | 125,658429 | 94,66579 | 125,6619 | 6,600667 | 23,4616 | 24,69799 | 11,28238 |
| 364 | 1,648753597 | 327,9709942 | 0,209632874 | 0,238491654 | 0,808898926 | 4736494,832 | 0,014064842 | 125,405418 | 94,55049 | 125,409 | 6,596582 | 23,31543 | 24,58224 | 11,22537 |
| 365 | 2,520696639 | 321,7707711 | 0,209538937 | 0,238351107 | 0,793701172 | 4641364,279 | 0,014064842 | 125,151719 | 94,43489 | 125,1554 | 6,592942 | 23,16851 | 24,46667 | 11,16839 |
| 366 | 3,370878864 | 315,6598225 | 0,209433913 | 0,238194227 | 0,778686523 | 4547907,598 | 0,014064842 | 124,896668 | 94,31888 | 124,9005 | 6,589726 | 23,02014 | 24,35076 | 11,11117 |
| 367 | 4,197747541 | 309,6366181 | 0,209317446 | 0,238020301 | 0,763885498 | 4456099,051 | 0,014064842 | 124,640607 | 94,20246 | 124,6445 | 6,586935 | 22,87054 | 24,23467 | 11,0538 |
| 368 | 5,001518274 | 303,7003102 | 0,209188938 | 0,237828493 | 0,749298096 | 4365908,276 | 0,014064842 | 124,383544 | 94,08552 | 124,3876 | 6,584565 | 22,71961 | 24,11835 | 10,99627 |
| 369 | 5,782426678 | 297,8502576 | 0,209047914 | 0,237618089 | 0,734924316 | 4277308,442 | 0,014064842 | 124,125492 | 93,96813 | 124,1297 | 6,582608 | 22,56726 | 24,00176 | 10,93853 |
| 370 | 6,5407145 | 292,0854787 | 0,208893657 | 0,237388134 | 0,72076416 | 4190268,49 | 0,014064842 | 123,866461 | 93,85017 | 123,8708 | 6,581059 | 22,4134 | 23,88485 | 10,88058 |
| 371 | 7,276639904 | 286,4051985 | 0,208725572 | 0,237137794 | 0,706817627 | 4104760,889 | 0,014064842 | 123,606466 | 93,73158 | 123,6109 | 6,579912 | 22,25794 | 23,76755 | 10,82238 |
| 372 | 7,992041286 | 280,8087906 | 0,208542585 | 0,23686552 | 0,693054199 | 4020749,602 | 0,014064842 | 123,345131 | 93,61235 | 123,3497 | 6,579158 | 22,10043 | 23,64956 | 10,76378 |
| 373 | 8,685582461 | 275,295201 | 0,20834446 | 0,236570835 | 0,679504395 | 3938216,315 | 0,014064842 | 123,08285 | 93,49232 | 123,0876 | 6,578794 | 21,94112 | 23,53109 | 10,70488 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 374 | 9,359075614 | 269,8634883 | 0,208129883 | 0,236252308 | 0,666137695 | 3857122,409 | 0,014064842 | 122,819231 | 93,37153 | 122,8242 | 6,578814 | 21,77955 | 23,41182 | 10,64553 |
| 375 | 10,01126078 | 264,5131428 | 0,207898974 | 0,2359097 | 0,652984619 | 3777457,484 | 0,014064842 | 122,554693 | 93,24996 | 122,5598 | 6,579211 | 21,61598 | 23,29196 | 10,58583 |
| 376 | 10,64391143 | 259,2429294 | 0,207650185 | 0,235540867 | 0,640014648 | 3699180,618 | 0,014064842 | 122,288829 | 93,12731 | 122,2941 | 6,579982 | 21,44992 | 23,17118 | 10,52563 |
| 377 | 11,25583258 | 254,051949 | 0,207383275 | 0,235145807 | 0,627258301 | 3622276,045 | 0,014064842 | 122,02207 | 93,00384 | 122,0275 | 6,581117 | 21,28166 | 23,04972 | 10,46505 |
| 378 | 11,84877409 | 248,9393336 | 0,207096934 | 0,234722614 | 0,614685059 | 3546709,769 | 0,014064842 | 121,754001 | 92,87931 | 121,7596 | 6,582613 | 21,1107 | 22,92725 | 10,4039 |
| 379 | 12,42299589 | 243,9041406 | 0,206790328 | 0,234269857 | 0,602294922 | 3472457,15 | 0,014064842 | 121,484624 | 92,75353 | 121,4904 | 6,584465 | 20,9369 | 22,80369 | 10,34217 |
| 380 | 12,97877131 | 238,9453378 | 0,206462502 | 0,233786702 | 0,590087891 | 3399492,646 | 0,014064842 | 121,213939 | 92,62663 | 121,2199 | 6,586667 | 20,76015 | 22,67901 | 10,27984 |
| 381 | 13,51637299 | 234,0620368 | 0,206112623 | 0,233271718 | 0,578063965 | 3327793,227 | 0,014064842 | 120,941951 | 92,49832 | 120,9482 | 6,589214 | 20,58032 | 22,55315 | 10,21687 |
| 382 | 14,03608303 | 229,2531129 | 0,205739617 | 0,232723713 | 0,566223145 | 3257332,877 | 0,014064842 | 120,668662 | 92,36868 | 120,6751 | 6,5921 | 20,39727 | 22,42604 | 10,15325 |
| 383 | 14,53819316 | 224,5179006 | 0,20534277 | 0,232141733 | 0,55456543 | 3188092,473 | 0,014064842 | 120,394085 | 92,23761 | 120,4007 | 6,595318 | 20,21089 | 22,29766 | 10,08894 |
| 384 | 15,02426086 | 219,8544344 | 0,204919696 | 0,23152256 | 0,543060303 | 3120027,988 | 0,014064842 | 120,11771 | 92,10483 | 120,1246 | 6,598871 | 20,02053 | 22,16758 | 10,02375 |
| 385 | 15,49202331 | 215,2635383 | 0,204471946 | 0,230868578 | 0,531768799 | 3053156,231 | 0,014064842 | 119,840568 | 91,97064 | 119,8477 | 6,602733 | 19,82707 | 22,03647 | 9,958008 |
| 386 | 15,94430046 | 210,7428614 | 0,203996301 | 0,230175018 | 0,520629883 | 2987421,798 | 0,014064842 | 119,561637 | 91,83451 | 119,569 | 6,606918 | 19,62934 | 21,90357 | 9,891337 |
| 387 | 16,38131647 | 206,2907113 | 0,203490973 | 0,229440212 | 0,509643555 | 2922793,348 | 0,014064842 | 119,280882 | 91,69642 | 119,2885 | 6,611422 | 19,42714 | 21,7688 | 9,823703 |
| 388 | 16,8009722 | 201,9087418 | 0,202958226 | 0,228667259 | 0,49887085 | 2859298,698 | 0,014064842 | 118,999421 | 91,55669 | 119,0072 | 6,616209 | 19,22148 | 21,63289 | 9,755464 |
| 389 | 17,20709344 | 197,5927328 | 0,202392459 | 0,227848291 | 0,488220215 | 2796853,149 | 0,014064842 | 118,715579 | 91,41444 | 118,7237 | 6,621315 | 19,01044 | 21,49461 | 9,686016 |
| 390 | 17,59760635 | 193,343739 | 0,20179534 | 0,226986527 | 0,477752686 | 2735476,39 | 0,014064842 | 118,430474 | 91,2703 | 118,4388 | 6,626704 | 18,79503 | 21,3547 | 9,615727 |
| 391 | 17,97283607 | 189,1614959 | 0,201166391 | 0,226081014 | 0,467468262 | 2675157,623 | 0,014064842 | 118,144144 | 91,12398 | 118,1528 | 6,632364 | 18,57512 | 21,21313 | 9,544584 |
| 392 | 18,3352438 | 185,0418846 | 0,200500309 | 0,225124836 | 0,457305908 | 2615822,282 | 0,014064842 | 117,855364 | 90,97479 | 117,8643 | 6,638324 | 18,3492 | 21,06899 | 9,472137 |
| 393 | 18,68396695 | 180,9854394 | 0,19979775 | 0,224119425 | 0,447296143 | 2557477,39 | 0,014064842 | 117,564714 | 90,823 | 117,5739 | 6,644558 | 18,11769 | 20,92265 | 9,398565 |
| 394 | 19,01925552 | 176,9910623 | 0,199057221 | 0,223063111 | 0,437438965 | 2500101,887 | 0,014064842 | 117,272177 | 90,6684 | 117,2817 | 6,651058 | 17,88039 | 20,77403 | 9,323841 |
| 395 | 19,34038002 | 173,0599625 | 0,198280215 | 0,221958399 | 0,427764893 | 2443711,637 | 0,014064842 | 116,978422 | 90,51144 | 116,9882 | 6,657793 | 17,63785 | 20,62357 | 9,248184 |
| 396 | 19,6496128 | 169,1875353 | 0,197460532 | 0,220796943 | 0,418212891 | 2388227,981 | 0,014064842 | 116,682104 | 90,35094 | 116,6922 | 6,664796 | 17,38831 | 20,47027 | 9,171091 |
| 397 | 19,94620297 | 165,3747994 | 0,196599364 | 0,219581127 | 0,408813477 | 2333664,745 | 0,014064842 | 116,383876 | 90,18741 | 116,3943 | 6,672033 | 17,13229 | 20,31454 | 9,092777 |
| 398 | 20,23133795 | 161,6186858 | 0,19569242 | 0,218305588 | 0,399536133 | 2279970,334 | 0,014064842 | 116,082998 | 90,02019 | 116,0937 | 6,67952 | 16,86868 | 20,1558 | 9,012955 |
| 399 | 20,50342062 | 157,9228615 | 0,194744468 | 0,216977596 | 0,390441895 | 2227199,308 | 0,014064842 | 115,780912 | 89,8502 | 115,792 | 6,687193 | 16,59897 | 19,99507 | 8,932133 |
| 400 | 20,76541341 | 154,2795515 | 0,193744779 | 0,215582609 | 0,381439209 | 2175227,465 | 0,014064842 | 115,475364 | 89,67551 | 115,4868 | 6,695117 | 16,32013 | 19,83064 | 8,849468 |
| 401 | 21,01575299 | 150,6926753 | 0,1926983 | 0,214128733 | 0,372589111 | 2124113,048 | 0,014064842 | 115,167817 | 89,4973 | 115,1796 | 6,703227 | 15,97807 | 19,66356 | 8,76548 |
| 402 | 21,25471547 | 147,1614794 | 0,191603959 | 0,212615013 | 0,363891602 | 2073841,451 | 0,014064842 | 114,858269 | 89,31543 | 114,8704 | 6,711506 | 15,77538 | 19,4938 | 8,680159 |
| 403 | 21,48418099 | 143,6797263 | 0,190452695 | 0,211029768 | 0,355285645 | 2024315,451 | 0,014064842 | 114,545053 | 89,12834 | 114,5575 | 6,719999 | 15,56947 | 19,32006 | 8,592868 |
| 404 | 21,7027434 | 140,2523255 | 0,189251065 | 0,209383011 | 0,346832275 | 1975606,649 | 0,014064842 | 114,229767 | 88,93735 | 114,2426 | 6,728627 | 15,36185 | 19,14352 | 8,504191 |
| 405 | 21,9114356 | 136,8755396 | 0,187993526 | 0,207667947 | 0,338500977 | 1927656,426 | 0,014064842 | 113,911529 | 88,74147 | 113,9247 | 6,737403 | 15,15182 | 18,96347 | 8,413791 |
| 406 | 22,11120391 | 133,5452118 | 0,18667376 | 0,205877066 | 0,33026123 | 1880400,987 | 0,014064842 | 113,589362 | 88,53967 | 113,6029 | 6,746341 | 14,93866 | 18,77917 | 8,321287 |
| 407 | 22,30009706 | 130,2708012 | 0,185305238 | 0,204029799 | 0,32220459 | 1833977,599 | 0,014064842 | 113,265959 | 88,33469 | 113,2799 | 6,755317 | 14,72482 | 18,59261 | 8,227698 |
| 408 | 22,48119016 | 127,0378312 | 0,183866382 | 0,202097774 | 0,314208984 | 1788170,767 | 0,014064842 | 112,937534 | 88,12228 | 112,9518 | 6,764445 | 14,50715 | 18,40091 | 8,131577 |
| 409 | 22,65326216 | 123,8522481 | 0,182365596 | 0,200093985 | 0,306335449 | 1743066,215 | 0,014064842 | 112,605852 | 87,90442 | 112,6205 | 6,773628 | 14,28735 | 18,20539 | 8,033599 |
| 410 | 22,8165513 | 120,7137143 | 0,180802226 | 0,198018312 | 0,298583984 | 1698656,677 | 0,014064842 | 112,270858 | 87,68077 | 112,2859 | 6,782839 | 14,06553 | 18,006 | 7,933744 |
| 411 | 22,97129138 | 117,6216557 | 0,179175079 | 0,195870578 | 0,29095459 | 1654931,667 | 0,014064842 | 111,932488 | 87,45129 | 111,9479 | 6,792043 | 13,84181 | 17,8027 | 7,831998 |
| 412 | 23,11772612 | 114,5756892 | 0,177483559 | 0,19365108 | 0,283447266 | 1611883,492 | 0,014064842 | 111,590684 | 87,21585 | 111,6065 | 6,801205 | 13,61634 | 17,59543 | 7,72835 |
| 413 | 23,25721218 | 111,566072 | 0,175711989 | 0,191340923 | 0,276000977 | 1569369,962 | 0,014064842 | 111,243095 | 86,97164 | 111,2593 | 6,810361 | 13,38738 | 17,3824 | 7,621908 |
| 414 | 23,38879224 | 108,6011804 | 0,173873425 | 0,188958287 | 0,268676758 | 1527510,171 | 0,014064842 | 110,891807 | 86,72089 | 110,9084 | 6,819392 | 13,15693 | 17,16524 | 7,513499 |
| 415 | 23,51271806 | 105,6806785 | 0,171967387 | 0,186504126 | 0,261474609 | 1486297,36 | 0,014064842 | 110,536754 | 86,4637 | 110,5537 | 6,828249 | 12,92518 | 16,94393 | 7,403131 |
| 416 | 23,63022418 | 102,794097 | 0,169976592 | 0,183957458 | 0,254333496 | 1445579,991 | 0,014064842 | 110,175348 | 86,19658 | 110,1927 | 6,836952 | 12,69033 | 16,7165 | 7,289832 |
| 417 | 23,74050393 | 99,95093331 | 0,167916834 | 0,181340098 | 0,247314453 | 1405492,529 | 0,014064842 | 109,809887 | 85,92255 | 109,8276 | 6,845366 | 12,45456 | 16,48481 | 7,174543 |
| 418 | 23,84470712 | 97,14003792 | 0,16576916 | 0,178629518 | 0,240356445 | 1365874,381 | 0,014064842 | 109,437598 | 85,63774 | 109,4557 | 6,853493 | 12,21604 | 16,24677 | 7,056241 |
| 419 | 23,94212621 | 94,37185735 | 0,163551569 | 0,175850034 | 0,233520508 | 1326873,12 | 0,014064842 | 109,06094 | 85,34566 | 109,0794 | 6,861186 | 11,97708 | 16,00439 | 6,935951 |
| 420 | 24,03383192 | 91,6344007 | 0,161243707 | 0,172977567 | 0,226745605 | 1288316,821 | 0,014064842 | 108,676928 | 85,04203 | 108,6957 | 6,868425 | 11,73581 | 15,75546 | 6,812596 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 1 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 421 | 24,11921307 | 88,93915716 | 0,158866048 | 0,170039177 | 0,220092773 | 1250367,505 | 0,014064842 | 108,2882 | 84,73079 | 108,3073 | 6,875046 | 11,49469 | 15,50221 | 6,687301 |
| 422 | 24,19926137 | 86,27364176 | 0,156396687 | 0,167009234 | 0,213500977 | 1212846,727 | 0,014064842 | 107,891555 | 84,40712 | 107,911 | 6,881 | 11,25183 | 15,24231 | 6,558938 |
| 423 | 24,27345544 | 83,65007785 | 0,153858542 | 0,163917422 | 0,20703125 | 1175926,673 | 0,014064842 | 107,489816 | 84,07567 | 107,5096 | 6,886106 | 11,00983 | 14,97819 | 6,42874 |
| 424 | 24,34334803 | 81,04167599 | 0,151202679 | 0,160705805 | 0,200561523 | 1139227,005 | 0,014064842 | 107,076155 | 83,72551 | 107,0962 | 6,890308 | 10,76444 | 14,70478 | 6,294248 |
| 425 | 24,40779086 | 78,4744821 | 0,14847815 | 0,157435417 | 0,194213867 | 1103115,526 | 0,014064842 | 106,656725 | 83,36669 | 106,677 | 6,893351 | 10,52067 | 14,42722 | 6,158024 |
| 426 | 24,46706924 | 75,94910243 | 0,145687759 | 0,15411061 | 0,187988281 | 1067599,562 | 0,014064842 | 106,231426 | 82,99961 | 106,252 | 6,89507 | 10,279 | 14,14577 | 6,020239 |
| 427 | 24,52250882 | 73,43623702 | 0,14277637 | 0,15066734 | 0,181762695 | 1032264,352 | 0,014064842 | 105,792554 | 82,61129 | 105,8134 | 6,895271 | 10,03511 | 13,85498 | 5,878271 |
| 428 | 24,57320401 | 70,96472634 | 0,139801025 | 0,147174507 | 0,17565918 | 997516,451 | 0,014064842 | 105,346997 | 82,21392 | 105,3681 | 6,89369 | 9,794238 | 13,56068 | 5,735021 |
| 429 | 24,61988922 | 68,51959586 | 0,136733949 | 0,143600643 | 0,169616699 | 963143,6565 | 0,014064842 | 104,890497 | 81,80048 | 104,9118 | 6,890042 | 9,554483 | 13,26024 | 5,589278 |
| 430 | 24,66316291 | 66,0840915 | 0,133542955 | 0,139909953 | 0,163574219 | 928909,1599 | 0,014064842 | 104,418085 | 81,36211 | 104,4395 | 6,88391 | 9,313888 | 12,95079 | 5,439725 |
| 431 | 24,70195319 | 63,70651056 | 0,130327374 | 0,13621828 | 0,157714844 | 895493,1751 | 0,014064842 | 103,941977 | 80,92216 | 103,9636 | 6,875125 | 9,08023 | 12,64223 | 5,291229 |
| 432 | 24,7376973 | 61,33787161 | 0,126989961 | 0,132414609 | 0,151855469 | 862204,6643 | 0,014064842 | 103,448468 | 80,45551 | 103,4702 | 6,863003 | 8,846649 | 12,32557 | 5,13955 |
| 433 | 24,77048633 | 58,97662711 | 0,123528346 | 0,128498256 | 0,145996094 | 829021,5265 | 0,014064842 | 102,936097 | 79,9598 | 102,9579 | 6,846899 | 8,613525 | 12,00126 | 4,985034 |
| 434 | 24,79982948 | 56,6570661 | 0,120016709 | 0,124553993 | 0,140258789 | 796426,2209 | 0,014064842 | 102,413536 | 79,45256 | 102,4354 | 6,826526 | 8,385976 | 11,67693 | 4,831452 |
| 435 | 24,8262657 | 54,36191612 | 0,116421878 | 0,12054497 | 0,13458252 | 764174,9884 | 0,014064842 | 101,87505 | 78,92383 | 101,897 | 6,801023 | 8,161638 | 11,35032 | 4,677874 |
| 436 | 24,84997994 | 52,09121116 | 0,112746596 | 0,116474867 | 0,128967285 | 732267,8839 | 0,014064842 | 101,319515 | 78,37241 | 101,3415 | 6,76956 | 7,940302 | 11,02281 | 4,52511 |
| 437 | 24,87115476 | 49,84473913 | 0,108993918 | 0,112347543 | 0,123413086 | 700701,5664 | 0,014064842 | 100,74566 | 77,79711 | 100,7676 | 6,73117 | 7,72136 | 10,69603 | 4,374131 |
| 438 | 24,89016682 | 47,6029905 | 0,105124101 | 0,108120129 | 0,117858887 | 669201,218 | 0,014064842 | 100,145806 | 77,18362 | 100,1677 | 6,684163 | 7,501211 | 10,3684 | 4,224456 |
| 439 | 24,90695433 | 45,38481812 | 0,101181582 | 0,103841811 | 0,112365723 | 638031,8521 | 0,014064842 | 99,5239844 | 76,54185 | 99,54579 | 6,62757 | 7,280254 | 10,04595 | 4,079144 |
| 440 | 24,92169499 | 43,1900985 | 0,097170562 | 0,099517196 | 0,106933594 | 607191,4858 | 0,014064842 | 98,8783211 | 75,87036 | 98,89999 | 6,559828 | 7,055412 | 9,731593 | 3,939801 |
| 441 | 24,93456162 | 41,01931568 | 0,093095578 | 0,095151044 | 0,1015625 | 576686,6759 | 0,014064842 | 98,2067504 | 75,16669 | 98,22826 | 6,47914 | 6,822216 | 9,428638 | 3,808228 |
| 442 | 24,94584078 | 38,85133981 | 0,088913396 | 0,090697192 | 0,096191406 | 546220,0797 | 0,014064842 | 97,4989934 | 74,41208 | 97,52028 | 6,38226 | 6,57149 | 9,137532 | 3,685013 |
| 443 | 24,9554402 | 36,72822861 | 0,084724247 | 0,086261943 | 0,090942383 | 516383,0668 | 0,014064842 | 96,7675507 | 73,6367 | 96,78862 | 6,269077 | 6,300641 | 8,868751 | 3,574897 |
| 444 | 24,96373932 | 34,60750028 | 0,080436237 | 0,081747405 | 0,085693359 | 486578,0757 | 0,014064842 | 95,9928909 | 72,80314 | 96,01368 | 6,134397 | 5,992874 | 8,619674 | 3,47698 |
| 445 | 24,97084625 | 32,48854761 | 0,076051779 | 0,077156208 | 0,080444336 | 456796,5033 | 0,014064842 | 95,1694822 | 71,90342 | 95,18991 | 5,974749 | 5,634756 | 8,393471 | 3,392472 |
| 446 | 24,97686873 | 30,37103396 | 0,071573719 | 0,072491296 | 0,075195313 | 427033,5557 | 0,014064842 | 94,2907085 | 70,92727 | 94,31068 | 5,786654 | 5,213436 | 8,190282 | 3,320489 |
| 447 | 24,98180736 | 28,29922871 | 0,067112625 | 0,06786678 | 0,070068359 | 397911,7766 | 0,014064842 | 93,3705129 | 69,91506 | 93,39007 | 5,572813 | 4,737011 | 8,007181 | 3,256896 |
| 448 | 24,98591953 | 26,1768713 | 0,062444843 | 0,063051481 | 0,064819336 | 368077,5363 | 0,014229932 | 92,3556285 | 68,75114 | 92,37453 | 5,322565 | 4,209129 | 7,812566 | 3,183246 |
| 449 | 24,98939428 | 23,96105859 | 0,057468645 | 0,05794153 | 0,059326172 | 336927,4317 | 0,014469085 | 91,2023771 | 67,33813 | 91,22018 | 5,032636 | 3,739644 | 7,537536 | 3,05648 |
| 450 | 24,99201701 | 21,88687794 | 0,052753637 | 0,053119702 | 0,054199219 | 307767,3668 | 0,014720005 | 90,0241214 | 65,94725 | 90,04107 | 0 | 0 | 7,080044 | 2,809192 |
| 451 | 24,99417302 | 19,76843244 | 0,04786263 | 0,048136342 | 0,048950195 | 277983,3347 | 0,015009754 | 88,6972645 | 64,31639 | 88,71307 | 0 | 0 | 0 | 0 |
| 452 | 24,99579067 | 17,74602926 | 0,043140868 | 0,043341693 | 0,043945313 | 249548,4813 | 0,015326069 | 87,2917466 | 62,62245 | 87,30654 | 0 | 0 | 0 | 0 |
| 453 | 24,99707465 | 15,6773972 | 0,038250462 | 0,03839082 | 0,038818359 | 220462,2461 | 0,015701417 | 85,6759945 | 60,58511 | 85,68942 | 0 | 0 | 0 | 0 |
| 454 | 24,99800214 | 13,70548862 | 0,033546491 | 0,033641508 | 0,033935547 | 192735,0392 | 0,016123782 | 83,9245796 | 58,4125 | 83,93677 | 0 | 0 | 0 | 0 |
| 455 | 24,99866266 | 11,83108436 | 0,029039783 | 0,029101696 | 0,029296875 | 166378,0187 | 0,016605017 | 82,0092324 | 56,1034 | 82,02037 | 0 | 0 | 0 | 0 |
| 456 | 24,99914728 | 9,957852826 | 0,024499917 | 0,02453733 | 0,024658203 | 140036,6082 | 0,017196012 | 79,7634671 | 53,30658 | 79,77328 | 0 | 0 | 0 | 0 |
| 457 | 24,99949244 | 8,085050864 | 0,019931829 | 0,019952125 | 0,020019531 | 113700,5169 | 0,017951908 | 77,0485048 | 49,84422 | 77,05676 | 0 | 0 | 0 | 0 |
| 458 | 24,99971703 | 6,310328198 | 0,015581481 | 0,015591278 | 0,015625 | 88743,12213 | 0,018915314 | 73,8195337 | 45,74917 | 73,8263 | 0 | 0 | 0 | 0 |
| 459 | 24,99985148 | 4,732362363 | 0,01169946 | 0,011703661 | 0,01171875 | 66552,30926 | 0,020130644 | 70,0710307 | 41,35382 | 70,07686 | 0 | 0 | 0 | 0 |
| 460 | 24,99993761 | 3,154914921 | 0,007806372 | 0,007807645 | 0,0078125 | 44368,47178 | 0,022043569 | 64,7883102 | 34,89129 | 64,79276 | 0 | 0 | 0 | 0 |
| 461 | 24,99998499 | 1,577546872 | 0,003905347 | 0,003905515 | 0,00390625 | 22185,54291 | 0,025975904 | 55,7576611 | 22,07032 | 55,75952 | 0 | 0 | 0 | 0 |
| 461,4 | 24,99998499 | 1,577406366 | 0,003905347 | 0,003905515 | 0,00390625 | 22183,57614 | 0,025976469 | 55,7572752 | 25,52672 | 55,76139 | 0 | 0 | 0 | 0 |

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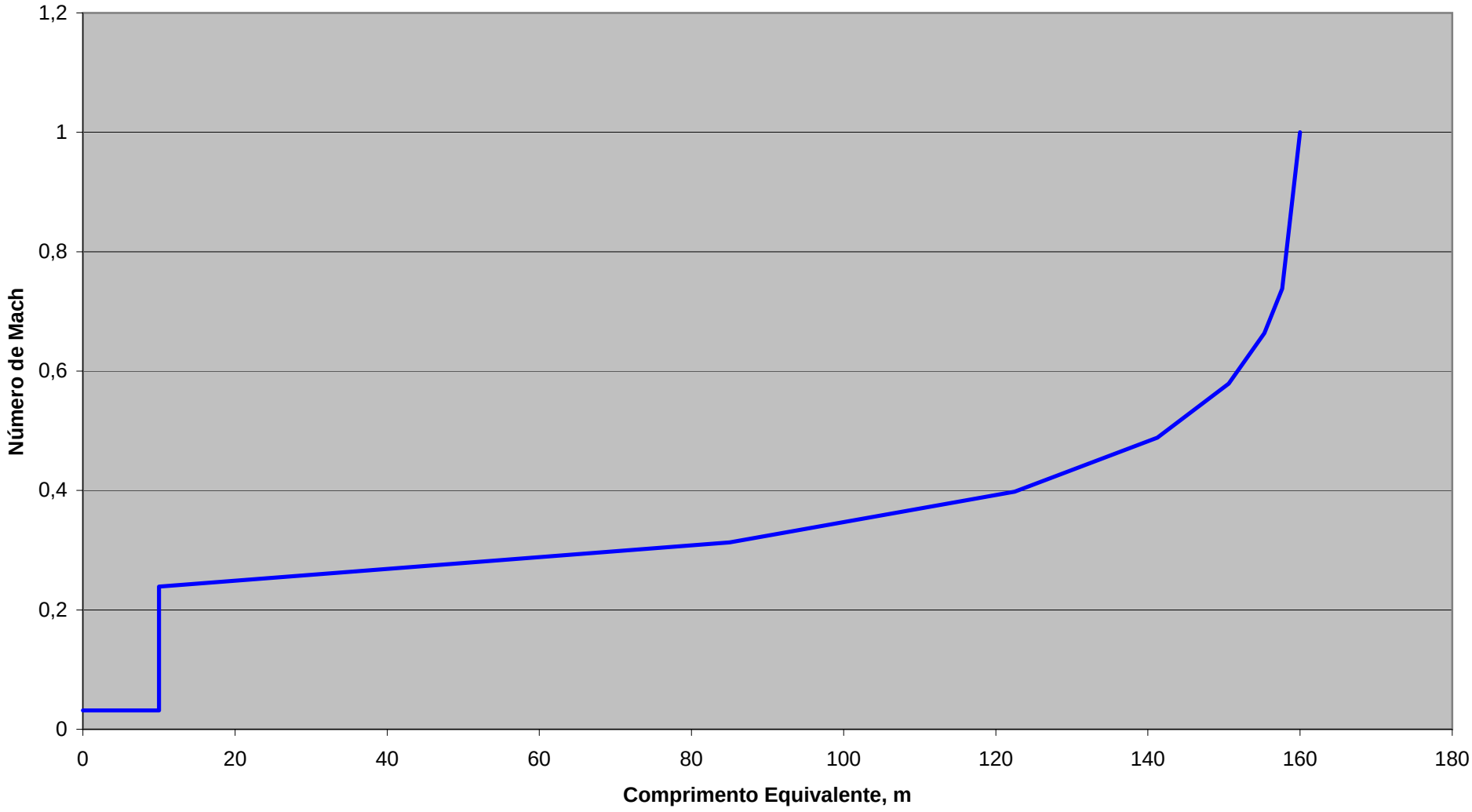
## Simulação do Blowdown - Condição Inicial

**CASO 1**



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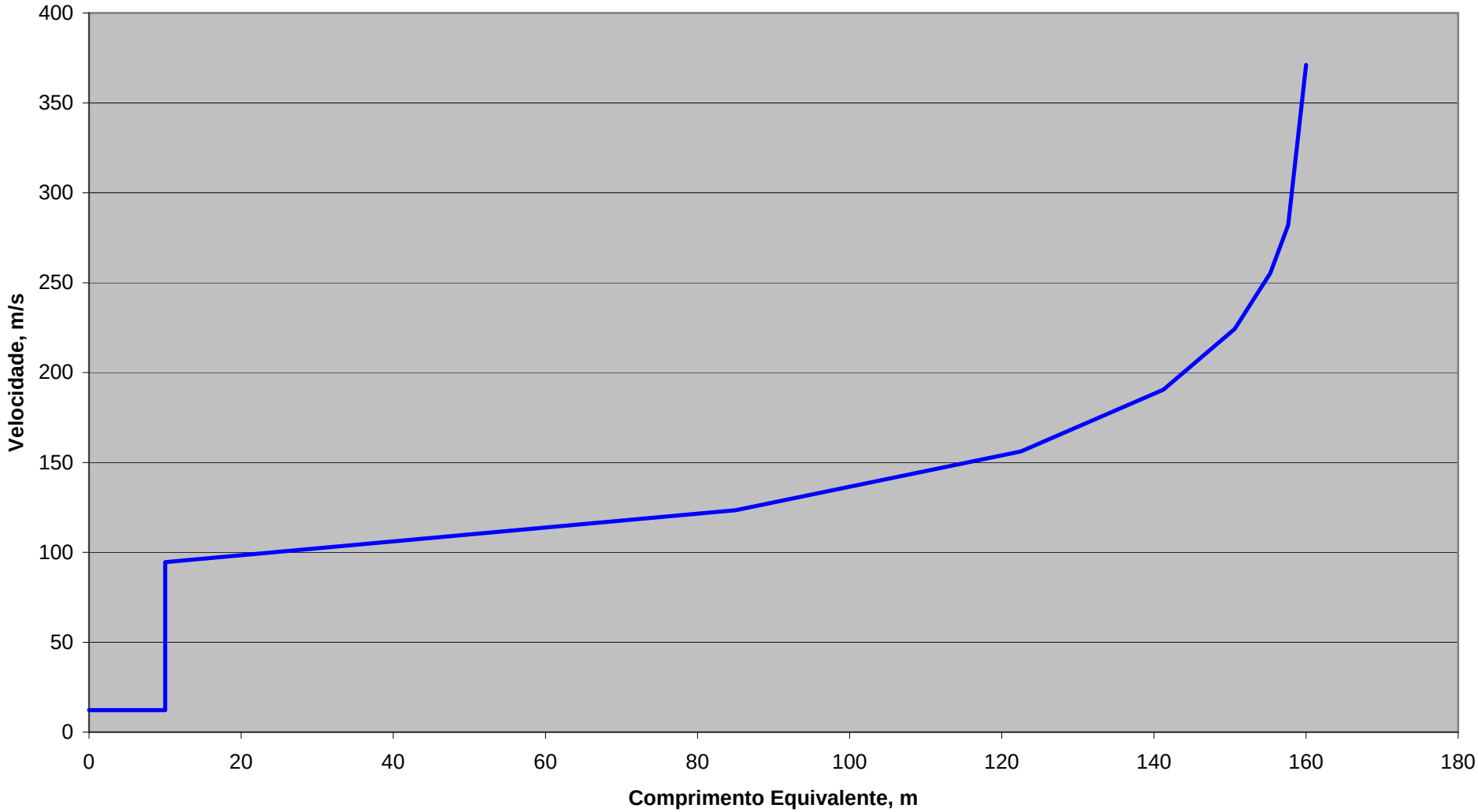
## Simulação do Blowdown - Condição Inicial

**CASO 1**



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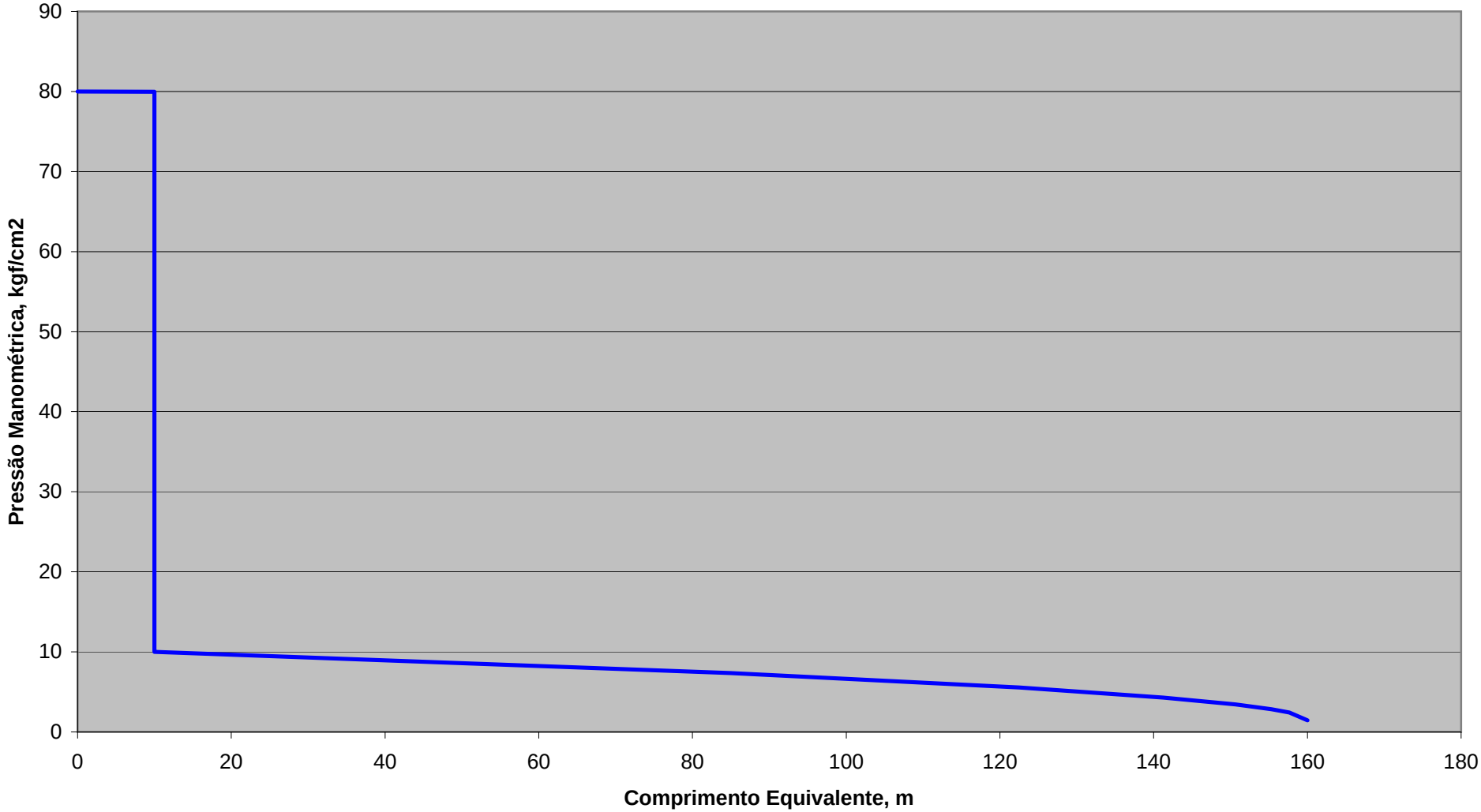
## Simulação do Blowdown - Condição Inicial

**CASO 1**



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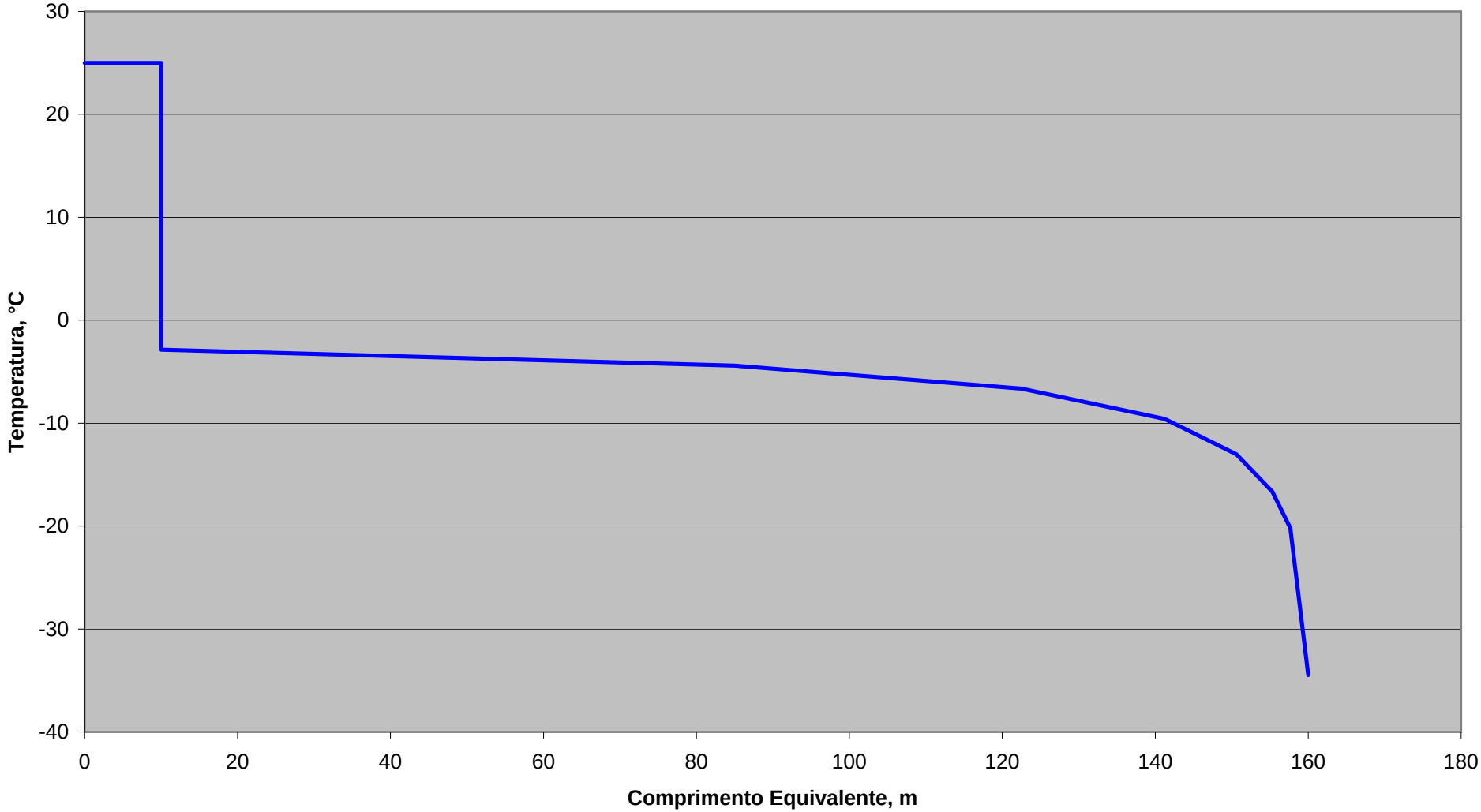
## Simulação do Blowdown - Condição Inicial

**CASO 1**



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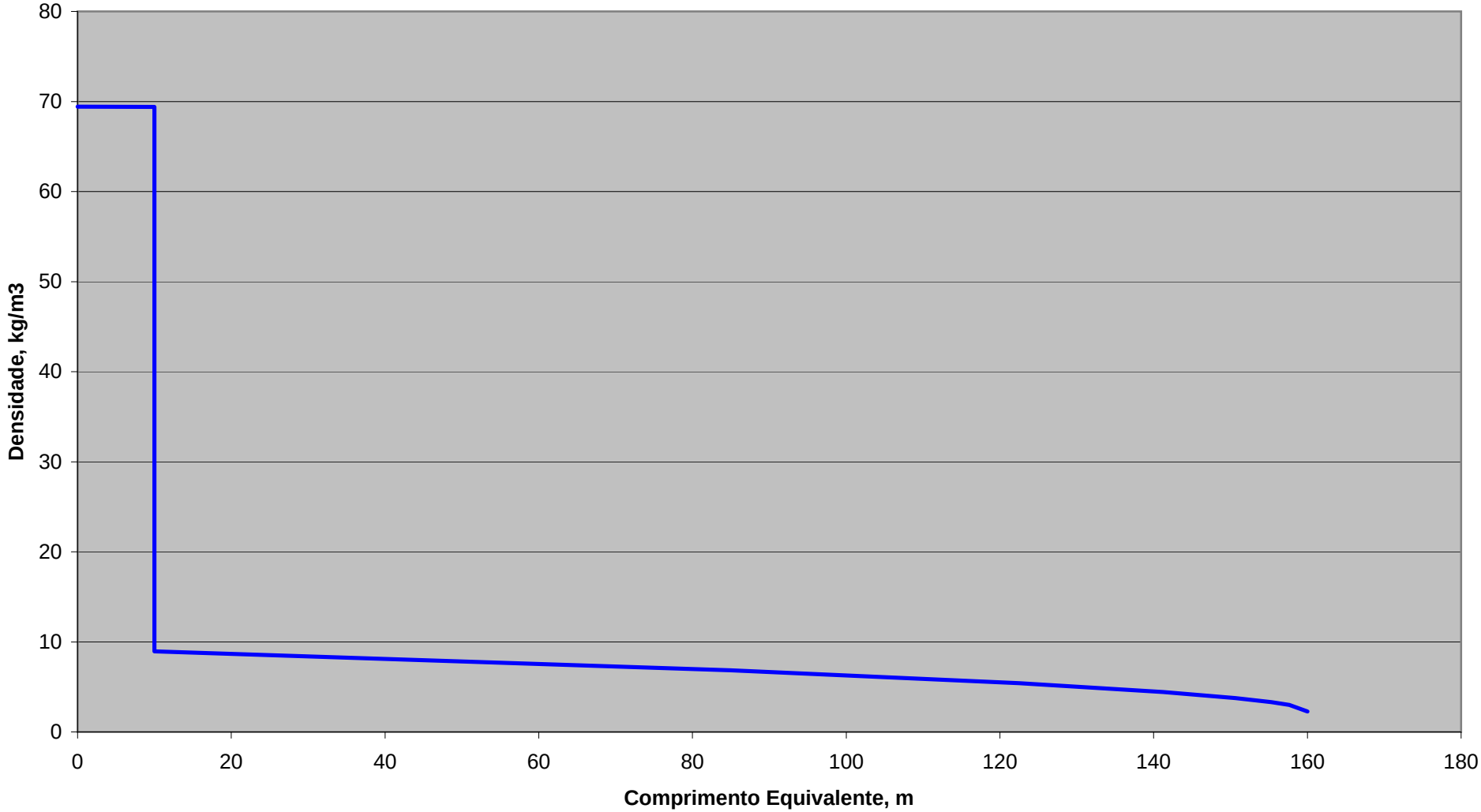
## Simulação do Blowdown - Condição Inicial

**CASO 1**



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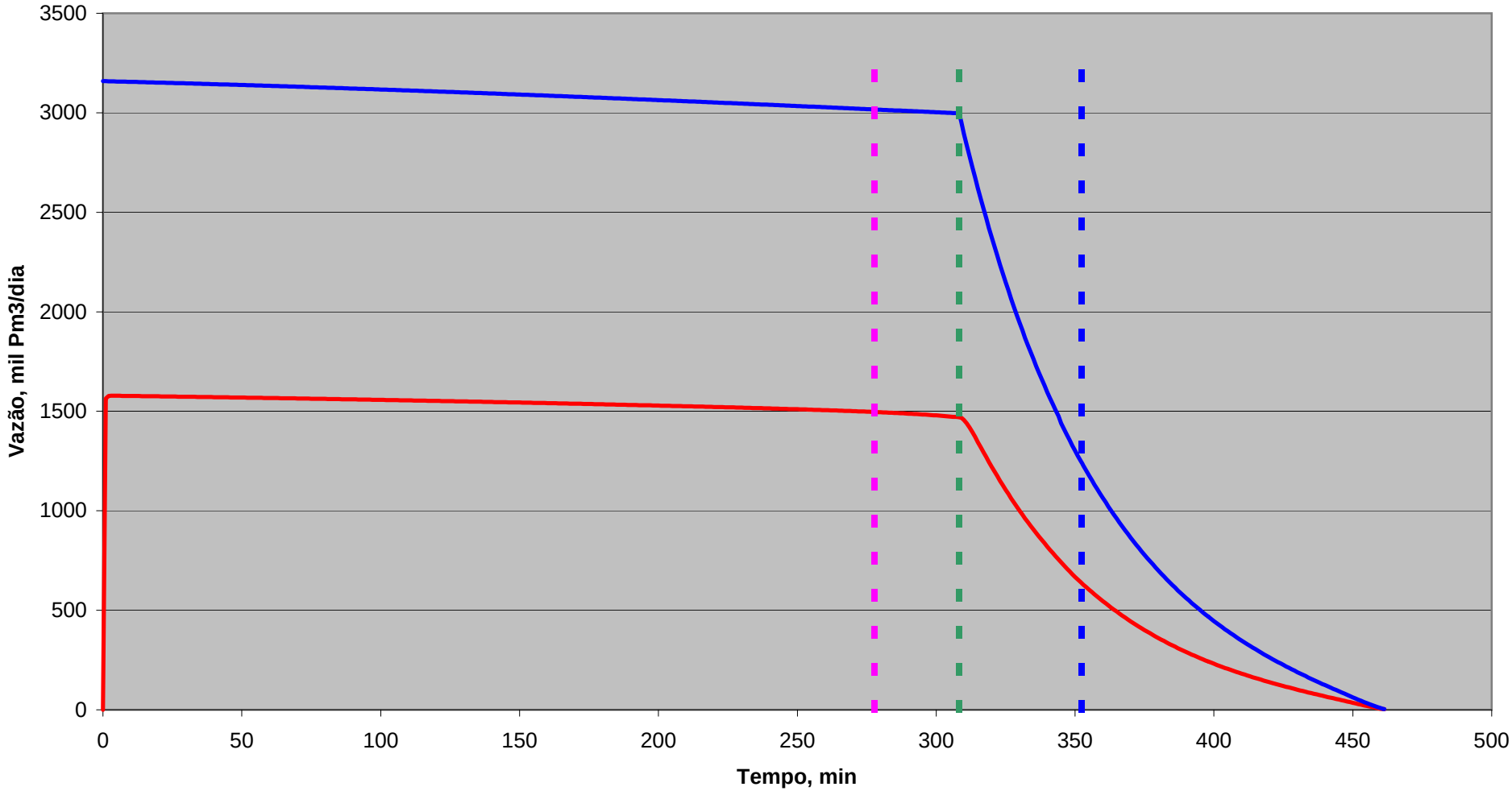
## Simulação do Blowdown - Transiente

**CASO 1**



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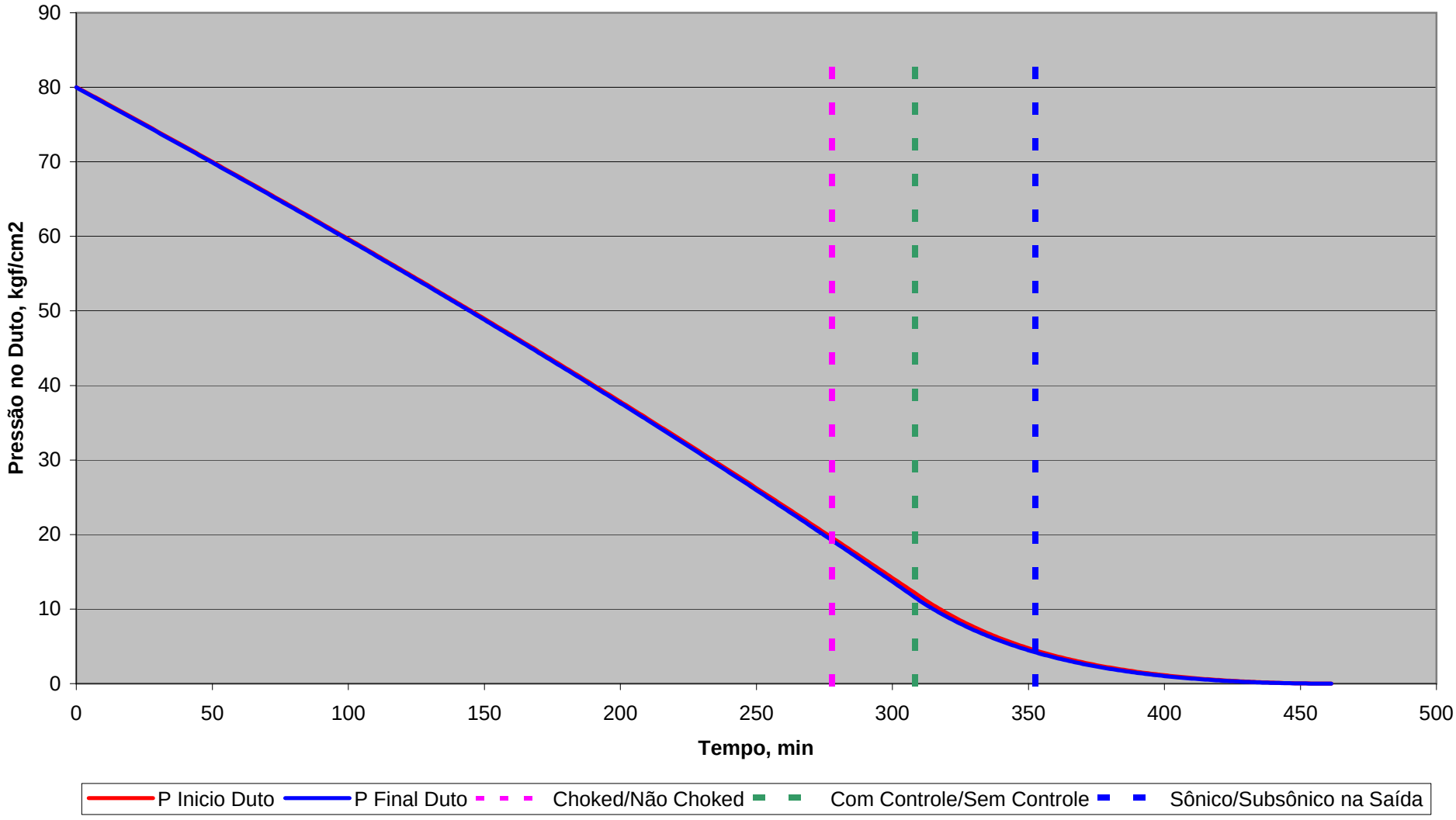
## Simulação do Blowdown - Transiente

**CASO 1**



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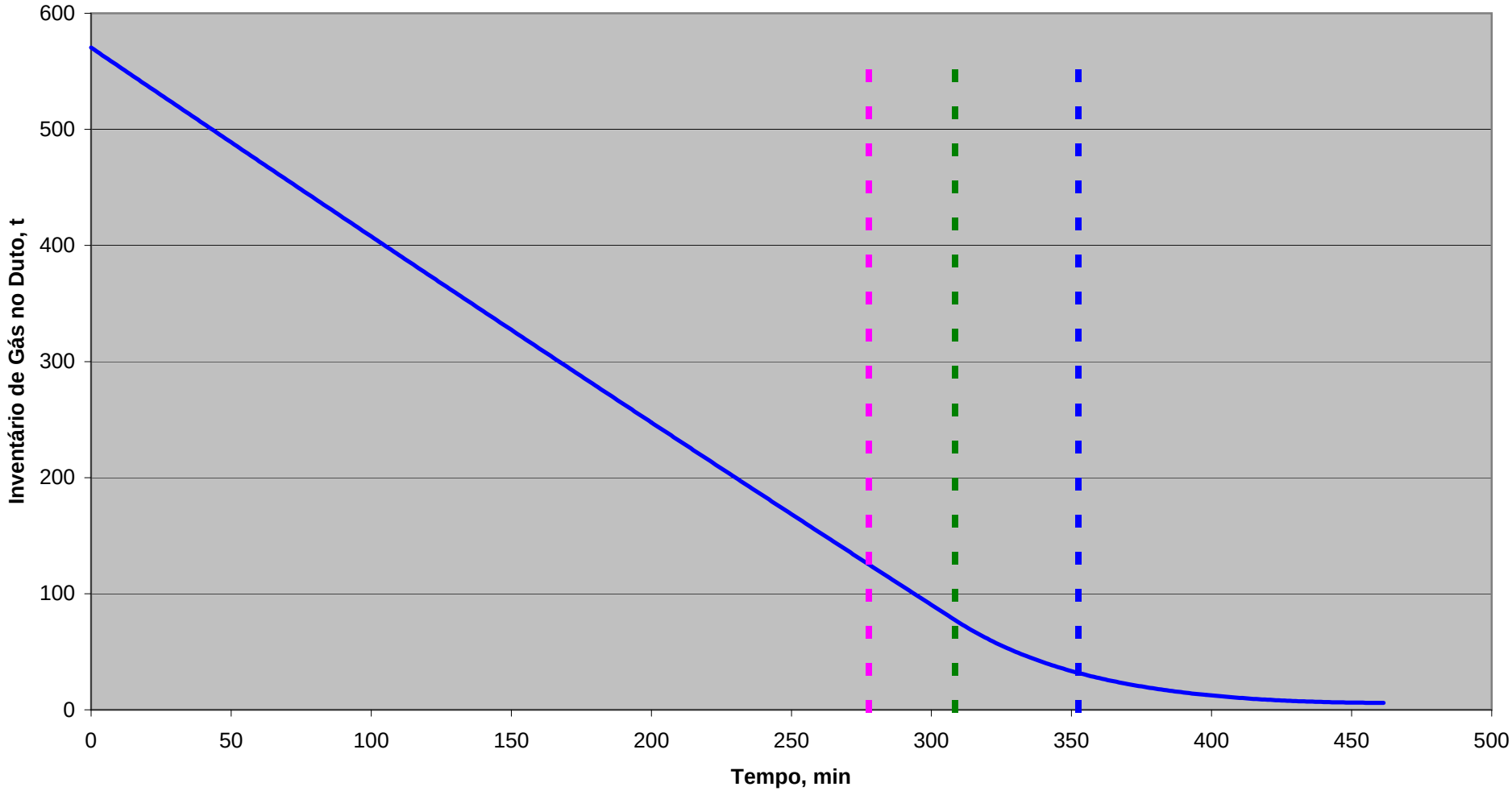
## Simulação de Blowdown - Transiente

**CASO 1**



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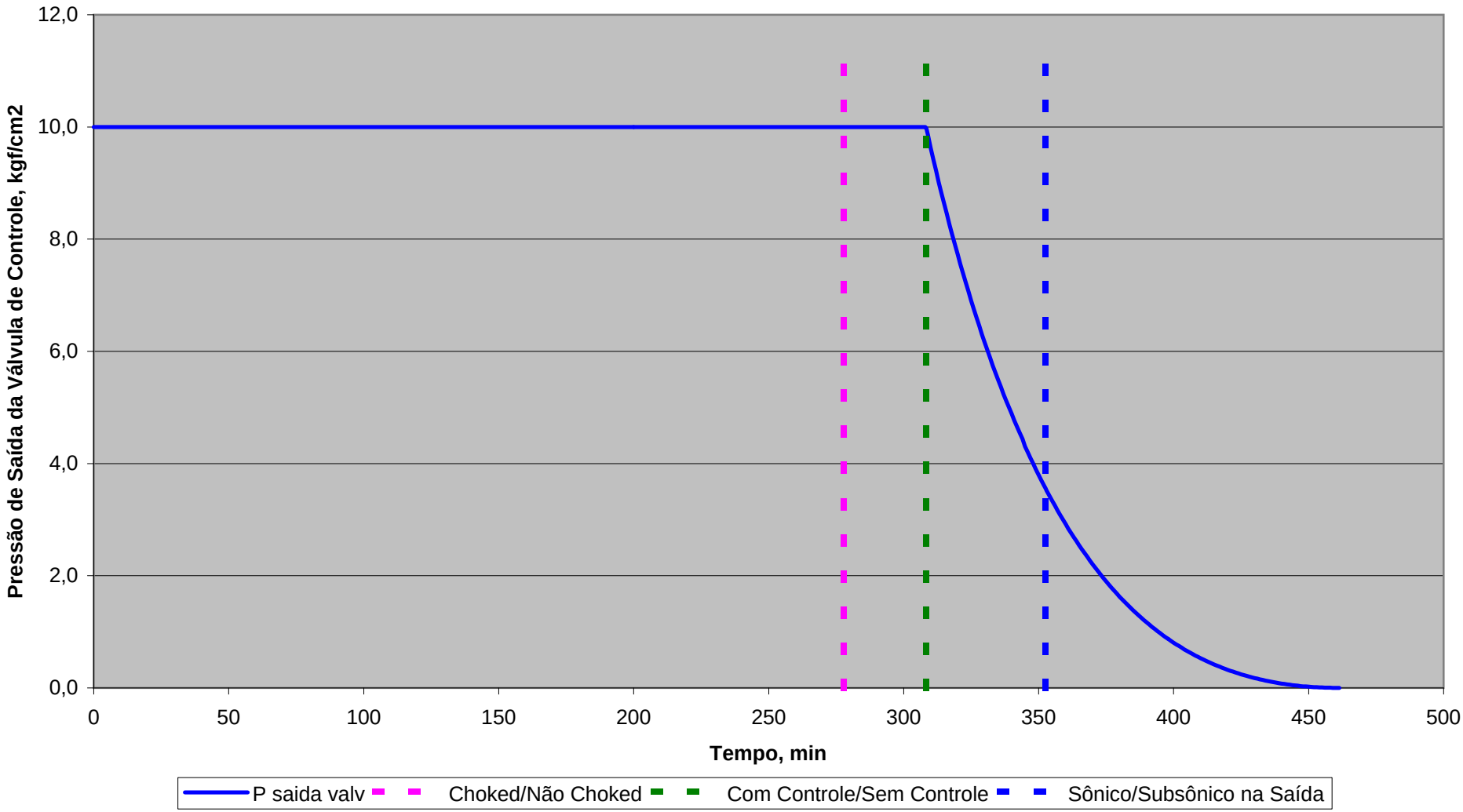
## Simulação do Blowdown - Transiente

**CASO 1**



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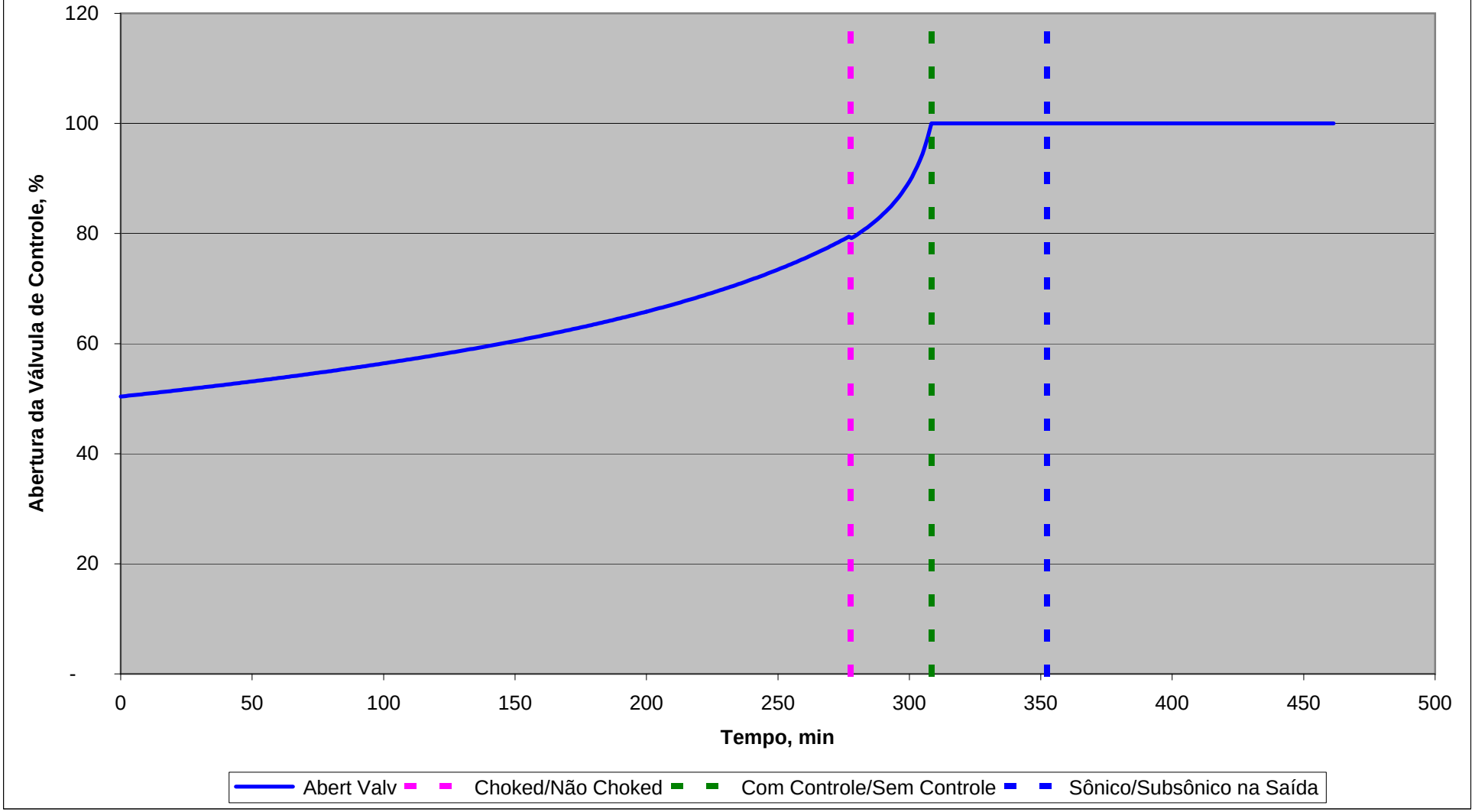
## Simulação do Blowdown - Transiente

**CASO 1**



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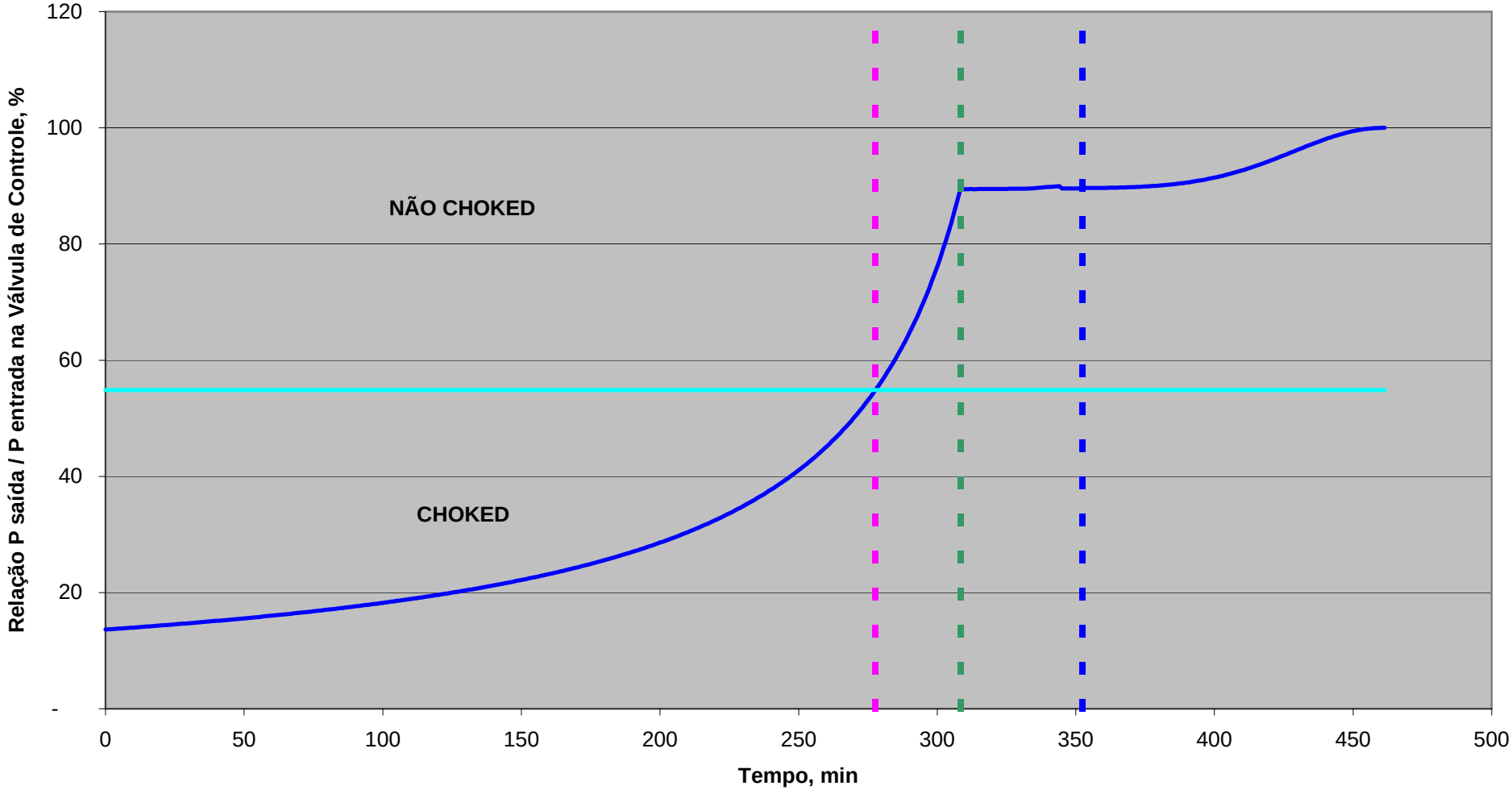
## Simulação do Blowdown - 2 casos

**CASO 1**



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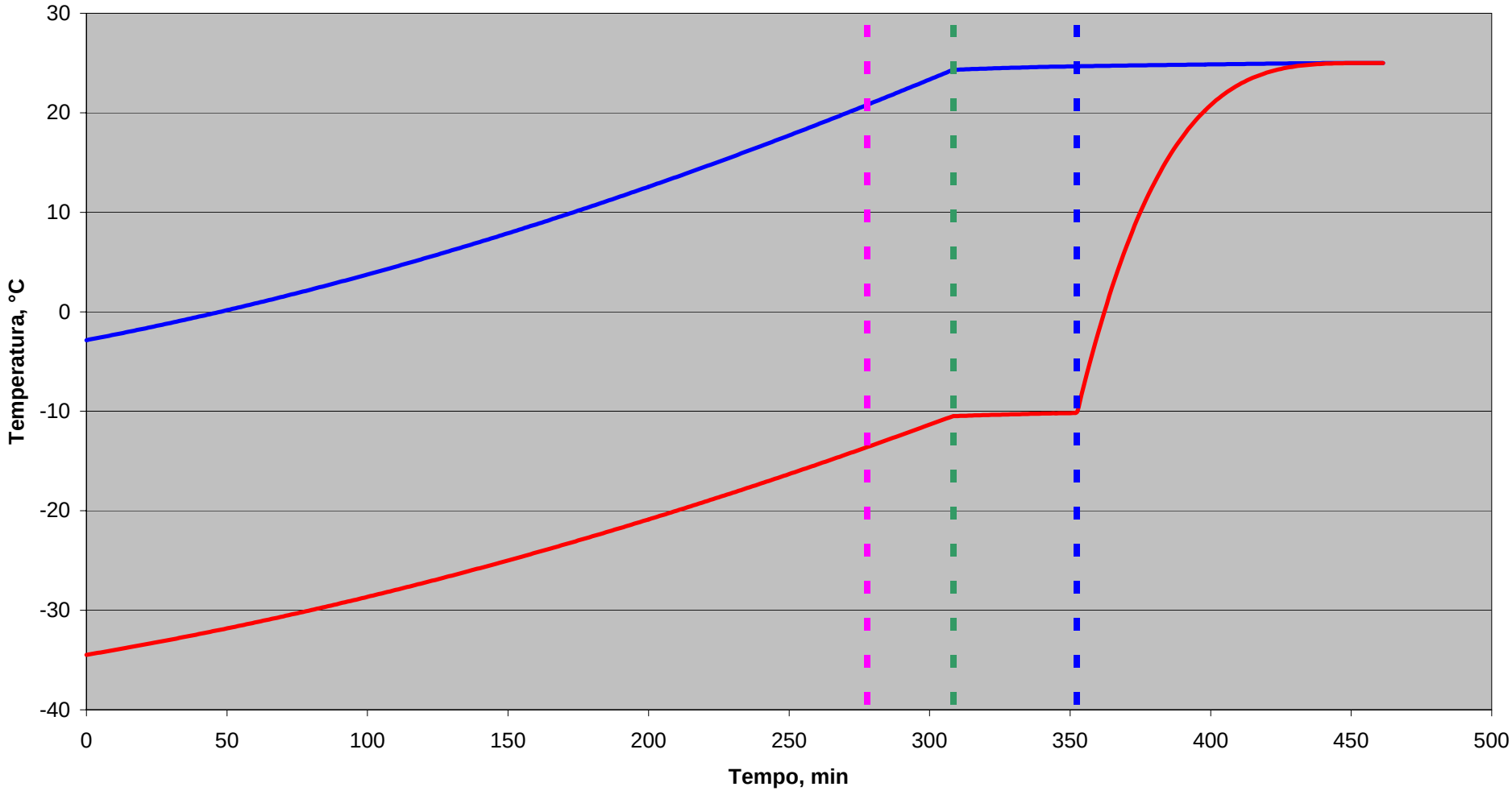
## Simulação do Blowdown - Transiente

**CASO 1**



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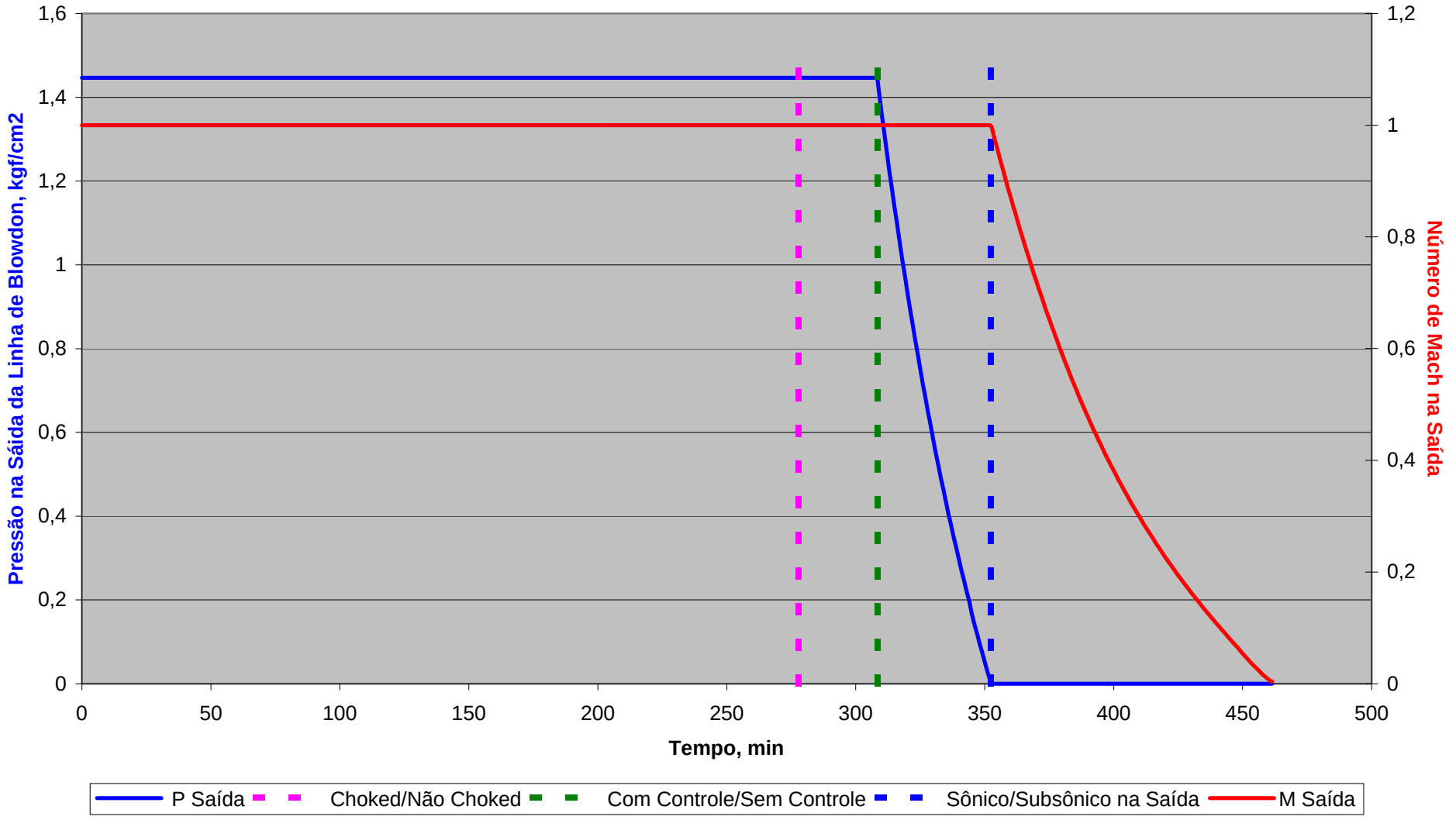
## Simulação de Blowdown - Transiente

**CASO 1**



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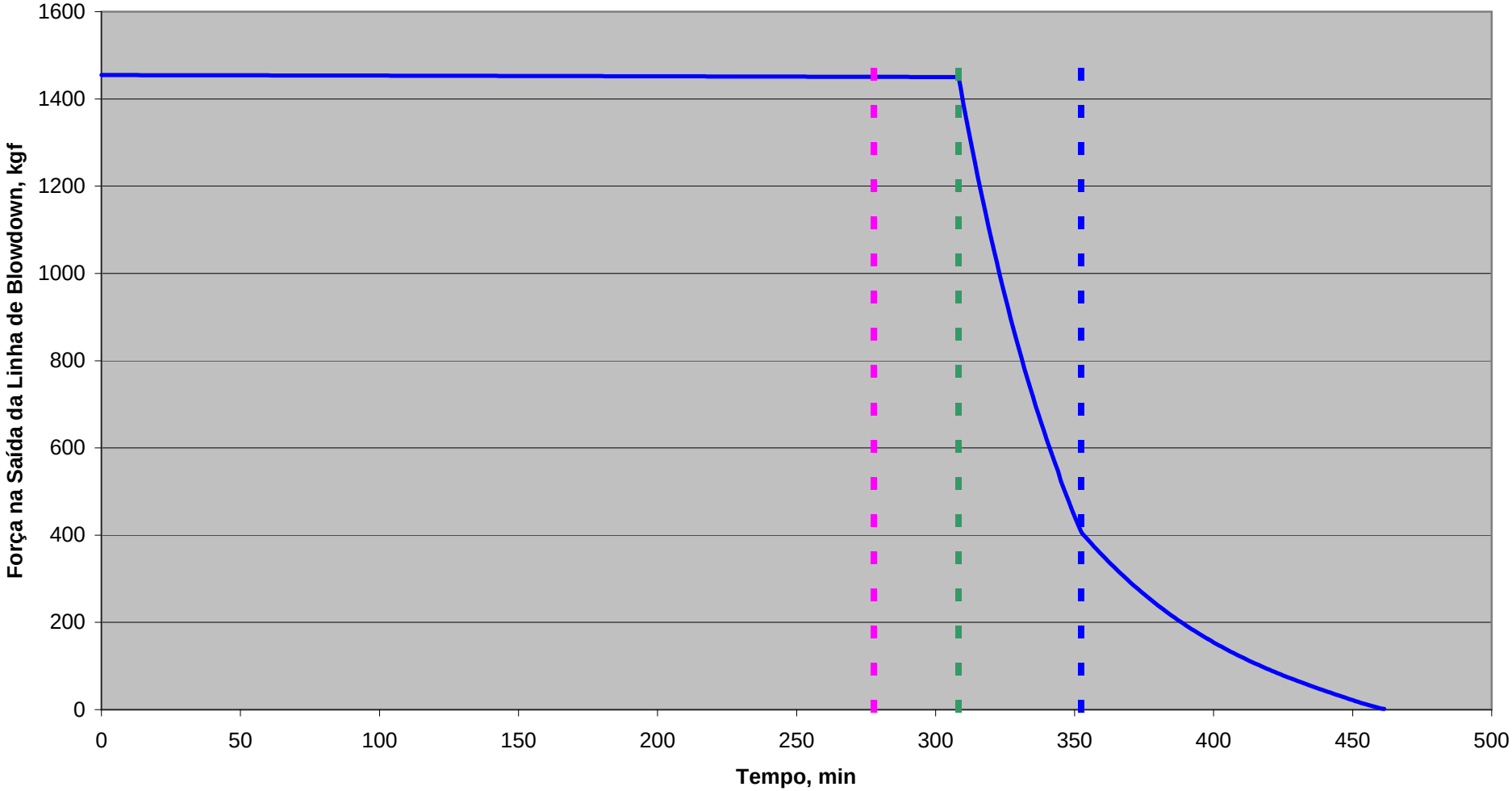
## Simulação de Blowdown - Transiente

**CASO 1**



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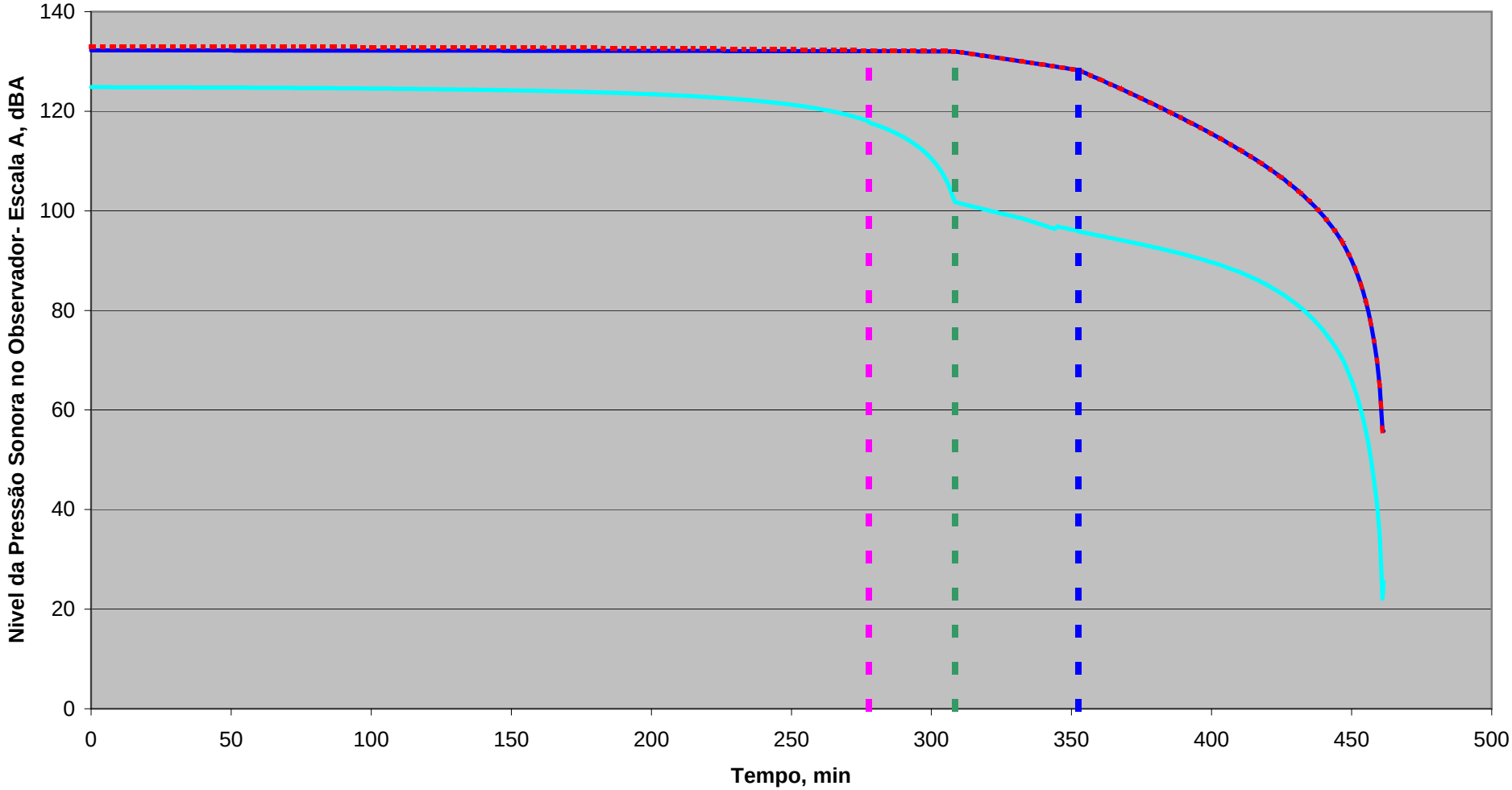
## Simulação de Blowdown - Transiente

**CASO 1**



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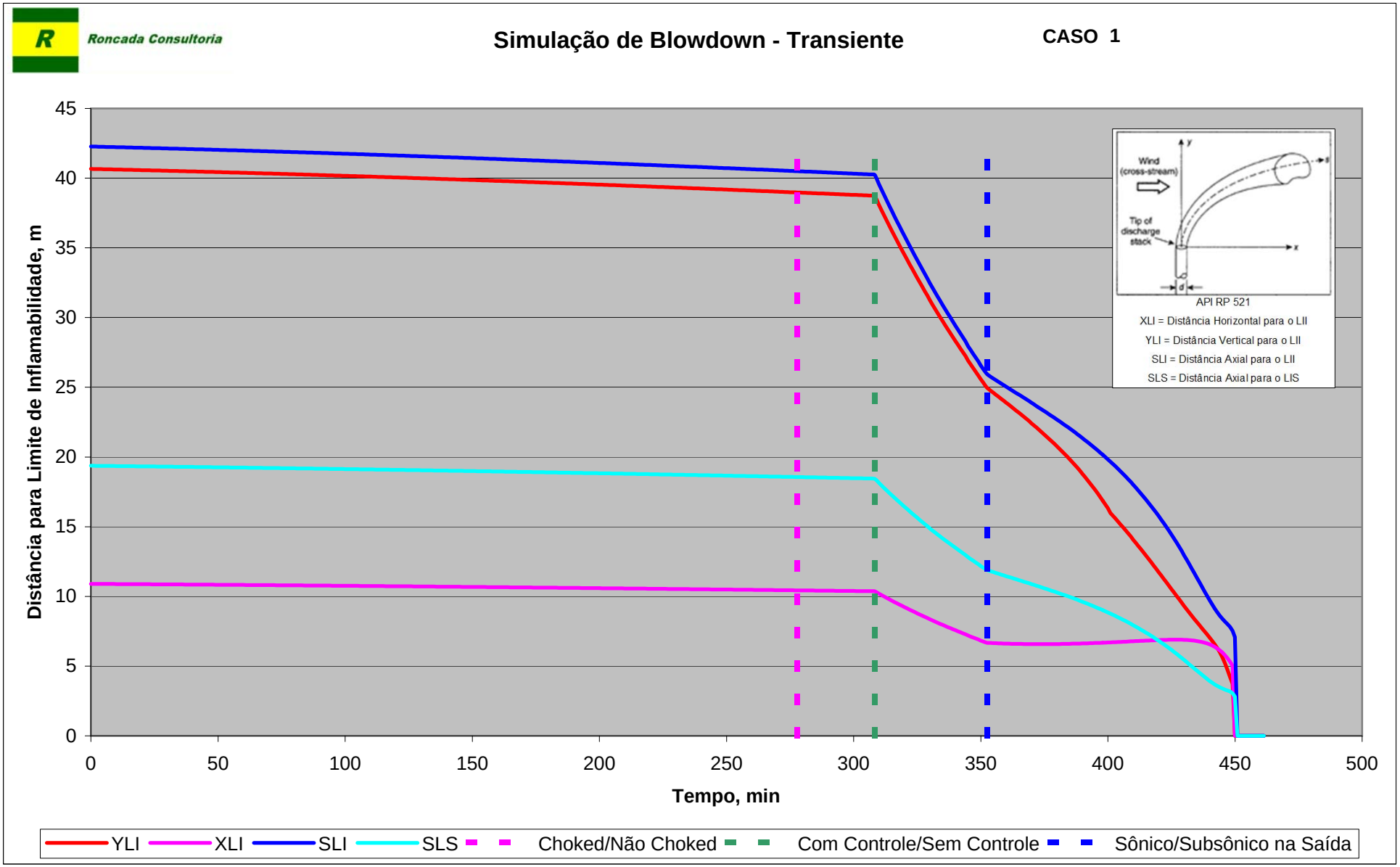
## Simulação de Blowdown - Transiente

**CASO 1**



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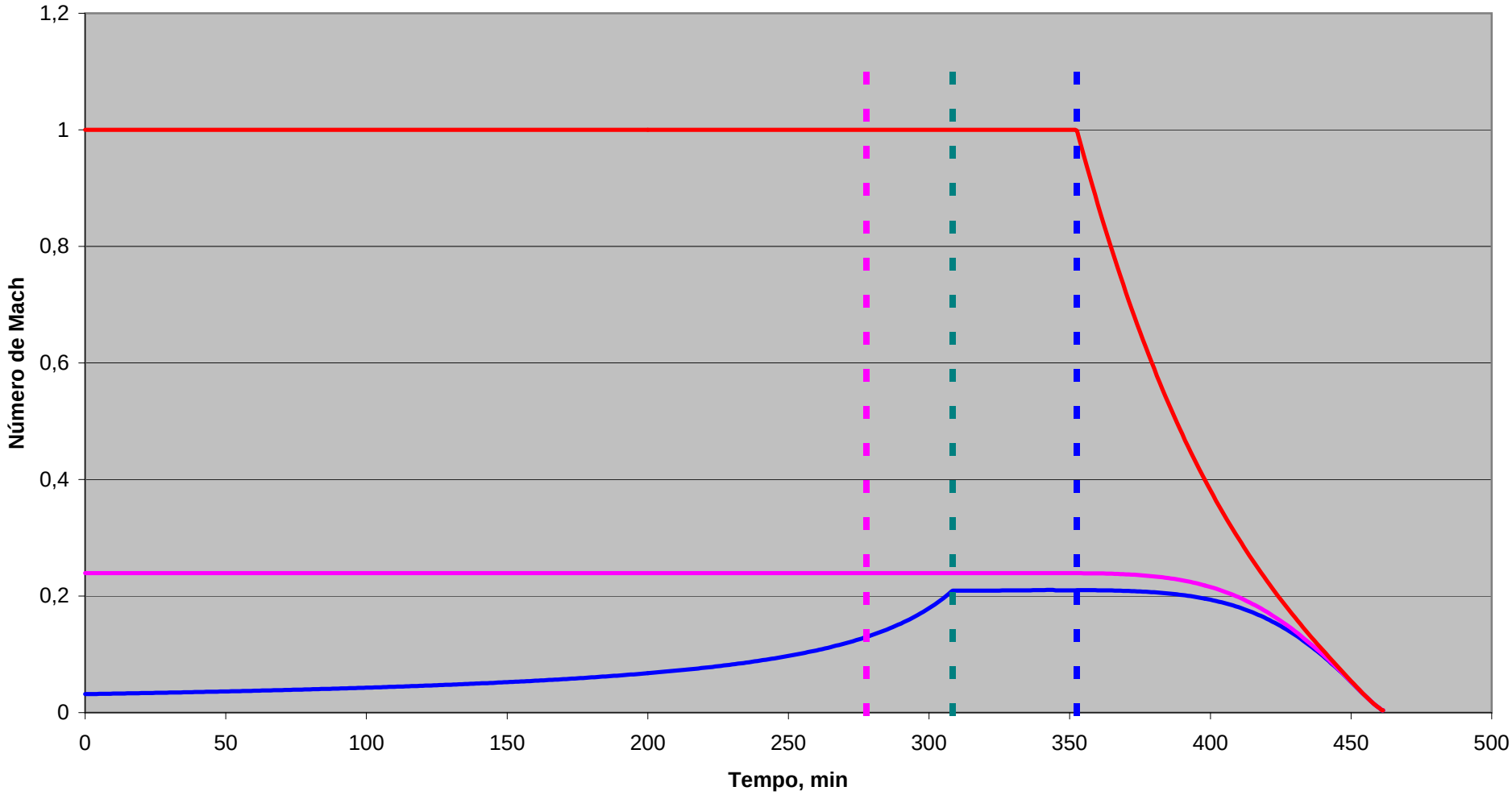
## Simulação do Blowdown - Transiente

**CASO 1**



# EXEMPLO 2

# CONTROLE DE VAZÃO

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**PROGRAMA VENTGAS - Versão 1 - ENTRADA DE DADOS** **CASO** **2**

### GASODUTO

| | | |
|---|---|---|
| Pressão Manométrica Inicial | 80 | kgf/cm2 g |
| Temperatura | 25 | °C |
| Diâmetro Nominal | 24 | pol |
| Comprimento | 30 | km |

### GÁS

| | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |

### VÁLVULA DE CONTROLE

| | | | | |
|---|---|---|---|---|
| Tipo de Válvula | 2 | 1:Esfera, 2: Igual % | | |
| CV Totalmente Aberta | 1080 | | | |
| Tipo de Controle | 2 | 1: P, 2:Q, 3:%Ab, 4:M | | |
| Pressão de Controle | 10 | kgf/cm2 g | [1] | Não Usado |
| Vazão de Controle | 3000 | mil Pm3/dia | [2] | Usado |
| % Abertura Inicial | 10 | % | [3] | Não Usado |
| % Abertura Final | 90 | % | [3] | Não Usado |
| Tempo de Abertura Total | 160 | min | [3] | Não Usado |
| Número de Incrementos | 8 | > 0 | [3] | Não Usado |
| Número de Mach na Saída | 0,8 | 0< M <=1 | [4] | Não Usado |

### LINHA DE BLOWDOWN

| | | |
|---|---|---|
| Comprimento antes da válvula | 10 | m |
| Comprimento depois da válvula | 150 | m |
| Diâmetro | 8 | pol |

### OBSERVADOR (Ruído)

| | | |
|---|---|---|
| Distância para a válvula | 10 | m |
| Distancia Horizontal até eixo da Descarga | 50 | m |
| Distância Vertical até a base da Descarga | 0 | m |
| Altura da Descarga | 2 | m |

### DISPERSÃO

| | | |
|---|---|---|
| Velocidade do Ar | 10 | km/h |

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# PROGRAMA VENTGAS - Versão 1 -- RESUMO DA SIMULAÇÃO

| CASO | 2 | |
|---|---|---|

Pm3 @ 20°C e 1 atm

| GASODUTO | 3 | |
|---|---|---|
| Diâmetro, pol | 24 | |
| Comprimento, km | 30,000000 | |
| Pressão Manométrica Inicial, kgf/cm2 g | 80 | |
| Pressão Manométrica Final, kgf/cm2 g | 9,782E-05 | |
| Temperatura, °C | 25 | |
| Inventário Inicial, t | 570,44373 | |
| Inventário Final, t | 6,0448319 | 0,02% |
| Inventário Morto,t | 6,0436096 | |

| GÁS | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |
| Cp/Cv | 1,2833754 | |
| Pressão Crítica, kgf/cm2 abs | 47,142502 | |
| Temperatura Crítica, °C | 202,42756 | |
| Densidade @ 20°C e 1 atm, kg/Pm3 | 0,746294 | |
| Viscosidade Inicial, cst | 0,0175711 | |
| Coef Joule-Thompson Inicial, °C/(kgf/cm2) | 0,398179 | |

| VÁLVULA DE CONTROLE | | |
|---|---|---|
| Tipo | Igual % | |
| Tipo de Controle | Q | |
| Vazão de Controle, mil Pm3/dia | | |
| CV Totalmente Aberta | 1080 | |
| CV inicial | 104,34133 | |
| Abertura Inicial, % | 49,25163 | |
| Abertura Final, % | 100 | |
| Pout/ Pin Crítica, % | 54,875013 | |

| LINHA DE BLOWDOWN | | |
|---|---|---|
| Diãmetro, pol | 8 | |
| Comprimento antes da válvula, m | 10 | |
| Comprimento depois da válvula, m | 150 | (com acessórios) |
| Vazão Inicial, mil Pm3/dia | 3000 | |
| Vazão Final, mil Pm3/dia | 4,5255374 | |
| Pressão Inicial na Saída, kgf/cm2 g | 1,322801 | |
| Temperatura Inicial na Saída, °C | -34,682084 | |
| Força Máxima, kgf | 1451,7251 | |

| TEMPOS ESTIMADOS | | |
|---|---|---|
| Escoamento com Controle, min | 317,2 | TCC |
| Escoamento sem Controle, min | 153 | |
| Tempo total, min | 470,2 | |
| | | |
| Fluxo Choked na Válvula, min | 286,8 | TCV |
| Fluxo Não Choked na Válvula, min | 183,4 | |
| Tempo total, min | 470,2 | |
| | | |
| Escoamento Sônico na Saída, min | 361,2 | TSS |
| Escoamento Subsônico na Saída, min | 109 | |
| Tempo total, min | 470,2 | |

| DISPERSÃO | Mínima | Máxima |
|---|---|---|
| Distância Vertical ao LII, m | 3,6463 | 39,6464 |
| Distância Horizontal ao LII,m | 4,80707 | 10,62426 |
| Distância Axial ao LII, m | 6,583771 | 41,2102 |
| Distância Axial ao LIS, m | 2,523604 | 18,88553 |
| Tempo sem Análise no Final, min | 11,4 | 2,42% |

| RUÍDO MÁXIMO | |
|---|---|
| Descarga para a Atmosfera, dBA | 132,037 |
| Valvula de Controle, dBA | 124,4617 |
| Total, dBA | 132,7088 |

| PURGA COM N2 | |
|---|---|
| Pressão Mínima de Injeção, kgj/cm2 g | 0,007935 |
| Velocidade Mínima, m/s | 1,299559 |

| Deslocamento Total | |
|---|---|
| Volume de N2, Nm3 (50% folga) | 11379,03 |
| Tempo Máximo, h | 6,412431 |
| Vazão Mínima de N2, Nm3/h | 1774,527 |

| Volume Tampão | |
|---|---|
| Volume do Tampão de N2, Nm3 (30 m de folga) | 141,7061 |
| Tempo Injeção Tampão, min | 7,187015 |
| Vazão Mínima de N2, Nm3/h | 1281,45 |

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**PROGRAMA VENTGAS - Versão 1 -- CONDIÇÃO INICIAL** **CASO** **2** Pm3 @ 20°C e 1 atm

| Trecho | | Gasoduto | Tubo | Válvula | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lequiv | m | 30000 | 10 | | 75 | 37,5 | 18,75 | 9,375 | 4,6875 | 2,34375 | 2,34375 |
| Ponto | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| D | pol | 24 | 8 | | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| x | m | 0 | 10 | 10 | 85 | 122,5 | 141,25 | 150,625 | 155,3125 | 157,65625 | 160 |
| fL/D | | | 0,693815216 | | 5,203614119 | 2,601807059 | 1,30090353 | 0,650451765 | 0,325225882 | 0,162612941 | 0,162612941 |
| M | | 0,030091517 | 0,030103668 | 0,239176989 | 0,313214302 | 0,397852898 | 0,488380432 | 0,578804016 | 0,663406372 | 0,738037109 | 1 |
| P | kgf/cm2 g | 80 | 79,96728784 | 9,44889735 | 6,948290211 | 5,224105914 | 4,036169889 | 3,21623221 | 2,648265925 | 2,25317355 | 1,322800962 |
| T | °C | 25 | 24,99996911 | -3,083100756 | -4,626597754 | -6,866148366 | -9,794150485 | -13,23175378 | -16,8748918 | -20,40058661 | -34,68208408 |
| ro | kg/m3 | 69,42059403 | 69,39257686 | 8,494927771 | 6,505521372 | 5,14303906 | 4,212937573 | 3,578201911 | 3,143995471 | 2,845715542 | 2,162219527 |
| v | m/s | 11,56530793 | 11,56997741 | 94,5117525 | 123,4137074 | 156,1081885 | 190,5726105 | 224,3782019 | 255,3663065 | 282,1330871 | 371,3177599 |
| ro*v | kg/(m2.s) | 802,8705466 | 802,8705466 | 802,870511 | 802,870511 | 802,870511 | 802,870511 | 802,870511 | 802,870511 | 802,870511 | 802,870511 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Qb | mil Pm3/dia | 3000 | | CV | | 104,341325 | | YLI | m | 39,64640185 | |
| W | t/dia | 2238,882 | | % abertura | % | 49,2516296 | | XLI | m | 10,62426051 | |
| Re | | 9241213,405 | | | | | | SLI | m | 41,21019736 | |
| f | | 0,014064842 | | Ruído Descarga | dbA | 132,0037419 | | SLS | m | 18,88552934 | |
| vsom | m/s | 384,3378115 | | Ruído Válvula | dbA | 124,4616595 | | | | | |
| Inventario | mil Pm3 | 764,3686374 | | Ruído Total | dBA | 132,708233 | | Força | kgf | 1364,533142 | |
| | t | 570,4437279 | | | | | | | | | |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 80 | 80 | 570,4437279 | 0 | 3000 | 79,96728784 | 9,44889735 | 104,341325 | 49,2516296 | -3,08310076 | 12,94056803 | 1,322800962 |
| 1 | 79,8519047 | 79,77132009 | 568,8890538 | 1491,708334 | 3000 | 79,73849905 | 9,450228395 | 104,6368763 | 49,31305054 | -3,02014277 | 12,97887066 | 1,323100114 |
| 2 | 79,6637311 | 79,5825073 | 567,3343628 | 1498,967775 | 3000 | 79,54959576 | 9,451329989 | 104,8821681 | 49,36389504 | -2,9679477 | 13,01066302 | 1,323347697 |
| 3 | 79,4752521 | 79,39378704 | 565,7796722 | 1499,280771 | 3000 | 79,3607848 | 9,45243982 | 105,1284918 | 49,41483393 | -2,91558375 | 13,04260005 | 1,323597131 |
| 4 | 79,2866579 | 79,20496789 | 564,224982 | 1499,291694 | 3000 | 79,17187439 | 9,453548446 | 105,376106 | 49,46591951 | -2,86300235 | 13,07470216 | 1,323846294 |
| 5 | 79,09795628 | 79,01604085 | 562,6702923 | 1499,289235 | 3000 | 78,98285594 | 9,454667998 | 105,6250319 | 49,51715489 | -2,8101964 | 13,1069872 | 1,324097913 |
| 6 | 78,90914702 | 78,82700496 | 561,115603 | 1499,286151 | 3000 | 78,79372774 | 9,455787799 | 105,8752823 | 49,56854129 | -2,7571698 | 13,13944351 | 1,324349587 |
| 7 | 78,72022953 | 78,6378596 | 559,5609142 | 1499,283011 | 3000 | 78,60448939 | 9,456911474 | 106,1268681 | 49,62007962 | -2,70392109 | 13,17207706 | 1,324602133 |
| 8 | 78,53120323 | 78,44860416 | 558,0062258 | 1499,279839 | 3000 | 78,41514057 | 9,458042611 | 106,3798002 | 49,67177075 | -2,65044887 | 13,20489383 | 1,324856355 |
| 9 | 78,34206753 | 78,25923803 | 556,4515378 | 1499,276638 | 3000 | 78,22568049 | 9,459175368 | 106,6340906 | 49,72361571 | -2,59675535 | 13,23788802 | 1,325110942 |
| 10 | 78,15282182 | 78,06976061 | 554,8968503 | 1499,273407 | 3000 | 78,03610843 | 9,460317911 | 106,889751 | 49,7756155 | -2,54283718 | 13,27107149 | 1,325367728 |
| 11 | 77,96346552 | 77,88017131 | 553,3421632 | 1499,270144 | 3000 | 77,84642441 | 9,46145984 | 107,1467924 | 49,82777093 | -2,48869864 | 13,30443258 | 1,325624375 |
| 12 | 77,77399804 | 77,69046951 | 551,7874765 | 1499,266851 | 3000 | 77,65662734 | 9,462609226 | 107,4052272 | 49,88008313 | -2,43433631 | 13,33798314 | 1,325882699 |
| 13 | 77,58441879 | 77,50065462 | 550,2327903 | 1499,263527 | 3000 | 77,46671684 | 9,463755665 | 107,6650673 | 49,93255304 | -2,37975439 | 13,3717115 | 1,326140361 |
| 14 | 77,39472716 | 77,31072602 | 548,6781045 | 1499,26017 | 3000 | 77,27669146 | 9,464916346 | 107,926326 | 49,98518189 | -2,32494567 | 13,40564131 | 1,326401223 |
| 15 | 77,20492257 | 77,12068312 | 547,1234192 | 1499,256782 | 3000 | 77,08655164 | 9,466076342 | 108,1890143 | 50,03797042 | -2,26991641 | 13,43975499 | 1,326661932 |
| 16 | 77,01500443 | 76,93052531 | 545,5687343 | 1499,253361 | 3000 | 76,89629615 | 9,467243574 | 108,4531453 | 50,09091982 | -2,2146632 | 13,47406443 | 1,326924267 |
| 17 | 76,82497215 | 76,74025199 | 544,0140498 | 1499,249908 | 3000 | 76,70592391 | 9,468416744 | 108,7187325 | 50,14403126 | -2,15918636 | 13,50856973 | 1,327187936 |
| 18 | 76,63482513 | 76,54986256 | 542,4593657 | 1499,246421 | 3000 | 76,51543623 | 9,469585724 | 108,9857859 | 50,19730524 | -2,10349051 | 13,5432592 | 1,327450664 |
| 19 | 76,44456278 | 76,35935642 | 540,9046821 | 1499,2429 | 3000 | 76,32483053 | 9,470767291 | 109,2543212 | 50,25074338 | -2,04756826 | 13,5781565 | 1,32771622 |
| 20 | 76,25418452 | 76,16873295 | 539,3499989 | 1499,239346 | 3000 | 76,13410719 | 9,471951178 | 109,52435 | 50,30434645 | -1,991424 | 13,61324995 | 1,327982298 |
| 21 | 76,06368975 | 75,97799156 | 537,7953161 | 1499,235757 | 3000 | 75,94326559 | 9,473140662 | 109,7958856 | 50,35811553 | -1,93505636 | 13,64854554 | 1,328249634 |
| 22 | 75,87307788 | 75,78713165 | 536,2406338 | 1499,232133 | 3000 | 75,75230409 | 9,474334328 | 110,0689429 | 50,41205199 | -1,87846559 | 13,68404339 | 1,32851791 |
| 23 | 75,68234832 | 75,59615261 | 534,6859519 | 1499,228474 | 3000 | 75,56122397 | 9,475531127 | 110,3435325 | 50,46615638 | -1,82165263 | 13,71974358 | 1,32878689 |
| 24 | 75,49150048 | 75,40505384 | 533,1312704 | 1499,22478 | 3000 | 75,37002272 | 9,476734023 | 110,619671 | 50,52043035 | -1,76461567 | 13,75565213 | 1,32905724 |
| 25 | 75,30053377 | 75,21383474 | 531,5765893 | 1499,221049 | 3000 | 75,1787002 | 9,477941748 | 110,8973715 | 50,57487485 | -1,70735536 | 13,79176914 | 1,329328676 |
| 26 | 75,10944761 | 75,0224947 | 530,0219087 | 1499,217282 | 3000 | 74,98725747 | 9,479153186 | 111,1766456 | 50,62949055 | -1,64987259 | 13,82809469 | 1,329600946 |
| 27 | 74,9182414 | 74,83103313 | 528,4672285 | 1499,213478 | 3000 | 74,79569132 | 9,480371136 | 111,4575113 | 50,6842793 | -1,59216544 | 13,86463482 | 1,32987468 |
| 28 | 74,72691455 | 74,63944942 | 526,9125487 | 1499,209637 | 3000 | 74,60400304 | 9,481590027 | 111,73998 | 50,7392417 | -1,53423672 | 13,90138372 | 1,330148625 |
| 29 | 74,53546647 | 74,44774296 | 525,3578693 | 1499,205758 | 3000 | 74,4121908 | 9,482812801 | 112,0240683 | 50,79437925 | -1,47608483 | 13,93834741 | 1,330423442 |
| 30 | 74,34389658 | 74,25591316 | 523,8031904 | 1499,201841 | 3000 | 74,22025505 | 9,484042647 | 112,309789 | 50,84969279 | -1,41770878 | 13,97553188 | 1,33069985 |
| 31 | 74,15220428 | 74,06395942 | 522,2485118 | 1499,197885 | 3000 | 74,02819527 | 9,485273757 | 112,597157 | 50,90518348 | -1,35911093 | 14,01293134 | 1,330976541 |
| 32 | 73,960389 | 73,87188112 | 520,6938337 | 1499,19389 | 3000 | 73,83601002 | 9,486517851 | 112,8861886 | 50,96085273 | -1,30028624 | 14,05056357 | 1,33125615 |
| 33 | 73,76845013 | 73,67967768 | 519,139156 | 1499,189855 | 3000 | 73,643698 | 9,487760189 | 113,1768999 | 51,01670192 | -1,2412405 | 14,08841107 | 1,331535365 |
| 34 | 73,57638709 | 73,48734848 | 517,5844787 | 1499,18578 | 3000 | 73,45126016 | 9,489008348 | 113,4693041 | 51,0727318 | -1,18197107 | 14,12648568 | 1,331815888 |
| 35 | 73,3841993 | 73,29489293 | 516,0298018 | 1499,181665 | 3000 | 73,25869545 | 9,490260819 | 113,7634174 | 51,12894371 | -1,12247842 | 14,16478754 | 1,332097381 |
| 36 | 73,19188617 | 73,10231042 | 514,4751254 | 1499,177508 | 3000 | 73,06600299 | 9,491516111 | 114,0592561 | 51,18533896 | -1,06276307 | 14,20331676 | 1,332379507 |
| 37 | 72,9994471 | 72,90960035 | 512,9204493 | 1499,17331 | 3000 | 72,87318303 | 9,492772881 | 114,3568346 | 51,2419185 | -1,00282583 | 14,24207346 | 1,332661965 |
| 38 | 72,80688152 | 72,71676212 | 511,3657737 | 1499,16907 | 3000 | 72,6802329 | 9,494042395 | 114,6561724 | 51,2986842 | -0,94266142 | 14,28107543 | 1,332947288 |
| 39 | 72,61418883 | 72,52379513 | 509,8110984 | 1499,164788 | 3000 | 72,48715417 | 9,495310411 | 114,9572825 | 51,35563667 | -0,88227636 | 14,32030513 | 1,333232274 |
| 40 | 72,42136845 | 72,33069878 | 508,2564236 | 1499,160462 | 3000 | 72,29394547 | 9,49658829 | 115,2601826 | 51,41277739 | -0,82166575 | 14,35978033 | 1,333519476 |
| 41 | 72,2284198 | 72,13747246 | 506,7017492 | 1499,156092 | 3000 | 72,10060557 | 9,497865787 | 115,5648905 | 51,47010783 | -0,76083359 | 14,39948941 | 1,333806593 |
| 42 | 72,03534228 | 71,94411557 | 505,1470752 | 1499,151678 | 3000 | 71,90713542 | 9,499145888 | 115,8714206 | 51,5276288 | -0,69977916 | 14,43943835 | 1,334094295 |
| 43 | 71,84213531 | 71,75062752 | 503,5924016 | 1499,14722 | 3000 | 71,71353208 | 9,500439565 | 116,1797939 | 51,58534231 | -0,63849719 | 14,47964496 | 1,334385048 |
| 44 | 71,64879831 | 71,55700769 | 502,0377284 | 1499,142716 | 3000 | 71,51979677 | 9,501732624 | 116,4900248 | 51,64324911 | -0,57699412 | 14,5200917 | 1,334675663 |
| 45 | 71,45533068 | 71,36325549 | 500,4830557 | 1499,138167 | 3000 | 71,32592885 | 9,503027766 | 116,802131 | 51,70135054 | -0,51526882 | 14,5607846 | 1,334966745 |
| 46 | 71,26173185 | 71,16937032 | 498,9283833 | 1499,133571 | 3000 | 71,13192685 | 9,504327529 | 117,1161317 | 51,7596482 | -0,45331998 | 14,60172966 | 1,335258866 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 71,06800123 | 70,97535158 | 497,3737113 | 1499,128928 | 3000 | 70,93779042 | 9,505634555 | 117,4320446 | 51,81814334 | -0,3911466 | 14,64293291 | 1,33555262 |
| 48 | 70,87413823 | 70,78119865 | 495,8190397 | 1499,124237 | 3000 | 70,74351938 | 9,506943025 | 117,7498872 | 51,87683721 | -0,32875123 | 14,68438859 | 1,335846698 |
| 49 | 70,68014228 | 70,58691095 | 494,2643686 | 1499,119499 | 3000 | 70,54911271 | 9,508259667 | 118,0696787 | 51,9357313 | -0,26613097 | 14,72610861 | 1,336142612 |
| 50 | 70,48601277 | 70,39248787 | 492,7096978 | 1499,114711 | 3000 | 70,35456958 | 9,509582747 | 118,3914383 | 51,99482707 | -0,20328647 | 14,76809311 | 1,336439974 |
| 51 | 70,29174914 | 70,19792881 | 491,1550274 | 1499,109874 | 3000 | 70,15989023 | 9,510902316 | 118,7151836 | 52,05412565 | -0,14022214 | 14,81033047 | 1,336736546 |
| 52 | 70,0973508 | 70,00323317 | 489,6003574 | 1499,104987 | 3000 | 69,96507318 | 9,512233299 | 119,0409351 | 52,11362872 | -0,07693154 | 14,85284435 | 1,337035684 |
| 53 | 69,90281716 | 69,80840034 | 488,0456879 | 1499,100049 | 3000 | 69,77011805 | 9,51356563 | 119,3687121 | 52,17333764 | -0,01341892 | 14,89562313 | 1,337335125 |
| 54 | 69,70814765 | 69,61342973 | 486,4910187 | 1499,09506 | 3000 | 69,57502462 | 9,514905944 | 119,6985336 | 52,23325372 | 0,050318329 | 14,93867871 | 1,33763636 |
| 55 | 69,51334167 | 69,41832073 | 484,9363499 | 1499,090019 | 3000 | 69,37979189 | 9,516244131 | 120,0304202 | 52,29337855 | 0,114276106 | 14,9819995 | 1,337937116 |
| 56 | 69,31839864 | 69,22307275 | 483,3816815 | 1499,084926 | 3000 | 69,18441902 | 9,517594936 | 120,3643925 | 52,35371365 | 0,178460593 | 15,02560915 | 1,338240709 |
| 57 | 69,12331799 | 69,02768518 | 481,8270135 | 1499,079779 | 3000 | 68,98890628 | 9,518940171 | 120,7004697 | 52,41426023 | 0,242863919 | 15,0694843 | 1,33854305 |
| 58 | 68,92809913 | 68,83215741 | 480,2723459 | 1499,074578 | 3000 | 68,79325225 | 9,520298498 | 121,0386738 | 52,47502005 | 0,30749409 | 15,11365447 | 1,338848333 |
| 59 | 68,73274148 | 68,63648886 | 478,7176787 | 1499,069322 | 3000 | 68,5974566 | 9,521655788 | 121,3790253 | 52,53599452 | 0,372345106 | 15,15810222 | 1,339153383 |
| 60 | 68,53724445 | 68,44067891 | 477,1630118 | 1499,064011 | 3000 | 68,40151916 | 9,523022533 | 121,721545 | 52,59718503 | 0,437421162 | 15,2028453 | 1,339460559 |
| 61 | 68,34160747 | 68,24472697 | 475,6083454 | 1499,058644 | 3000 | 68,20543813 | 9,52439259 | 122,0662563 | 52,65859349 | 0,502720064 | 15,24787802 | 1,339768478 |
| 62 | 68,14582995 | 68,04863244 | 474,0536793 | 1499,05322 | 3000 | 68,0092146 | 9,525764318 | 122,4131783 | 52,72022092 | 0,568240536 | 15,29320051 | 1,340076773 |
| 63 | 67,94991132 | 67,85239471 | 472,4990137 | 1499,047738 | 3000 | 67,81284622 | 9,527143676 | 122,7623361 | 52,78206944 | 0,633985604 | 15,33882472 | 1,340386783 |
| 64 | 67,75385099 | 67,65601318 | 470,9443484 | 1499,042198 | 3000 | 67,61633353 | 9,52852484 | 123,1137503 | 52,84414027 | 0,699952425 | 15,3847449 | 1,340697199 |
| 65 | 67,55764837 | 67,45948726 | 469,3896835 | 1499,036599 | 3000 | 67,41967544 | 9,529909837 | 123,4674443 | 52,90643516 | 0,766141965 | 15,43096712 | 1,341008477 |
| 66 | 67,3613029 | 67,26281633 | 467,835019 | 1499,03094 | 3000 | 67,22287195 | 9,531300797 | 123,8234402 | 52,96895553 | 0,832554876 | 15,47749739 | 1,341321094 |
| 67 | 67,164814 | 67,06599981 | 466,2803549 | 1499,02522 | 3000 | 67,02592148 | 9,532699577 | 124,1817632 | 53,03170332 | 0,899192225 | 15,52434177 | 1,341635469 |
| 68 | 66,96818107 | 66,86903708 | 464,7256911 | 1499,019439 | 3000 | 66,82882351 | 9,534096183 | 124,5424367 | 53,09468015 | 0,96604975 | 15,5714887 | 1,341949356 |
| 69 | 66,77140355 | 66,67192755 | 463,1710278 | 1499,013595 | 3000 | 66,63157859 | 9,535504692 | 124,9054826 | 53,15788732 | 1,033132926 | 15,61896181 | 1,342265917 |
| 70 | 66,57448085 | 66,47467062 | 461,6163648 | 1499,007689 | 3000 | 66,43418485 | 9,536914887 | 125,2709277 | 53,2213269 | 1,100437849 | 15,66674956 | 1,342582858 |
| 71 | 66,37741239 | 66,27726568 | 460,0617022 | 1499,001718 | 3000 | 66,23664234 | 9,538324811 | 125,6387953 | 53,28500039 | 1,167963424 | 15,71485211 | 1,342899738 |
| 72 | 66,1801976 | 66,07971213 | 458,5070399 | 1498,995682 | 3000 | 66,03895045 | 9,539740282 | 126,0091104 | 53,3489095 | 1,235712051 | 15,76328139 | 1,343217864 |
| 73 | 65,9828359 | 65,88200938 | 456,9523781 | 1498,98958 | 3000 | 65,84110791 | 9,541166924 | 126,3818997 | 53,41305618 | 1,303686269 | 15,81204932 | 1,343538501 |
| 74 | 65,7853267 | 65,68415681 | 455,3977166 | 1498,983412 | 3000 | 65,64311537 | 9,542590976 | 126,7571864 | 53,47744176 | 1,37187982 | 15,86113846 | 1,343858556 |
| 75 | 65,58766944 | 65,48615383 | 453,8430555 | 1498,977176 | 3000 | 65,44497111 | 9,544021879 | 127,1349987 | 53,54206837 | 1,440296995 | 15,91056662 | 1,344180151 |
| 76 | 65,38986354 | 65,28799984 | 452,2883948 | 1498,970872 | 3000 | 65,2466745 | 9,545457417 | 127,515363 | 53,60693781 | 1,50893682 | 15,96033399 | 1,344502787 |
| 77 | 65,19190841 | 65,08969424 | 450,7337344 | 1498,964499 | 3000 | 65,04822593 | 9,546895518 | 127,8983043 | 53,67205156 | 1,577798031 | 16,01044074 | 1,344826 |
| 78 | 64,99380348 | 64,89123642 | 449,1790744 | 1498,958054 | 3000 | 64,8496235 | 9,548341507 | 128,2838521 | 53,73741185 | 1,646883252 | 16,06089883 | 1,345150985 |
| 79 | 64,79554818 | 64,69262579 | 447,6244148 | 1498,951539 | 3000 | 64,65086801 | 9,549793293 | 128,6720312 | 53,80302007 | 1,716191067 | 16,11170842 | 1,345477273 |
| 80 | 64,59714193 | 64,49386173 | 446,0697556 | 1498,944951 | 3000 | 64,45195722 | 9,551244493 | 129,0628728 | 53,86887861 | 1,785719286 | 16,16286387 | 1,345803429 |
| 81 | 64,39858414 | 64,29494366 | 444,5150967 | 1498,93829 | 3000 | 64,25289151 | 9,552700646 | 129,4564031 | 53,93498903 | 1,855469841 | 16,21437711 | 1,346130699 |
| 82 | 64,19987426 | 64,09587097 | 442,9604382 | 1498,931555 | 3000 | 64,05367069 | 9,554163288 | 129,8526501 | 54,00135309 | 1,925443183 | 16,26625417 | 1,346459427 |
| 83 | 64,00101169 | 63,89664305 | 441,4057801 | 1498,924744 | 3000 | 63,85429318 | 9,555626084 | 130,2516447 | 54,06797302 | 1,995636899 | 16,31848944 | 1,34678819 |
| 84 | 63,80199588 | 63,6972593 | 439,8511224 | 1498,917857 | 3000 | 63,65475922 | 9,557098192 | 130,6534149 | 54,13485049 | 2,066054512 | 16,37110069 | 1,347119045 |
| 85 | 63,60282623 | 63,49771913 | 438,296465 | 1498,910892 | 3000 | 63,45506769 | 9,558577071 | 131,0579915 | 54,20198762 | 2,136695058 | 16,42408813 | 1,347451423 |
| 86 | 63,40350218 | 63,29802193 | 436,7418079 | 1498,903849 | 3000 | 63,25521694 | 9,560052554 | 131,4654071 | 54,26938675 | 2,207554523 | 16,47744028 | 1,347783037 |
| 87 | 63,20402316 | 63,0981671 | 435,1871512 | 1498,896726 | 3000 | 63,05520865 | 9,561537617 | 131,8756878 | 54,33704911 | 2,278637546 | 16,53118076 | 1,348116804 |
| 88 | 63,00438859 | 62,89815403 | 433,6324949 | 1498,889522 | 3000 | 62,85504008 | 9,563021897 | 132,2888692 | 54,40497743 | 2,349940401 | 16,5852981 | 1,348450395 |
| 89 | 62,80459789 | 62,69798213 | 432,0778389 | 1498,882236 | 3000 | 62,65471259 | 9,564518147 | 132,704979 | 54,47317311 | 2,421467749 | 16,63981593 | 1,348786676 |
| 90 | 62,6046505 | 62,4976508 | 430,5231833 | 1498,874866 | 3000 | 62,45422469 | 9,566016158 | 133,1240511 | 54,54163849 | 2,493215487 | 16,69472277 | 1,349123354 |
| 91 | 62,40454584 | 62,29715942 | 428,9685281 | 1498,867413 | 3000 | 62,2535744 | 9,567513158 | 133,5461211 | 54,61037614 | 2,565182841 | 16,75001888 | 1,349459803 |
| 92 | 62,20428333 | 62,0965074 | 427,4138732 | 1498,859874 | 3000 | 62,05276302 | 9,569021662 | 133,971218 | 54,67938751 | 2,637374394 | 16,80572788 | 1,349798839 |
| 93 | 62,00386242 | 61,89569414 | 425,8592187 | 1498,852248 | 3000 | 61,85178833 | 9,570531333 | 134,3993789 | 54,74867531 | 2,709786241 | 16,86183831 | 1,350138137 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 61,80328252 | 61,69471903 | 424,3045645 | 1498,844533 | 3000 | 61,65065208 | 9,572047232 | 134,8306328 | 54,81824086 | 2,782419624 | 16,91836209 | 1,350478834 |
| 95 | 61,60254306 | 61,49358147 | 422,7499107 | 1498,83673 | 3000 | 61,44935108 | 9,573566236 | 135,2650198 | 54,88808725 | 2,855274045 | 16,97529951 | 1,350820229 |
| 96 | 61,40164348 | 61,29228086 | 421,1952572 | 1498,828836 | 3000 | 61,24788683 | 9,575085937 | 135,7025705 | 54,95821594 | 2,928347647 | 17,03265075 | 1,351161782 |
| 97 | 61,20058319 | 61,09081659 | 419,6406041 | 1498,820849 | 3000 | 61,04625671 | 9,576610562 | 136,1433249 | 55,02862987 | 3,001642871 | 17,09042783 | 1,35150444 |
| 98 | 60,99936164 | 60,88918806 | 418,0859514 | 1498,81277 | 3000 | 60,84446198 | 9,578144842 | 136,5873151 | 55,09933064 | 3,075160989 | 17,14864266 | 1,351849269 |
| 99 | 60,79797826 | 60,68739468 | 416,531299 | 1498,804595 | 3000 | 60,64249985 | 9,57967831 | 137,0345826 | 55,17032129 | 3,148898225 | 17,20728382 | 1,352193915 |
| 100 | 60,59643246 | 60,48543582 | 414,9766469 | 1498,796325 | 3000 | 60,44037211 | 9,581222928 | 137,4851593 | 55,24160329 | 3,222858755 | 17,26637496 | 1,352541067 |
| 101 | 60,3947237 | 60,2833109 | 413,4219952 | 1498,787957 | 3000 | 60,23807651 | 9,582768282 | 137,9390868 | 55,31317954 | 3,297038621 | 17,32590463 | 1,352888385 |
| 102 | 60,19285138 | 60,08101931 | 411,8673438 | 1498,77949 | 3000 | 60,03561254 | 9,584318632 | 138,3964031 | 55,38505238 | 3,371439529 | 17,38588481 | 1,353236825 |
| 103 | 59,99081495 | 59,87856045 | 410,3126928 | 1498,770922 | 3000 | 59,83298133 | 9,58587127 | 138,8571434 | 55,45722355 | 3,446059596 | 17,44631572 | 1,353585779 |
| 104 | 59,78861385 | 59,6759337 | 408,7580421 | 1498,762252 | 3000 | 59,63018012 | 9,587422859 | 139,3213521 | 55,52969625 | 3,520898078 | 17,50719767 | 1,353934498 |
| 105 | 59,58624749 | 59,47313848 | 407,2033918 | 1498,753479 | 3000 | 59,42720787 | 9,588984496 | 139,7890704 | 55,60247306 | 3,595959808 | 17,56855438 | 1,354285476 |
| 106 | 59,38371532 | 59,27017416 | 405,6487418 | 1498,7446 | 3000 | 59,22406653 | 9,590553445 | 140,2603332 | 55,67555554 | 3,671242587 | 17,63038604 | 1,354638096 |
| 107 | 59,18101676 | 59,06704016 | 404,0940921 | 1498,735615 | 3000 | 59,02075425 | 9,592126349 | 140,7351849 | 55,74894663 | 3,746745338 | 17,69269296 | 1,354991605 |
| 108 | 58,97815126 | 58,86373586 | 402,5394428 | 1498,726521 | 3000 | 58,81726948 | 9,593699893 | 141,2136697 | 55,82264918 | 3,822466878 | 17,75547543 | 1,355345259 |
| 109 | 58,77511824 | 58,66026065 | 400,9847939 | 1498,717318 | 3000 | 58,61361367 | 9,595278233 | 141,6958255 | 55,89666501 | 3,898408147 | 17,81874541 | 1,355699989 |
| 110 | 58,57191715 | 58,45661395 | 399,4301452 | 1498,708002 | 3000 | 58,40978455 | 9,596864811 | 142,1816996 | 55,97099729 | 3,974571139 | 17,88251491 | 1,356056572 |
| 111 | 58,3685474 | 58,25279514 | 397,875497 | 1498,698573 | 3000 | 58,20578151 | 9,598449364 | 142,6713362 | 56,04564866 | 4,050951337 | 17,94677252 | 1,3564127 |
| 112 | 58,16500845 | 58,04880361 | 396,320849 | 1498,689029 | 3000 | 58,00160425 | 9,600042508 | 143,1647793 | 56,12062163 | 4,127553104 | 18,01154195 | 1,356770758 |
| 113 | 57,96129973 | 57,84463876 | 394,7662014 | 1498,679368 | 3000 | 57,79725148 | 9,601633829 | 143,662076 | 56,19591913 | 4,2043721 | 18,07681178 | 1,357128406 |
| 114 | 57,75742067 | 57,64029998 | 393,2115541 | 1498,669588 | 3000 | 57,59272351 | 9,60324073 | 144,1632705 | 56,27154353 | 4,281415391 | 18,14261743 | 1,357489557 |
| 115 | 57,5533707 | 57,43578667 | 391,6569072 | 1498,659687 | 3000 | 57,38802098 | 9,604839323 | 144,6684064 | 56,34749711 | 4,358672105 | 18,20892402 | 1,35784884 |
| 116 | 57,34914927 | 57,23109823 | 390,1022605 | 1498,649663 | 3000 | 57,18313974 | 9,606452924 | 145,1775404 | 56,42378395 | 4,436153519 | 18,2757788 | 1,358211496 |
| 117 | 57,14475582 | 57,02623405 | 388,5476143 | 1498,639515 | 3000 | 56,97808359 | 9,608065029 | 145,6907099 | 56,50040521 | 4,51385076 | 18,34315853 | 1,358573815 |
| 118 | 56,94018978 | 56,82119351 | 386,9929683 | 1498,629241 | 3000 | 56,77284784 | 9,609678199 | 146,2079745 | 56,57736525 | 4,591766347 | 18,41107534 | 1,358936374 |
| 119 | 56,73545059 | 56,61597602 | 385,4383227 | 1498,618838 | 3000 | 56,56743317 | 9,611302538 | 146,7293809 | 56,65466648 | 4,669904063 | 18,47955293 | 1,359301444 |
| 120 | 56,53053769 | 56,41058096 | 383,8836774 | 1498,608304 | 3000 | 56,36184059 | 9,612927847 | 147,2549759 | 56,73231117 | 4,748258785 | 18,54857987 | 1,359666731 |
| 121 | 56,32545052 | 56,20500773 | 382,3290324 | 1498,597637 | 3000 | 56,15606774 | 9,614556835 | 147,7848157 | 56,81030295 | 4,82683223 | 18,61816822 | 1,360032845 |
| 122 | 56,12018852 | 55,99925573 | 380,7743878 | 1498,586836 | 3000 | 55,95011387 | 9,616192379 | 148,3189533 | 56,88864483 | 4,905625588 | 18,68833003 | 1,360400433 |
| 123 | 55,91475113 | 55,79332434 | 379,2197435 | 1498,575898 | 3000 | 55,74397979 | 9,617830871 | 148,8574385 | 56,9673393 | 4,984636651 | 18,75906558 | 1,360768683 |
| 124 | 55,70913779 | 55,58721296 | 377,6650995 | 1498,56482 | 3000 | 55,53766425 | 9,619474964 | 149,4003271 | 57,04638965 | 5,063866701 | 18,83038693 | 1,361138192 |
| 125 | 55,50334794 | 55,38092098 | 376,1104558 | 1498,553601 | 3000 | 55,33116519 | 9,62112047 | 149,9476783 | 57,12579952 | 5,143314352 | 18,90229445 | 1,361508019 |
| 126 | 55,29738102 | 55,17444778 | 374,5558125 | 1498,542238 | 3000 | 55,12448332 | 9,622770237 | 150,4995448 | 57,20557155 | 5,222980232 | 18,97480017 | 1,361878803 |
| 127 | 55,09123649 | 54,96779277 | 373,0011694 | 1498,530729 | 3000 | 54,91761967 | 9,624427073 | 151,0559793 | 57,28570826 | 5,302864822 | 19,04791607 | 1,362251176 |
| 128 | 54,88491377 | 54,76095533 | 371,4465267 | 1498,519071 | 3000 | 54,71056983 | 9,626086202 | 151,6170499 | 57,36621434 | 5,382967373 | 19,12164261 | 1,362624065 |
| 129 | 54,67841232 | 54,55393485 | 369,8918843 | 1498,507261 | 3000 | 54,50333562 | 9,627750427 | 152,1828093 | 57,44709208 | 5,463288066 | 19,19599179 | 1,362998098 |
| 130 | 54,47173158 | 54,34673073 | 368,3372423 | 1498,495299 | 3000 | 54,2959169 | 9,629422101 | 152,7533162 | 57,5283446 | 5,54382763 | 19,27097564 | 1,363373806 |
| 131 | 54,26487099 | 54,13934234 | 366,7826005 | 1498,48318 | 3000 | 54,08831165 | 9,631090244 | 153,3286355 | 57,60997577 | 5,6245817 | 19,34658288 | 1,36374872 |
| 132 | 54,05783 | 53,93176909 | 365,2279591 | 1498,470902 | 3000 | 53,88051941 | 9,632769934 | 153,908829 | 57,69198892 | 5,70555667 | 19,42284896 | 1,36412623 |
| 133 | 53,85060805 | 53,72401037 | 363,673318 | 1498,458462 | 3000 | 53,67253901 | 9,634450219 | 154,4939613 | 57,77438767 | 5,786747862 | 19,49976257 | 1,364503873 |
| 134 | 53,6432046 | 53,51606555 | 362,1186772 | 1498,445859 | 3000 | 53,4643719 | 9,636133461 | 155,0840911 | 57,85717468 | 5,868155389 | 19,57733573 | 1,364882181 |
| 135 | 53,43561908 | 53,30793403 | 360,5640367 | 1498,433088 | 3000 | 53,25601554 | 9,637821189 | 155,6792892 | 57,94035423 | 5,949780544 | 19,65558057 | 1,365261497 |
| 136 | 53,22785095 | 53,0996152 | 359,0093965 | 1498,420147 | 3000 | 53,04747 | 9,639515302 | 156,2796202 | 58,02392958 | 6,031623767 | 19,73450915 | 1,365642248 |
| 137 | 53,01989965 | 52,89110844 | 357,4547566 | 1498,407034 | 3000 | 52,83873363 | 9,641210973 | 156,8851548 | 58,10790475 | 6,113683229 | 19,8141219 | 1,366023349 |
| 138 | 52,81176464 | 52,68241315 | 355,9001171 | 1498,393745 | 3000 | 52,62980737 | 9,642916388 | 157,4959574 | 58,19228277 | 6,195961786 | 19,89444256 | 1,36640664 |
| 139 | 52,60344536 | 52,4735287 | 354,3454778 | 1498,380276 | 3000 | 52,42069044 | 9,644620462 | 158,1120988 | 58,2770674 | 6,278454532 | 19,97545983 | 1,36678963 |
| 140 | 52,39494127 | 52,26445449 | 352,7908389 | 1498,366626 | 3000 | 52,21138144 | 9,646330764 | 158,7336525 | 58,3622627 | 6,36116495 | 20,05719754 | 1,367174019 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 141 | 52,18625181 | 52,05518989 | 351,2362002 | 1498,352791 | 3000 | 52,00187948 | 9,648042339 | 159,360692 | 58,44787257 | 6,444090862 | 20,1396561 | 1,367558695 |
| 142 | 51,97737644 | 51,84573431 | 349,6815619 | 1498,338767 | 3000 | 51,79218513 | 9,649762848 | 159,9932878 | 58,53390038 | 6,52723503 | 20,22285927 | 1,367945378 |
| 143 | 51,76831461 | 51,63608712 | 348,1269239 | 1498,324552 | 3000 | 51,58229736 | 9,651487147 | 160,6315164 | 58,62035019 | 6,610595236 | 20,30680749 | 1,368332914 |
| 144 | 51,55906577 | 51,4262477 | 346,5722862 | 1498,310141 | 3000 | 51,37221461 | 9,653209978 | 161,2754573 | 58,70722633 | 6,694169416 | 20,39150122 | 1,368720119 |
| 145 | 51,34962937 | 51,21621544 | 345,0176488 | 1498,295532 | 3000 | 51,16193581 | 9,654938363 | 161,9251901 | 58,79453301 | 6,777960695 | 20,47696428 | 1,369108573 |
| 146 | 51,14000488 | 51,00598972 | 343,4630116 | 1498,28072 | 3000 | 50,95146241 | 9,656673513 | 162,5807879 | 58,88227341 | 6,861968675 | 20,56320873 | 1,369498547 |
| 147 | 50,93019174 | 50,79556993 | 341,9083748 | 1498,265703 | 3000 | 50,74079229 | 9,658415859 | 163,2423361 | 58,97045229 | 6,946193997 | 20,65024675 | 1,369890138 |
| 148 | 50,72018942 | 50,58495545 | 340,3537383 | 1498,250476 | 3000 | 50,52992588 | 9,660154148 | 163,9099141 | 59,05907336 | 7,030631184 | 20,73806706 | 1,370280818 |
| 149 | 50,50999736 | 50,37414566 | 338,7991021 | 1498,235036 | 3000 | 50,31886014 | 9,661906558 | 164,5836134 | 59,14814187 | 7,115289037 | 20,82671694 | 1,370674671 |
| 150 | 50,29961504 | 50,16313994 | 337,2444662 | 1498,219379 | 3000 | 50,1075975 | 9,663656046 | 165,2635099 | 59,23766084 | 7,200158743 | 20,91617339 | 1,371067867 |
| 151 | 50,08904189 | 49,95193767 | 335,6898306 | 1498,203501 | 3000 | 49,89613502 | 9,665408535 | 165,9496982 | 59,32763557 | 7,285243679 | 21,00646031 | 1,371461738 |
| 152 | 49,8782774 | 49,74053824 | 334,1351952 | 1498,187398 | 3000 | 49,6844742 | 9,66717058 | 166,6422602 | 59,41806959 | 7,370545771 | 21,09760147 | 1,371857757 |
| 153 | 49,667321 | 49,52894101 | 332,5805602 | 1498,171065 | 3000 | 49,47261131 | 9,668929824 | 167,3412964 | 59,50896868 | 7,45606066 | 21,18958576 | 1,372253146 |
| 154 | 49,45617218 | 49,31714538 | 331,0259255 | 1498,154499 | 3000 | 49,26054893 | 9,670698706 | 168,0468885 | 59,60033601 | 7,541792442 | 21,28244861 | 1,372650701 |
| 155 | 49,24483038 | 49,10515071 | 329,471291 | 1498,137694 | 3000 | 49,04828447 | 9,67247081 | 168,7591371 | 59,69217702 | 7,627738924 | 21,37619057 | 1,373048981 |
| 156 | 49,03329507 | 48,89295639 | 327,9166569 | 1498,120648 | 3000 | 48,83581784 | 9,674246012 | 169,4781359 | 59,78449615 | 7,713899709 | 21,4708238 | 1,373447957 |
| 157 | 48,82156571 | 48,6805618 | 326,362023 | 1498,103354 | 3000 | 48,62314767 | 9,676023822 | 170,2039852 | 59,87729845 | 7,800274743 | 21,56636051 | 1,373847519 |
| 158 | 48,60964178 | 48,4679663 | 324,8073894 | 1498,085809 | 3000 | 48,41027501 | 9,677809887 | 170,9367787 | 59,97058799 | 7,886865722 | 21,66282449 | 1,374248936 |
| 159 | 48,39752272 | 48,25516927 | 323,2527561 | 1498,068007 | 3000 | 48,19719783 | 9,679597539 | 171,6766225 | 60,06437026 | 7,973670118 | 21,76021631 | 1,37465071 |
| 160 | 48,18520802 | 48,0421701 | 321,6981232 | 1498,049944 | 3000 | 47,98391567 | 9,681386122 | 172,4236196 | 60,15865012 | 8,060687444 | 21,85854817 | 1,375052693 |
| 161 | 47,97269714 | 47,82896814 | 320,1434904 | 1498,031615 | 3000 | 47,77042863 | 9,683186374 | 173,1778727 | 60,25343225 | 8,147922016 | 21,95785557 | 1,375457298 |
| 162 | 47,75998954 | 47,61556278 | 318,588858 | 1498,013014 | 3000 | 47,55673396 | 9,684985454 | 173,9394969 | 60,3487227 | 8,235368874 | 22,05812747 | 1,375861641 |
| 163 | 47,5470847 | 47,40195339 | 317,0342259 | 1497,994137 | 3000 | 47,34283302 | 9,686788379 | 174,7085947 | 60,44452574 | 8,323029299 | 22,15938767 | 1,376266847 |
| 164 | 47,33398209 | 47,18813933 | 315,479594 | 1497,974978 | 3000 | 47,12872349 | 9,688599192 | 175,4852841 | 60,54084738 | 8,410905628 | 22,26166012 | 1,376673826 |
| 165 | 47,12068117 | 46,97411998 | 313,9249624 | 1497,955531 | 3000 | 46,91440712 | 9,690411372 | 176,2696704 | 60,63769185 | 8,498993879 | 22,36494529 | 1,377081113 |
| 166 | 46,90718143 | 46,75989471 | 312,3703312 | 1497,935791 | 3000 | 46,6998812 | 9,692223033 | 177,0618777 | 60,7350655 | 8,587293907 | 22,4692555 | 1,377488283 |
| 167 | 46,69348233 | 46,54546289 | 310,8157001 | 1497,915753 | 3000 | 46,48514543 | 9,694043746 | 177,8620233 | 60,83297365 | 8,675809691 | 22,57462628 | 1,377897487 |
| 168 | 46,47958335 | 46,33082388 | 309,2610694 | 1497,895409 | 3000 | 46,27020016 | 9,695866352 | 178,6702248 | 60,93142142 | 8,764537517 | 22,68105819 | 1,378307117 |
| 169 | 46,26548397 | 46,11597705 | 307,706439 | 1497,874754 | 3000 | 46,05504313 | 9,697694113 | 179,4866119 | 61,03041521 | 8,853479351 | 22,78857519 | 1,378717905 |
| 170 | 46,05118366 | 45,90092177 | 306,1518088 | 1497,853783 | 3000 | 45,83967607 | 9,699525441 | 180,3113016 | 61,12995965 | 8,942633393 | 22,89718945 | 1,379129495 |
| 171 | 45,8366819 | 45,6856574 | 304,5971789 | 1497,832487 | 3000 | 45,62409494 | 9,701362848 | 181,1444359 | 61,23006216 | 9,032002002 | 23,00692502 | 1,379542451 |
| 172 | 45,62197817 | 45,4701833 | 303,0425493 | 1497,810862 | 3000 | 45,40830128 | 9,703204395 | 181,9861378 | 61,33072764 | 9,121583294 | 23,11779407 | 1,379956338 |
| 173 | 45,40707195 | 45,25449884 | 301,4879199 | 1497,7889 | 3000 | 45,19229415 | 9,705047495 | 182,8365425 | 61,43196223 | 9,211376103 | 23,2298089 | 1,380370574 |
| 174 | 45,19196273 | 45,03860338 | 299,9332908 | 1497,766594 | 3000 | 44,9760718 | 9,706894633 | 183,6957915 | 61,53377256 | 9,301381841 | 23,34299349 | 1,380785717 |
| 175 | 44,97664999 | 44,82249627 | 298,378662 | 1497,743938 | 3000 | 44,75963483 | 9,708748569 | 184,5640198 | 61,63616425 | 9,391601097 | 23,45737171 | 1,381202388 |
| 176 | 44,76113321 | 44,60617689 | 296,8240335 | 1497,720923 | 3000 | 44,54298304 | 9,710601051 | 185,4413684 | 61,73914339 | 9,48202988 | 23,5729442 | 1,381618733 |
| 177 | 44,54541189 | 44,38964457 | 295,2694052 | 1497,697543 | 3000 | 44,32611395 | 9,712464452 | 186,3279906 | 61,84271725 | 9,572674306 | 23,68975828 | 1,382037531 |
| 178 | 44,3294855 | 44,17289869 | 293,7147773 | 1497,673791 | 3000 | 44,10902745 | 9,714324933 | 187,2240333 | 61,94689207 | 9,66352785 | 23,80780293 | 1,382455673 |
| 179 | 44,11335354 | 43,9559386 | 292,1601495 | 1497,649657 | 3000 | 43,89172274 | 9,716194752 | 188,1296494 | 62,05167453 | 9,754595903 | 23,92712541 | 1,382875914 |
| 180 | 43,89701549 | 43,73876364 | 290,6055221 | 1497,625135 | 3000 | 43,67419985 | 9,718065091 | 189,0449917 | 62,15707104 | 9,845874117 | 24,04772638 | 1,383296272 |
| 181 | 43,68047086 | 43,52137318 | 289,0508949 | 1497,600216 | 3000 | 43,45645671 | 9,719942187 | 189,9702252 | 62,26308911 | 9,937365718 | 24,16964149 | 1,383718148 |
| 182 | 43,46371913 | 43,30376656 | 287,496268 | 1497,574891 | 3000 | 43,23849502 | 9,72182248 | 190,9055023 | 62,36973451 | 10,02906801 | 24,29288299 | 1,384140743 |
| 183 | 43,2467598 | 43,08594314 | 285,9416413 | 1497,549152 | 3000 | 43,02031157 | 9,723706318 | 191,8509998 | 62,47701557 | 10,12098207 | 24,41747495 | 1,384564135 |
| 184 | 43,02959237 | 42,86790226 | 284,3870149 | 1497,52299 | 3000 | 42,80190835 | 9,725594984 | 192,8068761 | 62,58493814 | 10,21310723 | 24,54344126 | 1,384988611 |
| 185 | 42,81221634 | 42,64964327 | 282,8323888 | 1497,496396 | 3000 | 42,58328119 | 9,727483063 | 193,7733201 | 62,69351125 | 10,30544238 | 24,67079441 | 1,385412956 |
| 186 | 42,5946312 | 42,43116551 | 281,2777629 | 1497,46936 | 3000 | 42,36443107 | 9,729376285 | 194,7505019 | 62,80274151 | 10,39798928 | 24,79956998 | 1,385838457 |
| 187 | 42,37683646 | 42,21246833 | 279,7231373 | 1497,441873 | 3000 | 42,1453585 | 9,731279941 | 195,7385978 | 62,91263587 | 10,49074967 | 24,92980353 | 1,386266302 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | 42,15883163 | 41,99355106 | 278,168512 | 1497,413925 | 3000 | 41,92606081 | 9,733178263 | 196,7378022 | 63,023203 | 10,58371718 | 25,06148426 | 1,386692949 |
| 189 | 41,94061621 | 41,77441306 | 276,6138869 | 1497,385505 | 3000 | 41,70653771 | 9,735085943 | 197,7483032 | 63,13445051 | 10,6768981 | 25,19467107 | 1,387121699 |
| 190 | 41,7221897 | 41,55505365 | 275,059262 | 1497,356604 | 3000 | 41,48678989 | 9,736997572 | 198,7702888 | 63,24638566 | 10,77028931 | 25,32937627 | 1,387551337 |
| 191 | 41,50355163 | 41,33547218 | 273,5046375 | 1497,32721 | 3000 | 41,26681503 | 9,738911834 | 199,8039651 | 63,35901735 | 10,86389077 | 25,46562396 | 1,387981566 |
| 192 | 41,28470149 | 41,11566798 | 271,9500131 | 1497,297312 | 3000 | 41,0466132 | 9,740832626 | 200,8495318 | 63,47235341 | 10,95770378 | 25,60344977 | 1,388413264 |
| 193 | 41,06563881 | 40,89564038 | 270,3953891 | 1497,2669 | 3000 | 40,8261816 | 9,742753099 | 201,9072071 | 63,5864033 | 11,05172602 | 25,74286617 | 1,388844889 |
| 194 | 40,8463631 | 40,67538871 | 268,8407653 | 1497,23596 | 3000 | 40,6055224 | 9,744681969 | 202,9771903 | 63,70117405 | 11,14596007 | 25,88392034 | 1,389278401 |
| 195 | 40,62687388 | 40,4549123 | 267,2861417 | 1497,204482 | 3000 | 40,38463369 | 9,746612098 | 204,059705 | 63,81667495 | 11,24040312 | 26,02662474 | 1,389712197 |
| 196 | 40,40717067 | 40,23421048 | 265,7315184 | 1497,172453 | 3000 | 40,16351471 | 9,748546061 | 205,1549749 | 63,93291486 | 11,33505622 | 26,17101504 | 1,390146854 |
| 197 | 40,187253 | 40,01328258 | 264,1768954 | 1497,139859 | 3000 | 39,94216457 | 9,750486065 | 206,2632292 | 64,04990286 | 11,4299203 | 26,31712692 | 1,390582869 |
| 198 | 39,96712038 | 39,7921279 | 262,6222726 | 1497,106689 | 3000 | 39,72058231 | 9,752429216 | 207,3847033 | 64,16764821 | 11,52499406 | 26,46498444 | 1,391019591 |
| 199 | 39,74677235 | 39,57074578 | 261,06765 | 1497,072928 | 3000 | 39,49876575 | 9,754376785 | 208,5196445 | 64,28616101 | 11,62027855 | 26,61462333 | 1,391457306 |
| 200 | 39,52620844 | 39,34913553 | 259,5130277 | 1497,038563 | 3000 | 39,27671868 | 9,756326491 | 209,6682752 | 64,40544835 | 11,71577075 | 26,76606745 | 1,391895502 |
| 201 | 39,30542818 | 39,12729647 | 257,9584056 | 1497,003579 | 3000 | 39,0544365 | 9,758273747 | 210,8308669 | 64,52552195 | 11,81147008 | 26,91934105 | 1,392333146 |
| 202 | 39,0844311 | 38,90522791 | 256,4037838 | 1496,967962 | 3000 | 38,83191832 | 9,760233148 | 212,0076783 | 64,64639173 | 11,90738306 | 27,07451464 | 1,392773521 |
| 203 | 38,86321675 | 38,68292916 | 254,8491623 | 1496,931696 | 3000 | 38,60916453 | 9,762195926 | 213,198968 | 64,76806713 | 12,00350518 | 27,23160063 | 1,393214654 |
| 204 | 38,64178467 | 38,46039953 | 253,2945409 | 1496,894767 | 3000 | 38,38617442 | 9,764162068 | 214,4050064 | 64,89055832 | 12,09983628 | 27,3906347 | 1,393656543 |
| 205 | 38,4201344 | 38,23763832 | 251,7399198 | 1496,857156 | 3000 | 38,1629475 | 9,766131253 | 215,6260699 | 65,01387559 | 12,19637601 | 27,55165251 | 1,394099117 |
| 206 | 38,19826549 | 38,01464483 | 250,185299 | 1496,818849 | 3000 | 37,93948235 | 9,768102578 | 216,8624468 | 65,1380299 | 12,29312412 | 27,71468977 | 1,394542171 |
| 207 | 37,97617748 | 37,79141836 | 248,6306784 | 1496,779829 | 3000 | 37,71577673 | 9,77007907 | 218,1144375 | 65,2630329 | 12,3900825 | 27,87979384 | 1,394986386 |
| 208 | 37,75386994 | 37,56795821 | 247,0760581 | 1496,740076 | 3000 | 37,49183201 | 9,772059753 | 219,3823295 | 65,38889441 | 12,4872497 | 28,0470003 | 1,395431544 |
| 209 | 37,53134241 | 37,34426367 | 245,5214379 | 1496,699574 | 3000 | 37,26764767 | 9,774042811 | 220,6664286 | 65,51562553 | 12,5846247 | 28,21634481 | 1,395877235 |
| 210 | 37,30859447 | 37,12033403 | 243,9668181 | 1496,658304 | 3000 | 37,04322035 | 9,776034167 | 221,9670647 | 65,64323918 | 12,68221114 | 28,38788637 | 1,396324791 |
| 211 | 37,08562566 | 36,89616858 | 242,4121984 | 1496,616246 | 3000 | 36,81855247 | 9,778023124 | 223,284543 | 65,77174522 | 12,78000275 | 28,56163729 | 1,396771808 |
| 212 | 36,86243557 | 36,67176659 | 240,857579 | 1496,573381 | 3000 | 36,59363952 | 9,780018828 | 224,6192171 | 65,90115769 | 12,87800513 | 28,73766822 | 1,397220342 |
| 213 | 36,63902376 | 36,44712735 | 239,3029599 | 1496,529687 | 3000 | 36,36848277 | 9,782018266 | 225,9714159 | 66,03148757 | 12,97621594 | 28,91601472 | 1,397669715 |
| 214 | 36,4153898 | 36,22225014 | 237,7483409 | 1496,485144 | 3000 | 36,14308293 | 9,78402223 | 227,3414801 | 66,16274638 | 13,07463481 | 29,09672396 | 1,398120105 |
| 215 | 36,19153327 | 35,99713422 | 236,1937222 | 1496,43973 | 3000 | 35,91743427 | 9,786029306 | 228,7297991 | 66,29494965 | 13,17326309 | 29,27984345 | 1,398571194 |
| 216 | 35,96745376 | 35,77177886 | 234,6391038 | 1496,393423 | 3000 | 35,69154075 | 9,788040229 | 230,1367128 | 66,4281075 | 13,272099 | 29,46542015 | 1,399023148 |
| 217 | 35,74315086 | 35,54618333 | 233,0844855 | 1496,346198 | 3000 | 35,46540001 | 9,79005778 | 231,5626096 | 66,56223399 | 13,37114435 | 29,65351297 | 1,399476591 |
| 218 | 35,51862414 | 35,32034688 | 231,5298675 | 1496,298032 | 3000 | 35,23901144 | 9,79207203 | 233,0078778 | 66,69734245 | 13,47039447 | 29,84414594 | 1,399929293 |
| 219 | 35,29387322 | 35,09426878 | 229,9752498 | 1496,2489 | 3000 | 35,01237239 | 9,794097259 | 234,4729294 | 66,8334477 | 13,5698565 | 30,03741269 | 1,400384462 |
| 220 | 35,06889769 | 34,86794826 | 228,4206322 | 1496,198777 | 3000 | 34,78548202 | 9,796122467 | 235,9581761 | 66,97056376 | 13,66952538 | 30,23333725 | 1,400839626 |
| 221 | 34,84369715 | 34,64138459 | 226,8660149 | 1496,147635 | 3000 | 34,5583413 | 9,798153375 | 237,4640292 | 67,10870385 | 13,76940284 | 30,43198986 | 1,401296072 |
| 222 | 34,61827121 | 34,41457699 | 225,3113978 | 1496,095448 | 3000 | 34,33094933 | 9,800186301 | 238,9909237 | 67,24788262 | 13,86948716 | 30,63341766 | 1,401752971 |
| 223 | 34,3926195 | 34,18752471 | 223,7567809 | 1496,042187 | 3000 | 34,10330349 | 9,802224719 | 240,5393189 | 67,38811608 | 13,96978056 | 30,83769106 | 1,402211104 |
| 224 | 34,16674162 | 33,96022698 | 222,2021643 | 1495,987822 | 3000 | 33,87540315 | 9,804263895 | 242,1096735 | 67,52941933 | 14,07028073 | 31,04485716 | 1,402669408 |
| 225 | 33,94063721 | 33,73268302 | 220,6475479 | 1495,932324 | 3000 | 33,64724792 | 9,806306693 | 243,7024578 | 67,67180769 | 14,17098867 | 31,25498618 | 1,403128526 |
| 226 | 33,71430589 | 33,50489205 | 219,0929317 | 1495,87566 | 3000 | 33,41883763 | 9,808355351 | 245,3181539 | 67,81529661 | 14,27190502 | 31,46814828 | 1,403588961 |
| 227 | 33,4877473 | 33,27685329 | 217,5383158 | 1495,8178 | 3000 | 33,19017076 | 9,810411 | 246,9572676 | 67,95990279 | 14,3730305 | 31,68441369 | 1,404050967 |
| 228 | 33,26096109 | 33,04856595 | 215,9837 | 1495,758708 | 3000 | 32,96124454 | 9,812465832 | 248,6203289 | 68,10564405 | 14,47436226 | 31,90382954 | 1,404512789 |
| 229 | 33,0339469 | 32,82002923 | 214,4290845 | 1495,69835 | 3000 | 32,73206011 | 9,814528309 | 250,3078546 | 68,25253612 | 14,57590321 | 32,12648896 | 1,40497633 |
| 230 | 32,80670439 | 32,59124232 | 212,8744692 | 1495,63669 | 3000 | 32,50261581 | 9,816589634 | 252,0203978 | 68,40059686 | 14,67764961 | 32,35243895 | 1,405439611 |
| 231 | 32,57923322 | 32,36220443 | 211,3198541 | 1495,573691 | 3000 | 32,27290906 | 9,818655613 | 253,7585353 | 68,54984517 | 14,77960472 | 32,58177279 | 1,405903939 |
| 232 | 32,35153306 | 32,13291472 | 209,7652392 | 1495,509315 | 3000 | 32,0429428 | 9,820725166 | 255,5228188 | 68,70029671 | 14,88176634 | 32,81456021 | 1,40636907 |
| 233 | 32,12360359 | 31,90337238 | 208,2106246 | 1495,44352 | 3000 | 31,81271124 | 9,822801398 | 257,3138849 | 68,85197331 | 14,98413787 | 33,05089459 | 1,406835702 |
| 234 | 31,89544448 | 31,67357658 | 206,6560102 | 1495,376266 | 3000 | 31,58221737 | 9,824881645 | 259,1323205 | 69,00489143 | 15,08671637 | 33,29084557 | 1,407303237 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 235 | 31,66705543 | 31,44352648 | 205,101396 | 1495,30751 | 3000 | 31,35145734 | 9,826960408 | 260,9787851 | 69,15907248 | 15,18950048 | 33,5344832 | 1,407770438 |
| 236 | 31,43843614 | 31,21322123 | 203,546782 | 1495,237207 | 3000 | 31,12043002 | 9,829047121 | 262,8539376 | 69,31453659 | 15,29249452 | 33,78192347 | 1,408239425 |
| 237 | 31,20958632 | 30,98265998 | 201,9921682 | 1495,16531 | 3000 | 30,88913683 | 9,831136144 | 264,7584358 | 69,47130255 | 15,39569482 | 34,03323594 | 1,408708932 |
| 238 | 30,98050567 | 30,75184186 | 200,4375546 | 1495,091773 | 3000 | 30,65757304 | 9,83323376 | 266,6930101 | 69,62939389 | 15,49910579 | 34,28853668 | 1,40918037 |
| 239 | 30,75119393 | 30,52076601 | 198,8829412 | 1495,016544 | 3000 | 30,42573968 | 9,835332402 | 268,6583657 | 69,78883065 | 15,60272304 | 34,54789516 | 1,409652039 |
| 240 | 30,52165082 | 30,28943154 | 197,3283281 | 1494,939573 | 3000 | 30,19363766 | 9,837430937 | 270,6552312 | 69,9496335 | 15,70654518 | 34,81140383 | 1,410123683 |
| 241 | 30,29187609 | 30,05783757 | 195,7737151 | 1494,860806 | 3000 | 29,96126229 | 9,839532598 | 272,6844075 | 70,11182748 | 15,81057519 | 35,07917852 | 1,410596031 |
| 242 | 30,0618695 | 29,82598319 | 194,2191024 | 1494,780186 | 3000 | 29,72861204 | 9,841640435 | 274,7466947 | 70,27543604 | 15,9148146 | 35,35133472 | 1,411069766 |
| 243 | 29,8316308 | 29,5938675 | 192,6644899 | 1494,697657 | 3000 | 29,49568841 | 9,843757315 | 276,8428918 | 70,44048108 | 16,01926359 | 35,62798759 | 1,411545534 |
| 244 | 29,60115977 | 29,36148957 | 191,1098776 | 1494,613157 | 3000 | 29,26248788 | 9,845869295 | 278,9738699 | 70,60698857 | 16,12391677 | 35,90920648 | 1,4120202 |
| 245 | 29,37045619 | 29,12884848 | 189,5552655 | 1494,526624 | 3000 | 29,02901026 | 9,84799046 | 281,1404993 | 70,77498281 | 16,22878014 | 36,19515251 | 1,412496931 |
| 246 | 29,13951986 | 28,89594328 | 188,0006536 | 1494,437994 | 3000 | 28,79525596 | 9,850112875 | 283,3436733 | 70,94448822 | 16,33384939 | 36,48591754 | 1,412973942 |
| 247 | 28,90835059 | 28,66277301 | 186,4460419 | 1494,347199 | 3000 | 28,56121857 | 9,852238889 | 285,5843817 | 71,11553486 | 16,43912777 | 36,78163985 | 1,413451763 |
| 248 | 28,67694819 | 28,42933672 | 184,8914304 | 1494,254167 | 3000 | 28,32690284 | 9,854373257 | 287,86354 | 71,28814532 | 16,54461491 | 37,08245669 | 1,413931461 |
| 249 | 28,4453125 | 28,19563342 | 183,3368191 | 1494,158827 | 3000 | 28,09230204 | 9,856508621 | 290,1822088 | 71,46235133 | 16,65030977 | 37,38848306 | 1,414411383 |
| 250 | 28,21344337 | 27,96166212 | 181,782208 | 1494,061101 | 3000 | 27,85742061 | 9,858646936 | 292,5413741 | 71,63817708 | 16,75621081 | 37,69985589 | 1,414891968 |
| 251 | 27,98134065 | 27,7274218 | 180,2275971 | 1493,960911 | 3000 | 27,62224976 | 9,860784063 | 294,9421913 | 71,81565735 | 16,86231928 | 38,016713 | 1,415372286 |
| 252 | 27,74900423 | 27,49291146 | 178,6729864 | 1493,858173 | 3000 | 27,38679436 | 9,862932276 | 297,385717 | 71,99481753 | 16,9686382 | 38,33923686 | 1,415855096 |
| 253 | 27,51643399 | 27,25813006 | 177,1183759 | 1493,752802 | 3000 | 27,15104905 | 9,865078892 | 299,8731522 | 72,17569147 | 17,07516344 | 38,66754161 | 1,416337547 |
| 254 | 27,28362983 | 27,02307653 | 175,5637656 | 1493,644708 | 3000 | 26,91501503 | 9,86723159 | 302,4056725 | 72,35830889 | 17,18189742 | 39,00180953 | 1,416821365 |
| 255 | 27,05059169 | 26,78774982 | 174,0091556 | 1493,533796 | 3000 | 26,67868866 | 9,869388004 | 304,9845489 | 72,54270411 | 17,28884 | 39,3422001 | 1,417306018 |
| 256 | 26,81731949 | 26,55214884 | 172,4545457 | 1493,41997 | 3000 | 26,44207073 | 9,871551994 | 307,6110513 | 72,72890892 | 17,39599201 | 39,68889507 | 1,417792373 |
| 257 | 26,5838132 | 26,31627248 | 170,899936 | 1493,303127 | 3000 | 26,20515561 | 9,873716849 | 310,2865689 | 72,91696108 | 17,50335213 | 40,04205353 | 1,418278923 |
| 258 | 26,3500728 | 26,08011962 | 169,3453265 | 1493,183161 | 3000 | 25,96794457 | 9,875882904 | 313,0124655 | 73,10689389 | 17,61091932 | 40,40185659 | 1,418765743 |
| 259 | 26,11609827 | 25,84368912 | 167,7907172 | 1493,059961 | 3000 | 25,73043515 | 9,878053276 | 315,7902 | 73,29874464 | 17,71869542 | 40,76850828 | 1,419253533 |
| 260 | 25,88188964 | 25,60697982 | 166,236108 | 1492,933411 | 3000 | 25,49262572 | 9,880229211 | 318,621278 | 73,49255099 | 17,826681 | 41,14221217 | 1,419742573 |
| 261 | 25,64744694 | 25,36999054 | 164,6814991 | 1492,803389 | 3000 | 25,25451363 | 9,882409368 | 321,5072763 | 73,68835254 | 17,93487588 | 41,52317151 | 1,420232562 |
| 262 | 25,41277023 | 25,13272006 | 163,1268904 | 1492,669769 | 3000 | 25,01610144 | 9,884586278 | 324,4497696 | 73,88618573 | 18,04327485 | 41,91156576 | 1,420721822 |
| 263 | 25,17785959 | 24,89516717 | 161,5722818 | 1492,532418 | 3000 | 24,77737944 | 9,886775201 | 327,4505489 | 74,08609836 | 18,15188826 | 42,30768954 | 1,421213781 |
| 264 | 24,94271514 | 24,6573306 | 160,0176735 | 1492,391198 | 3000 | 24,53835146 | 9,888964344 | 330,511306 | 74,28812824 | 18,26070835 | 42,7117212 | 1,42170579 |
| 265 | 24,70733701 | 24,41920908 | 158,4630653 | 1492,245964 | 3000 | 24,29901179 | 9,891159296 | 333,6339247 | 74,49232244 | 18,36973929 | 43,12393104 | 1,422199104 |
| 266 | 24,47172534 | 24,18080131 | 156,9084574 | 1492,096563 | 3000 | 24,0593608 | 9,893353686 | 336,8202862 | 74,69872425 | 18,4789772 | 43,54454239 | 1,422692292 |
| 267 | 24,23588034 | 23,94210594 | 155,3538496 | 1491,942837 | 3000 | 23,81939758 | 9,895555213 | 340,0723665 | 74,90737941 | 18,58842517 | 43,9738467 | 1,423187084 |
| 268 | 23,99980222 | 23,70312163 | 153,799242 | 1491,784618 | 3000 | 23,57911689 | 9,897760979 | 343,3922843 | 75,11833886 | 18,6980832 | 44,41211225 | 1,423682829 |
| 269 | 23,76349121 | 23,46384697 | 152,2446346 | 1491,621733 | 3000 | 23,33851672 | 9,899966442 | 346,7822042 | 75,33165236 | 18,80794913 | 44,85960628 | 1,424178506 |
| 270 | 23,52694762 | 23,22428053 | 150,6900273 | 1491,453997 | 3000 | 23,09759829 | 9,902182004 | 350,2443364 | 75,54736829 | 18,91802632 | 45,3166634 | 1,424676452 |
| 271 | 23,29017173 | 22,98442087 | 149,1354203 | 1491,281219 | 3000 | 22,85635306 | 9,904393864 | 353,7811304 | 75,76554549 | 19,02831097 | 45,78354984 | 1,425173566 |
| 272 | 23,05316392 | 22,74426649 | 147,5808135 | 1491,103197 | 3000 | 22,6147832 | 9,906616777 | 357,3949843 | 75,98623489 | 19,13880795 | 46,2606439 | 1,425673165 |
| 273 | 22,81592455 | 22,50381585 | 146,0262068 | 1490,91972 | 3000 | 22,37288532 | 9,908837601 | 361,0884867 | 76,20949428 | 19,24951157 | 46,74823214 | 1,426172294 |
| 274 | 22,57845405 | 22,26306739 | 144,4716003 | 1490,730563 | 3000 | 22,13065747 | 9,91106169 | 364,8643196 | 76,435382 | 19,36042397 | 47,24669108 | 1,426672157 |
| 275 | 22,3407529 | 22,02201949 | 142,916994 | 1490,535495 | 3000 | 21,88809349 | 9,913293503 | 368,725355 | 76,66396235 | 19,47154856 | 47,75641924 | 1,427173756 |
| 276 | 22,10282159 | 21,7806705 | 141,3623878 | 1490,334268 | 3000 | 21,64519266 | 9,915525165 | 372,6745097 | 76,89529667 | 19,58288076 | 48,27776767 | 1,42767532 |
| 277 | 21,86466067 | 21,53901872 | 139,8077819 | 1490,126624 | 3000 | 21,40195099 | 9,917763726 | 376,7148901 | 77,12945156 | 19,69442413 | 48,81117739 | 1,428178436 |
| 278 | 21,62627076 | 21,2970624 | 138,2531761 | 1489,912291 | 3000 | 21,15836767 | 9,920002667 | 380,8496954 | 77,36649286 | 19,80617464 | 49,35704201 | 1,428681637 |
| 279 | 21,38765251 | 21,05479974 | 136,6985705 | 1489,690981 | 3000 | 20,91443699 | 9,92224862 | 385,082362 | 77,60649358 | 19,91813618 | 49,91584496 | 1,429186414 |
| 280 | 21,1488066 | 20,8122289 | 135,1439651 | 1489,462394 | 3000 | 20,67015746 | 9,924494875 | 389,4164187 | 77,84952515 | 20,03030472 | 50,48802183 | 1,429691258 |
| 281 | 20,90973382 | 20,56934796 | 133,5893599 | 1489,22621 | 3000 | 20,42552402 | 9,926747485 | 393,8556311 | 78,09566518 | 20,1426834 | 51,07409751 | 1,430197531 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282 | 20,67043496 | 20,32615496 | 132,0347548 | 1488,982093 | 3000 | 20,18053422 | 9,929007748 | 398,4039048 | 78,34499154 | 20,25527208 | 51,67459432 | 1,430705524 |
| 283 | 20,43091093 | 20,08264787 | 130,4801499 | 1488,72969 | 3000 | 19,93518344 | 9,931265169 | 403,0653816 | 78,59758719 | 20,36806584 | 52,29000976 | 1,431212878 |
| 284 | 20,19116265 | 19,8388246 | 128,9255452 | 1488,468625 | 3000 | 19,68946588 | 9,93353097 | 407,8444393 | 78,85353949 | 20,48107014 | 52,92097492 | 1,431722116 |
| 285 | 19,95119114 | 19,59468299 | 127,3709406 | 1488,198503 | 3000 | 19,44338251 | 9,935794016 | 412,7455465 | 79,11293202 | 20,59427731 | 53,56802653 | 1,432230734 |
| 286 | 19,7109975 | 19,3502208 | 125,8163362 | 1487,918908 | 3000 | 19,19692236 | 9,938067378 | 417,7736479 | 79,37586434 | 20,70769533 | 54,23188079 | 1,432741671 |
| 287 | 19,47058288 | 19,10543572 | 124,261732 | 1487,629395 | 3000 | 18,95008746 | 9,940339927 | 412,4907012 | 79,09952036 | 20,82131578 | 54,91313567 | 1,433252425 |
| 288 | 19,22994854 | 18,86032535 | 122,707128 | 1487,329499 | 3000 | 18,70286767 | 9,942613871 | 418,2796284 | 79,4021479 | 20,93514089 | 55,61252261 | 1,433763493 |
| 289 | 18,9890958 | 18,61488721 | 121,1525242 | 1487,018724 | 3000 | 18,45525817 | 9,944894346 | 424,3316541 | 79,71408374 | 21,04917192 | 56,3308134 | 1,434276029 |
| 290 | 18,74802609 | 18,36911872 | 119,5979205 | 1486,696544 | 3000 | 18,20725975 | 9,94718045 | 430,6670931 | 80,03589667 | 21,16340501 | 57,06877449 | 1,434789829 |
| 291 | 18,50674094 | 18,12301723 | 118,0433169 | 1486,362404 | 3000 | 17,95886257 | 9,949464988 | 437,3087647 | 80,36822131 | 21,27783708 | 57,82721387 | 1,435303278 |
| 292 | 18,26524196 | 17,87657994 | 116,4887136 | 1486,015714 | 3000 | 17,71006055 | 9,951758393 | 444,2821567 | 80,7117558 | 21,39247148 | 58,6070688 | 1,435818719 |
| 293 | 18,02353089 | 17,62980398 | 114,9341104 | 1485,655846 | 3000 | 17,46084808 | 9,954051866 | 451,6156469 | 81,06726124 | 21,50730212 | 59,40922525 | 1,436334177 |
| 294 | 17,78160958 | 17,38268634 | 113,3795074 | 1485,282135 | 3000 | 17,21121734 | 9,9563492 | 459,3413044 | 81,43558719 | 21,6223291 | 60,23469791 | 1,436850501 |
| 295 | 17,53948 | 17,13522391 | 111,8249045 | 1484,893875 | 3000 | 16,96116346 | 9,958651718 | 467,4952106 | 81,81767052 | 21,73754989 | 61,08453855 | 1,437367991 |
| 296 | 17,29714426 | 16,88741342 | 110,2703018 | 1484,490311 | 3000 | 16,71068549 | 9,960958282 | 476,1180932 | 82,21454651 | 21,8529589 | 61,95983517 | 1,43788639 |
| 297 | 17,0546046 | 16,63925148 | 108,7156993 | 1484,070643 | 3000 | 16,45976273 | 9,963266224 | 485,2570177 | 82,62740346 | 21,96855633 | 62,861804 | 1,438405099 |
| 298 | 16,81186341 | 16,39073454 | 107,1610969 | 1483,634017 | 3000 | 16,20839628 | 9,965570866 | 494,9649909 | 83,05753634 | 22,08433297 | 63,79164824 | 1,438923066 |
| 299 | 16,56892324 | 16,1418589 | 105,6064947 | 1483,179523 | 3000 | 15,95657466 | 9,967890692 | 505,3039231 | 83,50644573 | 22,20029413 | 64,75083049 | 1,439444445 |
| 300 | 16,32578682 | 15,89262068 | 104,0518927 | 1482,706191 | 3000 | 15,70429005 | 9,970205911 | 516,344619 | 83,975795 | 22,3164252 | 65,74066577 | 1,43996479 |
| 301 | 16,08245704 | 15,64301583 | 102,4972908 | 1482,212983 | 3000 | 15,45153025 | 9,972521504 | 528,1702428 | 84,46750869 | 22,43272361 | 66,76272443 | 1,440485218 |
| 302 | 15,83893699 | 15,3930401 | 100,9426891 | 1481,698791 | 3000 | 15,19829029 | 9,97484187 | 540,8780264 | 84,98377914 | 22,54918304 | 67,81864948 | 1,441006719 |
| 303 | 15,59522998 | 15,14268903 | 99,3880875 | 1481,162432 | 3000 | 14,94455597 | 9,97716603 | 554,5832799 | 85,52715082 | 22,6657965 | 68,91020162 | 1,441529073 |
| 304 | 15,35133953 | 14,89195794 | 97,83348609 | 1480,602636 | 3000 | 14,69031868 | 9,979495255 | 569,4232462 | 86,10057187 | 22,78255484 | 70,03925495 | 1,442052565 |
| 305 | 15,10726938 | 14,64084192 | 96,27888485 | 1480,018045 | 3000 | 14,43556065 | 9,981821185 | 585,5633197 | 86,70750544 | 22,89944569 | 71,20779646 | 1,442575316 |
| 306 | 14,86302355 | 14,38933579 | 94,72428376 | 1479,407203 | 3000 | 14,18026948 | 9,984153811 | 603,2050248 | 87,35205976 | 23,01646162 | 72,41805467 | 1,443099573 |
| 307 | 14,61860632 | 14,13743412 | 93,16968283 | 1478,768545 | 3000 | 13,92443501 | 9,986489165 | 622,5955672 | 88,03911344 | 23,13358599 | 73,67231852 | 1,443624442 |
| 308 | 14,37402226 | 13,88513116 | 91,61508206 | 1478,100393 | 3000 | 13,66804701 | 9,98881939 | 644,0428034 | 88,77454881 | 23,25079804 | 74,97302322 | 1,444148159 |
| 309 | 14,12927626 | 13,63242088 | 90,06048145 | 1477,400941 | 3000 | 13,41107464 | 9,991153149 | 667,9391745 | 89,565658 | 23,36808765 | 76,32301427 | 1,444672671 |
| 310 | 13,88437353 | 13,37929686 | 88,50588099 | 1476,668245 | 3000 | 13,15351012 | 9,993490758 | 694,7871312 | 90,42140052 | 23,48543096 | 77,72518162 | 1,445198047 |
| 311 | 13,63931967 | 13,12575237 | 86,95128068 | 1475,900213 | 3000 | 12,8953378 | 9,99582495 | 725,2464697 | 91,3530934 | 23,60279919 | 79,18263551 | 1,445722655 |
| 312 | 13,39412065 | 12,87178024 | 85,39668053 | 1475,094586 | 3000 | 12,63652679 | 9,998160616 | 760,2069496 | 92,375404 | 23,72016846 | 80,69892095 | 1,446247595 |
| 313 | 13,14878287 | 12,61737291 | 83,84208053 | 1474,248927 | 3000 | 12,37706285 | 10,00049081 | 800,89381 | 93,50755908 | 23,83750003 | 82,27769651 | 1,446771305 |
| 314 | 12,90331319 | 12,36252234 | 82,28748069 | 1473,360602 | 3000 | 12,1169189 | 10,00282291 | 849,060785 | 94,77575137 | 23,95475877 | 83,92312529 | 1,447295443 |
| 315 | 12,65771895 | 12,10721999 | 80,732881 | 1472,426762 | 3000 | 11,85606655 | 10,00515041 | 907,3152277 | 96,21672222 | 24,07189595 | 85,63964172 | 1,447818548 |
| 316 | 12,41200804 | 11,85145681 | 79,17828146 | 1471,44432 | 3000 | 11,59448603 | 10,0074724 | 979,7412216 | 97,88438127 | 24,18885528 | 87,4320698 | 1,448340413 |
| 317 | 12,16618893 | 11,59522314 | 77,62368207 | 1470,409929 | 3000 | 11,33212929 | 10,00978673 | 1073,197227 | 99,86278931 | 24,30557479 | 89,30587354 | 1,448860557 |
| 317,2 | 12,11701291 | 11,54391905 | 77,31276221 | 1470,196503 | 2991,531604 | 11,28116344 | 9,979189126 | 1080 | 100 | 24,31461092 | 89,42701775 | 1,441983763 |
| 318 | 11,92040447 | 11,34197146 | 76,08018686 | 1466,86751 | 2942,973155 | 11,08340481 | 9,802842624 | 1080 | 100 | 24,32447802 | 89,43117031 | 1,402349978 |
| 319 | 11,67585282 | 11,09687567 | 74,56741969 | 1454,338021 | 2884,063332 | 10,84339397 | 9,588797565 | 1080 | 100 | 24,33644718 | 89,43621765 | 1,354243463 |
| 320 | 11,43375681 | 10,85855962 | 73,084818 | 1435,979627 | 2826,808884 | 10,61002608 | 9,380655741 | 1080 | 100 | 24,34808296 | 89,44114412 | 1,307463696 |
| 321 | 11,19484274 | 10,62606691 | 71,63158349 | 1414,218906 | 2770,953602 | 10,38236234 | 9,177493634 | 1080 | 100 | 24,35938926 | 89,4451996 | 1,261803119 |
| 322 | 10,95953526 | 10,3987728 | 70,20701262 | 1390,529762 | 2716,415031 | 10,15978531 | 8,97902134 | 1080 | 100 | 24,37051332 | 89,450669 | 1,217196574 |
| 323 | 10,72807382 | 10,17626113 | 68,81047664 | 1365,81639 | 2663,022558 | 9,941896314 | 8,784622347 | 1080 | 100 | 24,38135994 | 89,45526287 | 1,173505502 |
| 324 | 10,50058231 | 9,958236247 | 67,44136487 | 1340,649442 | 2610,732101 | 9,728397076 | 8,594143149 | 1080 | 100 | 24,39199154 | 89,45997515 | 1,130695402 |
| 325 | 10,27711295 | 9,744495797 | 66,09913633 | 1315,373432 | 2559,47804 | 9,519096819 | 8,407349804 | 1080 | 100 | 24,40239053 | 89,46420759 | 1,088713695 |
| 326 | 10,0576737 | 9,534880013 | 64,78324799 | 1290,204552 | 2509,213428 | 9,313846336 | 8,224076237 | 1080 | 100 | 24,4125538 | 89,46761107 | 1,047523056 |
| 327 | 9,842245327 | 9,329296521 | 63,49328294 | 1265,253206 | 2459,904042 | 9,112544572 | 8,044202274 | 1080 | 100 | 24,42246729 | 89,46983781 | 1,007096477 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 328 | 9,63079172 | 9,127581157 | 62,22855609 | 1240,658812 | 2411,670135 | 8,915009844 | 7,868176406 | 1080 | 100 | 24,43240703 | 89,47695615 | 0,967534755 |
| 329 | 9,423258962 | 8,929677727 | 60,98866127 | 1216,445473 | 2364,286175 | 8,721225098 | 7,695173881 | 1080 | 100 | 24,44202376 | 89,48095613 | 0,928652527 |
| 330 | 9,219592525 | 8,735509025 | 59,77312902 | 1192,631523 | 2317,8136 | 8,531092625 | 7,525425645 | 1080 | 100 | 24,45145666 | 89,48497239 | 0,8905017 |
| 331 | 9,01973406 | 8,545002183 | 58,58149429 | 1169,231983 | 2272,234272 | 8,344553286 | 7,35886968 | 1080 | 100 | 24,46071003 | 89,48890424 | 0,853068334 |
| 332 | 8,823622821 | 8,358086338 | 57,41329356 | 1146,256255 | 2227,527466 | 8,161525798 | 7,195434203 | 1080 | 100 | 24,46978225 | 89,49275236 | 0,816336296 |
| 333 | 8,631197005 | 8,174696301 | 56,26808003 | 1123,704804 | 2183,650424 | 7,981958424 | 7,034966052 | 1080 | 100 | 24,4786336 | 89,4953218 | 0,780271162 |
| 334 | 8,442394656 | 7,994769021 | 55,14541553 | 1101,575163 | 2140,670212 | 7,805775053 | 6,877716504 | 1080 | 100 | 24,48740459 | 89,50014517 | 0,744929408 |
| 335 | 8,257153793 | 7,818244493 | 54,04487349 | 1079,860737 | 2098,492051 | 7,632925531 | 6,723340355 | 1080 | 100 | 24,49596607 | 89,50388885 | 0,710233449 |
| 336 | 8,075413111 | 7,645054935 | 52,96600819 | 1058,565985 | 2057,118092 | 7,463345583 | 6,571849406 | 1080 | 100 | 24,50435356 | 89,50729854 | 0,676185938 |
| 337 | 7,897110974 | 7,475145659 | 51,90841498 | 1037,677975 | 2016,543414 | 7,296975085 | 6,423229201 | 1080 | 100 | 24,51258449 | 89,51082235 | 0,642783624 |
| 338 | 7,722187175 | 7,308458364 | 50,87168479 | 1017,190461 | 1976,74025 | 7,13376298 | 6,277380928 | 1080 | 100 | 24,52064032 | 89,51381283 | 0,610004301 |
| 339 | 7,550582281 | 7,144935095 | 49,85541405 | 997,0967978 | 1937,720132 | 6,973646137 | 6,134350577 | 1080 | 100 | 24,52856657 | 89,51751401 | 0,577858304 |
| 340 | 7,382237464 | 6,984520843 | 48,85921206 | 977,3907834 | 1899,446062 | 6,81657525 | 5,994004979 | 1080 | 100 | 24,53632785 | 89,52083082 | 0,546315704 |
| 341 | 7,217095025 | 6,827159362 | 47,88268974 | 958,0645204 | 1861,944446 | 6,662489305 | 5,856444806 | 1080 | 100 | 24,54399366 | 89,52575376 | 0,515399127 |
| 342 | 7,05509584 | 6,672750713 | 46,92532358 | 939,1450298 | 1825,729337 | 6,511187684 | 5,723571171 | 1080 | 100 | 24,55244742 | 89,55995601 | 0,485535847 |
| 343 | 6,896170749 | 6,521201938 | 45,98658307 | 920,6796304 | 1790,193493 | 6,362688345 | 5,593146276 | 1080 | 100 | 24,56073603 | 89,59472015 | 0,45622292 |
| 344 | 6,740252851 | 6,372476531 | 45,06611704 | 902,6280198 | 1755,330719 | 6,21695214 | 5,465149896 | 1080 | 100 | 24,56886611 | 89,63024542 | 0,4274558 |
| 345 | 6,587280942 | 6,226533231 | 44,16357889 | 884,9601379 | 1721,12916 | 6,073945464 | 5,339540852 | 1080 | 100 | 24,57683767 | 89,66638177 | 0,399225233 |
| 346 | 6,4371977 | 6,083328231 | 43,27862763 | 867,6547888 | 1687,581317 | 5,933620518 | 5,216293959 | 1080 | 100 | 24,58465822 | 89,70337832 | 0,371525558 |
| 347 | 6,289948554 | 5,942816295 | 42,41092784 | 850,6963457 | 1654,672763 | 5,795936544 | 5,095358372 | 1080 | 100 | 24,59232511 | 89,74103556 | 0,344345348 |
| 348 | 6,14548096 | 5,804951538 | 41,56014972 | 834,0727986 | 1622,394469 | 5,660843851 | 4,976703081 | 1080 | 100 | 24,59984446 | 89,7795529 | 0,317677633 |
| 349 | 6,003763714 | 5,669668213 | 40,72596945 | 817,3495816 | 1590,733646 | 5,528282149 | 4,860283183 | 1080 | 100 | 24,60722406 | 89,8190788 | 0,291512322 |
| 350 | 5,864892419 | 5,536777102 | 39,9080752 | 800,3570319 | 1559,644903 | 5,398065426 | 4,745933685 | 1080 | 100 | 24,61447433 | 89,85966247 | 0,265812332 |
| 351 | 5,728781316 | 5,406276496 | 39,10617408 | 784,0942975 | 1529,121218 | 5,270189167 | 4,633630444 | 1080 | 100 | 24,62158446 | 89,90100558 | 0,240572237 |
| 352 | 5,595329108 | 5,278179579 | 38,31997244 | 768,386663 | 1499,16666 | 5,144668613 | 4,523390228 | 1080 | 100 | 24,62855631 | 89,94315779 | 0,215795806 |
| 353 | 5,464456775 | 5,15247655 | 37,54917581 | 753,1272152 | 1469,777574 | 5,021494154 | 4,415201308 | 1080 | 100 | 24,63538887 | 89,98606934 | 0,191480402 |
| 354 | 5,336109624 | 5,029618352 | 36,794946 | 737,9406598 | 1433,866861 | 4,90248084 | 4,282843976 | 1080 | 100 | 24,63064871 | 89,56046054 | 0,161733161 |
| 355 | 5,210393937 | 4,909683616 | 36,05780987 | 722,2053997 | 1405,354777 | 4,785053271 | 4,177815244 | 1080 | 100 | 24,63642009 | 89,56286582 | 0,138128008 |
| 356 | 5,087245945 | 4,79193326 | 35,33533347 | 707,196664 | 1377,36862 | 4,66976469 | 4,074697227 | 1080 | 100 | 24,64208558 | 89,56528113 | 0,114952288 |
| 357 | 4,966564613 | 4,676389337 | 34,62725613 | 692,7309433 | 1349,912265 | 4,556635634 | 3,973505675 | 1080 | 100 | 24,64764308 | 89,56765706 | 0,092209539 |
| 358 | 4,848271694 | 4,563042436 | 33,93329234 | 678,7037047 | 1323,006689 | 4,445653678 | 3,874319757 | 1080 | 100 | 24,65312997 | 89,5716365 | 0,069917556 |
| 359 | 4,732301384 | 4,451859274 | 33,25312347 | 665,0625979 | 1296,572317 | 4,336798826 | 3,776846438 | 1080 | 100 | 24,65843565 | 89,57219059 | 0,048010478 |
| 360 | 4,618599419 | 4,342845527 | 32,586583 | 651,7206478 | 1270,682409 | 4,230064457 | 3,681358295 | 1080 | 100 | 24,66367369 | 89,57439783 | 0,026549568 |
| 361 | 4,507118017 | 4,235950095 | 31,93335484 | 638,6766069 | 1245,299589 | 4,125406793 | 3,587718481 | 1080 | 100 | 24,66880844 | 89,5764655 | 0,005504069 |
| 361,4 | 4,463136777 | 4,193775015 | 31,67572542 | 633,5381128 | 1237,469367 | 4,083697081 | 3,553930653 | 1080 | 100 | 24,67191603 | 89,64632027 | 0 |
| 362 | 4,397801269 | 4,13092193 | 31,29250231 | 626,0931793 | 1222,493091 | 4,022169818 | 3,498781768 | 1080 | 100 | 24,67489604 | 89,64647937 | 0 |
| 363 | 4,290559908 | 4,027873808 | 30,66407747 | 613,8937414 | 1197,919066 | 3,921299636 | 3,408395622 | 1080 | 100 | 24,67980152 | 89,64729525 | 0 |
| 364 | 4,185371578 | 3,926904216 | 30,04828992 | 601,8034592 | 1173,812419 | 3,822469068 | 3,319868663 | 1080 | 100 | 24,68463219 | 89,64877752 | 0 |
| 365 | 4,082215401 | 3,827959487 | 29,44489972 | 589,8664069 | 1150,160766 | 3,725627828 | 3,233159643 | 1080 | 100 | 24,68939448 | 89,65104643 | 0 |
| 366 | 3,98106482 | 3,730993516 | 28,85367329 | 578,1079465 | 1126,953566 | 3,630730235 | 3,148225012 | 1080 | 100 | 24,69408943 | 89,65409236 | 0 |
| 367 | 3,881890087 | 3,635965177 | 28,2743831 | 566,5415284 | 1104,180243 | 3,537735404 | 3,065031363 | 1080 | 100 | 24,69872067 | 89,65803094 | 0 |
| 368 | 3,784659746 | 3,542836385 | 27,70680631 | 555,1739694 | 1081,829846 | 3,446605354 | 2,983539038 | 1080 | 100 | 24,70328764 | 89,66278769 | 0 |
| 369 | 3,689341534 | 3,451571282 | 27,15072495 | 544,0077555 | 1059,896393 | 3,357307146 | 2,903724508 | 1080 | 100 | 24,70779679 | 89,66854429 | 0 |
| 370 | 3,595902918 | 3,362135499 | 26,60592538 | 533,0428577 | 1038,369995 | 3,269806356 | 2,825553305 | 1080 | 100 | 24,71224833 | 89,67527203 | 0 |
| 371 | 3,50431142 | 3,274495859 | 26,07219824 | 522,2778612 | 1017,241832 | 3,18406982 | 2,748996325 | 1080 | 100 | 24,71664432 | 89,68303789 | 0 |
| 372 | 3,414534832 | 3,188620283 | 25,5493389 | 511,710187 | 996,5051944 | 3,100065636 | 2,674024247 | 1080 | 100 | 24,72098601 | 89,69187945 | 0 |
| 373 | 3,326541336 | 3,104477239 | 25,03714606 | 501,3369556 | 976,1496164 | 3,017762129 | 2,600610175 | 1080 | 100 | 24,72527598 | 89,70188966 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 374 | 3,240299569 | 3,022036101 | 24,53542304 | 491,1548219 | 956,1727776 | 2,937133673 | 2,52873129 | 1080 | 100 | 24,72951955 | 89,7131327 | 0 |
| 375 | 3,155778639 | 2,941266737 | 24,04397658 | 481,1605004 | 936,5609623 | 2,858145082 | 2,458354533 | 1080 | 100 | 24,73371407 | 89,72563243 | 0 |
| 376 | 3,072948188 | 2,862139701 | 23,56261754 | 471,3504341 | 917,3121845 | 2,780771772 | 2,389457982 | 1080 | 100 | 24,7378648 | 89,73945445 | 0 |
| 377 | 2,991778361 | 2,784626006 | 23,09116014 | 461,7211722 | 898,4160582 | 2,704984372 | 2,322016095 | 1080 | 100 | 24,74197392 | 89,7546849 | 0 |
| 378 | 2,912239832 | 2,708697353 | 22,62942273 | 452,2692328 | 879,8682343 | 2,630754724 | 2,256001367 | 1080 | 100 | 24,74604167 | 89,77133064 | 0 |
| 379 | 2,8343038 | 2,634325869 | 22,1772269 | 442,9911388 | 861,6594384 | 2,558056707 | 2,191394407 | 1080 | 100 | 24,75007369 | 89,78957089 | 0 |
| 380 | 2,757941992 | 2,561484231 | 21,7343979 | 433,8834991 | 843,7841877 | 2,486860967 | 2,128166183 | 1080 | 100 | 24,75406801 | 89,80940476 | 0 |
| 381 | 2,683126628 | 2,490145664 | 21,30076452 | 424,9429951 | 826,2338243 | 2,417142481 | 2,066294855 | 1080 | 100 | 24,75802861 | 89,83092356 | 0 |
| 382 | 2,609830477 | 2,420284032 | 20,87615942 | 416,1660763 | 809,0056585 | 2,348875321 | 2,00575375 | 1080 | 100 | 24,76195492 | 89,85410347 | 0 |
| 383 | 2,538026785 | 2,351873297 | 20,46041746 | 407,549806 | 792,089116 | 2,282036761 | 1,946529751 | 1080 | 100 | 24,76585625 | 89,87923711 | 0 |
| 384 | 2,467689303 | 2,284888336 | 20,053378 | 399,0907134 | 775,4800428 | 2,216597904 | 1,888591568 | 1080 | 100 | 24,76972714 | 89,90624854 | 0 |
| 385 | 2,398792282 | 2,21930428 | 19,65488304 | 390,7857774 | 759,1738511 | 2,152537586 | 1,831918802 | 1080 | 100 | 24,77357219 | 89,93517496 | 0 |
| 386 | 2,331310437 | 2,155096665 | 19,26477751 | 382,6319108 | 743,159187 | 2,089832453 | 1,77649544 | 1080 | 100 | 24,7773976 | 89,96625601 | 0 |
| 387 | 2,265218974 | 2,092241803 | 18,88291042 | 374,6260215 | 727,4379599 | 2,028453982 | 1,722288787 | 1080 | 100 | 24,7811944 | 89,99935335 | 0 |
| 388 | 2,200493561 | 2,030715988 | 18,50913243 | 366,7652364 | 711,9943236 | 1,968386196 | 1,669293947 | 1080 | 100 | 24,78497948 | 90,03486292 | 0 |
| 389 | 2,137110349 | 1,970496654 | 18,14329932 | 359,046189 | 696,8328937 | 1,909600282 | 1,617476396 | 1080 | 100 | 24,78874076 | 90,07259369 | 0 |
| 390 | 2,075045927 | 1,911560764 | 17,78526705 | 351,466629 | 681,9405158 | 1,852079163 | 1,566825467 | 1080 | 100 | 24,79249054 | 90,11279485 | 0 |
| 391 | 2,014277315 | 1,8538865 | 17,43489677 | 344,0232976 | 667,3138892 | 1,795797635 | 1,517315181 | 1080 | 100 | 24,79622408 | 90,155448 | 0 |
| 392 | 1,954782026 | 1,797452253 | 17,09205201 | 336,7133507 | 652,952351 | 1,740737539 | 1,468927855 | 1080 | 100 | 24,79994535 | 90,20059827 | 0 |
| 393 | 1,896537969 | 1,742236429 | 16,75659773 | 329,5344221 | 638,8397264 | 1,686874563 | 1,421650536 | 1080 | 100 | 24,80365876 | 90,24866697 | 0 |
| 394 | 1,839523501 | 1,688218691 | 16,42840423 | 322,483353 | 624,9811102 | 1,63419061 | 1,375454853 | 1080 | 100 | 24,80736051 | 90,29931509 | 0 |
| 395 | 1,783717419 | 1,635378163 | 16,10734176 | 315,5577623 | 611,3650586 | 1,582665616 | 1,330330419 | 1080 | 100 | 24,81105788 | 90,352926 | 0 |
| 396 | 1,729098912 | 1,583695252 | 15,79328574 | 308,7549432 | 597,9904549 | 1,532278587 | 1,286253532 | 1080 | 100 | 24,81474705 | 90,40942156 | 0 |
| 397 | 1,675647624 | 1,53315032 | 15,48611305 | 302,072058 | 584,8484105 | 1,483012359 | 1,24321318 | 1080 | 100 | 24,81843543 | 90,46907785 | 0 |
| 398 | 1,623343618 | 1,483723942 | 15,18570266 | 295,5068336 | 571,9385662 | 1,434846232 | 1,201184152 | 1080 | 100 | 24,82211821 | 90,53174074 | 0 |
| 399 | 1,572167268 | 1,435397021 | 14,89193561 | 289,0572281 | 559,2527768 | 1,387763545 | 1,160157373 | 1080 | 100 | 24,8258033 | 90,59775281 | 0 |
| 400 | 1,522099376 | 1,388151502 | 14,60469752 | 282,7202691 | 546,7847669 | 1,341743109 | 1,120110113 | 1080 | 100 | 24,82948589 | 90,66707486 | 0 |
| 401 | 1,473121216 | 1,341969697 | 14,32387667 | 276,4931107 | 534,5314178 | 1,29677141 | 1,081030794 | 1080 | 100 | 24,83317265 | 90,73983762 | 0 |
| 402 | 1,425214441 | 1,29683339 | 14,04936107 | 270,3740367 | 522,4941484 | 1,252826504 | 1,042894842 | 1080 | 100 | 24,83685521 | 90,81594067 | 0 |
| 403 | 1,378360997 | 1,252725109 | 13,781042 | 264,3605561 | 510,6567203 | 1,209895305 | 1,005697813 | 1080 | 100 | 24,84054689 | 90,89580816 | 0 |
| 404 | 1,332543261 | 1,209628296 | 13,51881486 | 258,4503393 | 499,0214682 | 1,167959007 | 0,969418359 | 1080 | 100 | 24,84424123 | 90,97935729 | 0 |
| 405 | 1,287743987 | 1,167526158 | 13,26257565 | 252,6410691 | 487,5842173 | 1,12700148 | 0,934040863 | 1080 | 100 | 24,84793904 | 91,06664423 | 0 |
| 406 | 1,243946274 | 1,126402461 | 13,01222321 | 246,9303946 | 476,3415481 | 1,087007196 | 0,899547547 | 1080 | 100 | 24,85163968 | 91,15759374 | 0 |
| 407 | 1,201133644 | 1,086241357 | 12,76765888 | 241,3160239 | 465,2898445 | 1,047958499 | 0,865923352 | 1080 | 100 | 24,85534074 | 91,25234132 | 0 |
| 408 | 1,159289874 | 1,047027115 | 12,52878528 | 235,7964929 | 454,4188487 | 1,009843644 | 0,833163229 | 1080 | 100 | 24,85905252 | 91,35125118 | 0 |
| 409 | 1,118399225 | 1,008744558 | 12,29550821 | 230,3686364 | 443,7232995 | 0,972645549 | 0,801249127 | 1080 | 100 | 24,86277099 | 91,45430147 | 0 |
| 410 | 1,078446232 | 0,971378873 | 12,06773552 | 225,0307966 | 433,2086224 | 0,936349078 | 0,770160093 | 1080 | 100 | 24,86648952 | 91,56122262 | 0 |
| 411 | 1,039415798 | 0,934915451 | 11,84537685 | 219,7809122 | 422,8629255 | 0,900941011 | 0,739889449 | 1080 | 100 | 24,87021429 | 91,67236433 | 0 |
| 412 | 1,001293165 | 0,899339172 | 11,62834145 | 214,6170894 | 412,6921446 | 0,866404884 | 0,710413581 | 1080 | 100 | 24,87393586 | 91,78735904 | 0 |
| 413 | 0,964063833 | 0,864637787 | 11,41654795 | 209,5366084 | 402,6745915 | 0,832730254 | 0,681736649 | 1080 | 100 | 24,87766723 | 91,906997 | 0 |
| 414 | 0,927713885 | 0,83079634 | 11,2099088 | 204,5380219 | 392,8160066 | 0,799902099 | 0,653836319 | 1080 | 100 | 24,8814007 | 92,03090114 | 0 |
| 415 | 0,892229518 | 0,797801974 | 11,00834311 | 199,6190034 | 383,1237518 | 0,767905928 | 0,626687995 | 1080 | 100 | 24,8851242 | 92,15850581 | 0 |
| 416 | 0,85759729 | 0,765641607 | 10,81177048 | 194,7779984 | 373,5853646 | 0,736728507 | 0,600287652 | 1080 | 100 | 24,88884197 | 92,29029456 | 0 |
| 417 | 0,823804134 | 0,734301419 | 10,62010955 | 190,0129061 | 364,1980603 | 0,706358354 | 0,574621248 | 1080 | 100 | 24,89255422 | 92,42610899 | 0 |
| 418 | 0,790837183 | 0,703770596 | 10,43328849 | 185,3214647 | 354,9360093 | 0,676786291 | 0,549698552 | 1080 | 100 | 24,8962758 | 92,56703956 | 0 |
| 419 | 0,758684185 | 0,674036588 | 10,25123229 | 180,7014345 | 345,8433064 | 0,647992351 | 0,525461595 | 1080 | 100 | 24,89996206 | 92,71080824 | 0 |
| 420 | 0,727332916 | 0,64508597 | 10,07386352 | 176,1526105 | 336,8692391 | 0,619972005 | 0,501941372 | 1080 | 100 | 24,90365325 | 92,8594899 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 421 | 0,696771574 | 0,616909648 | 9,901118834 | 171,6709827 | 328,0365022 | 0,592710578 | 0,479104394 | 1080 | 100 | 24,90732202 | 93,01190598 | 0 |
| 422 | 0,666988821 | 0,589493967 | 9,732922899 | 167,2553892 | 319,3289916 | 0,566197176 | 0,456948361 | 1080 | 100 | 24,91097669 | 93,16852123 | 0 |
| 423 | 0,637973349 | 0,562828878 | 9,569211185 | 162,9047579 | 310,7582301 | 0,540418897 | 0,435447902 | 1080 | 100 | 24,91459991 | 93,32847759 | 0 |
| 424 | 0,609714303 | 0,536903825 | 9,409919063 | 158,6169424 | 302,3083645 | 0,515366948 | 0,414604255 | 1080 | 100 | 24,91819875 | 93,49232475 | 0 |
| 425 | 0,582201265 | 0,511707101 | 9,25497989 | 154,3890022 | 293,9614684 | 0,491032413 | 0,394417908 | 1080 | 100 | 24,92178162 | 93,66060032 | 0 |
| 426 | 0,555423931 | 0,487231016 | 9,104339236 | 150,2196735 | 285,777377 | 0,467397669 | 0,374825529 | 1080 | 100 | 24,92529335 | 93,8301597 | 0 |
| 427 | 0,529372351 | 0,463460747 | 8,957922818 | 146,1089897 | 277,6597198 | 0,444461466 | 0,35589138 | 1080 | 100 | 24,9288028 | 94,00525243 | 0 |
| 428 | 0,504036729 | 0,440389319 | 8,815679944 | 142,054037 | 269,6697777 | 0,422207671 | 0,337552404 | 1080 | 100 | 24,93225526 | 94,18259889 | 0 |
| 429 | 0,479407727 | 0,418007513 | 8,677554726 | 138,0525244 | 261,8077143 | 0,400626018 | 0,319796868 | 1080 | 100 | 24,93564405 | 94,3619083 | 0 |
| 430 | 0,455476306 | 0,396304859 | 8,543488555 | 134,1024565 | 254,0371958 | 0,379710366 | 0,302639602 | 1080 | 100 | 24,93898844 | 94,54447527 | 0 |
| 431 | 0,432233684 | 0,375272102 | 8,413427196 | 130,2037545 | 246,3553763 | 0,35945175 | 0,286070465 | 1080 | 100 | 24,94228373 | 94,73006621 | 0 |
| 432 | 0,409671356 | 0,354901299 | 8,287321148 | 126,3532666 | 238,7978931 | 0,339836484 | 0,270050063 | 1080 | 100 | 24,9454979 | 94,91662539 | 0 |
| 433 | 0,387781186 | 0,335181729 | 8,165113884 | 122,5501084 | 231,325709 | 0,32085882 | 0,254594478 | 1080 | 100 | 24,94865125 | 95,10552051 | 0 |
| 434 | 0,366555209 | 0,316106837 | 8,046761672 | 118,7915123 | 223,9366564 | 0,302511591 | 0,23969515 | 1080 | 100 | 24,95173785 | 95,29645107 | 0 |
| 435 | 0,34598582 | 0,29766718 | 7,932213407 | 115,0772999 | 216,6703868 | 0,284779765 | 0,225310492 | 1080 | 100 | 24,95472652 | 95,48716146 | 0 |
| 436 | 0,326065543 | 0,279853329 | 7,821418455 | 111,4052238 | 209,4415034 | 0,267663499 | 0,211487838 | 1080 | 100 | 24,95766213 | 95,68099966 | 0 |
| 437 | 0,306787619 | 0,262662887 | 7,71434898 | 107,7702531 | 202,3345181 | 0,251150214 | 0,198163436 | 1080 | 100 | 24,96048983 | 95,87378656 | 0 |
| 438 | 0,28814549 | 0,246081245 | 7,61094193 | 104,1764601 | 195,3045633 | 0,235229632 | 0,185350157 | 1080 | 100 | 24,96322948 | 96,06699969 | 0 |
| 439 | 0,270132158 | 0,230103758 | 7,511162259 | 100,6193121 | 188,3974089 | 0,21989149 | 0,173010779 | 1080 | 100 | 24,96585245 | 96,2581986 | 0 |
| 440 | 0,252741397 | 0,214721964 | 7,414966022 | 97,09871495 | 181,4708708 | 0,205142684 | 0,161224288 | 1080 | 100 | 24,9684262 | 96,45288086 | 0 |
| 441 | 0,235967573 | 0,199930249 | 7,322319417 | 93,61098687 | 174,7141317 | 0,190956027 | 0,14986347 | 1080 | 100 | 24,97085226 | 96,64264435 | 0 |
| 442 | 0,219804514 | 0,185718726 | 7,233174558 | 90,15812205 | 167,9814759 | 0,177336879 | 0,139005665 | 1080 | 100 | 24,97319744 | 96,83301277 | 0 |
| 443 | 0,204246822 | 0,172083728 | 7,147504125 | 86,73630186 | 161,3206479 | 0,164276142 | 0,128614903 | 1080 | 100 | 24,97543555 | 97,02146911 | 0 |
| 444 | 0,18928992 | 0,159017376 | 7,065270886 | 83,33762133 | 154,7309042 | 0,151765247 | 0,11868106 | 1080 | 100 | 24,97756413 | 97,20753225 | 0 |
| 445 | 0,17492856 | 0,146512675 | 6,986438268 | 79,97274835 | 148,2117498 | 0,139796622 | 0,109195222 | 1080 | 100 | 24,97958154 | 97,39073258 | 0 |
| 446 | 0,161158281 | 0,134563751 | 6,910975327 | 76,62996517 | 141,7630049 | 0,128364394 | 0,100149876 | 1080 | 100 | 24,98148712 | 97,57057139 | 0 |
| 447 | 0,147974019 | 0,123157691 | 6,838828739 | 73,32152904 | 135,3273527 | 0,1174597 | 0,091557246 | 1080 | 100 | 24,98329836 | 97,74851271 | 0 |
| 448 | 0,135371157 | 0,112296823 | 6,769991241 | 70,03369013 | 129,0174466 | 0,107075095 | 0,083363529 | 1080 | 100 | 24,98497876 | 97,92017508 | 0 |
| 449 | 0,123346594 | 0,10197837 | 6,704445058 | 66,76015935 | 122,6614534 | 0,097221275 | 0,075643243 | 1080 | 100 | 24,98658052 | 98,09081355 | 0 |
| 450 | 0,111898243 | 0,09219036 | 6,642148461 | 63,50588099 | 116,4312664 | 0,087871996 | 0,068304364 | 1080 | 100 | 24,98805395 | 98,25424923 | 0 |
| 451 | 0,101021576 | 0,082927584 | 6,583072414 | 60,27442572 | 110,3304135 | 0,079022037 | 0,061342701 | 1080 | 100 | 24,98940395 | 98,4101632 | 0 |
| 452 | 0,09071336 | 0,07418128 | 6,527181304 | 57,06234827 | 104,1159927 | 0,07067973 | 0,054844688 | 1080 | 100 | 24,99069003 | 98,56525028 | 0 |
| 453 | 0,080970547 | 0,065953366 | 6,474471399 | 53,86118719 | 98,03043101 | 0,062829243 | 0,048714138 | 1080 | 100 | 24,99185703 | 98,71192479 | 0 |
| 454 | 0,071790706 | 0,058232178 | 6,424900978 | 50,68484048 | 92,07661351 | 0,055459269 | 0,04294188 | 1080 | 100 | 24,99291157 | 98,84999013 | 0 |
| 455 | 0,06317013 | 0,051011689 | 6,378441133 | 47,5213461 | 86,00101307 | 0,048578904 | 0,037606263 | 1080 | 100 | 24,99390322 | 98,98549784 | 0 |
| 456 | 0,055107148 | 0,044297388 | 6,335102726 | 44,36695868 | 80,05773425 | 0,042178026 | 0,03262663 | 1080 | 100 | 24,9947894 | 99,11164515 | 0 |
| 457 | 0,047601333 | 0,038085981 | 6,294874537 | 41,20912269 | 73,83186843 | 0,036253383 | 0,02809636 | 1080 | 100 | 24,99562744 | 99,23712909 | 0 |
| 458 | 0,040662842 | 0,032416693 | 6,25790108 | 37,95915101 | 67,60823702 | 0,030847788 | 0,023982399 | 1080 | 100 | 24,99638127 | 99,35466434 | 0 |
| 459 | 0,034301709 | 0,027259668 | 6,224123958 | 34,67975227 | 61,52519597 | 0,025931961 | 0,020226931 | 1080 | 100 | 24,99704074 | 99,46124682 | 0 |
| 460 | 0,028517576 | 0,022595233 | 6,193484185 | 31,4331697 | 55,4470879 | 0,021491627 | 0,016843752 | 1080 | 100 | 24,99762615 | 99,5592308 | 0 |
| 461 | 0,023305412 | 0,018408471 | 6,165923043 | 28,21294868 | 49,78160754 | 0,017497064 | 0,013739781 | 1080 | 100 | 24,99810715 | 99,6423329 | 0 |
| 462 | 0,018652629 | 0,014692113 | 6,141382111 | 25,04913898 | 43,84707371 | 0,013965582 | 0,011043503 | 1080 | 100 | 24,99854786 | 99,72090016 | 0 |
| 463 | 0,01455884 | 0,01143617 | 6,119830786 | 21,91745521 | 38,46686513 | 0,010860436 | 0,00860638 | 1080 | 100 | 24,99889256 | 99,78406536 | 0 |
| 464 | 0,011001122 | 0,008594747 | 6,101067136 | 18,94496021 | 32,81263535 | 0,008162332 | 0,006519059 | 1080 | 100 | 24,99920159 | 99,84216936 | 0 |
| 465 | 0,00797395 | 0,006212149 | 6,085204746 | 15,90678904 | 27,43869878 | 0,005898404 | 0,004747418 | 1080 | 100 | 24,99944602 | 99,88921095 | 0 |
| 466 | 0,00546229 | 0,004234104 | 6,072040296 | 13,07166559 | 22,06538154 | 0,004021949 | 0,0032766 | 1080 | 100 | 24,9996442 | 99,92812605 | 0 |
| 467 | 0,003452842 | 0,002663715 | 6,061543804 | 10,27133154 | 17,53640492 | 0,002522336 | 0,002051015 | 1080 | 100 | 24,99977631 | 99,95448467 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t<br>min | P Inicio Duto<br>kgf/cm2 g | P Final Duto<br>kgf/cm2 g | Inventário<br>t | Q Duto<br>mil Pm3/dia | Q blowdown<br>mil Pm3/dia | P ent Valv<br>kgf/cm2 g | P saida valv<br>kgf/cm2 g | CV | Abert Valv<br>% | T saida valv<br>°C | Pout/Pin<br>% | P Saída<br>kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 468 | 0,001920635 | 0,001456166 | 6,053510582 | 7,667096667 | 12,44609741 | 0,001380299 | 0,001142686 | 1080 | 100 | 24,99988784 | 99,97702844 | 0 |
| 469 | 0,000858512 | 0,000638358 | 6,047998479 | 5,13524057 | 7,920232502 | 0,000604693 | 0,000508413 | 1080 | 100 | 24,99995471 | 99,99068498 | 0 |
| 470 | 0,000245018 | 0,000171887 | 6,044831946 | 1,925771635 | 4,525537386 | 0,00015893 | 0,000127484 | 1080 | 100 | 24,99998524 | 99,99695636 | 0 |
| 470,2 | 0,000159101 | 9,78204E-05 | 6,044831946 | 2,430369654 | 4,525537386 | 0,00015893 | 0,000127484 | 1080 | 100 | 24,99998524 | 99,99695636 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 0 | -34,68208408 | 1364,533142 | 0,030091517 | 0,239176989 | 1 | 9241213,405 | 0,014064842 | 132,003742 | 124,4617 | 132,7082 | 10,62426 | 39,6464 | 41,2102 | 18,88553 |
| 1 | -34,62649245 | 1364,739239 | 0,030184035 | 0,239176989 | 1 | 9255857,849 | 0,014064842 | 132,003833 | 124,4616 | 132,7083 | 10,62366 | 39,64425 | 41,20793 | 18,8845 |
| 2 | -34,58040443 | 1364,909955 | 0,030260829 | 0,239176989 | 1 | 9268353,438 | 0,014064842 | 132,003908 | 124,4614 | 132,7083 | 10,62316 | 39,64246 | 41,20606 | 18,88364 |
| 3 | -34,53416728 | 1365,081555 | 0,030337954 | 0,239176989 | 1 | 9280848,053 | 0,014064842 | 132,003983 | 124,4613 | 132,7084 | 10,62266 | 39,64068 | 41,20418 | 18,88278 |
| 4 | -34,48773813 | 1365,253435 | 0,030415492 | 0,239176989 | 1 | 9293356,42 | 0,014064842 | 132,004059 | 124,4612 | 132,7084 | 10,62215 | 39,63888 | 41,20229 | 18,88192 |
| 5 | -34,4411107 | 1365,426491 | 0,030493449 | 0,239176989 | 1 | 9305879,187 | 0,014064842 | 132,004135 | 124,461 | 132,7085 | 10,62165 | 39,63708 | 41,2004 | 18,88105 |
| 6 | -34,39428844 | 1365,599938 | 0,030571828 | 0,239176989 | 1 | 9318416,386 | 0,014064842 | 132,004211 | 124,4609 | 132,7085 | 10,62114 | 39,63527 | 41,19849 | 18,88018 |
| 7 | -34,34727006 | 1365,774044 | 0,030650634 | 0,239176989 | 1 | 9330968,019 | 0,014064842 | 132,004288 | 124,4607 | 132,7085 | 10,62063 | 39,63345 | 41,19658 | 18,87931 |
| 8 | -34,30005432 | 1365,949071 | 0,03072987 | 0,239176989 | 1 | 9343534,089 | 0,014064842 | 132,004364 | 124,4605 | 132,7086 | 10,62012 | 39,63163 | 41,19466 | 18,87843 |
| 9 | -34,25264317 | 1366,12459 | 0,03080954 | 0,239176989 | 1 | 9356114,598 | 0,014064842 | 132,004441 | 124,4602 | 132,7086 | 10,6196 | 39,62979 | 41,19273 | 18,87755 |
| 10 | -34,20503366 | 1366,301203 | 0,030889646 | 0,239176989 | 1 | 9368709,549 | 0,014064842 | 132,004518 | 124,46 | 132,7086 | 10,61909 | 39,62796 | 41,19081 | 18,87667 |
| 11 | -34,15722956 | 1366,478142 | 0,030970194 | 0,239176989 | 1 | 9381318,943 | 0,014064842 | 132,004596 | 124,4598 | 132,7087 | 10,61857 | 39,62611 | 41,18886 | 18,87578 |
| 12 | -34,10922786 | 1366,656003 | 0,031051187 | 0,239176989 | 1 | 9393942,784 | 0,014064842 | 132,004674 | 124,4595 | 132,7087 | 10,61805 | 39,62426 | 41,18692 | 18,87489 |
| 13 | -34,06103226 | 1366,834019 | 0,031132628 | 0,239176989 | 1 | 9406581,072 | 0,014064842 | 132,004752 | 124,4592 | 132,7087 | 10,61753 | 39,62239 | 41,18495 | 18,87399 |
| 14 | -34,01263639 | 1367,013457 | 0,031214521 | 0,239176989 | 1 | 9419233,811 | 0,014064842 | 132,00483 | 124,4589 | 132,7087 | 10,617 | 39,62053 | 41,18299 | 18,8731 |
| 15 | -33,96404579 | 1367,193217 | 0,031296871 | 0,239176989 | 1 | 9431901,003 | 0,014064842 | 132,004909 | 124,4586 | 132,7088 | 10,61648 | 39,61865 | 41,18102 | 18,8722 |
| 16 | -33,91525744 | 1367,373882 | 0,031379681 | 0,239176989 | 1 | 9444582,648 | 0,014064842 | 132,004987 | 124,4582 | 132,7088 | 10,61595 | 39,61677 | 41,17904 | 18,8713 |
| 17 | -33,86627163 | 1367,555357 | 0,031462955 | 0,239176989 | 1 | 9457278,751 | 0,014064842 | 132,005066 | 124,4579 | 132,7088 | 10,61542 | 39,61488 | 41,17706 | 18,87039 |
| 18 | -33,81709243 | 1367,736895 | 0,031546697 | 0,239176989 | 1 | 9469989,312 | 0,014064842 | 132,005146 | 124,4575 | 132,7088 | 10,61489 | 39,61298 | 41,17506 | 18,86947 |
| 19 | -33,76771332 | 1367,919732 | 0,031630912 | 0,239176989 | 1 | 9482714,334 | 0,014064842 | 132,005225 | 124,4571 | 132,7088 | 10,61435 | 39,61108 | 41,17306 | 18,86856 |
| 20 | -33,71813818 | 1368,103113 | 0,031715603 | 0,239176989 | 1 | 9495453,818 | 0,014064842 | 132,005305 | 124,4567 | 132,7088 | 10,61382 | 39,60916 | 41,17105 | 18,86764 |
| 21 | -33,6683658 | 1368,287277 | 0,031800775 | 0,239176989 | 1 | 9508207,767 | 0,014064842 | 132,005385 | 124,4562 | 132,7088 | 10,61328 | 39,60725 | 41,16903 | 18,86672 |
| 22 | -33,61839639 | 1368,472122 | 0,031886431 | 0,239176989 | 1 | 9520976,183 | 0,014064842 | 132,005466 | 124,4558 | 132,7088 | 10,61274 | 39,60532 | 41,16701 | 18,8658 |
| 23 | -33,56823078 | 1368,657569 | 0,031972576 | 0,239176989 | 1 | 9533759,067 | 0,014064842 | 132,005546 | 124,4553 | 132,7088 | 10,6122 | 39,60339 | 41,16498 | 18,86487 |
| 24 | -33,5178674 | 1368,843838 | 0,032059215 | 0,239176989 | 1 | 9546556,422 | 0,014064842 | 132,005627 | 124,4548 | 132,7088 | 10,61166 | 39,60145 | 41,16294 | 18,86394 |
| 25 | -33,46730679 | 1369,030834 | 0,032146352 | 0,239176989 | 1 | 9559368,249 | 0,014064842 | 132,005708 | 124,4543 | 132,7088 | 10,61111 | 39,5995 | 41,16089 | 18,863 |
| 26 | -33,41654975 | 1369,218475 | 0,03223399 | 0,239176989 | 1 | 9572194,551 | 0,014064842 | 132,00579 | 124,4537 | 132,7088 | 10,61056 | 39,59755 | 41,15884 | 18,86206 |
| 27 | -33,36559458 | 1369,406967 | 0,032322135 | 0,239176989 | 1 | 9585035,328 | 0,014064842 | 132,005871 | 124,4532 | 132,7088 | 10,61001 | 39,59559 | 41,15678 | 18,86112 |
| 28 | -33,31444377 | 1369,595901 | 0,032410792 | 0,239176989 | 1 | 9597890,584 | 0,014064842 | 132,005953 | 124,4526 | 132,7088 | 10,60946 | 39,59362 | 41,15471 | 18,86018 |
| 29 | -33,2630959 | 1369,785492 | 0,032499964 | 0,239176989 | 1 | 9610760,319 | 0,014064842 | 132,006035 | 124,452 | 132,7087 | 10,60891 | 39,59164 | 41,15263 | 18,85923 |
| 30 | -33,21155009 | 1369,975975 | 0,032589656 | 0,239176989 | 1 | 9623644,536 | 0,014064842 | 132,006118 | 124,4514 | 132,7087 | 10,60835 | 39,58966 | 41,15054 | 18,85827 |
| 31 | -33,15980845 | 1370,166922 | 0,032679873 | 0,239176989 | 1 | 9636543,236 | 0,014064842 | 132,0062 | 124,4507 | 132,7087 | 10,60779 | 39,58766 | 41,14845 | 18,85731 |
| 32 | -33,1078665 | 1370,359197 | 0,03277062 | 0,239176989 | 1 | 9649456,421 | 0,014064842 | 132,006283 | 124,4501 | 132,7087 | 10,60724 | 39,58568 | 41,14636 | 18,85636 |
| 33 | -33,05572936 | 1370,551715 | 0,032861901 | 0,239176989 | 1 | 9662384,092 | 0,014064842 | 132,006366 | 124,4494 | 132,7086 | 10,60667 | 39,58367 | 41,14425 | 18,8554 |
| 34 | -33,00339471 | 1370,745032 | 0,032953722 | 0,239176989 | 1 | 9675326,252 | 0,014064842 | 132,00645 | 124,4487 | 132,7086 | 10,60611 | 39,58166 | 41,14214 | 18,85443 |
| 35 | -32,95086296 | 1370,939037 | 0,033046087 | 0,239176989 | 1 | 9688282,902 | 0,014064842 | 132,006533 | 124,4479 | 132,7086 | 10,60554 | 39,57964 | 41,14001 | 18,85346 |
| 36 | -32,89813456 | 1371,133622 | 0,033139002 | 0,239176989 | 1 | 9701254,044 | 0,014064842 | 132,006617 | 124,4472 | 132,7085 | 10,60498 | 39,57761 | 41,13788 | 18,85249 |
| 37 | -32,84521023 | 1371,328685 | 0,03323247 | 0,239176989 | 1 | 9714239,679 | 0,014064842 | 132,006701 | 124,4464 | 132,7085 | 10,6044 | 39,57557 | 41,13574 | 18,85151 |
| 38 | -32,79208531 | 1371,525058 | 0,033326498 | 0,239176989 | 1 | 9727239,809 | 0,014064842 | 132,006786 | 124,4456 | 132,7084 | 10,60384 | 39,57354 | 41,1336 | 18,85053 |
| 39 | -32,73876557 | 1371,721692 | 0,033421091 | 0,239176989 | 1 | 9740254,436 | 0,014064842 | 132,00687 | 124,4448 | 132,7084 | 10,60326 | 39,57149 | 41,13144 | 18,84955 |
| 40 | -32,68524665 | 1371,919422 | 0,033516253 | 0,239176989 | 1 | 9753283,56 | 0,014064842 | 132,006955 | 124,4439 | 132,7083 | 10,60269 | 39,56944 | 41,12929 | 18,84856 |
| 41 | -32,63153212 | 1372,117494 | 0,033611991 | 0,239176989 | 1 | 9766327,184 | 0,014064842 | 132,00704 | 124,443 | 132,7083 | 10,60211 | 39,56738 | 41,12712 | 18,84757 |
| 42 | -32,57762132 | 1372,316128 | 0,033708308 | 0,239176989 | 1 | 9779385,309 | 0,014064842 | 132,007126 | 124,4421 | 132,7082 | 10,60153 | 39,5653 | 41,12494 | 18,84658 |
| 43 | -32,5235096 | 1372,516133 | 0,033805212 | 0,239176989 | 1 | 9792457,937 | 0,014064842 | 132,007211 | 124,4412 | 132,7081 | 10,60095 | 39,56324 | 41,12277 | 18,84558 |
| 44 | -32,46920265 | 1372,716461 | 0,033902706 | 0,239176989 | 1 | 9805545,068 | 0,014064842 | 132,007297 | 124,4403 | 132,7081 | 10,60037 | 39,56116 | 41,12058 | 18,84458 |
| 45 | -32,41469947 | 1372,917313 | 0,034000798 | 0,239176989 | 1 | 9818646,705 | 0,014064842 | 132,007383 | 124,4393 | 132,708 | 10,59978 | 39,55906 | 41,11838 | 18,84358 |
| 46 | -32,35999891 | 1373,118875 | 0,034099492 | 0,239176989 | 1 | 9831762,849 | 0,014064842 | 132,007469 | 124,4383 | 132,7079 | 10,59919 | 39,55696 | 41,11618 | 18,84257 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 47 | -32,30510009 | 1373,321341 | 0,034198794 | 0,239176989 | 1 | 9844893,501 | 0,014064842 | 132,007556 | 124,4372 | 132,7078 | 10,5986 | 39,55486 | 41,11397 | 18,84156 |
| 48 | -32,25000524 | 1373,524283 | 0,03429871 | 0,239176989 | 1 | 9858038,663 | 0,014064842 | 132,007643 | 124,4362 | 132,7077 | 10,59801 | 39,55274 | 41,11174 | 18,84055 |
| 49 | -32,19471182 | 1373,728197 | 0,034399246 | 0,239176989 | 1 | 9871198,336 | 0,014064842 | 132,00773 | 124,4351 | 132,7077 | 10,59742 | 39,55063 | 41,10952 | 18,83953 |
| 50 | -32,1392204 | 1373,932953 | 0,034500407 | 0,239176989 | 1 | 9884372,522 | 0,014064842 | 132,007817 | 124,434 | 132,7076 | 10,59682 | 39,54851 | 41,10729 | 18,83851 |
| 51 | -32,08353487 | 1374,13782 | 0,0346022 | 0,239176989 | 1 | 9897561,221 | 0,014064842 | 132,007904 | 124,4328 | 132,7075 | 10,59622 | 39,54637 | 41,10504 | 18,83748 |
| 52 | -32,02764953 | 1374,343896 | 0,03470463 | 0,239176989 | 1 | 9910764,435 | 0,014064842 | 132,007992 | 124,4317 | 132,7074 | 10,59563 | 39,54424 | 41,1028 | 18,83646 |
| 53 | -31,97156816 | 1374,550441 | 0,034807704 | 0,239176989 | 1 | 9923982,165 | 0,014064842 | 132,00808 | 124,4305 | 132,7073 | 10,59503 | 39,54209 | 41,10054 | 18,83543 |
| 54 | -31,91528845 | 1374,757941 | 0,034911429 | 0,239176989 | 1 | 9937214,413 | 0,014064842 | 132,008168 | 124,4293 | 132,7072 | 10,59442 | 39,53994 | 41,09829 | 18,8344 |
| 55 | -31,858814 | 1374,965653 | 0,035015809 | 0,239176989 | 1 | 9950461,18 | 0,014064842 | 132,008257 | 124,428 | 132,7071 | 10,59382 | 39,53777 | 41,09601 | 18,83336 |
| 56 | -31,80213938 | 1375,174663 | 0,035120853 | 0,239176989 | 1 | 9963722,466 | 0,014064842 | 132,008345 | 124,4267 | 132,7069 | 10,59321 | 39,53562 | 41,09374 | 18,83232 |
| 57 | -31,74527151 | 1375,383631 | 0,035226565 | 0,239176989 | 1 | 9976998,274 | 0,014064842 | 132,008434 | 124,4254 | 132,7068 | 10,5926 | 39,53343 | 41,09144 | 18,83127 |
| 58 | -31,68820335 | 1375,59393 | 0,035332953 | 0,239176989 | 1 | 9990288,605 | 0,014064842 | 132,008524 | 124,424 | 132,7067 | 10,59199 | 39,53126 | 41,08916 | 18,83023 |
| 59 | -31,63094018 | 1375,804521 | 0,035440023 | 0,239176989 | 1 | 10003593,46 | 0,014064842 | 132,008613 | 124,4227 | 132,7066 | 10,59138 | 39,52906 | 41,08685 | 18,82917 |
| 60 | -31,5734783 | 1376,016175 | 0,035547783 | 0,239176989 | 1 | 10016912,84 | 0,014064842 | 132,008702 | 124,4213 | 132,7064 | 10,59076 | 39,52687 | 41,08455 | 18,82812 |
| 61 | -31,51581965 | 1376,228441 | 0,035656238 | 0,239176989 | 1 | 10030246,74 | 0,014064842 | 132,008792 | 124,4198 | 132,7063 | 10,59015 | 39,52467 | 41,08224 | 18,82706 |
| 62 | -31,45796535 | 1376,441197 | 0,035765396 | 0,239176989 | 1 | 10043595,17 | 0,014064842 | 132,008882 | 124,4183 | 132,7062 | 10,58953 | 39,52246 | 41,07992 | 18,826 |
| 63 | -31,39991274 | 1376,654882 | 0,035875263 | 0,239176989 | 1 | 10056958,13 | 0,014064842 | 132,008973 | 124,4168 | 132,706 | 10,58891 | 39,52025 | 41,07759 | 18,82494 |
| 64 | -31,34166432 | 1376,869066 | 0,035985848 | 0,239176989 | 1 | 10070335,62 | 0,014064842 | 132,009063 | 124,4153 | 132,7059 | 10,58829 | 39,51802 | 41,07525 | 18,82387 |
| 65 | -31,28321924 | 1377,083899 | 0,036097156 | 0,239176989 | 1 | 10083727,64 | 0,014064842 | 132,009154 | 124,4137 | 132,7057 | 10,58766 | 39,51579 | 41,07291 | 18,8228 |
| 66 | -31,22457692 | 1377,299537 | 0,036209195 | 0,239176989 | 1 | 10097134,19 | 0,014064842 | 132,009245 | 124,4121 | 132,7055 | 10,58704 | 39,51355 | 41,07055 | 18,82172 |
| 67 | -31,16573643 | 1377,516118 | 0,036321973 | 0,239176989 | 1 | 10110555,27 | 0,014064842 | 132,009336 | 124,4105 | 132,7054 | 10,58641 | 39,51132 | 41,0682 | 18,82065 |
| 68 | -31,10670152 | 1377,732905 | 0,036435497 | 0,239176989 | 1 | 10123990,88 | 0,014064842 | 132,009428 | 124,4088 | 132,7052 | 10,58578 | 39,50906 | 41,06583 | 18,81957 |
| 69 | -31,04746736 | 1377,950933 | 0,036549775 | 0,239176989 | 1 | 10137441,03 | 0,014064842 | 132,009519 | 124,4071 | 132,705 | 10,58515 | 39,50681 | 41,06347 | 18,81849 |
| 70 | -30,98803741 | 1378,169452 | 0,036664813 | 0,239176989 | 1 | 10150905,72 | 0,014064842 | 132,009611 | 124,4053 | 132,7048 | 10,58451 | 39,50455 | 41,06109 | 18,8174 |
| 71 | -30,92841261 | 1378,388316 | 0,036780621 | 0,239176989 | 1 | 10164384,94 | 0,014064842 | 132,009703 | 124,4036 | 132,7047 | 10,58388 | 39,50227 | 41,0587 | 18,81631 |
| 72 | -30,86859086 | 1378,607953 | 0,036897206 | 0,239176989 | 1 | 10177878,69 | 0,014064842 | 132,009795 | 124,4017 | 132,7045 | 10,58324 | 39,49999 | 41,0563 | 18,81521 |
| 73 | -30,80856992 | 1378,828778 | 0,037014575 | 0,239176989 | 1 | 10191386,99 | 0,014064842 | 132,009888 | 124,3999 | 132,7043 | 10,5826 | 39,49771 | 41,05391 | 18,81412 |
| 74 | -30,74835531 | 1379,049776 | 0,037132738 | 0,239176989 | 1 | 10204909,82 | 0,014064842 | 132,009981 | 124,398 | 132,7041 | 10,58196 | 39,49541 | 41,05149 | 18,81301 |
| 75 | -30,68794323 | 1379,271644 | 0,037251701 | 0,239176989 | 1 | 10218447,2 | 0,014064842 | 132,010074 | 124,396 | 132,7039 | 10,58132 | 39,49312 | 41,04908 | 18,81191 |
| 76 | -30,62733456 | 1379,494217 | 0,037371474 | 0,239176989 | 1 | 10231999,11 | 0,014064842 | 132,010167 | 124,3941 | 132,7037 | 10,58067 | 39,49081 | 41,04665 | 18,8108 |
| 77 | -30,56653041 | 1379,717343 | 0,037492065 | 0,239176989 | 1 | 10245565,57 | 0,014064842 | 132,01026 | 124,3921 | 132,7034 | 10,58002 | 39,48849 | 41,04422 | 18,80969 |
| 78 | -30,50552845 | 1379,941414 | 0,037613482 | 0,239176989 | 1 | 10259146,56 | 0,014064842 | 132,010354 | 124,39 | 132,7032 | 10,57937 | 39,48618 | 41,04179 | 18,80858 |
| 79 | -30,44432995 | 1380,166274 | 0,037735734 | 0,239176989 | 1 | 10272742,1 | 0,014064842 | 132,010448 | 124,3879 | 132,703 | 10,57872 | 39,48386 | 41,03935 | 18,80747 |
| 80 | -30,38293683 | 1380,391456 | 0,03785883 | 0,239176989 | 1 | 10286352,19 | 0,014064842 | 132,010542 | 124,3858 | 132,7028 | 10,57807 | 39,48152 | 41,03689 | 18,80634 |
| 81 | -30,32134739 | 1380,617365 | 0,037982779 | 0,239176989 | 1 | 10299976,82 | 0,014064842 | 132,010636 | 124,3836 | 132,7025 | 10,57742 | 39,47918 | 41,03443 | 18,80522 |
| 82 | -30,25956123 | 1380,844114 | 0,03810759 | 0,239176989 | 1 | 10313615,99 | 0,014064842 | 132,01073 | 124,3814 | 132,7023 | 10,57676 | 39,47683 | 41,03197 | 18,80409 |
| 83 | -30,19758048 | 1381,071237 | 0,038233272 | 0,239176989 | 1 | 10327269,71 | 0,014064842 | 132,010825 | 124,3791 | 132,702 | 10,5761 | 39,47447 | 41,02949 | 18,80296 |
| 84 | -30,13540203 | 1381,299408 | 0,038359834 | 0,239176989 | 1 | 10340937,97 | 0,014064842 | 132,01092 | 124,3768 | 132,7018 | 10,57544 | 39,47212 | 41,02701 | 18,80183 |
| 85 | -30,07302673 | 1381,528441 | 0,038487285 | 0,239176989 | 1 | 10354620,79 | 0,014064842 | 132,011015 | 124,3745 | 132,7015 | 10,57478 | 39,46976 | 41,02453 | 18,80069 |
| 86 | -30,01045812 | 1381,757585 | 0,038615636 | 0,239176989 | 1 | 10368318,15 | 0,014064842 | 132,01111 | 124,3721 | 132,7012 | 10,57411 | 39,46737 | 41,02203 | 18,79955 |
| 87 | -29,94769212 | 1381,987795 | 0,038744896 | 0,239176989 | 1 | 10382030,06 | 0,014064842 | 132,011206 | 124,3696 | 132,7009 | 10,57345 | 39,465 | 41,01953 | 18,79841 |
| 88 | -29,884732 | 1382,21831 | 0,038875074 | 0,239176989 | 1 | 10395756,52 | 0,014064842 | 132,011302 | 124,3671 | 132,7007 | 10,57278 | 39,4626 | 41,01702 | 18,79726 |
| 89 | -29,82157366 | 1382,450067 | 0,039006182 | 0,239176989 | 1 | 10409497,53 | 0,014064842 | 132,011398 | 124,3646 | 132,7004 | 10,57211 | 39,46021 | 41,01451 | 18,79611 |
| 90 | -29,75822071 | 1382,682314 | 0,039138228 | 0,239176989 | 1 | 10423253,1 | 0,014064842 | 132,011494 | 124,362 | 132,7001 | 10,57144 | 39,45782 | 41,01199 | 18,79496 |
| 91 | -29,69467385 | 1382,914847 | 0,039271223 | 0,239176989 | 1 | 10437023,21 | 0,014064842 | 132,01159 | 124,3594 | 132,6998 | 10,57076 | 39,4554 | 41,00945 | 18,7938 |
| 92 | -29,63092902 | 1383,148588 | 0,039405178 | 0,239176989 | 1 | 10450807,87 | 0,014064842 | 132,011687 | 124,3567 | 132,6995 | 10,57009 | 39,45299 | 41,00692 | 18,79264 |
| 93 | -29,56698966 | 1383,382776 | 0,039540103 | 0,239176989 | 1 | 10464607,09 | 0,014064842 | 132,011783 | 124,354 | 132,6991 | 10,56941 | 39,45057 | 41,00437 | 18,79148 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 94 | -29,5028547 | 1383,61778 | 0,039676009 | 0,239176989 | 1 | 10478420,86 | 0,014064842 | 132,01188 | 124,3512 | 132,6988 | 10,56873 | 39,44814 | 41,00182 | 18,79032 |
| 95 | -29,43852456 | 1383,853374 | 0,039812906 | 0,239176989 | 1 | 10492249,19 | 0,014064842 | 132,011977 | 124,3484 | 132,6985 | 10,56805 | 39,44571 | 40,99927 | 18,78915 |
| 96 | -29,37400088 | 1384,089377 | 0,039950807 | 0,239176989 | 1 | 10506092,07 | 0,014064842 | 132,012075 | 124,3455 | 132,6982 | 10,56737 | 39,44326 | 40,9967 | 18,78797 |
| 97 | -29,30928151 | 1384,326102 | 0,040089721 | 0,239176989 | 1 | 10519949,51 | 0,014064842 | 132,012172 | 124,3426 | 132,6978 | 10,56668 | 39,44081 | 40,99412 | 18,7868 |
| 98 | -29,24436533 | 1384,563897 | 0,040229661 | 0,239176989 | 1 | 10533821,5 | 0,014064842 | 132,01227 | 124,3396 | 132,6975 | 10,566 | 39,43836 | 40,99155 | 18,78562 |
| 99 | -29,17925566 | 1384,80199 | 0,040370637 | 0,239176989 | 1 | 10547708,04 | 0,014064842 | 132,012368 | 124,3365 | 132,6971 | 10,56531 | 39,43589 | 40,98895 | 18,78444 |
| 100 | -29,11394883 | 1385,041263 | 0,040512663 | 0,239176989 | 1 | 10561609,15 | 0,014064842 | 132,012466 | 124,3335 | 132,6967 | 10,56462 | 39,43343 | 40,98637 | 18,78325 |
| 101 | -29,04844833 | 1385,280947 | 0,040655748 | 0,239176989 | 1 | 10575524,81 | 0,014064842 | 132,012565 | 124,3303 | 132,6964 | 10,56393 | 39,43096 | 40,98377 | 18,78207 |
| 102 | -28,98275264 | 1385,521357 | 0,040799907 | 0,239176989 | 1 | 10589455,03 | 0,014064842 | 132,012663 | 124,3271 | 132,696 | 10,56324 | 39,42848 | 40,98117 | 18,78088 |
| 103 | -28,91686344 | 1385,762292 | 0,04094515 | 0,239176989 | 1 | 10603399,8 | 0,014064842 | 132,012762 | 124,3238 | 132,6956 | 10,56254 | 39,42599 | 40,97855 | 18,77968 |
| 104 | -28,85078138 | 1386,003506 | 0,041091491 | 0,239176989 | 1 | 10617359,14 | 0,014064842 | 132,012861 | 124,3205 | 132,6952 | 10,56184 | 39,42349 | 40,97592 | 18,77848 |
| 105 | -28,7845022 | 1386,245819 | 0,041238942 | 0,239176989 | 1 | 10631333,03 | 0,014064842 | 132,01296 | 124,3171 | 132,6948 | 10,56114 | 39,42098 | 40,97329 | 18,77728 |
| 106 | -28,71802783 | 1386,489025 | 0,041387515 | 0,239176989 | 1 | 10645321,49 | 0,014064842 | 132,013059 | 124,3137 | 132,6944 | 10,56044 | 39,41848 | 40,97066 | 18,77608 |
| 107 | -28,65135922 | 1386,732878 | 0,041537224 | 0,239176989 | 1 | 10659324,5 | 0,014064842 | 132,013159 | 124,3102 | 132,6939 | 10,55974 | 39,41597 | 40,96802 | 18,77487 |
| 108 | -28,58449743 | 1386,977135 | 0,041688083 | 0,239176989 | 1 | 10673342,08 | 0,014064842 | 132,013259 | 124,3066 | 132,6935 | 10,55903 | 39,41345 | 40,96537 | 18,77366 |
| 109 | -28,51744161 | 1387,222099 | 0,041840104 | 0,239176989 | 1 | 10687374,22 | 0,014064842 | 132,013359 | 124,303 | 132,6931 | 10,55833 | 39,41092 | 40,96272 | 18,77245 |
| 110 | -28,45019001 | 1387,468025 | 0,041993301 | 0,239176989 | 1 | 10701420,92 | 0,014064842 | 132,013459 | 124,2993 | 132,6926 | 10,55762 | 39,40839 | 40,96006 | 18,77123 |
| 111 | -28,38274663 | 1387,714157 | 0,042147688 | 0,239176989 | 1 | 10715482,18 | 0,014064842 | 132,013559 | 124,2955 | 132,6922 | 10,55691 | 39,40584 | 40,95738 | 18,77001 |
| 112 | -28,31510759 | 1387,961276 | 0,04230328 | 0,239176989 | 1 | 10729558 | 0,014064842 | 132,01366 | 124,2917 | 132,6917 | 10,5562 | 39,4033 | 40,95471 | 18,76879 |
| 113 | -28,24727675 | 1388,208616 | 0,04246009 | 0,239176989 | 1 | 10743648,38 | 0,014064842 | 132,01376 | 124,2878 | 132,6912 | 10,55548 | 39,40073 | 40,95202 | 18,76756 |
| 114 | -28,17924785 | 1388,457457 | 0,042618132 | 0,239176989 | 1 | 10757753,33 | 0,014064842 | 132,013861 | 124,2839 | 132,6907 | 10,55477 | 39,39818 | 40,94934 | 18,76633 |
| 115 | -28,11103051 | 1388,706038 | 0,042777423 | 0,239176989 | 1 | 10771872,85 | 0,014064842 | 132,013962 | 124,2798 | 132,6902 | 10,55405 | 39,39561 | 40,94663 | 18,7651 |
| 116 | -28,04261475 | 1388,956079 | 0,042937976 | 0,239176989 | 1 | 10786006,92 | 0,014064842 | 132,014063 | 124,2757 | 132,6897 | 10,55333 | 39,39304 | 40,94394 | 18,76386 |
| 117 | -27,97400842 | 1389,206361 | 0,043099808 | 0,239176989 | 1 | 10800155,57 | 0,014064842 | 132,014165 | 124,2716 | 132,6892 | 10,55261 | 39,39046 | 40,94122 | 18,76262 |
| 118 | -27,90520929 | 1389,457075 | 0,043262933 | 0,239176989 | 1 | 10814318,77 | 0,014064842 | 132,014266 | 124,2673 | 132,6887 | 10,55188 | 39,38786 | 40,9385 | 18,76138 |
| 119 | -27,83621402 | 1389,708965 | 0,043427367 | 0,239176989 | 1 | 10828496,55 | 0,014064842 | 132,014368 | 124,263 | 132,6882 | 10,55116 | 39,38527 | 40,93578 | 18,76014 |
| 120 | -27,76702713 | 1389,961277 | 0,043593126 | 0,239176989 | 1 | 10842688,88 | 0,014064842 | 132,01447 | 124,2586 | 132,6876 | 10,55043 | 39,38267 | 40,93305 | 18,75889 |
| 121 | -27,69764712 | 1390,214211 | 0,043760227 | 0,239176989 | 1 | 10856895,79 | 0,014064842 | 132,014572 | 124,2542 | 132,6871 | 10,5497 | 39,38007 | 40,93031 | 18,75764 |
| 122 | -27,62807292 | 1390,46798 | 0,043928686 | 0,239176989 | 1 | 10871117,26 | 0,014064842 | 132,014675 | 124,2496 | 132,6865 | 10,54897 | 39,37745 | 40,92757 | 18,75638 |
| 123 | -27,55830649 | 1390,722317 | 0,04409852 | 0,239176989 | 1 | 10885353,3 | 0,014064842 | 132,014777 | 124,245 | 132,6859 | 10,54824 | 39,37483 | 40,92481 | 18,75512 |
| 124 | -27,4883467 | 1390,977416 | 0,044269746 | 0,239176989 | 1 | 10899603,9 | 0,014064842 | 132,01488 | 124,2403 | 132,6853 | 10,54751 | 39,37221 | 40,92206 | 18,75387 |
| 125 | -27,41819476 | 1391,232971 | 0,044442381 | 0,239176989 | 1 | 10913869,08 | 0,014064842 | 132,014983 | 124,2355 | 132,6847 | 10,54677 | 39,36958 | 40,91929 | 18,7526 |
| 126 | -27,34785013 | 1391,489189 | 0,044616443 | 0,239176989 | 1 | 10928148,82 | 0,014064842 | 132,015086 | 124,2307 | 132,6841 | 10,54604 | 39,36693 | 40,91652 | 18,75133 |
| 127 | -27,27731238 | 1391,746277 | 0,04479195 | 0,239176989 | 1 | 10942443,13 | 0,014064842 | 132,015189 | 124,2257 | 132,6835 | 10,5453 | 39,36429 | 40,91374 | 18,75006 |
| 128 | -27,20658217 | 1392,003883 | 0,04496892 | 0,239176989 | 1 | 10956752,01 | 0,014064842 | 132,015292 | 124,2207 | 132,6829 | 10,54456 | 39,36164 | 40,91095 | 18,74879 |
| 129 | -27,13565934 | 1392,262214 | 0,045147371 | 0,239176989 | 1 | 10971075,46 | 0,014064842 | 132,015396 | 124,2156 | 132,6823 | 10,54381 | 39,35898 | 40,90816 | 18,74752 |
| 130 | -27,06454325 | 1392,521441 | 0,045327323 | 0,239176989 | 1 | 10985413,48 | 0,014064842 | 132,015499 | 124,2104 | 132,6816 | 10,54307 | 39,35632 | 40,90537 | 18,74624 |
| 131 | -26,99323775 | 1392,780757 | 0,045508795 | 0,239176989 | 1 | 10999766,07 | 0,014064842 | 132,015603 | 124,2051 | 132,6809 | 10,54232 | 39,35365 | 40,90256 | 18,74495 |
| 132 | -26,9217372 | 1393,041271 | 0,045691807 | 0,239176989 | 1 | 11014133,23 | 0,014064842 | 132,015707 | 124,1997 | 132,6803 | 10,54158 | 39,35097 | 40,89975 | 18,74367 |
| 133 | -26,85004573 | 1393,302177 | 0,045876377 | 0,239176989 | 1 | 11028514,96 | 0,014064842 | 132,015812 | 124,1942 | 132,6796 | 10,54083 | 39,34829 | 40,89693 | 18,74238 |
| 134 | -26,77816323 | 1393,563647 | 0,046062527 | 0,239176989 | 1 | 11042911,26 | 0,014064842 | 132,015916 | 124,1886 | 132,6789 | 10,54008 | 39,3456 | 40,89411 | 18,74109 |
| 135 | -26,70608856 | 1393,825795 | 0,046250276 | 0,239176989 | 1 | 11057322,14 | 0,014064842 | 132,016021 | 124,183 | 132,6782 | 10,53932 | 39,3429 | 40,89127 | 18,7398 |
| 136 | -26,63382135 | 1394,08876 | 0,046439647 | 0,239176989 | 1 | 11071747,59 | 0,014064842 | 132,016125 | 124,1772 | 132,6774 | 10,53857 | 39,3402 | 40,88844 | 18,7385 |
| 137 | -26,5613632 | 1394,352186 | 0,046630659 | 0,239176989 | 1 | 11086187,61 | 0,014064842 | 132,01623 | 124,1713 | 132,6767 | 10,53781 | 39,33749 | 40,88559 | 18,7372 |
| 138 | -26,48871158 | 1394,616675 | 0,046823335 | 0,239176989 | 1 | 11100642,21 | 0,014064842 | 132,016335 | 124,1654 | 132,6759 | 10,53705 | 39,33478 | 40,88274 | 18,7359 |
| 139 | -26,41587084 | 1394,88141 | 0,047017697 | 0,239176989 | 1 | 11115111,37 | 0,014064842 | 132,016441 | 124,1593 | 132,6752 | 10,53629 | 39,33205 | 40,87988 | 18,73459 |
| 140 | -26,3428379 | 1395,14695 | 0,047213767 | 0,239176989 | 1 | 11129595,12 | 0,014064842 | 132,016546 | 124,1531 | 132,6744 | 10,53553 | 39,32933 | 40,87702 | 18,73328 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 141 | -26,26961467 | 1395,412928 | 0,047411569 | 0,239176989 | 1 | 11144093,44 | 0,014064842 | 132,016652 | 124,1469 | 132,6736 | 10,53477 | 39,32659 | 40,87414 | 18,73197 |
| 142 | -26,19619873 | 1395,679908 | 0,047611124 | 0,239176989 | 1 | 11158606,33 | 0,014064842 | 132,016757 | 124,1405 | 132,6728 | 10,534 | 39,32385 | 40,87127 | 18,73065 |
| 143 | -26,12259202 | 1395,947512 | 0,047812457 | 0,239176989 | 1 | 11173133,8 | 0,014064842 | 132,016863 | 124,134 | 132,672 | 10,53324 | 39,32111 | 40,86839 | 18,72934 |
| 144 | -26,04879638 | 1396,21535 | 0,048015592 | 0,239176989 | 1 | 11187675,85 | 0,014064842 | 132,016969 | 124,1274 | 132,6712 | 10,53247 | 39,31835 | 40,86549 | 18,72801 |
| 145 | -25,97480904 | 1396,483943 | 0,048220554 | 0,239176989 | 1 | 11202232,47 | 0,014064842 | 132,017076 | 124,1207 | 132,6703 | 10,5317 | 39,31559 | 40,86259 | 18,72669 |
| 146 | -25,90063035 | 1396,753375 | 0,048427367 | 0,239176989 | 1 | 11216803,68 | 0,014064842 | 132,017182 | 124,1138 | 132,6695 | 10,53092 | 39,31282 | 40,85969 | 18,72536 |
| 147 | -25,82625975 | 1397,023681 | 0,048636057 | 0,239176989 | 1 | 11231389,46 | 0,014064842 | 132,017288 | 124,1069 | 132,6686 | 10,53015 | 39,31006 | 40,85678 | 18,72403 |
| 148 | -25,75170208 | 1397,29403 | 0,048846649 | 0,239176989 | 1 | 11245989,82 | 0,014064842 | 132,017395 | 124,0998 | 132,6677 | 10,52938 | 39,30727 | 40,85386 | 18,7227 |
| 149 | -25,67694956 | 1397,565762 | 0,049059171 | 0,239176989 | 1 | 11260604,75 | 0,014064842 | 132,017502 | 124,0926 | 132,6668 | 10,5286 | 39,3045 | 40,85095 | 18,72137 |
| 150 | -25,60200997 | 1397,837619 | 0,049273648 | 0,239176989 | 1 | 11275234,27 | 0,014064842 | 132,017609 | 124,0853 | 132,6659 | 10,52782 | 39,30171 | 40,84801 | 18,72002 |
| 151 | -25,52688033 | 1398,110039 | 0,049490109 | 0,239176989 | 1 | 11289878,37 | 0,014064842 | 132,017716 | 124,0779 | 132,6649 | 10,52704 | 39,2989 | 40,84507 | 18,71868 |
| 152 | -25,45155895 | 1398,383503 | 0,04970858 | 0,239176989 | 1 | 11304537,06 | 0,014064842 | 132,017823 | 124,0703 | 132,664 | 10,52626 | 39,29611 | 40,84213 | 18,71734 |
| 153 | -25,37604967 | 1398,657102 | 0,049929092 | 0,239176989 | 1 | 11319210,32 | 0,014064842 | 132,017931 | 124,0626 | 132,663 | 10,52547 | 39,29329 | 40,83918 | 18,71599 |
| 154 | -25,30034887 | 1398,93175 | 0,050151671 | 0,239176989 | 1 | 11333898,17 | 0,014064842 | 132,018039 | 124,0548 | 132,662 | 10,52469 | 39,29048 | 40,83622 | 18,71464 |
| 155 | -25,2244585 | 1399,206976 | 0,050376349 | 0,239176989 | 1 | 11348600,6 | 0,014064842 | 132,018146 | 124,0468 | 132,661 | 10,5239 | 39,28766 | 40,83326 | 18,71328 |
| 156 | -25,14837889 | 1399,482769 | 0,050603154 | 0,239176989 | 1 | 11363317,62 | 0,014064842 | 132,018254 | 124,0387 | 132,66 | 10,52311 | 39,28483 | 40,83029 | 18,71193 |
| 157 | -25,07211011 | 1399,759094 | 0,050832118 | 0,239176989 | 1 | 11378049,22 | 0,014064842 | 132,018362 | 124,0304 | 132,6589 | 10,52232 | 39,282 | 40,82732 | 18,71057 |
| 158 | -24,99565065 | 1400,036365 | 0,051063272 | 0,239176989 | 1 | 11392795,41 | 0,014064842 | 132,01847 | 124,022 | 132,6579 | 10,52153 | 39,27916 | 40,82434 | 18,7092 |
| 159 | -24,91900274 | 1400,314091 | 0,051296647 | 0,239176989 | 1 | 11407556,18 | 0,014064842 | 132,018579 | 124,0135 | 132,6568 | 10,52074 | 39,27632 | 40,82135 | 18,70784 |
| 160 | -24,84216681 | 1400,592224 | 0,051532276 | 0,239176989 | 1 | 11422331,55 | 0,014064842 | 132,018687 | 124,0048 | 132,6557 | 10,51994 | 39,27346 | 40,81835 | 18,70647 |
| 161 | -24,76513906 | 1400,871553 | 0,051770192 | 0,239176989 | 1 | 11437121,5 | 0,014064842 | 132,018796 | 123,996 | 132,6546 | 10,51914 | 39,27061 | 40,81536 | 18,7051 |
| 162 | -24,68792385 | 1401,151135 | 0,052010428 | 0,239176989 | 1 | 11451926,04 | 0,014064842 | 132,018905 | 123,987 | 132,6535 | 10,51834 | 39,26774 | 40,81235 | 18,70373 |
| 163 | -24,61052007 | 1401,431335 | 0,05225302 | 0,239176989 | 1 | 11466745,18 | 0,014064842 | 132,019014 | 123,9778 | 132,6523 | 10,51754 | 39,26487 | 40,80934 | 18,70235 |
| 164 | -24,53292565 | 1401,712455 | 0,052498001 | 0,239176989 | 1 | 11481578,9 | 0,014064842 | 132,019123 | 123,9685 | 132,6512 | 10,51674 | 39,262 | 40,80632 | 18,70097 |
| 165 | -24,4551441 | 1401,99401 | 0,052745409 | 0,239176989 | 1 | 11496427,22 | 0,014064842 | 132,019232 | 123,9591 | 132,65 | 10,51594 | 39,25912 | 40,8033 | 18,69959 |
| 166 | -24,37717556 | 1402,275863 | 0,052995279 | 0,239176989 | 1 | 11511290,14 | 0,014064842 | 132,019341 | 123,9494 | 132,6488 | 10,51513 | 39,25622 | 40,80026 | 18,6982 |
| 167 | -24,2990165 | 1402,558718 | 0,053247648 | 0,239176989 | 1 | 11526167,65 | 0,014064842 | 132,019451 | 123,9396 | 132,6475 | 10,51432 | 39,25333 | 40,79722 | 18,69681 |
| 168 | -24,22067021 | 1402,842047 | 0,053502555 | 0,239176989 | 1 | 11541059,75 | 0,014064842 | 132,019561 | 123,9296 | 132,6463 | 10,51351 | 39,25043 | 40,79417 | 18,69542 |
| 169 | -24,14213495 | 1403,126092 | 0,053760038 | 0,239176989 | 1 | 11555966,46 | 0,014064842 | 132,01967 | 123,9195 | 132,645 | 10,5127 | 39,24752 | 40,79112 | 18,69402 |
| 170 | -24,06341231 | 1403,410732 | 0,054020136 | 0,239176989 | 1 | 11570887,76 | 0,014064842 | 132,01978 | 123,9091 | 132,6437 | 10,51189 | 39,24461 | 40,78806 | 18,69262 |
| 171 | -23,98450021 | 1403,696155 | 0,054282891 | 0,239176989 | 1 | 11585823,67 | 0,014064842 | 132,01989 | 123,8986 | 132,6424 | 10,51108 | 39,24169 | 40,785 | 18,69123 |
| 172 | -23,90540031 | 1403,982216 | 0,054548342 | 0,239176989 | 1 | 11600774,17 | 0,014064842 | 132,020001 | 123,8879 | 132,6411 | 10,51026 | 39,23877 | 40,78193 | 18,68982 |
| 173 | -23,82611365 | 1404,268725 | 0,054816533 | 0,239176989 | 1 | 11615739,28 | 0,014064842 | 132,020111 | 123,877 | 132,6397 | 10,50945 | 39,23584 | 40,77886 | 18,68842 |
| 174 | -23,74663897 | 1404,555865 | 0,055087506 | 0,239176989 | 1 | 11630719 | 0,014064842 | 132,020221 | 123,8659 | 132,6383 | 10,50863 | 39,23291 | 40,77577 | 18,68701 |
| 175 | -23,66697575 | 1404,843838 | 0,055361305 | 0,239176989 | 1 | 11645713,32 | 0,014064842 | 132,020332 | 123,8546 | 132,6369 | 10,50781 | 39,22997 | 40,77269 | 18,6856 |
| 176 | -23,58712752 | 1405,132035 | 0,055637974 | 0,239176989 | 1 | 11660722,25 | 0,014064842 | 132,020443 | 123,843 | 132,6355 | 10,50698 | 39,22701 | 40,76959 | 18,68418 |
| 177 | -23,50708888 | 1405,421369 | 0,05591756 | 0,239176989 | 1 | 11675745,8 | 0,014064842 | 132,020554 | 123,8313 | 132,6341 | 10,50616 | 39,22407 | 40,76649 | 18,68277 |
| 178 | -23,42686559 | 1405,710819 | 0,056200109 | 0,239176989 | 1 | 11690783,95 | 0,014064842 | 132,020665 | 123,8194 | 132,6326 | 10,50534 | 39,2211 | 40,76338 | 18,68134 |
| 179 | -23,34645289 | 1406,001288 | 0,056485668 | 0,239176989 | 1 | 11705836,72 | 0,014064842 | 132,020776 | 123,8073 | 132,6311 | 10,50451 | 39,21814 | 40,76027 | 18,67992 |
| 180 | -23,26585462 | 1406,292126 | 0,056774286 | 0,239176989 | 1 | 11720904,1 | 0,014064842 | 132,020887 | 123,7949 | 132,6296 | 10,50368 | 39,21517 | 40,75715 | 18,6785 |
| 181 | -23,18506793 | 1406,583793 | 0,057066014 | 0,239176989 | 1 | 11735986,1 | 0,014064842 | 132,020998 | 123,7823 | 132,628 | 10,50285 | 39,21219 | 40,75403 | 18,67707 |
| 182 | -23,10409519 | 1406,876025 | 0,057360901 | 0,239176989 | 1 | 11751082,72 | 0,014064842 | 132,02111 | 123,7695 | 132,6265 | 10,50202 | 39,20921 | 40,7509 | 18,67564 |
| 183 | -23,02293548 | 1407,168848 | 0,057659 | 0,239176989 | 1 | 11766193,97 | 0,014064842 | 132,021222 | 123,7564 | 132,6249 | 10,50119 | 39,20622 | 40,74776 | 18,6742 |
| 184 | -22,94158936 | 1407,462354 | 0,057960363 | 0,239176989 | 1 | 11781319,83 | 0,014064842 | 132,021333 | 123,7431 | 132,6232 | 10,50035 | 39,20323 | 40,74462 | 18,67277 |
| 185 | -22,86005781 | 1407,756148 | 0,058265046 | 0,239176989 | 1 | 11796460,33 | 0,014064842 | 132,021445 | 123,7296 | 132,6216 | 10,49952 | 39,20022 | 40,74146 | 18,67133 |
| 186 | -22,77833929 | 1408,050649 | 0,058573103 | 0,239176989 | 1 | 11811615,45 | 0,014064842 | 132,021557 | 123,7158 | 132,6199 | 10,49868 | 39,19721 | 40,7383 | 18,66988 |
| 187 | -22,69643227 | 1408,346246 | 0,058884591 | 0,239176989 | 1 | 11826785,2 | 0,014064842 | 132,021669 | 123,7018 | 132,6182 | 10,49784 | 39,19421 | 40,73515 | 18,66844 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 188 | -22,61434235 | 1408,641779 | 0,059199568 | 0,239176989 | 1 | 11841969,59 | 0,014064842 | 132,021782 | 123,6874 | 132,6165 | 10,497 | 39,19118 | 40,73197 | 18,66699 |
| 189 | -22,532064 | 1408,938329 | 0,059518094 | 0,239176989 | 1 | 11857168,62 | 0,014064842 | 132,021894 | 123,6729 | 132,6147 | 10,49615 | 39,18816 | 40,7288 | 18,66554 |
| 190 | -22,44959996 | 1409,235496 | 0,059840229 | 0,239176989 | 1 | 11872382,28 | 0,014064842 | 132,022007 | 123,658 | 132,6129 | 10,49531 | 39,18513 | 40,72562 | 18,66409 |
| 191 | -22,36695027 | 1409,533184 | 0,060166035 | 0,239176989 | 1 | 11887610,58 | 0,014064842 | 132,022119 | 123,6429 | 132,6111 | 10,49446 | 39,1821 | 40,72244 | 18,66263 |
| 192 | -22,28411378 | 1409,83168 | 0,060495576 | 0,239176989 | 1 | 11902853,54 | 0,014064842 | 132,022232 | 123,6274 | 132,6092 | 10,49362 | 39,17906 | 40,71925 | 18,66117 |
| 193 | -22,20109255 | 1410,130479 | 0,060828916 | 0,239176989 | 1 | 11918111,13 | 0,014064842 | 132,022345 | 123,6117 | 132,6073 | 10,49277 | 39,17601 | 40,71605 | 18,65971 |
| 194 | -22,11788428 | 1410,430222 | 0,061166123 | 0,239176989 | 1 | 11933383,38 | 0,014064842 | 132,022458 | 123,5957 | 132,6054 | 10,49192 | 39,17296 | 40,71285 | 18,65825 |
| 195 | -22,03449148 | 1410,730384 | 0,061507263 | 0,239176989 | 1 | 11948670,29 | 0,014064842 | 132,022571 | 123,5794 | 132,6035 | 10,49107 | 39,1699 | 40,70964 | 18,65678 |
| 196 | -21,9509132 | 1411,031153 | 0,061852407 | 0,239176989 | 1 | 11963971,85 | 0,014064842 | 132,022684 | 123,5628 | 132,6015 | 10,49021 | 39,16684 | 40,70642 | 18,65531 |
| 197 | -21,86714862 | 1411,332691 | 0,062201626 | 0,239176989 | 1 | 11979288,08 | 0,014064842 | 132,022798 | 123,5458 | 132,5995 | 10,48936 | 39,16377 | 40,7032 | 18,65384 |
| 198 | -21,7831989 | 1411,634787 | 0,062554993 | 0,239176989 | 1 | 11994618,97 | 0,014064842 | 132,022911 | 123,5285 | 132,5974 | 10,4885 | 39,1607 | 40,69998 | 18,65236 |
| 199 | -21,6990631 | 1411,937533 | 0,062912582 | 0,239176989 | 1 | 12009964,53 | 0,014064842 | 132,023025 | 123,5109 | 132,5953 | 10,48764 | 39,15762 | 40,69674 | 18,65089 |
| 200 | -21,6147439 | 1412,240758 | 0,063274471 | 0,239176989 | 1 | 12025324,76 | 0,014064842 | 132,023138 | 123,4929 | 132,5932 | 10,48678 | 39,15453 | 40,6935 | 18,6494 |
| 201 | -21,5302418 | 1412,544127 | 0,063640737 | 0,239176989 | 1 | 12040699,67 | 0,014064842 | 132,023252 | 123,4746 | 132,5911 | 10,48592 | 39,15143 | 40,69025 | 18,64792 |
| 202 | -21,44555104 | 1412,848715 | 0,064011461 | 0,239176989 | 1 | 12056089,26 | 0,014064842 | 132,023366 | 123,4559 | 132,5889 | 10,48506 | 39,14833 | 40,687 | 18,64643 |
| 203 | -21,36067563 | 1413,153874 | 0,064386726 | 0,239176989 | 1 | 12071493,54 | 0,014064842 | 132,02348 | 123,4369 | 132,5867 | 10,48419 | 39,14523 | 40,68374 | 18,64494 |
| 204 | -21,27561568 | 1413,459603 | 0,064766615 | 0,239176989 | 1 | 12086912,51 | 0,014064842 | 132,023594 | 123,4175 | 132,5844 | 10,48333 | 39,14213 | 40,68048 | 18,64345 |
| 205 | -21,19037151 | 1413,765879 | 0,065151215 | 0,239176989 | 1 | 12102346,17 | 0,014064842 | 132,023708 | 123,3976 | 132,5821 | 10,48246 | 39,13901 | 40,67721 | 18,64196 |
| 206 | -21,10494334 | 1414,072634 | 0,065540615 | 0,239176989 | 1 | 12117794,53 | 0,014064842 | 132,023823 | 123,3774 | 132,5798 | 10,48159 | 39,13589 | 40,67394 | 18,64046 |
| 207 | -21,0193295 | 1414,380092 | 0,065934906 | 0,239176989 | 1 | 12133257,6 | 0,014064842 | 132,023937 | 123,3568 | 132,5774 | 10,48072 | 39,13276 | 40,67066 | 18,63896 |
| 208 | -20,93353128 | 1414,68818 | 0,06633418 | 0,239176989 | 1 | 12148735,38 | 0,014064842 | 132,024052 | 123,3358 | 132,575 | 10,47985 | 39,12963 | 40,66737 | 18,63746 |
| 209 | -20,84754958 | 1414,996763 | 0,066738534 | 0,239176989 | 1 | 12164227,87 | 0,014064842 | 132,024167 | 123,3143 | 132,5726 | 10,47897 | 39,12649 | 40,66407 | 18,63595 |
| 210 | -20,76138117 | 1415,30628 | 0,067148065 | 0,239176989 | 1 | 12179735,08 | 0,014064842 | 132,024281 | 123,2924 | 132,5701 | 10,4781 | 39,12335 | 40,66078 | 18,63445 |
| 211 | -20,67503159 | 1415,615938 | 0,067562874 | 0,239176989 | 1 | 12195257,03 | 0,014064842 | 132,024396 | 123,27 | 132,5675 | 10,47722 | 39,1202 | 40,65747 | 18,63293 |
| 212 | -20,58849592 | 1415,926415 | 0,067983065 | 0,239176989 | 1 | 12210793,7 | 0,014064842 | 132,024511 | 123,2472 | 132,565 | 10,47634 | 39,11705 | 40,65416 | 18,63142 |
| 213 | -20,50177619 | 1416,237487 | 0,068408742 | 0,239176989 | 1 | 12226345,12 | 0,014064842 | 132,024626 | 123,2239 | 132,5623 | 10,47546 | 39,11389 | 40,65085 | 18,62991 |
| 214 | -20,41487274 | 1416,549211 | 0,068840015 | 0,239176989 | 1 | 12241911,28 | 0,014064842 | 132,024741 | 123,2001 | 132,5597 | 10,47458 | 39,11072 | 40,64753 | 18,62839 |
| 215 | -20,3277844 | 1416,861485 | 0,069276996 | 0,239176989 | 1 | 12257492,19 | 0,014064842 | 132,024857 | 123,1759 | 132,557 | 10,4737 | 39,10755 | 40,6442 | 18,62687 |
| 216 | -20,24051272 | 1417,174361 | 0,069719799 | 0,239176989 | 1 | 12273087,86 | 0,014064842 | 132,024972 | 123,1511 | 132,5542 | 10,47282 | 39,10438 | 40,64087 | 18,62534 |
| 217 | -20,15305609 | 1417,488043 | 0,070168541 | 0,239176989 | 1 | 12288698,3 | 0,014064842 | 132,025088 | 123,1257 | 132,5514 | 10,47193 | 39,1012 | 40,63753 | 18,62382 |
| 218 | -20,06541867 | 1417,8018 | 0,070623344 | 0,239176989 | 1 | 12304323,52 | 0,014064842 | 132,025203 | 123,0999 | 132,5486 | 10,47104 | 39,098 | 40,63418 | 18,62229 |
| 219 | -19,97759411 | 1418,116685 | 0,071084332 | 0,239176989 | 1 | 12319963,51 | 0,014064842 | 132,025319 | 123,0735 | 132,5457 | 10,47016 | 39,09482 | 40,63083 | 18,62076 |
| 220 | -19,88958692 | 1418,431887 | 0,071551633 | 0,239176989 | 1 | 12335618,3 | 0,014064842 | 132,025435 | 123,0465 | 132,5428 | 10,46926 | 39,09162 | 40,62748 | 18,61922 |
| 221 | -19,80139555 | 1418,747827 | 0,072025377 | 0,239176989 | 1 | 12351287,88 | 0,014064842 | 132,025551 | 123,0189 | 132,5398 | 10,46837 | 39,08842 | 40,62412 | 18,61769 |
| 222 | -19,71302153 | 1419,064231 | 0,0725057 | 0,239176989 | 1 | 12366972,27 | 0,014064842 | 132,025667 | 122,9907 | 132,5367 | 10,46748 | 39,08521 | 40,62075 | 18,61615 |
| 223 | -19,62446288 | 1419,381358 | 0,07299274 | 0,239176989 | 1 | 12382671,48 | 0,014064842 | 132,025783 | 122,9619 | 132,5337 | 10,46659 | 39,08199 | 40,61738 | 18,61461 |
| 224 | -19,53572167 | 1419,698858 | 0,07348664 | 0,239176989 | 1 | 12398385,51 | 0,014064842 | 132,025899 | 122,9325 | 132,5305 | 10,46569 | 39,07877 | 40,61399 | 18,61306 |
| 225 | -19,44679698 | 1420,016942 | 0,073987546 | 0,239176989 | 1 | 12414114,38 | 0,014064842 | 132,026015 | 122,9024 | 132,5273 | 10,46479 | 39,07554 | 40,61061 | 18,61151 |
| 226 | -19,35768828 | 1420,335773 | 0,074495609 | 0,239176989 | 1 | 12429858,09 | 0,014064842 | 132,026132 | 122,8717 | 132,5241 | 10,46389 | 39,07231 | 40,60722 | 18,60996 |
| 227 | -19,26839492 | 1420,655435 | 0,075010985 | 0,239176989 | 1 | 12445616,65 | 0,014064842 | 132,026248 | 122,8402 | 132,5208 | 10,46299 | 39,06908 | 40,60383 | 18,60841 |
| 228 | -19,1789194 | 1420,975354 | 0,075533834 | 0,239176989 | 1 | 12461390,08 | 0,014064842 | 132,026365 | 122,808 | 132,5175 | 10,46209 | 39,06583 | 40,60042 | 18,60686 |
| 229 | -19,08925918 | 1421,296152 | 0,076064319 | 0,239176989 | 1 | 12477178,39 | 0,014064842 | 132,026481 | 122,7751 | 132,5141 | 10,46119 | 39,06259 | 40,59702 | 18,6053 |
| 230 | -18,99941754 | 1421,61718 | 0,07660261 | 0,239176989 | 1 | 12492981,58 | 0,014064842 | 132,026598 | 122,7415 | 132,5106 | 10,46028 | 39,05933 | 40,5936 | 18,60374 |
| 231 | -18,90939162 | 1421,938867 | 0,077148882 | 0,239176989 | 1 | 12508799,68 | 0,014064842 | 132,026715 | 122,707 | 132,5071 | 10,45937 | 39,05607 | 40,59018 | 18,60217 |
| 232 | -18,81918335 | 1422,261131 | 0,077703314 | 0,239176989 | 1 | 12524632,68 | 0,014064842 | 132,026832 | 122,6718 | 132,5035 | 10,45846 | 39,05281 | 40,58675 | 18,60061 |
| 233 | -18,72878972 | 1422,584204 | 0,078266092 | 0,239176989 | 1 | 12540480,61 | 0,014064842 | 132,026949 | 122,6357 | 132,4999 | 10,45756 | 39,04954 | 40,58333 | 18,59904 |
| 234 | -18,63821335 | 1422,907886 | 0,078837405 | 0,239176989 | 1 | 12556343,48 | 0,014064842 | 132,027066 | 122,5988 | 132,4962 | 10,45665 | 39,04627 | 40,5799 | 18,59747 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 235 | -18,54745542 | 1423,231774 | 0,079417452 | 0,239176989 | 1 | 12572221,29 | 0,014064842 | 132,027183 | 122,5609 | 132,4924 | 10,45573 | 39,04298 | 40,57645 | 18,5959 |
| 236 | -18,45651212 | 1423,556563 | 0,080006433 | 0,239176989 | 1 | 12588114,08 | 0,014064842 | 132,0273 | 122,5222 | 132,4886 | 10,45482 | 39,0397 | 40,573 | 18,59432 |
| 237 | -18,3653867 | 1423,881834 | 0,080604559 | 0,239176989 | 1 | 12604021,84 | 0,014064842 | 132,027418 | 122,4826 | 132,4847 | 10,4539 | 39,03641 | 40,56955 | 18,59274 |
| 238 | -18,27407525 | 1424,208055 | 0,081212046 | 0,239176989 | 1 | 12619944,59 | 0,014064842 | 132,027535 | 122,4419 | 132,4808 | 10,45299 | 39,03312 | 40,5661 | 18,59117 |
| 239 | -18,18258167 | 1424,534665 | 0,081829115 | 0,239176989 | 1 | 12635882,36 | 0,014064842 | 132,027653 | 122,4003 | 132,4768 | 10,45207 | 39,02982 | 40,56264 | 18,58958 |
| 240 | -18,09090716 | 1424,861579 | 0,082455996 | 0,239176989 | 1 | 12651835,15 | 0,014064842 | 132,02777 | 122,3576 | 132,4727 | 10,45115 | 39,02651 | 40,55916 | 18,588 |
| 241 | -17,99904911 | 1425,189038 | 0,083092926 | 0,239176989 | 1 | 12667802,99 | 0,014064842 | 132,027888 | 122,3139 | 132,4686 | 10,45023 | 39,0232 | 40,55569 | 18,5864 |
| 242 | -17,90700615 | 1425,517266 | 0,083740151 | 0,239176989 | 1 | 12683785,89 | 0,014064842 | 132,028006 | 122,2691 | 132,4644 | 10,4493 | 39,01988 | 40,5522 | 18,58481 |
| 243 | -17,81477814 | 1425,846473 | 0,084397923 | 0,239176989 | 1 | 12699783,87 | 0,014064842 | 132,028124 | 122,2231 | 132,4601 | 10,44838 | 39,01656 | 40,54873 | 18,58322 |
| 244 | -17,72236983 | 1426,175633 | 0,085066502 | 0,239176989 | 1 | 12715796,95 | 0,014064842 | 132,028242 | 122,1759 | 132,4558 | 10,44746 | 39,01323 | 40,54523 | 18,58163 |
| 245 | -17,62977592 | 1426,505783 | 0,08574616 | 0,239176989 | 1 | 12731825,14 | 0,014064842 | 132,02836 | 122,1276 | 132,4514 | 10,44653 | 39,0099 | 40,54174 | 18,58003 |
| 246 | -17,53700023 | 1426,836336 | 0,086437175 | 0,239176989 | 1 | 12747868,47 | 0,014064842 | 132,028478 | 122,0779 | 132,4469 | 10,4456 | 39,00656 | 40,53823 | 18,57843 |
| 247 | -17,44403987 | 1427,16747 | 0,087139835 | 0,239176989 | 1 | 12763926,96 | 0,014064842 | 132,028596 | 122,027 | 132,4424 | 10,44467 | 39,00321 | 40,53472 | 18,57682 |
| 248 | -17,35089517 | 1427,49953 | 0,08785444 | 0,239176989 | 1 | 12780000,63 | 0,014064842 | 132,028714 | 121,9747 | 132,4378 | 10,44374 | 38,99987 | 40,53122 | 18,57522 |
| 249 | -17,25756706 | 1427,831978 | 0,088581296 | 0,239176989 | 1 | 12796089,51 | 0,014064842 | 132,028832 | 121,921 | 132,4331 | 10,44281 | 38,99652 | 40,5277 | 18,57361 |
| 250 | -17,1640569 | 1428,164953 | 0,089320725 | 0,239176989 | 1 | 12812193,61 | 0,014064842 | 132,028951 | 121,8658 | 132,4283 | 10,44188 | 38,99316 | 40,52418 | 18,572 |
| 251 | -17,07036357 | 1428,498156 | 0,090073057 | 0,239176989 | 1 | 12828312,97 | 0,014064842 | 132,029069 | 121,8092 | 132,4235 | 10,44094 | 38,98979 | 40,52064 | 18,57038 |
| 252 | -16,97648442 | 1428,832487 | 0,090838633 | 0,239176989 | 1 | 12844447,6 | 0,014064842 | 132,029188 | 121,7509 | 132,4185 | 10,44 | 38,98642 | 40,51711 | 18,56877 |
| 253 | -16,88242309 | 1429,167014 | 0,091617809 | 0,239176989 | 1 | 12860597,53 | 0,014064842 | 132,029307 | 121,6911 | 132,4136 | 10,43906 | 38,98304 | 40,51356 | 18,56715 |
| 254 | -16,78817745 | 1429,5023 | 0,092410952 | 0,239176989 | 1 | 12876762,8 | 0,014064842 | 132,029425 | 121,6296 | 132,4085 | 10,43812 | 38,97966 | 40,51002 | 18,56553 |
| 255 | -16,69374761 | 1429,838172 | 0,093218444 | 0,239176989 | 1 | 12892943,42 | 0,014064842 | 132,029544 | 121,5663 | 132,4033 | 10,43718 | 38,97628 | 40,50647 | 18,5639 |
| 256 | -16,59913284 | 1430,174915 | 0,094040678 | 0,239176989 | 1 | 12909139,44 | 0,014064842 | 132,029663 | 121,5011 | 132,3981 | 10,43624 | 38,97289 | 40,50292 | 18,56228 |
| 257 | -16,50433432 | 1430,512034 | 0,094878066 | 0,239176989 | 1 | 12925350,87 | 0,014064842 | 132,029782 | 121,4341 | 132,3928 | 10,4353 | 38,9695 | 40,49936 | 18,56065 |
| 258 | -16,40935294 | 1430,849553 | 0,09573103 | 0,239176989 | 1 | 12941577,75 | 0,014064842 | 132,029901 | 121,3652 | 132,3874 | 10,43435 | 38,9661 | 40,49578 | 18,55902 |
| 259 | -16,31418711 | 1431,187703 | 0,096600014 | 0,239176989 | 1 | 12957820,12 | 0,014064842 | 132,03002 | 121,2941 | 132,382 | 10,4334 | 38,96269 | 40,49221 | 18,55739 |
| 260 | -16,21883631 | 1431,526575 | 0,097485474 | 0,239176989 | 1 | 12974078,01 | 0,014064842 | 132,030139 | 121,221 | 132,3764 | 10,43246 | 38,95928 | 40,48863 | 18,55575 |
| 261 | -16,12330069 | 1431,86607 | 0,098387887 | 0,239176989 | 1 | 12990351,45 | 0,014064842 | 132,030259 | 121,1456 | 132,3708 | 10,43151 | 38,95586 | 40,48505 | 18,55411 |
| 262 | -16,02758486 | 1432,205635 | 0,099307746 | 0,239176989 | 1 | 13006640,49 | 0,014064842 | 132,030378 | 121,0678 | 132,3651 | 10,43055 | 38,95243 | 40,48145 | 18,55247 |
| 263 | -15,93167969 | 1432,5464 | 0,100245565 | 0,239176989 | 1 | 13022945,15 | 0,014064842 | 132,030497 | 120,9877 | 132,3593 | 10,4296 | 38,94901 | 40,47786 | 18,55083 |
| 264 | -15,83559202 | 1432,887493 | 0,101201879 | 0,239176989 | 1 | 13039265,49 | 0,014064842 | 132,030617 | 120,905 | 132,3535 | 10,42865 | 38,94558 | 40,47426 | 18,54918 |
| 265 | -15,73931816 | 1433,229326 | 0,102177243 | 0,239176989 | 1 | 13055601,54 | 0,014064842 | 132,030736 | 120,8197 | 132,3475 | 10,4277 | 38,94214 | 40,47066 | 18,54753 |
| 266 | -15,64286156 | 1433,571429 | 0,103172235 | 0,239176989 | 1 | 13071953,35 | 0,014064842 | 132,030856 | 120,7317 | 132,3415 | 10,42674 | 38,93869 | 40,46704 | 18,54588 |
| 267 | -15,54621946 | 1433,914369 | 0,104187457 | 0,239176989 | 1 | 13088320,97 | 0,014064842 | 132,030976 | 120,6407 | 132,3354 | 10,42578 | 38,93525 | 40,46343 | 18,54423 |
| 268 | -15,44939189 | 1434,257934 | 0,105223537 | 0,239176989 | 1 | 13104704,43 | 0,014064842 | 132,031095 | 120,5467 | 132,3292 | 10,42482 | 38,93179 | 40,45981 | 18,54257 |
| 269 | -15,35238075 | 1434,601788 | 0,106281126 | 0,239176989 | 1 | 13121103,8 | 0,014064842 | 132,031215 | 120,4496 | 132,3229 | 10,42386 | 38,92833 | 40,45617 | 18,54091 |
| 270 | -15,25518306 | 1434,946696 | 0,107360907 | 0,239176989 | 1 | 13137519,11 | 0,014064842 | 132,031335 | 120,3492 | 132,3166 | 10,4229 | 38,92487 | 40,45255 | 18,53925 |
| 271 | -15,15780219 | 1435,291646 | 0,108463589 | 0,239176989 | 1 | 13153950,44 | 0,014064842 | 132,031455 | 120,2452 | 132,3102 | 10,42193 | 38,9214 | 40,4489 | 18,53759 |
| 272 | -15,06023382 | 1435,63772 | 0,109589913 | 0,239176989 | 1 | 13170397,83 | 0,014064842 | 132,031575 | 120,1376 | 132,3037 | 10,42097 | 38,91793 | 40,44527 | 18,53593 |
| 273 | -14,962483 | 1435,983951 | 0,110740653 | 0,239176989 | 1 | 13186861,33 | 0,014064842 | 132,031695 | 120,0262 | 132,2971 | 10,42 | 38,91445 | 40,44161 | 18,53426 |
| 274 | -14,86454783 | 1436,330732 | 0,111916615 | 0,239176989 | 1 | 13203341,02 | 0,014064842 | 132,031815 | 119,9108 | 132,2904 | 10,41903 | 38,91096 | 40,43795 | 18,53258 |
| 275 | -14,76642529 | 1436,678395 | 0,113118644 | 0,239176989 | 1 | 13219836,96 | 0,014064842 | 132,031936 | 119,7911 | 132,2837 | 10,41806 | 38,90747 | 40,4343 | 18,53091 |
| 276 | -14,66811944 | 1437,026357 | 0,114347622 | 0,239176989 | 1 | 13236349,21 | 0,014064842 | 132,032056 | 119,6669 | 132,2769 | 10,41709 | 38,90397 | 40,43063 | 18,52923 |
| 277 | -14,56962711 | 1437,375138 | 0,115604471 | 0,239176989 | 1 | 13252877,85 | 0,014064842 | 132,032176 | 119,538 | 132,2701 | 10,41612 | 38,90048 | 40,42696 | 18,52756 |
| 278 | -14,4709519 | 1437,724256 | 0,116890156 | 0,239176989 | 1 | 13269422,94 | 0,014064842 | 132,032297 | 119,4042 | 132,2632 | 10,41515 | 38,89697 | 40,42328 | 18,52587 |
| 279 | -14,37209033 | 1438,074201 | 0,118205689 | 0,239176989 | 1 | 13285984,56 | 0,014064842 | 132,032417 | 119,2651 | 132,2562 | 10,41417 | 38,89346 | 40,4196 | 18,52419 |
| 280 | -14,273046 | 1438,424477 | 0,119552127 | 0,239176989 | 1 | 13302562,79 | 0,014064842 | 132,032538 | 119,1204 | 132,2492 | 10,4132 | 38,88994 | 40,41591 | 18,5225 |
| 281 | -14,1738161 | 1438,775529 | 0,12093058 | 0,239176989 | 1 | 13319157,72 | 0,014064842 | 132,032658 | 118,9698 | 132,2421 | 10,41222 | 38,88642 | 40,41222 | 18,52082 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 282 | -14,07440078 | 1439,127453 | 0,122342212 | 0,239176989 | 1 | 13335769,43 | 0,014064842 | 132,032779 | 118,813 | 132,2349 | 10,41124 | 38,8829 | 40,40853 | 18,51913 |
| 283 | -13,97480437 | 1439,479474 | 0,123788243 | 0,239176989 | 1 | 13352398,02 | 0,014064842 | 132,0329 | 118,6496 | 132,2277 | 10,41026 | 38,87937 | 40,40483 | 18,51744 |
| 284 | -13,87502206 | 1439,83242 | 0,125269957 | 0,239176989 | 1 | 13369043,57 | 0,014064842 | 132,03302 | 118,4792 | 132,2205 | 10,40928 | 38,87584 | 40,40112 | 18,51574 |
| 285 | -13,77506062 | 1440,185466 | 0,126788699 | 0,239176989 | 1 | 13385706,2 | 0,014064842 | 132,033141 | 118,3012 | 132,2133 | 10,4083 | 38,87229 | 40,3974 | 18,51404 |
| 286 | -13,67491298 | 1440,539578 | 0,128345886 | 0,239176989 | 1 | 13402385,99 | 0,014064842 | 132,033262 | 118,1153 | 132,206 | 10,40731 | 38,86875 | 40,39369 | 18,51235 |
| 287 | -13,57458661 | 1440,89393 | 0,129943007 | 0,239176989 | 1 | 13419083,08 | 0,014064842 | 132,033383 | 117,6765 | 132,1898 | 10,40633 | 38,8652 | 40,38997 | 18,51064 |
| 288 | -13,47407953 | 1441,248687 | 0,13158163 | 0,239176989 | 1 | 13435797,56 | 0,014064842 | 132,033504 | 117,4875 | 132,1834 | 10,40534 | 38,86164 | 40,38623 | 18,50894 |
| 289 | -13,37339062 | 1441,604226 | 0,133263408 | 0,239176989 | 1 | 13452529,56 | 0,014064842 | 132,033625 | 117,2912 | 132,177 | 10,40435 | 38,85808 | 40,3825 | 18,50723 |
| 290 | -13,27252329 | 1441,960474 | 0,134990081 | 0,239176989 | 1 | 13469279,22 | 0,014064842 | 132,033746 | 117,0871 | 132,1706 | 10,40336 | 38,85452 | 40,37877 | 18,50552 |
| 291 | -13,17148026 | 1442,3169 | 0,136763486 | 0,239176989 | 1 | 13486046,65 | 0,014064842 | 132,033867 | 116,8747 | 132,1643 | 10,40237 | 38,85094 | 40,37502 | 18,50381 |
| 292 | -13,07025857 | 1442,674273 | 0,138585561 | 0,239176989 | 1 | 13502832,01 | 0,014064842 | 132,033988 | 116,6533 | 132,158 | 10,40138 | 38,84737 | 40,37127 | 18,5021 |
| 293 | -12,96886362 | 1443,031938 | 0,140458356 | 0,239176989 | 1 | 13519635,44 | 0,014064842 | 132,034109 | 116,4223 | 132,1518 | 10,40039 | 38,84379 | 40,36752 | 18,50038 |
| 294 | -12,86729528 | 1443,390173 | 0,142384036 | 0,239176989 | 1 | 13536457,09 | 0,014064842 | 132,034231 | 116,181 | 132,1456 | 10,39939 | 38,84021 | 40,36376 | 18,49866 |
| 295 | -12,76555582 | 1443,749071 | 0,144364892 | 0,239176989 | 1 | 13553297,13 | 0,014064842 | 132,034352 | 115,9284 | 132,1395 | 10,3984 | 38,83662 | 40,36 | 18,49694 |
| 296 | -12,66365015 | 1444,108538 | 0,146403353 | 0,239176989 | 1 | 13570155,73 | 0,014064842 | 132,034473 | 115,6638 | 132,1335 | 10,3974 | 38,83303 | 40,35624 | 18,49522 |
| 297 | -12,56157812 | 1444,46838 | 0,148501991 | 0,239176989 | 1 | 13587033,08 | 0,014064842 | 132,034595 | 115,386 | 132,1275 | 10,3964 | 38,82944 | 40,35247 | 18,4935 |
| 298 | -12,45934784 | 1444,828241 | 0,150663534 | 0,239176989 | 1 | 13603929,36 | 0,014064842 | 132,034716 | 115,0939 | 132,1217 | 10,3954 | 38,82583 | 40,34868 | 18,49177 |
| 299 | -12,35695464 | 1445,189478 | 0,152890882 | 0,239176989 | 1 | 13620844,78 | 0,014064842 | 132,034837 | 114,7861 | 132,1159 | 10,3944 | 38,82223 | 40,34491 | 18,49004 |
| 300 | -12,2544114 | 1445,550622 | 0,155187115 | 0,239176989 | 1 | 13637779,54 | 0,014064842 | 132,034959 | 114,4611 | 132,1102 | 10,3934 | 38,81862 | 40,34113 | 18,48831 |
| 301 | -12,1517204 | 1445,912032 | 0,15755551 | 0,239176989 | 1 | 13654733,88 | 0,014064842 | 132,03508 | 114,1173 | 132,1047 | 10,3924 | 38,815 | 40,33733 | 18,48658 |
| 302 | -12,04888722 | 1446,274019 | 0,159999558 | 0,239176989 | 1 | 13671708,03 | 0,014064842 | 132,035202 | 113,7526 | 132,0992 | 10,39139 | 38,81139 | 40,33354 | 18,48484 |
| 303 | -11,94591803 | 1446,6365 | 0,162522979 | 0,239176989 | 1 | 13688702,24 | 0,014064842 | 132,035323 | 113,3647 | 132,0939 | 10,39039 | 38,80777 | 40,32974 | 18,48311 |
| 304 | -11,84282092 | 1446,999552 | 0,165129744 | 0,239176989 | 1 | 13705716,78 | 0,014064842 | 132,035444 | 112,9509 | 132,0887 | 10,38939 | 38,80415 | 40,32595 | 18,48137 |
| 305 | -11,7396068 | 1447,362544 | 0,167824097 | 0,239176989 | 1 | 13722751,93 | 0,014064842 | 132,035566 | 112,508 | 132,0837 | 10,38838 | 38,80052 | 40,32215 | 18,47963 |
| 306 | -11,63628223 | 1447,726194 | 0,170610575 | 0,239176989 | 1 | 13739807,98 | 0,014064842 | 132,035687 | 112,0324 | 132,0789 | 10,38737 | 38,7969 | 40,31835 | 18,4779 |
| 307 | -11,53286192 | 1448,090183 | 0,173494038 | 0,239176989 | 1 | 13756885,27 | 0,014064842 | 132,035808 | 111,5194 | 132,0742 | 10,38637 | 38,79327 | 40,31455 | 18,47616 |
| 308 | -11,42936418 | 1448,453906 | 0,176479698 | 0,239176989 | 1 | 13773984,11 | 0,014064842 | 132,035929 | 110,9638 | 132,0697 | 10,38536 | 38,78964 | 40,31074 | 18,47442 |
| 309 | -11,32579796 | 1448,817975 | 0,17957315 | 0,239176989 | 1 | 13791104,87 | 0,014064842 | 132,03605 | 110,3586 | 132,0655 | 10,38435 | 38,78601 | 40,30693 | 18,47268 |
| 310 | -11,22218431 | 1449,182376 | 0,182780408 | 0,239176989 | 1 | 13808247,92 | 0,014064842 | 132,036171 | 109,6957 | 132,0614 | 10,38335 | 38,78238 | 40,30313 | 18,47094 |
| 311 | -11,11854867 | 1449,546531 | 0,186107947 | 0,239176989 | 1 | 13825413,68 | 0,014064842 | 132,036292 | 108,9645 | 132,0576 | 10,38234 | 38,77875 | 40,29932 | 18,4692 |
| 312 | -11,0149121 | 1449,910757 | 0,189562748 | 0,239176989 | 1 | 13842602,56 | 0,014064842 | 132,036413 | 108,1512 | 132,0541 | 10,38134 | 38,77512 | 40,29552 | 18,46746 |
| 313 | -10,91130883 | 1450,274482 | 0,193152346 | 0,239176989 | 1 | 13859815,02 | 0,014064842 | 132,036533 | 107,2381 | 132,0509 | 10,38033 | 38,77149 | 40,29172 | 18,46572 |
| 314 | -10,80776987 | 1450,638189 | 0,196884893 | 0,239176989 | 1 | 13877051,56 | 0,014064842 | 132,036654 | 106,2006 | 132,048 | 10,37932 | 38,76787 | 40,28792 | 18,46399 |
| 315 | -10,70433824 | 1451,001321 | 0,200769216 | 0,239176989 | 1 | 13894312,69 | 0,014064842 | 132,036773 | 105,0042 | 132,0454 | 10,37832 | 38,76426 | 40,28413 | 18,46225 |
| 316 | -10,60106366 | 1451,363719 | 0,20481489 | 0,239176989 | 1 | 13911598,96 | 0,014064842 | 132,036893 | 103,5984 | 132,0431 | 10,37732 | 38,76065 | 40,28034 | 18,46052 |
| 317 | -10,49800082 | 1451,725125 | 0,209032324 | 0,239176989 | 1 | 13928910,98 | 0,014064842 | 132,037012 | 101,9042 | 132,0412 | 10,37632 | 38,75704 | 40,27656 | 18,45879 |
| 317,2 | -10,49002196 | 1446,737464 | 0,209304904 | 0,239176989 | 1 | 13893179,35 | 0,014064842 | 132,025054 | 101,7654 | 132,0291 | 10,36163 | 38,70253 | 40,21982 | 18,4328 |
| 318 | -10,48130935 | 1418,002844 | 0,209316297 | 0,239176989 | 1 | 13681043,55 | 0,014064842 | 131,955763 | 101,6484 | 131,9598 | 10,27737 | 38,38968 | 39,89423 | 18,28364 |
| 319 | -10,47074063 | 1383,134311 | 0,209330143 | 0,239176989 | 1 | 13423094,84 | 0,014064842 | 131,87011 | 101,5042 | 131,8741 | 10,17419 | 38,00657 | 39,49552 | 18,10098 |
| 320 | -10,46046629 | 1349,236719 | 0,209343699 | 0,239176989 | 1 | 13171773,62 | 0,014064842 | 131,785128 | 101,3617 | 131,7891 | 10,0729 | 37,63037 | 39,10402 | 17,92162 |
| 321 | -10,45048288 | 1316,158941 | 0,209355177 | 0,239176989 | 1 | 12925997,84 | 0,014064842 | 131,700505 | 101,2213 | 131,7044 | 9,973081 | 37,25958 | 38,71817 | 17,74485 |
| 322 | -10,44066038 | 1283,853125 | 0,209369842 | 0,239176989 | 1 | 12685465,11 | 0,014064842 | 131,616175 | 101,0797 | 131,62 | 9,874633 | 36,89383 | 38,33757 | 17,57048 |
| 323 | -10,43108286 | 1252,218377 | 0,209382485 | 0,239176989 | 1 | 12449442,58 | 0,014064842 | 131,53192 | 100,9398 | 131,5357 | 9,777286 | 36,5321 | 37,96119 | 17,39804 |
| 324 | -10,4216952 | 1221,229208 | 0,209395277 | 0,239176989 | 1 | 12217776,21 | 0,014064842 | 131,447712 | 100,8002 | 131,4515 | 9,680993 | 36,17423 | 37,58883 | 17,22745 |
| 325 | -10,41251294 | 1190,847095 | 0,209406958 | 0,239176989 | 1 | 11990202,71 | 0,014064842 | 131,363483 | 100,6616 | 131,3672 | 9,585663 | 35,81989 | 37,22015 | 17,05854 |
| 326 | -10,40353882 | 1161,044594 | 0,20941686 | 0,239176989 | 1 | 11766541,09 | 0,014064842 | 131,279188 | 100,5246 | 131,2828 | 9,491237 | 35,46885 | 36,85492 | 16,8912 |
| 327 | -10,39478525 | 1131,801757 | 0,20942396 | 0,239176989 | 1 | 11546664,13 | 0,014064842 | 131,194801 | 100,3896 | 131,1984 | 9,397677 | 35,12097 | 36,493 | 16,72538 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 328 | -10,3860085 | 1103,191054 | 0,209442065 | 0,239176989 | 1 | 11331172,75 | 0,014064842 | 131,110566 | 100,2478 | 131,1141 | 9,30524 | 34,77722 | 36,13538 | 16,56154 |
| 329 | -10,37751696 | 1075,07808 | 0,209453161 | 0,239176989 | 1 | 11119036,78 | 0,014064842 | 131,026124 | 100,1108 | 131,0296 | 9,213523 | 34,43609 | 35,78051 | 16,39894 |
| 330 | -10,36918776 | 1047,500003 | 0,209464145 | 0,239176989 | 1 | 10910573,26 | 0,014064842 | 130,941612 | 99,9741 | 130,9451 | 9,122669 | 34,09813 | 35,42894 | 16,23786 |
| 331 | -10,36101707 | 1020,446397 | 0,209475048 | 0,239176989 | 1 | 10705724,36 | 0,014064842 | 130,857028 | 99,83783 | 130,8605 | 9,032667 | 33,76329 | 35,08063 | 16,07827 |
| 332 | -10,35300634 | 993,9052689 | 0,20948561 | 0,239176989 | 1 | 10504418,86 | 0,014064842 | 130,772365 | 99,70199 | 130,7758 | 8,943504 | 33,43152 | 34,73553 | 15,92015 |
| 333 | -10,34519063 | 967,8514318 | 0,209493302 | 0,239176989 | 1 | 10306480,19 | 0,014064842 | 130,687573 | 99,56833 | 130,6909 | 8,855116 | 33,10259 | 34,3934 | 15,76339 |
| 334 | -10,33744589 | 942,3253574 | 0,209506085 | 0,239176989 | 1 | 10112249,1 | 0,014064842 | 130,602813 | 99,43176 | 130,6061 | 8,767666 | 32,77711 | 34,05486 | 15,60827 |
| 335 | -10,32988614 | 917,2707158 | 0,209516335 | 0,239176989 | 1 | 9921301,419 | 0,014064842 | 130,517934 | 99,2971 | 130,5212 | 8,680986 | 32,45445 | 33,71927 | 15,45451 |
| 336 | -10,32248002 | 892,6891377 | 0,209525856 | 0,239176989 | 1 | 9733669,844 | 0,014064842 | 130,432967 | 99,16329 | 130,4362 | 8,595105 | 32,13472 | 33,38674 | 15,30214 |
| 337 | -10,31521214 | 868,5780002 | 0,20953554 | 0,239176989 | 1 | 9549352,402 | 0,014064842 | 130,347936 | 99,0297 | 130,3511 | 8,510036 | 31,81798 | 33,05732 | 15,1512 |
| 338 | -10,30809889 | 844,9210095 | 0,20954402 | 0,239176989 | 1 | 9368238,361 | 0,014064842 | 130,262814 | 98,89726 | 130,266 | 8,425746 | 31,5041 | 32,73089 | 15,00163 |
| 339 | -10,30110004 | 821,7253649 | 0,209554054 | 0,239176989 | 1 | 9190402,387 | 0,014064842 | 130,177656 | 98,76422 | 130,1808 | 8,342282 | 31,19326 | 32,40763 | 14,8535 |
| 340 | -10,29424686 | 798,9692242 | 0,209563189 | 0,239176989 | 1 | 9015688,282 | 0,014064842 | 130,092416 | 98,63215 | 130,0955 | 8,259591 | 30,88526 | 32,08733 | 14,70674 |
| 341 | -10,28747799 | 776,6686653 | 0,209575937 | 0,239176989 | 1 | 8844240,028 | 0,014064842 | 130,007186 | 98,4982 | 130,0103 | 8,177752 | 30,5804 | 31,77031 | 14,56147 |
| 342 | -10,28001335 | 755,1315178 | 0,209654371 | 0,239176989 | 1 | 8678521,237 | 0,014064842 | 129,923209 | 98,32225 | 129,9262 | 8,097925 | 30,28299 | 31,46106 | 14,41976 |
| 343 | -10,27269454 | 733,9948233 | 0,20973401 | 0,239176989 | 1 | 8515667,746 | 0,014064842 | 129,839145 | 98,14572 | 129,8421 | 8,01882 | 29,98825 | 31,15457 | 14,27932 |
| 344 | -10,26551571 | 713,2551042 | 0,209815223 | 0,239176989 | 1 | 8355665,373 | 0,014064842 | 129,755011 | 97,96834 | 129,7579 | 7,940443 | 29,69619 | 30,85088 | 14,14017 |
| 345 | -10,25847686 | 692,9054943 | 0,209897851 | 0,239176989 | 1 | 8198472,693 | 0,014064842 | 129,670808 | 97,79034 | 129,6736 | 7,86279 | 29,40679 | 30,54997 | 14,00228 |
| 346 | -10,25157135 | 672,9417264 | 0,209982338 | 0,239176989 | 1 | 8044068,596 | 0,014064842 | 129,586548 | 97,61136 | 129,5893 | 7,785866 | 29,12008 | 30,25187 | 13,86568 |
| 347 | -10,24480152 | 653,3553843 | 0,21006832 | 0,239176989 | 1 | 7892398,514 | 0,014064842 | 129,502226 | 97,43172 | 129,5049 | 7,709658 | 28,83602 | 29,95651 | 13,73033 |
| 348 | -10,23816197 | 634,1412717 | 0,210156119 | 0,239176989 | 1 | 7743433,088 | 0,014064842 | 129,41785 | 97,25111 | 129,4205 | 7,634168 | 28,55459 | 29,66392 | 13,59626 |
| 349 | -10,23164581 | 615,2919498 | 0,21024621 | 0,239176989 | 1 | 7597125,247 | 0,014064842 | 129,333418 | 97,06931 | 129,336 | 7,559387 | 28,27579 | 29,37405 | 13,46342 |
| 350 | -10,22524386 | 596,7805483 | 0,210338685 | 0,239176989 | 1 | 7453275,834 | 0,014064842 | 129,248838 | 96,8861 | 129,2514 | 7,485227 | 27,99927 | 29,08657 | 13,33169 |
| 351 | -10,21896564 | 578,6030126 | 0,21043275 | 0,239176989 | 1 | 7311861,516 | 0,014064842 | 129,164116 | 96,70198 | 129,1666 | 7,41169 | 27,72505 | 28,80149 | 13,20105 |
| 352 | -10,21280953 | 560,7619126 | 0,210528596 | 0,239176989 | 1 | 7172911,235 | 0,014064842 | 129,079291 | 96,51692 | 129,0817 | 7,338805 | 27,45324 | 28,51891 | 13,07155 |
| 353 | -10,2067764 | 543,2552089 | 0,210626105 | 0,239176989 | 1 | 7036417,613 | 0,014064842 | 128,994383 | 96,33103 | 128,9967 | 7,266583 | 27,18387 | 28,23888 | 12,94323 |
| 354 | -10,21096194 | 521,8413251 | 0,209673214 | 0,239176989 | 1 | 6868427,493 | 0,014064842 | 128,888261 | 96,84132 | 128,891 | 7,177422 | 26,8513 | 27,89315 | 12,78479 |
| 355 | -10,20586584 | 504,8511292 | 0,209679935 | 0,239176989 | 1 | 6735609,017 | 0,014064842 | 128,802075 | 96,71904 | 128,8048 | 7,105772 | 26,58401 | 27,6153 | 12,65747 |
| 356 | -10,20086324 | 488,1722131 | 0,209686659 | 0,239176989 | 1 | 6605092,372 | 0,014064842 | 128,715739 | 96,59735 | 128,7184 | 7,034731 | 26,31898 | 27,33979 | 12,53121 |
| 357 | -10,19595599 | 471,8070019 | 0,209693232 | 0,239176989 | 1 | 6476903,786 | 0,014064842 | 128,629296 | 96,4764 | 128,6319 | 6,964328 | 26,0563 | 27,06675 | 12,40608 |
| 358 | -10,19111109 | 455,768175 | 0,209703381 | 0,239176989 | 1 | 6351152,461 | 0,014064842 | 128,542844 | 96,35387 | 128,5455 | 6,894637 | 25,79626 | 26,79644 | 12,28221 |
| 359 | -10,1864262 | 440,0082366 | 0,209705795 | 0,239176989 | 1 | 6227465,353 | 0,014064842 | 128,456156 | 96,23709 | 128,4588 | 6,825472 | 25,53816 | 26,52816 | 12,15926 |
| 360 | -10,18180103 | 424,5711435 | 0,20971192 | 0,239176989 | 1 | 6106201,738 | 0,014064842 | 128,369505 | 96,11877 | 128,3721 | 6,757042 | 25,28278 | 26,26271 | 12,03762 |
| 361 | -10,17726707 | 409,4346609 | 0,209717796 | 0,239176989 | 1 | 5987191,114 | 0,014064842 | 128,2828 | 96,00152 | 128,2854 | 6,689271 | 25,02984 | 25,99981 | 11,91713 |
| 361,4 | -10,05705093 | 405,1774939 | 0,210090756 | 0,239176989 | 0,998199463 | 5950707,166 | 0,014064842 | 128,233951 | 95,85399 | 128,2365 | 6,670713 | 24,94563 | 25,9161 | 11,8783 |
| 362 | -9,357815932 | 400,8054589 | 0,210089326 | 0,239174843 | 0,987487793 | 5880400,957 | 0,014064842 | 128,087977 | 95,78564 | 128,0905 | 6,66523 | 24,86073 | 25,84436 | 11,84341 |
| 363 | -8,214951155 | 393,5985029 | 0,210082531 | 0,239164591 | 0,969848633 | 5764944,592 | 0,014064842 | 127,844247 | 95,67175 | 127,8469 | 6,656513 | 24,71946 | 25,72551 | 11,78555 |
| 364 | -7,09678745 | 386,4908407 | 0,210069537 | 0,239145279 | 0,952423096 | 5651571,01 | 0,014064842 | 127,599472 | 95,55795 | 127,6022 | 6,64829 | 24,57796 | 25,60716 | 11,72786 |
| 365 | -6,005250184 | 379,4793285 | 0,210050106 | 0,239116192 | 0,935241699 | 5540228,491 | 0,014064842 | 127,353924 | 95,44407 | 127,3567 | 6,640568 | 24,43641 | 25,48945 | 11,67041 |
| 366 | -4,940257136 | 372,5628522 | 0,210023999 | 0,239077091 | 0,918304443 | 5430873,638 | 0,014064842 | 127,107609 | 95,33015 | 127,1105 | 6,633342 | 24,29472 | 25,37232 | 11,61319 |
| 367 | -3,899828085 | 365,741481 | 0,20999074 | 0,239027143 | 0,901580811 | 5323462,461 | 0,014064842 | 126,860243 | 95,21607 | 126,8632 | 6,626592 | 24,15258 | 25,25552 | 11,55605 |
| 368 | -2,883903159 | 359,0136791 | 0,209949613 | 0,23896575 | 0,885070801 | 5217948,807 | 0,014064842 | 126,611816 | 95,10195 | 126,6149 | 6,620312 | 24,00988 | 25,13899 | 11,49897 |
| 369 | -1,894234651 | 352,3782995 | 0,209900737 | 0,238892436 | 0,868804932 | 5114310,149 | 0,014064842 | 126,362643 | 94,98758 | 126,3658 | 6,614509 | 23,86682 | 25,02288 | 11,44204 |
| 370 | -0,928840419 | 345,8353016 | 0,209843397 | 0,238806486 | 0,852752686 | 5012504,856 | 0,014064842 | 126,112426 | 94,87303 | 126,1157 | 6,609164 | 23,72303 | 24,90693 | 11,38512 |
| 371 | 0,012397881 | 339,3836548 | 0,209776998 | 0,238707066 | 0,836914063 | 4912496,179 | 0,014064842 | 125,861164 | 94,75826 | 125,8645 | 6,604273 | 23,57844 | 24,79107 | 11,32817 |
| 372 | 0,927848291 | 333,0218948 | 0,2097013 | 0,238593817 | 0,82131958 | 4814257,3 | 0,014064842 | 125,609187 | 94,64325 | 125,6127 | 6,599838 | 23,43324 | 24,67547 | 11,27129 |
| 373 | 1,821230806 | 326,7505064 | 0,209615231 | 0,238465309 | 0,805908203 | 4717743,045 | 0,014064842 | 125,35585 | 94,5279 | 125,3594 | 6,595836 | 23,28677 | 24,55964 | 11,21423 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 374 | 2,689208978 | 320,568339 | 0,209519386 | 0,238321781 | 0,790740967 | 4622947,364 | 0,014064842 | 125,101833 | 94,41218 | 125,1055 | 6,592278 | 23,13951 | 24,44396 | 11,15718 |
| 375 | 3,535435181 | 314,474513 | 0,20941186 | 0,238161325 | 0,775756836 | 4529808,926 | 0,014064842 | 124,846451 | 94,29608 | 124,8503 | 6,589143 | 22,9908 | 24,32792 | 11,09989 |
| 376 | 4,35669404 | 308,4680205 | 0,209293246 | 0,23798418 | 0,761016846 | 4438322,901 | 0,014064842 | 124,590412 | 94,17958 | 124,5944 | 6,586439 | 22,84114 | 24,21195 | 11,04257 |
| 377 | 5,156588355 | 302,548847 | 0,209162235 | 0,237788677 | 0,746459961 | 4348443,647 | 0,014064842 | 124,333022 | 94,06258 | 124,3371 | 6,584148 | 22,68982 | 24,09549 | 10,98495 |
| 378 | 5,932013541 | 296,7152139 | 0,209018826 | 0,237574816 | 0,732147217 | 4260154,539 | 0,014064842 | 124,075007 | 93,94512 | 124,0792 | 6,582274 | 22,53739 | 23,979 | 10,92725 |
| 379 | 6,68650852 | 290,9672362 | 0,208861828 | 0,237340689 | 0,718017578 | 4173414,934 | 0,014064842 | 123,81565 | 93,82701 | 123,82 | 6,580803 | 22,3831 | 23,86192 | 10,86921 |
| 380 | 7,418676582 | 285,3035837 | 0,208690882 | 0,237086058 | 0,704101563 | 4088202,373 | 0,014064842 | 123,555327 | 93,70827 | 123,5598 | 6,579733 | 22,22718 | 23,74445 | 10,81091 |
| 381 | 8,130350409 | 279,7234782 | 0,208504796 | 0,236809254 | 0,690368652 | 4004478,847 | 0,014064842 | 123,293658 | 93,58884 | 123,2983 | 6,579056 | 22,0692 | 23,62627 | 10,7522 |
| 382 | 8,818665443 | 274,2257521 | 0,208303809 | 0,236510634 | 0,676879883 | 3922235,107 | 0,014064842 | 123,03144 | 93,46881 | 123,0362 | 6,578768 | 21,90975 | 23,50787 | 10,69333 |
| 383 | 9,488533757 | 268,8103486 | 0,208086133 | 0,23618722 | 0,663543701 | 3841423,54 | 0,014064842 | 122,767495 | 93,34778 | 122,7725 | 6,578862 | 21,74766 | 23,38838 | 10,63386 |
| 384 | 10,137128 | 263,4755373 | 0,207851529 | 0,235839248 | 0,650421143 | 3762027,5 | 0,014064842 | 122,50262 | 93,22593 | 122,5077 | 6,579333 | 21,58354 | 23,26829 | 10,57404 |
| 385 | 10,76476832 | 258,2209564 | 0,20759964 | 0,235466003 | 0,637512207 | 3684028,108 | 0,014064842 | 122,236847 | 93,10325 | 122,2421 | 6,580174 | 21,41731 | 23,14757 | 10,51386 |
| 386 | 11,37465166 | 253,0451709 | 0,2073282 | 0,235064268 | 0,624755859 | 3607373,515 | 0,014064842 | 121,969319 | 92,97945 | 121,9748 | 6,581384 | 21,24805 | 23,02557 | 10,45299 |
| 387 | 11,96271834 | 247,9479421 | 0,207038522 | 0,234636307 | 0,612243652 | 3532076,103 | 0,014064842 | 121,701356 | 92,85477 | 121,707 | 6,582948 | 21,07688 | 22,90313 | 10,39186 |
| 388 | 12,53494128 | 242,9273755 | 0,206726909 | 0,234176397 | 0,599853516 | 3458061,941 | 0,014064842 | 121,431183 | 92,72868 | 121,437 | 6,584875 | 20,902 | 22,779 | 10,32983 |
| 389 | 13,08597592 | 237,9835861 | 0,206395388 | 0,233687878 | 0,58770752 | 3385356,32 | 0,014064842 | 121,160615 | 92,60151 | 121,1667 | 6,587141 | 20,72501 | 22,65434 | 10,2675 |
| 390 | 13,62027721 | 233,1147825 | 0,206040859 | 0,233166218 | 0,575714111 | 3313898,125 | 0,014064842 | 120,888284 | 92,47295 | 120,8945 | 6,589757 | 20,54447 | 22,52818 | 10,20438 |
| 391 | 14,13673461 | 228,3201301 | 0,205662966 | 0,232611418 | 0,563903809 | 3243673,975 | 0,014064842 | 120,614649 | 92,34306 | 120,6211 | 6,59271 | 20,36069 | 22,40076 | 10,14059 |
| 392 | 14,63434862 | 223,5997573 | 0,205262184 | 0,232023716 | 0,552307129 | 3174683,22 | 0,014064842 | 120,340227 | 92,21184 | 120,3469 | 6,595985 | 20,17404 | 22,2724 | 10,07628 |
| 393 | 15,11728372 | 218,9504517 | 0,204834104 | 0,23139739 | 0,54083252 | 3106849,694 | 0,014064842 | 120,063515 | 92,07867 | 120,0704 | 6,599603 | 19,98289 | 22,14199 | 10,01092 |
| 394 | 15,5819636 | 214,373242 | 0,20438087 | 0,23073566 | 0,529571533 | 3040200,53 | 0,014064842 | 119,786031 | 91,94412 | 119,7932 | 6,603529 | 19,78862 | 22,01054 | 9,945003 |
| 395 | 16,03120309 | 209,8659089 | 0,203899384 | 0,230034113 | 0,518463135 | 2974682,359 | 0,014064842 | 119,506751 | 91,80764 | 119,5141 | 6,607777 | 19,59004 | 21,87729 | 9,878149 |
| 396 | 16,46404308 | 205,4283191 | 0,203389764 | 0,229293346 | 0,507537842 | 2910291,933 | 0,014064842 | 119,226204 | 91,66938 | 119,2338 | 6,612328 | 19,38754 | 21,74254 | 9,810517 |
| 397 | 16,8819593 | 201,0585262 | 0,202849507 | 0,228509784 | 0,496765137 | 2846988,106 | 0,014064842 | 118,943844 | 91,52896 | 118,9517 | 6,617189 | 19,18038 | 21,60586 | 9,741893 |
| 398 | 17,28405291 | 196,7566423 | 0,202278972 | 0,227684498 | 0,486175537 | 2784771,159 | 0,014064842 | 118,660228 | 91,38664 | 118,6684 | 6,622339 | 18,969 | 21,4676 | 9,672449 |
| 399 | 17,67176178 | 192,5208862 | 0,201675773 | 0,226813912 | 0,475738525 | 2723603,394 | 0,014064842 | 118,374793 | 91,24189 | 118,3832 | 6,627783 | 18,75262 | 21,3273 | 9,60196 |
| 400 | 18,04532607 | 188,3496682 | 0,201038003 | 0,225896478 | 0,465454102 | 2663456,115 | 0,014064842 | 118,087509 | 91,09481 | 118,0962 | 6,633516 | 18,53104 | 21,18491 | 9,530399 |
| 401 | 18,40500227 | 184,2424659 | 0,200364828 | 0,224930763 | 0,455322266 | 2604315,925 | 0,014064842 | 117,79837 | 90,94519 | 117,8073 | 6,63953 | 18,30405 | 21,04035 | 9,457735 |
| 402 | 18,75000268 | 180,1999777 | 0,199657202 | 0,223918676 | 0,445373535 | 2546191,481 | 0,014064842 | 117,508004 | 90,79319 | 117,5172 | 6,645798 | 18,07215 | 20,89402 | 9,384171 |
| 403 | 19,08268753 | 176,2177697 | 0,198909283 | 0,222852468 | 0,435546875 | 2489005,325 | 0,014064842 | 117,215122 | 90,63812 | 117,2247 | 6,652348 | 17,83372 | 20,74497 | 9,309229 |
| 404 | 19,40225382 | 172,2967979 | 0,198122144 | 0,221734047 | 0,425872803 | 2432770,421 | 0,014064842 | 116,920346 | 90,4801 | 116,9302 | 6,659152 | 17,58923 | 20,59359 | 9,233106 |
| 405 | 19,70896128 | 168,4360898 | 0,197294414 | 0,220561981 | 0,416351318 | 2377467,963 | 0,014064842 | 116,623663 | 90,319 | 116,6338 | 6,666202 | 17,33845 | 20,43982 | 9,155778 |
| 406 | 20,00308062 | 164,6349164 | 0,196424961 | 0,219335437 | 0,406982422 | 2323082,76 | 0,014064842 | 116,325067 | 90,15493 | 116,3355 | 6,673484 | 17,08115 | 20,28361 | 9,077226 |
| 407 | 20,2848756 | 160,8924597 | 0,195512533 | 0,218053222 | 0,397766113 | 2269598,604 | 0,014064842 | 116,024554 | 89,98759 | 116,0354 | 6,680987 | 16,81709 | 20,12493 | 8,997429 |
| 408 | 20,55551324 | 157,2058268 | 0,194553018 | 0,216709852 | 0,388671875 | 2216966,83 | 0,014064842 | 115,721372 | 89,81631 | 115,7325 | 6,688725 | 16,54511 | 19,96317 | 8,916094 |
| 409 | 20,81518687 | 153,5735548 | 0,193544209 | 0,21530354 | 0,379699707 | 2165163,075 | 0,014064842 | 115,415448 | 89,64103 | 115,4269 | 6,696686 | 16,26483 | 19,79824 | 8,833178 |
| 410 | 21,06326315 | 149,9976545 | 0,192488551 | 0,2138381 | 0,370880127 | 2114215,071 | 0,014064842 | 115,107528 | 89,46212 | 115,1193 | 6,70483 | 15,93866 | 19,63065 | 8,748938 |
| 411 | 21,30083635 | 146,4745791 | 0,191380918 | 0,212307334 | 0,362182617 | 2064066,003 | 0,014064842 | 114,796791 | 89,27884 | 114,809 | 6,713169 | 15,73492 | 19,45976 | 8,663056 |
| 412 | 21,52732699 | 143,0065126 | 0,190224171 | 0,21071589 | 0,353637695 | 2014746,021 | 0,014064842 | 114,484024 | 89,09173 | 114,4966 | 6,721658 | 15,52942 | 19,28611 | 8,575814 |
| 413 | 21,74455264 | 139,5866403 | 0,189008236 | 0,209051132 | 0,345184326 | 1966150,352 | 0,014064842 | 114,167494 | 88,89916 | 114,1804 | 6,730342 | 15,32073 | 19,10839 | 8,486552 |
| 414 | 21,95191522 | 136,2170413 | 0,187735796 | 0,207317472 | 0,336853027 | 1918308,097 | 0,014064842 | 113,847962 | 88,70162 | 113,8612 | 6,73917 | 15,10963 | 18,92712 | 8,395542 |
| 415 | 22,14891625 | 132,9003902 | 0,186410427 | 0,205520868 | 0,328674316 | 1871256,248 | 0,014064842 | 113,52629 | 88,49999 | 113,5399 | 6,748091 | 14,89697 | 18,74293 | 8,303104 |
| 416 | 22,33654413 | 129,6328177 | 0,185026288 | 0,203654408 | 0,320617676 | 1824934,946 | 0,014064842 | 113,201546 | 88,29309 | 113,2155 | 6,757112 | 14,68206 | 18,55509 | 8,208882 |
| 417 | 22,51502818 | 126,4136177 | 0,183582187 | 0,201717496 | 0,312683105 | 1779331,558 | 0,014064842 | 112,873669 | 88,08098 | 112,8881 | 6,76621 | 14,46499 | 18,36355 | 8,112852 |
| 418 | 22,68588858 | 123,2343401 | 0,182064831 | 0,19969368 | 0,30480957 | 1734320,786 | 0,014064842 | 112,540575 | 87,86113 | 112,5553 | 6,775429 | 14,24412 | 18,1667 | 8,014214 |
| 419 | 22,84672793 | 120,1099766 | 0,180496812 | 0,197614193 | 0,297119141 | 1690118,969 | 0,014064842 | 112,2062 | 87,63779 | 112,2213 | 6,784596 | 14,023 | 17,96753 | 7,914482 |
| 420 | 23,00032107 | 117,0236695 | 0,178852201 | 0,195445895 | 0,289489746 | 1646479,164 | 0,014064842 | 111,866354 | 87,40632 | 111,8819 | 6,793824 | 13,79824 | 17,76283 | 7,812055 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 421 | 23,14562 | 113,9832513 | 0,17714256 | 0,193205357 | 0,281982422 | 1603513,071 | 0,014064842 | 111,523014 | 87,1687 | 111,5389 | 6,803003 | 13,57172 | 17,55412 | 7,707702 |
| 422 | 23,28342012 | 110,9834407 | 0,175359607 | 0,19088304 | 0,27456665 | 1561142,776 | 0,014064842 | 111,174959 | 86,92344 | 111,1912 | 6,812129 | 13,34267 | 17,34048 | 7,600973 |
| 423 | 23,41337425 | 108,0283267 | 0,173509657 | 0,188488722 | 0,267272949 | 1519425,358 | 0,014064842 | 110,823207 | 86,67188 | 110,8399 | 6,821122 | 13,11216 | 17,12272 | 7,492285 |
| 424 | 23,5362404 | 105,1126823 | 0,171584129 | 0,186012566 | 0,260070801 | 1478284,036 | 0,014064842 | 110,466467 | 86,41218 | 110,4835 | 6,829968 | 12,87941 | 16,89986 | 7,381168 |
| 425 | 23,65269195 | 102,230522 | 0,169572949 | 0,183443189 | 0,252929688 | 1437631,843 | 0,014064842 | 110,10328 | 86,14233 | 110,1207 | 6,838648 | 12,64357 | 16,67082 | 7,267091 |
| 426 | 23,76101201 | 99,40248714 | 0,167510688 | 0,180826128 | 0,24597168 | 1397762,064 | 0,014064842 | 109,7386 | 85,86915 | 109,7564 | 6,846953 | 12,4089 | 16,43954 | 7,15203 |
| 427 | 23,86423039 | 96,59569294 | 0,165342093 | 0,178092778 | 0,239013672 | 1358204,038 | 0,014064842 | 109,364435 | 85,58145 | 109,3826 | 6,85503 | 12,16946 | 16,19983 | 7,032935 |
| 428 | 23,96068351 | 93,83128498 | 0,163102984 | 0,175290108 | 0,232177734 | 1319258,09 | 0,014064842 | 108,985811 | 85,28638 | 109,0043 | 6,862655 | 11,92961 | 15,95575 | 6,911834 |
| 429 | 24,05064372 | 91,10947928 | 0,160794377 | 0,172420621 | 0,225463867 | 1280925,64 | 0,014064842 | 108,602659 | 84,98388 | 108,6215 | 6,869742 | 11,68968 | 15,70736 | 6,788783 |
| 430 | 24,13513269 | 88,4178923 | 0,158394873 | 0,169459343 | 0,218811035 | 1243029,513 | 0,014064842 | 108,211865 | 84,66947 | 108,231 | 6,876256 | 11,44777 | 15,45239 | 6,662675 |
| 431 | 24,21430269 | 85,75564409 | 0,155902982 | 0,166406095 | 0,212219238 | 1205556,316 | 0,014064842 | 107,813028 | 84,3424 | 107,8325 | 6,882075 | 11,20417 | 15,19071 | 6,53348 |
| 432 | 24,28764165 | 83,13515441 | 0,153341889 | 0,163290799 | 0,205749512 | 1168680,968 | 0,014064842 | 107,408993 | 84,00731 | 107,4288 | 6,887017 | 10,96148 | 14,92477 | 6,40244 |
| 433 | 24,35605931 | 80,5430483 | 0,150687993 | 0,160086155 | 0,19934082 | 1132212,958 | 0,014064842 | 106,996268 | 83,65886 | 107,0164 | 6,890983 | 10,71779 | 14,65213 | 6,268382 |
| 434 | 24,41971931 | 77,97866749 | 0,147940367 | 0,15679273 | 0,192993164 | 1096142,144 | 0,014064842 | 106,574381 | 83,29622 | 106,5947 | 6,893795 | 10,47348 | 14,37276 | 6,131335 |
| 435 | 24,47824058 | 75,45584374 | 0,145126581 | 0,153444886 | 0,186767578 | 1060663,1 | 0,014064842 | 106,146496 | 82,9251 | 106,1671 | 6,895238 | 10,23134 | 14,0895 | 5,992732 |
| 436 | 24,5329344 | 72,94507382 | 0,142190993 | 0,149978101 | 0,180541992 | 1025358,252 | 0,014064842 | 105,704837 | 82,5324 | 105,7257 | 6,895106 | 9,987058 | 13,79686 | 5,849942 |
| 437 | 24,58291195 | 70,47574157 | 0,13919124 | 0,146461844 | 0,174438477 | 990641,7296 | 0,014064842 | 105,256358 | 82,13036 | 105,2775 | 6,893133 | 9,745891 | 13,50071 | 5,70589 |
| 438 | 24,62890224 | 68,03237081 | 0,136099428 | 0,142864525 | 0,168395996 | 956294,3404 | 0,014064842 | 104,796734 | 81,7119 | 104,818 | 6,889018 | 9,50593 | 13,19845 | 5,559368 |
| 439 | 24,67067433 | 65,63093619 | 0,132949203 | 0,139226258 | 0,162475586 | 922540,597 | 0,014064842 | 104,329642 | 81,28435 | 104,3511 | 6,882491 | 9,270092 | 12,89356 | 5,412137 |
| 440 | 24,70964507 | 63,22211341 | 0,129642218 | 0,135435104 | 0,156494141 | 888684,6495 | 0,014064842 | 103,841312 | 80,8225 | 103,8629 | 6,872894 | 9,031546 | 12,57691 | 5,259881 |
| 441 | 24,74441766 | 60,87170541 | 0,126314759 | 0,131648451 | 0,150695801 | 855653,2868 | 0,014064842 | 103,348728 | 80,3589 | 103,3705 | 6,860154 | 8,800462 | 12,26198 | 5,10918 |
| 442 | 24,77631527 | 58,52913125 | 0,122865349 | 0,12775138 | 0,144897461 | 822733,2954 | 0,014064842 | 102,837393 | 79,8667 | 102,8593 | 6,843375 | 8,569892 | 11,93965 | 4,955784 |
| 443 | 24,80514504 | 56,21104442 | 0,119330347 | 0,12378633 | 0,139160156 | 790158,8274 | 0,014064842 | 102,310895 | 79,35362 | 102,3328 | 6,822034 | 8,342496 | 11,61413 | 4,801832 |
| 444 | 24,83109321 | 53,91724221 | 0,115712166 | 0,119756788 | 0,133483887 | 757926,5877 | 0,014064842 | 101,768172 | 78,81857 | 101,7901 | 6,79539 | 8,118299 | 11,28655 | 4,648024 |
| 445 | 24,85434472 | 51,64760473 | 0,112013578 | 0,115666449 | 0,127868652 | 726034,4851 | 0,014064842 | 101,208055 | 78,26033 | 101,23 | 6,76258 | 7,897023 | 10,95834 | 4,495202 |
| 446 | 24,87508317 | 49,40211833 | 0,108237758 | 0,111519262 | 0,122314453 | 694481,9596 | 0,014064842 | 100,629248 | 77,67769 | 100,6512 | 6,722604 | 7,677961 | 10,63122 | 4,344379 |
| 447 | 24,89368058 | 47,16086886 | 0,104344741 | 0,107272163 | 0,116760254 | 662988,5403 | 0,014064842 | 100,023931 | 77,05638 | 100,0458 | 6,673706 | 7,45736 | 10,30369 | 4,195126 |
| 448 | 24,90991016 | 44,96312402 | 0,100424051 | 0,103022933 | 0,111328125 | 632106,3951 | 0,014064842 | 99,402863 | 76,42022 | 99,42466 | 6,6156 | 7,237916 | 9,98546 | 4,052136 |
| 449 | 24,92446065 | 42,74907699 | 0,096345827 | 0,098631352 | 0,105834961 | 600993,9339 | 0,014064842 | 98,7440455 | 75,72474 | 98,76566 | 6,544511 | 7,008779 | 9,668864 | 3,912318 |
| 450 | 24,93699354 | 40,57863062 | 0,092248812 | 0,094247095 | 0,100463867 | 570493,6337 | 0,014064842 | 98,065371 | 75,01071 | 98,08681 | 6,460732 | 6,772619 | 9,367989 | 3,78227 |
| 451 | 24,94773074 | 38,45305359 | 0,088141598 | 0,089878142 | 0,095214844 | 540623,095 | 0,014064842 | 97,365613 | 74,27917 | 97,3869 | 6,36268 | 6,523341 | 9,08622 | 3,66369 |
| 452 | 24,9572805 | 36,2877456 | 0,083834864 | 0,08532352 | 0,08984375 | 510192,3553 | 0,014064842 | 96,6095846 | 73,4572 | 96,63055 | 6,242779 | 6,239704 | 8,814858 | 3,553335 |
| 453 | 24,96532123 | 34,16719395 | 0,079526454 | 0,080792703 | 0,084594727 | 480389,5492 | 0,014064842 | 95,825208 | 72,60917 | 95,84587 | 6,103167 | 5,922553 | 8,570366 | 3,458168 |
| 454 | 24,97204597 | 32,09243255 | 0,075225644 | 0,076293807 | 0,079467773 | 451229,1193 | 0,014064842 | 95,0101227 | 71,73651 | 95,03051 | 5,942007 | 5,561473 | 8,354007 | 3,378214 |
| 455 | 24,9778785 | 29,97513271 | 0,070730522 | 0,071615525 | 0,07421875 | 421468,8737 | 0,014064842 | 94,1201873 | 70,74682 | 94,14011 | 5,748275 | 5,127453 | 8,15463 | 3,308145 |
| 456 | 24,98265055 | 27,90386216 | 0,066253409 | 0,066978559 | 0,069091797 | 392354,2853 | 0,014064842 | 93,1875071 | 69,718 | 93,207 | 5,528605 | 4,640186 | 7,972609 | 3,244557 |
| 457 | 24,98667274 | 25,73403053 | 0,061455831 | 0,062034089 | 0,063720703 | 361852,1388 | 0,014275617 | 92,1330548 | 68,47682 | 92,15173 | 5,266493 | 4,10128 | 7,766544 | 3,163925 |
| 458 | 24,9899356 | 23,56491841 | 0,056575246 | 0,057026487 | 0,058349609 | 331358,421 | 0,014514814 | 90,9858156 | 67,09163 | 91,0035 | 4,979364 | 3,68857 | 7,47147 | 3,022713 |
| 459 | 24,99251198 | 21,44476105 | 0,051735615 | 0,052080939 | 0,053100586 | 301551,5171 | 0,014777433 | 89,7576271 | 65,60522 | 89,77429 | 0 | 0 | 6,93351 | 2,72589 |
| 460 | 24,9945623 | 19,32628772 | 0,046830894 | 0,047087373 | 0,047851563 | 271766,7989 | 0,015075261 | 88,4018661 | 63,92714 | 88,41734 | 0 | 0 | 0 | 0 |
| 461 | 24,99606254 | 17,35160723 | 0,042213428 | 0,042401661 | 0,04296875 | 244002,7844 | 0,015393164 | 86,9989407 | 62,26619 | 87,01352 | 0 | 0 | 0 | 0 |
| 462 | 24,99728147 | 15,28312953 | 0,037313151 | 0,037443523 | 0,037841797 | 214918,4828 | 0,015780203 | 85,3440745 | 60,17023 | 85,35725 | 0 | 0 | 0 | 0 |
| 463 | 24,99811863 | 13,40784819 | 0,032836848 | 0,032926044 | 0,033203125 | 188549,91 | 0,016194331 | 83,6397123 | 58,14761 | 83,65196 | 0 | 0 | 0 | 0 |
| 464 | 24,99877811 | 11,43704636 | 0,028086673 | 0,028142749 | 0,028320313 | 160837,0939 | 0,016718806 | 81,5676649 | 55,52931 | 81,57846 | 0 | 0 | 0 | 0 |
| 465 | 24,99923091 | 9,563934902 | 0,023540649 | 0,023573872 | 0,023681641 | 134497,2139 | 0,017338802 | 79,237187 | 52,60263 | 79,2466 | 0 | 0 | 0 | 0 |
| 466 | 24,99955004 | 7,691034739 | 0,01896683 | 0,018984354 | 0,019042969 | 108159,6056 | 0,018140318 | 76,397143 | 48,92909 | 76,40492 | 0 | 0 | 0 | 0 |
| 467 | 24,99973663 | 6,112431886 | 0,015096722 | 0,015105658 | 0,015136719 | 85960,17622 | 0,019044574 | 73,4053913 | 45,52825 | 73,41247 | 0 | 0 | 0 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 2 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 468 | 24,99987711 | 4,338171987 | 0,010727105 | 0,010730357 | 0,010742188 | 61008,77363 | 0,020520182 | 68,9375491 | 39,73295 | 68,94276 | 0 | 0 | 0 | 0 |
| 469 | 24,99995278 | 2,76065131 | 0,006831737 | 0,006832596 | 0,006835938 | 38823,85293 | 0,022730929 | 63,0487115 | 32,3166 | 63,05238 | 0 | 0 | 0 | 0 |
| 470 | 24,99998499 | 1,577407151 | 0,003905347 | 0,003905515 | 0,00390625 | 22183,58714 | 0,025976466 | 55,7572774 | 25,5023 | 55,76137 | 0 | 0 | 0 | 0 |
| 470,2 | 24,99998499 | 1,577407151 | 0,003905347 | 0,003905515 | 0,00390625 | 22183,58714 | 0,025976466 | 55,7572774 | 25,5023 | 55,76137 | 0 | 0 | 0 | 0 |

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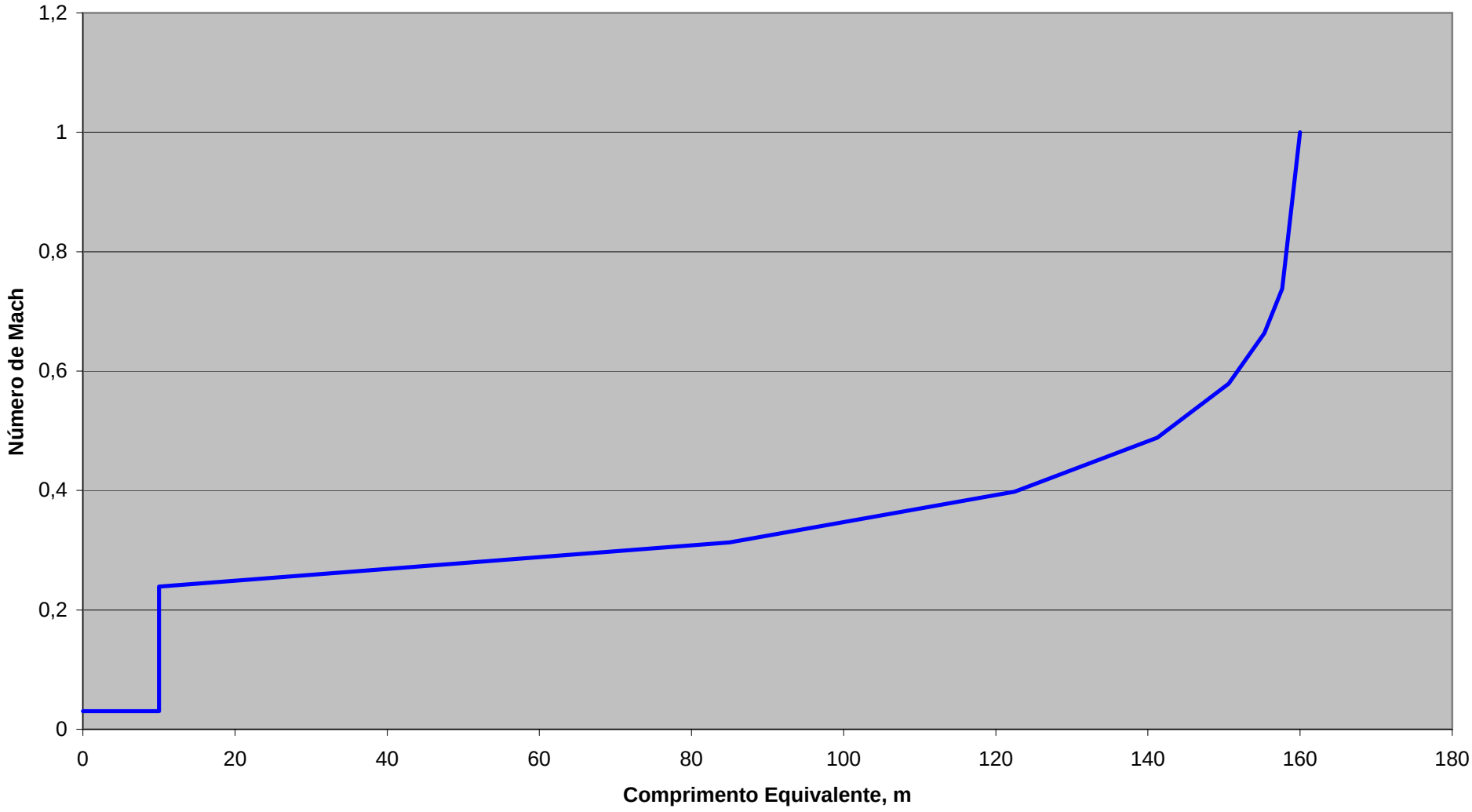
## Simulação do Blowdown - Condição Inicial

**CASO 2**



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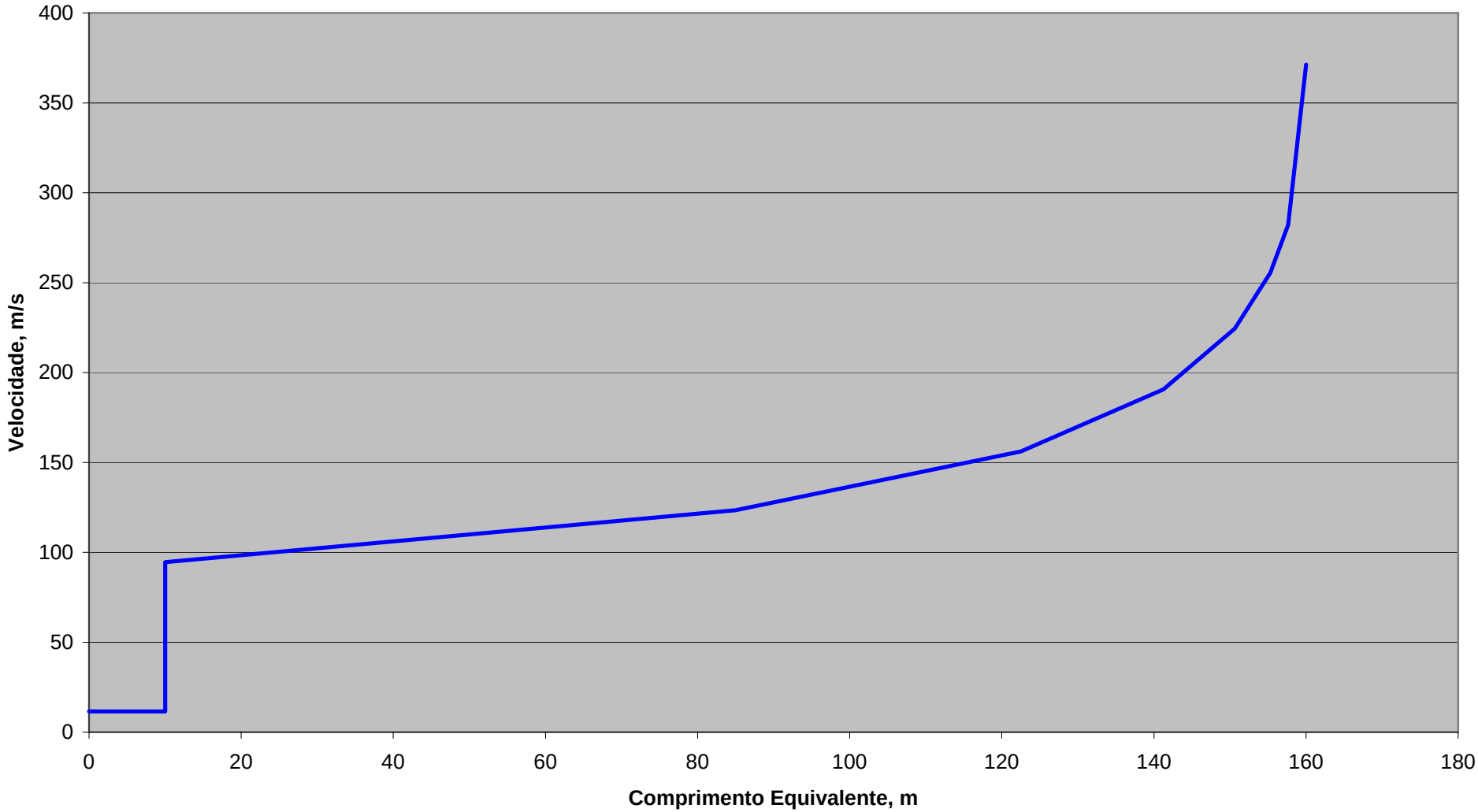
## Simulação do Blowdown - Condição Inicial

**CASO 2**



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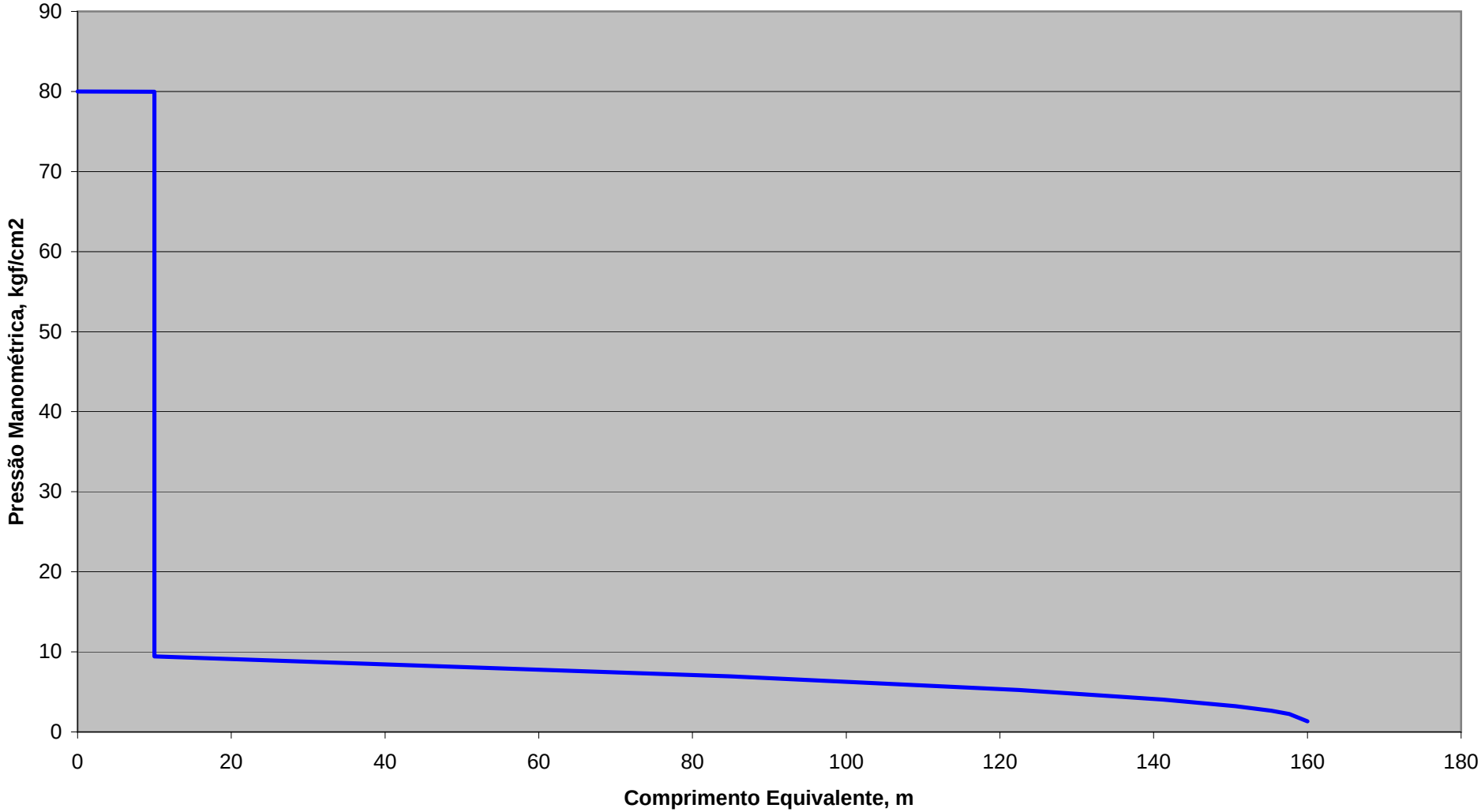
## Simulação do Blowdown - Condição Inicial

**CASO 2**



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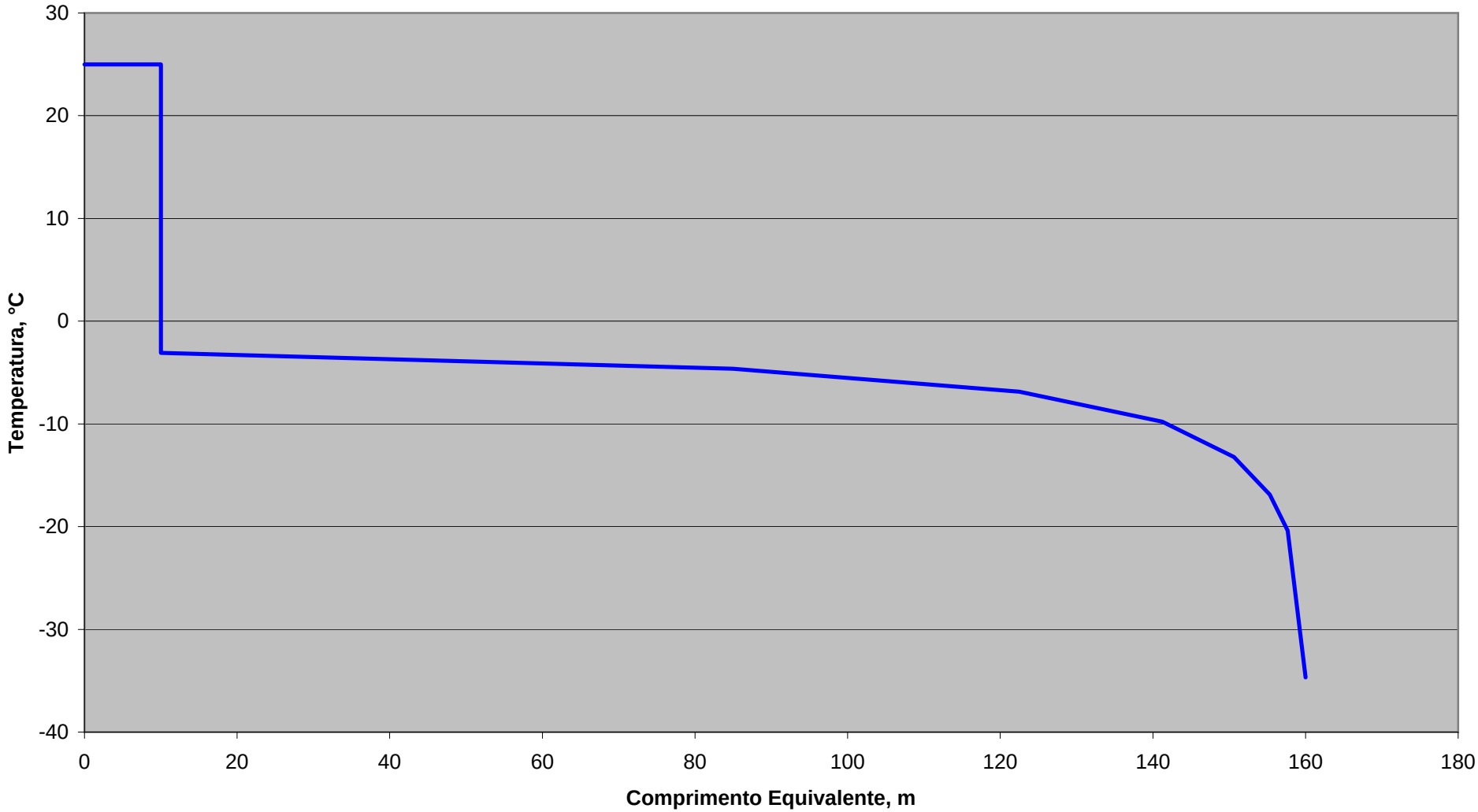
## Simulação do Blowdown - Condição Inicial

**CASO 2**



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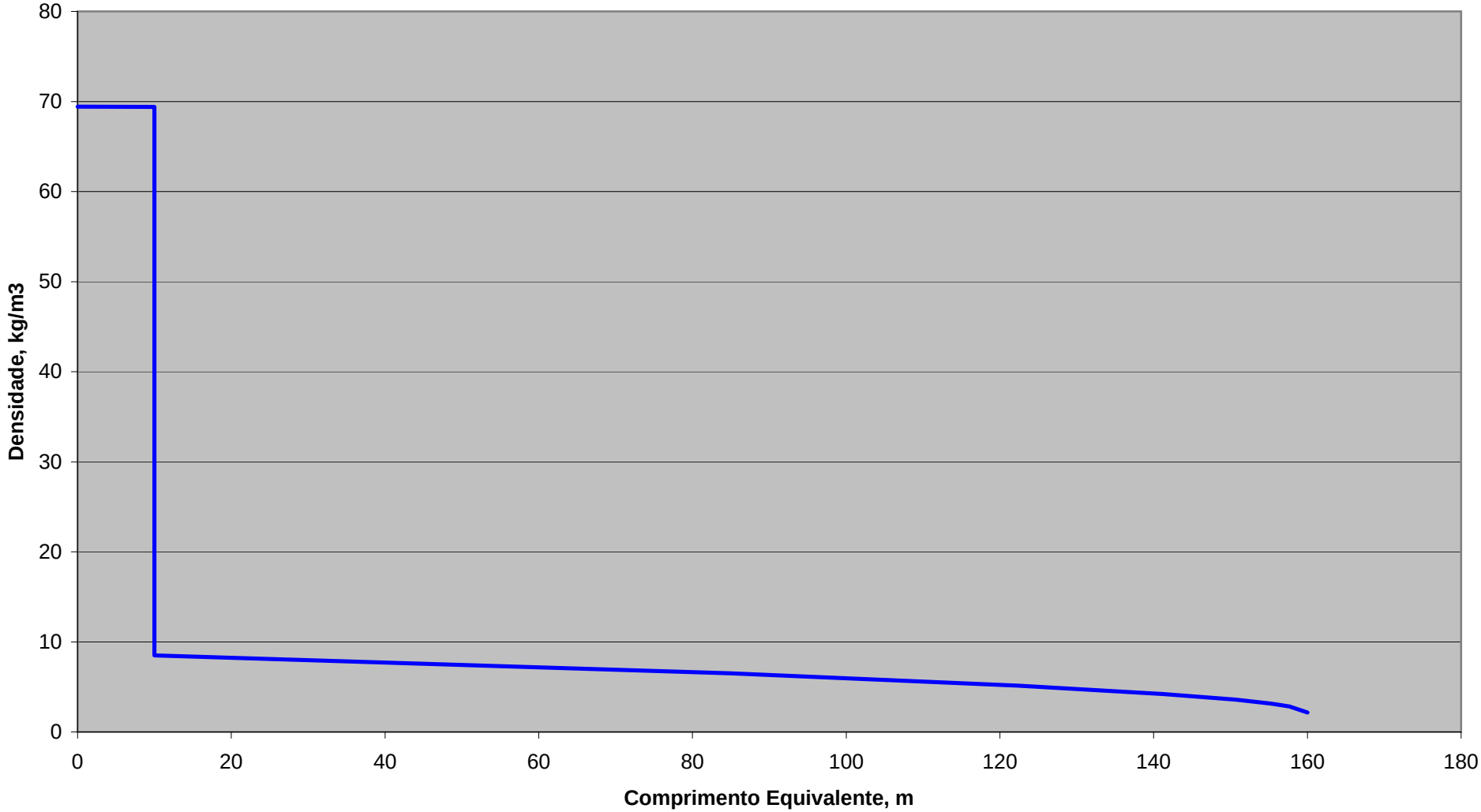
## Simulação do Blowdown - Condição Inicial

**CASO 2**



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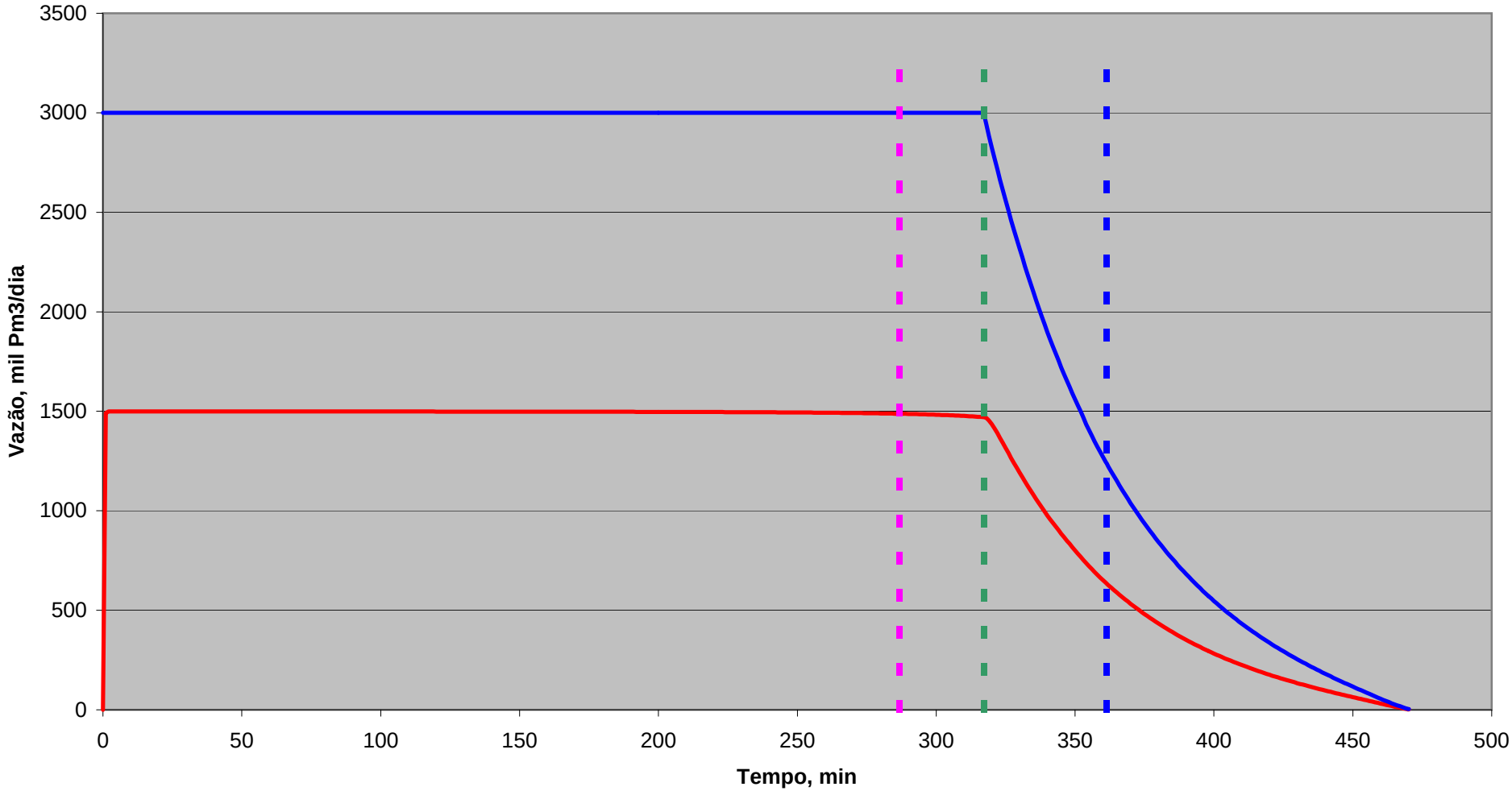
## Simulação do Blowdown - Transiente

**CASO 2**



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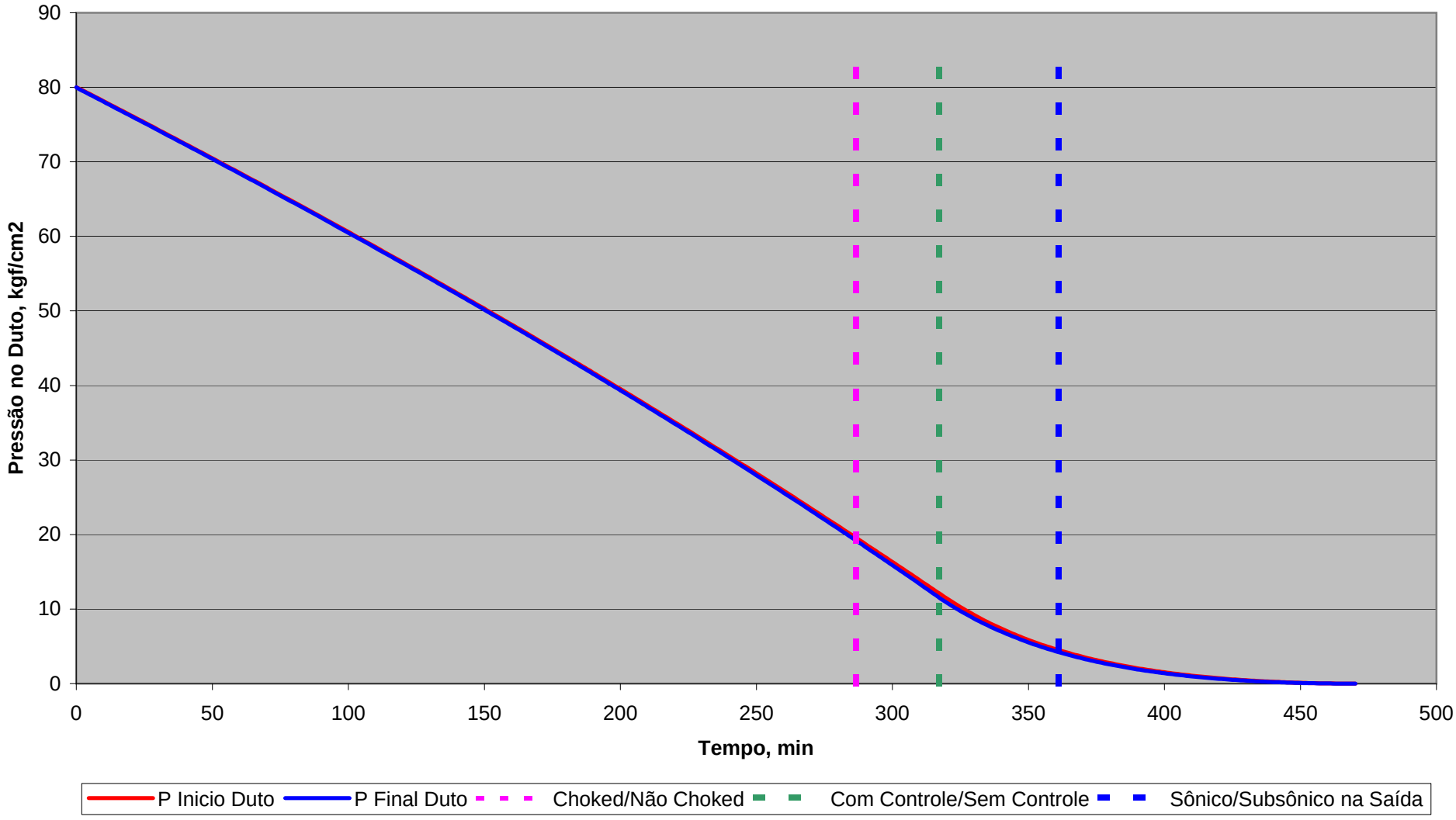
## Simulação do Blowdown - Transiente

**CASO 2**



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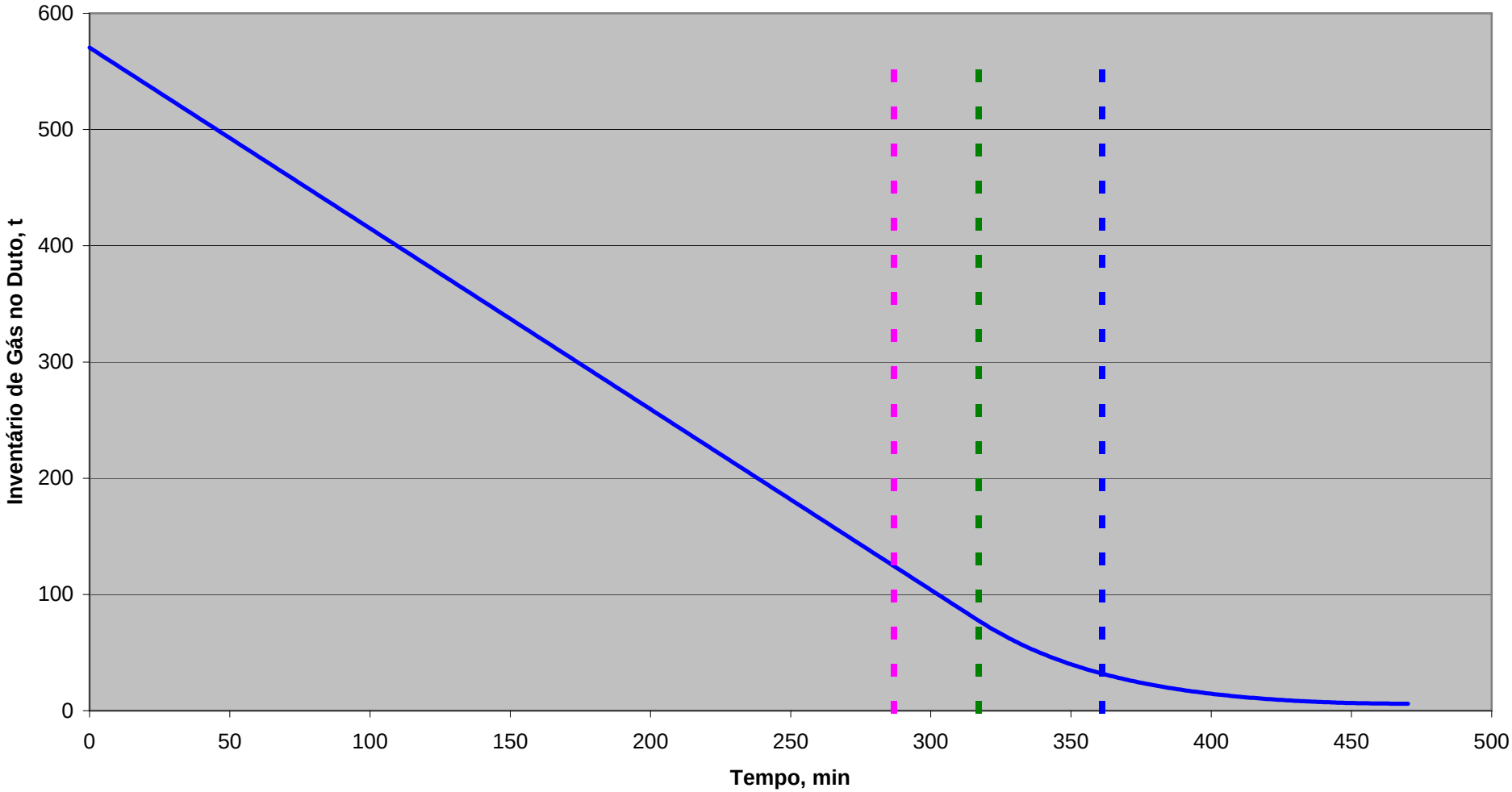
## Simulação de Blowdown - Transiente

**CASO 2**



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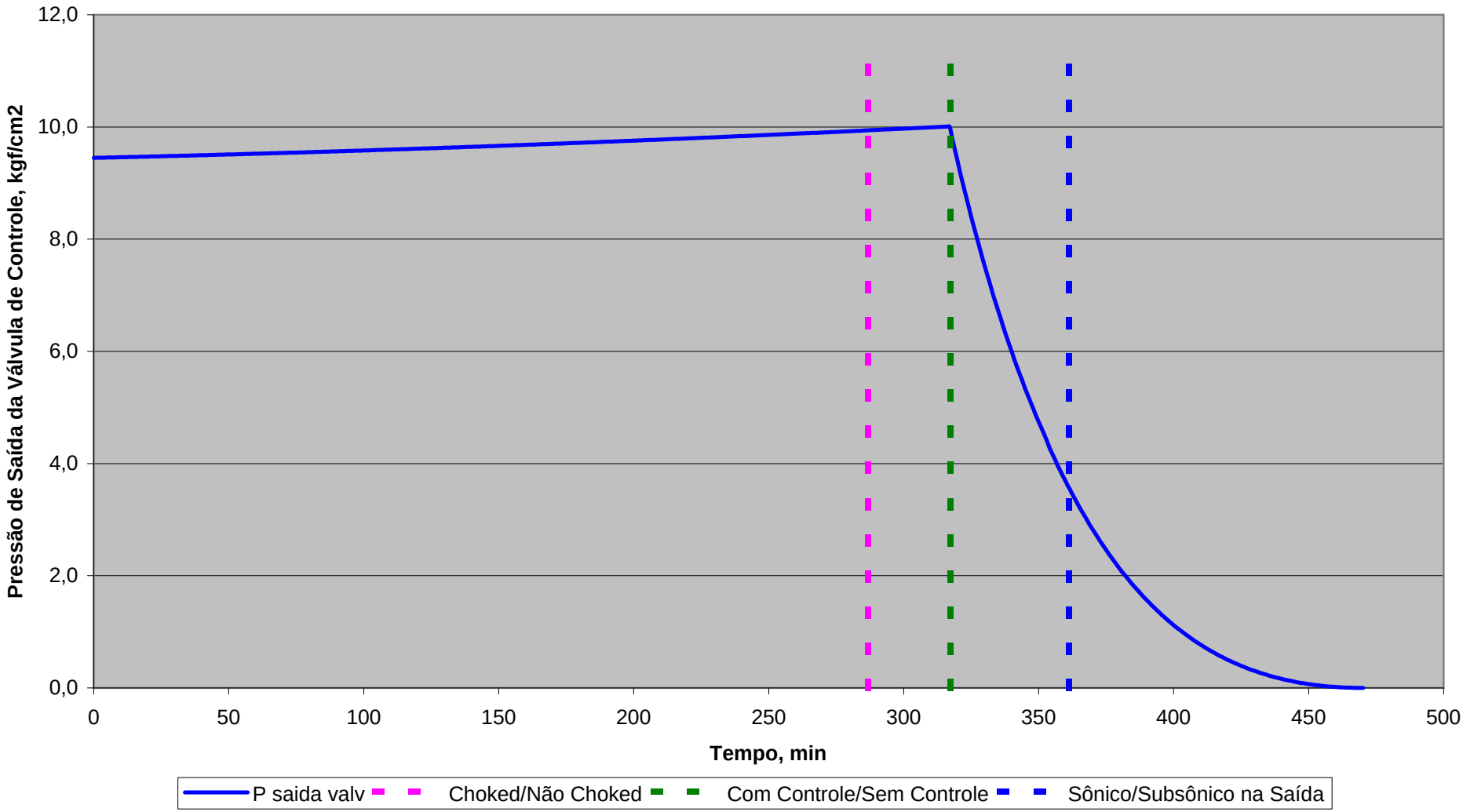
## Simulação do Blowdown - Transiente

**CASO 2**



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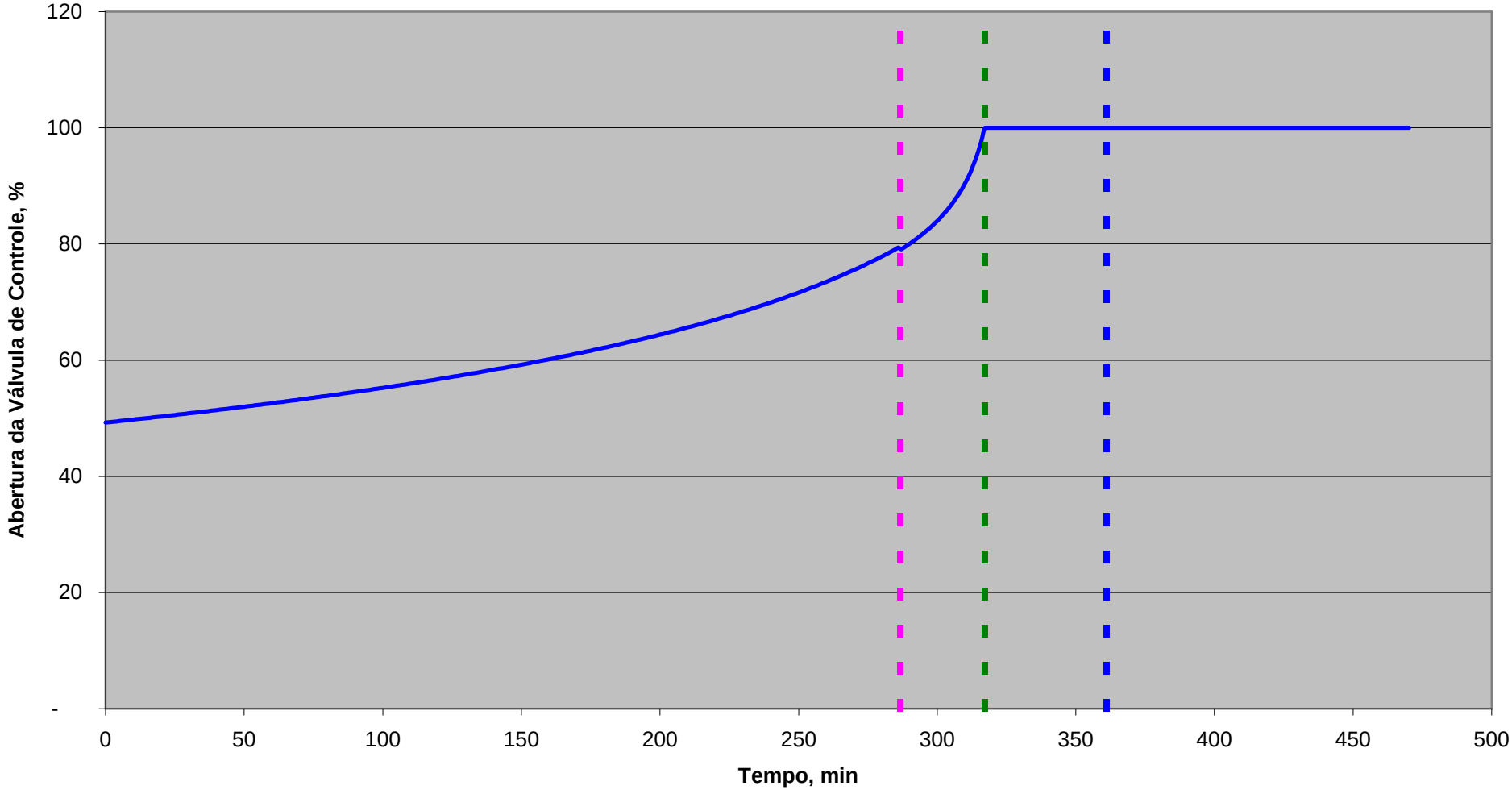
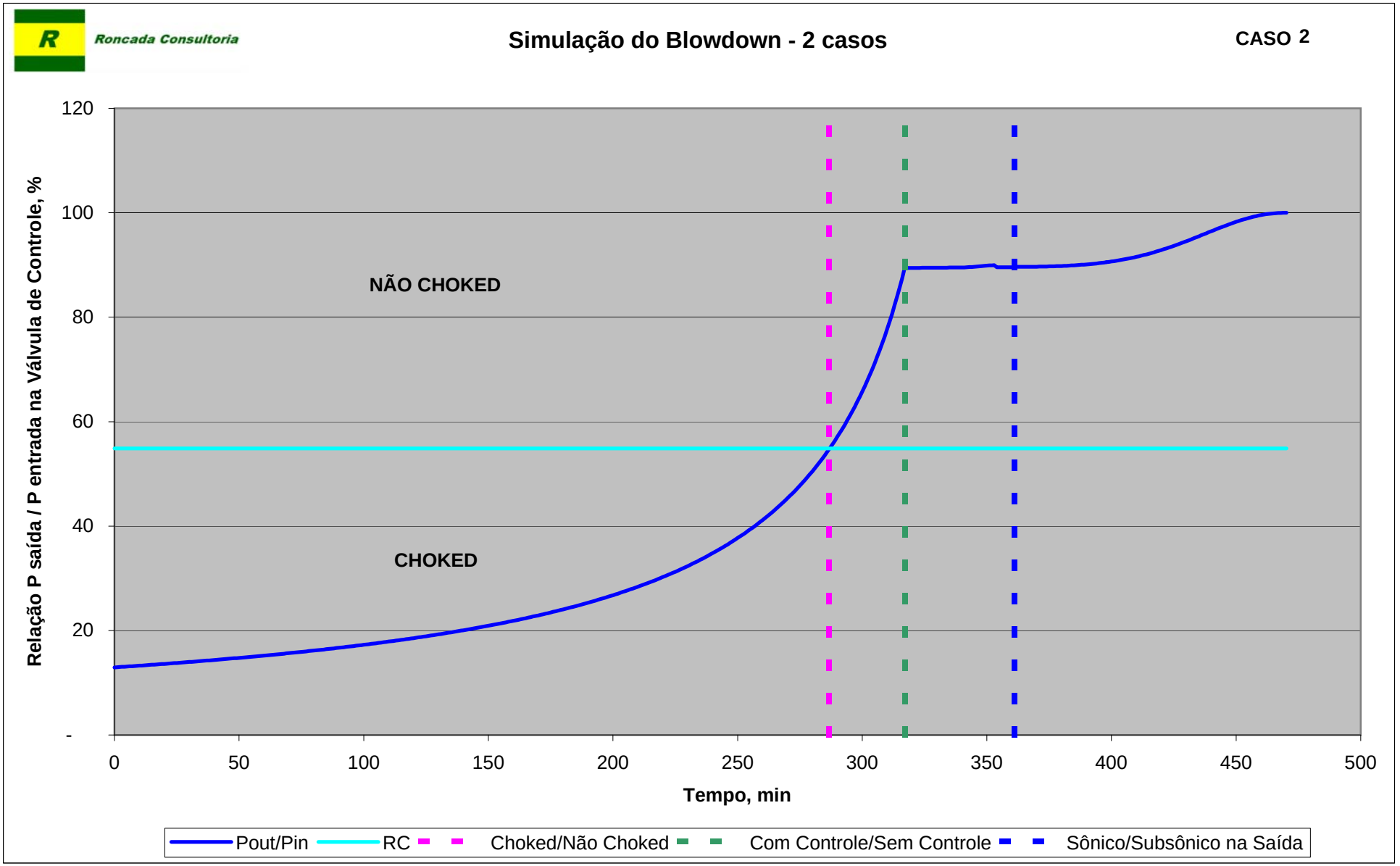
## Simulação do Blowdown - Transiente

**CASO 2**





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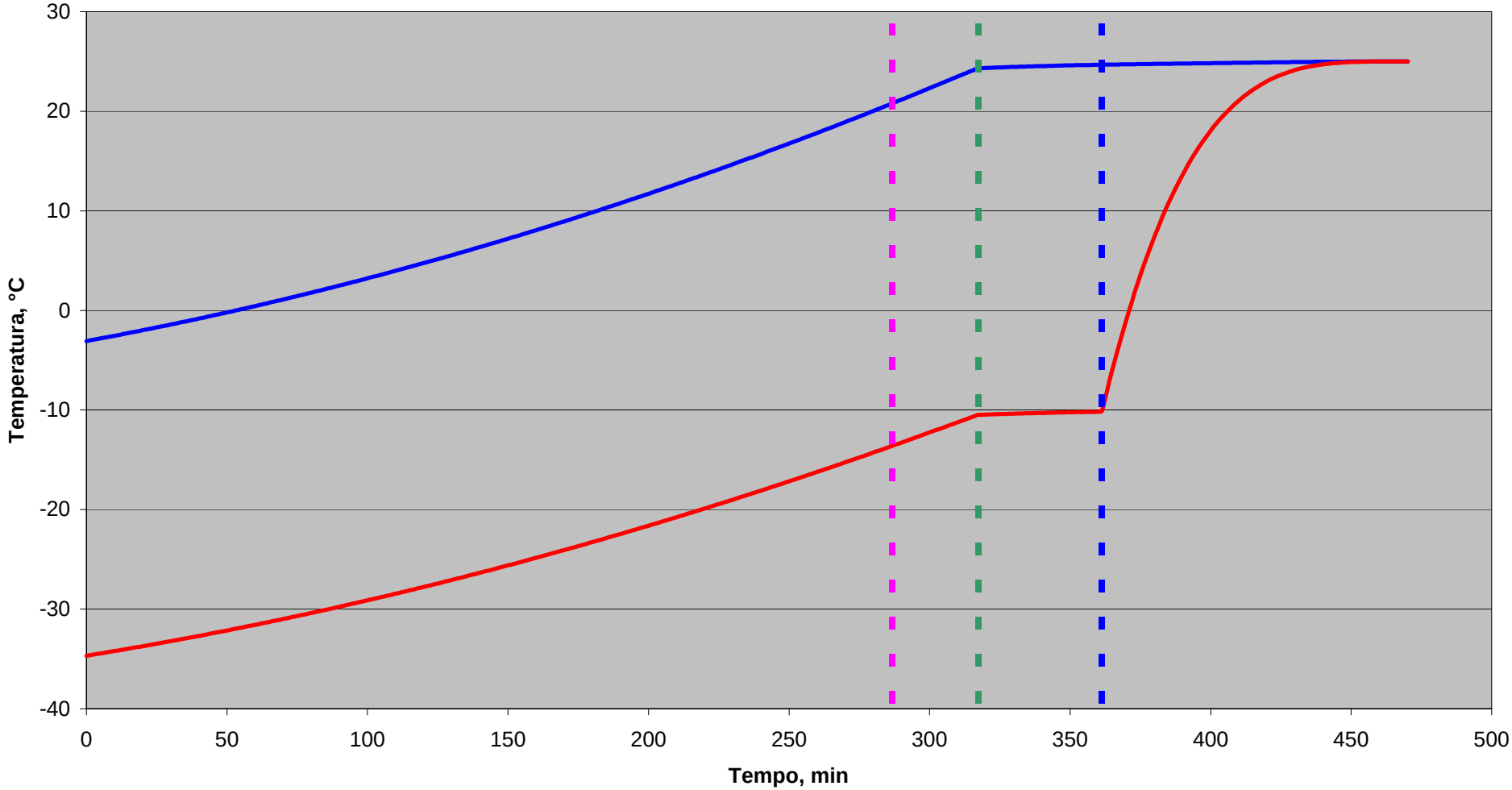
## Simulação do Blowdown - Transiente

**CASO 2**



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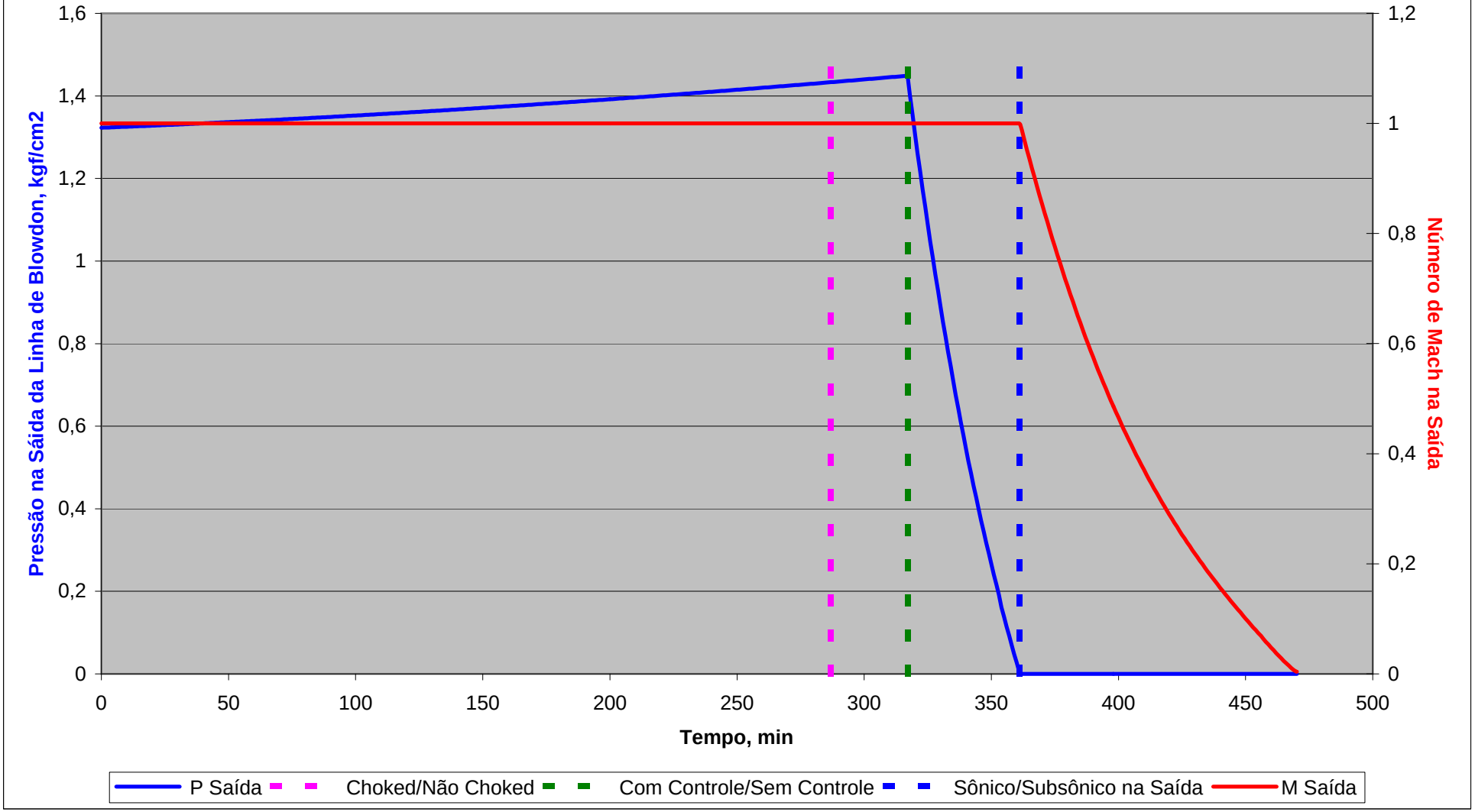
## Simulação de Blowdown - Transiente

**CASO 2**



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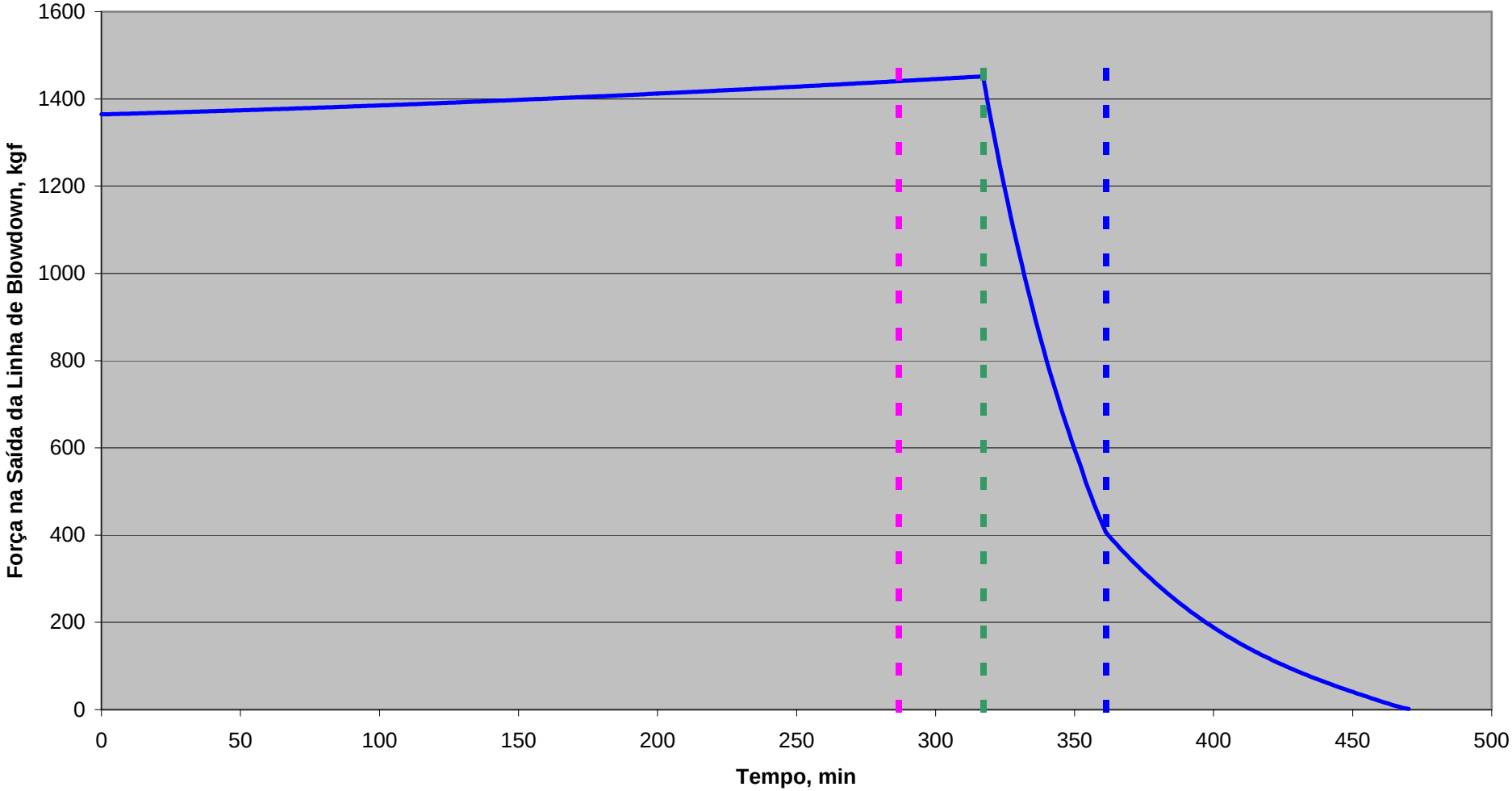
## Simulação de Blowdown - Transiente

**CASO 2**



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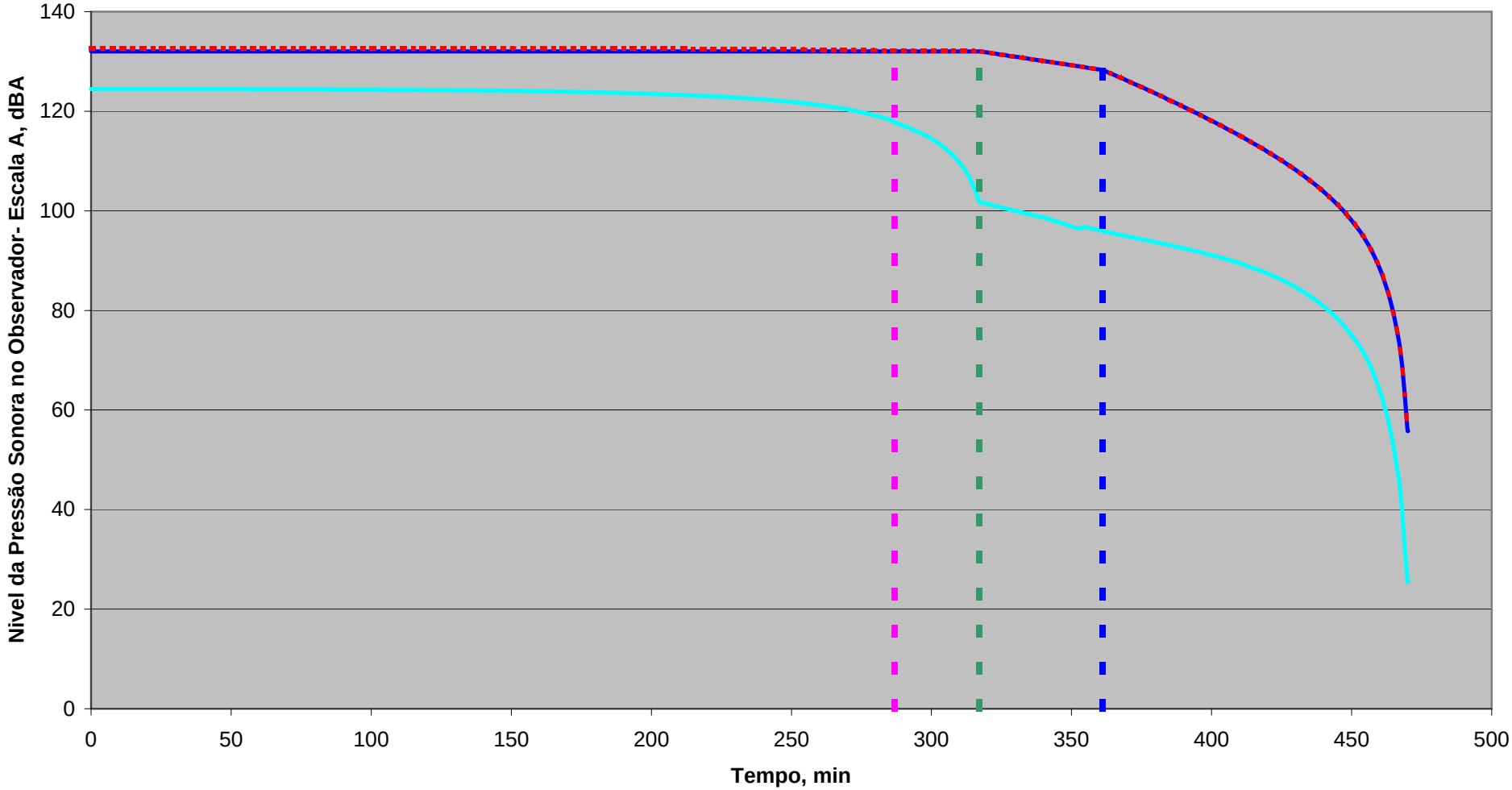
## Simulação de Blowdown - Transiente

**CASO 2**



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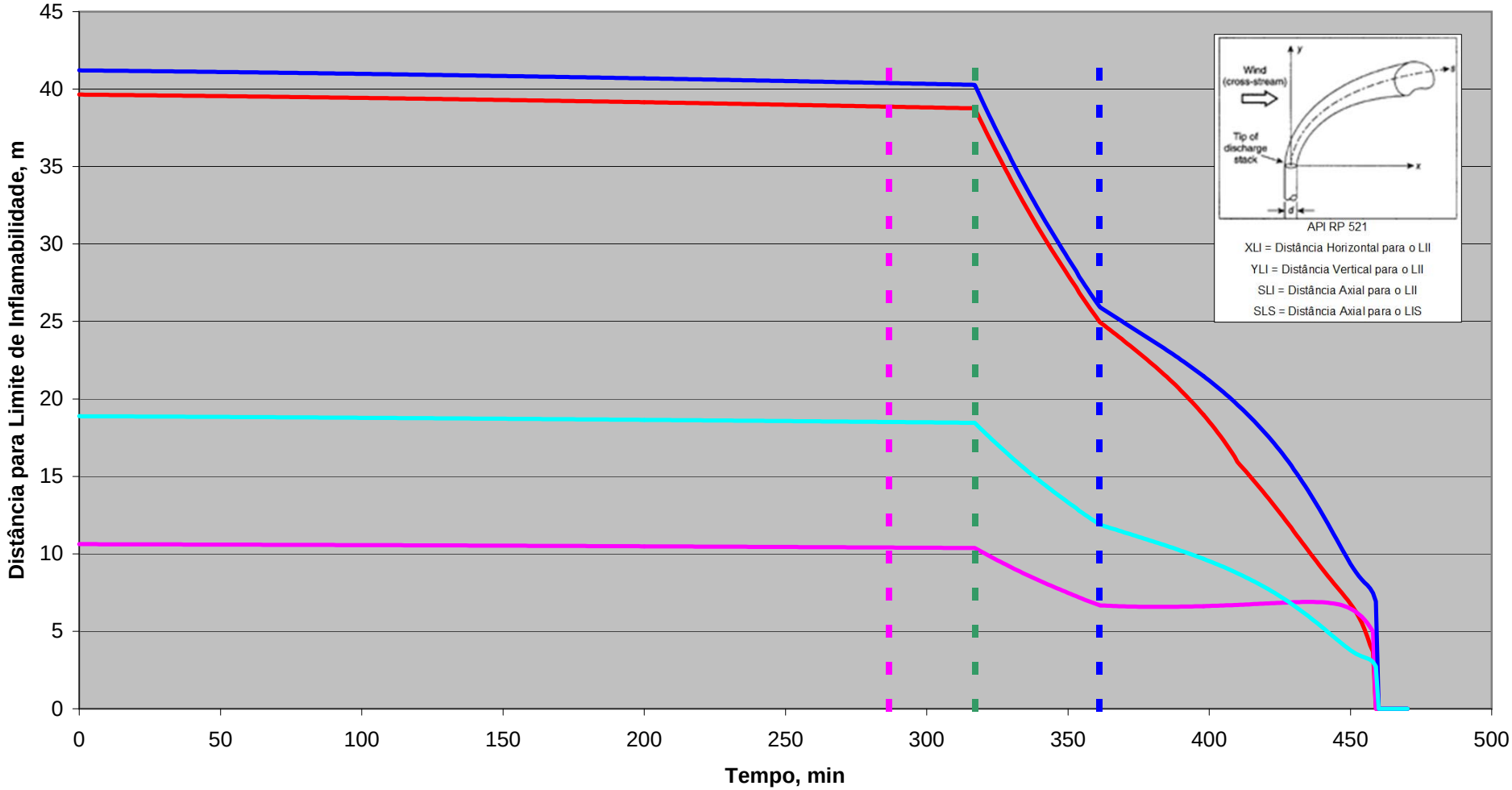
## Simulação de Blowdown - Transiente

**CASO 2**



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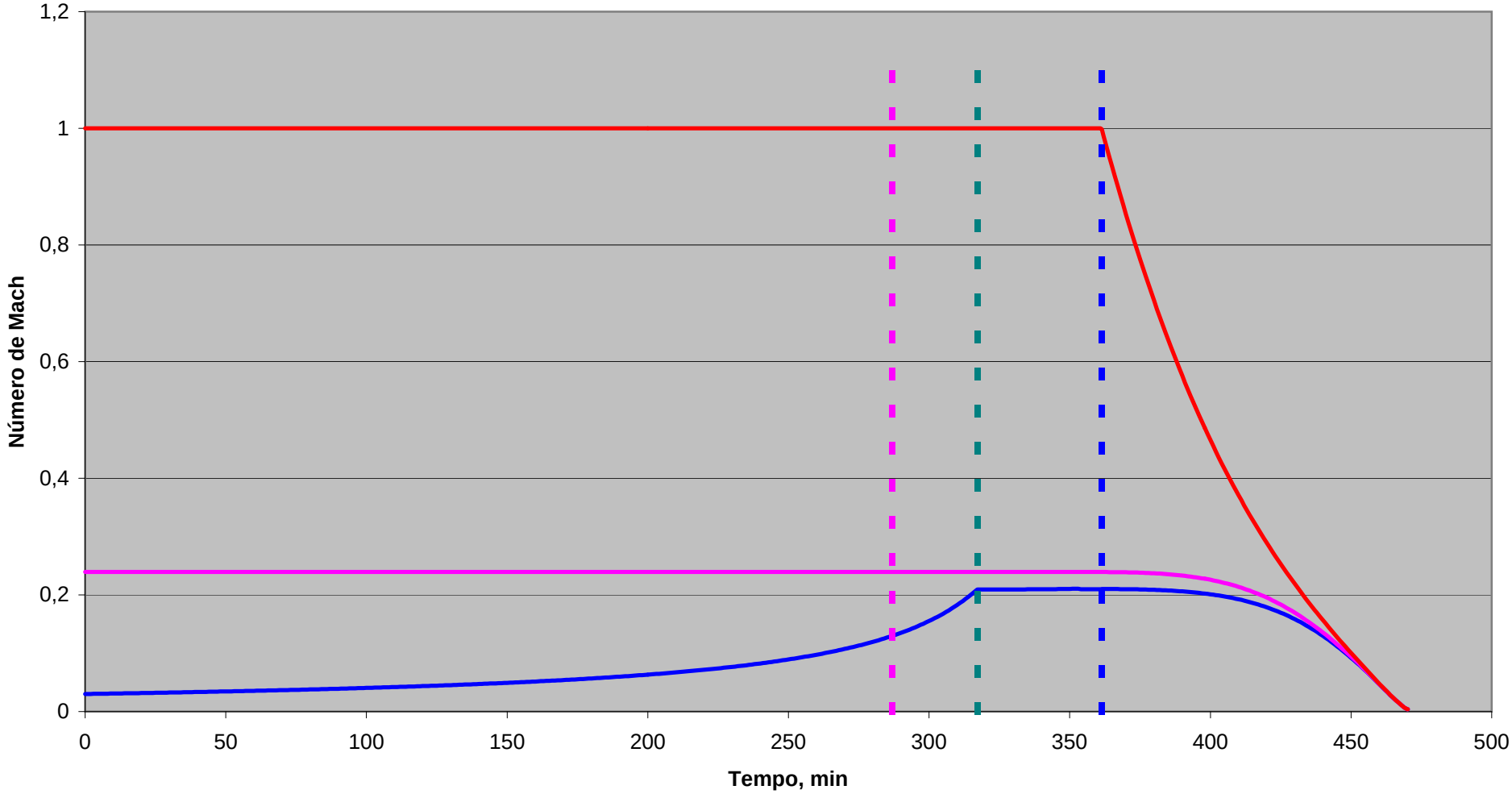
## Simulação do Blowdown - Transiente

**CASO 2**



# EXEMPLO 3

# CONTROLE POR ABERTURA ESCALONADA DA VÁLVULA DE CONTROLE

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**PROGRAMA VENTGAS - Versão 1 - ENTRADA DE DADOS** **CASO** **3**

## GASODUTO

| | | |
|---|---|---|
| Pressão Manométrica Inicial | 80 | kgf/cm2 g |
| Temperatura | 25 | °C |
| Diâmetro Nominal | 24 | pol |
| Comprimento | 30 | km |

## GÁS

| | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |

## VÁLVULA DE CONTROLE

| | | | | |
|---|---|---|---|---|
| Tipo de Válvula | 2 | 1:Esfera, 2: Igual % | | |
| CV Totalmente Aberta | 1080 | | | |
| Tipo de Controle | 3 | 1: P, 2:Q, 3:%Ab, 4:M | | |
| Pressão de Controle | 10 | kgf/cm2 g | [1] | Não Usado |
| Vazão de Controle | 3000 | mil Pm3/dia | [2] | Não Usado |
| % Abertura Inicial | 35 | % | [3] | Usado |
| % Abertura Final | 100 | % | [3] | Usado |
| Tempo de Abertura Total | 300 | min | [3] | Usado |
| Número de Incrementos | 40 | > 0 | [3] | Usado |
| Número de Mach na Saída | 0,8 | 0< M <=1 | [4] | Não Usado |

## LINHA DE BLOWDOWN

| | | |
|---|---|---|
| Comprimento antes da válvula | 10 | m |
| Comprimento depois da válvula | 150 | m |
| Diâmetro | 8 | pol |

## OBSERVADOR (Ruído)

| | | |
|---|---|---|
| Distância para a válvula | 10 | m |
| Distancia Horizontal até eixo da Descarga | 50 | m |
| Distância Vertical até a base da Descarga | 0 | m |
| Altura da Descarga | 2 | m |

## DISPERSÃO

| | | |
|---|---|---|
| Velocidade do Ar | 10 | km/h |

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# PROGRAMA VENTGAS - Versão 1 -- RESUMO DA SIMULAÇÃO

| CASO | 3 | |
|---|---|---|

Pm3 @ 20°C e 1 atm

| GASODUTO | 3 | |
|---|---|---|
| Diâmetro, pol | 24 | |
| Comprimento, km | 30,000000 | |
| Pressão Manométrica Inicial, kgf/cm2 g | 80 | |
| Pressão Manométrica Final, kgf/cm2 g | 3,098E-05 | |
| Temperatura, °C | 25 | |
| Inventário Inicial, t | 570,44373 | |
| Inventário Final, t | 6,0444747 | 0,01% |
| Inventário Morto,t | 6,0436096 | |

| GÁS | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |
| Cp/Cv | 1,2833754 | |
| Pressão Crítica, kgf/cm2 abs | 47,142502 | |
| Temperatura Crítica, °C | 202,42756 | |
| Densidade @ 20°C e 1 atm, kg/Pm3 | 0,746294 | |
| Viscosidade Inicial, cst | 0,0175711 | |
| Coef Joule-Thompson Inicial, °C/(kgf/cm2) | 0,398179 | |

| VÁLVULA DE CONTROLE | | |
|---|---|---|
| Tipo | Igual % | |
| Tipo de Controle | % abert | |
| Tempo Abertura, min / Intervalos | 300 / 40 | |
| CV Totalmente Aberta | 1080 | |
| CV inicial | 54,128221 | |
| Abertura Inicial, % | 35 | |
| Abertura Final, % | 100 | |
| Pout/ Pin Crítica, % | 54,875013 | |

| LINHA DE BLOWDOWN | | |
|---|---|---|
| Diãmetro, pol | 8 | |
| Comprimento antes da válvula, m | 10 | |
| Comprimento depois da válvula, m | 150 | (com acessórios) |
| Vazão Inicial, mil Pm3/dia | 2482,8262 | |
| Vazão Final, mil Pm3/dia | 4,5257388 | |
| Pressão Inicial na Saída, kgf/cm2 g | 0,8557587 | |
| Temperatura Inicial na Saída, °C | -35,415245 | |
| Força Máxima, kgf | 2533,3331 | |

| TEMPOS ESTIMADOS | | |
|---|---|---|
| Escoamento com Controle, min | 300,2 | TCC |
| Escoamento sem Controle, min | 101,6 | |
| Tempo total, min | 401,8 | |
| | | |
| Fluxo Choked na Válvula, min | 187,4 | TCV |
| Fluxo Não Choked na Válvula, min | 214,4 | |
| Tempo total, min | 401,8 | |
| | | |
| Escoamento Sônico na Saída, min | 292,6 | TSS |
| Escoamento Subsônico na Saída, min | 109,2 | |
| Tempo total, min | 401,8 | |

| DISPERSÃO | Mínima | Máxima |
|---|---|---|
| Distância Vertical ao LII, m | 3,646299 | 49,53161 |
| Distância Horizontal ao LII,m | 4,807071 | 13,39018 |
| Distância Axial ao LII, m | 6,583779 | 51,59796 |
| Distância Axial ao LIS, m | 2,523609 | 23,63235 |
| Tempo sem Análise no Final, min | 10,6 | 2,64% |

| RUÍDO MÁXIMO | |
|---|---|
| Descarga para a Atmosfera, dBA | 133,8943 |
| Valvula de Controle, dBA | 122,7281 |
| Total, dBA | 134,1508 |

| PURGA COM N2 | |
|---|---|
| Pressão Mínima de Injeção, kgj/cm2 g | 0,007935 |
| Velocidade Mínima, m/s | 1,299559 |

| Deslocamento Total | |
|---|---|
| Volume de N2, Nm3 (50% folga) | 11379,03 |
| Tempo Máximo, h | 6,412431 |
| Vazão Mínima de N2, Nm3/h | 1774,527 |

| Volume Tampão | |
|---|---|
| Volume do Tampão de N2, Nm3 (30 m de folga) | 141,7061 |
| Tempo Injeção Tampão, min | 7,187015 |
| Vazão Mínima de N2, Nm3/h | 1281,45 |

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**PROGRAMA VENTGAS - Versão 1 -- CONDIÇÃO INICIAL** **CASO** **3** Pm3 @ 20°C e 1 atm

| Trecho | | Gasoduto | Tubo | Válvula | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lequiv | m | 30000 | 10 | | 75 | 37,5 | 18,75 | 9,375 | 4,6875 | 2,34375 | 2,34375 |
| Ponto | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| D | pol | 24 | 8 | | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| x | m | 0 | 10 | 10 | 85 | 122,5 | 141,25 | 150,625 | 155,3125 | 157,65625 | 160 |
| fL/D | | | 0,693815216 | | 5,203614119 | 2,601807059 | 1,30090353 | 0,650451765 | 0,325225882 | 0,162612941 | 0,162612941 |
| M | | 0,024904002 | 0,024910887 | 0,239176989 | 0,313214302 | 0,397852898 | 0,488380432 | 0,578804016 | 0,663406372 | 0,738037109 | 1 |
| P | kgf/cm2 g | 80 | 79,97760387 | 7,370840385 | 5,365983577 | 3,983622242 | 3,031196892 | 2,373813486 | 1,918447645 | 1,601683118 | 0,855758744 |
| T | °C | 25 | 24,99998551 | -3,91341167 | -5,452163242 | -7,684828436 | -10,60382852 | -14,03086303 | -17,6628003 | -21,17765554 | -35,41524507 |
| ro | kg/m3 | 69,42059403 | 69,40141074 | 7,606562633 | 5,825200297 | 4,605200867 | 3,772365626 | 3,204008049 | 2,815209159 | 2,548122137 | 1,936103367 |
| v | m/s | 9,571549704 | 9,574195382 | 87,35386774 | 114,0669217 | 144,2852734 | 176,1395188 | 207,3848305 | 236,0260388 | 260,7656268 | 343,1958632 |
| ro*v | kg/(m2.s) | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 | 664,4626662 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Qb | mil Pm3/dia | 2482,826163 | | CV | | 54,12822123 | | YLI | m | 34,965277 | |
| W | t/dia | 1852,918269 | | % abertura | % | 35 | | XLI | m | 9,554523534 | |
| Re | | 7648108,807 | | | | | | SLI | m | 36,52378326 | |
| f | | 0,014064842 | | Ruído Descarga | dbA | 130,5112918 | | SLS | m | 16,7164404 | |
| vsom | m/s | 384,3378115 | | Ruído Válvula | dbA | 118,4885305 | | | | | |
| Inventario | mil Pm3 | 764,3686374 | | Ruído Total | dBA | 130,775668 | | Força | kgf | 1050,532536 | |
| | t | 570,4437279 | | | | | | | | | |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 80 | 80 | 570,4437279 | 0 | 2482,826163 | 79,97760387 | 7,370840385 | 54,12822123 | 35 | -3,91341167 | 10,37375354 | 0,855758744 |
| 1 | 79,87213434 | 79,81641455 | 569,1585288 | 1244,873799 | 2476,716474 | 79,79406916 | 7,351800947 | 54,12822123 | 35 | -3,87163305 | 10,37375354 | 0,85147964 |
| 2 | 79,71653492 | 79,66108695 | 567,8760777 | 1236,82958 | 2471,548536 | 79,63878449 | 7,335692098 | 54,12822123 | 35 | -3,8361527 | 10,37375354 | 0,847859184 |
| 3 | 79,56127441 | 79,50592534 | 566,5963039 | 1234,199285 | 2466,387348 | 79,48366577 | 7,319600464 | 54,12822123 | 35 | -3,80058933 | 10,37375354 | 0,844242598 |
| 4 | 79,40626677 | 79,35101492 | 565,319203 | 1231,621242 | 2461,235742 | 79,32879816 | 7,30353488 | 54,12822123 | 35 | -3,76496315 | 10,37375354 | 0,840631866 |
| 5 | 79,25151077 | 79,19635596 | 564,04477 | 1229,048408 | 2456,093726 | 79,17418194 | 7,287495375 | 54,12822123 | 35 | -3,72927503 | 10,37375354 | 0,837026996 |
| 6 | 79,09700591 | 79,04194798 | 562,7729998 | 1226,480363 | 2450,961283 | 79,01981664 | 7,271481899 | 54,12822123 | 35 | -3,69352563 | 10,37375354 | 0,833427975 |
| 7 | 78,94275173 | 78,88779051 | 561,5038876 | 1223,917097 | 2445,838395 | 78,86570177 | 7,255494402 | 54,12822123 | 35 | -3,65771563 | 10,37375354 | 0,829834794 |
| 8 | 78,78736304 | 78,72585307 | 560,198717 | 1276,302377 | 2627,161008 | 78,7003035 | 7,871573207 | 58,33426839 | 36,625 | -3,36555897 | 11,16794716 | 0,968298184 |
| 9 | 78,62269084 | 78,55964522 | 558,8384709 | 1310,949796 | 2621,218107 | 78,53414889 | 7,853017148 | 58,33426839 | 36,625 | -3,3270268 | 11,16794716 | 0,964127719 |
| 10 | 78,45749483 | 78,39454007 | 557,4812926 | 1308,870963 | 2615,316171 | 78,36909663 | 7,834584198 | 58,33426839 | 36,625 | -3,28861585 | 11,16794716 | 0,959984924 |
| 11 | 78,29256754 | 78,22974241 | 556,1271703 | 1305,945047 | 2609,426759 | 78,20435176 | 7,816185578 | 58,33426839 | 36,625 | -3,25014309 | 11,16794716 | 0,955849843 |
| 12 | 78,12792741 | 78,06523262 | 554,7760978 | 1303,004339 | 2603,549168 | 78,03989467 | 7,797819098 | 58,33426839 | 36,625 | -3,21160493 | 11,16794716 | 0,951721986 |
| 13 | 77,96357433 | 77,90100969 | 553,4280689 | 1300,069021 | 2597,683359 | 77,87572434 | 7,779484642 | 58,33426839 | 36,625 | -3,17300207 | 11,16794716 | 0,947601327 |
| 14 | 77,79950774 | 77,73707301 | 552,0830775 | 1297,139569 | 2591,829308 | 77,71184018 | 7,761182145 | 58,33426839 | 36,625 | -3,13433532 | 11,16794716 | 0,94348785 |
| 15 | 77,63572709 | 77,57342205 | 550,7411177 | 1294,215985 | 2585,986991 | 77,54824164 | 7,742911547 | 58,33426839 | 36,625 | -3,09560549 | 11,16794716 | 0,939381543 |
| 16 | 77,46687096 | 77,39548348 | 549,3205546 | 1377,679814 | 2776,521556 | 77,36637372 | 8,391408248 | 62,86714752 | 38,25 | -2,78301132 | 12,02102492 | 1,085130838 |
| 17 | 77,29153813 | 77,21970041 | 547,8830768 | 1385,935465 | 2769,770948 | 77,19065589 | 8,370285165 | 62,86714752 | 38,25 | -2,74151486 | 12,02102492 | 1,080383436 |
| 18 | 77,11623981 | 77,0445416 | 546,4490908 | 1382,97178 | 2763,046226 | 77,0155621 | 8,349237096 | 62,86714752 | 38,25 | -2,70001855 | 12,02102492 | 1,075652894 |
| 19 | 76,94125976 | 76,86972132 | 545,0185868 | 1379,627756 | 2756,336411 | 76,8408067 | 8,328229706 | 62,86714752 | 38,25 | -2,65845624 | 12,02102492 | 1,070931494 |
| 20 | 76,76660721 | 76,69522895 | 543,5915571 | 1376,277442 | 2749,64109 | 76,6663791 | 8,307261721 | 62,86714752 | 38,25 | -2,61682654 | 12,02102492 | 1,06621895 |
| 21 | 76,59228184 | 76,52106348 | 542,1679944 | 1372,933882 | 2742,960222 | 76,49227827 | 8,286333017 | 62,86714752 | 38,25 | -2,57513036 | 12,02102492 | 1,061515235 |
| 22 | 76,41828298 | 76,34722424 | 540,7478909 | 1369,597517 | 2736,293775 | 76,31850355 | 8,265443515 | 62,86714752 | 38,25 | -2,53336865 | 12,02102492 | 1,05682033 |
| 23 | 76,24334115 | 76,1644187 | 539,2881642 | 1416,215194 | 2937,028262 | 76,13123094 | 8,949659312 | 67,75225517 | 39,875 | -2,20205703 | 12,9368999 | 1,210597474 |
| 24 | 76,05833303 | 75,97658123 | 537,7677266 | 1463,915246 | 2929,281384 | 75,94347422 | 8,925369414 | 67,75225517 | 39,875 | -2,15708108 | 12,9368999 | 1,205138332 |
| 25 | 75,87226008 | 75,79056336 | 536,2512811 | 1462,42496 | 2921,611935 | 75,75753633 | 8,901314815 | 67,75225517 | 39,875 | -2,11237859 | 12,9368999 | 1,199732073 |
| 26 | 75,68649424 | 75,60498802 | 534,7388058 | 1458,708675 | 2913,963105 | 75,57204077 | 8,87731744 | 67,75225517 | 39,875 | -2,06762199 | 12,9368999 | 1,194338676 |
| 27 | 75,5010993 | 75,41978968 | 533,2302907 | 1454,894507 | 2906,332185 | 75,38692204 | 8,853368815 | 67,75225517 | 39,875 | -2,02279691 | 12,9368999 | 1,188956235 |
| 28 | 75,31607754 | 75,23496443 | 531,7257266 | 1451,084104 | 2898,719009 | 75,20217625 | 8,829468438 | 67,75225517 | 39,875 | -1,97790378 | 12,9368999 | 1,183584638 |
| 29 | 75,13142833 | 75,05051136 | 530,2251044 | 1447,282308 | 2891,123531 | 75,01780248 | 8,805616187 | 67,75225517 | 39,875 | -1,9329437 | 12,9368999 | 1,178223857 |
| 30 | 74,9471509 | 74,86642967 | 528,7284148 | 1443,489331 | 2883,545712 | 74,83379993 | 8,781811961 | 67,75225517 | 39,875 | -1,88791784 | 12,9368999 | 1,172873869 |
| 31 | 74,75777855 | 74,66590017 | 527,1451958 | 1529,521753 | 3093,468954 | 74,62822233 | 9,498768161 | 73,01696134 | 41,5 | -1,53451106 | 13,91963788 | 1,334009401 |
| 32 | 74,5609713 | 74,46809791 | 525,5438998 | 1543,220819 | 3084,714306 | 74,43051852 | 9,471248507 | 73,01696134 | 41,5 | -1,48632255 | 13,91963788 | 1,327824373 |
| 33 | 74,36401236 | 74,27130358 | 523,9471284 | 1539,983472 | 3076,007214 | 74,23382213 | 9,443869083 | 73,01696134 | 41,5 | -1,43820411 | 13,91963788 | 1,321670862 |
| 34 | 74,1674437 | 74,0749717 | 522,3548643 | 1535,706908 | 3067,323521 | 74,03758798 | 9,416553999 | 73,01696134 | 41,5 | -1,39002482 | 13,91963788 | 1,315531811 |
| 35 | 73,97129839 | 73,87906724 | 520,767096 | 1531,375143 | 3058,661665 | 73,84178103 | 9,38929838 | 73,01696134 | 41,5 | -1,34177774 | 13,91963788 | 1,309406125 |
| 36 | 73,77557766 | 73,68358712 | 519,183812 | 1527,050069 | 3050,021503 | 73,6463982 | 9,362101799 | 73,01696134 | 41,5 | -1,2934637 | 13,91963788 | 1,303293708 |
| 37 | 73,58028071 | 73,48853028 | 517,6050013 | 1522,735554 | 3041,402977 | 73,45143845 | 9,334964108 | 73,01696134 | 41,5 | -1,24508402 | 13,91963788 | 1,297194526 |
| 38 | 73,38417488 | 73,28336005 | 515,9831121 | 1566,462109 | 3261,610887 | 73,24055372 | 10,08830325 | 78,69076285 | 43,125 | -0,8719306 | 14,97343629 | 1,466507105 |
| 39 | 73,17737257 | 73,07220156 | 514,2949622 | 1623,128854 | 3251,582655 | 73,02951685 | 10,05670378 | 78,69076285 | 43,125 | -0,81981813 | 14,97343629 | 1,45940514 |
| 40 | 72,96891742 | 72,86367653 | 512,6119729 | 1622,868988 | 3241,683144 | 72,82111193 | 10,0254984 | 78,69076285 | 43,125 | -0,76816414 | 14,97343629 | 1,452391748 |
| 41 | 72,76077983 | 72,65580563 | 510,934106 | 1618,305057 | 3231,818314 | 72,61336077 | 9,994390913 | 78,69076285 | 43,125 | -0,7164834 | 14,97343629 | 1,445400356 |
| 42 | 72,55311356 | 72,44843238 | 509,2613456 | 1613,40949 | 3221,98072 | 72,40610697 | 9,963357897 | 78,69076285 | 43,125 | -0,66473917 | 14,97343629 | 1,438425702 |
| 43 | 72,34592994 | 72,24154325 | 507,593678 | 1608,499562 | 3212,169706 | 72,19933701 | 9,932397329 | 78,69076285 | 43,125 | -0,61292995 | 14,97343629 | 1,43146733 |
| 44 | 72,13922886 | 72,03513616 | 505,9310892 | 1603,600661 | 3202,38516 | 71,9930488 | 9,901508896 | 78,69076285 | 43,125 | -0,56105711 | 14,97343629 | 1,424525171 |
| 45 | 71,93300934 | 71,82920995 | 504,2735657 | 1598,714788 | 3433,026633 | 71,78066832 | 10,6918903 | 84,80544854 | 44,75 | -0,16874511 | 16,10259525 | 1,602162979 |
| 46 | 71,71912641 | 71,60100187 | 502,4969499 | 1695,991703 | 3421,402882 | 71,55261228 | 10,65516735 | 84,80544854 | 44,75 | -0,11174392 | 16,10259525 | 1,593909517 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 71,49915806 | 71,38001233 | 500,7262493 | 1706,229968 | 3410,151366 | 71,33176996 | 10,61960601 | 84,80544854 | 44,75 | -0,05633621 | 16,10259525 | 1,585917123 |
| 48 | 71,27912027 | 71,16019963 | 498,9613635 | 1702,184657 | 3398,964232 | 71,11210371 | 10,58423404 | 84,80544854 | 44,75 | -0,00101971 | 16,10259525 | 1,577967292 |
| 49 | 71,05957258 | 70,94099943 | 497,2022675 | 1696,754395 | 3387,81272 | 70,89304954 | 10,54896064 | 84,80544854 | 44,75 | 0,054344396 | 16,10259525 | 1,570039612 |
| 50 | 70,84056915 | 70,72235481 | 495,4489438 | 1691,201454 | 3376,693911 | 70,67455058 | 10,51377663 | 84,80544854 | 44,75 | 0,109768202 | 16,10259525 | 1,562132026 |
| 51 | 70,62211419 | 70,50425897 | 493,7013755 | 1685,650912 | 3365,607441 | 70,45660004 | 10,47868094 | 84,80544854 | 44,75 | 0,165251224 | 16,10259525 | 1,554244287 |
| 52 | 70,404207 | 70,28671013 | 491,9595459 | 1680,115129 | 3354,553198 | 70,23919613 | 10,44367327 | 84,80544854 | 44,75 | 0,220791745 | 16,10259525 | 1,546376331 |
| 53 | 70,18565807 | 70,05788969 | 490,1714864 | 1720,416713 | 3593,464826 | 70,00314458 | 11,2644064 | 91,39527743 | 46,375 | 0,637456827 | 17,31147781 | 1,730835675 |
| 54 | 69,955967 | 69,82195474 | 488,3119809 | 1784,581496 | 3580,588698 | 69,76739132 | 11,22359403 | 91,39527743 | 46,375 | 0,697261509 | 17,31147781 | 1,721663115 |
| 55 | 69,72396119 | 69,58960371 | 486,4590931 | 1786,264408 | 3567,91367 | 69,53521922 | 11,18340161 | 91,39527743 | 46,375 | 0,756377751 | 17,31147781 | 1,71262989 |
| 56 | 69,49223687 | 69,35822558 | 484,61276 | 1780,902726 | 3555,297163 | 69,30401927 | 11,14337748 | 91,39527743 | 46,375 | 0,815462593 | 17,31147781 | 1,703634488 |
| 57 | 69,26109667 | 69,12751331 | 482,7729564 | 1774,718666 | 3542,722393 | 69,07348466 | 11,10346853 | 91,39527743 | 46,375 | 0,874591329 | 17,31147781 | 1,694664973 |
| 58 | 69,03057553 | 68,89742885 | 480,939661 | 1768,453438 | 3530,187258 | 68,84357738 | 11,06366818 | 91,39527743 | 46,375 | 0,933771102 | 17,31147781 | 1,685719865 |
| 59 | 68,80067633 | 68,66796633 | 479,1128535 | 1762,195781 | 3517,69141 | 68,61429157 | 11,02397542 | 91,39527743 | 46,375 | 0,993000882 | 17,31147781 | 1,676798937 |
| 60 | 68,57139814 | 68,43912379 | 477,2925134 | 1755,956268 | 3766,516835 | 68,37732713 | 11,88041674 | 98,49717065 | 48 | 1,428820316 | 18,60446028 | 1,869283678 |
| 61 | 68,33453233 | 68,18512291 | 475,3437782 | 1854,140587 | 3751,666864 | 68,12355219 | 11,83320329 | 98,49717065 | 48 | 1,493825051 | 18,60446028 | 1,858672478 |
| 62 | 68,09075969 | 67,9394935 | 473,4025997 | 1869,058887 | 3737,313142 | 67,87814127 | 11,78754591 | 98,49717065 | 48 | 1,556924918 | 18,60446028 | 1,848411006 |
| 63 | 67,84667356 | 67,695605 | 471,4688325 | 1865,014179 | 3723,067802 | 67,63446972 | 11,74221213 | 98,49717065 | 48 | 1,619807704 | 18,60446028 | 1,838222263 |
| 64 | 67,60315273 | 67,45257049 | 469,542435 | 1858,343208 | 3708,878955 | 67,39165139 | 11,69703709 | 98,49717065 | 48 | 1,682697462 | 18,60446028 | 1,828069197 |
| 65 | 67,36031966 | 67,21026337 | 467,6233802 | 1851,320743 | 3694,739163 | 67,1495598 | 11,65199726 | 98,49717065 | 48 | 1,745623781 | 18,60446028 | 1,817946518 |
| 66 | 67,11819025 | 66,96866419 | 465,711643 | 1844,268929 | 3680,647251 | 66,90817553 | 11,60708902 | 98,49717065 | 48 | 1,808588764 | 18,60446028 | 1,807853414 |
| 67 | 66,87676528 | 66,72776874 | 463,8071985 | 1837,233387 | 3666,602935 | 66,66749436 | 11,56231158 | 98,49717065 | 48 | 1,871590618 | 18,60446028 | 1,797789709 |
| 68 | 66,63490564 | 66,47448151 | 461,853921 | 1873,523502 | 3922,373948 | 66,40517324 | 12,44510328 | 106,1509183 | 49,625 | 2,331801524 | 19,98586651 | 1,996196682 |
| 69 | 66,38168249 | 66,21282321 | 459,8247273 | 1943,144337 | 3906,005108 | 66,14378358 | 12,39286229 | 106,1509183 | 49,625 | 2,399560401 | 19,98586651 | 1,984455547 |
| 70 | 66,12546949 | 65,95578958 | 457,8039371 | 1947,272649 | 3889,933712 | 65,88701385 | 12,34154463 | 106,1509183 | 49,625 | 2,466366601 | 19,98586651 | 1,972921931 |
| 71 | 65,86944897 | 65,70017506 | 455,7914525 | 1941,262454 | 3873,959066 | 65,63166175 | 12,2905103 | 106,1509183 | 49,625 | 2,533043566 | 19,98586651 | 1,961451992 |
| 72 | 65,61413051 | 65,44546285 | 453,7872322 | 1933,617402 | 3858,048785 | 65,37721105 | 12,23965613 | 106,1509183 | 49,625 | 2,599721725 | 19,98586651 | 1,950022542 |
| 73 | 65,35959631 | 65,19156625 | 451,7912446 | 1925,727081 | 3842,197393 | 65,12357512 | 12,18896479 | 106,1509183 | 49,625 | 2,66642029 | 19,98586651 | 1,93862969 |
| 74 | 65,10585824 | 64,93846926 | 449,8034592 | 1917,820437 | 3826,403836 | 64,87073798 | 12,1384331 | 106,1509183 | 49,625 | 2,733140134 | 19,98586651 | 1,927272719 |
| 75 | 64,85291661 | 64,6861676 | 447,8238462 | 1909,935134 | 4090,971152 | 64,60836289 | 13,05356281 | 114,3994023 | 51,25 | 3,211461506 | 21,45988777 | 2,132947644 |
| 76 | 64,59261876 | 64,40585433 | 445,7078228 | 2006,651673 | 4072,211945 | 64,32838148 | 12,99347911 | 114,3994023 | 51,25 | 3,284504474 | 21,45988777 | 2,119443865 |
| 77 | 64,32474528 | 64,13499881 | 443,6013472 | 2026,042785 | 4054,095631 | 64,05784662 | 12,93542263 | 114,3994023 | 51,25 | 3,355343162 | 21,45988777 | 2,106395702 |
| 78 | 64,05625792 | 63,86658751 | 441,5042167 | 2022,334635 | 4036,152483 | 63,78975309 | 12,87789006 | 114,3994023 | 51,25 | 3,425793548 | 21,45988777 | 2,093465286 |
| 79 | 63,78839317 | 63,5993705 | 439,4163646 | 2014,380009 | 4018,298771 | 63,52285244 | 12,82061348 | 114,3994023 | 51,25 | 3,496177337 | 21,45988777 | 2,080592405 |
| 80 | 63,52138078 | 63,33311167 | 437,3377487 | 2005,653883 | 4000,518627 | 63,25690884 | 12,76354228 | 114,3994023 | 51,25 | 3,566552476 | 21,45988777 | 2,067765683 |
| 81 | 63,25526224 | 63,06776455 | 435,2683319 | 1996,810422 | 3982,80887 | 62,99187586 | 12,7066665 | 114,3994023 | 51,25 | 3,636927435 | 21,45988777 | 2,054982881 |
| 82 | 62,99004349 | 62,80331846 | 433,2080778 | 1987,973038 | 3965,168714 | 62,72774284 | 12,64998386 | 114,3994023 | 51,25 | 3,707301337 | 21,45988777 | 2,042243485 |
| 83 | 62,72464452 | 62,52546637 | 431,097231 | 2019,626245 | 4234,60702 | 62,43878585 | 13,58486062 | 123,2888369 | 52,875 | 4,208709568 | 23,03048579 | 2,25235655 |
| 84 | 62,44792152 | 62,23792724 | 428,907142 | 2092,180274 | 4214,050092 | 62,15163886 | 13,51872927 | 123,2888369 | 52,875 | 4,284221736 | 23,03048579 | 2,237493565 |
| 85 | 62,16759506 | 61,95608424 | 426,7275974 | 2098,864936 | 4193,912108 | 61,87018024 | 13,45390799 | 123,2888369 | 52,875 | 4,358500561 | 23,03048579 | 2,222925014 |
| 86 | 61,88733037 | 61,67623755 | 424,5584518 | 2092,39042 | 4173,928262 | 61,5907152 | 13,38954583 | 123,2888369 | 52,875 | 4,432508969 | 23,03048579 | 2,208459653 |
| 87 | 61,60788453 | 61,39761841 | 422,3996403 | 2083,173016 | 4154,043485 | 61,31247604 | 13,325466 | 123,2888369 | 52,875 | 4,506444423 | 23,03048579 | 2,194057744 |
| 88 | 61,32941625 | 61,12006131 | 420,2511146 | 2073,404583 | 4134,24585 | 61,03529747 | 13,26163043 | 123,2888369 | 52,875 | 4,580346332 | 23,03048579 | 2,179710733 |
| 89 | 61,05195721 | 60,8435288 | 418,1128303 | 2063,551669 | 4114,532581 | 60,75914209 | 13,1980305 | 123,2888369 | 52,875 | 4,654220471 | 23,03048579 | 2,165416683 |
| 90 | 60,77551206 | 60,56801076 | 415,984744 | 2053,713627 | 4390,929533 | 60,47134888 | 14,15935699 | 132,8690272 | 54,5 | 5,171301835 | 24,70127279 | 2,381474311 |
| 91 | 60,49211232 | 60,26182955 | 413,7142792 | 2146,454316 | 4367,552292 | 60,16564811 | 14,08384501 | 132,8690272 | 54,5 | 5,251854692 | 24,70127279 | 2,364503033 |
| 92 | 60,20069586 | 59,96606531 | 411,455717 | 2169,46211 | 4344,984548 | 59,87034797 | 14,01090212 | 132,8690272 | 54,5 | 5,329940395 | 24,70127279 | 2,348109155 |
| 93 | 59,9083539 | 59,67355737 | 409,2087853 | 2166,286015 | 4322,678975 | 59,57829903 | 13,93876232 | 132,8690272 | 54,5 | 5,407429017 | 24,70127279 | 2,331895772 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 59,61667481 | 59,38269623 | 406,9733809 | 2157,065113 | 4300,512523 | 59,28789429 | 13,86702865 | 132,8690272 | 54,5 | 5,484738753 | 24,70127279 | 2,315773667 |
| 95 | 59,32603022 | 59,09310028 | 404,7494395 | 2146,450109 | 4278,455935 | 58,99875277 | 13,79560701 | 132,8690272 | 54,5 | 5,561965592 | 24,70127279 | 2,299721692 |
| 96 | 59,03650606 | 58,80467633 | 402,536906 | 2135,541863 | 4256,501968 | 58,7107814 | 13,72447442 | 132,8690272 | 54,5 | 5,639129638 | 24,70127279 | 2,283734679 |
| 97 | 58,74812038 | 58,51739975 | 400,3357278 | 2124,602092 | 4234,648613 | 58,4239556 | 13,6536248 | 132,8690272 | 54,5 | 5,716232934 | 24,70127279 | 2,267811263 |
| 98 | 58,45986303 | 58,21589692 | 398,0833689 | 2150,985808 | 4512,999328 | 58,10906509 | 14,62508278 | 143,1936487 | 56,125 | 6,253323826 | 26,47537376 | 2,486145938 |
| 99 | 58,16061308 | 57,90343629 | 395,7500696 | 2223,609303 | 4487,562378 | 57,79716786 | 14,54250682 | 143,1936487 | 56,125 | 6,335744644 | 26,47537376 | 2,467587035 |
| 100 | 57,85728802 | 57,59770713 | 393,4298094 | 2232,462753 | 4462,689777 | 57,49198996 | 14,46170983 | 143,1936487 | 56,125 | 6,41665901 | 26,47537376 | 2,449427954 |
| 101 | 57,55388321 | 57,29466504 | 391,1223827 | 2225,640687 | 4438,051772 | 57,18949429 | 14,38162297 | 143,1936487 | 56,125 | 6,49712318 | 26,47537376 | 2,431428474 |
| 102 | 57,25141297 | 56,9932773 | 388,82769 | 2214,801892 | 4413,564086 | 56,88864998 | 14,30197332 | 143,1936487 | 56,125 | 6,577404036 | 26,47537376 | 2,413527255 |
| 103 | 56,95013951 | 56,69327126 | 386,5456592 | 2202,954878 | 4389,204356 | 56,58918488 | 14,22268881 | 143,1936487 | 56,125 | 6,657568636 | 26,47537376 | 2,395708104 |
| 104 | 56,65012893 | 56,3945725 | 384,2762256 | 2190,887343 | 4364,966354 | 56,29102471 | 14,14374979 | 143,1936487 | 56,125 | 6,737631805 | 26,47537376 | 2,3779666 |
| 105 | 56,35139584 | 56,0971587 | 382,0193266 | 2178,805975 | 4647,639275 | 55,97896441 | 15,13289245 | 154,3205475 | 57,75 | 7,286243756 | 28,35526299 | 2,600275896 |
| 106 | 56,04629131 | 55,76686079 | 379,6169727 | 2265,050091 | 4618,980699 | 55,64934984 | 15,03942937 | 154,3205475 | 57,75 | 7,37304376 | 28,35526299 | 2,579270118 |
| 107 | 55,73302384 | 55,44775593 | 377,2292177 | 2290,227843 | 4591,312723 | 55,33090517 | 14,94913354 | 154,3205475 | 57,75 | 7,45717613 | 28,35526299 | 2,558976178 |
| 108 | 55,41856907 | 55,13277874 | 374,8557093 | 2287,515602 | 4564,021389 | 55,01657963 | 14,86000571 | 154,3205475 | 57,75 | 7,540482188 | 28,35526299 | 2,538944744 |
| 109 | 55,10481483 | 54,82000963 | 372,4962955 | 2277,057855 | 4536,939838 | 54,70445759 | 14,77150268 | 154,3205475 | 57,75 | 7,623459881 | 28,35526299 | 2,519053735 |
| 110 | 54,79229339 | 54,50890082 | 370,1508797 | 2264,439402 | 4510,020326 | 54,39399242 | 14,68346947 | 154,3205475 | 57,75 | 7,706247962 | 28,35526299 | 2,499268316 |
| 111 | 54,48115424 | 54,19929197 | 367,8193817 | 2251,251705 | 4483,248727 | 54,08502411 | 14,59586069 | 154,3205475 | 57,75 | 7,788883474 | 28,35526299 | 2,479578289 |
| 112 | 54,17143717 | 53,89113381 | 365,5017259 | 2237,951227 | 4456,620547 | 53,77750348 | 14,50866241 | 154,3205475 | 57,75 | 7,87137427 | 28,35526299 | 2,45998052 |
| 113 | 53,8622151 | 53,5682287 | 363,1337999 | 2258,479856 | 4737,48034 | 53,43883692 | 15,49516493 | 166,3120648 | 59,375 | 8,434792117 | 30,34258777 | 2,681696446 |
| 114 | 53,54264548 | 53,23327659 | 360,6853535 | 2328,154096 | 4706,562832 | 53,10467857 | 15,39377263 | 166,3120648 | 59,375 | 8,522483874 | 30,34258777 | 2,658908582 |
| 115 | 53,21874735 | 52,90598667 | 358,2527485 | 2338,285994 | 4676,374564 | 52,77816425 | 15,29469974 | 166,3120648 | 59,375 | 8,608431672 | 30,34258777 | 2,636642001 |
| 116 | 52,89466373 | 52,58214947 | 355,835707 | 2331,069647 | 4646,526183 | 52,45509446 | 15,19667201 | 166,3120648 | 59,375 | 8,693725662 | 30,34258777 | 2,614610318 |
| 117 | 52,57163924 | 52,26049246 | 353,4340831 | 2318,598012 | 4616,899871 | 52,1341997 | 15,09930423 | 166,3120648 | 59,375 | 8,778692478 | 30,34258777 | 2,592726962 |
| 118 | 52,25005505 | 51,94061845 | 351,0477711 | 2304,554018 | 4587,458679 | 51,81508372 | 15,00247619 | 166,3120648 | 59,375 | 8,86343057 | 30,34258777 | 2,570964909 |
| 119 | 51,93002616 | 51,62240012 | 348,6766779 | 2290,078636 | 4558,190575 | 51,49761949 | 14,90614932 | 166,3120648 | 59,375 | 8,947967892 | 30,34258777 | 2,549315497 |
| 120 | 51,61158476 | 51,30579412 | 346,320715 | 2275,526721 | 4839,952398 | 51,16399339 | 15,89863897 | 179,235386 | 61 | 9,516854941 | 32,43795834 | 2,772377027 |
| 121 | 51,2875404 | 50,95478247 | 343,819947 | 2352,896131 | 4805,502144 | 50,81393274 | 15,78508644 | 179,235386 | 61 | 9,607795288 | 32,43795834 | 2,746856156 |
| 122 | 50,95553301 | 50,61550769 | 341,3367386 | 2378,361508 | 4772,229411 | 50,47557715 | 15,67533079 | 179,235386 | 61 | 9,69595418 | 32,43795834 | 2,722188632 |
| 123 | 50,62219253 | 50,28122781 | 338,8706495 | 2375,726641 | 4739,471167 | 50,14220293 | 15,56719101 | 179,235386 | 61 | 9,783062361 | 32,43795834 | 2,69788427 |
| 124 | 50,28961475 | 49,94980169 | 336,4214662 | 2364,017047 | 4707,016748 | 49,81167473 | 15,45997441 | 179,235386 | 61 | 9,869667078 | 32,43795834 | 2,673787396 |
| 125 | 49,95848743 | 49,62051788 | 333,9890491 | 2349,356638 | 4674,795967 | 49,48328305 | 15,35345085 | 179,235386 | 61 | 9,955946829 | 32,43795834 | 2,649846282 |
| 126 | 49,62903622 | 49,29313433 | 331,573283 | 2333,774927 | 4642,78472 | 49,15678648 | 15,24754203 | 179,235386 | 61 | 10,04195878 | 32,43795834 | 2,626043329 |
| 127 | 49,30133258 | 48,96756564 | 329,1740615 | 2317,950242 | 4610,974277 | 48,83209984 | 15,14222031 | 179,235386 | 61 | 10,12771955 | 32,43795834 | 2,602372328 |
| 128 | 48,97454708 | 48,62714259 | 326,7272457 | 2332,163237 | 4886,437295 | 48,47364485 | 16,11646388 | 193,1629171 | 62,625 | 10,70395378 | 34,64073142 | 2,821333062 |
| 129 | 48,63837847 | 48,27392284 | 324,2028652 | 2395,947317 | 4849,654193 | 48,12151689 | 15,99448418 | 193,1629171 | 62,625 | 10,79443049 | 34,64073142 | 2,793918188 |
| 130 | 48,29790687 | 47,92912584 | 321,6973263 | 2406,070302 | 4813,776496 | 47,77778565 | 15,87541316 | 193,1629171 | 62,625 | 10,8829901 | 34,64073142 | 2,767157039 |
| 131 | 47,95723231 | 47,58856534 | 319,21027 | 2398,206056 | 4778,367083 | 47,43827781 | 15,75780516 | 193,1629171 | 62,625 | 10,97069256 | 34,64073142 | 2,740724702 |
| 132 | 47,6177689 | 47,25078681 | 316,7414916 | 2384,097167 | 4743,273893 | 47,10154334 | 15,64115788 | 193,1629171 | 62,625 | 11,05790332 | 34,64073142 | 2,714508287 |
| 133 | 47,28001357 | 46,91526904 | 314,2908407 | 2367,838362 | 4708,442192 | 46,76706264 | 15,52529132 | 193,1629171 | 62,625 | 11,14474995 | 34,64073142 | 2,688467337 |
| 134 | 46,94413919 | 46,58182067 | 311,8581869 | 2350,884762 | 4673,851619 | 46,43464495 | 15,4101394 | 193,1629171 | 62,625 | 11,23127581 | 34,64073142 | 2,662587003 |
| 135 | 46,61020278 | 46,25036824 | 309,4434073 | 2333,756308 | 4946,166995 | 46,08401707 | 16,3761666 | 208,1726906 | 64,25 | 11,80512046 | 36,94878768 | 2,879701113 |
| 136 | 46,27160823 | 45,88396932 | 306,8888794 | 2400,20548 | 4905,70867 | 45,7189072 | 16,24126293 | 208,1726906 | 64,25 | 11,89727106 | 36,94878768 | 2,849381583 |
| 137 | 45,92562207 | 45,52957862 | 304,3549865 | 2423,878011 | 4866,608466 | 45,36576331 | 16,11078054 | 208,1726906 | 64,25 | 11,9866321 | 36,94878768 | 2,820055735 |
| 138 | 45,57833071 | 45,18097472 | 301,8411978 | 2420,657672 | 4828,177589 | 45,01838586 | 15,98242878 | 208,1726906 | 64,25 | 12,07475303 | 36,94878768 | 2,791208744 |
| 139 | 45,23192116 | 44,83590872 | 299,3472282 | 2407,609229 | 4790,166899 | 44,67453386 | 15,85537964 | 208,1726906 | 64,25 | 12,16219154 | 36,94878768 | 2,762654515 |
| 140 | 44,8872058 | 44,49353337 | 296,8728832 | 2390,943326 | 4752,482269 | 44,33336305 | 15,72932116 | 208,1726906 | 64,25 | 12,24915464 | 36,94878768 | 2,734322938 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 141 | 44,54448677 | 44,15352192 | 294,4180028 | 2372,988474 | 4715,087088 | 43,99454782 | 15,60413304 | 208,1726906 | 64,25 | 12,33571885 | 36,94878768 | 2,706186974 |
| 142 | 44,2038733 | 43,81574438 | 291,9824407 | 2354,626531 | 4677,966481 | 43,65795864 | 15,47976742 | 208,1726906 | 64,25 | 12,42191131 | 36,94878768 | 2,678235865 |
| 143 | 43,86464717 | 43,46352104 | 289,5038565 | 2362,2839 | 4939,104177 | 43,28580443 | 16,41012975 | 224,3488024 | 65,875 | 12,9936489 | 39,35830394 | 2,887334313 |
| 144 | 43,51730273 | 43,0982482 | 286,9534339 | 2417,587444 | 4896,436815 | 42,92199047 | 16,26693874 | 224,3488024 | 65,875 | 13,08368463 | 39,35830394 | 2,85515221 |
| 145 | 43,16599221 | 42,74193019 | 284,4248642 | 2426,221267 | 4854,85003 | 42,56709557 | 16,12725813 | 224,3488024 | 65,875 | 13,17171934 | 39,35830394 | 2,823759065 |
| 146 | 42,81459397 | 42,39058125 | 281,9177031 | 2417,287301 | 4813,876631 | 42,2171499 | 15,98952545 | 224,3488024 | 65,875 | 13,25872377 | 39,35830394 | 2,792803717 |
| 147 | 42,46460662 | 42,04264681 | 279,4316773 | 2401,536717 | 4773,334147 | 41,87060509 | 15,85313129 | 224,3488024 | 65,875 | 13,34507392 | 39,35830394 | 2,762149201 |
| 148 | 42,11661911 | 41,69750228 | 276,9665815 | 2383,159671 | 4733,148934 | 41,52683904 | 15,71783081 | 224,3488024 | 65,875 | 13,43091784 | 39,35830394 | 2,731740487 |
| 149 | 41,77086088 | 41,35489069 | 274,5222382 | 2363,822005 | 4693,290334 | 41,18559583 | 15,58352327 | 224,3488024 | 65,875 | 13,51631333 | 39,35830394 | 2,701554937 |
| 150 | 41,42741753 | 41,0147022 | 272,0984813 | 2344,190505 | 4946,943301 | 40,82460239 | 16,49007543 | 241,781883 | 67,5 | 14,07649743 | 41,86354314 | 2,905302064 |
| 151 | 41,08040856 | 40,64024906 | 269,5447702 | 2398,223986 | 4900,7106 | 40,45184217 | 16,3340248 | 241,781883 | 67,5 | 14,16631926 | 41,86354314 | 2,870229766 |
| 152 | 40,7269391 | 40,27777471 | 267,0146545 | 2418,121897 | 4855,995099 | 40,09100658 | 16,18296624 | 241,781883 | 67,5 | 14,25345871 | 41,86354314 | 2,836279432 |
| 153 | 40,37239974 | 39,92173125 | 264,5075175 | 2413,516173 | 4812,109524 | 39,73657281 | 16,0345877 | 241,781883 | 67,5 | 14,33923316 | 41,86354314 | 2,802931434 |
| 154 | 40,01894394 | 39,56988454 | 262,0229967 | 2398,998765 | 4768,776869 | 39,38631682 | 15,88795813 | 241,781883 | 67,5 | 14,42417092 | 41,86354314 | 2,769976515 |
| 155 | 39,66745684 | 39,22130027 | 259,5608338 | 2380,448928 | 4725,880936 | 39,03930851 | 15,74268816 | 241,781883 | 67,5 | 14,50849027 | 41,86354314 | 2,737327165 |
| 156 | 39,31830245 | 38,87557835 | 257,1208145 | 2360,305558 | 4683,371573 | 38,69514962 | 15,59861106 | 241,781883 | 67,5 | 14,59228182 | 41,86354314 | 2,70494591 |
| 157 | 38,9716267 | 38,53254235 | 254,7027441 | 2339,591732 | 4641,22626 | 38,3536645 | 15,45565329 | 241,781883 | 67,5 | 14,6755827 | 41,86354314 | 2,672816226 |
| 158 | 38,6268315 | 38,17604763 | 252,2480298 | 2340,770828 | 4878,959087 | 37,97602432 | 16,30911493 | 260,5696055 | 69,125 | 15,22300103 | 44,45667439 | 2,864631285 |
| 159 | 38,27543047 | 37,80686949 | 249,7299064 | 2385,642261 | 4830,904655 | 37,60872952 | 16,14582787 | 260,5696055 | 69,125 | 15,30894814 | 44,45667439 | 2,827932605 |
| 160 | 37,92070348 | 37,44690312 | 247,2363945 | 2391,38422 | 4784,089105 | 37,25059951 | 15,98661518 | 260,5696055 | 69,125 | 15,39291512 | 44,45667439 | 2,792149635 |
| 161 | 37,56615783 | 37,09251258 | 244,7669677 | 2380,911565 | 4738,037123 | 36,89801688 | 15,82986867 | 260,5696055 | 69,125 | 15,47573832 | 44,45667439 | 2,756920938 |
| 162 | 37,21328152 | 36,74213598 | 242,3212797 | 2363,550541 | 4692,544189 | 36,54942771 | 15,67489752 | 260,5696055 | 69,125 | 15,55777478 | 44,45667439 | 2,722091253 |
| 163 | 36,86271476 | 36,3950829 | 239,8990627 | 2343,28573 | 4647,519477 | 36,20414511 | 15,52139635 | 260,5696055 | 69,125 | 15,63917983 | 44,45667439 | 2,687591946 |
| 164 | 36,51473044 | 36,05104067 | 237,5000842 | 2321,853825 | 4602,921415 | 35,86185799 | 15,36922689 | 260,5696055 | 69,125 | 15,72002126 | 44,45667439 | 2,653391938 |
| 165 | 36,16944019 | 35,70986249 | 235,1241277 | 2300,017592 | 4558,730042 | 35,52242032 | 15,21832418 | 260,5696055 | 69,125 | 15,80032843 | 44,45667439 | 2,619476634 |
| 166 | 35,82365933 | 35,34256792 | 232,660133 | 2328,947894 | 4778,710609 | 35,1338967 | 16,01160321 | 280,8172328 | 70,75 | 16,32879065 | 47,1276354 | 2,797765683 |
| 167 | 35,47187959 | 34,97957783 | 230,1942882 | 2350,292055 | 4728,989716 | 34,77298893 | 15,84151591 | 280,8172328 | 70,75 | 16,4103712 | 47,1276354 | 2,759538651 |
| 168 | 35,11883654 | 34,62410123 | 227,7539619 | 2346,53621 | 4680,33894 | 34,41955155 | 15,67494924 | 280,8172328 | 70,75 | 16,49040233 | 47,1276354 | 2,722102877 |
| 169 | 34,76688547 | 34,27367171 | 225,3386817 | 2331,796315 | 4632,418554 | 34,07113229 | 15,51074748 | 280,8172328 | 70,75 | 16,5694305 | 47,1276354 | 2,685198617 |
| 170 | 34,41707472 | 33,92716988 | 222,9481059 | 2312,206605 | 4585,073957 | 33,7266182 | 15,34838613 | 280,8172328 | 70,75 | 16,6477016 | 47,1276354 | 2,648707989 |
| 171 | 34,06987226 | 33,58407494 | 220,5819536 | 2290,521426 | 4538,232746 | 33,38549144 | 15,18762116 | 280,8172328 | 70,75 | 16,72532782 | 47,1276354 | 2,612576146 |
| 172 | 33,72548271 | 33,24413781 | 218,2399722 | 2267,994813 | 4491,859819 | 33,04750439 | 15,02833585 | 280,8172328 | 70,75 | 16,80236061 | 47,1276354 | 2,576776856 |
| 173 | 33,3834437 | 32,89230909 | 215,8691566 | 2263,222248 | 4698,182259 | 32,67428782 | 15,77483765 | 302,6382071 | 72,375 | 17,30547271 | 49,86410577 | 2,744552745 |
| 174 | 33,0364613 | 32,52883137 | 213,4455964 | 2296,633973 | 4645,847293 | 32,31314599 | 15,59475751 | 302,6382071 | 72,375 | 17,38378018 | 49,86410577 | 2,704079828 |
| 175 | 32,68703674 | 32,17452118 | 211,0488414 | 2298,453622 | 4594,875265 | 31,96111277 | 15,41921929 | 302,6382071 | 72,375 | 17,46023383 | 49,86410577 | 2,664627705 |
| 176 | 32,3382009 | 31,82619946 | 208,6782958 | 2286,101479 | 4544,806079 | 31,61502955 | 15,24664799 | 302,6382071 | 72,375 | 17,53551057 | 49,86410577 | 2,625842395 |
| 177 | 31,99134189 | 31,48238505 | 206,3335429 | 2267,270599 | 4495,424943 | 31,27342466 | 15,07630977 | 302,6382071 | 72,375 | 17,60992406 | 49,86410577 | 2,587558968 |
| 178 | 31,64710194 | 31,14236841 | 204,0142508 | 2245,508046 | 4446,628482 | 30,93559315 | 14,9078531 | 302,6382071 | 72,375 | 17,68362265 | 49,86410577 | 2,54969842 |
| 179 | 31,30577466 | 30,80580097 | 201,7201287 | 2222,481038 | 4398,365398 | 30,60118865 | 14,74110529 | 302,6382071 | 72,375 | 17,7566773 | 49,86410577 | 2,512221937 |
| 180 | 30,9674885 | 30,4725051 | 199,4509065 | 2198,979544 | 4350,609054 | 30,27003472 | 14,57597834 | 302,6382071 | 72,375 | 17,82912234 | 49,86410577 | 2,475109741 |
| 181 | 30,62961435 | 30,11597533 | 197,1083619 | 2216,809601 | 4535,998999 | 29,89262286 | 15,24980559 | 326,1547858 | 74 | 18,30350307 | 52,65150409 | 2,626552063 |
| 182 | 30,28735446 | 29,76366944 | 194,7689943 | 2230,518132 | 4482,830351 | 29,54284317 | 15,06564132 | 326,1547858 | 74 | 18,37598196 | 52,65150409 | 2,58516124 |
| 183 | 29,94452307 | 29,41894773 | 192,4569087 | 2223,770476 | 4430,848884 | 29,20059327 | 14,8854416 | 326,1547858 | 74 | 18,446999 | 52,65150409 | 2,544661447 |
| 184 | 29,60316392 | 29,07963642 | 190,1715682 | 2207,43378 | 4379,72439 | 28,86371499 | 14,70807011 | 326,1547858 | 74 | 18,51699539 | 52,65150409 | 2,504797298 |
| 185 | 29,26424965 | 28,74467322 | 187,9125671 | 2186,582587 | 4329,29502 | 28,53115362 | 14,53297155 | 326,1547858 | 74 | 18,5861852 | 52,65150409 | 2,465443988 |
| 186 | 28,92824278 | 28,41352564 | 185,6795646 | 2163,65772 | 4279,479126 | 28,20238053 | 14,35986757 | 326,1547858 | 74 | 18,65467411 | 52,65150409 | 2,426538959 |
| 187 | 28,59535785 | 28,08591891 | 183,4722527 | 2139,849161 | 4230,23405 | 27,87712289 | 14,18861454 | 326,1547858 | 74 | 18,72251511 | 52,65150409 | 2,388049928 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | 28,26524638 | 27,74844085 | 181,2446951 | 2129,958303 | 4399,476076 | 27,5191715 | 14,80579402 | 351,4987262 | 75,625 | 19,16403276 | 55,47316786 | 2,526760696 |
| 189 | 27,93188827 | 27,40094164 | 178,9764353 | 2151,8798 | 4344,579345 | 27,17444042 | 14,61456077 | 351,4987262 | 75,625 | 19,23182669 | 55,47316786 | 2,483781123 |
| 190 | 27,59711693 | 27,06225416 | 176,736296 | 2149,309559 | 4291,117806 | 26,83845089 | 14,42817673 | 351,4987262 | 75,625 | 19,29798387 | 55,47316786 | 2,441891407 |
| 191 | 27,26342885 | 26,72971807 | 174,5236339 | 2135,015338 | 4238,668661 | 26,50856374 | 14,24517788 | 351,4987262 | 75,625 | 19,36301761 | 55,47316786 | 2,400762511 |
| 192 | 26,93204048 | 26,40200548 | 172,3379742 | 2115,038614 | 4187,020401 | 26,18346166 | 14,06483346 | 351,4987262 | 75,625 | 19,4271829 | 55,47316786 | 2,360230196 |
| 193 | 26,60354768 | 26,07843531 | 170,1789276 | 2092,347262 | 4136,064021 | 25,86246901 | 13,88676867 | 351,4987262 | 75,625 | 19,49060919 | 55,47316786 | 2,320210227 |
| 194 | 26,27823744 | 25,75864868 | 168,046149 | 2068,425489 | 4085,741545 | 25,54522976 | 13,71078601 | 351,4987262 | 75,625 | 19,5533634 | 55,47316786 | 2,280658216 |
| 195 | 25,95624111 | 25,44244918 | 165,9393176 | 2044,021429 | 4036,020723 | 25,23154906 | 13,53677739 | 351,4987262 | 75,625 | 19,6154809 | 55,47316786 | 2,241549869 |
| 196 | 25,63547381 | 25,1067228 | 163,7754101 | 2051,944042 | 4182,926802 | 24,87645519 | 14,07496725 | 378,8120239 | 77,25 | 20,02107816 | 58,3106327 | 2,36250776 |
| 197 | 25,31195522 | 24,77512432 | 161,6192903 | 2058,054418 | 4128,255805 | 24,54777779 | 13,88331338 | 378,8120239 | 77,25 | 20,08215773 | 58,3106327 | 2,319433653 |
| 198 | 24,98863328 | 24,4508842 | 159,4912192 | 2048,257597 | 4074,839158 | 24,22639394 | 13,69591242 | 378,8120239 | 77,25 | 20,141946 | 58,3106327 | 2,277315385 |
| 199 | 24,66718771 | 24,13217741 | 157,390618 | 2030,580077 | 4022,373728 | 23,91049467 | 13,51170956 | 378,8120239 | 77,25 | 20,200775 | 58,3106327 | 2,235915888 |
| 200 | 24,34846142 | 23,81805396 | 155,317031 | 2009,003556 | 3970,701223 | 23,59913837 | 13,33015573 | 378,8120239 | 77,25 | 20,25881649 | 58,3106327 | 2,195111759 |
| 201 | 24,03287479 | 23,50800624 | 153,2700671 | 1985,555389 | 3919,736525 | 23,29182189 | 13,15095755 | 378,8120239 | 77,25 | 20,31616124 | 58,3106327 | 2,154837061 |
| 202 | 23,72063091 | 23,20175433 | 151,2493707 | 1961,280861 | 3869,43218 | 22,98826779 | 12,97395323 | 378,8120239 | 77,25 | 20,37285824 | 58,3106327 | 2,115055434 |
| 203 | 23,41147776 | 22,88791479 | 149,2169483 | 1947,504273 | 3999,332753 | 22,65601954 | 13,45141684 | 408,2477083 | 78,875 | 20,7411634 | 61,14401153 | 2,22236513 |
| 204 | 23,10066183 | 22,56609524 | 147,1560912 | 1958,959577 | 3944,041048 | 22,33731978 | 13,25655102 | 408,2477083 | 78,875 | 20,7967548 | 61,14401153 | 2,178569139 |
| 205 | 22,78947201 | 22,25244673 | 145,1235617 | 1952,217293 | 3890,193365 | 22,02671186 | 13,06663288 | 408,2477083 | 78,875 | 20,85098623 | 61,14401153 | 2,135885136 |
| 206 | 22,47986463 | 21,94483938 | 143,1186978 | 1936,29615 | 3837,4213 | 21,72208653 | 12,88037273 | 408,2477083 | 78,875 | 20,90422191 | 61,14401153 | 2,094023265 |
| 207 | 22,17284088 | 21,64214552 | 141,140988 | 1915,720153 | 3785,529324 | 21,42232706 | 12,69708777 | 408,2477083 | 78,875 | 20,95665388 | 61,14401153 | 2,052830065 |
| 208 | 21,86891265 | 21,34375171 | 139,190001 | 1892,832138 | 3734,410552 | 21,12682596 | 12,51640654 | 408,2477083 | 78,875 | 21,00838578 | 61,14401153 | 2,012222052 |
| 209 | 21,56833544 | 21,04931432 | 137,2653502 | 1868,864864 | 3684,004597 | 20,83524292 | 12,33812097 | 408,2477083 | 78,875 | 21,05947483 | 61,14401153 | 1,972152464 |
| 210 | 21,2712288 | 20,75863299 | 135,3666745 | 1844,471733 | 3634,275758 | 20,54737952 | 12,16210974 | 408,2477083 | 78,875 | 21,10995367 | 61,14401153 | 1,932594032 |
| 211 | 20,97600754 | 20,45256566 | 133,4271269 | 1844,318467 | 3742,489748 | 20,22450018 | 12,56171854 | 439,9707 | 80,5 | 21,43894416 | 63,95257402 | 2,022405901 |
| 212 | 20,67953103 | 20,15048569 | 131,4990506 | 1843,736156 | 3688,570816 | 19,92562674 | 12,37058128 | 439,9707 | 80,5 | 21,48765017 | 63,95257402 | 1,979447901 |
| 213 | 20,38397908 | 19,85526313 | 129,5986352 | 1831,36787 | 3635,912708 | 19,63353792 | 12,18378296 | 439,9707 | 80,5 | 21,535289 | 63,95257402 | 1,937465077 |
| 214 | 20,09065731 | 19,56543775 | 127,7252885 | 1812,902619 | 3584,252657 | 19,34678898 | 12,00039963 | 439,9707 | 80,5 | 21,58209349 | 63,95257402 | 1,896249769 |
| 215 | 19,8002478 | 19,28020687 | 125,878527 | 1791,309579 | 3533,445744 | 19,06458577 | 11,81992342 | 439,9707 | 80,5 | 21,62819099 | 63,95257402 | 1,855687835 |
| 216 | 19,51310214 | 18,99911695 | 124,0579277 | 1768,173371 | 3483,409587 | 18,78647957 | 11,64206735 | 439,9707 | 80,5 | 21,67365284 | 63,95257402 | 1,815714775 |
| 217 | 19,2293939 | 18,72190282 | 122,2631025 | 1744,349129 | 3434,095544 | 18,51220802 | 11,46666363 | 439,9707 | 80,5 | 21,71852013 | 63,95257402 | 1,776292881 |
| 218 | 18,94894584 | 18,43939449 | 120,4641396 | 1728,141861 | 3526,179805 | 18,2142471 | 11,80785202 | 474,1587349 | 82,125 | 22,00955162 | 66,71526559 | 1,852974795 |
| 219 | 18,66817379 | 18,15109481 | 118,6480329 | 1730,987207 | 3472,807469 | 17,92928086 | 11,61773604 | 474,1587349 | 82,125 | 22,05266053 | 66,71526559 | 1,810246326 |
| 220 | 18,38794385 | 17,87009838 | 116,859276 | 1720,89807 | 3420,821741 | 17,65153342 | 11,4324361 | 474,1587349 | 82,125 | 22,09470714 | 66,71526559 | 1,768600261 |
| 221 | 18,10971153 | 17,59477407 | 115,0972209 | 1704,012698 | 3369,91845 | 17,37939252 | 11,25087657 | 474,1587349 | 82,125 | 22,13593316 | 66,71526559 | 1,727794852 |
| 222 | 17,83424992 | 17,32421309 | 113,3613461 | 1683,56539 | 3319,927679 | 17,11195987 | 11,07245817 | 474,1587349 | 82,125 | 22,17647279 | 66,71526559 | 1,687695409 |
| 223 | 17,5619661 | 17,05789486 | 111,6512013 | 1661,306089 | 3270,751635 | 16,84872091 | 10,8968376 | 474,1587349 | 82,125 | 22,21640242 | 66,71526559 | 1,648224778 |
| 224 | 17,29306703 | 16,79551152 | 109,9663778 | 1638,194658 | 3222,332033 | 16,58937135 | 10,72381185 | 474,1587349 | 82,125 | 22,25576677 | 66,71526559 | 1,609337331 |
| 225 | 17,0276491 | 16,53687305 | 108,3064919 | 1614,760877 | 3174,632477 | 16,33372336 | 10,55325561 | 474,1587349 | 82,125 | 22,29459302 | 66,71526559 | 1,571004906 |
| 226 | 16,76455665 | 16,26696164 | 106,6203734 | 1608,742029 | 3247,541966 | 16,05023556 | 10,82473484 | 511,0033597 | 83,75 | 22,5470494 | 69,41152802 | 1,63201972 |
| 227 | 16,50143286 | 16,00082229 | 104,9481256 | 1603,008805 | 3196,595682 | 15,78743028 | 10,64231768 | 511,0033597 | 83,75 | 22,58377698 | 69,41152802 | 1,591021558 |
| 228 | 16,23981614 | 15,74082121 | 103,3020135 | 1588,965057 | 3146,854907 | 15,53068638 | 10,46410781 | 511,0033597 | 83,75 | 22,61967884 | 69,41152802 | 1,550968984 |
| 229 | 15,98066474 | 15,48584375 | 101,6814622 | 1570,482685 | 3098,104427 | 15,27890316 | 10,28934123 | 511,0033597 | 83,75 | 22,65490734 | 69,41152802 | 1,511690287 |
| 230 | 15,72449354 | 15,23524721 | 100,0859872 | 1549,670124 | 3050,219728 | 15,03144598 | 10,11757742 | 511,0033597 | 83,75 | 22,68954993 | 69,41152802 | 1,47308646 |
| 231 | 15,47157282 | 14,98864991 | 98,51515687 | 1527,69701 | 3003,126451 | 14,78793794 | 9,948554772 | 511,0033597 | 83,75 | 22,72365824 | 69,41152802 | 1,435098707 |
| 232 | 15,22203598 | 14,74581661 | 96,96857174 | 1505,218256 | 2956,778367 | 14,54814674 | 9,782112038 | 511,0033597 | 83,75 | 22,75726374 | 69,41152802 | 1,39769079 |
| 233 | 14,97575901 | 14,49974692 | 95,42383617 | 1488,065402 | 3015,871596 | 14,29005805 | 10,00295924 | 550,7110054 | 85,375 | 22,97464952 | 72,02191102 | 1,447326082 |
| 234 | 14,73016138 | 14,2499439 | 93,871301 | 1484,628056 | 2966,512381 | 14,04362732 | 9,825475111 | 550,7110054 | 85,375 | 23,00627344 | 72,02191102 | 1,407436618 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 235 | 14,48579714 | 14,0064337 | 92,34406484 | 1472,406729 | 2918,424132 | 13,80340446 | 9,652462017 | 550,7110054 | 85,375 | 23,03711665 | 72,02191102 | 1,368552015 |
| 236 | 14,24369282 | 13,76802031 | 90,84152403 | 1455,429118 | 2871,368719 | 13,5682096 | 9,483070183 | 550,7110054 | 85,375 | 23,06732937 | 72,02191102 | 1,330481289 |
| 237 | 14,00440789 | 13,53400678 | 89,36317533 | 1435,90657 | 2825,207009 | 13,3373552 | 9,316804438 | 550,7110054 | 85,375 | 23,09699889 | 72,02191102 | 1,293113149 |
| 238 | 13,7682416 | 13,30397504 | 87,90857479 | 1415,079575 | 2779,855158 | 13,11042884 | 9,153367735 | 550,7110054 | 85,375 | 23,12617732 | 72,02191102 | 1,256380836 |
| 239 | 13,53534581 | 13,07766539 | 86,47731469 | 1393,651858 | 2735,260729 | 12,88717432 | 8,992575565 | 550,7110054 | 85,375 | 23,15489678 | 72,02191102 | 1,220242879 |
| 240 | 13,30578832 | 12,85490899 | 85,06901034 | 1372,024558 | 2691,389303 | 12,66742509 | 8,834307971 | 550,7110054 | 85,375 | 23,18317794 | 72,02191102 | 1,18467232 |
| 241 | 13,07875927 | 12,62454883 | 83,64642514 | 1362,399327 | 2735,06982 | 12,42693635 | 8,99851883 | 593,5041438 | 87 | 23,36621154 | 74,52872415 | 1,221578625 |
| 242 | 12,85257358 | 12,39765561 | 82,23871112 | 1353,344423 | 2688,928859 | 12,20332607 | 8,831864941 | 593,5041438 | 87 | 23,39243603 | 74,52872415 | 1,18412325 |
| 243 | 12,62826574 | 12,17604664 | 80,85466885 | 1338,716266 | 2643,885887 | 11,98492358 | 8,669092359 | 593,5041438 | 87 | 23,41806082 | 74,52872415 | 1,147540197 |
| 244 | 12,40649917 | 11,95890833 | 79,49376765 | 1321,048972 | 2599,773985 | 11,77092706 | 8,509603482 | 593,5041438 | 87 | 23,44317918 | 74,52872415 | 1,111695155 |
| 245 | 12,187636 | 11,74575102 | 78,15554809 | 1301,771883 | 2556,492367 | 11,56085395 | 8,353038669 | 593,5041438 | 87 | 23,46784703 | 74,52872415 | 1,076507295 |
| 246 | 11,97186649 | 11,53627048 | 76,8395942 | 1281,703297 | 2513,978091 | 11,35440441 | 8,19917446 | 593,5041438 | 87 | 23,49209897 | 74,52872415 | 1,041926395 |
| 247 | 11,75928186 | 11,3302699 | 75,54551765 | 1261,315111 | 2472,190139 | 11,15138447 | 8,047866292 | 593,5041438 | 87 | 23,5159572 | 74,52872415 | 1,007919963 |
| 248 | 11,54979347 | 11,12268194 | 74,25735564 | 1244,529755 | 2505,187289 | 10,93518246 | 8,172530002 | 639,6225338 | 88,625 | 23,66934423 | 76,91669168 | 1,035938067 |
| 249 | 11,3416238 | 10,91307355 | 72,96827129 | 1237,184873 | 2461,395697 | 10,72880724 | 8,013793013 | 639,6225338 | 88,625 | 23,69134096 | 76,91669168 | 1,000262011 |
| 250 | 11,13510827 | 10,70870041 | 71,70163783 | 1224,143782 | 2418,71825 | 10,52758653 | 7,859020695 | 639,6225338 | 88,625 | 23,71279627 | 76,91669168 | 0,965477014 |
| 251 | 10,93093259 | 10,50872089 | 70,45691852 | 1207,958091 | 2376,977755 | 10,33069166 | 7,707575674 | 639,6225338 | 88,625 | 23,73379789 | 76,91669168 | 0,931439824 |
| 252 | 10,72947571 | 10,31262441 | 69,23365238 | 1190,077206 | 2336,066432 | 10,13761994 | 7,559071297 | 639,6225338 | 88,625 | 23,75439892 | 76,91669168 | 0,898063543 |
| 253 | 10,53094027 | 10,1200915 | 68,03142512 | 1171,338504 | 2295,916556 | 9,94805681 | 7,41326561 | 639,6225338 | 88,625 | 23,77463245 | 76,91669168 | 0,865293791 |
| 254 | 10,33542623 | 9,930914451 | 66,84985215 | 1152,229976 | 2256,483841 | 9,761797792 | 7,270001336 | 639,6225338 | 88,625 | 23,79451988 | 76,91669168 | 0,83309522 |
| 255 | 10,14297341 | 9,744951624 | 65,68856865 | 1133,036871 | 2217,737851 | 9,578703412 | 7,129171196 | 639,6225338 | 88,625 | 23,81407571 | 76,91669168 | 0,801443719 |
| 256 | 9,953033704 | 9,554340675 | 64,52176753 | 1121,802431 | 2239,520684 | 9,381159672 | 7,212237518 | 689,3245651 | 90,25 | 23,9394548 | 79,17333493 | 0,820112832 |
| 257 | 9,764454884 | 9,366810488 | 63,36957805 | 1111,181783 | 2199,380101 | 9,196696985 | 7,066192256 | 689,3245651 | 90,25 | 23,957243 | 79,17333493 | 0,787289235 |
| 258 | 9,577899152 | 9,183667008 | 62,23798383 | 1097,00725 | 2160,195198 | 9,016549251 | 6,923563287 | 689,3245651 | 90,25 | 23,97462048 | 79,17333493 | 0,755233449 |
| 259 | 9,393799409 | 9,004340188 | 61,12651768 | 1080,877532 | 2121,842884 | 8,840155745 | 6,783906666 | 689,3245651 | 90,25 | 23,99164093 | 79,17333493 | 0,723845696 |
| 260 | 9,212392348 | 8,828473246 | 60,03476566 | 1063,720644 | 2084,24588 | 8,667165522 | 6,646944538 | 689,3245651 | 90,25 | 24,00833785 | 79,17333493 | 0,693063529 |
| 261 | 9,033799748 | 8,655834958 | 58,96234774 | 1046,081469 | 2047,353877 | 8,497351143 | 6,51249683 | 689,3245651 | 90,25 | 24,0247329 | 79,17333493 | 0,662846477 |
| 262 | 8,858075512 | 8,48626882 | 57,90890623 | 1028,28156 | 2011,132615 | 8,33055866 | 6,380441659 | 689,3245651 | 90,25 | 24,04084064 | 79,17333493 | 0,633167146 |
| 263 | 8,685153711 | 8,316287109 | 56,86357725 | 1012,85369 | 2025,499653 | 8,154939107 | 6,435805053 | 742,8887053 | 91,875 | 24,1431325 | 81,28923109 | 0,64561004 |
| 264 | 8,513858324 | 8,145546806 | 55,82171516 | 1003,667407 | 1988,121112 | 7,987145403 | 6,299406842 | 742,8887053 | 91,875 | 24,15769926 | 81,28923109 | 0,614954613 |
| 265 | 8,344379701 | 7,979024466 | 54,79902105 | 990,9539944 | 1951,680072 | 7,823496871 | 6,166378208 | 742,8887053 | 91,875 | 24,17190994 | 81,28923109 | 0,585056497 |
| 266 | 8,177151424 | 7,816149424 | 53,79503773 | 976,2779989 | 1916,050653 | 7,663432691 | 6,036263267 | 742,8887053 | 91,875 | 24,18581294 | 81,28923109 | 0,555813232 |
| 267 | 8,012413275 | 7,656562445 | 52,80936261 | 960,5530963 | 1881,153411 | 7,50659983 | 5,90877504 | 742,8887053 | 91,875 | 24,19943868 | 81,28923109 | 0,52716032 |
| 268 | 7,850290777 | 7,500029642 | 51,84162795 | 944,3197504 | 1846,936429 | 7,352768437 | 5,783726683 | 742,8887053 | 91,875 | 24,2128069 | 81,28923109 | 0,499055767 |
| 269 | 7,690841449 | 7,346392324 | 50,89148916 | 927,8996024 | 1813,364312 | 7,201782559 | 5,660991424 | 742,8887053 | 91,875 | 24,22593094 | 81,28923109 | 0,471471081 |
| 270 | 7,534082172 | 7,195537288 | 49,95861771 | 911,4842493 | 1780,411659 | 7,053530947 | 5,540478829 | 742,8887053 | 91,875 | 24,23882028 | 81,28923109 | 0,444385938 |
| 271 | 7,379652287 | 7,042189577 | 49,02591697 | 900,1705035 | 1787,458005 | 6,895884923 | 5,568448665 | 800,6150606 | 93,5 | 24,32003898 | 83,25822268 | 0,450672144 |
| 272 | 7,226794124 | 6,891484845 | 48,10662675 | 889,4016978 | 1753,797827 | 6,747910629 | 5,445247898 | 800,6150606 | 93,5 | 24,33155615 | 83,25822268 | 0,422982836 |
| 273 | 7,07591092 | 6,744305706 | 47,20460889 | 876,4787175 | 1720,936298 | 6,603398052 | 5,324929295 | 800,6150606 | 93,5 | 24,34280637 | 83,25822268 | 0,395941293 |
| 274 | 6,927268586 | 6,600266734 | 46,31946917 | 862,3768539 | 1688,7866 | 6,461968748 | 5,20717777 | 800,6150606 | 93,5 | 24,35381891 | 83,25822268 | 0,369476699 |
| 275 | 6,781010178 | 6,459117621 | 45,45085143 | 847,6754239 | 1657,292193 | 6,323376946 | 5,091788699 | 800,6150606 | 93,5 | 24,36461275 | 83,25822268 | 0,343543066 |
| 276 | 6,63720527 | 6,320689506 | 44,59842468 | 832,7213633 | 1626,414786 | 6,187456844 | 4,978624038 | 800,6150606 | 93,5 | 24,37520065 | 83,25822268 | 0,318109367 |
| 277 | 6,495914094 | 6,184828313 | 43,76187562 | 817,1440072 | 1596,119444 | 6,054057157 | 4,867557829 | 800,6150606 | 93,5 | 24,38559428 | 83,25822268 | 0,293147295 |
| 278 | 6,357204191 | 6,049125783 | 42,93412155 | 802,9621635 | 1598,571063 | 5,915043222 | 4,878207684 | 862,827057 | 95,125 | 24,45014983 | 85,07730156 | 0,295540844 |
| 279 | 6,220219481 | 5,91343786 | 42,11213084 | 793,3144432 | 1567,701612 | 5,781924215 | 4,764953625 | 862,827057 | 95,125 | 24,45939862 | 85,07730156 | 0,270087053 |
| 280 | 6,085051074 | 5,781023346 | 41,3059758 | 781,4925904 | 1537,586089 | 5,652016642 | 4,654431768 | 862,827057 | 95,125 | 24,468426 | 85,07730156 | 0,245247323 |
| 281 | 5,951961173 | 5,651505739 | 40,51528538 | 768,5347699 | 1508,138224 | 5,524951132 | 4,54632786 | 862,827057 | 95,125 | 24,47725749 | 85,07730156 | 0,220951027 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282 | 5,821083671 | 5,524648995 | 39,73972588 | 755,0314625 | 1479,30378 | 5,400496106 | 4,440444883 | 862,827057 | 95,125 | 24,48590909 | 85,07730156 | 0,197153883 |
| 283 | 5,692478978 | 5,40029818 | 38,97898742 | 741,3213529 | 1451,047029 | 5,278499567 | 4,33665352 | 862,827057 | 95,125 | 24,49439126 | 85,07730156 | 0,173826828 |
| 284 | 5,566165169 | 5,27834571 | 38,23277619 | 727,5992244 | 1423,343043 | 5,158855966 | 4,234863972 | 862,827057 | 95,125 | 24,50271124 | 85,07730156 | 0,15094968 |
| 285 | 5,442135914 | 5,158711895 | 37,50080982 | 713,9768032 | 1396,173268 | 5,041487122 | 4,135009727 | 862,827057 | 95,125 | 24,51087438 | 85,07730156 | 0,128507491 |
| 286 | 5,320139313 | 5,038030213 | 36,7722103 | 703,7485145 | 1394,390429 | 4,918457199 | 4,129666921 | 929,8732524 | 96,75 | 24,5606722 | 86,74626648 | 0,127306698 |
| 287 | 5,199672363 | 4,919581925 | 36,05529941 | 693,8867316 | 1367,0014 | 4,80234183 | 4,028941173 | 929,8732524 | 96,75 | 24,56784756 | 86,74626648 | 0,104668639 |
| 288 | 5,080994522 | 4,803903452 | 35,35244426 | 682,6749616 | 1340,259971 | 4,688941722 | 3,930570814 | 929,8732524 | 96,75 | 24,57485623 | 86,74626648 | 0,082559952 |
| 289 | 4,964268807 | 4,690731511 | 34,66332312 | 670,7716967 | 1314,104793 | 4,577998778 | 3,834331952 | 929,8732524 | 96,75 | 24,58171407 | 86,74626648 | 0,060930318 |
| 290 | 4,849575395 | 4,579894406 | 33,98764121 | 658,5596465 | 1288,495748 | 4,469344684 | 3,740078582 | 929,8732524 | 96,75 | 24,58843143 | 86,74626648 | 0,039746922 |
| 291 | 4,73694607 | 4,471274563 | 33,32512164 | 646,2624105 | 1263,405269 | 4,362864182 | 3,647710722 | 929,8732524 | 96,75 | 24,59501536 | 86,74626648 | 0,018987293 |
| 292 | 4,62638425 | 4,364786705 | 32,67550013 | 634,0106379 | 1238,813283 | 4,258473674 | 3,557155854 | 929,8732524 | 96,75 | 24,60147098 | 86,74626648 | 0 |
| 293 | 4,517845212 | 4,258987241 | 32,03430915 | 622,7913005 | 1234,668172 | 4,150999372 | 3,542800552 | 1002,129289 | 98,375 | 24,64000105 | 88,26776825 | 0 |
| 294 | 4,410843504 | 4,153718169 | 31,39961256 | 614,1164002 | 1209,941226 | 4,047882294 | 3,451807506 | 1002,129289 | 98,375 | 24,64566544 | 88,26828189 | 0 |
| 295 | 4,305436325 | 4,051000787 | 30,77760807 | 604,1710101 | 1185,787604 | 3,947273276 | 3,363063402 | 1002,129289 | 98,375 | 24,65122015 | 88,26952174 | 0 |
| 296 | 4,201779649 | 3,950589606 | 30,16801136 | 593,5536516 | 1162,14918 | 3,848925622 | 3,276354609 | 1002,129289 | 98,375 | 24,65667645 | 88,27161539 | 0 |
| 297 | 4,09995327 | 3,852323698 | 29,57056366 | 582,6172924 | 1138,990423 | 3,752687036 | 3,191541934 | 1002,129289 | 98,375 | 24,6620446 | 88,2745132 | 0 |
| 298 | 3,999991822 | 3,756092671 | 28,98502289 | 571,5712335 | 1116,281773 | 3,658445821 | 3,108529021 | 1002,129289 | 98,375 | 24,66732993 | 88,27830863 | 0 |
| 299 | 3,90190308 | 3,66181697 | 28,4111594 | 560,5397378 | 1094,006934 | 3,566126451 | 3,027246927 | 1002,129289 | 98,375 | 24,67253754 | 88,28300265 | 0 |
| 300 | 3,805678835 | 3,569435621 | 27,84875197 | 549,596367 | 1072,150147 | 3,475668534 | 2,947644876 | 1002,129289 | 98,375 | 24,67767211 | 88,28870089 | 0 |
| 301 | 3,711167534 | 3,476844721 | 27,2910679 | 540,6431051 | 1065,97394 | 3,38203593 | 2,925824061 | 1080 | 100 | 24,70654576 | 89,66685944 | 0 |
| 302 | 3,618065177 | 3,386057424 | 26,74318876 | 531,9970206 | 1044,130586 | 3,293210889 | 2,846458074 | 1080 | 100 | 24,71105488 | 89,67334635 | 0 |
| 303 | 3,52650855 | 3,297415512 | 26,20652712 | 522,6352027 | 1022,769892 | 3,206489855 | 2,769012281 | 1080 | 100 | 24,71549042 | 89,68089114 | 0 |
| 304 | 3,436584579 | 3,210755458 | 25,68084184 | 512,9125795 | 1001,853196 | 3,12171698 | 2,693343676 | 1080 | 100 | 24,71986274 | 89,6894709 | 0 |
| 305 | 3,348334279 | 3,125965254 | 25,16590891 | 503,0427824 | 981,3513673 | 3,038779423 | 2,619353101 | 1080 | 100 | 24,7241764 | 89,69918852 | 0 |
| 306 | 3,261770992 | 3,042964762 | 24,66151736 | 493,1542028 | 961,2480551 | 2,957600672 | 2,54697337 | 1080 | 100 | 24,72843778 | 89,71013799 | 0 |
| 307 | 3,176891329 | 2,961693117 | 24,16746422 | 483,3244923 | 941,5249278 | 2,878120178 | 2,476147486 | 1080 | 100 | 24,73264899 | 89,72231295 | 0 |
| 308 | 3,09368185 | 2,882102044 | 23,68355462 | 473,5996195 | 922,1722819 | 2,800292379 | 2,406835533 | 1080 | 100 | 24,73681477 | 89,73579871 | 0 |
| 309 | 3,012123151 | 2,80415081 | 23,20959882 | 464,0066182 | 903,1806035 | 2,724074604 | 2,338998166 | 1080 | 100 | 24,74093465 | 89,75063106 | 0 |
| 310 | 2,932192325 | 2,727803658 | 22,74541197 | 454,5609868 | 884,5406169 | 2,649433306 | 2,272608524 | 1080 | 100 | 24,74501409 | 89,76696248 | 0 |
| 311 | 2,853864507 | 2,653028072 | 22,29081348 | 445,2709473 | 866,2429674 | 2,576335879 | 2,207635205 | 1080 | 100 | 24,7490539 | 89,78480567 | 0 |
| 312 | 2,777113816 | 2,57979392 | 21,84562724 | 436,1402449 | 848,2814969 | 2,504756289 | 2,144054973 | 1080 | 100 | 24,75305972 | 89,80423503 | 0 |
| 313 | 2,701913948 | 2,508072595 | 21,40968087 | 427,1699674 | 830,6494622 | 2,43466183 | 2,081837325 | 1080 | 100 | 24,75702841 | 89,82529086 | 0 |
| 314 | 2,62823851 | 2,437836405 | 20,98280483 | 418,3596872 | 813,3380858 | 2,366026586 | 2,020961187 | 1080 | 100 | 24,76096471 | 89,84811121 | 0 |
| 315 | 2,556061229 | 2,369058883 | 20,56483401 | 409,7078952 | 796,3427835 | 2,298826055 | 1,961401833 | 1080 | 100 | 24,7648706 | 89,87269393 | 0 |
| 316 | 2,485356121 | 2,301714202 | 20,15560639 | 401,2122918 | 779,6577298 | 2,233034297 | 1,90313757 | 1080 | 100 | 24,76874814 | 89,89916526 | 0 |
| 317 | 2,416097541 | 2,235777006 | 19,75496273 | 392,8705795 | 763,2728831 | 2,168627306 | 1,846149484 | 1080 | 100 | 24,77260236 | 89,92769019 | 0 |
| 318 | 2,348260241 | 2,171222781 | 19,36274785 | 384,6799241 | 747,1878167 | 2,105579053 | 1,790407306 | 1080 | 100 | 24,7764287 | 89,95813898 | 0 |
| 319 | 2,28181939 | 2,108027327 | 18,97880905 | 376,637652 | 731,3904705 | 2,043868227 | 1,735897839 | 1080 | 100 | 24,78023594 | 89,99078397 | 0 |
| 320 | 2,216750603 | 2,046167128 | 18,60299731 | 368,7408266 | 715,8765321 | 1,983469471 | 1,682597149 | 1080 | 100 | 24,78402257 | 90,02567986 | 0 |
| 321 | 2,153029953 | 1,985618953 | 18,23516611 | 360,9865778 | 700,6443715 | 1,924362301 | 1,630483624 | 1080 | 100 | 24,78779093 | 90,06281117 | 0 |
| 322 | 2,090633919 | 1,926360246 | 17,87517246 | 353,3721391 | 685,6855512 | 1,866522855 | 1,579538733 | 1080 | 100 | 24,79154283 | 90,10236731 | 0 |
| 323 | 2,029539461 | 1,868368644 | 17,52287565 | 345,8945987 | 670,9939372 | 1,809929375 | 1,529739639 | 1080 | 100 | 24,79527893 | 90,14433005 | 0 |
| 324 | 1,96972395 | 1,811622276 | 17,17813793 | 338,5513929 | 656,5647962 | 1,754560679 | 1,481069903 | 1080 | 100 | 24,7990025 | 90,18888529 | 0 |
| 325 | 1,911165181 | 1,756099895 | 16,84082489 | 331,3397036 | 642,3896575 | 1,700396635 | 1,433513698 | 1080 | 100 | 24,80271804 | 90,23621625 | 0 |
| 326 | 1,853841429 | 1,701780679 | 16,51080509 | 324,2566081 | 628,4663531 | 1,647416444 | 1,387046718 | 1080 | 100 | 24,80642359 | 90,28622111 | 0 |
| 327 | 1,797731397 | 1,648644211 | 16,18794978 | 317,2992909 | 614,7906953 | 1,595600328 | 1,34165139 | 1080 | 100 | 24,81012109 | 90,33900532 | 0 |
| 328 | 1,742814191 | 1,596670337 | 15,87213245 | 310,4655203 | 601,3536461 | 1,544928348 | 1,29731438 | 1080 | 100 | 24,8138151 | 90,39484678 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 329 | 1,689069345 | 1,545838848 | 15,56322788 | 303,7526296 | 588,1544967 | 1,495379739 | 1,254012418 | 1080 | 100 | 24,81750285 | 90,45367602 | 0 |
| 330 | 1,636476721 | 1,496130864 | 15,26111602 | 297,1581894 | 575,1841323 | 1,446937289 | 1,211731963 | 1080 | 100 | 24,82118956 | 90,51567446 | 0 |
| 331 | 1,585016686 | 1,447527584 | 14,9656787 | 290,6793901 | 562,4426775 | 1,399580988 | 1,170449947 | 1080 | 100 | 24,82487103 | 90,58074359 | 0 |
| 332 | 1,534669964 | 1,40001003 | 14,67679854 | 284,314069 | 549,9162469 | 1,35329382 | 1,130160674 | 1080 | 100 | 24,8285576 | 90,64938505 | 0 |
| 333 | 1,485417684 | 1,353560606 | 14,39436361 | 278,0593075 | 537,6153726 | 1,308056491 | 1,090829717 | 1080 | 100 | 24,83223606 | 90,72099394 | 0 |
| 334 | 1,437241365 | 1,308161118 | 14,11826154 | 271,9131839 | 525,5210252 | 1,263854348 | 1,052459562 | 1080 | 100 | 24,83592308 | 90,79633469 | 0 |
| 335 | 1,390122907 | 1,26379415 | 13,84838361 | 265,8733404 | 513,6336519 | 1,220667527 | 1,015026356 | 1080 | 100 | 24,83961179 | 90,87526584 | 0 |
| 336 | 1,344044579 | 1,220442852 | 13,58462398 | 259,9371671 | 501,9493152 | 1,178480494 | 0,978514243 | 1080 | 100 | 24,84330368 | 90,9578108 | 0 |
| 337 | 1,298989053 | 1,178090588 | 13,32687884 | 254,1022612 | 490,4641653 | 1,137276605 | 0,942907817 | 1080 | 100 | 24,84699884 | 91,0440546 | 0 |
| 338 | 1,254939351 | 1,136720783 | 13,07504574 | 248,3669514 | 479,1748348 | 1,09704 | 0,908190578 | 1080 | 100 | 24,8506974 | 91,13399643 | 0 |
| 339 | 1,211878866 | 1,096317366 | 12,82902497 | 242,7284525 | 468,069795 | 1,057754668 | 0,874353807 | 1080 | 100 | 24,85440414 | 91,22800661 | 0 |
| 340 | 1,169791311 | 1,056864494 | 12,58871857 | 237,1853123 | 457,145442 | 1,019405474 | 0,841382853 | 1080 | 100 | 24,8581196 | 91,32614765 | 0 |
| 341 | 1,12866084 | 1,018348039 | 12,3540351 | 231,7339427 | 446,4139465 | 0,981975923 | 0,809248771 | 1080 | 100 | 24,86182931 | 91,42783048 | 0 |
| 342 | 1,088471922 | 0,980751167 | 12,12487621 | 226,3737433 | 435,8558506 | 0,945451889 | 0,777950054 | 1080 | 100 | 24,86554629 | 91,53369179 | 0 |
| 343 | 1,049209315 | 0,944060984 | 11,90115614 | 221,10174 | 425,467974 | 0,909820032 | 0,747472588 | 1080 | 100 | 24,86926833 | 91,64372191 | 0 |
| 344 | 1,010858291 | 0,908262299 | 11,68278399 | 215,9155462 | 415,2466517 | 0,875066025 | 0,717804611 | 1080 | 100 | 24,87299663 | 91,75807274 | 0 |
| 345 | 0,973404351 | 0,873341093 | 11,46967314 | 210,8137536 | 405,188226 | 0,841176115 | 0,688929679 | 1080 | 100 | 24,8767289 | 91,87662062 | 0 |
| 346 | 0,936833284 | 0,839283267 | 11,26173767 | 205,7947076 | 395,3095871 | 0,808132341 | 0,660814656 | 1080 | 100 | 24,88044473 | 91,99852824 | 0 |
| 347 | 0,901131161 | 0,806075213 | 11,05889409 | 200,8564425 | 385,5681942 | 0,775926642 | 0,633483551 | 1080 | 100 | 24,88417637 | 92,12554627 | 0 |
| 348 | 0,866284513 | 0,773704822 | 10,86106475 | 195,9957219 | 375,980762 | 0,744545396 | 0,606905947 | 1080 | 100 | 24,88790637 | 92,25676881 | 0 |
| 349 | 0,832280214 | 0,742158639 | 10,66816916 | 191,2118174 | 366,5553263 | 0,713972059 | 0,581055043 | 1080 | 100 | 24,89161962 | 92,39157744 | 0 |
| 350 | 0,799105359 | 0,711424248 | 10,48013066 | 186,5020601 | 357,2794777 | 0,684196426 | 0,555928979 | 1080 | 100 | 24,89532359 | 92,53041498 | 0 |
| 351 | 0,766747494 | 0,681489135 | 10,2968737 | 181,8643212 | 348,1385038 | 0,655207467 | 0,531524614 | 1080 | 100 | 24,89902468 | 92,6737172 | 0 |
| 352 | 0,735194458 | 0,652342677 | 10,11832928 | 177,2965672 | 339,1165566 | 0,626996493 | 0,507843096 | 1080 | 100 | 24,902731 | 92,82206938 | 0 |
| 353 | 0,704434504 | 0,623971674 | 9,944422087 | 172,797854 | 330,2610534 | 0,599542285 | 0,4848226 | 1080 | 100 | 24,90639471 | 92,97294251 | 0 |
| 354 | 0,67445594 | 0,596364578 | 9,775081949 | 168,366224 | 321,5187516 | 0,572840916 | 0,462497628 | 1080 | 100 | 24,91005546 | 93,12862893 | 0 |
| 355 | 0,645247447 | 0,569510265 | 9,610241106 | 163,9995615 | 312,9135752 | 0,54687713 | 0,440831972 | 1080 | 100 | 24,9136867 | 93,2877592 | 0 |
| 356 | 0,616798088 | 0,543399132 | 9,449837479 | 159,6955873 | 304,4445004 | 0,521641408 | 0,419814422 | 1080 | 100 | 24,91728401 | 93,45013033 | 0 |
| 357 | 0,589097213 | 0,518018663 | 9,293801344 | 155,4535179 | 296,0797439 | 0,497124655 | 0,399455277 | 1080 | 100 | 24,92086484 | 93,61690056 | 0 |
| 358 | 0,562134451 | 0,493359989 | 9,142074591 | 151,2707964 | 287,8313859 | 0,473315946 | 0,379732479 | 1080 | 100 | 24,92441328 | 93,78726177 | 0 |
| 359 | 0,535899917 | 0,46941196 | 8,994593903 | 147,1456562 | 279,7134491 | 0,450201811 | 0,360619126 | 1080 | 100 | 24,92791164 | 93,96018233 | 0 |
| 360 | 0,510383829 | 0,446164747 | 8,851300228 | 143,0759658 | 271,7085511 | 0,427773832 | 0,342116568 | 1080 | 100 | 24,931366 | 94,13617212 | 0 |
| 361 | 0,485576667 | 0,423608607 | 8,712135586 | 139,0613731 | 263,7976383 | 0,406024195 | 0,324226804 | 1080 | 100 | 24,93478315 | 94,31577375 | 0 |
| 362 | 0,461469234 | 0,40173436 | 8,577044673 | 135,0996676 | 255,9777477 | 0,384944179 | 0,306940373 | 1080 | 100 | 24,93815889 | 94,49880983 | 0 |
| 363 | 0,438052868 | 0,380532513 | 8,445972901 | 131,1879538 | 248,2824854 | 0,364518717 | 0,290215763 | 1080 | 100 | 24,94146083 | 94,68322299 | 0 |
| 364 | 0,415318936 | 0,359995249 | 8,31887074 | 127,3243686 | 240,7127119 | 0,344739341 | 0,274043363 | 1080 | 100 | 24,94468331 | 94,86869715 | 0 |
| 365 | 0,393259133 | 0,340110623 | 8,195677566 | 123,5095133 | 233,1898217 | 0,325603819 | 0,258466584 | 1080 | 100 | 24,94787167 | 95,0583655 | 0 |
| 366 | 0,371865438 | 0,320873415 | 8,076353384 | 119,7407027 | 225,7896746 | 0,307096515 | 0,243420055 | 1080 | 100 | 24,95096903 | 95,24836763 | 0 |
| 367 | 0,351130379 | 0,302274 | 7,960846937 | 116,0143081 | 218,5131981 | 0,289207225 | 0,228891221 | 1080 | 100 | 24,95396988 | 95,43823368 | 0 |
| 368 | 0,33104642 | 0,284304511 | 7,849111986 | 112,3298495 | 211,2759807 | 0,271938172 | 0,21492949 | 1080 | 100 | 24,95691989 | 95,63131166 | 0 |
| 369 | 0,311606574 | 0,266953576 | 7,741093659 | 108,6884482 | 204,1602522 | 0,255266799 | 0,201461222 | 1080 | 100 | 24,95976262 | 95,82341355 | 0 |
| 370 | 0,292803369 | 0,25021674 | 7,636756027 | 105,0870908 | 197,0777353 | 0,239199163 | 0,188540305 | 1080 | 100 | 24,96254378 | 96,01800888 | 0 |
| 371 | 0,274630997 | 0,234088039 | 7,53606365 | 101,5180208 | 190,1165611 | 0,22371785 | 0,176097459 | 1080 | 100 | 24,96520836 | 96,21073335 | 0 |
| 372 | 0,257083096 | 0,218557621 | 7,438968091 | 97,9878145 | 183,2308957 | 0,20881814 | 0,164151165 | 1080 | 100 | 24,96777737 | 96,40309853 | 0 |
| 373 | 0,2401535 | 0,20361707 | 7,345425751 | 94,49128221 | 176,4193566 | 0,194490979 | 0,152690524 | 1080 | 100 | 24,97024663 | 96,59464262 | 0 |
| 374 | 0,223836207 | 0,189257866 | 7,255393251 | 91,03116358 | 169,680748 | 0,180727555 | 0,141704826 | 1080 | 100 | 24,9726128 | 96,78488559 | 0 |
| 375 | 0,208125499 | 0,175478437 | 7,168848468 | 87,59980319 | 163,0150224 | 0,167525714 | 0,131190104 | 1080 | 100 | 24,97487278 | 96,97335843 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 376 | 0,193016707 | 0,162267368 | 7,085743509 | 84,1980876 | 156,3682419 | 0,154878632 | 0,121161656 | 1080 | 100 | 24,97704503 | 97,16158078 | 0 |
| 377 | 0,178504653 | 0,149621192 | 7,006052358 | 80,82484094 | 149,8443598 | 0,142772277 | 0,11155595 | 1080 | 100 | 24,97908533 | 97,34503634 | 0 |
| 378 | 0,164584722 | 0,137530416 | 6,929732988 | 77,47734309 | 143,3364014 | 0,131206868 | 0,10241899 | 1080 | 100 | 24,98103357 | 97,52725405 | 0 |
| 379 | 0,15125284 | 0,125994658 | 6,856771735 | 74,1507582 | 136,9535134 | 0,120171509 | 0,093691846 | 1080 | 100 | 24,98284968 | 97,70375329 | 0 |
| 380 | 0,138504685 | 0,115000369 | 6,787115608 | 70,85308368 | 130,5838317 | 0,109661992 | 0,085414597 | 1080 | 100 | 24,98457141 | 97,87799062 | 0 |
| 381 | 0,126336397 | 0,104547362 | 6,720752206 | 67,57215634 | 124,3413294 | 0,099668543 | 0,077532025 | 1080 | 100 | 24,98616408 | 98,04563145 | 0 |
| 382 | 0,114743525 | 0,094622049 | 6,657628109 | 64,32386125 | 118,050771 | 0,090190882 | 0,07010692 | 1080 | 100 | 24,98767852 | 98,21188345 | 0 |
| 383 | 0,103722755 | 0,085226073 | 6,597737944 | 61,08883315 | 111,8879237 | 0,081216587 | 0,06306222 | 1080 | 100 | 24,98906737 | 98,37066081 | 0 |
| 384 | 0,093271215 | 0,076348234 | 6,541039988 | 57,87302939 | 105,6719197 | 0,072747307 | 0,056458866 | 1080 | 100 | 24,99037716 | 98,52692918 | 0 |
| 385 | 0,08338541 | 0,067988718 | 6,487524117 | 54,67089941 | 99,58473001 | 0,064769834 | 0,050223194 | 1080 | 100 | 24,99156716 | 98,6748917 | 0 |
| 386 | 0,07406288 | 0,060140287 | 6,437161501 | 51,48604155 | 93,50339478 | 0,05728512 | 0,044393647 | 1080 | 100 | 24,99266753 | 98,8176053 | 0 |
| 387 | 0,065301782 | 0,052799497 | 6,389936259 | 48,31496102 | 87,5540771 | 0,050281596 | 0,038922627 | 1080 | 100 | 24,9936579 | 98,95142979 | 0 |
| 388 | 0,05709943 | 0,045954841 | 6,345806435 | 45,16040121 | 81,60989694 | 0,04375538 | 0,033840932 | 1080 | 100 | 24,99456539 | 99,07922934 | 0 |
| 389 | 0,049452349 | 0,039604631 | 6,304756563 | 42,02144376 | 75,66947614 | 0,037704225 | 0,029144178 | 1080 | 100 | 24,99539211 | 99,20052177 | 0 |
| 390 | 0,042359443 | 0,033744792 | 6,266771192 | 38,88412046 | 69,73143007 | 0,032123402 | 0,024825461 | 1080 | 100 | 24,9961404 | 99,31482668 | 0 |
| 391 | 0,035818826 | 0,028376903 | 6,231849154 | 35,75448584 | 63,92891618 | 0,027008301 | 0,020852102 | 1080 | 100 | 24,99679812 | 99,41923103 | 0 |
| 392 | 0,029828445 | 0,023483874 | 6,199934058 | 32,65661274 | 57,99350701 | 0,022353213 | 0,017270441 | 1080 | 100 | 24,99739931 | 99,51838198 | 0 |
| 393 | 0,02439024 | 0,019072904 | 6,171052492 | 29,52703982 | 52,33048096 | 0,018149002 | 0,013997943 | 1080 | 100 | 24,99790704 | 99,60509317 | 0 |
| 394 | 0,019497187 | 0,015117299 | 6,145105374 | 26,46187511 | 46,39488197 | 0,014388807 | 0,011117347 | 1080 | 100 | 24,9983741 | 99,68765571 | 0 |
| 395 | 0,015153087 | 0,011661514 | 6,122234028 | 23,31709661 | 40,73564326 | 0,011098334 | 0,008570376 | 1080 | 100 | 24,99875926 | 99,75788127 | 0 |
| 396 | 0,011360518 | 0,008654268 | 6,102295485 | 20,22387586 | 35,07713962 | 0,008235675 | 0,006357402 | 1080 | 100 | 24,99908843 | 99,81961114 | 0 |
| 397 | 0,008112124 | 0,00610283 | 6,085289355 | 17,14852463 | 29,41932165 | 0,005807774 | 0,004484255 | 1080 | 100 | 24,99936395 | 99,87259252 | 0 |
| 398 | 0,005407923 | 0,004007122 | 6,071215344 | 14,06495515 | 23,76188352 | 0,003814307 | 0,002949652 | 1080 | 100 | 24,9995879 | 99,91660473 | 0 |
| 399 | 0,003250552 | 0,002364493 | 6,06007332 | 10,9631565 | 18,10453198 | 0,002252414 | 0,001749911 | 1080 | 100 | 24,99976209 | 99,95146079 | 0 |
| 400 | 0,001644016 | 0,001170967 | 6,051863286 | 7,835695416 | 12,4470636 | 0,001117939 | 0,000880228 | 1080 | 100 | 24,99988801 | 99,97701314 | 0 |
| 401 | 0,000574905 | 0,000360126 | 6,046351126 | 4,785383998 | 6,788988659 | 0,00034434 | 0,000273583 | 1080 | 100 | 24,99996677 | 99,99315262 | 0 |
| 401,8 | 0,00010409 | 3,09757E-05 | 6,044474677 | 1,926355265 | 4,525738844 | 0,00011585 | 8,44007E-05 | 1080 | 100 | 24,99998524 | 99,99695584 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 0 | -35,41524507 | 1050,532536 | 0,024904002 | 0,239176989 | 1 | 7648108,807 | 0,014064842 | 130,511292 | 118,4885 | 130,7757 | 9,554524 | 34,96528 | 36,52378 | 16,71644 |
| 1 | -35,37835472 | 1047,301807 | 0,024904002 | 0,239176989 | 1 | 7639309,883 | 0,014064842 | 130,502291 | 118,4716 | 130,7662 | 9,542744 | 34,92397 | 36,48015 | 16,69653 |
| 2 | -35,34702573 | 1044,568728 | 0,024904002 | 0,239176989 | 1 | 7631835,324 | 0,014064842 | 130,494659 | 118,4573 | 130,7582 | 9,532767 | 34,88898 | 36,44319 | 16,67966 |
| 3 | -35,31562342 | 1041,83891 | 0,024904002 | 0,239176989 | 1 | 7624341,29 | 0,014064842 | 130,48702 | 118,4429 | 130,7501 | 9,522792 | 34,85399 | 36,40624 | 16,66279 |
| 4 | -35,28416566 | 1039,11385 | 0,024904002 | 0,239176989 | 1 | 7616831,984 | 0,014064842 | 130,479378 | 118,4286 | 130,7421 | 9,512823 | 34,81903 | 36,36931 | 16,64594 |
| 5 | -35,2526532 | 1036,39355 | 0,024904002 | 0,239176989 | 1 | 7609307,53 | 0,014064842 | 130,471733 | 118,4142 | 130,7341 | 9,502861 | 34,78408 | 36,3324 | 16,62909 |
| 6 | -35,22108663 | 1033,678001 | 0,024904002 | 0,239176989 | 1 | 7601768,017 | 0,014064842 | 130,464085 | 118,3998 | 130,726 | 9,492907 | 34,74916 | 36,29551 | 16,61226 |
| 7 | -35,18946656 | 1030,967192 | 0,024904002 | 0,239176989 | 1 | 7594213,532 | 0,014064842 | 130,456434 | 118,3855 | 130,718 | 9,482959 | 34,71426 | 36,25865 | 16,59543 |
| 8 | -34,93149348 | 1132,815983 | 0,026809237 | 0,239176989 | 1 | 8166620,305 | 0,014064842 | 130,768534 | 118,9667 | 131,0463 | 9,826652 | 35,97406 | 37,57405 | 17,19754 |
| 9 | -34,89746973 | 1129,669059 | 0,026809237 | 0,239176989 | 1 | 8157786,174 | 0,014064842 | 130,76025 | 118,9512 | 131,0375 | 9,815503 | 35,93493 | 37,53274 | 17,17868 |
| 10 | -34,86355303 | 1126,543429 | 0,026809237 | 0,239176989 | 1 | 8148976,896 | 0,014064842 | 130,752003 | 118,9357 | 131,0288 | 9,804417 | 35,89603 | 37,49165 | 17,15993 |
| 11 | -34,82958175 | 1123,424033 | 0,026809237 | 0,239176989 | 1 | 8140150,448 | 0,014064842 | 130,743753 | 118,9202 | 131,0202 | 9,793341 | 35,85715 | 37,45059 | 17,14119 |
| 12 | -34,79555272 | 1120,310499 | 0,026809237 | 0,239176989 | 1 | 8131305,933 | 0,014064842 | 130,7355 | 118,9047 | 131,0115 | 9,782273 | 35,81829 | 37,40956 | 17,12246 |
| 13 | -34,76146656 | 1117,202804 | 0,026809237 | 0,239176989 | 1 | 8122443,446 | 0,014064842 | 130,727244 | 118,8892 | 131,0028 | 9,771213 | 35,77947 | 37,36856 | 17,10375 |
| 14 | -34,72732398 | 1114,100935 | 0,026809237 | 0,239176989 | 1 | 8113563,105 | 0,014064842 | 130,718984 | 118,8737 | 130,994 | 9,760162 | 35,74066 | 37,32759 | 17,08505 |
| 15 | -34,69312571 | 1111,00488 | 0,026809237 | 0,239176989 | 1 | 8104665,028 | 0,014064842 | 130,71072 | 118,8582 | 130,9853 | 9,749119 | 35,70189 | 37,28664 | 17,06636 |
| 16 | -34,41710639 | 1218,206382 | 0,028855394 | 0,239176989 | 1 | 8712782,268 | 0,014064842 | 131,02114 | 119,4263 | 131,312 | 10,10017 | 36,98932 | 38,63072 | 17,68161 |
| 17 | -34,3804652 | 1214,626248 | 0,028855394 | 0,239176989 | 1 | 8702413,474 | 0,014064842 | 131,012222 | 119,4096 | 131,3026 | 10,08784 | 36,94602 | 38,585 | 17,66074 |
| 18 | -34,34382414 | 1211,059332 | 0,028855394 | 0,239176989 | 1 | 8692040,419 | 0,014064842 | 131,003315 | 119,3929 | 131,2932 | 10,07554 | 36,90281 | 38,53938 | 17,63992 |
| 19 | -34,30712479 | 1207,499813 | 0,028855394 | 0,239176989 | 1 | 8681646,487 | 0,014064842 | 130,994404 | 119,3762 | 131,2837 | 10,06325 | 36,85964 | 38,4938 | 17,61912 |
| 20 | -34,27036595 | 1203,94747 | 0,028855394 | 0,239176989 | 1 | 8671231,252 | 0,014064842 | 130,985489 | 119,3595 | 131,2743 | 10,05097 | 36,8165 | 38,44826 | 17,59833 |
| 21 | -34,2335484 | 1200,402281 | 0,028855394 | 0,239176989 | 1 | 8660794,851 | 0,014064842 | 130,97657 | 119,3427 | 131,2649 | 10,0387 | 36,77339 | 38,40274 | 17,57755 |
| 22 | -34,19667299 | 1196,864229 | 0,028855394 | 0,239176989 | 1 | 8650337,442 | 0,014064842 | 130,967646 | 119,326 | 131,2555 | 10,02644 | 36,73031 | 38,35727 | 17,55679 |
| 23 | -33,90412625 | 1309,976106 | 0,031051755 | 0,239176989 | 1 | 9296886,959 | 0,014064842 | 131,276831 | 119,881 | 131,5809 | 10,38577 | 38,04865 | 39,73347 | 18,18677 |
| 24 | -33,86441267 | 1305,861239 | 0,031051755 | 0,239176989 | 1 | 9284628,745 | 0,014064842 | 131,267141 | 119,8629 | 131,5706 | 10,37201 | 38,00026 | 39,68238 | 18,16345 |
| 25 | -33,82494057 | 1301,786848 | 0,031051755 | 0,239176989 | 1 | 9272438,996 | 0,014064842 | 131,25752 | 119,8449 | 131,5604 | 10,35836 | 37,95227 | 39,63172 | 18,14032 |
| 26 | -33,78542068 | 1297,722762 | 0,031051755 | 0,239176989 | 1 | 9260228,351 | 0,014064842 | 131,247898 | 119,8268 | 131,5502 | 10,34472 | 37,90433 | 39,58113 | 18,11723 |
| 27 | -33,74584033 | 1293,667539 | 0,031051755 | 0,239176989 | 1 | 9247992,791 | 0,014064842 | 131,238271 | 119,8088 | 131,54 | 10,3311 | 37,85644 | 39,53057 | 18,09415 |
| 28 | -33,70619988 | 1289,621092 | 0,031051755 | 0,239176989 | 1 | 9235732,328 | 0,014064842 | 131,228639 | 119,7908 | 131,5298 | 10,31749 | 37,80858 | 39,48006 | 18,07109 |
| 29 | -33,66650033 | 1285,583396 | 0,031051755 | 0,239176989 | 1 | 9223447,162 | 0,014064842 | 131,219001 | 119,7727 | 131,5196 | 10,3039 | 37,76076 | 39,42959 | 18,04805 |
| 30 | -33,62674269 | 1281,55443 | 0,031051755 | 0,239176989 | 1 | 9211137,506 | 0,014064842 | 131,209359 | 119,7547 | 131,5094 | 10,29031 | 37,71297 | 39,37916 | 18,02503 |
| 31 | -33,31468601 | 1400,068569 | 0,033407943 | 0,239176989 | 1 | 9895585,47 | 0,014064842 | 131,516462 | 120,2941 | 131,8324 | 10,65614 | 39,05595 | 40,78086 | 18,66671 |
| 32 | -33,27213576 | 1395,4097 | 0,033407943 | 0,239176989 | 1 | 9881233,616 | 0,014064842 | 131,506044 | 120,2746 | 131,8214 | 10,64097 | 39,00257 | 40,72452 | 18,64099 |
| 33 | -33,22964739 | 1390,775312 | 0,033407943 | 0,239176989 | 1 | 9866894,144 | 0,014064842 | 131,495651 | 120,2552 | 131,8104 | 10,62585 | 38,94938 | 40,66839 | 18,61536 |
| 34 | -33,18710528 | 1386,152552 | 0,033407943 | 0,239176989 | 1 | 9852527,947 | 0,014064842 | 131,485253 | 120,2357 | 131,7993 | 10,61076 | 38,89625 | 40,61232 | 18,58977 |
| 35 | -33,14450331 | 1381,54059 | 0,033407943 | 0,239176989 | 1 | 9838132,829 | 0,014064842 | 131,47485 | 120,2163 | 131,7883 | 10,59568 | 38,84316 | 40,55631 | 18,5642 |
| 36 | -33,10184222 | 1376,939349 | 0,033407943 | 0,239176989 | 1 | 9823708,918 | 0,014064842 | 131,46444 | 120,1968 | 131,7773 | 10,58061 | 38,79012 | 40,50034 | 18,53865 |
| 37 | -33,05912318 | 1372,348798 | 0,033407943 | 0,239176989 | 1 | 9809256,486 | 0,014064842 | 131,454024 | 120,1773 | 131,7662 | 10,56556 | 38,73712 | 40,44442 | 18,51312 |
| 38 | -32,7296303 | 1496,882051 | 0,035933861 | 0,239176989 | 1 | 10534497,21 | 0,014064842 | 131,759578 | 120,7013 | 132,0873 | 10,93896 | 40,10853 | 41,87563 | 19,16832 |
| 39 | -32,68361522 | 1491,535444 | 0,035933861 | 0,239176989 | 1 | 10517523,2 | 0,014064842 | 131,748237 | 120,6801 | 132,0752 | 10,92202 | 40,04887 | 41,81269 | 19,13959 |
| 40 | -32,63800496 | 1486,256419 | 0,035933861 | 0,239176989 | 1 | 10500686,91 | 0,014064842 | 131,737004 | 120,6591 | 132,0633 | 10,90527 | 39,98988 | 41,75046 | 19,11117 |
| 41 | -32,59237109 | 1480,994846 | 0,035933861 | 0,239176989 | 1 | 10483830,22 | 0,014064842 | 131,725772 | 120,6381 | 132,0513 | 10,88856 | 39,93099 | 41,68833 | 19,08281 |
| 42 | -32,54668115 | 1475,746756 | 0,035933861 | 0,239176989 | 1 | 10466940,99 | 0,014064842 | 131,714534 | 120,6171 | 132,0394 | 10,87186 | 39,87216 | 41,62626 | 19,05448 |
| 43 | -32,50093384 | 1470,5118 | 0,035933861 | 0,239176989 | 1 | 10450018,61 | 0,014064842 | 131,703289 | 120,5961 | 132,0274 | 10,85518 | 39,81338 | 41,56426 | 19,02617 |
| 44 | -32,45513034 | 1465,28992 | 0,035933861 | 0,239176989 | 1 | 10433063,35 | 0,014064842 | 131,692036 | 120,5751 | 132,0155 | 10,83852 | 39,75466 | 41,50232 | 18,99789 |
| 45 | -32,10872053 | 1595,953146 | 0,038639622 | 0,239176989 | 1 | 11200389,15 | 0,014064842 | 131,996066 | 121,0826 | 132,3344 | 11,21937 | 41,15406 | 42,96258 | 19,66641 |
| 46 | -32,05838872 | 1589,743247 | 0,038639622 | 0,239176989 | 1 | 11180055,33 | 0,014064842 | 131,983548 | 121,0592 | 132,3211 | 11,20023 | 41,08656 | 42,89138 | 19,6339 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 47 | -32,00946394 | 1583,730879 | 0,038639622 | 0,239176989 | 1 | 11160274,08 | 0,014064842 | 131,971387 | 121,0365 | 132,3082 | 11,18166 | 41,0211 | 42,82233 | 19,60238 |
| 48 | -31,96061972 | 1577,751606 | 0,038639622 | 0,239176989 | 1 | 11140509,67 | 0,014064842 | 131,959251 | 121,0139 | 132,2953 | 11,16317 | 40,95588 | 42,75355 | 19,57097 |
| 49 | -31,91173345 | 1571,790062 | 0,038639622 | 0,239176989 | 1 | 11120712,39 | 0,014064842 | 131,94711 | 120,9913 | 132,2823 | 11,1447 | 40,89075 | 42,68486 | 19,53961 |
| 50 | -31,86279446 | 1565,844691 | 0,038639622 | 0,239176989 | 1 | 11100877,74 | 0,014064842 | 131,93496 | 120,9686 | 132,2694 | 11,12626 | 40,82568 | 42,61624 | 19,50828 |
| 51 | -31,81380319 | 1559,9153 | 0,038639622 | 0,239176989 | 1 | 11081005,73 | 0,014064842 | 131,922802 | 120,9459 | 132,2565 | 11,10783 | 40,76068 | 42,5477 | 19,47699 |
| 52 | -31,76476115 | 1554,001831 | 0,038639622 | 0,239176989 | 1 | 11061096,81 | 0,014064842 | 131,910636 | 120,9233 | 132,2435 | 11,08943 | 40,69575 | 42,47922 | 19,44572 |
| 53 | -31,39684767 | 1689,661609 | 0,041535444 | 0,239176989 | 1 | 11867453,31 | 0,014064842 | 132,211656 | 121,4105 | 132,5586 | 11,47459 | 42,11199 | 43,95678 | 20,12219 |
| 54 | -31,34404039 | 1682,765723 | 0,041535444 | 0,239176989 | 1 | 11844031,94 | 0,014064842 | 132,198371 | 121,3857 | 132,5444 | 11,45384 | 42,03878 | 43,87958 | 20,08694 |
| 55 | -31,291841 | 1675,975891 | 0,041535444 | 0,239176989 | 1 | 11820859,13 | 0,014064842 | 132,185242 | 121,3613 | 132,5304 | 11,43339 | 41,96656 | 43,80343 | 20,05217 |
| 56 | -31,23966934 | 1669,215774 | 0,041535444 | 0,239176989 | 1 | 11797677,56 | 0,014064842 | 132,172122 | 121,3368 | 132,5164 | 11,41299 | 41,89452 | 43,72748 | 20,0175 |
| 57 | -31,18745892 | 1662,476387 | 0,041535444 | 0,239176989 | 1 | 11774457,54 | 0,014064842 | 132,158995 | 121,3124 | 132,5024 | 11,39262 | 41,82258 | 43,65164 | 19,98287 |
| 58 | -31,13520343 | 1655,756606 | 0,041535444 | 0,239176989 | 1 | 11751196,07 | 0,014064842 | 132,145857 | 121,2879 | 132,4884 | 11,37227 | 41,75072 | 43,57588 | 19,94827 |
| 59 | -31,08290379 | 1649,056251 | 0,041535444 | 0,239176989 | 1 | 11727893,37 | 0,014064842 | 132,132709 | 121,2635 | 132,4744 | 11,35196 | 41,67894 | 43,50021 | 19,91372 |
| 60 | -30,69807709 | 1790,621674 | 0,044631518 | 0,239176989 | 1 | 12577013,63 | 0,014064842 | 132,431779 | 121,7312 | 132,7865 | 11,74335 | 43,11884 | 45,00226 | 20,60143 |
| 61 | -30,64067819 | 1782,649423 | 0,044631518 | 0,239176989 | 1 | 12549042,46 | 0,014064842 | 132,417121 | 121,7039 | 132,7708 | 11,71997 | 43,03624 | 44,91519 | 20,56167 |
| 62 | -30,58496128 | 1774,941509 | 0,044631518 | 0,239176989 | 1 | 12521862,81 | 0,014064842 | 132,402891 | 121,6775 | 132,7557 | 11,69734 | 42,95622 | 44,83085 | 20,52315 |
| 63 | -30,52943605 | 1767,289766 | 0,044631518 | 0,239176989 | 1 | 12494748,93 | 0,014064842 | 132,388708 | 121,6511 | 132,7405 | 11,67482 | 42,87663 | 44,74696 | 20,48485 |
| 64 | -30,47390466 | 1759,666342 | 0,044631518 | 0,239176989 | 1 | 12467604,18 | 0,014064842 | 132,374522 | 121,6247 | 132,7254 | 11,65236 | 42,79718 | 44,66323 | 20,44661 |
| 65 | -30,41834099 | 1752,06725 | 0,044631518 | 0,239176989 | 1 | 12440415,61 | 0,014064842 | 132,360325 | 121,5984 | 132,7102 | 11,62992 | 42,71784 | 44,57961 | 20,40843 |
| 66 | -30,36274318 | 1744,491866 | 0,044631518 | 0,239176989 | 1 | 12413182,09 | 0,014064842 | 132,346116 | 121,572 | 132,6951 | 11,60752 | 42,63859 | 44,4961 | 20,37029 |
| 67 | -30,30711281 | 1736,940043 | 0,044631518 | 0,239176989 | 1 | 12385904,21 | 0,014064842 | 132,331895 | 121,5456 | 132,6799 | 11,58515 | 42,55944 | 44,41269 | 20,3322 |
| 68 | -29,90074855 | 1882,829733 | 0,047937848 | 0,239176989 | 1 | 13272510,4 | 0,014064842 | 132,627252 | 121,9892 | 132,9869 | 11,97885 | 44,00906 | 45,92456 | 21,02444 |
| 69 | -29,84091775 | 1874,016513 | 0,047937848 | 0,239176989 | 1 | 13240384,53 | 0,014064842 | 132,611682 | 121,9603 | 132,9703 | 11,9536 | 43,91968 | 45,83038 | 20,98143 |
| 70 | -29,78192816 | 1865,360916 | 0,047937848 | 0,239176989 | 1 | 13208673,92 | 0,014064842 | 132,596325 | 121,9319 | 132,9539 | 11,92875 | 43,83172 | 45,73771 | 20,93911 |
| 71 | -29,72305269 | 1856,754928 | 0,047937848 | 0,239176989 | 1 | 13176988,42 | 0,014064842 | 132,58099 | 121,9034 | 132,9375 | 11,904 | 43,74408 | 45,64538 | 20,89695 |
| 72 | -29,66417616 | 1848,181124 | 0,047937848 | 0,239176989 | 1 | 13145265,96 | 0,014064842 | 132,565646 | 121,875 | 132,9211 | 11,8793 | 43,6566 | 45,55321 | 20,85486 |
| 73 | -29,60528161 | 1839,636566 | 0,047937848 | 0,239176989 | 1 | 13113497,21 | 0,014064842 | 132,55029 | 121,8465 | 132,9047 | 11,85463 | 43,56923 | 45,46118 | 20,81282 |
| 74 | -29,54636828 | 1831,120697 | 0,047937848 | 0,239176989 | 1 | 13081681,53 | 0,014064842 | 132,534919 | 121,818 | 132,8884 | 11,83001 | 43,48198 | 45,36928 | 20,77085 |
| 75 | -29,12401255 | 1982,351707 | 0,051464038 | 0,239176989 | 1 | 14009732,43 | 0,014064842 | 132,827788 | 122,2386 | 133,1913 | 12,22829 | 44,94926 | 46,89934 | 21,47145 |
| 76 | -29,05951592 | 1972,22283 | 0,051464038 | 0,239176989 | 1 | 13971545,69 | 0,014064842 | 132,810621 | 122,2068 | 133,173 | 12,19995 | 44,84882 | 46,79355 | 21,42313 |
| 77 | -28,99696567 | 1962,437937 | 0,051464038 | 0,239176989 | 1 | 13934463,67 | 0,014064842 | 132,793959 | 122,176 | 133,1552 | 12,17252 | 44,75157 | 46,69113 | 21,37635 |
| 78 | -28,93475828 | 1952,74351 | 0,051464038 | 0,239176989 | 1 | 13897538,17 | 0,014064842 | 132,777374 | 122,1453 | 133,1375 | 12,14528 | 44,65502 | 46,58944 | 21,32991 |
| 79 | -28,87260969 | 1943,09436 | 0,051464038 | 0,239176989 | 1 | 13860600,79 | 0,014064842 | 132,76079 | 122,1146 | 133,1198 | 12,11813 | 44,5587 | 46,48801 | 21,28358 |
| 80 | -28,81046875 | 1933,481933 | 0,051464038 | 0,239176989 | 1 | 13823621,01 | 0,014064842 | 132,744193 | 122,084 | 133,1021 | 12,09102 | 44,46254 | 46,38675 | 21,23733 |
| 81 | -28,74832796 | 1923,904527 | 0,051464038 | 0,239176989 | 1 | 13786594,19 | 0,014064842 | 132,72758 | 122,0532 | 133,0844 | 12,06396 | 44,36653 | 46,28565 | 21,19116 |
| 82 | -28,68618811 | 1914,361733 | 0,051464038 | 0,239176989 | 1 | 13749520,58 | 0,014064842 | 132,710951 | 122,0225 | 133,0666 | 12,03694 | 44,27066 | 46,1847 | 21,14505 |
| 83 | -28,24344678 | 2068,81056 | 0,055219054 | 0,239176989 | 1 | 14710744,77 | 0,014064842 | 132,99925 | 122,4147 | 133,3632 | 12,435 | 45,73847 | 47,71497 | 21,84578 |
| 84 | -28,17676986 | 2057,673454 | 0,055219054 | 0,239176989 | 1 | 14667071,57 | 0,014064842 | 132,981 | 122,381 | 133,3437 | 12,40448 | 45,63011 | 47,60089 | 21,79367 |
| 85 | -28,11118198 | 2046,759562 | 0,055219054 | 0,239176989 | 1 | 14624051,48 | 0,014064842 | 132,963026 | 122,3479 | 133,3245 | 12,3745 | 45,52367 | 47,48884 | 21,74249 |
| 86 | -28,04583287 | 2035,925507 | 0,055219054 | 0,239176989 | 1 | 14581128,37 | 0,014064842 | 132,945094 | 122,3148 | 133,3054 | 12,34468 | 45,41777 | 47,37736 | 21,69157 |
| 87 | -27,98054818 | 2025,141481 | 0,055219054 | 0,239176989 | 1 | 14538187,92 | 0,014064842 | 132,927155 | 122,2817 | 133,2862 | 12,31494 | 45,31211 | 47,26614 | 21,64077 |
| 88 | -27,91529311 | 2014,401044 | 0,055219054 | 0,239176989 | 1 | 14495207,13 | 0,014064842 | 132,9092 | 122,2486 | 133,2671 | 12,28526 | 45,20664 | 47,15513 | 21,59006 |
| 89 | -27,85006256 | 2003,702718 | 0,055219054 | 0,239176989 | 1 | 14452182,51 | 0,014064842 | 132,891227 | 122,2155 | 133,2479 | 12,25563 | 45,10134 | 47,0443 | 21,53943 |
| 90 | -27,39348193 | 2162,508035 | 0,059210923 | 0,239176989 | 1 | 15450771,27 | 0,014064842 | 133,176362 | 122,5803 | 133,5394 | 12,6561 | 46,57893 | 48,58452 | 22,24475 |
| 91 | -27,3223541 | 2149,801647 | 0,059210923 | 0,239176989 | 1 | 15399198,03 | 0,014064842 | 133,156266 | 122,5433 | 133,5179 | 12,62202 | 46,45776 | 48,45701 | 22,1865 |
| 92 | -27,25340476 | 2137,530654 | 0,059210923 | 0,239176989 | 1 | 15349127,18 | 0,014064842 | 133,136751 | 122,5074 | 133,4971 | 12,58904 | 46,34044 | 48,33356 | 22,1301 |
| 93 | -27,18498264 | 2125,397749 | 0,059210923 | 0,239176989 | 1 | 15299363,81 | 0,014064842 | 133,117352 | 122,4717 | 133,4764 | 12,55635 | 46,22416 | 48,2112 | 22,07421 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 94 | -27,11671848 | 2113,336094 | 0,059210923 | 0,239176989 | 1 | 15249640,23 | 0,014064842 | 133,097964 | 122,4361 | 133,4557 | 12,52378 | 46,10827 | 48,08927 | 22,0185 |
| 95 | -27,04852751 | 2101,329817 | 0,059210923 | 0,239176989 | 1 | 15199894,83 | 0,014064842 | 133,07856 | 122,4004 | 133,435 | 12,49129 | 45,99263 | 47,96761 | 21,96292 |
| 96 | -26,98039199 | 2089,375016 | 0,059210923 | 0,239176989 | 1 | 15150114,63 | 0,014064842 | 133,059136 | 122,3647 | 133,4143 | 12,45887 | 45,87721 | 47,84617 | 21,90745 |
| 97 | -26,9123101 | 2077,47063 | 0,059210923 | 0,239176989 | 1 | 15100298,27 | 0,014064842 | 133,03969 | 122,329 | 133,3936 | 12,42651 | 45,76198 | 47,72496 | 21,85207 |
| 98 | -26,43806115 | 2237,885401 | 0,06344638 | 0,239176989 | 1 | 16124155,65 | 0,014064842 | 133,319223 | 122,6604 | 133,6772 | 12,82364 | 47,22874 | 49,2535 | 22,55209 |
| 99 | -26,36528392 | 2224,006118 | 0,06344638 | 0,239176989 | 1 | 16065526,24 | 0,014064842 | 133,297843 | 122,6212 | 133,6544 | 12,78708 | 47,0985 | 49,11651 | 22,4895 |
| 100 | -26,29383688 | 2210,429376 | 0,06344638 | 0,239176989 | 1 | 16007873,29 | 0,014064842 | 133,276806 | 122,5826 | 133,632 | 12,75123 | 46,97075 | 48,98215 | 22,42811 |
| 101 | -26,22278736 | 2196,975407 | 0,06344638 | 0,239176989 | 1 | 15950447,37 | 0,014064842 | 133,255839 | 122,5441 | 133,6097 | 12,71562 | 46,84383 | 48,84867 | 22,36713 |
| 102 | -26,15189971 | 2183,598285 | 0,06344638 | 0,239176989 | 1 | 15893058,84 | 0,014064842 | 133,23487 | 122,5057 | 133,5873 | 12,68013 | 46,7173 | 48,7156 | 22,30633 |
| 103 | -26,08111471 | 2170,285853 | 0,06344638 | 0,239176989 | 1 | 15835660,01 | 0,014064842 | 133,213883 | 122,4673 | 133,565 | 12,64472 | 46,59105 | 48,58284 | 22,24567 |
| 104 | -26,01041927 | 2157,034759 | 0,06344638 | 0,239176989 | 1 | 15778240,4 | 0,014064842 | 133,192871 | 122,4288 | 133,5426 | 12,6094 | 46,46504 | 48,45035 | 22,18514 |
| 105 | -25,52599727 | 2320,341357 | 0,067930479 | 0,239176989 | 1 | 16831873,12 | 0,014064842 | 133,468412 | 122,7281 | 133,82 | 13,00625 | 47,93171 | 49,97855 | 22,88502 |
| 106 | -25,44935324 | 2304,646808 | 0,067930479 | 0,239176989 | 1 | 16763236,36 | 0,014064842 | 133,444911 | 122,6851 | 133,795 | 12,96569 | 47,78694 | 49,82635 | 22,81548 |
| 107 | -25,37506472 | 2289,488287 | 0,067930479 | 0,239176989 | 1 | 16696589,78 | 0,014064842 | 133,422068 | 122,6433 | 133,7707 | 12,9264 | 47,64672 | 49,67894 | 22,74812 |
| 108 | -25,30150582 | 2274,529863 | 0,067930479 | 0,239176989 | 1 | 16630481,81 | 0,014064842 | 133,399386 | 122,6018 | 133,7466 | 12,88754 | 47,50795 | 49,53307 | 22,68147 |
| 109 | -25,22823688 | 2259,680247 | 0,067930479 | 0,239176989 | 1 | 16564519,41 | 0,014064842 | 133,376729 | 122,5604 | 133,7225 | 12,84886 | 47,36981 | 49,38786 | 22,61511 |
| 110 | -25,15513535 | 2244,913356 | 0,067930479 | 0,239176989 | 1 | 16498593,05 | 0,014064842 | 133,354057 | 122,519 | 133,6984 | 12,81029 | 47,23204 | 49,24306 | 22,54895 |
| 111 | -25,08216855 | 2230,221513 | 0,067930479 | 0,239176989 | 1 | 16432673,68 | 0,014064842 | 133,33136 | 122,4776 | 133,6742 | 12,77183 | 47,09459 | 49,0986 | 22,48293 |
| 112 | -25,00932953 | 2215,602322 | 0,067930479 | 0,239176989 | 1 | 16366755,37 | 0,014064842 | 133,308635 | 122,4361 | 133,6501 | 12,73345 | 46,95743 | 48,95446 | 22,41707 |
| 113 | -24,51183398 | 2378,385878 | 0,072666153 | 0,239176989 | 1 | 17433499,52 | 0,014064842 | 133,577351 | 122,6963 | 133,9182 | 13,1233 | 48,39977 | 50,4569 | 23,10521 |
| 114 | -24,43440254 | 2361,381452 | 0,072666153 | 0,239176989 | 1 | 17356108,57 | 0,014064842 | 133,552339 | 122,6507 | 133,8916 | 13,07999 | 48,24488 | 50,29415 | 23,03083 |
| 115 | -24,358511 | 2344,770707 | 0,072666153 | 0,239176989 | 1 | 17280113,65 | 0,014064842 | 133,52774 | 122,6058 | 133,8655 | 13,03756 | 48,09312 | 50,13468 | 22,95796 |
| 116 | -24,28319677 | 2328,339762 | 0,072666153 | 0,239176989 | 1 | 17204556,48 | 0,014064842 | 133,503244 | 122,5612 | 133,8395 | 12,99548 | 47,94254 | 49,97648 | 22,88566 |
| 117 | -24,20817144 | 2312,023924 | 0,072666153 | 0,239176989 | 1 | 17129149,82 | 0,014064842 | 133,478756 | 122,5167 | 133,8135 | 12,95357 | 47,79256 | 49,81892 | 22,81365 |
| 118 | -24,13334807 | 2295,802959 | 0,072666153 | 0,239176989 | 1 | 17053807,35 | 0,014064842 | 133,454248 | 122,4721 | 133,7875 | 12,9118 | 47,643 | 49,66182 | 22,74185 |
| 119 | -24,05870197 | 2279,670333 | 0,072666153 | 0,239176989 | 1 | 16978504,99 | 0,014064842 | 133,429711 | 122,4275 | 133,7615 | 12,87014 | 47,49381 | 49,50511 | 22,67023 |
| 120 | -23,55637714 | 2443,393575 | 0,077653706 | 0,239176989 | 1 | 18063417,7 | 0,014064842 | 133,693441 | 122,6499 | 134,0222 | 13,25652 | 48,9243 | 50,99496 | 23,35263 |
| 121 | -23,47607721 | 2424,369781 | 0,077653706 | 0,239176989 | 1 | 17973813,09 | 0,014064842 | 133,666015 | 122,6001 | 133,9932 | 13,20881 | 48,75338 | 50,81544 | 23,27059 |
| 122 | -23,39823328 | 2405,987559 | 0,077653706 | 0,239176989 | 1 | 17886774,21 | 0,014064842 | 133,63932 | 122,5516 | 133,9649 | 13,16258 | 48,58767 | 50,64142 | 23,19105 |
| 123 | -23,32131713 | 2387,881215 | 0,077653706 | 0,239176989 | 1 | 17800603,25 | 0,014064842 | 133,612834 | 122,5036 | 133,9368 | 13,1169 | 48,42391 | 50,46946 | 23,11246 |
| 124 | -23,24484554 | 2369,934582 | 0,077653706 | 0,239176989 | 1 | 17714763,04 | 0,014064842 | 133,586394 | 122,4556 | 133,9089 | 13,07149 | 48,26107 | 50,29848 | 23,03431 |
| 125 | -23,16866089 | 2352,109014 | 0,077653706 | 0,239176989 | 1 | 17629078,73 | 0,014064842 | 133,559943 | 122,4077 | 133,8809 | 13,02626 | 48,09881 | 50,12812 | 22,95644 |
| 126 | -23,0927127 | 2334,391307 | 0,077653706 | 0,239176989 | 1 | 17543494,94 | 0,014064842 | 133,533463 | 122,3597 | 133,8529 | 12,98116 | 47,93701 | 49,95825 | 22,87879 |
| 127 | -23,0169863 | 2316,776748 | 0,077653706 | 0,239176989 | 1 | 17457996,33 | 0,014064842 | 133,506949 | 122,3117 | 133,8248 | 12,9362 | 47,77563 | 49,78883 | 22,80135 |
| 128 | -22,50817395 | 2477,377375 | 0,082890287 | 0,239176989 | 1 | 18539406,04 | 0,014064842 | 133,762442 | 122,4886 | 134,0748 | 13,31145 | 49,16653 | 51,23703 | 23,46473 |
| 129 | -22,4282834 | 2456,970716 | 0,082890287 | 0,239176989 | 1 | 18439453,06 | 0,014064842 | 133,733257 | 122,4358 | 134,044 | 13,26082 | 48,98469 | 51,04617 | 23,37748 |
| 130 | -22,35008565 | 2437,056709 | 0,082890287 | 0,239176989 | 1 | 18341414,25 | 0,014064842 | 133,704553 | 122,3839 | 134,0137 | 13,21124 | 48,80661 | 50,85927 | 23,29204 |
| 131 | -22,27264475 | 2417,393236 | 0,082890287 | 0,239176989 | 1 | 18244125,33 | 0,014064842 | 133,67599 | 122,3323 | 133,9836 | 13,16213 | 48,63016 | 50,67409 | 23,20739 |
| 132 | -22,19563802 | 2397,896128 | 0,082890287 | 0,239176989 | 1 | 18147185,17 | 0,014064842 | 133,647451 | 122,2808 | 133,9535 | 13,11329 | 48,45459 | 50,48985 | 23,12317 |
| 133 | -22,11895282 | 2378,535162 | 0,082890287 | 0,239176989 | 1 | 18050454,51 | 0,014064842 | 133,618893 | 122,2293 | 133,9233 | 13,06463 | 48,27964 | 50,30628 | 23,03925 |
| 134 | -22,04255086 | 2359,299179 | 0,082890287 | 0,239176989 | 1 | 17953887,06 | 0,014064842 | 133,5903 | 122,1777 | 133,8932 | 13,01613 | 48,10522 | 50,12327 | 22,95559 |
| 135 | -21,53584849 | 2518,474321 | 0,088369377 | 0,239176989 | 1 | 19037857,62 | 0,014064842 | 133,83965 | 122,3108 | 134,1348 | 13,38435 | 49,47099 | 51,54505 | 23,60689 |
| 136 | -21,4544799 | 2495,932251 | 0,088369377 | 0,239176989 | 1 | 18923700,84 | 0,014064842 | 133,807751 | 122,2534 | 134,1012 | 13,32905 | 49,272 | 51,3363 | 23,51146 |
| 137 | -21,37557448 | 2474,135872 | 0,088369377 | 0,239176989 | 1 | 18812757,78 | 0,014064842 | 133,776646 | 122,1974 | 134,0685 | 13,27539 | 49,07887 | 51,1337 | 23,41883 |
| 138 | -21,29776408 | 2452,702018 | 0,088369377 | 0,239176989 | 1 | 18703120,61 | 0,014064842 | 133,745804 | 122,1419 | 134,0361 | 13,22245 | 48,88823 | 50,93374 | 23,32741 |
| 139 | -21,22055625 | 2431,492143 | 0,088369377 | 0,239176989 | 1 | 18594102,72 | 0,014064842 | 133,715031 | 122,0865 | 134,0037 | 13,16987 | 48,69887 | 50,73515 | 23,23662 |
| 140 | -21,1437682 | 2410,453986 | 0,088369377 | 0,239176989 | 1 | 18485450,22 | 0,014064842 | 133,684256 | 122,0312 | 133,9714 | 13,11755 | 48,51036 | 50,53745 | 23,14622 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 141 | -21,06733238 | 2389,567319 | 0,088369377 | 0,239176989 | 1 | 18377070,62 | 0,014064842 | 133,653451 | 121,9759 | 133,939 | 13,06542 | 48,3225 | 50,34045 | 23,05615 |
| 142 | -20,99122481 | 2368,824023 | 0,088369377 | 0,239176989 | 1 | 18268932,61 | 0,014064842 | 133,622604 | 121,9206 | 133,9066 | 13,01348 | 48,13523 | 50,14409 | 22,96637 |
| 143 | -20,48638296 | 2521,985157 | 0,094080269 | 0,239176989 | 1 | 19328985,57 | 0,014064842 | 133,862144 | 122,0012 | 134,1362 | 13,36621 | 49,44516 | 51,50732 | 23,59091 |
| 144 | -20,4068818 | 2498,095914 | 0,094080269 | 0,239176989 | 1 | 19203364,8 | 0,014064842 | 133,828227 | 121,9404 | 134,1007 | 13,30793 | 49,23493 | 51,28692 | 23,49012 |
| 145 | -20,32914753 | 2474,799796 | 0,094080269 | 0,239176989 | 1 | 19080263,02 | 0,014064842 | 133,794856 | 121,8806 | 134,0657 | 13,25088 | 49,02908 | 51,07112 | 23,39145 |
| 146 | -20,25232299 | 2451,835768 | 0,094080269 | 0,239176989 | 1 | 18958336,43 | 0,014064842 | 133,761668 | 121,8212 | 134,0309 | 13,19444 | 48,82535 | 50,85757 | 23,2938 |
| 147 | -20,17607617 | 2429,101955 | 0,094080269 | 0,239176989 | 1 | 18837065,43 | 0,014064842 | 133,728522 | 121,7619 | 133,9962 | 13,13835 | 48,62286 | 50,64533 | 23,19675 |
| 148 | -20,10027636 | 2406,55735 | 0,094080269 | 0,239176989 | 1 | 18716247,05 | 0,014064842 | 133,695363 | 121,7026 | 133,9615 | 13,08253 | 48,42125 | 50,43403 | 23,10012 |
| 149 | -20,02487251 | 2384,184997 | 0,094080269 | 0,239176989 | 1 | 18595803,89 | 0,014064842 | 133,662167 | 121,6433 | 133,9268 | 13,02693 | 48,22039 | 50,22353 | 23,00386 |
| 150 | -19,53023234 | 2533,333117 | 0,100007579 | 0,239176989 | 1 | 19639728,22 | 0,014064842 | 133,894268 | 121,6737 | 134,1472 | 13,36887 | 49,49112 | 51,54573 | 23,60963 |
| 151 | -19,45092005 | 2507,332879 | 0,100007579 | 0,239176989 | 1 | 19498592,72 | 0,014064842 | 133,857349 | 121,6078 | 134,1087 | 13,30584 | 49,2633 | 51,30701 | 23,50046 |
| 152 | -19,37397629 | 2482,172735 | 0,100007579 | 0,239176989 | 1 | 19361358,09 | 0,014064842 | 133,821276 | 121,5435 | 134,071 | 13,24461 | 49,04187 | 51,07501 | 23,39436 |
| 153 | -19,29823782 | 2457,466952 | 0,100007579 | 0,239176989 | 1 | 19225970,91 | 0,014064842 | 133,785518 | 121,4798 | 134,0337 | 13,18424 | 48,8235 | 50,84624 | 23,28974 |
| 154 | -19,22323814 | 2433,060137 | 0,100007579 | 0,239176989 | 1 | 19091608,46 | 0,014064842 | 133,74986 | 121,4163 | 133,9965 | 13,12436 | 48,60684 | 50,61928 | 23,18594 |
| 155 | -19,14878451 | 2408,887221 | 0,100007579 | 0,239176989 | 1 | 18957932,75 | 0,014064842 | 133,71421 | 121,3528 | 133,9593 | 13,06482 | 48,39134 | 50,39355 | 23,0827 |
| 156 | -19,07479694 | 2384,920248 | 0,100007579 | 0,239176989 | 1 | 18824805,71 | 0,014064842 | 133,678531 | 121,2894 | 133,9221 | 13,00555 | 48,17677 | 50,1688 | 22,97991 |
| 157 | -19,00124262 | 2361,146799 | 0,100007579 | 0,239176989 | 1 | 18692173,28 | 0,014064842 | 133,642807 | 121,2259 | 133,8849 | 12,94653 | 47,96301 | 49,94493 | 22,87752 |
| 158 | -18,51787458 | 2501,404062 | 0,106130898 | 0,239176989 | 1 | 19689788,63 | 0,014064842 | 133,863425 | 121,1967 | 134,0923 | 13,26872 | 49,16184 | 51,19194 | 23,44888 |
| 159 | -18,44198365 | 2474,245041 | 0,106130898 | 0,239176989 | 1 | 19537035,9 | 0,014064842 | 133,824241 | 121,1272 | 134,0516 | 13,20285 | 48,92313 | 50,94198 | 23,33455 |
| 160 | -18,36784116 | 2447,77249 | 0,106130898 | 0,239176989 | 1 | 19387461,02 | 0,014064842 | 133,785657 | 121,0587 | 134,0115 | 13,13836 | 48,68937 | 50,69722 | 23,2226 |
| 161 | -18,29470863 | 2421,718466 | 0,106130898 | 0,239176989 | 1 | 19239592,72 | 0,014064842 | 133,7473 | 120,9908 | 133,9716 | 13,07462 | 48,45825 | 50,45523 | 23,11191 |
| 162 | -18,22227079 | 2395,967786 | 0,106130898 | 0,239176989 | 1 | 19092804,72 | 0,014064842 | 133,709007 | 120,923 | 133,9318 | 13,01135 | 48,22876 | 50,21498 | 23,00202 |
| 163 | -18,15039048 | 2370,469439 | 0,106130898 | 0,239176989 | 1 | 18946827,16 | 0,014064842 | 133,67071 | 120,8552 | 133,8921 | 12,94844 | 48,00048 | 49,97602 | 22,89271 |
| 164 | -18,07900784 | 2345,200219 | 0,106130898 | 0,239176989 | 1 | 18801545,2 | 0,014064842 | 133,632376 | 120,7874 | 133,8523 | 12,88582 | 47,77322 | 49,73813 | 22,78389 |
| 165 | -18,00809695 | 2320,149131 | 0,106130898 | 0,239176989 | 1 | 18656912,16 | 0,014064842 | 133,593991 | 120,7196 | 133,8125 | 12,82348 | 47,54688 | 49,50124 | 22,67553 |
| 166 | -17,54146707 | 2450,357393 | 0,112424493 | 0,239176989 | 1 | 19597675,17 | 0,014064842 | 133,802441 | 120,6276 | 134,0066 | 13,1243 | 48,66753 | 50,66657 | 23,20951 |
| 167 | -17,4694318 | 2422,117987 | 0,112424493 | 0,239176989 | 1 | 19433346,96 | 0,014064842 | 133,760753 | 120,5541 | 133,9635 | 13,05552 | 48,41768 | 50,40511 | 23,0899 |
| 168 | -17,39876465 | 2394,472277 | 0,112424493 | 0,239176989 | 1 | 19271774,36 | 0,014064842 | 133,7195 | 120,4814 | 133,9208 | 12,98788 | 48,17187 | 50,1479 | 22,97223 |
| 169 | -17,32898311 | 2367,22795 | 0,112424493 | 0,239176989 | 1 | 19111871,19 | 0,014064842 | 133,67841 | 120,409 | 133,8783 | 12,92091 | 47,92844 | 49,89319 | 22,85571 |
| 170 | -17,25987007 | 2340,297627 | 0,112424493 | 0,239176989 | 1 | 18953151,42 | 0,014064842 | 133,63736 | 120,3367 | 133,8359 | 12,85441 | 47,68663 | 49,6402 | 22,73997 |
| 171 | -17,19132645 | 2313,640545 | 0,112424493 | 0,239176989 | 1 | 18795396,6 | 0,014064842 | 133,596292 | 120,2645 | 133,7934 | 12,78828 | 47,44609 | 49,38856 | 22,62484 |
| 172 | -17,12330683 | 2287,237096 | 0,112424493 | 0,239176989 | 1 | 18638510,07 | 0,014064842 | 133,555181 | 120,1922 | 133,7509 | 12,72247 | 47,20668 | 49,13812 | 22,51026 |
| 173 | -16,67906099 | 2409,651903 | 0,118857384 | 0,239176989 | 1 | 19532687,63 | 0,014064842 | 133,753835 | 120,0397 | 133,9347 | 13,00678 | 48,26658 | 50,24009 | 23,01523 |
| 174 | -16,60991583 | 2379,798805 | 0,118857384 | 0,239176989 | 1 | 19353981,93 | 0,014064842 | 133,708921 | 119,9609 | 133,8884 | 12,93386 | 48,0011 | 49,96242 | 22,88819 |
| 175 | -16,54240759 | 2350,708439 | 0,118857384 | 0,239176989 | 1 | 19179110,67 | 0,014064842 | 133,664649 | 119,8833 | 133,8428 | 12,86244 | 47,74102 | 49,69042 | 22,76374 |
| 176 | -16,47593855 | 2322,119157 | 0,118857384 | 0,239176989 | 1 | 19006548,59 | 0,014064842 | 133,620643 | 119,8062 | 133,7974 | 12,79191 | 47,48407 | 49,42172 | 22,6408 |
| 177 | -16,41023175 | 2293,908948 | 0,118857384 | 0,239176989 | 1 | 18835591,87 | 0,014064842 | 133,576727 | 119,7293 | 133,7522 | 12,72196 | 47,2292 | 49,15521 | 22,51886 |
| 178 | -16,34515622 | 2266,019255 | 0,118857384 | 0,239176989 | 1 | 18665911,25 | 0,014064842 | 133,532819 | 119,6525 | 133,707 | 12,65247 | 46,9759 | 48,89036 | 22,39767 |
| 179 | -16,28064927 | 2238,421188 | 0,118857384 | 0,239176989 | 1 | 18497353,18 | 0,014064842 | 133,488878 | 119,5757 | 133,6618 | 12,58337 | 46,72393 | 48,62693 | 22,27714 |
| 180 | -16,21668061 | 2211,09991 | 0,118857384 | 0,239176989 | 1 | 18329847,42 | 0,014064842 | 133,444885 | 119,4989 | 133,6165 | 12,51462 | 46,47319 | 48,3648 | 22,15719 |
| 181 | -15,79780446 | 2321,437834 | 0,125393376 | 0,239176989 | 1 | 19148093,6 | 0,014064842 | 133,629771 | 119,2771 | 133,7863 | 12,77432 | 47,44253 | 49,37232 | 22,61891 |
| 182 | -15,73380591 | 2290,965832 | 0,125393376 | 0,239176989 | 1 | 18959935,81 | 0,014064842 | 133,582178 | 119,1941 | 133,7375 | 12,69901 | 47,1677 | 49,08505 | 22,48746 |
| 183 | -15,67109817 | 2261,159686 | 0,125393376 | 0,239176989 | 1 | 18775166,19 | 0,014064842 | 133,535058 | 119,1121 | 133,6891 | 12,62496 | 46,89736 | 48,80249 | 22,35816 |
| 184 | -15,60929165 | 2231,830872 | 0,125393376 | 0,239176989 | 1 | 18592657,76 | 0,014064842 | 133,488133 | 119,0304 | 133,641 | 12,5517 | 46,62985 | 48,52291 | 22,23022 |
| 185 | -15,54819735 | 2202,887147 | 0,125393376 | 0,239176989 | 1 | 18411867,48 | 0,014064842 | 133,441269 | 118,9489 | 133,593 | 12,47902 | 46,36437 | 48,24549 | 22,10326 |
| 186 | -15,48772193 | 2174,28215 | 0,125393376 | 0,239176989 | 1 | 18232531,47 | 0,014064842 | 133,394398 | 118,8675 | 133,5449 | 12,40681 | 46,10053 | 47,96979 | 21,97709 |
| 187 | -15,42781862 | 2145,991832 | 0,125393376 | 0,239176989 | 1 | 18054521,88 | 0,014064842 | 133,347487 | 118,7861 | 133,4968 | 12,33502 | 45,83814 | 47,69563 | 21,85162 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 188 | -15,03796042 | 2246,938379 | 0,131991684 | 0,239176989 | 1 | 18810897,83 | 0,014064842 | 133,521306 | 118,4981 | 133,6558 | 12,57563 | 46,73685 | 48,62957 | 22,27964 |
| 189 | -14,97809868 | 2215,347748 | 0,131991684 | 0,239176989 | 1 | 18610794,12 | 0,014064842 | 133,470329 | 118,4097 | 133,6037 | 12,49675 | 46,44841 | 48,32823 | 22,14173 |
| 190 | -14,91968217 | 2184,568379 | 0,131991684 | 0,239176989 | 1 | 18415097,69 | 0,014064842 | 133,42002 | 118,3226 | 133,5523 | 12,41946 | 46,16567 | 48,03288 | 22,00656 |
| 191 | -14,86225766 | 2154,357819 | 0,131991684 | 0,239176989 | 1 | 18222316,14 | 0,014064842 | 133,37001 | 118,2362 | 133,5012 | 12,34317 | 45,8865 | 47,74127 | 21,8731 |
| 192 | -14,80559998 | 2124,594936 | 0,131991684 | 0,239176989 | 1 | 18031712,05 | 0,014064842 | 133,320115 | 118,1499 | 133,4502 | 12,26758 | 45,60983 | 47,45229 | 21,74083 |
| 193 | -14,74959484 | 2095,217474 | 0,131991684 | 0,239176989 | 1 | 17842915,51 | 0,014064842 | 133,270243 | 118,0638 | 133,3993 | 12,19255 | 45,33512 | 47,16538 | 21,60952 |
| 194 | -14,69418314 | 2066,192501 | 0,131991684 | 0,239176989 | 1 | 17655740 | 0,014064842 | 133,220345 | 117,9778 | 133,3483 | 12,118 | 45,06209 | 46,88025 | 21,47901 |
| 195 | -14,63933365 | 2037,501866 | 0,131991684 | 0,239176989 | 1 | 17470091,64 | 0,014064842 | 133,170398 | 117,8917 | 133,2973 | 12,04389 | 44,7906 | 46,59675 | 21,34925 |
| 196 | -14,281193 | 2125,382752 | 0,138607621 | 0,239176989 | 1 | 18138114,24 | 0,014064842 | 133,329093 | 117,5292 | 133,4418 | 12,25792 | 45,591 | 47,42828 | 21,73037 |
| 197 | -14,22726001 | 2093,784958 | 0,138607621 | 0,239176989 | 1 | 17932361,61 | 0,014064842 | 133,275339 | 117,4367 | 133,3871 | 12,17744 | 45,296 | 47,12027 | 21,58938 |
| 198 | -14,17446722 | 2062,898264 | 0,138607621 | 0,239176989 | 1 | 17730542,17 | 0,014064842 | 133,222084 | 117,3453 | 133,3329 | 12,09829 | 45,0058 | 46,8173 | 21,4507 |
| 199 | -14,12252147 | 2032,54822 | 0,138607621 | 0,239176989 | 1 | 17531558,3 | 0,014064842 | 133,169052 | 117,2542 | 133,2789 | 12,02005 | 44,71884 | 46,51772 | 21,31357 |
| 200 | -14,07127108 | 2002,643895 | 0,138607621 | 0,239176989 | 1 | 17334846,58 | 0,014064842 | 133,1161 | 117,1634 | 133,225 | 11,94249 | 44,4343 | 46,2207 | 21,1776 |
| 201 | -14,02063591 | 1973,136569 | 0,138607621 | 0,239176989 | 1 | 17140114,25 | 0,014064842 | 133,063154 | 117,0727 | 133,1711 | 11,86549 | 44,15177 | 45,92579 | 21,04261 |
| 202 | -13,9705727 | 1943,999251 | 0,138607621 | 0,239176989 | 1 | 16947208,08 | 0,014064842 | 133,010176 | 116,9821 | 133,1172 | 11,78901 | 43,87103 | 45,63277 | 20,90847 |
| 203 | -13,64536082 | 2021,860417 | 0,145193756 | 0,239176989 | 1 | 17544797,78 | 0,014064842 | 133,156773 | 116,5491 | 133,2506 | 11,98253 | 44,59522 | 46,38501 | 21,25326 |
| 204 | -13,59627385 | 1989,786305 | 0,145193756 | 0,239176989 | 1 | 17331205,17 | 0,014064842 | 133,099585 | 116,4515 | 133,1925 | 11,89935 | 44,28974 | 46,06621 | 21,10732 |
| 205 | -13,54838774 | 1958,536447 | 0,145193756 | 0,239176989 | 1 | 17122421,51 | 0,014064842 | 133,043072 | 116,3551 | 133,1352 | 11,81778 | 43,99008 | 45,75351 | 20,96417 |
| 206 | -13,50138085 | 1927,897956 | 0,145193756 | 0,239176989 | 1 | 16917071,29 | 0,014064842 | 132,986881 | 116,2593 | 133,0782 | 11,73729 | 43,69432 | 45,4449 | 20,82288 |
| 207 | -13,45508365 | 1897,758 | 0,145193756 | 0,239176989 | 1 | 16714433,74 | 0,014064842 | 132,930828 | 116,1639 | 133,0213 | 11,6576 | 43,40143 | 45,1393 | 20,68297 |
| 208 | -13,40940461 | 1868,055069 | 0,145193756 | 0,239176989 | 1 | 16514124,78 | 0,014064842 | 132,874813 | 116,0687 | 132,9645 | 11,57856 | 43,11085 | 44,83614 | 20,54418 |
| 209 | -13,36429319 | 1838,75458 | 0,145193756 | 0,239176989 | 1 | 16315937,24 | 0,014064842 | 132,818783 | 115,9735 | 132,9077 | 11,5001 | 42,82231 | 44,53512 | 20,40636 |
| 210 | -13,31972059 | 1809,836246 | 0,145193756 | 0,239176989 | 1 | 16119757,92 | 0,014064842 | 132,762709 | 115,8784 | 132,8508 | 11,42216 | 42,53563 | 44,23606 | 20,26944 |
| 211 | -13,0292234 | 1874,879728 | 0,151701152 | 0,239176989 | 1 | 16625820,98 | 0,014064842 | 132,893241 | 115,3676 | 132,9693 | 11,58876 | 43,15982 | 44,88423 | 20,56656 |
| 212 | -12,9862162 | 1843,48119 | 0,151701152 | 0,239176989 | 1 | 16411651,54 | 0,014064842 | 132,833278 | 115,2661 | 132,9087 | 11,50496 | 42,85141 | 44,56255 | 20,41927 |
| 213 | -12,94415132 | 1812,804677 | 0,151701152 | 0,239176989 | 1 | 16201783,24 | 0,014064842 | 132,773823 | 115,1655 | 132,8485 | 11,42253 | 42,54795 | 44,24605 | 20,27436 |
| 214 | -12,90282315 | 1782,697872 | 0,151701152 | 0,239176989 | 1 | 15995213,44 | 0,014064842 | 132,714611 | 115,0656 | 132,7886 | 11,34107 | 42,24802 | 43,93325 | 20,13114 |
| 215 | -12,86211926 | 1753,076927 | 0,151701152 | 0,239176989 | 1 | 15791398,45 | 0,014064842 | 132,655497 | 114,9659 | 132,7288 | 11,26039 | 41,95086 | 43,62336 | 19,98925 |
| 216 | -12,82197664 | 1723,894338 | 0,151701152 | 0,239176989 | 1 | 15590038,65 | 0,014064842 | 132,596403 | 114,8663 | 132,669 | 11,18036 | 41,65604 | 43,31593 | 19,84848 |
| 217 | -12,78235901 | 1695,122212 | 0,151701152 | 0,239176989 | 1 | 15390966,21 | 0,014064842 | 132,537285 | 114,7668 | 132,6093 | 11,10092 | 41,36332 | 43,01071 | 19,70872 |
| 218 | -12,52537946 | 1750,572597 | 0,158080876 | 0,239176989 | 1 | 15826300,37 | 0,014064842 | 132,655063 | 114,1834 | 132,7164 | 11,247 | 41,91101 | 43,57935 | 19,96939 |
| 219 | -12,48731447 | 1719,393068 | 0,158080876 | 0,239176989 | 1 | 15609489,7 | 0,014064842 | 132,591739 | 114,0772 | 132,6525 | 11,16158 | 41,5961 | 43,25102 | 19,81905 |
| 220 | -12,4501875 | 1689,012258 | 0,158080876 | 0,239176989 | 1 | 15397646,95 | 0,014064842 | 132,529076 | 113,9721 | 132,5892 | 11,07775 | 41,28695 | 42,92873 | 19,67147 |
| 221 | -12,4137851 | 1659,253191 | 0,158080876 | 0,239176989 | 1 | 15189579,08 | 0,014064842 | 132,466746 | 113,8678 | 132,5263 | 10,99503 | 40,98188 | 42,6107 | 19,52584 |
| 222 | -12,37798878 | 1630,017151 | 0,158080876 | 0,239176989 | 1 | 14984628,26 | 0,014064842 | 132,404569 | 113,7639 | 132,4636 | 10,91319 | 40,67995 | 42,29598 | 19,38172 |
| 223 | -12,34273108 | 1601,247469 | 0,158080876 | 0,239176989 | 1 | 14782424,76 | 0,014064842 | 132,342446 | 113,6601 | 132,4009 | 10,83209 | 40,38065 | 41,984 | 19,23885 |
| 224 | -12,30797253 | 1572,910518 | 0,158080876 | 0,239176989 | 1 | 14582756,81 | 0,014064842 | 132,280319 | 113,5566 | 132,3382 | 10,75162 | 40,08367 | 41,67447 | 19,0971 |
| 225 | -12,27368912 | 1544,985432 | 0,158080876 | 0,239176989 | 1 | 14385500,14 | 0,014064842 | 132,218158 | 113,4531 | 132,2755 | 10,67177 | 39,78886 | 41,36721 | 18,95639 |
| 226 | -12,05077122 | 1589,013664 | 0,164285839 | 0,239176989 | 1 | 14735741,13 | 0,014064842 | 132,319491 | 112,7912 | 132,3676 | 10,7923 | 40,24133 | 41,83684 | 19,1717 |
| 227 | -12,01834092 | 1559,153375 | 0,164285839 | 0,239176989 | 1 | 14523840,46 | 0,014064842 | 132,253501 | 112,6816 | 132,3012 | 10,70736 | 39,92761 | 41,50992 | 19,02198 |
| 228 | -11,98663973 | 1529,98977 | 0,164285839 | 0,239176989 | 1 | 14316366,5 | 0,014064842 | 132,188009 | 112,573 | 132,2352 | 10,62378 | 39,61883 | 41,18815 | 18,87462 |
| 229 | -11,95553312 | 1501,397303 | 0,164285839 | 0,239176989 | 1 | 14112459,78 | 0,014064842 | 132,122769 | 112,465 | 132,1695 | 10,54121 | 39,31374 | 40,87025 | 18,72903 |
| 230 | -11,92494386 | 1473,303476 | 0,164285839 | 0,239176989 | 1 | 13911631,14 | 0,014064842 | 132,05764 | 112,3574 | 132,1039 | 10,45948 | 39,01166 | 40,5555 | 18,58488 |
| 231 | -11,89482637 | 1445,665122 | 0,164285839 | 0,239176989 | 1 | 13713596,43 | 0,014064842 | 131,992545 | 112,25 | 132,0384 | 10,37846 | 38,71218 | 40,24348 | 18,44198 |
| 232 | -11,86515286 | 1418,455533 | 0,164285839 | 0,239176989 | 1 | 13518186,54 | 0,014064842 | 131,927437 | 112,1427 | 131,9728 | 10,29811 | 38,41507 | 39,93395 | 18,30021 |
| 233 | -11,67320214 | 1454,209676 | 0,170272291 | 0,239176989 | 1 | 13805132,43 | 0,014064842 | 132,01585 | 111,4086 | 132,0534 | 10,39955 | 38,79614 | 40,3294 | 18,48152 |
| 234 | -11,64527835 | 1425,202239 | 0,170272291 | 0,239176989 | 1 | 13595937,06 | 0,014064842 | 131,946692 | 111,295 | 131,9839 | 10,31417 | 38,48032 | 40,0004 | 18,33083 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 235 | -11,61804393 | 1396,932893 | 0,170272291 | 0,239176989 | 1 | 13391596,41 | 0,014064842 | 131,878159 | 111,1827 | 131,915 | 10,2303 | 38,17002 | 39,67718 | 18,18279 |
| 236 | -11,59136623 | 1369,262272 | 0,170272291 | 0,239176989 | 1 | 13191136,19 | 0,014064842 | 131,809957 | 111,071 | 131,8464 | 10,14756 | 37,86383 | 39,35826 | 18,03672 |
| 237 | -11,56516817 | 1342,109064 | 0,170272291 | 0,239176989 | 1 | 12993994,37 | 0,014064842 | 131,741917 | 110,9599 | 131,778 | 10,06572 | 37,56095 | 39,04279 | 17,89223 |
| 238 | -11,53940374 | 1315,42439 | 0,170272291 | 0,239176989 | 1 | 12799839,51 | 0,014064842 | 131,673942 | 110,849 | 131,7097 | 9,984671 | 37,26089 | 38,73028 | 17,74909 |
| 239 | -11,51404459 | 1289,177793 | 0,170272291 | 0,239176989 | 1 | 12608471,21 | 0,014064842 | 131,605976 | 110,7383 | 131,6414 | 9,904323 | 36,96339 | 38,42044 | 17,60717 |
| 240 | -11,48907244 | 1263,349384 | 0,170272291 | 0,239176989 | 1 | 12419764,11 | 0,014064842 | 131,537985 | 110,6278 | 131,5731 | 9,824635 | 36,66827 | 38,1131 | 17,4664 |
| 241 | -11,32745455 | 1289,867407 | 0,176001072 | 0,239176989 | 1 | 12635540,58 | 0,014064842 | 131,610211 | 109,8175 | 131,6389 | 9,903414 | 36,96467 | 38,42057 | 17,60738 |
| 242 | -11,30429844 | 1262,677708 | 0,176001072 | 0,239176989 | 1 | 12436130,42 | 0,014064842 | 131,538591 | 109,7015 | 131,5669 | 9,819609 | 36,65418 | 38,09727 | 17,45928 |
| 243 | -11,28167186 | 1236,127613 | 0,176001072 | 0,239176989 | 1 | 12241013,07 | 0,014064842 | 131,467442 | 109,5865 | 131,4955 | 9,7371 | 36,34844 | 37,77891 | 17,31346 |
| 244 | -11,25949246 | 1210,119224 | 0,176001072 | 0,239176989 | 1 | 12049495,55 | 0,014064842 | 131,396543 | 109,4722 | 131,4243 | 9,65561 | 36,04642 | 37,46445 | 17,16941 |
| 245 | -11,23771085 | 1184,593534 | 0,176001072 | 0,239176989 | 1 | 11861165,86 | 0,014064842 | 131,325763 | 109,3582 | 131,3533 | 9,574978 | 35,74753 | 37,15325 | 17,02686 |
| 246 | -11,21629649 | 1159,513792 | 0,176001072 | 0,239176989 | 1 | 11675772,85 | 0,014064842 | 131,255026 | 109,2446 | 131,2823 | 9,495105 | 35,45139 | 36,84494 | 16,88563 |
| 247 | -11,19522977 | 1134,856141 | 0,176001072 | 0,239176989 | 1 | 11493158,54 | 0,014064842 | 131,184288 | 109,1312 | 131,2113 | 9,415935 | 35,15781 | 36,5393 | 16,74563 |
| 248 | -11,05978969 | 1154,942585 | 0,181439281 | 0,239176989 | 1 | 11658263,95 | 0,014064842 | 131,243945 | 108,252 | 131,2657 | 9,478185 | 35,39228 | 36,78247 | 16,85713 |
| 249 | -11,04036667 | 1129,081461 | 0,181439281 | 0,239176989 | 1 | 11466079,6 | 0,014064842 | 131,169449 | 108,1331 | 131,191 | 9,395075 | 35,08399 | 36,46154 | 16,71011 |
| 250 | -11,02142172 | 1103,871907 | 0,181439281 | 0,239176989 | 1 | 11278389,54 | 0,014064842 | 131,095527 | 108,0154 | 131,1168 | 9,313362 | 34,78082 | 36,14596 | 16,56555 |
| 251 | -11,00287738 | 1079,209705 | 0,181439281 | 0,239176989 | 1 | 11094442,57 | 0,014064842 | 131,02192 | 107,8984 | 131,043 | 9,232741 | 34,48165 | 35,83456 | 16,4229 |
| 252 | -10,98468676 | 1055,031554 | 0,181439281 | 0,239176989 | 1 | 10913787,3 | 0,014064842 | 130,948476 | 107,782 | 130,9694 | 9,153029 | 34,18581 | 35,52664 | 16,28183 |
| 253 | -10,96682064 | 1031,297764 | 0,181439281 | 0,239176989 | 1 | 10736145,5 | 0,014064842 | 130,875104 | 107,666 | 130,8958 | 9,074117 | 33,89288 | 35,22176 | 16,14216 |
| 254 | -10,94926012 | 1007,982462 | 0,181439281 | 0,239176989 | 1 | 10561340,24 | 0,014064842 | 130,80175 | 107,5502 | 130,8222 | 8,995938 | 33,60263 | 34,91968 | 16,00378 |
| 255 | -10,9319924 | 985,0679378 | 0,181439281 | 0,239176989 | 1 | 10389254,32 | 0,014064842 | 130,728382 | 107,4348 | 130,7487 | 8,91845 | 33,3149 | 34,62024 | 15,86659 |
| 256 | -10,82128321 | 998,4024986 | 0,18656081 | 0,239176989 | 1 | 10500883,19 | 0,014064842 | 130,772729 | 106,4847 | 130,7889 | 8,961976 | 33,47926 | 34,79058 | 15,94472 |
| 257 | -10,8055763 | 974,646139 | 0,18656081 | 0,239176989 | 1 | 10321926,31 | 0,014064842 | 130,696048 | 106,3647 | 130,712 | 8,881394 | 33,17995 | 34,47911 | 15,80202 |
| 258 | -10,79023206 | 951,4501994 | 0,18656081 | 0,239176989 | 1 | 10146905,56 | 0,014064842 | 130,619797 | 106,2456 | 130,6356 | 8,802016 | 32,88506 | 34,17225 | 15,66144 |
| 259 | -10,77520308 | 928,7421636 | 0,18656081 | 0,239176989 | 1 | 9975293,042 | 0,014064842 | 130,543783 | 106,1273 | 130,5595 | 8,723621 | 32,59379 | 33,86916 | 15,52258 |
| 260 | -10,76045977 | 906,4765771 | 0,18656081 | 0,239176989 | 1 | 9806761,98 | 0,014064842 | 130,467888 | 106,0095 | 130,4834 | 8,646077 | 32,30563 | 33,56932 | 15,38521 |
| 261 | -10,74598301 | 884,6239177 | 0,18656081 | 0,239176989 | 1 | 9641103,995 | 0,014064842 | 130,392044 | 105,8921 | 130,4074 | 8,569302 | 32,02028 | 33,27243 | 15,24919 |
| 262 | -10,73175994 | 863,1641455 | 0,18656081 | 0,239176989 | 1 | 9478181,107 | 0,014064842 | 130,316207 | 105,7751 | 130,3314 | 8,493245 | 31,73757 | 32,97828 | 15,11442 |
| 263 | -10,64143667 | 872,0149599 | 0,191346884 | 0,239176989 | 1 | 9553607,555 | 0,014064842 | 130,34881 | 104,762 | 130,3608 | 8,523506 | 31,85214 | 33,09695 | 15,16886 |
| 264 | -10,62857428 | 849,8556111 | 0,191346884 | 0,239176989 | 1 | 9384911,59 | 0,014064842 | 130,269612 | 104,6405 | 130,2815 | 8,44459 | 31,55872 | 32,79168 | 15,02899 |
| 265 | -10,61602631 | 828,2477254 | 0,191346884 | 0,239176989 | 1 | 9220172,428 | 0,014064842 | 130,190922 | 104,5203 | 130,2027 | 8,366934 | 31,26993 | 32,49125 | 14,89134 |
| 266 | -10,60375002 | 807,1169674 | 0,191346884 | 0,239176989 | 1 | 9058840,464 | 0,014064842 | 130,112522 | 104,4008 | 130,1242 | 8,2903 | 30,98492 | 32,19474 | 14,7555 |
| 267 | -10,59171855 | 786,4164845 | 0,191346884 | 0,239176989 | 1 | 8900572,757 | 0,014064842 | 130,034278 | 104,282 | 130,0458 | 8,214545 | 30,70313 | 31,90161 | 14,62119 |
| 268 | -10,57991448 | 766,1157177 | 0,191346884 | 0,239176989 | 1 | 8745148,9 | 0,014064842 | 129,956107 | 104,1638 | 129,9675 | 8,139579 | 30,42424 | 31,6115 | 14,48827 |
| 269 | -10,568326 | 746,1938832 | 0,191346884 | 0,239176989 | 1 | 8592421,942 | 0,014064842 | 129,877961 | 104,046 | 129,8893 | 8,065345 | 30,14804 | 31,3242 | 14,35663 |
| 270 | -10,55694477 | 726,6361118 | 0,191346884 | 0,239176989 | 1 | 8442289,285 | 0,014064842 | 129,79981 | 103,9286 | 129,811 | 7,991808 | 29,87439 | 31,03956 | 14,22621 |
| 271 | -10,48522901 | 731,0612979 | 0,195786476 | 0,239176989 | 1 | 8481833,259 | 0,014064842 | 129,818484 | 102,8526 | 129,8272 | 8,007699 | 29,93505 | 31,10227 | 14,25499 |
| 272 | -10,47505939 | 711,0727332 | 0,195786476 | 0,239176989 | 1 | 8328020,6 | 0,014064842 | 129,737413 | 102,7318 | 129,7461 | 7,932033 | 29,65342 | 30,80934 | 14,12077 |
| 273 | -10,4651255 | 691,5550369 | 0,195786476 | 0,239176989 | 1 | 8177639,204 | 0,014064842 | 129,656723 | 102,612 | 129,6653 | 7,857456 | 29,3758 | 30,5206 | 13,98847 |
| 274 | -10,45540148 | 672,4568758 | 0,195786476 | 0,239176989 | 1 | 8030306,62 | 0,014064842 | 129,576248 | 102,4931 | 129,5847 | 7,7838 | 29,10158 | 30,23539 | 13,85779 |
| 275 | -10,44587056 | 653,7448662 | 0,195786476 | 0,239176989 | 1 | 7885776,87 | 0,014064842 | 129,495888 | 102,3749 | 129,5043 | 7,71096 | 28,83036 | 29,95332 | 13,72854 |
| 276 | -10,43652148 | 635,396444 | 0,195786476 | 0,239176989 | 1 | 7743886,213 | 0,014064842 | 129,41558 | 102,2572 | 129,4239 | 7,638869 | 28,5619 | 29,67414 | 13,60062 |
| 277 | -10,42734396 | 617,391022 | 0,195786476 | 0,239176989 | 1 | 7604485,18 | 0,014064842 | 129,335265 | 102,1401 | 129,3435 | 7,567467 | 28,29598 | 29,39759 | 13,4739 |
| 278 | -10,37034168 | 619,0268209 | 0,199875355 | 0,239176989 | 1 | 7621011,235 | 0,014064842 | 129,343272 | 101,0091 | 129,3496 | 7,573434 | 28,31934 | 29,42159 | 13,48493 |
| 279 | -10,36217504 | 600,6715311 | 0,199875355 | 0,239176989 | 1 | 7478595,147 | 0,014064842 | 129,259928 | 100,8887 | 129,2662 | 7,500038 | 28,04593 | 29,13728 | 13,35465 |
| 280 | -10,35420391 | 582,7617692 | 0,199875355 | 0,239176989 | 1 | 7339477,491 | 0,014064842 | 129,176997 | 100,7695 | 129,1833 | 7,427733 | 27,77656 | 28,85716 | 13,2263 |
| 281 | -10,34640573 | 565,2464219 | 0,199875355 | 0,239176989 | 1 | 7203272,298 | 0,014064842 | 129,094293 | 100,6513 | 129,1005 | 7,35634 | 27,51055 | 28,58056 | 13,09955 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 282 | -10,33876641 | 548,0934008 | 0,199875355 | 0,239176989 | 1 | 7069739,779 | 0,014064842 | 129,011708 | 100,5339 | 129,0179 | 7,285753 | 27,24752 | 28,30705 | 12,97422 |
| 283 | -10,33127669 | 531,281605 | 0,199875355 | 0,239176989 | 1 | 6938724,535 | 0,014064842 | 128,929177 | 100,4172 | 128,9353 | 7,215908 | 26,98722 | 28,03641 | 12,8502 |
| 284 | -10,32393018 | 514,7963481 | 0,199875355 | 0,239176989 | 1 | 6810120,361 | 0,014064842 | 128,846662 | 100,3013 | 128,8527 | 7,146764 | 26,72952 | 27,76845 | 12,72742 |
| 285 | -10,31672216 | 498,6267248 | 0,199875355 | 0,239176989 | 1 | 6683849,957 | 0,014064842 | 128,76414 | 100,1859 | 128,7702 | 7,078294 | 26,4743 | 27,50309 | 12,60582 |
| 286 | -10,2727509 | 497,6916807 | 0,203616142 | 0,239176989 | 1 | 6679068,154 | 0,014064842 | 128,759782 | 99,00212 | 128,7644 | 7,073974 | 26,45901 | 27,48699 | 12,59846 |
| 287 | -10,26641509 | 481,3849823 | 0,203616142 | 0,239176989 | 1 | 6551486,579 | 0,014064842 | 128,674796 | 98,88487 | 128,6794 | 7,00423 | 26,19899 | 27,21665 | 12,47458 |
| 288 | -10,26022647 | 465,4617284 | 0,203616142 | 0,239176989 | 1 | 6426782,318 | 0,014064842 | 128,590137 | 98,76886 | 128,5947 | 6,935454 | 25,94255 | 26,95004 | 12,35241 |
| 289 | -10,25417102 | 449,8855329 | 0,203616142 | 0,239176989 | 1 | 6304678,792 | 0,014064842 | 128,505663 | 98,65389 | 128,5102 | 6,867518 | 25,68922 | 26,68668 | 12,23172 |
| 290 | -10,24823962 | 434,6326345 | 0,203616142 | 0,239176989 | 1 | 6184997,257 | 0,014064842 | 128,421285 | 98,53987 | 128,4257 | 6,80034 | 25,4387 | 26,42623 | 12,11237 |
| 291 | -10,24242604 | 419,6867334 | 0,203616142 | 0,239176989 | 1 | 6067616,741 | 0,014064842 | 128,336953 | 98,42674 | 128,3414 | 6,73387 | 25,19079 | 26,16851 | 11,99427 |
| 292 | -10,16107139 | 405,5373314 | 0,203616142 | 0,239176989 | 0,998840332 | 5952450,687 | 0,014064842 | 128,242555 | 98,3145 | 128,247 | 6,671902 | 24,95276 | 25,92282 | 11,88147 |
| 293 | -9,944040763 | 404,3471293 | 0,207016826 | 0,23917675 | 0,996032715 | 5935443,495 | 0,014064842 | 128,204592 | 97,08586 | 128,2079 | 6,669989 | 24,92946 | 25,90274 | 11,87176 |
| 294 | -8,791486564 | 397,1158101 | 0,207013011 | 0,23917079 | 0,97833252 | 5819410,065 | 0,014064842 | 127,962027 | 96,97163 | 127,9655 | 6,661044 | 24,78856 | 25,78388 | 11,81392 |
| 295 | -7,669447767 | 390,0133875 | 0,207003593 | 0,239156008 | 0,9609375 | 5705951,696 | 0,014064842 | 127,719637 | 96,85795 | 127,7232 | 6,652637 | 24,64822 | 25,66616 | 11,75658 |
| 296 | -6,57582485 | 383,0250429 | 0,206988215 | 0,239131927 | 0,943817139 | 5594803,023 | 0,014064842 | 127,47703 | 96,74448 | 127,4807 | 6,644743 | 24,50816 | 25,54935 | 11,69961 |
| 297 | -5,510471523 | 376,141674 | 0,206966996 | 0,239098549 | 0,926971436 | 5485804,141 | 0,014064842 | 127,234149 | 96,63119 | 127,2379 | 6,637352 | 24,36831 | 25,43338 | 11,64298 |
| 298 | -4,469455529 | 369,3585833 | 0,206938982 | 0,23905468 | 0,910339355 | 5378821,874 | 0,014064842 | 126,990373 | 96,5179 | 126,9943 | 6,630432 | 24,22809 | 25,31779 | 11,58647 |
| 299 | -3,454577423 | 362,6712379 | 0,206904292 | 0,23900032 | 0,893951416 | 5273785,626 | 0,014064842 | 126,745975 | 96,40462 | 126,75 | 6,623987 | 24,08769 | 25,20275 | 11,53016 |
| 300 | -2,463848674 | 356,0777857 | 0,20686233 | 0,238934517 | 0,8777771 | 5170626,531 | 0,014064842 | 126,500645 | 96,2912 | 126,5048 | 6,617999 | 23,94676 | 25,08798 | 11,47392 |
| 301 | -2,167899472 | 354,2200521 | 0,20991528 | 0,238914132 | 0,873321533 | 5143036,73 | 0,014064842 | 126,432264 | 95,01947 | 126,4354 | 6,616082 | 23,9068 | 25,05526 | 11,45792 |
| 302 | -1,186508895 | 347,5892803 | 0,20985961 | 0,238830805 | 0,857055664 | 5039757,247 | 0,014064842 | 126,179936 | 94,90394 | 126,1832 | 6,610559 | 23,76184 | 24,93815 | 11,40045 |
| 303 | -0,233145628 | 341,0745903 | 0,209795237 | 0,238734484 | 0,841064453 | 4938671,09 | 0,014064842 | 125,927444 | 94,78852 | 125,9308 | 6,605517 | 23,6166 | 24,82157 | 11,34317 |
| 304 | 0,692460368 | 334,6653386 | 0,209721804 | 0,238624573 | 0,8253479 | 4839601,093 | 0,014064842 | 125,674712 | 94,67315 | 125,6782 | 6,600947 | 23,47103 | 24,70548 | 11,28607 |
| 305 | 1,594105345 | 328,3560149 | 0,209638357 | 0,23849988 | 0,809844971 | 4742414,287 | 0,014064842 | 125,421047 | 94,55763 | 125,4246 | 6,596822 | 23,32447 | 24,58938 | 11,22889 |
| 306 | 2,468494204 | 322,1409273 | 0,209545016 | 0,238360167 | 0,794616699 | 4647038,28 | 0,014064842 | 125,167088 | 94,44181 | 125,1708 | 6,593151 | 23,17745 | 24,47368 | 11,17185 |
| 307 | 3,321082028 | 316,0188087 | 0,20944047 | 0,238204002 | 0,779571533 | 4553390,324 | 0,014064842 | 124,911815 | 94,32572 | 124,9156 | 6,589905 | 23,02898 | 24,35764 | 11,11457 |
| 308 | 4,15031775 | 309,9870138 | 0,209324598 | 0,23803091 | 0,76473999 | 4461428,825 | 0,014064842 | 124,655556 | 94,20926 | 124,6595 | 6,587086 | 22,87927 | 24,24142 | 11,05714 |
| 309 | 4,954750603 | 304,0430346 | 0,209196925 | 0,237840414 | 0,750152588 | 4371112,718 | 0,014064842 | 124,398663 | 94,0924 | 124,4027 | 6,584693 | 22,72855 | 24,12522 | 10,99967 |
| 310 | 5,736321983 | 298,1862682 | 0,209056735 | 0,237631202 | 0,735778809 | 4282401,774 | 0,014064842 | 124,140798 | 93,97497 | 124,145 | 6,582714 | 22,57642 | 24,00875 | 10,942 |
| 311 | 6,496896359 | 292,4158951 | 0,208903074 | 0,237402201 | 0,721588135 | 4195255,122 | 0,014064842 | 123,881593 | 93,85699 | 123,8859 | 6,581139 | 22,42246 | 23,89171 | 10,88398 |
| 312 | 7,235063868 | 286,7303627 | 0,208735585 | 0,237152576 | 0,707611084 | 4109647,138 | 0,014064842 | 123,62142 | 93,7384 | 123,6259 | 6,579967 | 22,26689 | 23,77428 | 10,82572 |
| 313 | 7,951096604 | 281,1287818 | 0,208553672 | 0,236881852 | 0,693847656 | 4025549,179 | 0,014064842 | 123,360292 | 93,61919 | 123,3649 | 6,579191 | 22,10962 | 23,65643 | 10,76719 |
| 314 | 8,646817103 | 275,6102744 | 0,208356142 | 0,23658824 | 0,680267334 | 3942922,563 | 0,014064842 | 123,097824 | 93,49921 | 123,1026 | 6,578804 | 21,95021 | 23,53783 | 10,70823 |
| 315 | 9,320925103 | 270,1737666 | 0,208142757 | 0,236271381 | 0,666900635 | 3861748,761 | 0,014064842 | 122,834418 | 93,37851 | 122,8393 | 6,578802 | 21,78889 | 23,41869 | 10,64895 |
| 316 | 9,973721835 | 264,8185302 | 0,207912922 | 0,235930324 | 0,653747559 | 3782003,077 | 0,014064842 | 122,570097 | 93,25695 | 122,5752 | 6,579178 | 21,62559 | 23,29898 | 10,58933 |
| 317 | 10,6084638 | 259,5437039 | 0,207664847 | 0,235562563 | 0,64074707 | 3703640,219 | 0,014064842 | 122,304034 | 93,13436 | 122,3093 | 6,579928 | 21,45943 | 23,17807 | 10,52907 |
| 318 | 11,22097951 | 254,3482017 | 0,207399249 | 0,235169411 | 0,627990723 | 3626661,39 | 0,014064842 | 122,037498 | 93,01096 | 122,0429 | 6,581041 | 21,29146 | 23,05677 | 10,46856 |
| 319 | 11,81594004 | 249,2309813 | 0,207113624 | 0,234747171 | 0,615386963 | 3551011,215 | 0,014064842 | 121,769214 | 92,88641 | 121,7748 | 6,582519 | 21,12038 | 22,93416 | 10,40735 |
| 320 | 12,39213129 | 244,1909006 | 0,206807494 | 0,234295368 | 0,602966309 | 3476671,779 | 0,014064842 | 121,499604 | 92,76068 | 121,5054 | 6,584355 | 20,94646 | 22,81046 | 10,34556 |
| 321 | 12,94845683 | 239,2278007 | 0,206481159 | 0,23381424 | 0,590759277 | 3403638,084 | 0,014064842 | 121,229143 | 92,63384 | 121,2351 | 6,586536 | 20,77002 | 22,68595 | 10,28331 |
| 322 | 13,48661135 | 234,3403537 | 0,206132889 | 0,23330152 | 0,578735352 | 3331871,952 | 0,014064842 | 120,957386 | 92,50565 | 120,9636 | 6,589062 | 20,59051 | 22,56026 | 10,22043 |
| 323 | 14,00687561 | 229,5273583 | 0,205761552 | 0,232756019 | 0,566894531 | 3261346,276 | 0,014064842 | 120,684336 | 92,3762 | 120,6907 | 6,591926 | 20,40782 | 22,43334 | 10,1569 |
| 324 | 14,50953639 | 224,7880571 | 0,205366373 | 0,232176423 | 0,555236816 | 3192040,645 | 0,014064842 | 120,410002 | 92,24525 | 120,4166 | 6,595122 | 20,2218 | 22,30514 | 10,09269 |
| 325 | 14,99616053 | 220,1208652 | 0,204945326 | 0,231559992 | 0,543731689 | 3123916,366 | 0,014064842 | 120,133883 | 92,11257 | 120,1407 | 6,598653 | 20,03182 | 22,17527 | 10,0276 |
| 326 | 15,46572281 | 215,5253093 | 0,204498291 | 0,230906963 | 0,532409668 | 3056965,287 | 0,014064842 | 119,856476 | 91,97835 | 119,8635 | 6,602504 | 19,83823 | 22,04401 | 9,961788 |
| 327 | 15,91852799 | 211,0007233 | 0,204024494 | 0,230216265 | 0,521270752 | 2991169,345 | 0,014064842 | 119,577797 | 91,84247 | 119,5851 | 6,606667 | 19,64091 | 21,91132 | 9,895224 |
| 328 | 16,35607705 | 206,5451699 | 0,20352149 | 0,229484558 | 0,510284424 | 2926486,787 | 0,014064842 | 119,297312 | 91,70455 | 119,3049 | 6,611149 | 19,43914 | 21,77677 | 9,827701 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 329 | 16,77743395 | 202,1586507 | 0,202989578 | 0,228712559 | 0,499481201 | 2862916,3 | 0,014064842 | 119,015561 | 91,56471 | 119,0234 | 6,615928 | 19,23334 | 21,64069 | 9,759383 |
| 330 | 17,18406035 | 197,839107 | 0,202426076 | 0,22789681 | 0,488830566 | 2800415,56 | 0,014064842 | 118,731987 | 91,42271 | 118,74 | 6,621012 | 19,02275 | 21,50264 | 9,690051 |
| 331 | 17,57507709 | 193,5868115 | 0,20183146 | 0,227038383 | 0,478363037 | 2738987,144 | 0,014064842 | 118,447162 | 91,27873 | 118,4555 | 6,626379 | 18,80782 | 21,36297 | 9,619883 |
| 332 | 17,95300191 | 189,39833 | 0,2012012 | 0,226130962 | 0,468017578 | 2678565,331 | 0,014064842 | 118,159901 | 91,13199 | 118,1685 | 6,632053 | 18,58708 | 21,2208 | 9,548438 |
| 333 | 18,31479063 | 185,2767741 | 0,20053947 | 0,225181103 | 0,457885742 | 2619203,233 | 0,014064842 | 117,872006 | 90,98346 | 117,8809 | 6,637974 | 18,36233 | 21,07734 | 9,47633 |
| 334 | 18,66399176 | 181,2171952 | 0,199839652 | 0,224179387 | 0,447875977 | 2560809,911 | 0,014064842 | 117,581647 | 90,83193 | 117,5908 | 6,644187 | 18,13136 | 20,93125 | 9,402889 |
| 335 | 18,99976082 | 177,2199011 | 0,199102163 | 0,223127127 | 0,438018799 | 2503389,216 | 0,014064842 | 117,289415 | 90,67761 | 117,2989 | 6,650666 | 17,89462 | 20,7829 | 9,328301 |
| 336 | 19,32235784 | 173,2840269 | 0,198325753 | 0,22202301 | 0,428314209 | 2446923,573 | 0,014064842 | 116,995298 | 90,52046 | 117,0051 | 6,657401 | 17,65189 | 20,63224 | 9,252544 |
| 337 | 19,63204339 | 169,408717 | 0,19750917 | 0,220865726 | 0,418762207 | 2391395,773 | 0,014064842 | 116,699286 | 90,36031 | 116,7094 | 6,664383 | 17,40294 | 20,47922 | 9,175591 |
| 338 | 19,92908621 | 165,5932648 | 0,19665134 | 0,219654322 | 0,409362793 | 2336790,895 | 0,014064842 | 116,401376 | 90,19713 | 116,4118 | 6,671601 | 17,14755 | 20,32378 | 9,097423 |
| 339 | 20,21466961 | 161,8343747 | 0,195747733 | 0,218383193 | 0,400085449 | 2283054,158 | 0,014064842 | 116,100825 | 90,03025 | 116,1115 | 6,679067 | 16,88461 | 20,16535 | 9,017754 |
| 340 | 20,48899558 | 158,1311799 | 0,19479692 | 0,21705091 | 0,390930176 | 2230169,351 | 0,014064842 | 115,797578 | 89,85948 | 115,8086 | 6,686772 | 16,61375 | 20,00383 | 8,936539 |
| 341 | 20,75051733 | 154,4877976 | 0,193804145 | 0,21566534 | 0,381958008 | 2178197,168 | 0,014064842 | 115,493117 | 89,68577 | 115,5045 | 6,694651 | 16,33654 | 19,84027 | 8,854306 |
| 342 | 21,00127816 | 150,898354 | 0,192761421 | 0,214216232 | 0,37310791 | 2127043,979 | 0,014064842 | 115,185912 | 89,50793 | 115,1976 | 6,702743 | 15,98999 | 19,67351 | 8,770481 |
| 343 | 21,2414867 | 147,3620828 | 0,191667199 | 0,212702394 | 0,364379883 | 2076695,464 | 0,014064842 | 114,87591 | 89,32585 | 114,888 | 6,711033 | 15,7869 | 19,50348 | 8,685024 |
| 344 | 21,47134843 | 143,8780351 | 0,190519929 | 0,211122155 | 0,355773926 | 2027134,917 | 0,014064842 | 114,563047 | 89,13912 | 114,5755 | 6,719509 | 15,5813 | 19,33008 | 8,5979 |
| 345 | 21,69107764 | 140,4452529 | 0,189317942 | 0,209474444 | 0,347290039 | 1978345,609 | 0,014064842 | 114,24726 | 88,94779 | 114,2601 | 6,728153 | 15,37323 | 19,15323 | 8,50907 |
| 346 | 21,89939245 | 137,0695421 | 0,188069344 | 0,207771063 | 0,338989258 | 1930411,11 | 0,014064842 | 113,93027 | 88,75325 | 113,9434 | 6,736881 | 15,16428 | 18,9742 | 8,419175 |
| 347 | 22,09955326 | 133,7371545 | 0,186754107 | 0,205985904 | 0,330749512 | 1883124,744 | 0,014064842 | 113,608499 | 88,55202 | 113,622 | 6,745804 | 14,95144 | 18,79027 | 8,326858 |
| 348 | 22,29023778 | 130,4537892 | 0,185379922 | 0,204130292 | 0,322631836 | 1836569,113 | 0,014064842 | 113,28362 | 88,34553 | 113,2975 | 6,754836 | 14,7363 | 18,60267 | 8,232741 |
| 349 | 22,47099417 | 127,222353 | 0,183950961 | 0,202211142 | 0,314666748 | 1790784,452 | 0,014064842 | 112,95654 | 88,13473 | 112,9708 | 6,763916 | 14,51977 | 18,41207 | 8,13717 |
| 350 | 22,64277872 | 124,0389573 | 0,182461262 | 0,2002213 | 0,30682373 | 1745711,083 | 0,014064842 | 112,626288 | 87,91848 | 112,641 | 6,773053 | 14,30115 | 18,21772 | 8,039775 |
| 351 | 22,80645193 | 120,8988632 | 0,180903375 | 0,198152184 | 0,299072266 | 1701278,016 | 0,014064842 | 112,291764 | 87,69556 | 112,3068 | 6,782254 | 14,07967 | 18,01878 | 7,940138 |
| 352 | 22,9627828 | 117,7968899 | 0,179268658 | 0,195993662 | 0,291381836 | 1657408,628 | 0,014064842 | 111,951745 | 87,46427 | 111,9672 | 6,791525 | 13,85449 | 17,81427 | 7,83779 |
| 353 | 23,10954835 | 114,7492333 | 0,177582324 | 0,193780303 | 0,283874512 | 1614335,5 | 0,014064842 | 111,610384 | 87,22951 | 111,6262 | 6,800682 | 13,62932 | 17,60743 | 7,734346 |
| 354 | 23,24936412 | 111,7380771 | 0,175816238 | 0,191476464 | 0,276428223 | 1571799,2 | 0,014064842 | 111,263263 | 86,98594 | 111,2795 | 6,809835 | 13,40067 | 17,39483 | 7,628116 |
| 355 | 23,3812709 | 108,7716976 | 0,173983335 | 0,189100385 | 0,269104004 | 1529917,429 | 0,014064842 | 110,912462 | 86,73598 | 110,929 | 6,818866 | 13,17052 | 17,17812 | 7,519927 |
| 356 | 23,50552056 | 105,8499368 | 0,172083318 | 0,186652899 | 0,261901855 | 1488685,923 | 0,014064842 | 110,557923 | 86,47953 | 110,5749 | 6,827725 | 12,93907 | 16,95728 | 7,409786 |
| 357 | 23,62334727 | 102,9621011 | 0,170098662 | 0,184113145 | 0,254760742 | 1447949,984 | 0,014064842 | 110,197055 | 86,21328 | 110,2144 | 6,836435 | 12,70452 | 16,73034 | 7,296722 |
| 358 | 23,73440812 | 100,1124515 | 0,168036044 | 0,181491137 | 0,247711182 | 1407769,337 | 0,014064842 | 109,830853 | 85,93828 | 109,8485 | 6,844895 | 12,46802 | 16,49813 | 7,181166 |
| 359 | 23,83845845 | 97,30594777 | 0,165904164 | 0,178799391 | 0,240783691 | 1368213,229 | 0,014064842 | 109,460468 | 85,65629 | 109,4785 | 6,853002 | 12,23082 | 16,26163 | 7,063624 |
| 360 | 23,93618469 | 94,53677599 | 0,163693368 | 0,176027179 | 0,233947754 | 1329197,278 | 0,014064842 | 109,084431 | 85,36524 | 109,1028 | 6,860715 | 11,99215 | 16,01979 | 6,943591 |
| 361 | 24,02819361 | 91,79850848 | 0,16139251 | 0,173162222 | 0,227172852 | 1290628,867 | 0,014064842 | 108,701078 | 85,06271 | 108,7198 | 6,867982 | 11,75115 | 15,77143 | 6,820501 |
| 362 | 24,11463179 | 89,09023124 | 0,15899986 | 0,170203984 | 0,220458984 | 1252494,057 | 0,014064842 | 108,310032 | 84,74789 | 108,3291 | 6,874696 | 11,50807 | 15,51639 | 6,694308 |
| 363 | 24,19493163 | 86,42365049 | 0,156536877 | 0,167180717 | 0,213867188 | 1214957,836 | 0,014064842 | 107,914005 | 84,42526 | 107,9334 | 6,880687 | 11,26543 | 15,25699 | 6,566182 |
| 364 | 24,26937134 | 83,79920605 | 0,154005349 | 0,16409564 | 0,207397461 | 1178024,977 | 0,014064842 | 107,512921 | 84,09477 | 107,5326 | 6,88584 | 11,02362 | 14,99338 | 6,436223 |
| 365 | 24,33950524 | 81,18983664 | 0,15135619 | 0,160890818 | 0,200927734 | 1141311,326 | 0,014064842 | 107,09995 | 83,74571 | 107,12 | 6,890098 | 10,77842 | 14,72051 | 6,301977 |
| 366 | 24,4041835 | 78,62186846 | 0,148638576 | 0,157627344 | 0,194580078 | 1105188,614 | 0,014064842 | 106,681252 | 83,38806 | 106,7016 | 6,893209 | 10,53481 | 14,44349 | 6,165999 |
| 367 | 24,46368951 | 76,09574577 | 0,145855188 | 0,154309452 | 0,188354492 | 1069661,901 | 0,014064842 | 106,256722 | 83,02219 | 106,2773 | 6,895008 | 10,29328 | 14,16259 | 6,02846 |
| 368 | 24,51935318 | 73,58231391 | 0,142951041 | 0,150873184 | 0,182128906 | 1034318,446 | 0,014064842 | 105,81868 | 82,63514 | 105,8395 | 6,895306 | 10,04951 | 13,87235 | 5,886738 |
| 369 | 24,57026414 | 71,11015805 | 0,139982969 | 0,147387385 | 0,176025391 | 999561,2413 | 0,014064842 | 105,373989 | 82,23927 | 105,395 | 6,893841 | 9,808732 | 13,57859 | 5,743729 |
| 370 | 24,61761229 | 68,64873592 | 0,136891842 | 0,143783957 | 0,169921875 | 964958,5053 | 0,014064842 | 104,914296 | 81,81977 | 104,9355 | 6,890282 | 9,566615 | 13,27563 | 5,596731 |
| 371 | 24,6606367 | 66,2287114 | 0,133739918 | 0,140136987 | 0,16394043 | 930942,1405 | 0,014064842 | 104,447012 | 81,39058 | 104,4684 | 6,884361 | 9,328485 | 12,9698 | 5,448895 |
| 372 | 24,70000743 | 63,83425068 | 0,130497843 | 0,136413306 | 0,15802002 | 897288,1473 | 0,014064842 | 103,967472 | 80,94374 | 103,9891 | 6,87566 | 9,092401 | 12,6585 | 5,299044 |
| 373 | 24,73590785 | 61,46494053 | 0,127166808 | 0,132615477 | 0,152160645 | 863990,1402 | 0,014064842 | 103,474898 | 80,47843 | 103,4966 | 6,863726 | 8,858806 | 12,34226 | 5,147523 |
| 374 | 24,76852281 | 59,12042884 | 0,123748377 | 0,128746331 | 0,146362305 | 831042,6348 | 0,014064842 | 102,96844 | 79,99381 | 102,9903 | 6,848036 | 8,628076 | 12,02174 | 4,994766 |
| 375 | 24,7980377 | 56,80075982 | 0,120244503 | 0,124808997 | 0,140625 | 798445,7341 | 0,014064842 | 102,447191 | 79,48873 | 102,4691 | 6,827979 | 8,400477 | 11,69781 | 4,841312 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 3 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 376 | 24,82490791 | 54,48722034 | 0,116618231 | 0,120763212 | 0,134887695 | 765935,5986 | 0,014064842 | 101,904725 | 78,95146 | 101,9267 | 6,802546 | 8,17368 | 11,36801 | 4,68616 |
| 377 | 24,84875115 | 52,21603312 | 0,112949386 | 0,116698712 | 0,129272461 | 734021,7287 | 0,014064842 | 101,350441 | 78,40186 | 101,3724 | 6,771448 | 7,952324 | 11,04069 | 4,533418 |
| 378 | 24,87026844 | 49,95001812 | 0,109161332 | 0,112531066 | 0,123657227 | 702180,4519 | 0,014064842 | 100,771989 | 77,81623 | 100,7939 | 6,733027 | 7,730997 | 10,71043 | 4,380749 |
| 379 | 24,88917624 | 47,72721662 | 0,10533978 | 0,108354986 | 0,118164063 | 670946,7414 | 0,014064842 | 100,179587 | 77,21699 | 100,2015 | 6,686997 | 7,513368 | 10,38638 | 4,232623 |
| 380 | 24,90607217 | 45,50872282 | 0,101403609 | 0,104082018 | 0,112670898 | 639772,909 | 0,014064842 | 99,5593835 | 76,57755 | 99,58119 | 6,631009 | 7,292662 | 10,06378 | 4,087118 |
| 381 | 24,92075799 | 43,33426601 | 0,09744446 | 0,099811643 | 0,107299805 | 609217,6112 | 0,014064842 | 98,92249 | 75,92307 | 98,9442 | 6,564807 | 7,070855 | 9,752577 | 3,94902 |
| 382 | 24,9338741 | 41,14284516 | 0,093329996 | 0,095401496 | 0,101867676 | 578422,5815 | 0,014064842 | 98,2458694 | 75,20751 | 98,26739 | 6,484133 | 6,835861 | 9,445574 | 3,815502 |
| 383 | 24,94512054 | 38,9957162 | 0,089201912 | 0,091003604 | 0,096557617 | 548249,2619 | 0,014064842 | 97,5481079 | 74,4729 | 97,56945 | 6,389439 | 6,589316 | 9,156914 | 3,693101 |
| 384 | 24,95502272 | 36,82989632 | 0,084921293 | 0,086470008 | 0,091186523 | 517811,6888 | 0,014064842 | 96,8028407 | 73,66597 | 96,82388 | 6,274791 | 6,31396 | 8,880846 | 3,579761 |
| 385 | 24,96338003 | 34,70881105 | 0,080637835 | 0,081959099 | 0,0859375 | 488001,7703 | 0,014064842 | 96,030295 | 72,83443 | 96,05105 | 6,141187 | 6,008197 | 8,630769 | 3,481241 |
| 386 | 24,97054007 | 32,58964135 | 0,076257803 | 0,077371411 | 0,080688477 | 458217,2319 | 0,014064842 | 95,2092939 | 71,93678 | 95,22969 | 5,982779 | 5,652728 | 8,403464 | 3,396106 |
| 387 | 24,97648193 | 30,5163723 | 0,071889114 | 0,07281908 | 0,075561523 | 429076,5779 | 0,014064842 | 94,3536393 | 71,00945 | 94,3737 | 5,800766 | 5,245062 | 8,203799 | 3,325183 |
| 388 | 24,98148382 | 28,44480775 | 0,067434058 | 0,068199266 | 0,07043457 | 399958,2734 | 0,014064842 | 93,4380739 | 70,00438 | 93,45773 | 5,589105 | 4,772918 | 8,020095 | 3,261453 |
| 389 | 24,9856438 | 26,37448151 | 0,062896125 | 0,063515201 | 0,065307617 | 370855,7649 | 0,014209861 | 92,4534743 | 68,90916 | 92,47263 | 5,347105 | 4,257957 | 7,832139 | 3,191214 |
| 390 | 24,98905745 | 24,30492367 | 0,05827922 | 0,058770377 | 0,060180664 | 341762,4692 | 0,014430156 | 91,3884727 | 67,70886 | 91,40705 | 5,079019 | 3,795939 | 7,58977 | 3,082434 |
| 391 | 24,9917588 | 22,2825556 | 0,053700214 | 0,054083491 | 0,055175781 | 313331,2153 | 0,014669843 | 90,2570431 | 66,44821 | 90,27507 | 4,807071 | 3,672025 | 7,192518 | 2,872204 |
| 392 | 24,99396559 | 20,2138313 | 0,048940364 | 0,049229798 | 0,050048828 | 284246,6057 | 0,014945622 | 88,9868196 | 64,98196 | 89,00406 | 0 | 0 | 0 | 0 |
| 393 | 24,99561685 | 18,24001509 | 0,044346744 | 0,044561639 | 0,045166016 | 256495,2277 | 0,015244673 | 87,6489735 | 63,49607 | 87,66563 | 0 | 0 | 0 | 0 |
| 394 | 24,99695223 | 16,17117265 | 0,03946526 | 0,039616415 | 0,040039063 | 227406,2477 | 0,015606249 | 86,079608 | 61,65155 | 86,09525 | 0 | 0 | 0 | 0 |
| 395 | 24,99791032 | 14,19863896 | 0,034766058 | 0,034869218 | 0,03515625 | 199670,3925 | 0,016011112 | 84,3850596 | 59,71708 | 84,39986 | 0 | 0 | 0 | 0 |
| 396 | 24,99861983 | 12,22635004 | 0,030023306 | 0,030089645 | 0,030273438 | 171936,9268 | 0,016495676 | 82,4367688 | 57,48182 | 82,45062 | 0 | 0 | 0 | 0 |
| 397 | 24,9991313 | 10,25429203 | 0,025242555 | 0,025281932 | 0,025390625 | 144205,7723 | 0,017093287 | 80,1451116 | 54,83062 | 80,15787 | 0 | 0 | 0 | 0 |
| 398 | 24,99948862 | 8,282360878 | 0,020429575 | 0,020450427 | 0,020507813 | 116475,6013 | 0,017861981 | 77,3625331 | 51,57366 | 77,37397 | 0 | 0 | 0 | 0 |
| 399 | 24,99972856 | 6,310456308 | 0,01559032 | 0,01559958 | 0,015625 | 88745,14864 | 0,018915222 | 73,8196273 | 47,35174 | 73,82941 | 0 | 0 | 0 | 0 |
| 400 | 24,99988051 | 4,338508785 | 0,0107309 | 0,010733918 | 0,010742188 | 61013,58829 | 0,020519824 | 68,937889 | 41,33223 | 68,94542 | 0 | 0 | 0 | 0 |
| 401 | 24,9999661 | 2,36634857 | 0,005857541 | 0,005858032 | 0,005859375 | 33278,69835 | 0,02356357 | 61,04045 | 31,91658 | 61,04576 | 0 | 0 | 0 | 0 |
| 401,8 | 24,99998511 | 1,577477372 | 0,003905707 | 0,003905852 | 0,00390625 | 22184,57957 | 0,025976181 | 55,7574712 | 27,89341 | 55,76457 | 0 | 0 | 0 | 0 |

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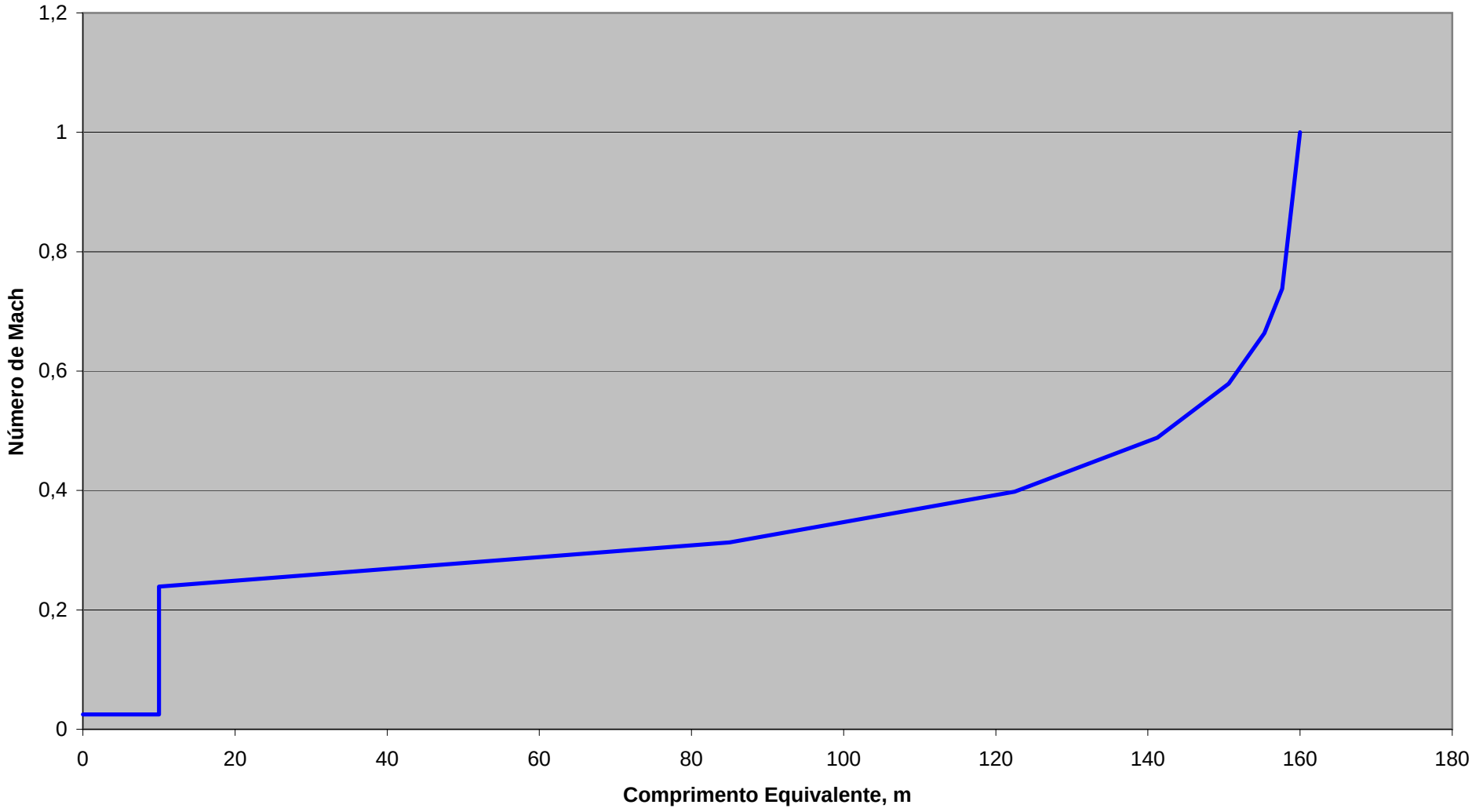
## Simulação do Blowdown - Condição Inicial

**CASO 3**



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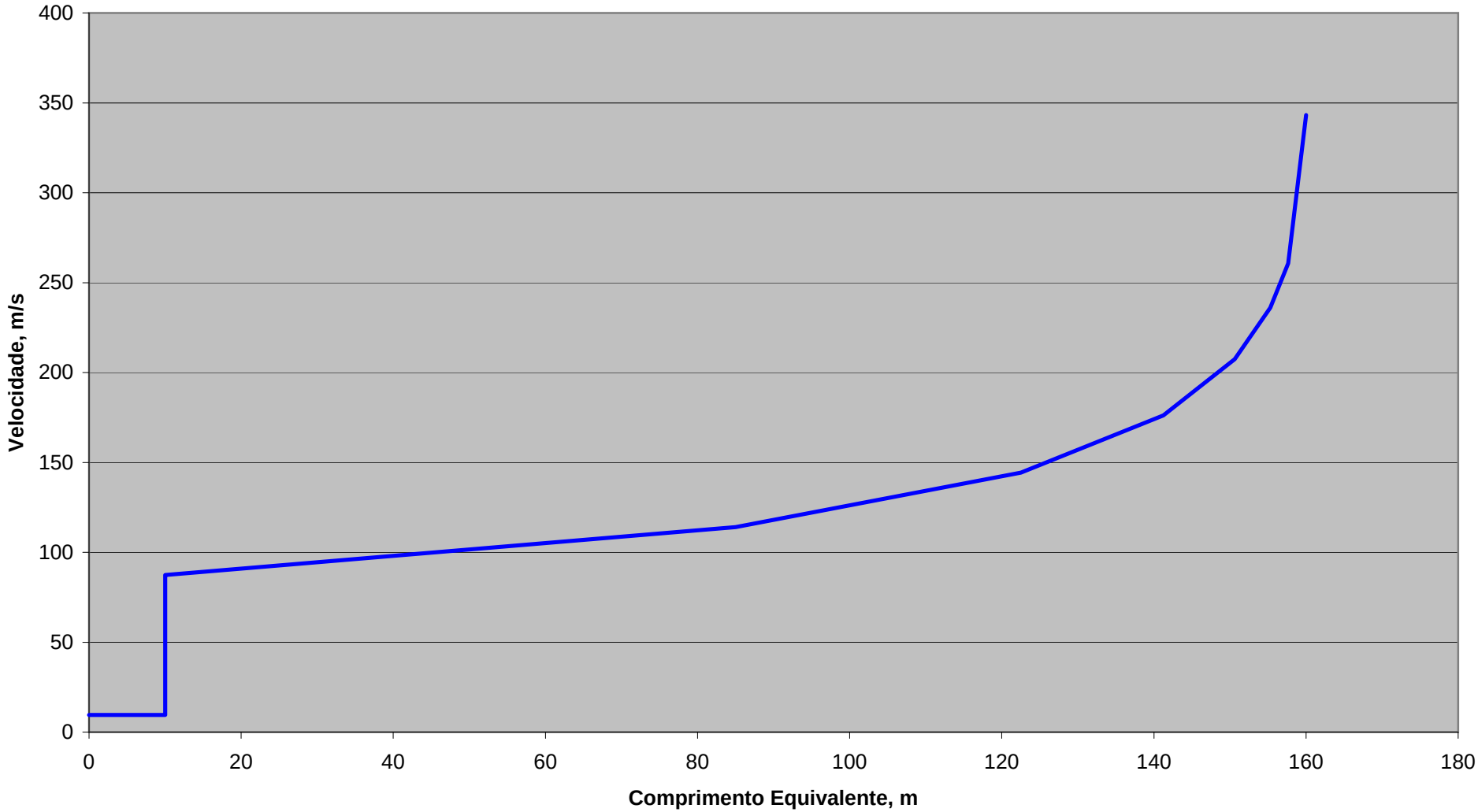
## Simulação do Blowdown - Condição Inicial

**CASO 3**



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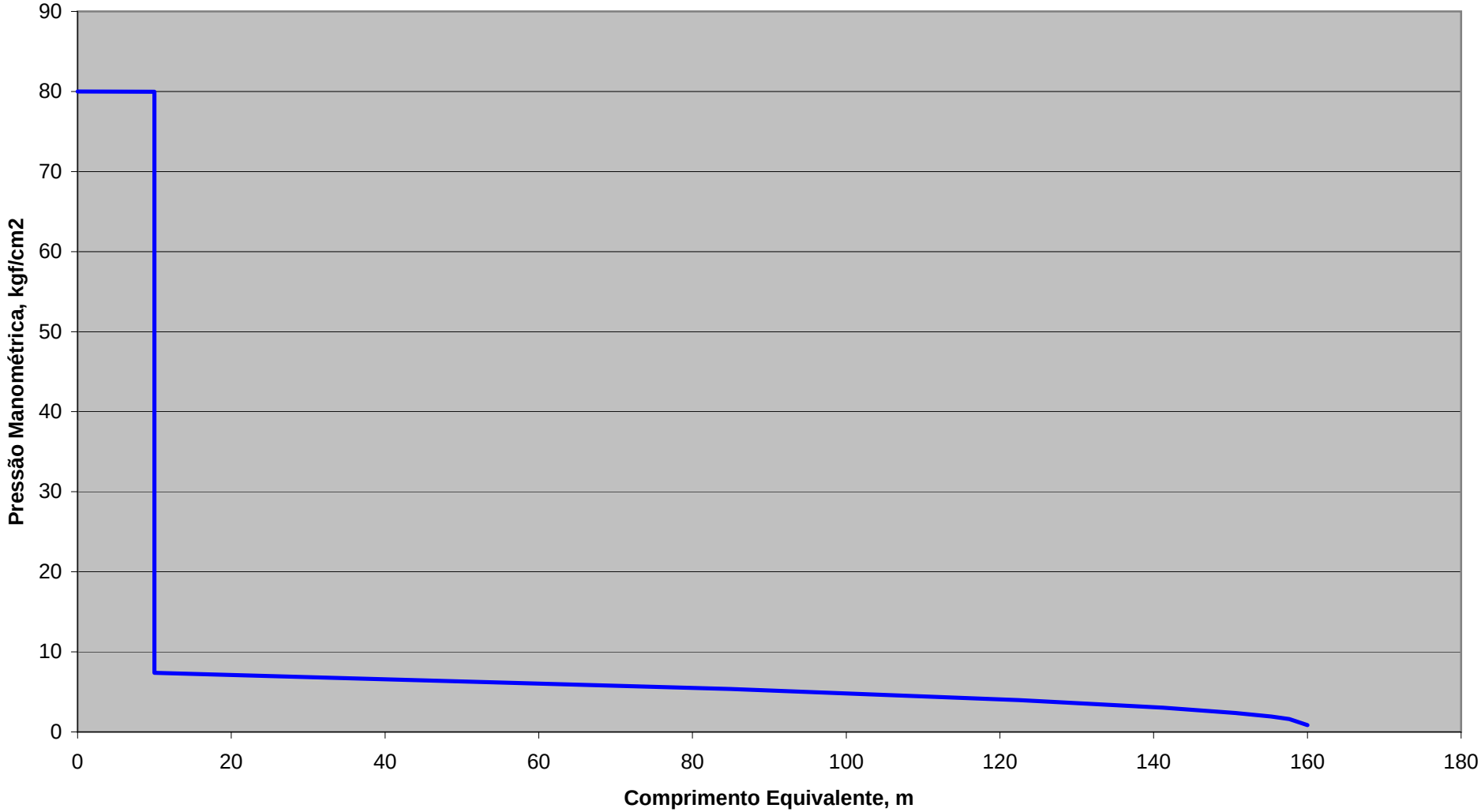
## Simulação do Blowdown - Condição Inicial

**CASO 3**



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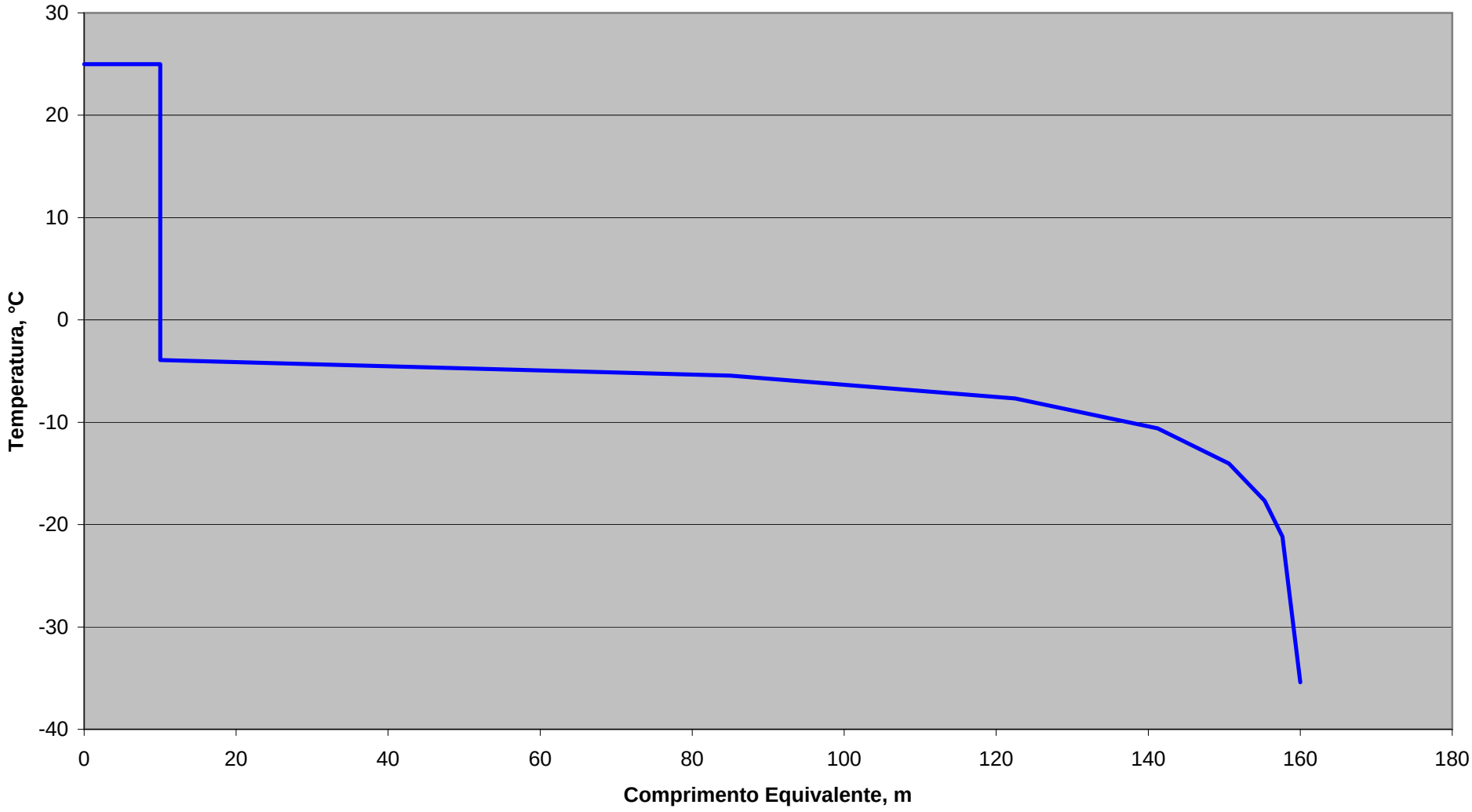
## Simulação do Blowdown - Condição Inicial

**CASO 3**



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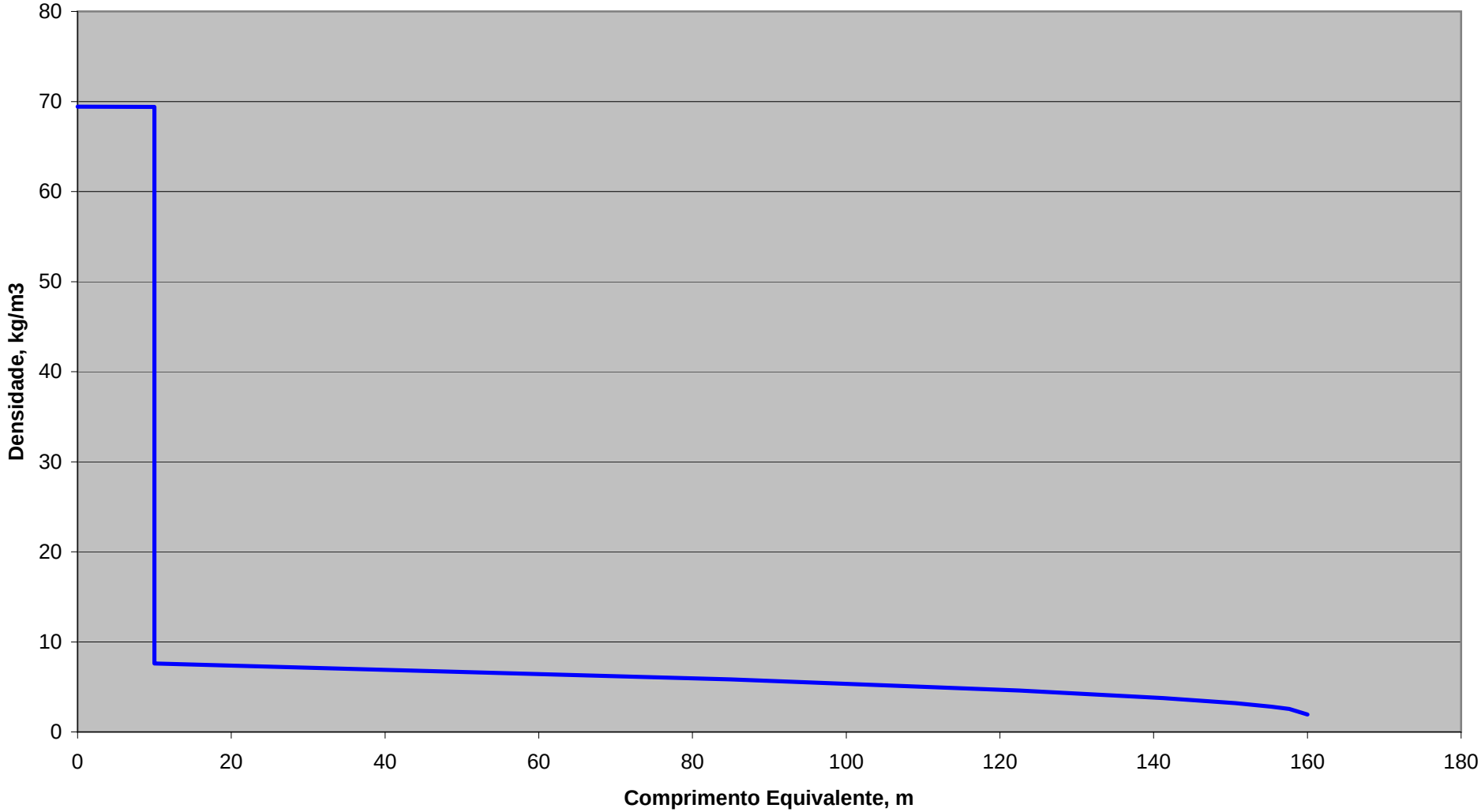
## Simulação do Blowdown - Condição Inicial

**CASO 3**



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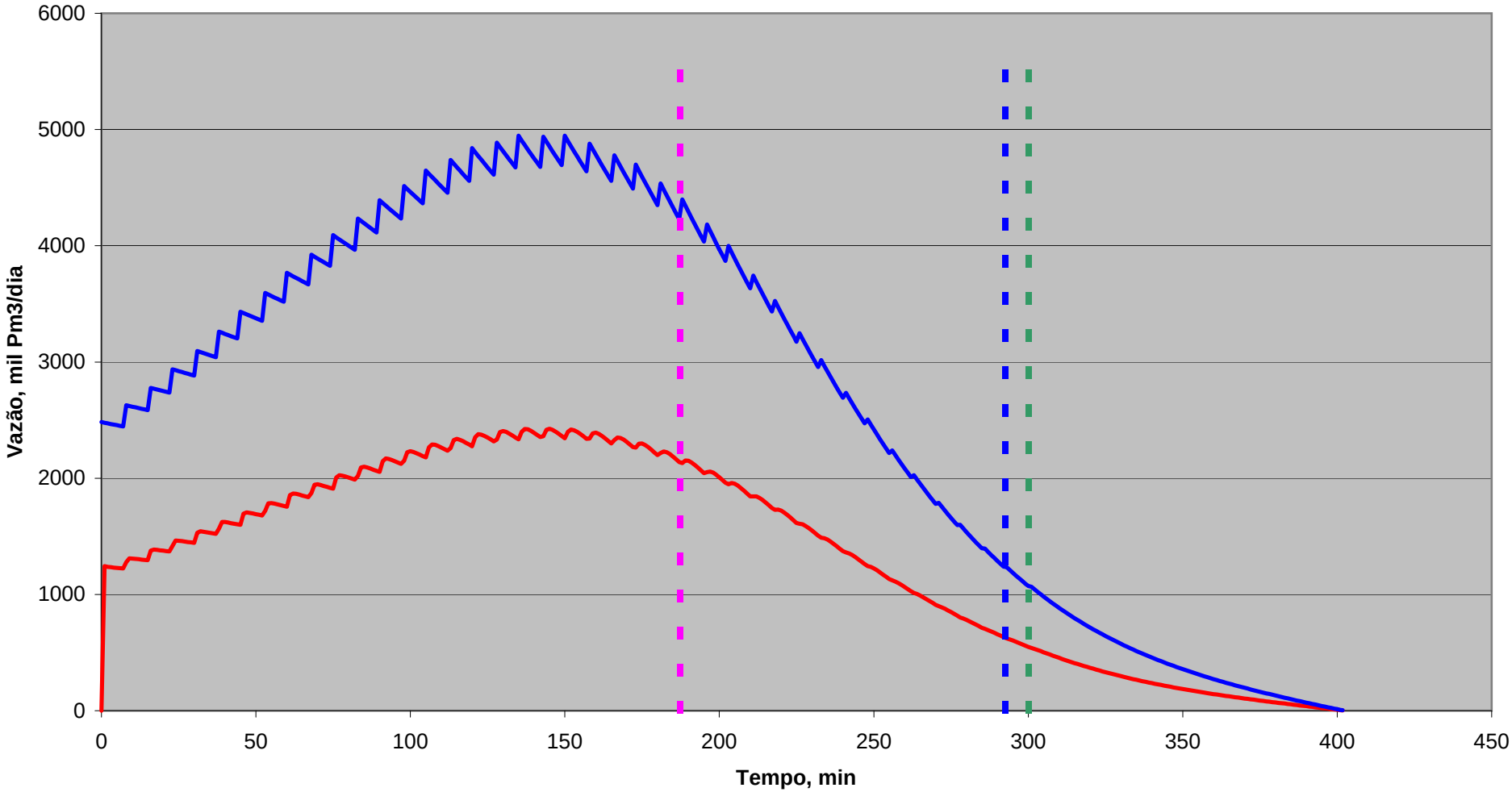
## Simulação do Blowdown - Transiente

**CASO 3**



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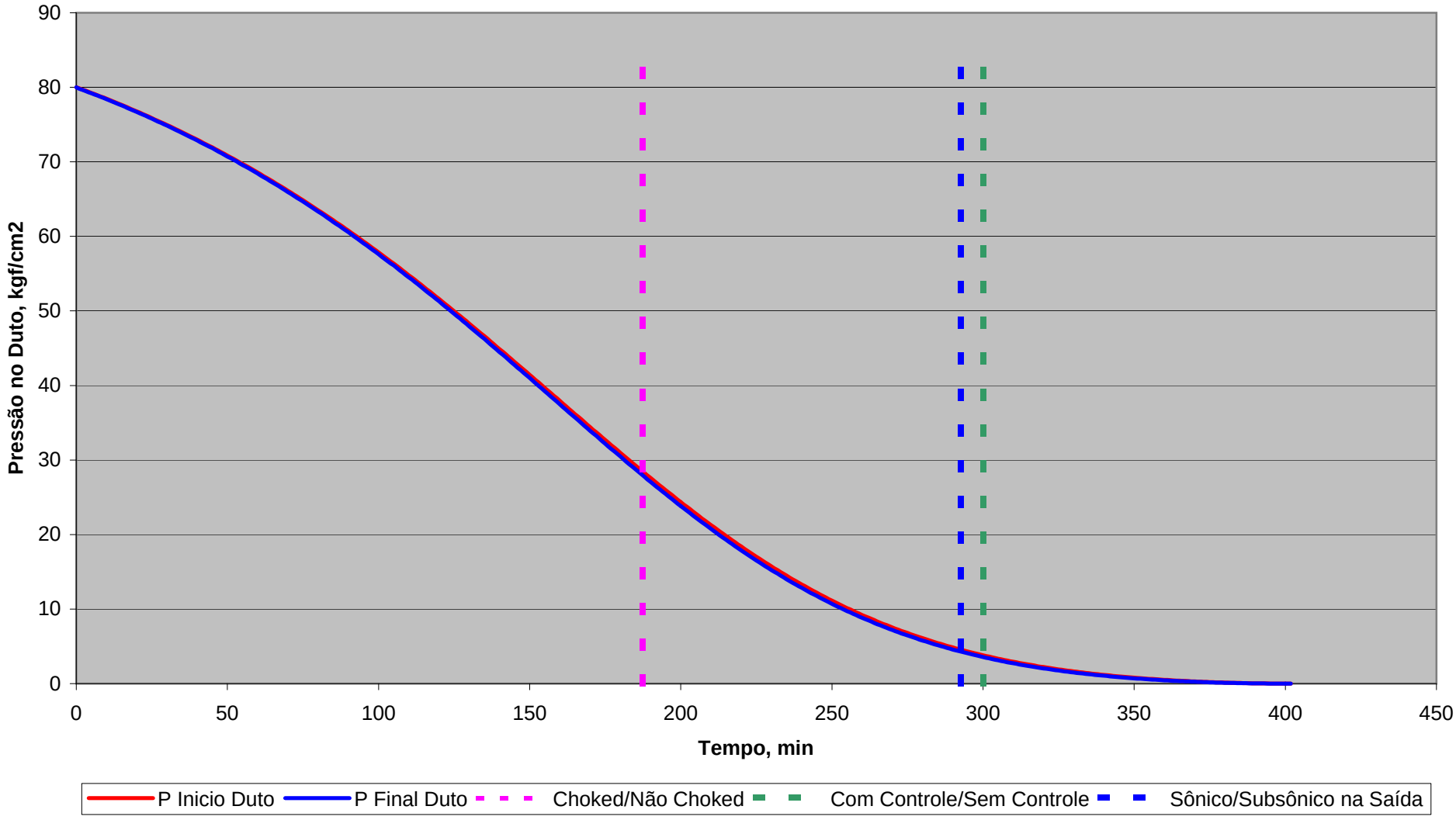
## Simulação do Blowdown - Transiente

**CASO 3**



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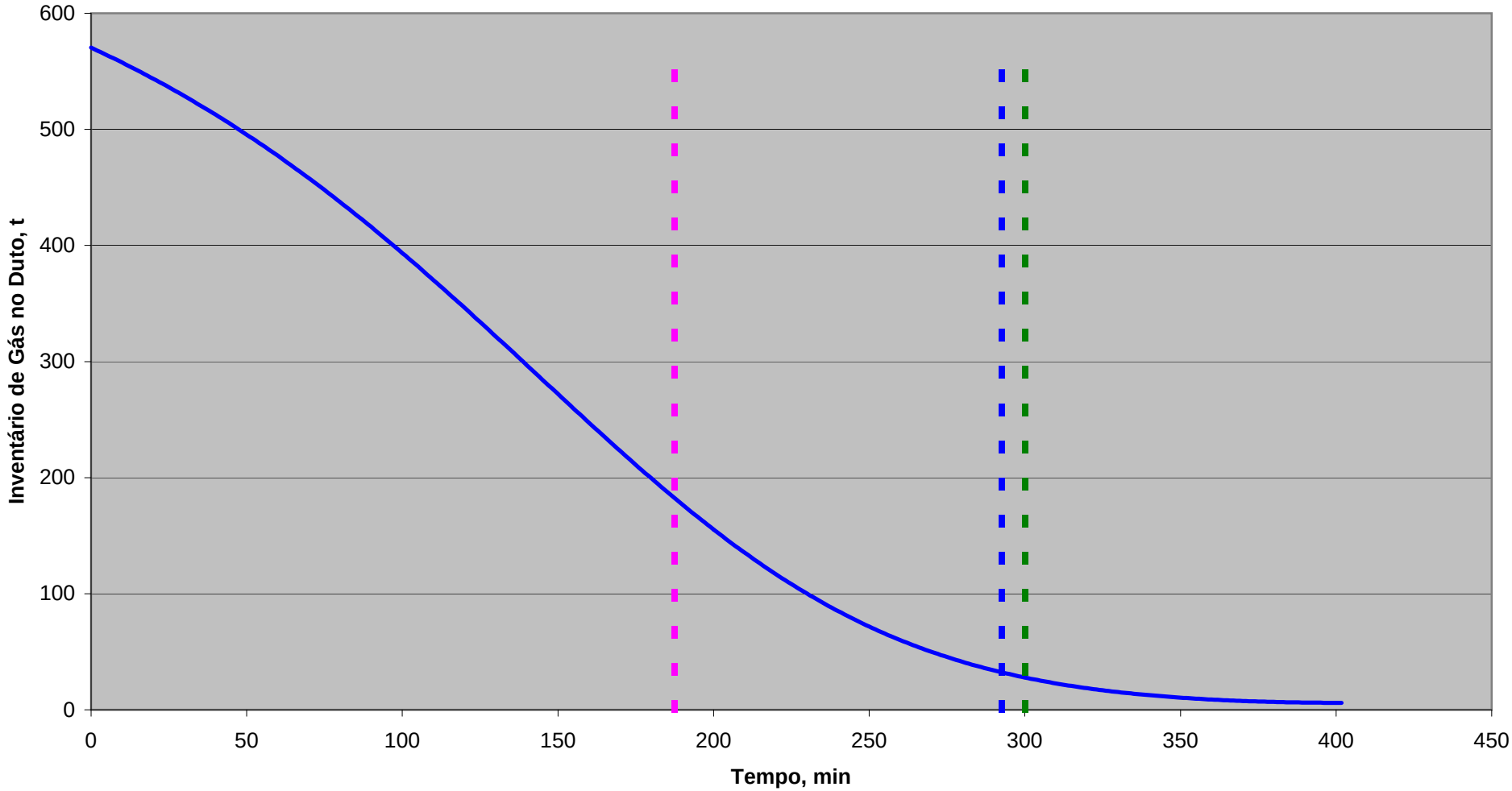
## Simulação de Blowdown - Transiente

**CASO 3**



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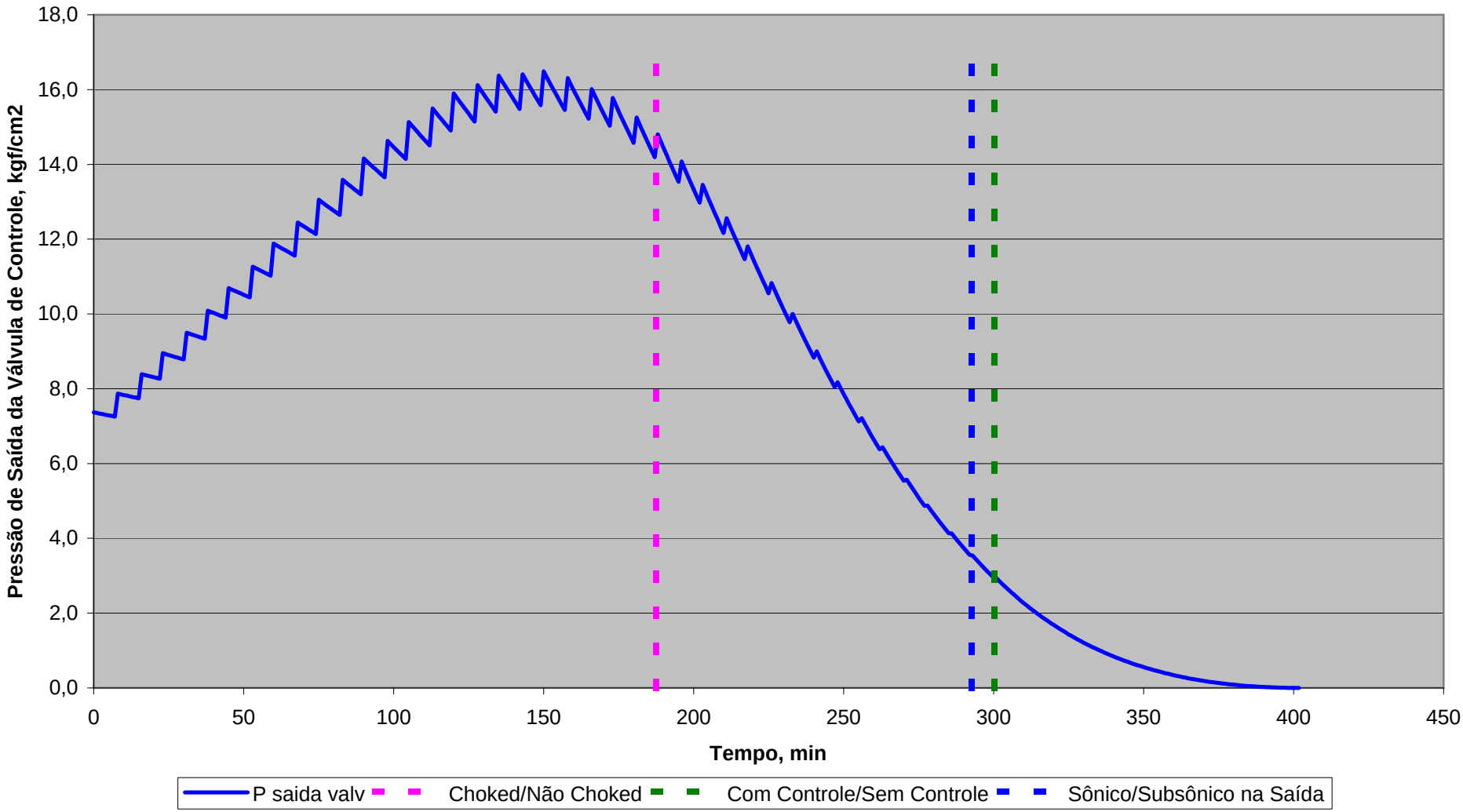
## Simulação do Blowdown - Transiente

**CASO 3**



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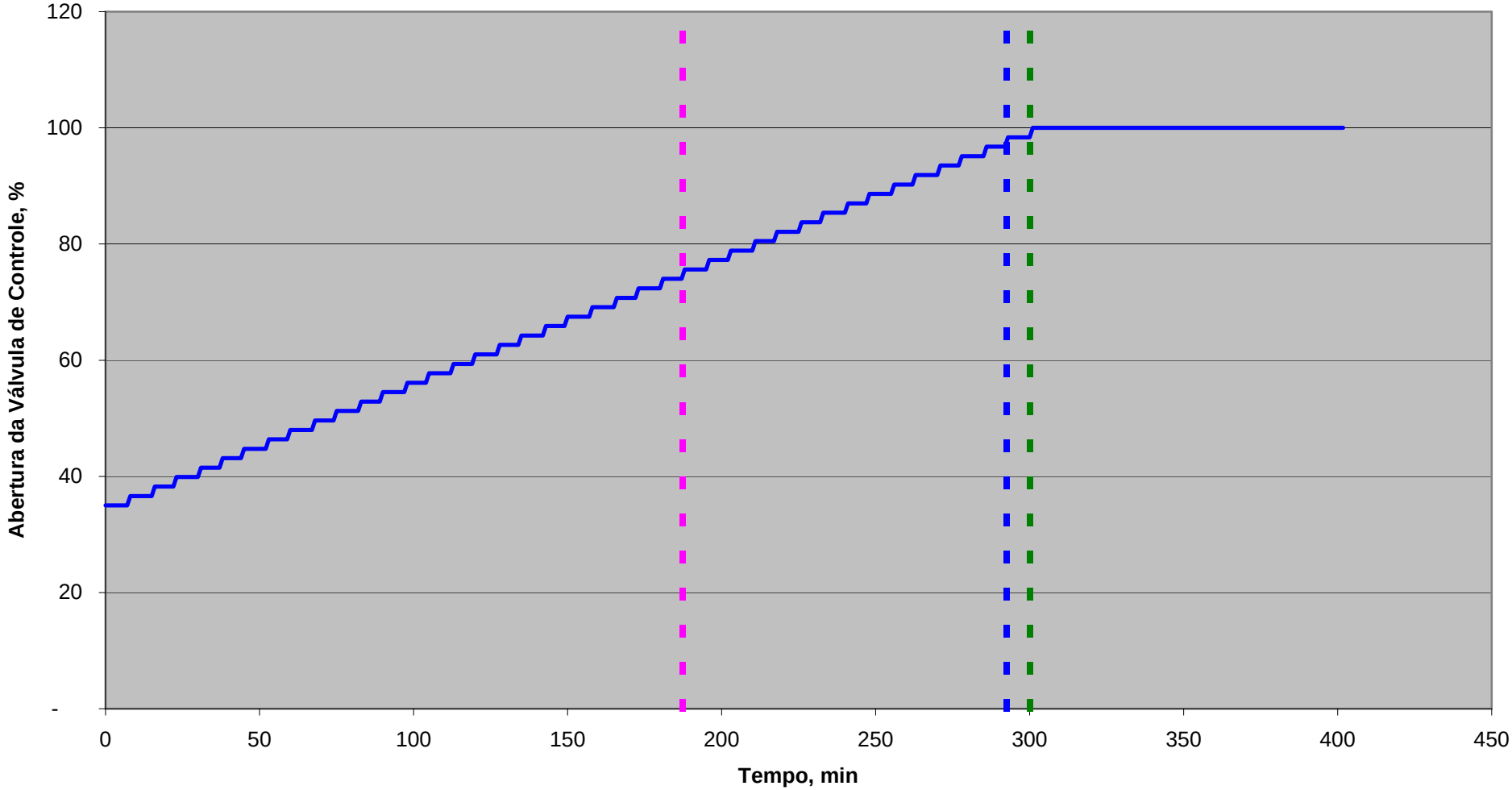
## Simulação do Blowdown - Transiente

**CASO 3**



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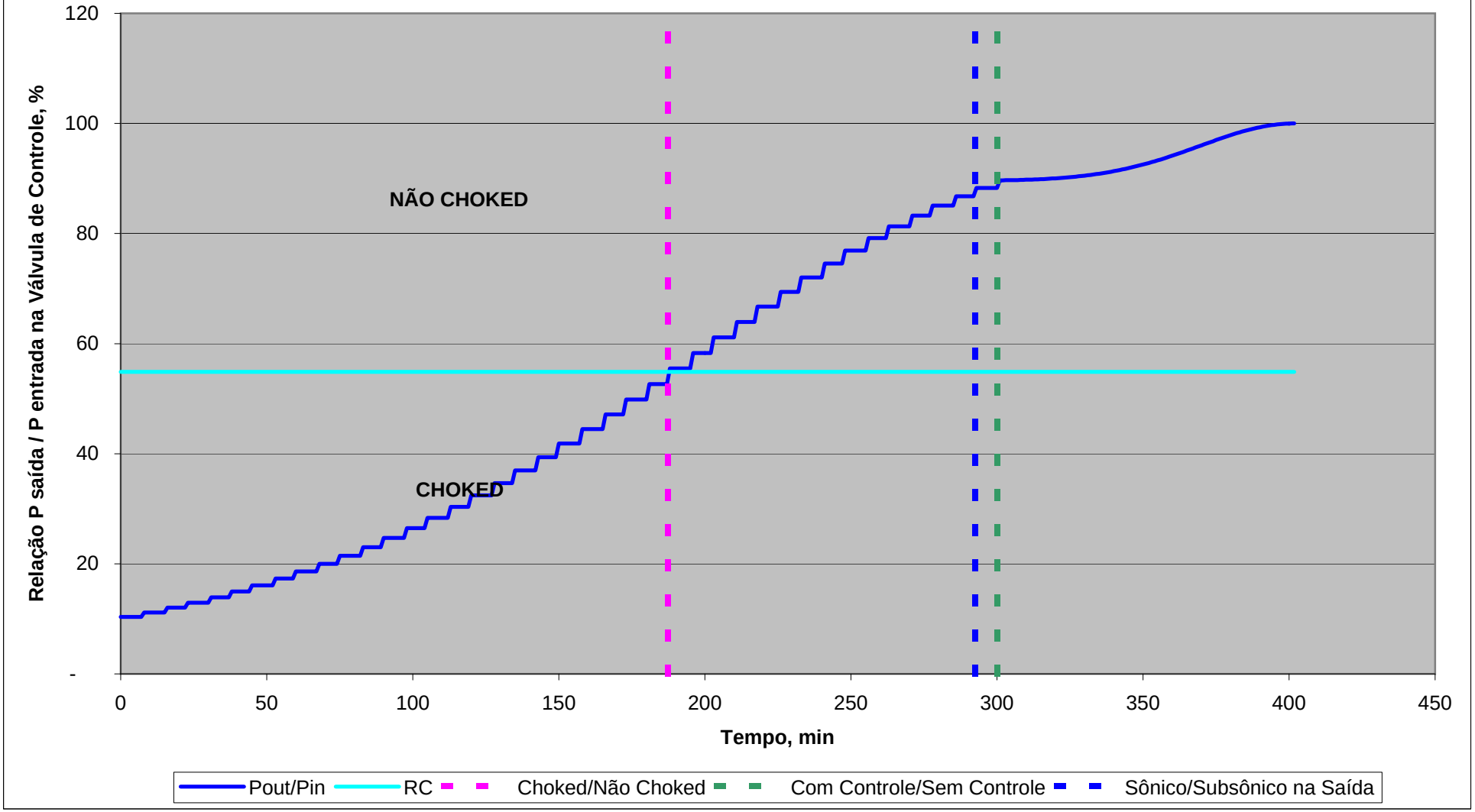
## Simulação do Blowdown - 2 casos

**CASO 3**



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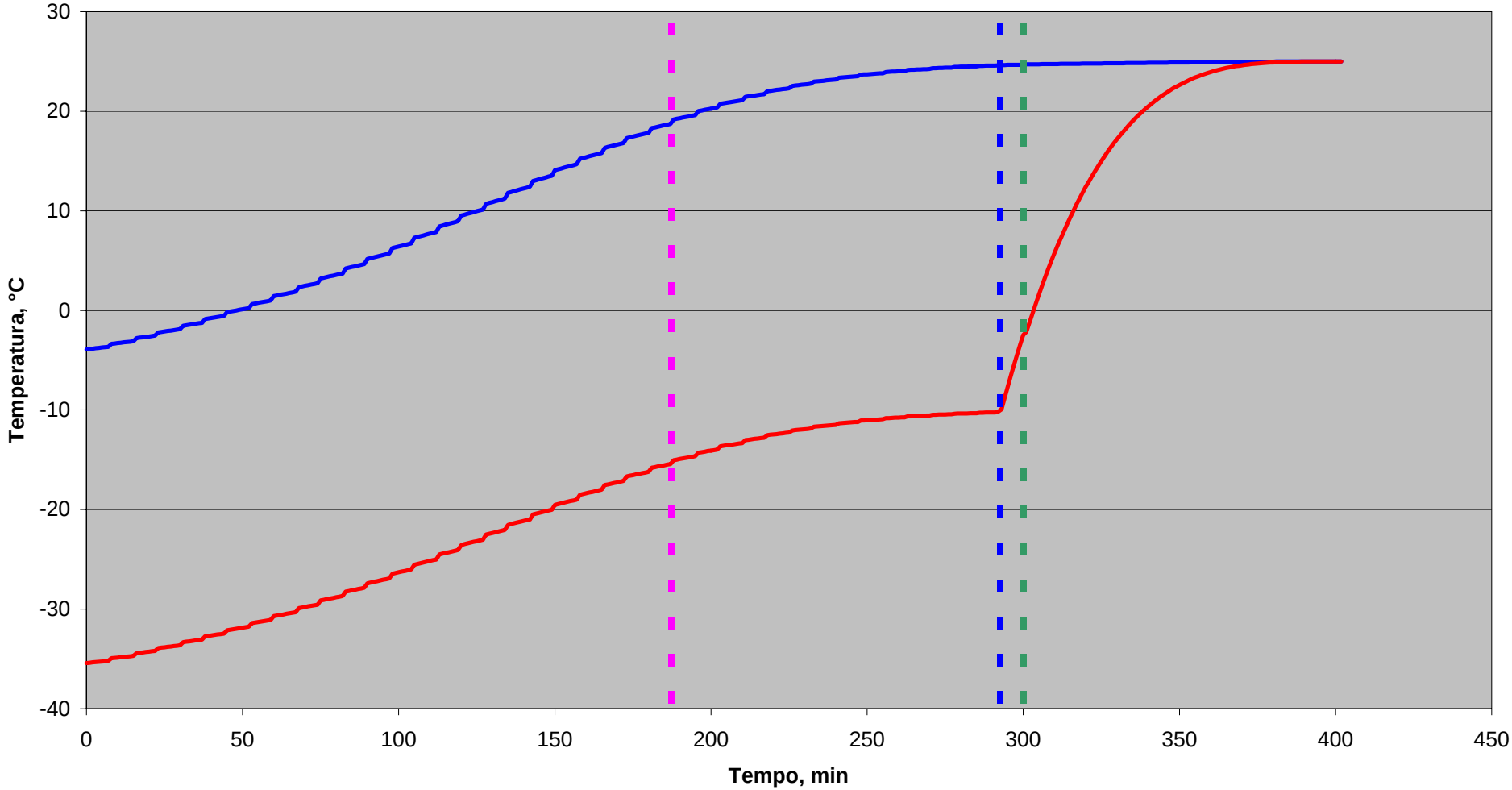
## Simulação do Blowdown - Transiente

**CASO 3**



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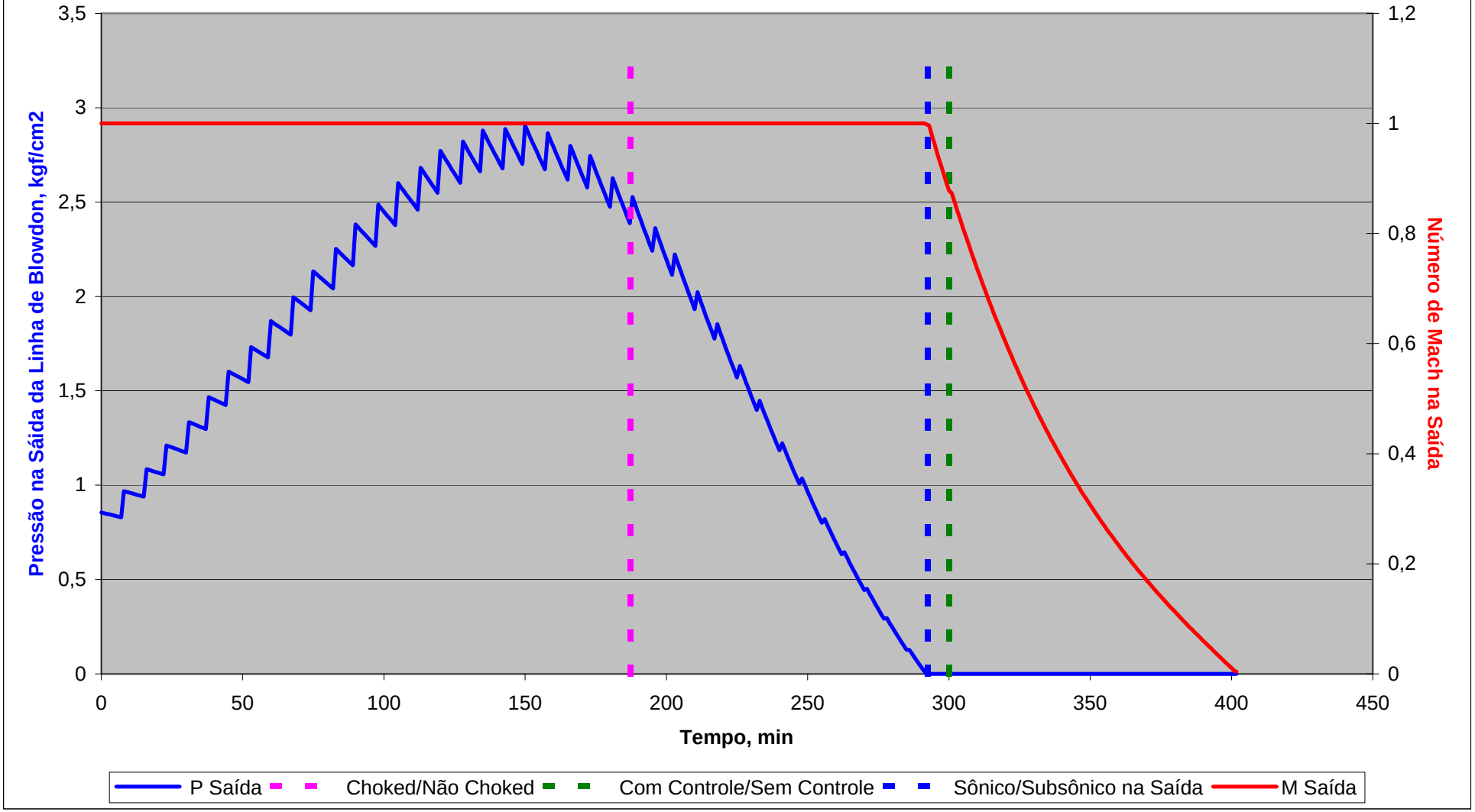
## Simulação de Blowdown - Transiente

**CASO 3**



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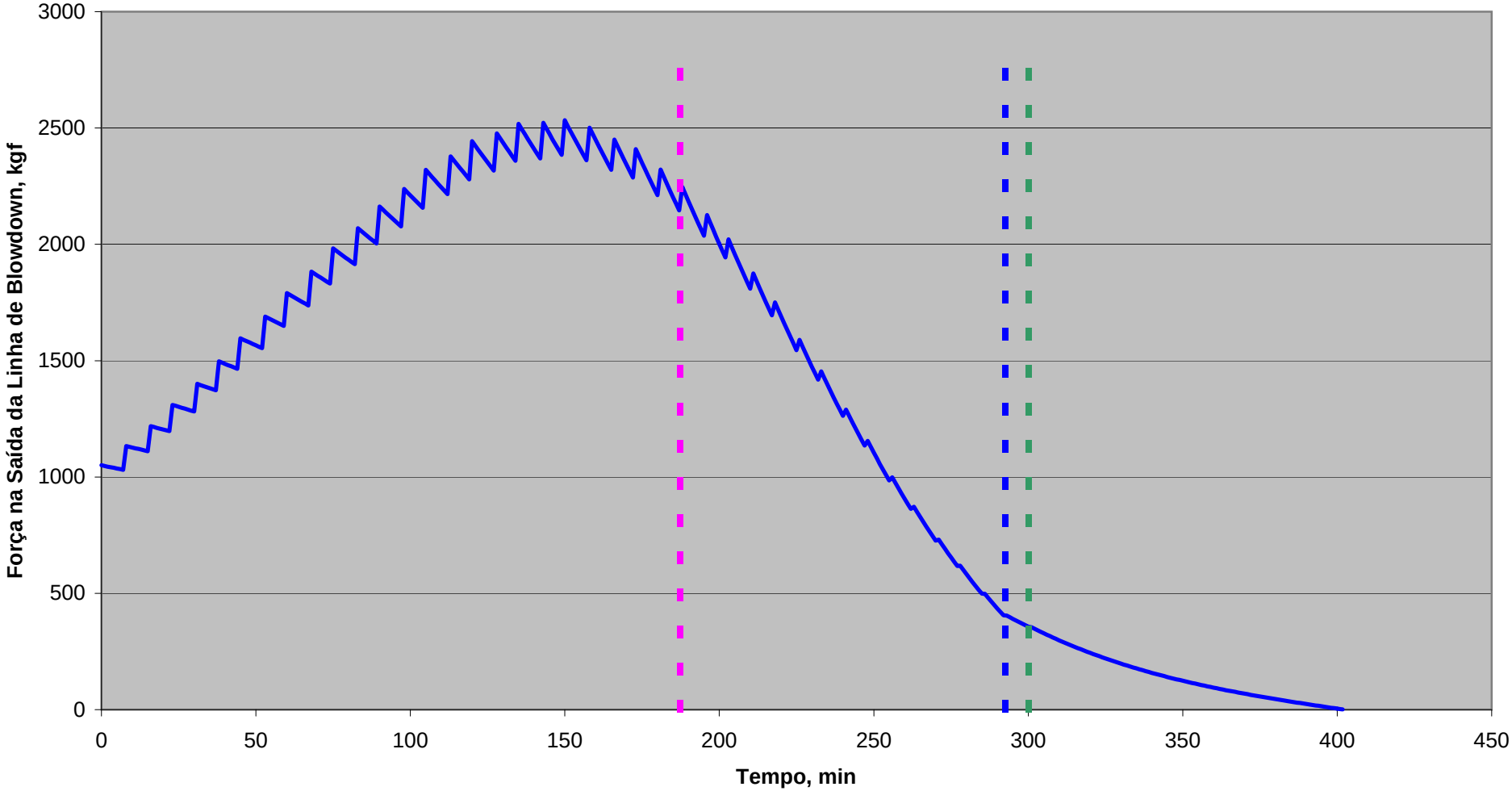
## Simulação de Blowdown - Transiente

**CASO 3**



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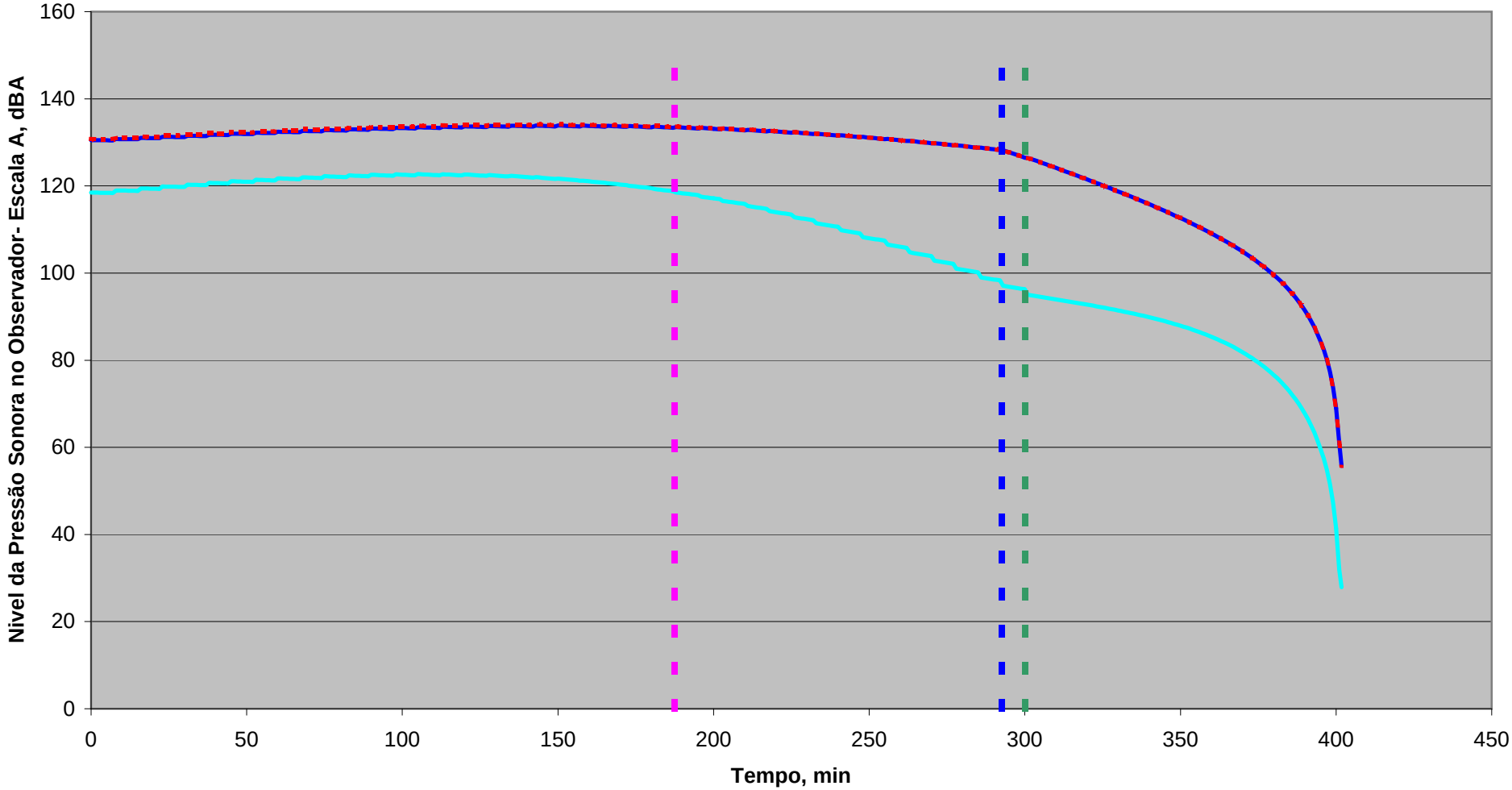
## Simulação de Blowdown - Transiente

**CASO 3**



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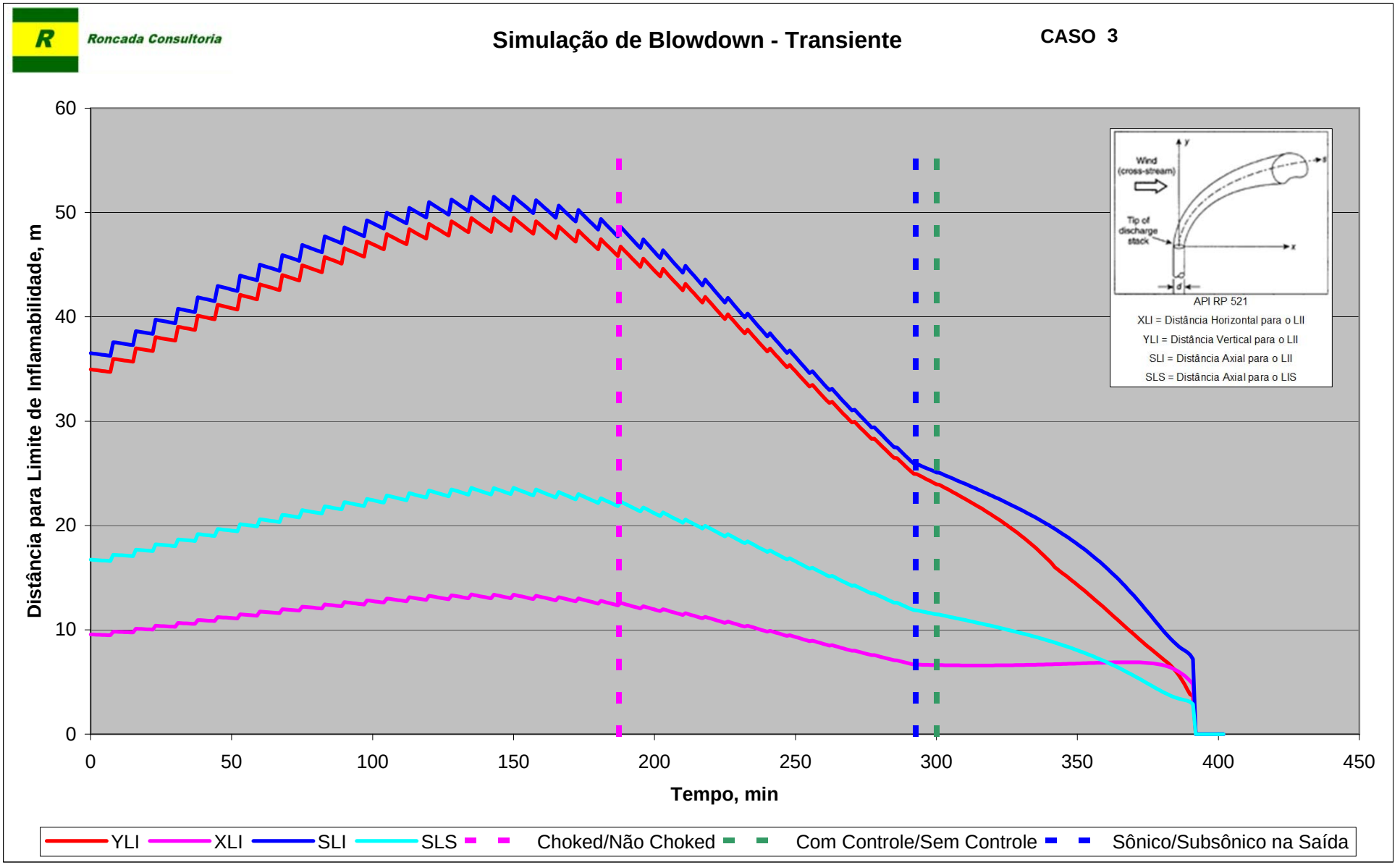
## Simulação de Blowdown - Transiente

**CASO 3**



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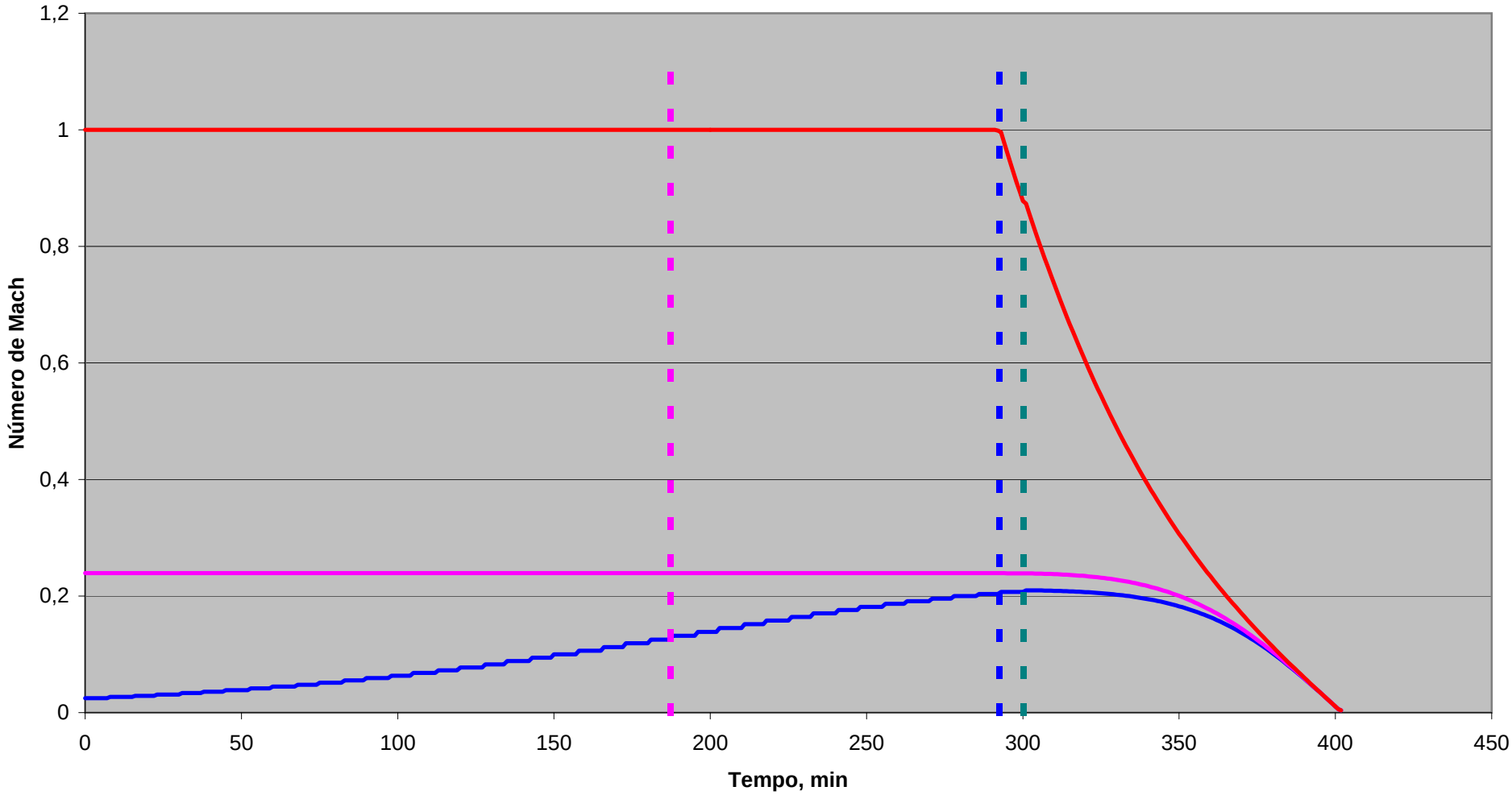
## Simulação do Blowdown - Transiente

**CASO 3**



# EXEMPLO 4

# CONTROLE DO NÚMERO DE MACH NA SAÍDA

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**PROGRAMA VENTGAS - Versão 1 - ENTRADA DE DADOS** **CASO** **4**

## GASODUTO

| | | |
|---|---|---|
| Pressão Manométrica Inicial | 80 | kgf/cm2 g |
| Temperatura | 25 | °C |
| Diâmetro Nominal | 24 | pol |
| Comprimento | 30 | km |

## GÁS

| | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |

## VÁLVULA DE CONTROLE

| | | | | |
|---|---|---|---|---|
| Tipo de Válvula | 2 | 1:Esfera, 2: Igual % | | |
| CV Totalmente Aberta | 1080 | | | |
| Tipo de Controle | 4 | 1: P, 2:Q, 3:%Ab, 4:M | | |
| Pressão de Controle | 10 | kgf/cm2 g | [1] | Não Usado |
| Vazão de Controle | 3000 | mil Pm3/dia | [2] | Não Usado |
| % Abertura Inicial | 35 | % | [3] | Não Usado |
| % Abertura Final | 100 | % | [3] | Não Usado |
| Tempo de Abertura Total | 300 | min | [3] | Não Usado |
| Número de Incrementos | 40 | > 0 | [3] | Não Usado |
| Número de Mach na Saída | 0,8 | 0< M <=1 | [4] | Usado |

## LINHA DE BLOWDOWN

| | | |
|---|---|---|
| Comprimento antes da válvula | 10 | m |
| Comprimento depois da válvula | 150 | m |
| Diâmetro | 8 | pol |

## OBSERVADOR (Ruído)

| | | |
|---|---|---|
| Distância para a válvula | 10 | m |
| Distancia Horizontal até eixo da Descarga | 50 | m |
| Distância Vertical até a base da Descarga | 0 | m |
| Altura da Descarga | 2 | m |

## DISPERSÃO

| | | |
|---|---|---|
| Velocidade do Ar | 10 | km/h |

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# PROGRAMA VENTGAS - Versão 1 -- RESUMO DA SIMULAÇÃO

| CASO | 4 | |
|---|---|---|

Pm3 @ 20°C e 1 atm

| GASODUTO | 3 | |
|---|---|---|
| Diâmetro, pol | 24 | |
| Comprimento, km | 30,000000 | |
| Pressão Manométrica Inicial, kgf/cm2 g | 80 | |
| Pressão Manométrica Final, kgf/cm2 g | 9,504E-05 | |
| Temperatura, °C | 25 | |
| Inventário Inicial, t | 570,44373 | |
| Inventário Final, t | 6,0448156 | 0,02% |
| Inventário Morto,t | 6,0436096 | |

| GÁS | | |
|---|---|---|
| Densidade Relativa (ar=1) | 0,62 | |
| Cp/Cv | 1,2833754 | |
| Pressão Crítica, kgf/cm2 abs | 47,142502 | |
| Temperatura Crítica, °C | 202,42756 | |
| Densidade @ 20°C e 1 atm, kg/Pm3 | 0,746294 | |
| Viscosidade Inicial, cst | 0,0175711 | |
| Coef Joule-Thompson Inicial, °C/(kgf/cm2) | 0,398179 | |

| VÁLVULA DE CONTROLE | | |
|---|---|---|
| Tipo | Igual % | |
| Tipo de Controle | M saída | |
| Número de Mach na Saída de Controle | 0,8 | |
| CV Totalmente Aberta | 1080 | |
| CV inicial | 23,012692 | |
| Abertura Inicial, % | 16,427183 | |
| Abertura Final, % | 100 | |
| Pout/ Pin Crítica, % | 54,875013 | |

| LINHA DE BLOWDOWN | | |
|---|---|---|
| Diãmetro, pol | 8 | |
| Comprimento antes da válvula, m | 10 | |
| Comprimento depois da válvula, m | 150 | (com acessórios) |
| Vazão Inicial, mil Pm3/dia | 1061,8205 | |
| Vazão Final, mil Pm3/dia | 4,5255252 | |
| Pressão Inicial na Saída, kgf/cm2 g | 0 | |
| Temperatura Inicial na Saída, °C | -26,08035 | |
| Força Máxima, kgf | 336,91246 | |

| TEMPOS ESTIMADOS | | |
|---|---|---|
| Escoamento com Controle, min | 1034,4 | TCC |
| Escoamento sem Controle, min | 96,6 | |
| Tempo total, min | 1131 | |
| | | |
| Fluxo Choked na Válvula, min | 1004,8 | TCV |
| Fluxo Não Choked na Válvula, min | 126,2 | |
| Tempo total, min | 1131 | |
| | | |
| Escoamento Sônico na Saída, min | 0 | TSS |
| Escoamento Subsônico na Saída, min | 1131 | |
| Tempo total, min | 1131 | |

| DISPERSÃO | Mínima | Máxima |
|---|---|---|
| Distância Vertical ao LII, m | 3,645315 | 23,96335 |
| Distância Horizontal ao LII,m | 4,80707 | 7,000707 |
| Distância Axial ao LII, m | 6,58377 | 25,49829 |
| Distância Axial ao LIS, m | 2,523604 | 11,61938 |
| Tempo sem Análise no Final, min | 11,4 | 1,01% |

| RUÍDO MÁXIMO | |
|---|---|
| Descarga para a Atmosfera, dBA | 125,2578 |
| Valvula de Controle, dBA | 112,3886 |
| Total, dBA | 125,4248 |

| PURGA COM N2 | |
|---|---|
| Pressão Mínima de Injeção, kgj/cm2 g | 0,007935 |
| Velocidade Mínima, m/s | 1,299559 |

| Deslocamento Total | |
|---|---|
| Volume de N2, Nm3 (50% folga) | 11379,03 |
| Tempo Máximo, h | 6,412431 |
| Vazão Mínima de N2, Nm3/h | 1774,527 |

| Volume Tampão | |
|---|---|
| Volume do Tampão de N2, Nm3 (30 m de folga) | 141,7061 |
| Tempo Injeção Tampão, min | 7,187015 |
| Vazão Mínima de N2, Nm3/h | 1281,45 |

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**PROGRAMA VENTGAS - Versão 1 -- CONDIÇÃO INICIAL** **CASO** **4** Pm3 @ 20°C e 1 atm

| Trecho | | Gasoduto | Tubo | Válvula | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo | Tubo |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Lequiv | m | 30000 | 10 | | 75 | 37,5 | 18,75 | 9,375 | 4,6875 | 2,34375 | 2,34375 |
| Ponto | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| D | pol | 24 | 8 | | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| x | m | 0 | 10 | 10 | 85 | 122,5 | 141,25 | 150,625 | 155,3125 | 157,65625 | 160 |
| fL/D | | | 0,693815216 | | 5,203614119 | 2,601807059 | 1,30090353 | 0,650451765 | 0,325225882 | 0,162612941 | 0,162612941 |
| M | | 0,010650597 | 0,010651135 | 0,238411546 | 0,311414719 | 0,39389801 | 0,480316162 | 0,563594818 | 0,636909485 | 0,695465088 | 0,8 |
| P | kgf/cm2 g | 80 | 79,99590688 | 2,572539639 | 1,719559846 | 1,134372694 | 0,735184669 | 0,465004324 | 0,284729759 | 0,167523315 | 0 |
| T | °C | 25 | 24,99999952 | -5,828926002 | -7,328630168 | -9,472634896 | -12,20575478 | -15,28155686 | -18,322542 | -20,95878993 | -26,08035004 |
| ro | kg/m3 | 69,42059403 | 69,41708759 | 3,275184722 | 2,514465034 | 1,995995094 | 1,645427 | 1,410631544 | 1,255679645 | 1,155950868 | 1,015266356 |
| v | m/s | 4,093427115 | 4,093633885 | 86,76400449 | 113,01336 | 142,3691585 | 172,7017619 | 201,4474603 | 226,3062423 | 245,8306402 | 279,8951628 |
| ro*v | kg/(m2.s) | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 | 284,168142 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Qb | mil Pm3/dia | 1061,820526 | | CV | | 23,01269166 | | YLI | m | 23,96334739 | |
| W | t/dia | 792,4302875 | | % abertura | % | 16,42718315 | | XLI | m | 7,000706981 | |
| Re | | 3270836,692 | | | | | | SLI | m | 25,49828739 | |
| f | | 0,014064842 | | Ruído Descarga | dbA | 124,8841396 | | SLS | m | 11,61938184 | |
| vsom | m/s | 384,3378115 | | Ruído Válvula | dbA | 111,099779 | | | | | |
| Inventario | mil Pm3 | 764,3686374 | | Ruído Total | dBA | 125,0621387 | | Força | kgf | 336,912457 | |
| | t | 570,4437279 | | | | | | | | | |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 80 | 80 | 570,4437279 | 0 | 1061,820526 | 79,99590688 | 2,572539639 | 23,01269166 | 16,42718315 | -5,828926 | 4,449695519 | 0 |
| 1 | 79,93924608 | 79,92742283 | 569,8934624 | 530,5992476 | 1061,73798 | 79,9233261 | 2,572538201 | 23,03336933 | 16,44668579 | -5,81005508 | 4,453683085 | 0 |
| 2 | 79,87257498 | 79,86074533 | 569,3432332 | 530,8135952 | 1061,661934 | 79,85664519 | 2,572536265 | 23,05239502 | 16,46461487 | -5,79269267 | 4,457352058 | 0 |
| 3 | 79,80589663 | 79,79405812 | 568,7930433 | 530,7746958 | 1061,587323 | 79,78995461 | 2,572539332 | 23,07148708 | 16,48259163 | -5,77530118 | 4,461033811 | 0 |
| 4 | 79,73920978 | 79,72736237 | 568,2428926 | 530,7374111 | 1061,511833 | 79,72325551 | 2,572539544 | 23,09059496 | 16,50056839 | -5,75788404 | 4,464718579 | 0 |
| 5 | 79,67251441 | 79,66065803 | 567,692781 | 530,699346 | 1061,435466 | 79,65654774 | 2,572536905 | 23,10971867 | 16,51854515 | -5,74044121 | 4,468406388 | 0 |
| 6 | 79,60581044 | 79,59394518 | 567,1427087 | 530,6619429 | 1061,360544 | 79,58983149 | 2,5725393 | 23,128909 | 16,5365696 | -5,72296962 | 4,472107011 | 0 |
| 7 | 79,5390979 | 79,52722369 | 566,5926753 | 530,624157 | 1061,28474 | 79,52310652 | 2,572538825 | 23,14811527 | 16,55459404 | -5,70547236 | 4,475810687 | 0 |
| 8 | 79,47237679 | 79,46049356 | 566,0426813 | 530,5859333 | 1061,208054 | 79,45637305 | 2,572535483 | 23,16733748 | 16,57261848 | -5,68794949 | 4,479517415 | 0 |
| 9 | 79,40564704 | 79,39375486 | 565,4927267 | 530,5470161 | 1061,132808 | 79,38963093 | 2,572537157 | 23,18662658 | 16,59069061 | -5,67039784 | 4,483237013 | 0 |
| 10 | 79,33890866 | 79,32700749 | 564,9428113 | 530,5090669 | 1061,056676 | 79,32288016 | 2,572535949 | 23,20593173 | 16,60876274 | -5,65282057 | 4,486959687 | 0 |
| 11 | 79,27216161 | 79,2602514 | 564,3929351 | 530,4721115 | 1060,981978 | 79,25612061 | 2,57253974 | 23,22530396 | 16,62688255 | -5,63521451 | 4,490695269 | 0 |
| 12 | 79,20540592 | 79,19348672 | 563,8430987 | 530,4332629 | 1060,904069 | 79,18935247 | 2,572532744 | 23,24464132 | 16,64495468 | -5,61758603 | 4,494424102 | 0 |
| 13 | 79,13864153 | 79,12671325 | 563,2933015 | 530,3965908 | 1060,829916 | 79,1225756 | 2,57253864 | 23,26409695 | 16,66312218 | -5,59992563 | 4,498175721 | 0 |
| 14 | 79,07186837 | 79,05993104 | 562,7435434 | 530,3577568 | 1060,752545 | 79,05578989 | 2,572533724 | 23,28351773 | 16,68124199 | -5,58224277 | 4,501920592 | 0 |
| 15 | 79,00508646 | 78,99314005 | 562,1938247 | 530,3199226 | 1060,676602 | 78,98899544 | 2,572533788 | 23,3030059 | 16,69940948 | -5,56453117 | 4,50567843 | 0 |
| 16 | 78,93829581 | 78,92634025 | 561,6441452 | 530,2816237 | 1060,602087 | 78,92219221 | 2,572538829 | 23,3225616 | 16,71762466 | -5,54679082 | 4,509449266 | 0 |
| 17 | 78,87149633 | 78,8595317 | 561,0945053 | 530,2442918 | 1060,526673 | 78,85538016 | 2,572540944 | 23,3421337 | 16,73583984 | -5,5290249 | 4,513223246 | 0 |
| 18 | 78,80468805 | 78,79271429 | 560,5449047 | 530,2062516 | 1060,450359 | 78,78855926 | 2,572540122 | 23,36172223 | 16,75405502 | -5,5112334 | 4,517000363 | 0 |
| 19 | 78,73787096 | 78,72588801 | 559,9953436 | 530,167766 | 1060,373144 | 78,72172953 | 2,572536363 | 23,3813272 | 16,7722702 | -5,49341635 | 4,520780629 | 0 |
| 20 | 78,67104498 | 78,65905292 | 559,445822 | 530,1300061 | 1060,297346 | 78,65489091 | 2,572537547 | 23,40100001 | 16,79053307 | -5,47557057 | 4,524573942 | 0 |
| 21 | 78,60421015 | 78,59220885 | 558,8963397 | 530,0917741 | 1060,220644 | 78,58804335 | 2,572535781 | 23,42068937 | 16,80879593 | -5,45769923 | 4,528370428 | 0 |
| 22 | 78,53736641 | 78,52535594 | 558,3468971 | 530,0527769 | 1060,145359 | 78,52118697 | 2,572538958 | 23,44044677 | 16,82710648 | -5,4397992 | 4,532180009 | 0 |
| 23 | 78,4705138 | 78,4584941 | 557,7974942 | 530,0150474 | 1060,069163 | 78,45432159 | 2,572539161 | 23,46022084 | 16,84541702 | -5,42187362 | 4,535992771 | 0 |
| 24 | 78,40365225 | 78,39162333 | 557,2481309 | 529,9766181 | 1059,992058 | 78,38744731 | 2,5725364 | 23,48001159 | 16,86372757 | -5,40392253 | 4,53980873 | 0 |
| 25 | 78,33678172 | 78,32474353 | 556,6988069 | 529,9389068 | 1059,916362 | 78,32056403 | 2,572538552 | 23,49987063 | 16,8820858 | -5,38594274 | 4,543637827 | 0 |
| 26 | 78,26990218 | 78,25785473 | 556,1495223 | 529,9007255 | 1059,839753 | 78,25367166 | 2,572537723 | 23,51974648 | 16,90044403 | -5,36793741 | 4,547470146 | 0 |
| 27 | 78,20301367 | 78,19095695 | 555,6002777 | 529,8620867 | 1059,762227 | 78,18677036 | 2,572533899 | 23,53963913 | 16,91880226 | -5,34990659 | 4,551305669 | 0 |
| 28 | 78,13611616 | 78,12405013 | 555,0510727 | 529,8240947 | 1059,686106 | 78,11986004 | 2,572534979 | 23,55960035 | 16,93720818 | -5,33184711 | 4,555154391 | 0 |
| 29 | 78,06920961 | 78,05713425 | 554,5019073 | 529,7856995 | 1059,611386 | 78,0529406 | 2,572540951 | 23,57963027 | 16,95566177 | -5,31375894 | 4,559016335 | 0 |
| 30 | 78,00229397 | 77,99020925 | 553,9527814 | 529,7468961 | 1059,533423 | 77,98601205 | 2,572536011 | 23,59962539 | 16,97406769 | -5,29564845 | 4,562871538 | 0 |
| 31 | 77,93536924 | 77,92327516 | 553,4036951 | 529,7087547 | 1059,456858 | 77,91907435 | 2,572535951 | 23,61968934 | 16,99252129 | -5,27750929 | 4,566739988 | 0 |
| 32 | 77,86843541 | 77,85633198 | 552,8546487 | 529,671481 | 1059,379372 | 77,85212769 | 2,572532878 | 23,63977035 | 17,01097488 | -5,2593447 | 4,570611703 | 0 |
| 33 | 77,80149247 | 77,78937962 | 552,305642 | 529,6321596 | 1059,303276 | 77,78517168 | 2,572534659 | 23,65992038 | 17,02947617 | -5,24115142 | 4,574496695 | 0 |
| 34 | 77,73454036 | 77,72241811 | 551,7566749 | 529,5937751 | 1059,226253 | 77,71820664 | 2,572533409 | 23,68008759 | 17,04797745 | -5,22293271 | 4,578384971 | 0 |
| 35 | 77,66757909 | 77,65544744 | 551,2077476 | 529,5563334 | 1059,15062 | 77,65123238 | 2,572537015 | 23,70032403 | 17,06652641 | -5,20468537 | 4,582286572 | 0 |
| 36 | 77,60060866 | 77,58846755 | 550,6588603 | 529,5170682 | 1059,074055 | 77,58424883 | 2,572537569 | 23,72057777 | 17,08507538 | -5,18641255 | 4,586191482 | 0 |
| 37 | 77,53362896 | 77,52147841 | 550,1100124 | 529,4795513 | 1058,996558 | 77,51725615 | 2,57253507 | 23,74084881 | 17,10362434 | -5,16811432 | 4,590099698 | 0 |
| 38 | 77,46664009 | 77,45448003 | 549,5612046 | 529,4404609 | 1058,920442 | 77,45025417 | 2,572537401 | 23,76118936 | 17,12222099 | -5,14978747 | 4,594021283 | 0 |
| 39 | 77,39964193 | 77,38747238 | 549,0124365 | 529,4020621 | 1058,84339 | 77,38324285 | 2,572536663 | 23,78154733 | 17,14081764 | -5,13143518 | 4,597946206 | 0 |
| 40 | 77,33263453 | 77,32045548 | 548,4637085 | 529,3631949 | 1058,767719 | 77,31622231 | 2,572540749 | 23,80197502 | 17,15946198 | -5,11305431 | 4,601884541 | 0 |
| 41 | 77,2656178 | 77,2534292 | 547,91502 | 529,3250136 | 1058,688788 | 77,24919252 | 2,572533857 | 23,82236793 | 17,17805862 | -5,09465122 | 4,605816139 | 0 |
| 42 | 77,19859178 | 77,18639363 | 547,3663716 | 529,2863758 | 1058,61355 | 77,18215328 | 2,572539666 | 23,84288304 | 17,19675064 | -5,07621634 | 4,609771272 | 0 |
| 43 | 77,13155644 | 77,1193487 | 546,8177631 | 529,247242 | 1058,535051 | 77,11510468 | 2,572534485 | 23,8633634 | 17,21539497 | -5,05775925 | 4,61371968 | 0 |
| 44 | 77,06451174 | 77,0522944 | 546,2691946 | 529,2088191 | 1058,457923 | 77,04804677 | 2,572534099 | 23,88391381 | 17,23408699 | -5,0392736 | 4,617681561 | 0 |
| 45 | 76,99745764 | 76,98523073 | 545,720666 | 529,1713077 | 1058,382166 | 76,98097941 | 2,572538502 | 23,90453441 | 17,25282669 | -5,02075938 | 4,62165695 | 0 |
| 46 | 76,93039414 | 76,91815759 | 545,1721772 | 529,1330188 | 1058,305457 | 76,91390262 | 2,572539784 | 23,92517281 | 17,27156639 | -5,00221978 | 4,625635738 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 76,86332124 | 76,85107504 | 544,6237285 | 529,0929215 | 1058,227797 | 76,84681645 | 2,572537947 | 23,94582903 | 17,29030609 | -4,98365483 | 4,629617931 | 0 |
| 48 | 76,79623891 | 76,78398303 | 544,0753199 | 529,0551397 | 1058,151499 | 76,77972075 | 2,572540874 | 23,96655571 | 17,30909348 | -4,96506132 | 4,633613681 | 0 |
| 49 | 76,72914708 | 76,71688152 | 543,5269509 | 529,0166423 | 1058,074245 | 76,71261547 | 2,572540661 | 23,98730033 | 17,32788086 | -4,94644243 | 4,63761286 | 0 |
| 50 | 76,66204579 | 76,64977054 | 542,9786223 | 528,977667 | 1057,996038 | 76,64550086 | 2,572537321 | 24,00806291 | 17,34666824 | -4,92779825 | 4,64161548 | 0 |
| 51 | 76,59493498 | 76,58265 | 542,4303334 | 528,9393796 | 1057,919183 | 76,57837663 | 2,57253871 | 24,02889622 | 17,36550331 | -4,90912552 | 4,645631694 | 0 |
| 52 | 76,52781463 | 76,51551992 | 541,8820846 | 528,9006024 | 1057,84137 | 76,51124289 | 2,572536954 | 24,04974761 | 17,38433838 | -4,89042747 | 4,649651373 | 0 |
| 53 | 76,46068479 | 76,44838035 | 541,3338763 | 528,8613439 | 1057,76491 | 76,44409958 | 2,57253993 | 24,07066996 | 17,40322113 | -4,87170091 | 4,653684701 | 0 |
| 54 | 76,39354536 | 76,38123114 | 540,7857079 | 528,8227596 | 1057,687484 | 76,37694668 | 2,572539734 | 24,0916105 | 17,42210388 | -4,85294904 | 4,657721506 | 0 |
| 55 | 76,32639633 | 76,31407229 | 540,2375793 | 528,7850815 | 1057,60909 | 76,30978406 | 2,572536354 | 24,11256926 | 17,44098663 | -4,83417184 | 4,661761789 | 0 |
| 56 | 76,25923773 | 76,24690385 | 539,6894911 | 528,7452584 | 1057,532044 | 76,24261189 | 2,572537694 | 24,13359925 | 17,45991707 | -4,81536617 | 4,665815781 | 0 |
| 57 | 76,19206947 | 76,17972577 | 539,141443 | 528,7063832 | 1057,454028 | 76,17543011 | 2,572535844 | 24,15464759 | 17,4788475 | -4,79653523 | 4,669873275 | 0 |
| 58 | 76,12489156 | 76,11253804 | 538,5934351 | 528,6684582 | 1057,377354 | 76,10823862 | 2,572538687 | 24,17576736 | 17,49782562 | -4,7776758 | 4,673944509 | 0 |
| 59 | 76,05770403 | 76,04534063 | 538,0454677 | 528,6283258 | 1057,299706 | 76,04103748 | 2,57253833 | 24,19690561 | 17,51680374 | -4,75879111 | 4,678019276 | 0 |
| 60 | 75,99050677 | 75,97813351 | 537,4975402 | 528,5905813 | 1057,22108 | 75,97382655 | 2,572534758 | 24,21806234 | 17,53578186 | -4,73988114 | 4,682097574 | 0 |
| 61 | 75,92329981 | 75,91091664 | 536,949653 | 528,5520248 | 1057,143794 | 75,90660602 | 2,572535872 | 24,23929079 | 17,55480766 | -4,72094275 | 4,686189673 | 0 |
| 62 | 75,85608313 | 75,84369004 | 536,4018061 | 528,5130215 | 1057,065524 | 75,83937558 | 2,572533749 | 24,26053785 | 17,57383347 | -4,70197908 | 4,690285323 | 0 |
| 63 | 75,78885674 | 75,77645368 | 535,8539996 | 528,4735298 | 1056,988586 | 75,77213543 | 2,572536291 | 24,28185685 | 17,59290695 | -4,68298699 | 4,69439481 | 0 |
| 64 | 75,72162055 | 75,70920752 | 535,3062333 | 528,4347017 | 1056,910665 | 75,70488551 | 2,572535595 | 24,30319459 | 17,61198044 | -4,66396968 | 4,698507877 | 0 |
| 65 | 75,65437459 | 75,64195159 | 534,7585076 | 528,3953818 | 1056,834073 | 75,63762576 | 2,572539552 | 24,3246045 | 17,63110161 | -4,64492394 | 4,70263483 | 0 |
| 66 | 75,58711879 | 75,57468578 | 534,2108218 | 528,3567217 | 1056,75649 | 75,57035615 | 2,572540249 | 24,34603326 | 17,65022278 | -4,62585298 | 4,706765383 | 0 |
| 67 | 75,51985315 | 75,50741013 | 533,6631765 | 528,3175701 | 1056,677918 | 75,50307674 | 2,572537688 | 24,36748091 | 17,66934395 | -4,60675684 | 4,71089954 | 0 |
| 68 | 75,45257766 | 75,44012458 | 533,1155714 | 528,2790369 | 1056,600668 | 75,43578737 | 2,572539753 | 24,389001 | 17,6885128 | -4,58763227 | 4,715047638 | 0 |
| 69 | 75,38529227 | 75,37282913 | 532,5680065 | 528,2400485 | 1056,522422 | 75,36848804 | 2,572538539 | 24,4105401 | 17,70768166 | -4,5684825 | 4,719199366 | 0 |
| 70 | 75,31799702 | 75,30552376 | 532,0204821 | 528,2005641 | 1056,443182 | 75,30117891 | 2,57253405 | 24,43209822 | 17,72685051 | -4,54930758 | 4,723354729 | 0 |
| 71 | 75,25069187 | 75,2382085 | 531,4729984 | 528,162 | 1056,365254 | 75,23385974 | 2,572534156 | 24,45372908 | 17,74606705 | -4,53010427 | 4,727524076 | 0 |
| 72 | 75,18337676 | 75,17088329 | 530,925555 | 528,1224168 | 1056,288641 | 75,16653075 | 2,572538867 | 24,47543284 | 17,76533127 | -4,51087262 | 4,731707441 | 0 |
| 73 | 75,1160517 | 75,10354808 | 530,378152 | 528,0839494 | 1056,211025 | 75,09919169 | 2,572540273 | 24,49715586 | 17,78459549 | -4,4916158 | 4,735894491 | 0 |
| 74 | 75,04871666 | 75,03620288 | 529,8307894 | 528,0447748 | 1056,132404 | 75,03184259 | 2,572538365 | 24,51889816 | 17,80385971 | -4,47233382 | 4,740085226 | 0 |
| 75 | 74,98137161 | 74,96884762 | 529,2834671 | 528,0048923 | 1056,052778 | 74,96448345 | 2,572533142 | 24,54065975 | 17,82312393 | -4,45302671 | 4,74427965 | 0 |
| 76 | 74,91401653 | 74,90148241 | 528,7361856 | 527,9674917 | 1055,976768 | 74,89711441 | 2,572540383 | 24,56254854 | 17,84248352 | -4,43368809 | 4,748498551 | 0 |
| 77 | 74,84665141 | 74,83410703 | 528,1889442 | 527,9277022 | 1055,897435 | 74,82973513 | 2,572536393 | 24,58440286 | 17,86179543 | -4,41432751 | 4,752710783 | 0 |
| 78 | 74,7792763 | 74,76672165 | 527,6417439 | 527,8876681 | 1055,819402 | 74,7623459 | 2,572536957 | 24,60633066 | 17,88115501 | -4,39493865 | 4,756937137 | 0 |
| 79 | 74,71189104 | 74,69932616 | 527,0945838 | 527,8493988 | 1055,740354 | 74,69494647 | 2,572534172 | 24,62827802 | 17,9005146 | -4,37552468 | 4,761167231 | 0 |
| 80 | 74,64449573 | 74,63192053 | 526,5474644 | 527,8095488 | 1055,662601 | 74,62753696 | 2,572535926 | 24,65029908 | 17,91992188 | -4,3560824 | 4,765411496 | 0 |
| 81 | 74,57709027 | 74,56450478 | 526,0003855 | 527,7703001 | 1055,58383 | 74,56011726 | 2,572534317 | 24,67233984 | 17,93932915 | -4,33661504 | 4,769659524 | 0 |
| 82 | 74,50967468 | 74,49707891 | 525,4533474 | 527,7319025 | 1055,50635 | 74,49268748 | 2,572537238 | 24,69445453 | 17,9587841 | -4,31711941 | 4,773921772 | 0 |
| 83 | 74,44224895 | 74,42964283 | 524,90635 | 527,6927439 | 1055,427848 | 74,42524753 | 2,572536779 | 24,71658904 | 17,97823906 | -4,29759873 | 4,778187802 | 0 |
| 84 | 74,37481304 | 74,36219651 | 524,3593929 | 527,6531595 | 1055,350631 | 74,35779728 | 2,572540826 | 24,73879772 | 17,9977417 | -4,27804974 | 4,782468095 | 0 |
| 85 | 74,30736689 | 74,29474003 | 523,8124766 | 527,614134 | 1055,270076 | 74,29033679 | 2,572533586 | 24,76097197 | 18,01719666 | -4,25847894 | 4,786741718 | 0 |
| 86 | 74,23991058 | 74,22727327 | 523,2656011 | 527,5746412 | 1055,193114 | 74,22286617 | 2,572538738 | 24,78327495 | 18,03674698 | -4,23887669 | 4,791040116 | 0 |
| 87 | 74,17244394 | 74,15979619 | 522,7187657 | 527,5357831 | 1055,115118 | 74,15538508 | 2,572540472 | 24,80559802 | 18,0562973 | -4,21924936 | 4,79534235 | 0 |
| 88 | 74,10496702 | 74,09230883 | 522,171971 | 527,4964084 | 1055,03609 | 74,08789374 | 2,572538794 | 24,82794119 | 18,07584763 | -4,19959702 | 4,799648426 | 0 |
| 89 | 74,03747987 | 74,02481123 | 521,6252175 | 527,4565156 | 1054,956029 | 74,0203922 | 2,572533697 | 24,85030449 | 18,09539795 | -4,17991971 | 4,803958344 | 0 |
| 90 | 73,96998246 | 73,95730334 | 521,0785049 | 527,4172266 | 1054,879549 | 73,95288031 | 2,572540957 | 24,87279717 | 18,11504364 | -4,16021095 | 4,808293165 | 0 |
| 91 | 73,9024747 | 73,88978502 | 520,5318327 | 527,3774858 | 1054,799719 | 73,88535803 | 2,572536882 | 24,89525554 | 18,13464165 | -4,14048042 | 4,812621334 | 0 |
| 92 | 73,83495659 | 73,82225644 | 519,9852016 | 527,3383133 | 1054,72116 | 73,81782542 | 2,572537262 | 24,9177889 | 18,15428734 | -4,1207217 | 4,81696393 | 0 |
| 93 | 73,76742815 | 73,75471741 | 519,4386113 | 527,2986509 | 1054,641556 | 73,7502824 | 2,572534185 | 24,94034266 | 18,17393303 | -4,100938 | 4,821310418 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 94 | 73,69988931 | 73,68716798 | 518,8920617 | 527,259854 | 1054,563213 | 73,68272893 | 2,572535534 | 24,96297165 | 18,1936264 | -4,08112611 | 4,825671362 | 0 |
| 95 | 73,63234003 | 73,61960811 | 518,3455527 | 527,2200744 | 1054,486132 | 73,61516507 | 2,572541313 | 24,98567604 | 18,21336746 | -4,06128606 | 4,830046806 | 0 |
| 96 | 73,56478032 | 73,55203782 | 517,7990846 | 527,1813363 | 1054,405694 | 73,54759081 | 2,572535726 | 25,00834617 | 18,23306084 | -4,0414243 | 4,834415612 | 0 |
| 97 | 73,49721019 | 73,48445706 | 517,2526574 | 527,1418906 | 1054,32651 | 73,48000593 | 2,572534538 | 25,03109182 | 18,2528019 | -4,02153435 | 4,838798936 | 0 |
| 98 | 73,42962964 | 73,41686581 | 516,7062713 | 527,1019138 | 1054,248582 | 73,4124107 | 2,572537759 | 25,05391319 | 18,27259064 | -4,00161629 | 4,843196814 | 0 |
| 99 | 73,36203855 | 73,34926404 | 516,1599258 | 527,0625627 | 1054,169595 | 73,34480489 | 2,572537474 | 25,07675536 | 18,29237938 | -3,98167331 | 4,847598662 | 0 |
| 100 | 73,29443697 | 73,28165179 | 515,6136215 | 527,0226829 | 1054,089551 | 73,27718854 | 2,572533686 | 25,09961835 | 18,31216812 | -3,96170542 | 4,852004492 | 0 |
| 101 | 73,22682487 | 73,21402895 | 515,067358 | 526,9834301 | 1054,010753 | 73,20956164 | 2,572534273 | 25,12255736 | 18,33200455 | -3,94170941 | 4,856424931 | 0 |
| 102 | 73,15920223 | 73,14639558 | 514,5211355 | 526,9436424 | 1053,933198 | 73,14192416 | 2,572539226 | 25,14557255 | 18,35188866 | -3,92168528 | 4,86086001 | 0 |
| 103 | 73,09156902 | 73,07875159 | 513,9749539 | 526,9046561 | 1053,85458 | 73,07427611 | 2,572540653 | 25,16860882 | 18,37177277 | -3,90163629 | 4,86529912 | 0 |
| 104 | 73,02392522 | 73,01109701 | 513,4288134 | 526,8649548 | 1053,774893 | 73,0066174 | 2,572538538 | 25,1916662 | 18,39165688 | -3,88156243 | 4,869742261 | 0 |
| 105 | 72,95627085 | 72,9434318 | 512,8827138 | 526,8245076 | 1053,694139 | 72,93894818 | 2,572532881 | 25,2147447 | 18,41154099 | -3,86146376 | 4,874189433 | 0 |
| 106 | 72,88860584 | 72,87575596 | 512,3366554 | 526,7848966 | 1053,616924 | 72,87126821 | 2,572539448 | 25,23795518 | 18,43152046 | -3,84133374 | 4,878661998 | 0 |
| 107 | 72,82093017 | 72,80806941 | 511,7906378 | 526,7460742 | 1053,536329 | 72,80357755 | 2,57253456 | 25,26113156 | 18,45145226 | -3,82118213 | 4,883127956 | 0 |
| 108 | 72,75324382 | 72,74037224 | 511,2446614 | 526,7065409 | 1053,456964 | 72,73587623 | 2,572533994 | 25,28438474 | 18,47143173 | -3,80100247 | 4,887608675 | 0 |
| 109 | 72,68554684 | 72,67266432 | 510,6987262 | 526,6664628 | 1053,378828 | 72,6681642 | 2,572537743 | 25,3077149 | 18,49145889 | -3,78079476 | 4,892104191 | 0 |
| 110 | 72,61783909 | 72,60494565 | 510,1528317 | 526,6269978 | 1053,299608 | 72,60044136 | 2,572537896 | 25,33106659 | 18,51148605 | -3,76056224 | 4,896603811 | 0 |
| 111 | 72,55012063 | 72,53721627 | 509,6069785 | 526,5869926 | 1053,219307 | 72,53270784 | 2,572534459 | 25,35443982 | 18,53151321 | -3,74030495 | 4,901107547 | 0 |
| 112 | 72,48239148 | 72,46947614 | 509,0611666 | 526,5477747 | 1053,140226 | 72,46496353 | 2,572535313 | 25,37789035 | 18,55158806 | -3,72001963 | 4,905626142 | 0 |
| 113 | 72,4146515 | 72,40172518 | 508,5153956 | 526,5076632 | 1053,060058 | 72,39720843 | 2,572532555 | 25,40136257 | 18,5716629 | -3,69970955 | 4,910148877 | 0 |
| 114 | 72,34690076 | 72,33396342 | 507,9696658 | 526,4685075 | 1052,981105 | 72,32944248 | 2,572534066 | 25,42491233 | 18,59178543 | -3,67937146 | 4,914686513 | 0 |
| 115 | 72,27913921 | 72,26619084 | 507,4239772 | 526,4286302 | 1052,901059 | 72,26166575 | 2,572531945 | 25,44848393 | 18,61190796 | -3,65900864 | 4,919228307 | 0 |
| 116 | 72,21136686 | 72,19840741 | 506,8783298 | 526,3880073 | 1052,822225 | 72,19387811 | 2,572534087 | 25,47213331 | 18,63207817 | -3,63861782 | 4,923785064 | 0 |
| 117 | 72,14358366 | 72,13061314 | 506,3327238 | 526,3483881 | 1052,742295 | 72,12607968 | 2,572532584 | 25,49580466 | 18,65224838 | -3,6182023 | 4,928346009 | 0 |
| 118 | 72,07578958 | 72,06280793 | 505,7871588 | 526,3091457 | 1052,663567 | 72,05827018 | 2,572535312 | 25,51955406 | 18,67246628 | -3,59775877 | 4,932921952 | 0 |
| 119 | 72,00798462 | 71,99499183 | 505,241635 | 526,2680573 | 1052,58374 | 71,9904499 | 2,572534384 | 25,54332558 | 18,69268417 | -3,57729058 | 4,937502115 | 0 |
| 120 | 71,94016874 | 71,92716484 | 504,6961526 | 526,229061 | 1052,505114 | 71,92261869 | 2,57253768 | 25,56717538 | 18,71294975 | -3,55679444 | 4,942097325 | 0 |
| 121 | 71,87234192 | 71,85932685 | 504,1507112 | 526,1893419 | 1052,425382 | 71,85477652 | 2,572537298 | 25,59104745 | 18,73321533 | -3,53627362 | 4,946696785 | 0 |
| 122 | 71,80450418 | 71,79147794 | 503,6053113 | 526,1490707 | 1052,346844 | 71,78692329 | 2,572541115 | 25,61499806 | 18,75352859 | -3,51572486 | 4,951311334 | 0 |
| 123 | 71,73665547 | 71,72361801 | 503,0599527 | 526,1093665 | 1052,267196 | 71,71905909 | 2,57254124 | 25,63897109 | 18,77384186 | -3,49515143 | 4,955930163 | 0 |
| 124 | 71,66879577 | 71,65574708 | 502,5146353 | 526,0691635 | 1052,186436 | 71,65118392 | 2,572537664 | 25,66296655 | 18,79415512 | -3,47455338 | 4,960553272 | 0 |
| 125 | 71,60092511 | 71,58786509 | 501,9693593 | 526,0296922 | 1052,106863 | 71,58329773 | 2,572538266 | 25,68704088 | 18,81451607 | -3,45392744 | 4,965191532 | 0 |
| 126 | 71,53304337 | 71,51997208 | 501,4241246 | 525,9893079 | 1052,026172 | 71,51540038 | 2,572535147 | 25,71113779 | 18,83487701 | -3,43327683 | 4,969834108 | 0 |
| 127 | 71,46515059 | 71,45206804 | 500,8789314 | 525,9498937 | 1051,946666 | 71,44749205 | 2,572536194 | 25,73531381 | 18,85528564 | -3,41259839 | 4,974491883 | 0 |
| 128 | 71,39724678 | 71,38415285 | 500,3337795 | 525,9097281 | 1051,866036 | 71,37957261 | 2,572533501 | 25,75951257 | 18,87569427 | -3,39189533 | 4,979153993 | 0 |
| 129 | 71,32933186 | 71,31622656 | 499,7886689 | 525,8701307 | 1051,786585 | 71,31164202 | 2,572534954 | 25,78379071 | 18,89615059 | -3,37116442 | 4,983831357 | 0 |
| 130 | 71,26140583 | 71,24828921 | 499,2435999 | 525,8299905 | 1051,706006 | 71,24370033 | 2,572532654 | 25,80809172 | 18,9166069 | -3,35040893 | 4,988513086 | 0 |
| 131 | 71,19346876 | 71,18034071 | 498,6985727 | 525,7892881 | 1051,626601 | 71,17574753 | 2,572534483 | 25,83247237 | 18,9371109 | -3,32962562 | 4,993210111 | 0 |
| 132 | 71,12552052 | 71,11238105 | 498,1535869 | 525,7491698 | 1051,546063 | 71,10778353 | 2,572532539 | 25,85687604 | 18,9576149 | -3,30881774 | 4,997911532 | 0 |
| 133 | 71,05756109 | 71,04441014 | 497,6086422 | 525,7096387 | 1051,466694 | 71,03980831 | 2,572534708 | 25,88135961 | 18,97816658 | -3,28798205 | 5,002628304 | 0 |
| 134 | 70,98959044 | 70,97642803 | 497,0637388 | 525,6695375 | 1051,386186 | 70,97182185 | 2,572533084 | 25,90586635 | 18,99871826 | -3,26712181 | 5,007349496 | 0 |
| 135 | 70,92160861 | 70,90843467 | 496,518877 | 525,6301728 | 1051,306839 | 70,9038241 | 2,572535548 | 25,93045325 | 19,01931763 | -3,24623377 | 5,012086081 | 0 |
| 136 | 70,85361555 | 70,84043009 | 495,9740567 | 525,5900572 | 1051,226355 | 70,83581517 | 2,572534216 | 25,95506348 | 19,03991699 | -3,22532123 | 5,016827129 | 0 |
| 137 | 70,78561127 | 70,77241429 | 495,4292782 | 525,5494181 | 1051,147025 | 70,76779497 | 2,572536954 | 25,97975411 | 19,06056404 | -3,20438092 | 5,021583612 | 0 |
| 138 | 70,71759571 | 70,7043871 | 494,8845408 | 525,5093322 | 1051,066549 | 70,69976343 | 2,572535869 | 26,00446823 | 19,08121109 | -3,18341611 | 5,026344583 | 0 |
| 139 | 70,64956885 | 70,63634867 | 494,3398452 | 525,4685005 | 1050,987224 | 70,6317206 | 2,57253884 | 26,02926302 | 19,10190582 | -3,16242356 | 5,031121045 | 0 |
| 140 | 70,58153074 | 70,56829893 | 493,7951913 | 525,4285657 | 1050,90675 | 70,56366651 | 2,572537973 | 26,05408146 | 19,12260056 | -3,14140656 | 5,035902017 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 141 | 70,51348127 | 70,50023779 | 493,2505787 | 525,3877577 | 1050,825119 | 70,49560088 | 2,572533249 | 26,07892355 | 19,14329529 | -3,12036504 | 5,040687507 | 0 |
| 142 | 70,44542045 | 70,43216536 | 492,706008 | 525,3491394 | 1050,746935 | 70,42752402 | 2,572540454 | 26,10390398 | 19,16408539 | -3,09929259 | 5,045499601 | 0 |
| 143 | 70,3773483 | 70,36408148 | 492,1614788 | 525,3082798 | 1050,665291 | 70,35943574 | 2,572535896 | 26,12885096 | 19,1848278 | -3,07819896 | 5,050305202 | 0 |
| 144 | 70,30926476 | 70,29598621 | 491,6169911 | 525,2681857 | 1050,584787 | 70,29133612 | 2,572535356 | 26,15387921 | 19,2056179 | -3,05707765 | 5,055126416 | 0 |
| 145 | 70,24116984 | 70,22787957 | 491,0725455 | 525,2275067 | 1050,505418 | 70,223225 | 2,572538819 | 26,17898892 | 19,22645569 | -3,03592865 | 5,059963279 | 0 |
| 146 | 70,17306351 | 70,15976147 | 490,5281414 | 525,1875576 | 1050,424881 | 70,15510237 | 2,572538377 | 26,20412274 | 19,24729347 | -3,01475523 | 5,064804731 | 0 |
| 147 | 70,10494573 | 70,09163186 | 489,9837789 | 525,1466991 | 1050,343178 | 70,08696837 | 2,57253404 | 26,22928069 | 19,26813126 | -2,99355745 | 5,069650793 | 0 |
| 148 | 70,03681648 | 70,02349078 | 489,4394581 | 525,106569 | 1050,262601 | 70,01882277 | 2,572533673 | 26,25452044 | 19,28901672 | -2,972332 | 5,074512564 | 0 |
| 149 | 69,96867574 | 69,95533822 | 488,895179 | 525,0671435 | 1050,183149 | 69,95066574 | 2,572537277 | 26,27984219 | 19,30994987 | -2,95107893 | 5,079390081 | 0 |
| 150 | 69,90052354 | 69,88717414 | 488,3509418 | 525,0258543 | 1050,102522 | 69,88249715 | 2,57253695 | 26,30518836 | 19,33088303 | -2,92980149 | 5,084272261 | 0 |
| 151 | 69,83235978 | 69,81899846 | 487,806746 | 524,9862387 | 1050,023013 | 69,814317 | 2,57254057 | 26,3306168 | 19,35186386 | -2,90849644 | 5,089170236 | 0 |
| 152 | 69,76418444 | 69,75081119 | 487,2625916 | 524,9460506 | 1049,942323 | 69,74612522 | 2,57254024 | 26,35606982 | 19,3728447 | -2,88716704 | 5,094072904 | 0 |
| 153 | 69,69599756 | 69,68261239 | 486,7184793 | 524,9052707 | 1049,860448 | 69,67792187 | 2,572535944 | 26,38154745 | 19,39382553 | -2,86581333 | 5,098980254 | 0 |
| 154 | 69,62779918 | 69,61440203 | 486,1744092 | 524,865187 | 1049,779687 | 69,609707 | 2,57253558 | 26,40710769 | 19,41485405 | -2,84443207 | 5,103903478 | 0 |
| 155 | 69,55958917 | 69,54618004 | 485,6303808 | 524,8242331 | 1049,700034 | 69,54148047 | 2,572539128 | 26,43275074 | 19,43593025 | -2,82302322 | 5,108842606 | 0 |
| 156 | 69,49136754 | 69,47794639 | 485,0863942 | 524,7839509 | 1049,619187 | 69,47324224 | 2,572538677 | 26,45841869 | 19,45700645 | -2,80159008 | 5,113786471 | 0 |
| 157 | 69,42313431 | 69,40970107 | 484,5424494 | 524,7430918 | 1049,53715 | 69,40499247 | 2,572534245 | 26,48411156 | 19,47808266 | -2,78013271 | 5,118735101 | 0 |
| 158 | 69,35488944 | 69,34144412 | 483,9985468 | 524,7029333 | 1049,456209 | 69,33673086 | 2,572533683 | 26,5098876 | 19,49920654 | -2,75864776 | 5,123699691 | 0 |
| 159 | 69,28663289 | 69,2731755 | 483,4546861 | 524,6618747 | 1049,376369 | 69,26845763 | 2,572537004 | 26,53574699 | 19,52037811 | -2,73713531 | 5,128680294 | 0 |
| 160 | 69,21836464 | 69,20489511 | 482,910867 | 524,6215139 | 1049,295325 | 69,20017267 | 2,572536296 | 26,56163161 | 19,54154968 | -2,71559863 | 5,133665701 | 0 |
| 161 | 69,15008467 | 69,13660296 | 482,3670898 | 524,5818293 | 1049,215374 | 69,13187601 | 2,572539448 | 26,58759987 | 19,56276894 | -2,69403446 | 5,138667169 | 0 |
| 162 | 69,08179295 | 69,06829906 | 481,8233544 | 524,5415561 | 1049,134211 | 69,06356739 | 2,572538541 | 26,61359351 | 19,58398819 | -2,67244603 | 5,143673471 | 0 |
| 163 | 69,01348949 | 68,99998342 | 481,2796612 | 524,5003864 | 1049,054141 | 68,99524725 | 2,572541492 | 26,63967106 | 19,60525513 | -2,65083019 | 5,148695896 | 0 |
| 164 | 68,94517429 | 68,93165598 | 480,73601 | 524,4598897 | 1048,972856 | 68,92691518 | 2,572540369 | 26,66577417 | 19,62652206 | -2,62919014 | 5,153723186 | 0 |
| 165 | 68,87684726 | 68,86331668 | 480,1924004 | 524,4200918 | 1048,890352 | 68,85857112 | 2,572535165 | 26,69190285 | 19,647789 | -2,60752588 | 5,158755351 | 0 |
| 166 | 68,80850847 | 68,79496559 | 479,6488332 | 524,37827 | 1048,811225 | 68,79021542 | 2,572541668 | 26,71817448 | 19,66915131 | -2,58583094 | 5,163814995 | 0 |
| 167 | 68,74015782 | 68,7266026 | 479,1053077 | 524,3383811 | 1048,728582 | 68,72184786 | 2,572536188 | 26,74441323 | 19,69046593 | -2,56411515 | 5,168868257 | 0 |
| 168 | 68,67179533 | 68,65822777 | 478,5618243 | 524,297759 | 1048,647011 | 68,65346834 | 2,572534497 | 26,77073654 | 19,71182823 | -2,54237191 | 5,173937757 | 0 |
| 169 | 68,60342099 | 68,5898411 | 478,0183833 | 524,2563863 | 1048,566508 | 68,58507695 | 2,572536583 | 26,79714461 | 19,73323822 | -2,52060128 | 5,179023526 | 0 |
| 170 | 68,53503474 | 68,52144241 | 477,4749838 | 524,2169538 | 1048,484777 | 68,51667358 | 2,572534547 | 26,82357872 | 19,75464821 | -2,49880652 | 5,184114262 | 0 |
| 171 | 68,46663661 | 68,4530319 | 476,9316269 | 524,1756376 | 1048,404109 | 68,44825837 | 2,57253627 | 26,85009787 | 19,77610588 | -2,47698442 | 5,189221316 | 0 |
| 172 | 68,39822658 | 68,38460942 | 476,3883121 | 524,1348497 | 1048,324501 | 68,37983116 | 2,572541741 | 26,87670226 | 19,79761124 | -2,45513492 | 5,194344736 | 0 |
| 173 | 68,32980454 | 68,31617489 | 475,8450388 | 524,0945914 | 1048,241364 | 68,31139201 | 2,572535175 | 26,90327393 | 19,81906891 | -2,43326467 | 5,199461803 | 0 |
| 174 | 68,26137059 | 68,24772846 | 475,3018081 | 524,0537017 | 1048,161573 | 68,24294077 | 2,572540223 | 26,92999014 | 19,84062195 | -2,41136375 | 5,204606654 | 0 |
| 175 | 68,19292468 | 68,17926999 | 474,7586196 | 524,0122166 | 1048,080539 | 68,17447755 | 2,5725411 | 26,95673289 | 19,86217499 | -2,3894388 | 5,209756557 | 0 |
| 176 | 68,12446672 | 68,1107995 | 474,2154731 | 523,972507 | 1047,998263 | 68,10600227 | 2,572537802 | 26,98350219 | 19,88372803 | -2,36748981 | 5,214911531 | 0 |
| 177 | 68,05599678 | 68,04231696 | 473,6723688 | 523,9320435 | 1047,917032 | 68,03751507 | 2,572538202 | 27,01035738 | 19,90532875 | -2,34551356 | 5,220082981 | 0 |
| 178 | 67,98751477 | 67,9738223 | 473,1293064 | 523,8909814 | 1047,834548 | 67,96901563 | 2,572534394 | 27,0372393 | 19,92692947 | -2,32351325 | 5,225259525 | 0 |
| 179 | 67,91902073 | 67,90531561 | 472,5862865 | 523,8491546 | 1047,753108 | 67,90050422 | 2,572534276 | 27,06420741 | 19,94857788 | -2,3014857 | 5,230452618 | 0 |
| 180 | 67,85051461 | 67,83679684 | 472,0433089 | 523,8092327 | 1047,672701 | 67,83198062 | 2,572537817 | 27,09126191 | 19,97027397 | -2,27943085 | 5,235662284 | 0 |
| 181 | 67,78199637 | 67,7682659 | 471,5003732 | 523,7685661 | 1047,591038 | 67,76344489 | 2,572537139 | 27,11834345 | 19,99197006 | -2,25735204 | 5,240877118 | 0 |
| 182 | 67,71346604 | 67,69972288 | 470,9574801 | 523,7272708 | 1047,510402 | 67,69489697 | 2,572540096 | 27,14551167 | 20,01371384 | -2,23524597 | 5,246108574 | 0 |
| 183 | 67,64492357 | 67,63116765 | 470,4146291 | 523,6864902 | 1047,428504 | 67,62633691 | 2,572538808 | 27,17270712 | 20,03545761 | -2,21311597 | 5,251345222 | 0 |
| 184 | 67,57636895 | 67,56260024 | 469,8718203 | 523,6463309 | 1047,34534 | 67,55776476 | 2,572533262 | 27,1999298 | 20,05720139 | -2,19096209 | 5,256587056 | 0 |
| 185 | 67,50780217 | 67,49402065 | 469,329054 | 523,6054272 | 1047,265486 | 67,48918028 | 2,572539216 | 27,22729934 | 20,07904053 | -2,16877766 | 5,261857111 | 0 |
| 186 | 67,43922319 | 67,42542881 | 468,7863298 | 523,5637689 | 1047,18436 | 67,42058359 | 2,572540889 | 27,25469642 | 20,10087967 | -2,14656933 | 5,267132413 | 0 |
| 187 | 67,37063199 | 67,35682474 | 468,2436479 | 523,5227371 | 1047,101961 | 67,35197472 | 2,572538279 | 27,28212106 | 20,12271881 | -2,12433714 | 5,272412974 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 188 | 67,30202856 | 67,2882084 | 467,7010083 | 523,4823298 | 1047,020572 | 67,28335347 | 2,572539246 | 27,30963327 | 20,14460564 | -2,10207775 | 5,277710334 | 0 |
| 189 | 67,23341291 | 67,21957985 | 467,1584114 | 523,4411549 | 1046,937901 | 67,21471997 | 2,572535902 | 27,33717322 | 20,16649246 | -2,07979452 | 5,283012976 | 0 |
| 190 | 67,16478498 | 67,15093896 | 466,6158567 | 523,4004927 | 1046,856238 | 67,14607419 | 2,572536127 | 27,36480104 | 20,18842697 | -2,05748415 | 5,288332484 | 0 |
| 191 | 67,09614478 | 67,08228579 | 466,0733445 | 523,3591889 | 1046,773289 | 67,07741619 | 2,572532022 | 27,39245678 | 20,21036148 | -2,03514998 | 5,293657305 | 0 |
| 192 | 67,02749228 | 67,01362022 | 465,5308745 | 523,3183847 | 1046,693628 | 67,0087456 | 2,572539343 | 27,42026089 | 20,23239136 | -2,0127853 | 5,299010645 | 0 |
| 193 | 66,95882742 | 66,94494235 | 464,9884469 | 523,2769352 | 1046,610387 | 66,94006291 | 2,572534429 | 27,44803296 | 20,25437355 | -1,99040022 | 5,304357749 | 0 |
| 194 | 66,89015024 | 66,8762521 | 464,4460619 | 523,2359822 | 1046,530425 | 66,87136768 | 2,572540916 | 27,47595382 | 20,27645111 | -1,96798469 | 5,309733438 | 0 |
| 195 | 66,82146068 | 66,80754942 | 463,903719 | 523,1956228 | 1046,446877 | 66,80266004 | 2,572535144 | 27,50384268 | 20,29848099 | -1,94554869 | 5,315102914 | 0 |
| 196 | 66,75275872 | 66,73883433 | 463,3614186 | 523,1544091 | 1046,366606 | 66,73394 | 2,572540762 | 27,53188077 | 20,32060623 | -1,92308231 | 5,320501062 | 0 |
| 197 | 66,68404435 | 66,67010685 | 462,8191607 | 523,1138903 | 1046,285029 | 66,66520753 | 2,572541984 | 27,55994744 | 20,34273148 | -1,90059219 | 5,325904651 | 0 |
| 198 | 66,61531759 | 66,60136686 | 462,2769452 | 523,0726222 | 1046,202145 | 66,59646259 | 2,572538796 | 27,58804272 | 20,36485672 | -1,87807834 | 5,331313688 | 0 |
| 199 | 66,54657838 | 66,53261442 | 461,7347722 | 523,0306041 | 1046,120241 | 66,52770519 | 2,572539085 | 27,61622729 | 20,38702965 | -1,85553747 | 5,336739863 | 0 |
| 200 | 66,4778267 | 66,46384951 | 461,1926416 | 522,9904066 | 1046,03702 | 66,4589352 | 2,572534934 | 27,64444065 | 20,40920258 | -1,83297286 | 5,34217151 | 0 |
| 201 | 66,40906257 | 66,39507211 | 460,6505538 | 522,9495584 | 1045,954774 | 66,39015278 | 2,572534239 | 27,6727436 | 20,43142319 | -1,81038128 | 5,34762035 | 0 |
| 202 | 66,34028596 | 66,32628215 | 460,1085085 | 522,9078492 | 1045,873494 | 66,32135779 | 2,572536976 | 27,70113636 | 20,45369148 | -1,7877627 | 5,353086414 | 0 |
| 203 | 66,27149682 | 66,25747968 | 459,5665057 | 522,8667168 | 1045,790893 | 66,25255034 | 2,572535256 | 27,72955825 | 20,47595978 | -1,76512048 | 5,358558023 | 0 |
| 204 | 66,20269514 | 66,18866467 | 459,0245456 | 522,826169 | 1045,709256 | 66,18373032 | 2,572536958 | 27,75807026 | 20,49827576 | -1,74245131 | 5,364046928 | 0 |
| 205 | 66,13388092 | 66,11983707 | 458,4826281 | 522,7848621 | 1045,626289 | 66,11489761 | 2,572534171 | 27,78661158 | 20,52059174 | -1,71975847 | 5,369541414 | 0 |
| 206 | 66,06505415 | 66,05099679 | 457,940753 | 522,744025 | 1045,544276 | 66,04605228 | 2,572534773 | 27,81524332 | 20,5429554 | -1,69703869 | 5,37505324 | 0 |
| 207 | 65,99621476 | 65,98214397 | 457,3989206 | 522,7025273 | 1045,463216 | 65,97719431 | 2,572538757 | 27,84396572 | 20,56536674 | -1,67429199 | 5,380582453 | 0 |
| 208 | 65,92736274 | 65,91327845 | 456,8571305 | 522,6615053 | 1045,380817 | 65,90832369 | 2,572538222 | 27,87271777 | 20,58777809 | -1,6515217 | 5,386117309 | 0 |
| 209 | 65,85849811 | 65,84440033 | 456,3153835 | 522,6198134 | 1045,299369 | 65,83944054 | 2,572541064 | 27,90156078 | 20,61023712 | -1,62872455 | 5,391669625 | 0 |
| 210 | 65,78962084 | 65,77550951 | 455,7736789 | 522,578593 | 1045,214285 | 65,77054457 | 2,572531463 | 27,93037231 | 20,63264847 | -1,60590712 | 5,397215801 | 0 |
| 211 | 65,72073095 | 65,70660602 | 455,2320173 | 522,5379285 | 1045,13243 | 65,70163599 | 2,572533095 | 27,95933638 | 20,65515518 | -1,58305954 | 5,402791281 | 0 |
| 212 | 65,65182834 | 65,63768981 | 454,6903982 | 522,4964142 | 1045,051511 | 65,63271461 | 2,572538054 | 27,98839195 | 20,67770958 | -1,56018507 | 5,408384318 | 0 |
| 213 | 65,58291304 | 65,56876084 | 454,1488218 | 522,4543193 | 1044,969238 | 65,56378052 | 2,57253844 | 28,01747771 | 20,70026398 | -1,5372871 | 5,413983095 | 0 |
| 214 | 65,51398502 | 65,49981918 | 453,6072883 | 522,4139023 | 1044,887894 | 65,49483365 | 2,572542126 | 28,04665528 | 20,72286606 | -1,5143623 | 5,419599479 | 0 |
| 215 | 65,44504425 | 65,4308647 | 453,0657972 | 522,3727297 | 1044,805191 | 65,425874 | 2,572541221 | 28,07586324 | 20,74546814 | -1,49141401 | 5,425221651 | 0 |
| 216 | 65,37609076 | 65,36189743 | 452,5243491 | 522,3308774 | 1044,721127 | 65,35690162 | 2,572535714 | 28,10510162 | 20,76807022 | -1,46844226 | 5,430849611 | 0 |
| 217 | 65,30712449 | 65,2929174 | 451,9829439 | 522,289485 | 1044,640267 | 65,28791632 | 2,57254136 | 28,13449401 | 20,79076767 | -1,44544038 | 5,436507154 | 0 |
| 218 | 65,23814539 | 65,22392449 | 451,4415812 | 522,248545 | 1044,55575 | 65,21891818 | 2,572534483 | 28,16385529 | 20,81341743 | -1,42241837 | 5,44215863 | 0 |
| 219 | 65,16915352 | 65,1549188 | 450,9002616 | 522,206927 | 1044,474433 | 65,14990726 | 2,572538746 | 28,19337103 | 20,83616257 | -1,39936631 | 5,447839775 | 0 |
| 220 | 65,1001488 | 65,08590015 | 450,3589844 | 522,1658412 | 1044,391743 | 65,08088343 | 2,572538362 | 28,22291771 | 20,8589077 | -1,37629082 | 5,453526817 | 0 |
| 221 | 65,0311312 | 65,01686868 | 449,8177502 | 522,1239092 | 1044,307672 | 65,01184668 | 2,57253331 | 28,25249535 | 20,88165283 | -1,35319193 | 5,459219744 | 0 |
| 222 | 64,96210076 | 64,94782431 | 449,2765589 | 522,0825081 | 1044,224505 | 64,9427971 | 2,572531472 | 28,28216609 | 20,90444565 | -1,33006634 | 5,464930521 | 0 |
| 223 | 64,89305745 | 64,87876702 | 448,7354105 | 522,0416289 | 1044,14452 | 64,87373452 | 2,572540718 | 28,31199234 | 20,92733383 | -1,3069107 | 5,470671161 | 0 |
| 224 | 64,82400117 | 64,80969675 | 448,1943045 | 521,9999869 | 1044,060863 | 64,804659 | 2,572537381 | 28,3417878 | 20,95017433 | -1,28373505 | 5,476405807 | 0 |
| 225 | 64,75493198 | 64,74061353 | 447,6532416 | 521,9587845 | 1043,978096 | 64,73557044 | 2,57253721 | 28,37167693 | 20,97306252 | -1,2605327 | 5,482158401 | 0 |
| 226 | 64,68584987 | 64,67151733 | 447,1122215 | 521,9168894 | 1043,896222 | 64,66646897 | 2,572540219 | 28,40165994 | 20,99599838 | -1,23730371 | 5,487929014 | 0 |
| 227 | 64,61675476 | 64,60240819 | 446,5712445 | 521,8754349 | 1043,812946 | 64,59735446 | 2,572538481 | 28,43167463 | 21,01893425 | -1,21405141 | 5,493705634 | 0 |
| 228 | 64,54764669 | 64,53328597 | 446,0303102 | 521,83442 | 1043,728273 | 64,52822693 | 2,572532011 | 28,46172105 | 21,04187012 | -1,19077581 | 5,49948831 | 0 |
| 229 | 64,47852565 | 64,46415078 | 445,4894191 | 521,7927089 | 1043,646758 | 64,45908635 | 2,572536545 | 28,49192435 | 21,06490135 | -1,16747027 | 5,505301092 | 0 |
| 230 | 64,40939157 | 64,39500245 | 444,9485706 | 521,751502 | 1043,563836 | 64,38993268 | 2,572536313 | 28,5221597 | 21,08793259 | -1,14414145 | 5,511119978 | 0 |
| 231 | 64,34024443 | 64,3258411 | 444,4077652 | 521,7094539 | 1043,481787 | 64,32076607 | 2,572539191 | 28,55248983 | 21,11101151 | -1,12078609 | 5,51695703 | 0 |
| 232 | 64,27108425 | 64,25666667 | 443,8670028 | 521,6679044 | 1043,398321 | 64,25158613 | 2,572537268 | 28,58285222 | 21,13409042 | -1,09740742 | 5,522800223 | 0 |
| 233 | 64,20191099 | 64,1874791 | 443,3262832 | 521,6268587 | 1043,315723 | 64,18239326 | 2,57253844 | 28,61330973 | 21,15721703 | -1,07400226 | 5,528661655 | 0 |
| 234 | 64,13272464 | 64,11827844 | 442,7856069 | 521,5850341 | 1043,231703 | 64,11318721 | 2,572534787 | 28,64379969 | 21,18034363 | -1,05057388 | 5,534529252 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 235 | 64,06352521 | 64,04906465 | 442,2449736 | 521,5437039 | 1043,148537 | 64,04396794 | 2,572534182 | 28,67438511 | 21,20351791 | -1,02711896 | 5,540415136 | 0 |
| 236 | 63,99431265 | 63,97983766 | 441,7043833 | 521,501534 | 1043,066229 | 63,97473554 | 2,572536636 | 28,70506622 | 21,22673988 | -1,00363753 | 5,546319381 | 0 |
| 237 | 63,92508691 | 63,91059751 | 441,1638359 | 521,4610464 | 1042,982486 | 63,90548989 | 2,572534221 | 28,73578016 | 21,24996185 | -0,98013294 | 5,552229852 | 0 |
| 238 | 63,85584801 | 63,84134419 | 440,6233317 | 521,4185904 | 1042,899592 | 63,83623115 | 2,572534835 | 28,76659014 | 21,27323151 | -0,9566019 | 5,558158732 | 0 |
| 239 | 63,78659597 | 63,77207761 | 440,0828706 | 521,3766156 | 1042,81754 | 63,76695906 | 2,572538455 | 28,79749638 | 21,29654884 | -0,93304435 | 5,56410607 | 0 |
| 240 | 63,71733073 | 63,70279784 | 439,5424528 | 521,3351139 | 1042,734048 | 63,69767384 | 2,572537189 | 28,82843583 | 21,31986618 | -0,90946374 | 5,570059719 | 0 |
| 241 | 63,64805223 | 63,63350475 | 439,0020777 | 521,2939747 | 1042,651393 | 63,62837535 | 2,572538908 | 28,85947189 | 21,3432312 | -0,88585669 | 5,576031886 | 0 |
| 242 | 63,57876047 | 63,56419841 | 438,4617457 | 521,2521133 | 1042,567285 | 63,55906339 | 2,572535697 | 28,89054136 | 21,36659622 | -0,8622265 | 5,582010401 | 0 |
| 243 | 63,50945554 | 63,49487883 | 437,9214573 | 521,2095273 | 1042,484012 | 63,4897384 | 2,572535466 | 28,9217078 | 21,39000893 | -0,83856998 | 5,588007508 | 0 |
| 244 | 63,44013726 | 63,42554592 | 437,3812117 | 521,1684919 | 1042,401558 | 63,42039986 | 2,572538161 | 28,95297143 | 21,41346931 | -0,81488701 | 5,59402323 | 0 |
| 245 | 63,37080572 | 63,35619968 | 436,8410094 | 521,1267262 | 1042,317651 | 63,35104819 | 2,572535919 | 28,98426886 | 21,4369297 | -0,79118107 | 5,600045386 | 0 |
| 246 | 63,30146087 | 63,28684001 | 436,30085 | 521,0854245 | 1042,234554 | 63,28168287 | 2,572536572 | 29,01566383 | 21,46043777 | -0,76744868 | 5,606086217 | 0 |
| 247 | 63,23210266 | 63,21746705 | 435,760734 | 521,0432846 | 1042,152274 | 63,21230433 | 2,572540148 | 29,0471566 | 21,48399353 | -0,74369 | 5,612145799 | 0 |
| 248 | 63,16273112 | 63,1480807 | 435,2206611 | 521,0016538 | 1042,068528 | 63,14291245 | 2,572538741 | 29,07868355 | 21,50754929 | -0,71990834 | 5,618211886 | 0 |
| 249 | 63,09334623 | 63,07868093 | 434,6806315 | 520,9591889 | 1041,983307 | 63,07350708 | 2,57253232 | 29,11024471 | 21,53110504 | -0,6961037 | 5,624284466 | 0 |
| 250 | 63,02394794 | 63,00926778 | 434,1406452 | 520,9184082 | 1041,901167 | 63,00408826 | 2,572536652 | 29,14196812 | 21,55475616 | -0,67226941 | 5,630388186 | 0 |
| 251 | 62,95453624 | 62,93984116 | 433,600702 | 520,8767904 | 1041,817547 | 62,93465603 | 2,572535955 | 29,1737261 | 21,57840729 | -0,64841219 | 5,636498473 | 0 |
| 252 | 62,88511112 | 62,87040107 | 433,060802 | 520,8344352 | 1041,734725 | 62,86521039 | 2,572538114 | 29,20558282 | 21,60210609 | -0,62452872 | 5,642627691 | 0 |
| 253 | 62,81567255 | 62,80094758 | 432,5209455 | 520,7924283 | 1041,650413 | 62,79575113 | 2,572535205 | 29,23747433 | 21,6258049 | -0,60062231 | 5,648763513 | 0 |
| 254 | 62,74622053 | 62,73148052 | 431,981132 | 520,7508624 | 1041,566891 | 62,72627852 | 2,572535118 | 29,26946494 | 21,64955139 | -0,57668971 | 5,654918315 | 0 |
| 255 | 62,67675502 | 62,66199992 | 431,4413617 | 520,7097303 | 1041,484148 | 62,65679215 | 2,572537822 | 29,30155489 | 21,67334557 | -0,55273082 | 5,661092147 | 0 |
| 256 | 62,60727608 | 62,59250589 | 430,9016353 | 520,6666692 | 1041,399912 | 62,58729241 | 2,57253545 | 29,33368002 | 21,69713974 | -0,52874912 | 5,667272678 | 0 |
| 257 | 62,5377836 | 62,52299826 | 430,361952 | 520,6251361 | 1041,316452 | 62,51777915 | 2,572535851 | 29,36590486 | 21,7209816 | -0,50474124 | 5,6734723 | 0 |
| 258 | 62,4682776 | 62,45347712 | 429,8223122 | 520,5828507 | 1041,231486 | 62,44825228 | 2,57253113 | 29,3981651 | 21,74482346 | -0,48071055 | 5,679678646 | 0 |
| 259 | 62,39875805 | 62,3839423 | 429,2827153 | 520,5421244 | 1041,149564 | 62,37871169 | 2,572537038 | 29,43059004 | 21,76876068 | -0,45665029 | 5,685916594 | 0 |
| 260 | 62,32922492 | 62,31439391 | 428,743162 | 520,4994684 | 1041,066131 | 62,30915758 | 2,572537806 | 29,46305074 | 21,79269791 | -0,43256728 | 5,69216134 | 0 |
| 261 | 62,25967815 | 62,24483188 | 428,2036517 | 520,4583274 | 1040,981182 | 62,23958976 | 2,572533414 | 29,49554724 | 21,81663513 | -0,40846147 | 5,698412895 | 0 |
| 262 | 62,19011782 | 62,17525624 | 427,6641851 | 520,4152598 | 1040,899266 | 62,1700084 | 2,572539617 | 29,52820926 | 21,84066772 | -0,38432623 | 5,704696198 | 0 |
| 263 | 62,12054386 | 62,10566697 | 427,124762 | 520,373774 | 1040,815826 | 62,10041334 | 2,572540631 | 29,56090746 | 21,86470032 | -0,36016824 | 5,710986371 | 0 |
| 264 | 62,0509563 | 62,03606397 | 426,5853822 | 520,3314901 | 1040,730861 | 62,03080447 | 2,572536449 | 29,59364186 | 21,88873291 | -0,33598749 | 5,717283439 | 0 |
| 265 | 61,98135505 | 61,96644729 | 426,0460459 | 520,2895799 | 1040,646638 | 61,961182 | 2,572534931 | 29,62647757 | 21,91281319 | -0,31178072 | 5,723599889 | 0 |
| 266 | 61,91174015 | 61,8968169 | 425,506753 | 520,2468738 | 1040,563162 | 61,89154589 | 2,572536085 | 29,65941484 | 21,93694115 | -0,28754792 | 5,729935806 | 0 |
| 267 | 61,84211152 | 61,82717279 | 424,9675035 | 520,2057338 | 1040,480417 | 61,82189585 | 2,572539869 | 29,69245393 | 21,96111679 | -0,26328903 | 5,736291215 | 0 |
| 268 | 61,77246919 | 61,75751485 | 424,4282972 | 520,1638221 | 1040,396129 | 61,75223205 | 2,572538391 | 29,72552982 | 21,98529243 | -0,23900749 | 5,742653603 | 0 |
| 269 | 61,70281309 | 61,68784321 | 423,8891345 | 520,1222452 | 1040,310301 | 61,68255461 | 2,572531664 | 29,75864256 | 22,00946808 | -0,21470335 | 5,749023008 | 0 |
| 270 | 61,6331433 | 61,61815775 | 423,3500154 | 520,0798937 | 1040,227467 | 61,61286317 | 2,572535403 | 29,79192303 | 22,03373909 | -0,19036981 | 5,755424573 | 0 |
| 271 | 61,56345972 | 61,54845858 | 422,81094 | 520,0367436 | 1040,143084 | 61,54315807 | 2,572533861 | 29,82524072 | 22,0580101 | -0,16601372 | 5,761833217 | 0 |
| 272 | 61,49376241 | 61,47874555 | 422,2719082 | 519,9951389 | 1040,059418 | 61,47343918 | 2,572534895 | 29,85866123 | 22,0823288 | -0,14163169 | 5,768261546 | 0 |
| 273 | 61,42405129 | 61,40901872 | 421,7329202 | 519,9527298 | 1039,976465 | 61,40370644 | 2,572538487 | 29,89218483 | 22,10669518 | -0,11722372 | 5,774709609 | 0 |
| 274 | 61,35432631 | 61,3392779 | 421,1939749 | 519,9118338 | 1039,891944 | 61,33395965 | 2,572536732 | 29,92574608 | 22,13106155 | -0,09279314 | 5,781164823 | 0 |
| 275 | 61,28458752 | 61,26952328 | 420,6550736 | 519,8689955 | 1039,80813 | 61,26419911 | 2,572537518 | 29,95941079 | 22,15547562 | -0,06833672 | 5,787639845 | 0 |
| 276 | 61,21483481 | 61,19975474 | 420,1162156 | 519,8276418 | 1039,722744 | 61,19442459 | 2,572532939 | 29,99311337 | 22,17988968 | -0,04385774 | 5,794122065 | 0 |
| 277 | 61,14506828 | 61,12997232 | 419,5774015 | 519,7843497 | 1039,640325 | 61,12463615 | 2,572538738 | 30,02698574 | 22,20439911 | -0,01934954 | 5,800636835 | 0 |
| 278 | 61,07528786 | 61,06017595 | 419,0386309 | 519,7425747 | 1039,556328 | 61,05483381 | 2,572539153 | 30,06089636 | 22,22890854 | 0,005181134 | 5,807158877 | 0 |
| 279 | 61,00549351 | 60,9903656 | 418,4999037 | 519,6999747 | 1039,470746 | 60,98501743 | 2,572534156 | 30,09484528 | 22,25341797 | 0,029734302 | 5,813688191 | 0 |
| 280 | 60,9356852 | 60,92054135 | 417,9612203 | 519,658902 | 1039,388122 | 60,9151871 | 2,572539507 | 30,12896485 | 22,27802277 | 0,054316646 | 5,820250238 | 0 |
| 281 | 60,86586299 | 60,85070307 | 417,4225804 | 519,6158498 | 1039,303904 | 60,84534281 | 2,572539417 | 30,16312312 | 22,30262756 | 0,078921408 | 5,826819617 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 282 | 60,7960268 | 60,78085076 | 416,8839842 | 519,5743016 | 1039,218089 | 60,77548442 | 2,572533876 | 30,1973201 | 22,32723236 | 0,10354861 | 5,833396353 | 0 |
| 283 | 60,72617667 | 60,71098451 | 416,345432 | 519,5307911 | 1039,135221 | 60,70561217 | 2,572538643 | 30,23168863 | 22,35193253 | 0,128204892 | 5,84000598 | 0 |
| 284 | 60,65631251 | 60,64110416 | 415,8069231 | 519,4887647 | 1039,050745 | 60,63572564 | 2,572537919 | 30,26609628 | 22,37663269 | 0,152883633 | 5,846623036 | 0 |
| 285 | 60,5864343 | 60,57120972 | 415,2684576 | 519,4470699 | 1038,964663 | 60,56582519 | 2,57253171 | 30,30054309 | 22,40133286 | 0,17758468 | 5,853247523 | 0 |
| 286 | 60,51654213 | 60,50130132 | 414,7300366 | 519,404581 | 1038,881513 | 60,49591063 | 2,572535761 | 30,33516233 | 22,42612839 | 0,202314831 | 5,859905082 | 0 |
| 287 | 60,44663589 | 60,43137878 | 414,1916591 | 519,3624088 | 1038,796747 | 60,42598199 | 2,572534288 | 30,36982112 | 22,45092392 | 0,227067296 | 5,866570144 | 0 |
| 288 | 60,3767156 | 60,36144213 | 413,6533254 | 519,3205698 | 1038,712628 | 60,35603919 | 2,572535151 | 30,40458627 | 22,47576714 | 0,251845453 | 5,873255549 | 0 |
| 289 | 60,30678116 | 60,29149134 | 413,1150351 | 519,2779021 | 1038,629157 | 60,2860822 | 2,572538346 | 30,43945807 | 22,50065804 | 0,276649295 | 5,87996137 | 0 |
| 290 | 60,23683264 | 60,22152641 | 412,5767887 | 519,2355665 | 1038,54406 | 60,21611113 | 2,572535984 | 30,47436986 | 22,52554893 | 0,301475384 | 5,886674791 | 0 |
| 291 | 60,16687001 | 60,15154724 | 412,0385858 | 519,1935552 | 1038,459593 | 60,14612564 | 2,572535898 | 30,50938869 | 22,55048752 | 0,326327179 | 5,893408676 | 0 |
| 292 | 60,09689319 | 60,08155396 | 411,5004268 | 519,1507144 | 1038,375768 | 60,07612624 | 2,572538124 | 30,54451483 | 22,57547379 | 0,351204498 | 5,90016311 | 0 |
| 293 | 60,02690226 | 60,01154644 | 410,9623115 | 519,1081958 | 1038,290296 | 60,00611242 | 2,572534717 | 30,57968142 | 22,60046005 | 0,376104102 | 5,906925206 | 0 |
| 294 | 59,95689712 | 59,94152477 | 410,4242403 | 519,0671268 | 1038,207721 | 59,93608454 | 2,572541456 | 30,61502294 | 22,62554169 | 0,401032608 | 5,913720836 | 0 |
| 295 | 59,88687779 | 59,87148879 | 409,8862126 | 519,0240939 | 1038,123496 | 59,8660423 | 2,572542552 | 30,65040531 | 22,65062332 | 0,425983335 | 5,920524225 | 0 |
| 296 | 59,81684426 | 59,80143861 | 409,348229 | 518,9813708 | 1038,03762 | 59,79598592 | 2,572537999 | 30,68582858 | 22,67570496 | 0,450956186 | 5,927335372 | 0 |
| 297 | 59,74679654 | 59,73137413 | 408,8102892 | 518,9389543 | 1037,952354 | 59,72591506 | 2,572535647 | 30,72136024 | 22,70083427 | 0,475954626 | 5,934167263 | 0 |
| 298 | 59,67673456 | 59,66129538 | 408,2723933 | 518,8968404 | 1037,867695 | 59,65583001 | 2,572535489 | 30,75700059 | 22,72601128 | 0,500978537 | 5,941019935 | 0 |
| 299 | 59,60665831 | 59,59120237 | 407,7345414 | 518,8538966 | 1037,78364 | 59,58573065 | 2,572537516 | 30,79274991 | 22,75123596 | 0,526027939 | 5,947893459 | 0 |
| 300 | 59,53656772 | 59,5210949 | 407,1967328 | 518,8123842 | 1037,700179 | 59,5156168 | 2,572541691 | 30,82860847 | 22,77650833 | 0,551102866 | 5,954787874 | 0 |
| 301 | 59,46646278 | 59,45097307 | 406,6589677 | 518,7700354 | 1037,615048 | 59,44548878 | 2,572540149 | 30,86450879 | 22,8017807 | 0,576199806 | 5,961690218 | 0 |
| 302 | 59,39634357 | 59,38083698 | 406,1212471 | 518,7268497 | 1037,528233 | 59,37534619 | 2,572532839 | 30,90045091 | 22,82705307 | 0,60131886 | 5,968600477 | 0 |
| 303 | 59,32621007 | 59,31068648 | 405,5835705 | 518,6850815 | 1037,444276 | 59,30518941 | 2,572535544 | 30,93657076 | 22,85242081 | 0,626466659 | 5,975544807 | 0 |
| 304 | 59,25606222 | 59,24052163 | 405,0459379 | 518,6424783 | 1037,358628 | 59,23501809 | 2,572532458 | 30,97273283 | 22,87778854 | 0,651636513 | 5,982497138 | 0 |
| 305 | 59,18590002 | 59,17034237 | 404,5083494 | 518,5990395 | 1037,275829 | 59,16483246 | 2,572539354 | 31,00907336 | 22,90325165 | 0,676835108 | 5,989483686 | 0 |
| 306 | 59,11572342 | 59,1001487 | 403,9708049 | 518,557002 | 1037,191329 | 59,09463225 | 2,572540425 | 31,04545652 | 22,92871475 | 0,702055726 | 5,996478307 | 0 |
| 307 | 59,04553241 | 59,02994051 | 403,4333041 | 518,5141359 | 1037,105129 | 59,02441771 | 2,572535671 | 31,08188238 | 22,95417786 | 0,727298261 | 6,003481016 | 0 |
| 308 | 58,97532697 | 58,95971789 | 402,8958474 | 518,4726476 | 1037,021758 | 58,95418858 | 2,572540834 | 31,11848764 | 22,97973633 | 0,752569552 | 6,010518111 | 0 |
| 309 | 58,9051071 | 58,88948078 | 402,3584347 | 518,4292103 | 1036,936676 | 58,88394492 | 2,572540134 | 31,15513601 | 23,0052948 | 0,777862781 | 6,017563377 | 0 |
| 310 | 58,83487276 | 58,81922913 | 401,8210658 | 518,3871554 | 1036,849884 | 58,81368679 | 2,57253357 | 31,19182754 | 23,03085327 | 0,803177904 | 6,02461684 | 0 |
| 311 | 58,76462393 | 58,74896301 | 401,283741 | 518,3442713 | 1036,765905 | 58,74341415 | 2,57253687 | 31,22869943 | 23,05650711 | 0,828521681 | 6,031704847 | 0 |
| 312 | 58,69436064 | 58,67868235 | 400,7464604 | 518,3016299 | 1036,680205 | 58,67312705 | 2,572534271 | 31,26561491 | 23,08216095 | 0,853887299 | 6,038801123 | 0 |
| 313 | 58,62408284 | 58,60838708 | 400,2092236 | 518,2592741 | 1036,597305 | 58,60282519 | 2,572541492 | 31,3027115 | 23,10791016 | 0,879281614 | 6,045932089 | 0 |
| 314 | 58,55379043 | 58,53807725 | 399,6720306 | 518,2160686 | 1036,510412 | 58,53250883 | 2,572534905 | 31,33978329 | 23,13361168 | 0,904694339 | 6,053058181 | 0 |
| 315 | 58,48348351 | 58,46775278 | 399,1348817 | 518,1742259 | 1036,42631 | 58,4621777 | 2,572538113 | 31,37703679 | 23,15940857 | 0,930135721 | 6,060219084 | 0 |
| 316 | 58,41316208 | 58,39741381 | 398,5977773 | 518,1304023 | 1036,340473 | 58,39183224 | 2,572535365 | 31,41433456 | 23,18520546 | 0,955598793 | 6,067388379 | 0 |
| 317 | 58,34282605 | 58,32706018 | 398,0607169 | 518,0879695 | 1036,257414 | 58,32147187 | 2,572542367 | 31,45181481 | 23,21109772 | 0,981090519 | 6,074592619 | 0 |
| 318 | 58,2724754 | 58,25669187 | 397,5237004 | 518,0457725 | 1036,170347 | 58,251097 | 2,572535502 | 31,48927062 | 23,23694229 | 1,006600556 | 6,081792057 | 0 |
| 319 | 58,20211015 | 58,18630895 | 396,9867282 | 518,0027451 | 1036,086053 | 58,18070737 | 2,572538371 | 31,5269095 | 23,26288223 | 1,032139145 | 6,089026563 | 0 |
| 320 | 58,13173029 | 58,11591131 | 396,4498001 | 517,9599475 | 1035,999998 | 58,1103031 | 2,572535196 | 31,56459337 | 23,28882217 | 1,057699433 | 6,09626958 | 0 |
| 321 | 58,06133577 | 58,04549907 | 395,9129165 | 517,9173774 | 1035,916711 | 58,03988409 | 2,572541732 | 31,60246108 | 23,31485748 | 1,083288223 | 6,103547824 | 0 |
| 322 | 57,99092658 | 57,97507204 | 395,3760767 | 517,875079 | 1035,831655 | 57,96945036 | 2,572542197 | 31,64037422 | 23,34089279 | 1,108898693 | 6,110834677 | 0 |
| 323 | 57,92050269 | 57,9046303 | 394,839281 | 517,8329993 | 1035,744828 | 57,899002 | 2,572536576 | 31,67833283 | 23,3669281 | 1,134530778 | 6,118130139 | 0 |
| 324 | 57,85006414 | 57,83417378 | 394,3025296 | 517,7889567 | 1035,660749 | 57,82853872 | 2,572540604 | 31,71647629 | 23,39305878 | 1,160191354 | 6,125461009 | 0 |
| 325 | 57,77961088 | 57,76370256 | 393,7658226 | 517,7462312 | 1035,574888 | 57,75806069 | 2,572538508 | 31,75466567 | 23,41918945 | 1,18587354 | 6,132800574 | 0 |
| 326 | 57,70914282 | 57,69321647 | 393,2291594 | 517,7038008 | 1035,489503 | 57,68756789 | 2,572538154 | 31,79297084 | 23,44536781 | 1,211580717 | 6,140162269 | 0 |
| 327 | 57,6386601 | 57,62271573 | 392,6925412 | 517,6604159 | 1035,402329 | 57,61706028 | 2,572531646 | 31,83132223 | 23,47154617 | 1,237309475 | 6,14753272 | 0 |
| 328 | 57,56816261 | 57,55220009 | 392,1559669 | 517,6184249 | 1035,320148 | 57,54653788 | 2,57254261 | 31,86992982 | 23,49786758 | 1,263069986 | 6,154952294 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 329 | 57,49765024 | 57,48166957 | 391,6194363 | 517,5755377 | 1035,231637 | 57,47600053 | 2,57253161 | 31,90844411 | 23,52409363 | 1,288845263 | 6,162353788 | 0 |
| 330 | 57,42712312 | 57,41112423 | 391,0829504 | 517,5328765 | 1035,14811 | 57,40544836 | 2,572538047 | 31,9472154 | 23,55046272 | 1,314652254 | 6,169804552 | 0 |
| 331 | 57,35658116 | 57,340564 | 390,5465086 | 517,4893143 | 1035,062771 | 57,33488126 | 2,572538258 | 31,9860338 | 23,57683182 | 1,340480765 | 6,177264242 | 0 |
| 332 | 57,28602436 | 57,26998893 | 390,0101111 | 517,4471018 | 1034,97788 | 57,26429929 | 2,572540106 | 32,02496969 | 23,6032486 | 1,366334153 | 6,184746377 | 0 |
| 333 | 57,21545271 | 57,19939889 | 389,4737578 | 517,4039847 | 1034,891171 | 57,19370244 | 2,572535703 | 32,06395298 | 23,62966537 | 1,392208994 | 6,1922375 | 0 |
| 334 | 57,14486619 | 57,12879397 | 388,9374489 | 517,3621381 | 1034,807157 | 57,12309057 | 2,572540766 | 32,10312471 | 23,65617752 | 1,418112111 | 6,199764687 | 0 |
| 335 | 57,07426479 | 57,05817411 | 388,4011844 | 517,3183627 | 1034,721314 | 57,05246373 | 2,572539539 | 32,1423443 | 23,68268967 | 1,444036659 | 6,207300946 | 0 |
| 336 | 57,00364846 | 56,98753927 | 387,8649641 | 517,2758532 | 1034,633637 | 56,98182198 | 2,572532003 | 32,1816118 | 23,70920181 | 1,469982587 | 6,214846276 | 0 |
| 337 | 56,93301724 | 56,91688953 | 387,3287884 | 517,2325041 | 1034,54864 | 56,91116521 | 2,572533882 | 32,22106878 | 23,73580933 | 1,495956721 | 6,222427865 | 0 |
| 338 | 56,86237106 | 56,8462247 | 386,7926568 | 517,1904117 | 1034,464061 | 56,84049344 | 2,572537301 | 32,26064498 | 23,76246452 | 1,521955625 | 6,230032242 | 0 |
| 339 | 56,79170996 | 56,77554497 | 386,25657 | 517,1463087 | 1034,377633 | 56,76980662 | 2,572534353 | 32,3002698 | 23,78911972 | 1,547975882 | 6,237645824 | 0 |
| 340 | 56,72103389 | 56,70485019 | 385,7205275 | 517,1035381 | 1034,291613 | 56,69910485 | 2,572532905 | 32,34001429 | 23,8158226 | 1,574020843 | 6,245282266 | 0 |
| 341 | 56,65034284 | 56,63414032 | 385,1845293 | 517,060924 | 1034,208249 | 56,62838797 | 2,572540798 | 32,3799499 | 23,84262085 | 1,600093937 | 6,252955271 | 0 |
| 342 | 56,57963669 | 56,56341539 | 384,6485751 | 517,0174678 | 1034,123023 | 56,55765589 | 2,57254228 | 32,41993483 | 23,8694191 | 1,62618836 | 6,260637639 | 0 |
| 343 | 56,50891553 | 56,49267535 | 384,1126653 | 516,9741646 | 1034,035926 | 56,48690878 | 2,572537315 | 32,45996913 | 23,89621735 | 1,652304025 | 6,268329335 | 0 |
| 344 | 56,4381793 | 56,42192028 | 383,5768 | 516,9321772 | 1033,951474 | 56,41614653 | 2,572541656 | 32,5001956 | 23,92311096 | 1,678447765 | 6,276057825 | 0 |
| 345 | 56,36742804 | 56,35115007 | 383,0409792 | 516,889209 | 1033,865143 | 56,34536921 | 2,572539519 | 32,54047192 | 23,95000458 | 1,704612705 | 6,283795739 | 0 |
| 346 | 56,29666173 | 56,28036469 | 382,5052028 | 516,8453951 | 1033,776927 | 56,27457669 | 2,572530888 | 32,58079816 | 23,97689819 | 1,730798864 | 6,291543102 | 0 |
| 347 | 56,22588031 | 56,20956419 | 381,9694709 | 516,802797 | 1033,691343 | 56,20376916 | 2,572531513 | 32,62131764 | 24,00388718 | 1,757012979 | 6,299327453 | 0 |
| 348 | 56,15508376 | 56,13874856 | 381,4337835 | 516,7593519 | 1033,608374 | 56,13294627 | 2,57254134 | 32,66203095 | 24,03097153 | 1,783255138 | 6,307148879 | 0 |
| 349 | 56,08427207 | 56,06791767 | 380,8981403 | 516,7170626 | 1033,521251 | 56,06210819 | 2,572536754 | 32,70272327 | 24,05800819 | 1,809515029 | 6,314966147 | 0 |
| 350 | 56,01344525 | 55,99707164 | 380,3625418 | 516,6739206 | 1033,436736 | 55,99125487 | 2,572541347 | 32,74361009 | 24,08514023 | 1,835802874 | 6,322820623 | 0 |
| 351 | 55,94260324 | 55,92621043 | 379,8269879 | 516,6309574 | 1033,348057 | 55,92038642 | 2,572531485 | 32,78447603 | 24,11222458 | 1,862108367 | 6,330670942 | 0 |
| 352 | 55,87174617 | 55,85533403 | 379,2914791 | 516,5870368 | 1033,261982 | 55,8495029 | 2,572530788 | 32,82553714 | 24,1394043 | 1,888441709 | 6,338558614 | 0 |
| 353 | 55,80087382 | 55,78444223 | 378,7560139 | 516,5454843 | 1033,17849 | 55,77860365 | 2,572539187 | 32,86679403 | 24,16667938 | 1,914803103 | 6,346483738 | 0 |
| 354 | 55,72998624 | 55,71353526 | 378,2205936 | 516,5008296 | 1033,09308 | 55,70768953 | 2,572540965 | 32,90810276 | 24,19395447 | 1,941185387 | 6,354418663 | 0 |
| 355 | 55,65908343 | 55,64261292 | 377,6852175 | 516,4584766 | 1033,005733 | 55,6367598 | 2,572536064 | 32,94946342 | 24,22122955 | 1,967588795 | 6,362363413 | 0 |
| 356 | 55,58816536 | 55,57167539 | 377,1498864 | 516,4152692 | 1032,920969 | 55,56581499 | 2,572540252 | 32,99102095 | 24,24860001 | 1,994019952 | 6,370345833 | 0 |
| 357 | 55,51723206 | 55,50072245 | 376,6145996 | 516,3721094 | 1032,83426 | 55,49485464 | 2,572537732 | 33,0326309 | 24,27597046 | 2,020472159 | 6,378338176 | 0 |
| 358 | 55,44628344 | 55,42975418 | 376,0793572 | 516,3291617 | 1032,74786 | 55,42387905 | 2,572536366 | 33,07436596 | 24,3033886 | 2,046948692 | 6,386354377 | 0 |
| 359 | 55,37531953 | 55,35877057 | 375,5441595 | 516,2852995 | 1032,661765 | 55,352888 | 2,572536139 | 33,11622646 | 24,33085442 | 2,07344961 | 6,394394531 | 0 |
| 360 | 55,30434032 | 55,28777164 | 375,0090067 | 516,2425908 | 1032,575966 | 55,28188163 | 2,572537026 | 33,15821276 | 24,35836792 | 2,099974836 | 6,402458677 | 0 |
| 361 | 55,23334578 | 55,21675727 | 374,4738983 | 516,1989676 | 1032,49046 | 55,21085981 | 2,572539011 | 33,2003252 | 24,38592911 | 2,126524392 | 6,410546899 | 0 |
| 362 | 55,16233587 | 55,14572753 | 373,9388346 | 516,1554871 | 1032,402989 | 55,1398227 | 2,572534209 | 33,24249112 | 24,4134903 | 2,153094768 | 6,418645238 | 0 |
| 363 | 55,09131063 | 55,07468232 | 373,4038154 | 516,1132019 | 1032,31805 | 55,06876992 | 2,572538329 | 33,28485677 | 24,44114685 | 2,179692918 | 6,426781783 | 0 |
| 364 | 55,02026996 | 55,00362168 | 372,8688408 | 516,069999 | 1032,231133 | 54,9977018 | 2,572535615 | 33,32727642 | 24,46880341 | 2,206311855 | 6,43492853 | 0 |
| 365 | 54,94921396 | 54,93254565 | 372,3339113 | 516,0258066 | 1032,146739 | 54,9266183 | 2,572541792 | 33,36989668 | 24,49655533 | 2,232958408 | 6,443113627 | 0 |
| 366 | 54,87814248 | 54,86145408 | 371,7990261 | 515,982872 | 1032,060354 | 54,85551912 | 2,572541092 | 33,41257145 | 24,52430725 | 2,25962581 | 6,451309049 | 0 |
| 367 | 54,80705558 | 54,79034702 | 371,2641855 | 515,9399962 | 1031,971975 | 54,78440455 | 2,572533499 | 33,4553008 | 24,55205917 | 2,286313935 | 6,459514784 | 0 |
| 368 | 54,73595325 | 54,71922448 | 370,7293898 | 515,8962612 | 1031,8861 | 54,71327429 | 2,572534728 | 33,4982319 | 24,57990646 | 2,313029709 | 6,4677591 | 0 |
| 369 | 54,66483543 | 54,64808643 | 370,1946387 | 515,8536326 | 1031,800475 | 54,64212863 | 2,572536907 | 33,54129175 | 24,60780144 | 2,33976958 | 6,476027978 | 0 |
| 370 | 54,59370213 | 54,57693279 | 369,6599323 | 515,8100736 | 1031,712837 | 54,57096747 | 2,57253213 | 33,58440695 | 24,63569641 | 2,366530127 | 6,484307315 | 0 |
| 371 | 54,52255334 | 54,50576364 | 369,1252707 | 515,7666323 | 1031,627684 | 54,4997906 | 2,572536111 | 33,62772526 | 24,66368675 | 2,393318245 | 6,492625477 | 0 |
| 372 | 54,45138901 | 54,43457889 | 368,5906538 | 515,72435 | 1031,54051 | 54,42859823 | 2,572533103 | 33,67109944 | 24,69167709 | 2,420126992 | 6,500954206 | 0 |
| 373 | 54,38020914 | 54,36337854 | 368,0560814 | 515,6811363 | 1031,45356 | 54,35739024 | 2,572530953 | 33,7146036 | 24,71971512 | 2,446959798 | 6,509307729 | 0 |
| 374 | 54,30901378 | 54,29216265 | 367,5215544 | 515,6369074 | 1031,369077 | 54,28616663 | 2,572537501 | 33,75831223 | 24,74784851 | 2,473820069 | 6,51770032 | 0 |
| 375 | 54,2378028 | 54,22093105 | 366,9870716 | 515,5939068 | 1031,282552 | 54,21492719 | 2,572536986 | 33,80207753 | 24,7759819 | 2,500700994 | 6,526103637 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 376 | 54,16657626 | 54,14968391 | 366,452634 | 515,5498889 | 1031,196238 | 54,14367232 | 2,572537284 | 33,84597389 | 24,80416298 | 2,527605842 | 6,534531954 | 0 |
| 377 | 54,09533409 | 54,07842099 | 365,9182407 | 515,5070938 | 1031,107866 | 54,07240166 | 2,572530462 | 33,88992725 | 24,83234406 | 2,554531264 | 6,542971021 | 0 |
| 378 | 54,02407633 | 54,00714244 | 365,3838924 | 515,4632718 | 1031,024191 | 54,00111529 | 2,572540139 | 33,93416124 | 24,86066818 | 2,581487511 | 6,551463797 | 0 |
| 379 | 53,95280291 | 53,93584821 | 364,8495889 | 515,4205791 | 1030,938455 | 53,92981324 | 2,572542681 | 33,97845297 | 24,88899231 | 2,608464253 | 6,559967492 | 0 |
| 380 | 53,88151384 | 53,86453821 | 364,31533 | 515,3769434 | 1030,850645 | 53,85849541 | 2,572538048 | 34,02280251 | 24,91731644 | 2,635461486 | 6,568482095 | 0 |
| 381 | 53,8102091 | 53,79321254 | 363,7811162 | 515,3333933 | 1030,765263 | 53,78716182 | 2,572541977 | 34,06735955 | 24,94573593 | 2,662486046 | 6,577036363 | 0 |
| 382 | 53,7388887 | 53,72187113 | 363,2469473 | 515,2899248 | 1030,677798 | 53,71581248 | 2,572538697 | 34,11197494 | 24,97415543 | 2,689531032 | 6,585601648 | 0 |
| 383 | 53,66755262 | 53,65051393 | 362,7128232 | 515,2464615 | 1030,590495 | 53,64444746 | 2,572536056 | 34,15672377 | 25,0026226 | 2,716599827 | 6,594192347 | 0 |
| 384 | 53,59620082 | 53,57914099 | 362,178744 | 515,2031527 | 1030,505605 | 53,57306663 | 2,572541928 | 34,20168151 | 25,03118515 | 2,743695894 | 6,602823002 | 0 |
| 385 | 53,52483325 | 53,5077523 | 361,6447099 | 515,1588933 | 1030,41636 | 53,50166992 | 2,572532639 | 34,24662322 | 25,05970001 | 2,770808909 | 6,611450375 | 0 |
| 386 | 53,45345003 | 53,43634781 | 361,1107209 | 515,1156489 | 1030,329515 | 53,43025754 | 2,572531821 | 34,29177459 | 25,08831024 | 2,797949088 | 6,620117826 | 0 |
| 387 | 53,38205102 | 53,36492741 | 360,5767766 | 515,07256 | 1030,24505 | 53,35882896 | 2,572539402 | 34,33713629 | 25,11701584 | 2,825116579 | 6,628825453 | 0 |
| 388 | 53,31063617 | 53,29349117 | 360,0428769 | 515,028425 | 1030,158473 | 53,28738485 | 2,572539669 | 34,38255799 | 25,14572144 | 2,852304258 | 6,637544412 | 0 |
| 389 | 53,23920549 | 53,22203908 | 359,509022 | 514,9864065 | 1030,069768 | 53,21592468 | 2,572532559 | 34,42803978 | 25,17442703 | 2,879512268 | 6,646274706 | 0 |
| 390 | 53,16775903 | 53,15057111 | 358,9752122 | 514,9414554 | 1029,98343 | 53,14444855 | 2,572533807 | 34,47373314 | 25,203228 | 2,906747433 | 6,655045418 | 0 |
| 391 | 53,09629672 | 53,07908726 | 358,4414474 | 514,8985231 | 1029,897213 | 53,07295677 | 2,572535553 | 34,51956294 | 25,23207664 | 2,934006182 | 6,663842151 | 0 |
| 392 | 53,02481858 | 53,00758747 | 357,9077274 | 514,8547001 | 1029,811094 | 53,00144875 | 2,572537712 | 34,56552957 | 25,26097298 | 2,961288679 | 6,672664931 | 0 |
| 393 | 52,95332456 | 52,9360718 | 357,3740526 | 514,8108465 | 1029,725078 | 52,92992496 | 2,572540308 | 34,61163342 | 25,28991699 | 2,988594739 | 6,681513855 | 0 |
| 394 | 52,88181468 | 52,86454012 | 356,8404225 | 514,7679714 | 1029,639154 | 52,85838508 | 2,572543297 | 34,65787486 | 25,31890869 | 3,015924447 | 6,690388995 | 0 |
| 395 | 52,8102889 | 52,79299255 | 356,3068377 | 514,7242004 | 1029,551071 | 52,78682941 | 2,572538799 | 34,70417809 | 25,34790039 | 3,043274225 | 6,699275785 | 0 |
| 396 | 52,73874714 | 52,72142886 | 355,7732971 | 514,6815984 | 1029,465311 | 52,71525735 | 2,572542509 | 34,75069579 | 25,37698746 | 3,070651141 | 6,708203552 | 0 |
| 397 | 52,6671894 | 52,64984919 | 355,2398014 | 514,6379127 | 1029,377385 | 52,64366962 | 2,572538705 | 34,79727585 | 25,40607452 | 3,098048032 | 6,717143091 | 0 |
| 398 | 52,59561581 | 52,57825369 | 354,7063518 | 514,5931422 | 1029,291769 | 52,57206569 | 2,572543063 | 34,84407137 | 25,43525696 | 3,125471936 | 6,726123766 | 0 |
| 399 | 52,52402628 | 52,50664203 | 354,1729467 | 514,5495238 | 1029,20397 | 52,5004459 | 2,572539846 | 34,89092983 | 25,46443939 | 3,152915816 | 6,73511631 | 0 |
| 400 | 52,45242077 | 52,43501438 | 353,6395869 | 514,5068426 | 1029,116225 | 52,42880995 | 2,572536888 | 34,93792801 | 25,49366951 | 3,180383199 | 6,744135471 | 0 |
| 401 | 52,38079925 | 52,36337067 | 353,1062722 | 514,4632764 | 1029,030775 | 52,35715787 | 2,572542044 | 34,98514316 | 25,522995 | 3,20787749 | 6,753196072 | 0 |
| 402 | 52,30916171 | 52,29171082 | 352,5730021 | 514,4188076 | 1028,940871 | 52,28548973 | 2,572531665 | 35,03234518 | 25,5522728 | 3,235388293 | 6,762253927 | 0 |
| 403 | 52,23750816 | 52,22003494 | 352,0397776 | 514,3751808 | 1028,855494 | 52,21380533 | 2,572537219 | 35,07984199 | 25,58169365 | 3,26292944 | 6,771368153 | 0 |
| 404 | 52,16583852 | 52,14834296 | 351,5065979 | 514,3326694 | 1028,767899 | 52,14210493 | 2,572535074 | 35,12740319 | 25,6111145 | 3,290490466 | 6,780494515 | 0 |
| 405 | 52,09415286 | 52,07663485 | 350,9734634 | 514,2881584 | 1028,68033 | 52,07038852 | 2,572533089 | 35,17510611 | 25,64058304 | 3,318074804 | 6,789647873 | 0 |
| 406 | 52,02245117 | 52,00491056 | 350,4403741 | 514,2445544 | 1028,595013 | 51,99865568 | 2,572539067 | 35,22302851 | 25,67014694 | 3,345686004 | 6,798843108 | 0 |
| 407 | 51,95073329 | 51,93317008 | 349,9073295 | 514,201066 | 1028,507462 | 51,92690675 | 2,572537288 | 35,2710162 | 25,69971085 | 3,373317032 | 6,808050673 | 0 |
| 408 | 51,87899936 | 51,86141356 | 349,3743307 | 514,1564576 | 1028,42216 | 51,85514173 | 2,572543464 | 35,31922438 | 25,72937012 | 3,400974759 | 6,817300336 | 0 |
| 409 | 51,80724929 | 51,78964075 | 348,8413766 | 514,1129701 | 1028,334601 | 51,78336034 | 2,572541797 | 35,36749846 | 25,75902939 | 3,428652347 | 6,826562402 | 0 |
| 410 | 51,73548307 | 51,71785166 | 348,3084675 | 514,0703624 | 1028,244788 | 51,71156287 | 2,572532296 | 35,41583851 | 25,78868866 | 3,456349666 | 6,835836908 | 0 |
| 411 | 51,66370069 | 51,64604642 | 347,7756037 | 514,0258528 | 1028,157197 | 51,639749 | 2,572530656 | 35,46440039 | 25,8184433 | 3,484073702 | 6,845153755 | 0 |
| 412 | 51,59190218 | 51,57422503 | 347,2427855 | 513,9822175 | 1028,071826 | 51,56791903 | 2,572536872 | 35,51318482 | 25,8482933 | 3,511824322 | 6,854513075 | 0 |
| 413 | 51,52008744 | 51,50238723 | 346,7100119 | 513,9386826 | 1027,984172 | 51,49607256 | 2,572535154 | 35,56203636 | 25,87814331 | 3,539594733 | 6,863885042 | 0 |
| 414 | 51,4482565 | 51,43053322 | 346,1772837 | 513,8941183 | 1027,898724 | 51,42420984 | 2,572541241 | 35,6111115 | 25,90808868 | 3,567391725 | 6,873299689 | 0 |
| 415 | 51,37640934 | 51,35866292 | 345,6446008 | 513,8504226 | 1027,810987 | 51,35233093 | 2,572539371 | 35,66025436 | 25,93803406 | 3,595208338 | 6,882727105 | 0 |
| 416 | 51,30454589 | 51,28677626 | 345,1119626 | 513,8069286 | 1027,723186 | 51,28043542 | 2,572537346 | 35,70954345 | 25,96802711 | 3,623048141 | 6,892182319 | 0 |
| 417 | 51,23266622 | 51,21487331 | 344,57937 | 513,7631721 | 1027,637572 | 51,20852376 | 2,57254306 | 35,75905772 | 25,99811554 | 3,650914398 | 6,901680505 | 0 |
| 418 | 51,16077023 | 51,14295397 | 344,0468222 | 513,7195069 | 1027,547405 | 51,1365958 | 2,572532872 | 35,80856201 | 26,02815628 | 3,678796772 | 6,911176552 | 0 |
| 419 | 51,08885804 | 51,07101836 | 343,5143202 | 513,6757752 | 1027,459402 | 51,06465134 | 2,572530344 | 35,85829232 | 26,05829239 | 3,706705667 | 6,920715717 | 0 |
| 420 | 51,01692955 | 50,99906633 | 342,9818634 | 513,6309366 | 1027,373557 | 50,99269042 | 2,572535459 | 35,90824939 | 26,08852386 | 3,73464104 | 6,930298147 | 0 |
| 421 | 50,94498471 | 50,92709794 | 342,4494519 | 513,587136 | 1027,285382 | 50,92071325 | 2,572532465 | 35,95827606 | 26,11875534 | 3,762595875 | 6,939893686 | 0 |
| 422 | 50,87302354 | 50,8551132 | 341,9170858 | 513,5441733 | 1027,199351 | 50,84871968 | 2,572537066 | 36,00853057 | 26,14908218 | 3,790577104 | 6,949532683 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 423 | 50,80104601 | 50,78311192 | 341,3847646 | 513,5002838 | 1027,110966 | 50,77670951 | 2,572533474 | 36,05885532 | 26,17940903 | 3,818577856 | 6,959184887 | 0 |
| 424 | 50,72905213 | 50,71109427 | 340,8524889 | 513,455453 | 1027,024717 | 50,70468294 | 2,572537449 | 36,10940899 | 26,20983124 | 3,846604956 | 6,968880793 | 0 |
| 425 | 50,65704182 | 50,63906013 | 340,3202583 | 513,4124386 | 1026,936103 | 50,63263979 | 2,572533186 | 36,16003353 | 26,24025345 | 3,874651506 | 6,978590027 | 0 |
| 426 | 50,58501519 | 50,56700954 | 339,7880734 | 513,3682387 | 1026,849606 | 50,56058035 | 2,57253643 | 36,21088807 | 26,27077103 | 3,9027243 | 6,988343134 | 0 |
| 427 | 50,51297212 | 50,49494249 | 339,2559338 | 513,3241054 | 1026,760728 | 50,48850421 | 2,572531378 | 36,26181414 | 26,3012886 | 3,930816528 | 6,99810969 | 0 |
| 428 | 50,44091259 | 50,42285886 | 338,7238391 | 513,2810042 | 1026,673953 | 50,41641162 | 2,57253378 | 36,31297131 | 26,33190155 | 3,958934998 | 7,007920337 | 0 |
| 429 | 50,36883663 | 50,35075879 | 338,1917902 | 513,2367142 | 1026,589263 | 50,34430238 | 2,57254357 | 36,36436035 | 26,36260986 | 3,98707974 | 7,017775172 | 0 |
| 430 | 50,29674418 | 50,27864209 | 337,6597861 | 513,1932367 | 1026,499937 | 50,27217661 | 2,572537152 | 36,41574216 | 26,39327049 | 4,015240311 | 7,02762838 | 0 |
| 431 | 50,22463527 | 50,20650893 | 337,1278278 | 513,1487975 | 1026,41269 | 50,20003436 | 2,572538098 | 36,46735672 | 26,42402649 | 4,043427042 | 7,037525971 | 0 |
| 432 | 50,15250986 | 50,13435913 | 336,5959147 | 513,1053758 | 1026,325266 | 50,12787541 | 2,572538494 | 36,51912463 | 26,45483017 | 4,071636513 | 7,047452697 | 0 |
| 433 | 50,08036796 | 50,06219272 | 336,0640468 | 513,0607666 | 1026,235426 | 50,05569997 | 2,572530469 | 36,57096603 | 26,48563385 | 4,099865164 | 7,057393262 | 0 |
| 434 | 50,00820951 | 49,99000974 | 335,5322244 | 513,0171624 | 1026,147637 | 49,98350775 | 2,572529714 | 36,62304187 | 26,5165329 | 4,128119989 | 7,067378526 | 0 |
| 435 | 49,93603456 | 49,91781026 | 335,0004481 | 512,9723624 | 1026,06189 | 49,91129901 | 2,572536205 | 36,67535293 | 26,54752731 | 4,156400863 | 7,077408611 | 0 |
| 436 | 49,86384302 | 49,84559405 | 334,4687166 | 512,9285828 | 1025,973703 | 49,83907349 | 2,572534186 | 36,72773871 | 26,57852173 | 4,184700932 | 7,087452778 | 0 |
| 437 | 49,79163495 | 49,77336118 | 333,9370307 | 512,8845518 | 1025,887544 | 49,76683145 | 2,572539366 | 36,78036085 | 26,60961151 | 4,213026989 | 7,097541985 | 0 |
| 438 | 49,71941022 | 49,70111164 | 333,40539 | 512,8405551 | 1025,798924 | 49,69457252 | 2,57253596 | 36,83305838 | 26,64070129 | 4,24137221 | 7,107645371 | 0 |
| 439 | 49,64716889 | 49,62884549 | 332,873795 | 512,7965591 | 1025,71232 | 49,62229713 | 2,572539708 | 36,88599341 | 26,67188644 | 4,269743337 | 7,117794016 | 0 |
| 440 | 49,57491096 | 49,55656248 | 332,342245 | 512,7523359 | 1025,623239 | 49,55000465 | 2,572534814 | 36,93900452 | 26,70307159 | 4,298133638 | 7,127956987 | 0 |
| 441 | 49,50263634 | 49,48426289 | 331,8107407 | 512,7088467 | 1025,536156 | 49,47769575 | 2,572537012 | 36,99225428 | 26,73435211 | 4,32654977 | 7,13816541 | 0 |
| 442 | 49,43034512 | 49,41194645 | 331,2792817 | 512,6643793 | 1025,446584 | 49,40536993 | 2,572530525 | 37,0455808 | 26,76563263 | 4,354984946 | 7,148388281 | 0 |
| 443 | 49,35803721 | 49,33961336 | 330,7478684 | 512,6208617 | 1025,35899 | 49,33302729 | 2,572531061 | 37,09914713 | 26,79700851 | 4,383446043 | 7,158656848 | 0 |
| 444 | 49,28571266 | 49,26726351 | 330,2165008 | 512,5761346 | 1025,273371 | 49,26066804 | 2,572538606 | 37,15295408 | 26,82847977 | 4,411932947 | 7,168971257 | 0 |
| 445 | 49,21337133 | 49,1948968 | 329,6851781 | 512,5323893 | 1025,185234 | 49,18829171 | 2,572537362 | 37,20683907 | 26,85995102 | 4,440438859 | 7,179300332 | 0 |
| 446 | 49,14101333 | 49,12251343 | 329,1539016 | 512,487389 | 1025,09906 | 49,11589887 | 2,572543092 | 37,26096586 | 26,89151764 | 4,468970485 | 7,189675493 | 0 |
| 447 | 49,0686386 | 49,05011311 | 328,6226701 | 512,4433592 | 1025,010354 | 49,04348904 | 2,572539982 | 37,31517139 | 26,92308426 | 4,497521023 | 7,200065442 | 0 |
| 448 | 48,99624712 | 48,97769603 | 328,0914843 | 512,3999819 | 1024,923584 | 48,97106227 | 2,572543745 | 37,36961989 | 26,95474625 | 4,526097365 | 7,210501671 | 0 |
| 449 | 48,92383886 | 48,90526211 | 327,5603441 | 512,3556508 | 1024,834275 | 48,89861878 | 2,572538641 | 37,42414785 | 26,98640823 | 4,554692454 | 7,220952833 | 0 |
| 450 | 48,85141384 | 48,83281128 | 327,0292494 | 512,3122352 | 1024,746881 | 48,82615821 | 2,572540342 | 37,47891996 | 27,01816559 | 4,583313337 | 7,231450494 | 0 |
| 451 | 48,77897202 | 48,76034359 | 326,4982002 | 512,2675877 | 1024,656934 | 48,7536809 | 2,572533127 | 37,53377224 | 27,04992294 | 4,611952913 | 7,241963235 | 0 |
| 452 | 48,70651336 | 48,68785903 | 325,9671965 | 512,2238873 | 1024,568888 | 48,68118655 | 2,572532662 | 37,58886989 | 27,08177567 | 4,640618202 | 7,252522694 | 0 |
| 453 | 48,63403793 | 48,61535753 | 325,4362386 | 512,1789071 | 1024,482733 | 48,60867525 | 2,572538919 | 37,64421374 | 27,11372375 | 4,669309137 | 7,263129017 | 0 |
| 454 | 48,56154558 | 48,54283908 | 324,9053258 | 512,1348703 | 1024,394003 | 48,53614713 | 2,57253618 | 37,69963907 | 27,14567184 | 4,698018704 | 7,273750686 | 0 |
| 455 | 48,48903646 | 48,47030374 | 324,3744592 | 512,0895394 | 1024,307146 | 48,46360195 | 2,572540094 | 37,75531183 | 27,1777153 | 4,726753895 | 7,284419439 | 0 |
| 456 | 48,4165104 | 48,39775143 | 323,8436378 | 512,0460949 | 1024,217688 | 48,39103976 | 2,572534922 | 37,8110668 | 27,20975876 | 4,75550771 | 7,295103636 | 0 |
| 457 | 48,34396749 | 48,32518214 | 323,3128622 | 512,001632 | 1024,130093 | 48,3184606 | 2,572536372 | 37,86707041 | 27,24189758 | 4,784287062 | 7,305835184 | 0 |
| 458 | 48,27140766 | 48,25259591 | 322,7821324 | 511,9568839 | 1024,042115 | 48,24586448 | 2,572536536 | 37,92324024 | 27,27408409 | 4,813088427 | 7,31659825 | 0 |
| 459 | 48,1988309 | 48,17999263 | 322,2514479 | 511,9130091 | 1023,955979 | 48,1732513 | 2,572543254 | 37,9796602 | 27,30636597 | 4,841915293 | 7,327408935 | 0 |
| 460 | 48,12623718 | 48,10737235 | 321,7208092 | 511,8697397 | 1023,864979 | 48,10062109 | 2,572532904 | 38,03608057 | 27,33860016 | 4,870757186 | 7,338219378 | 0 |
| 461 | 48,05362656 | 48,03473493 | 321,1902158 | 511,8254807 | 1023,778033 | 48,02797358 | 2,572536899 | 38,0928357 | 27,3709774 | 4,899628082 | 7,34909366 | 0 |
| 462 | 47,98099899 | 47,96208068 | 320,659669 | 511,7799114 | 1023,688444 | 47,95530938 | 2,572531646 | 38,14967552 | 27,40335464 | 4,928517287 | 7,359983824 | 0 |
| 463 | 47,90835449 | 47,88940922 | 320,1291675 | 511,7361801 | 1023,602889 | 47,88262782 | 2,572540669 | 38,20685184 | 27,43587494 | 4,957435447 | 7,370938143 | 0 |
| 464 | 47,83569287 | 47,8167207 | 319,5987115 | 511,6914677 | 1023,514667 | 47,80992919 | 2,572540361 | 38,26411386 | 27,46839523 | 4,986371994 | 7,381908539 | 0 |
| 465 | 47,76301427 | 47,74401504 | 319,068301 | 511,6482389 | 1023,423768 | 47,73721339 | 2,572530684 | 38,3214617 | 27,50091553 | 5,015326927 | 7,392895036 | 0 |
| 466 | 47,69031863 | 47,67129229 | 318,5379363 | 511,6040137 | 1023,339114 | 47,66448037 | 2,572543075 | 38,37923259 | 27,53362656 | 5,044314151 | 7,403962273 | 0 |
| 467 | 47,61760593 | 47,59855234 | 318,007617 | 511,5587629 | 1023,247305 | 47,59173027 | 2,572530319 | 38,43692177 | 27,56624222 | 5,073312707 | 7,41501351 | 0 |
| 468 | 47,54487621 | 47,52579535 | 317,477344 | 511,5140785 | 1023,161719 | 47,51896301 | 2,572539552 | 38,49503579 | 27,59904861 | 5,10234346 | 7,42614578 | 0 |
| 469 | 47,4721294 | 47,45302113 | 316,9471164 | 511,4699717 | 1023,073422 | 47,4461785 | 2,572539295 | 38,55323768 | 27,63185501 | 5,1313925 | 7,43729454 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 470 | 47,39936542 | 47,38022965 | 316,4169339 | 511,4269831 | 1022,982408 | 47,37337687 | 2,572529528 | 38,61152756 | 27,66466141 | 5,160459741 | 7,448459814 | 0 |
| 471 | 47,32658446 | 47,30742108 | 315,886798 | 511,3815468 | 1022,897588 | 47,30055787 | 2,572541657 | 38,67024524 | 27,69765854 | 5,189559168 | 7,459706705 | 0 |
| 472 | 47,25378628 | 47,23459532 | 315,3567076 | 511,337032 | 1022,8078 | 47,22772181 | 2,572536332 | 38,72896716 | 27,73060799 | 5,218673215 | 7,470954011 | 0 |
| 473 | 47,18097104 | 47,16175224 | 314,826663 | 511,2922266 | 1022,719726 | 47,1548683 | 2,572537118 | 38,78794861 | 27,7636528 | 5,247812459 | 7,482250711 | 0 |
| 474 | 47,10813861 | 47,08889195 | 314,2966641 | 511,2482249 | 1022,631128 | 47,08199757 | 2,572536116 | 38,84710518 | 27,7967453 | 5,276973281 | 7,493580584 | 0 |
| 475 | 47,03528895 | 47,01601441 | 313,7667107 | 511,2048002 | 1022,544226 | 47,00910961 | 2,572541154 | 38,90652285 | 27,82993317 | 5,30615914 | 7,504960093 | 0 |
| 476 | 46,96242216 | 46,94311962 | 313,2368035 | 511,1602626 | 1022,454555 | 46,93620439 | 2,572536497 | 38,9660314 | 27,86312103 | 5,335363055 | 7,516356677 | 0 |
| 477 | 46,88953821 | 46,87020753 | 312,7069421 | 511,1146029 | 1022,366555 | 46,86328174 | 2,57253779 | 39,02580236 | 27,89640427 | 5,364592006 | 7,527803117 | 0 |
| 478 | 46,81663697 | 46,79727805 | 312,177126 | 511,071566 | 1022,275766 | 46,79034169 | 2,572529312 | 39,08566501 | 27,9296875 | 5,393838992 | 7,539266777 | 0 |
| 479 | 46,74371865 | 46,72433136 | 311,6473566 | 511,0260549 | 1022,191089 | 46,71738433 | 2,572542449 | 39,14596332 | 27,96316147 | 5,423117874 | 7,550813463 | 0 |
| 480 | 46,67078292 | 46,65136731 | 311,1176324 | 510,9817467 | 1022,099147 | 46,64440958 | 2,572530026 | 39,20618247 | 27,99654007 | 5,452407751 | 7,562344636 | 0 |
| 481 | 46,59783003 | 46,5783859 | 310,5879544 | 510,9369452 | 1022,013302 | 46,57141752 | 2,572539172 | 39,26683917 | 28,03010941 | 5,481729465 | 7,573959225 | 0 |
| 482 | 46,52485982 | 46,50538714 | 310,0583221 | 510,8929108 | 1021,924627 | 46,49840811 | 2,572538394 | 39,3275897 | 28,06367874 | 5,511069046 | 7,585591375 | 0 |
| 483 | 46,4518724 | 46,43237099 | 309,528736 | 510,8475185 | 1021,837569 | 46,42538117 | 2,572543387 | 39,38860721 | 28,09734344 | 5,540433508 | 7,597274281 | 0 |
| 484 | 46,37886759 | 46,35933741 | 308,9991953 | 510,8038457 | 1021,747664 | 46,35233682 | 2,572538393 | 39,4497194 | 28,13100815 | 5,569815798 | 7,608974917 | 0 |
| 485 | 46,3058455 | 46,28628642 | 308,4697006 | 510,7588033 | 1021,65936 | 46,27927508 | 2,57253911 | 39,51109992 | 28,16476822 | 5,599222845 | 7,620726553 | 0 |
| 486 | 46,23280598 | 46,21321797 | 307,9402514 | 510,7157358 | 1021,568185 | 46,20619573 | 2,572529756 | 39,57257595 | 28,19852829 | 5,628647718 | 7,632496065 | 0 |
| 487 | 46,1597493 | 46,14013211 | 307,4108489 | 510,6699918 | 1021,483043 | 46,13309889 | 2,572541757 | 39,63449576 | 28,2324791 | 5,658104301 | 7,644350161 | 0 |
| 488 | 46,08667508 | 46,06702882 | 306,8814918 | 510,6254351 | 1021,39502 | 46,05998477 | 2,57254365 | 39,69651246 | 28,2664299 | 5,687578519 | 7,656222401 | 0 |
| 489 | 46,01358355 | 45,99390794 | 306,3521805 | 510,5803437 | 1021,304096 | 45,98685293 | 2,572535366 | 39,7586262 | 28,30038071 | 5,717070501 | 7,66811281 | 0 |
| 490 | 45,94047465 | 45,92076967 | 305,8229156 | 510,5359561 | 1021,214725 | 45,91370372 | 2,572532619 | 39,82101202 | 28,33442688 | 5,74658706 | 7,680054899 | 0 |
| 491 | 45,8673483 | 45,84761394 | 305,2936966 | 510,4920597 | 1021,126892 | 45,84053694 | 2,572535365 | 39,88367089 | 28,36856842 | 5,77612824 | 7,692048863 | 0 |
| 492 | 45,79420458 | 45,77444056 | 304,7645233 | 510,4470499 | 1021,040578 | 45,76735242 | 2,572543539 | 39,94660379 | 28,40280533 | 5,805694067 | 7,704094847 | 0 |
| 493 | 45,72104335 | 45,70124966 | 304,2353958 | 510,4027382 | 1020,95133 | 45,69415038 | 2,572541413 | 40,00963599 | 28,43704224 | 5,835277436 | 7,716159414 | 0 |
| 494 | 45,64786459 | 45,62804121 | 303,7063141 | 510,3583246 | 1020,861372 | 45,62093082 | 2,572536835 | 40,07285566 | 28,47132683 | 5,864881819 | 7,728259489 | 0 |
| 495 | 45,57466841 | 45,55481506 | 303,177278 | 510,3142491 | 1020,772898 | 45,54769345 | 2,572537561 | 40,13635148 | 28,50570679 | 5,894510758 | 7,740411949 | 0 |
| 496 | 45,50145476 | 45,48157143 | 302,6482883 | 510,2696092 | 1020,683692 | 45,47443863 | 2,572535762 | 40,20003619 | 28,54013443 | 5,924160607 | 7,752600161 | 0 |
| 497 | 45,42822361 | 45,4083103 | 302,119345 | 510,2242407 | 1020,595961 | 45,40116622 | 2,572539234 | 40,26399879 | 28,57465744 | 5,953834875 | 7,764841123 | 0 |
| 498 | 45,35497499 | 45,33503142 | 301,5904474 | 510,1792616 | 1020,505244 | 45,32787606 | 2,572532216 | 40,32806315 | 28,60918045 | 5,983526591 | 7,77710113 | 0 |
| 499 | 45,28170883 | 45,26173497 | 301,061596 | 510,1346514 | 1020,415981 | 45,25456826 | 2,572530394 | 40,39240684 | 28,64379883 | 6,013242675 | 7,789414155 | 0 |
| 500 | 45,20842509 | 45,18842091 | 300,5327906 | 510,091038 | 1020,328163 | 45,18124288 | 2,572533739 | 40,45703088 | 28,67851257 | 6,042983063 | 7,801780392 | 0 |
| 501 | 45,13512381 | 45,11508906 | 300,0040309 | 510,0460016 | 1020,241768 | 45,10789948 | 2,572542173 | 40,52193627 | 28,71332169 | 6,072747883 | 7,814200012 | 0 |
| 502 | 45,06180483 | 45,04173948 | 299,4753166 | 510,0016773 | 1020,152352 | 45,03453852 | 2,572539989 | 40,58694579 | 28,7481308 | 6,102529942 | 7,826639115 | 0 |
| 503 | 44,98846833 | 44,96837238 | 298,9466493 | 509,9558398 | 1020,064346 | 44,96115981 | 2,57254285 | 40,65223814 | 28,78303528 | 6,132336263 | 7,839131892 | 0 |
| 504 | 44,91511429 | 44,89498745 | 298,4180277 | 509,9107006 | 1019,973298 | 44,88776343 | 2,572535014 | 40,71763553 | 28,81793976 | 6,162159787 | 7,851644322 | 0 |
| 505 | 44,84174263 | 44,82158488 | 297,8894526 | 509,8661746 | 1019,883636 | 44,81434933 | 2,572532138 | 40,78331724 | 28,85293961 | 6,192007486 | 7,864210669 | 0 |
| 506 | 44,76835332 | 44,7481645 | 297,3609233 | 509,8220477 | 1019,795349 | 44,74091734 | 2,572534182 | 40,8492843 | 28,88803482 | 6,221879394 | 7,876831154 | 0 |
| 507 | 44,69494629 | 44,6747264 | 296,8324398 | 509,7771149 | 1019,708428 | 44,66746754 | 2,572541115 | 40,91553776 | 28,9232254 | 6,251775443 | 7,88950597 | 0 |
| 508 | 44,62152162 | 44,6012705 | 296,3040026 | 509,7321415 | 1019,61842 | 44,59399999 | 2,572537193 | 40,98189867 | 28,95841599 | 6,281688578 | 7,902200877 | 0 |
| 509 | 44,54807927 | 44,52779677 | 295,7756112 | 509,6881097 | 1019,52975 | 44,52051452 | 2,57253806 | 41,04854749 | 28,99370193 | 6,311625815 | 7,914950358 | 0 |
| 510 | 44,47461924 | 44,45430536 | 295,2472665 | 509,6426199 | 1019,442417 | 44,44701129 | 2,572543713 | 41,11548528 | 29,02908325 | 6,341587068 | 7,927754658 | 0 |
| 511 | 44,4011415 | 44,38079595 | 294,7189672 | 509,5977866 | 1019,351961 | 44,3734901 | 2,572538383 | 41,18253222 | 29,06446457 | 6,371565374 | 7,940579364 | 0 |
| 512 | 44,327646 | 44,30726888 | 294,1907145 | 509,553519 | 1019,262816 | 44,29995117 | 2,572537744 | 41,24986965 | 29,09994125 | 6,401567606 | 7,953459131 | 0 |
| 513 | 44,25413287 | 44,23372392 | 293,6625082 | 509,5077745 | 1019,174971 | 44,22639429 | 2,572541763 | 41,31749865 | 29,13551331 | 6,431593818 | 7,966394203 | 0 |
| 514 | 44,1806019 | 44,16016106 | 293,1343476 | 509,4644292 | 1019,083971 | 44,15281956 | 2,572534681 | 41,38523853 | 29,17108536 | 6,461636927 | 7,979349973 | 0 |
| 515 | 44,10705314 | 44,08658029 | 292,6062331 | 509,4199503 | 1018,994247 | 44,07922684 | 2,572532166 | 41,45327152 | 29,20675278 | 6,491703948 | 7,992361316 | 0 |
| 516 | 44,03348669 | 44,0129817 | 292,0781652 | 509,373903 | 1018,905778 | 44,00561609 | 2,572534153 | 41,5215987 | 29,24251556 | 6,521794852 | 8,005428377 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 517 | 43,95990245 | 43,93936515 | 291,5501434 | 509,3284839 | 1018,818568 | 43,93198747 | 2,572540653 | 41,59022117 | 29,27837372 | 6,551909562 | 8,018551447 | 0 |
| 518 | 43,8863003 | 43,86573067 | 291,0221675 | 509,2836859 | 1018,728156 | 43,85834083 | 2,572535881 | 41,65895704 | 29,31423187 | 6,582041078 | 8,031695679 | 0 |
| 519 | 43,81268035 | 43,79207823 | 290,4942377 | 509,2394014 | 1018,638975 | 43,78467629 | 2,57253552 | 41,72798978 | 29,35018539 | 6,612196322 | 8,044896163 | 0 |
| 520 | 43,73904248 | 43,71840783 | 289,9663538 | 509,19543 | 1018,551011 | 43,71099375 | 2,572539529 | 41,79732048 | 29,38623428 | 6,642375302 | 8,05815312 | 0 |
| 521 | 43,66538684 | 43,64471941 | 289,4385163 | 509,1501568 | 1018,45981 | 43,63729309 | 2,572532132 | 41,86676637 | 29,42228317 | 6,672571008 | 8,071431553 | 0 |
| 522 | 43,59171326 | 43,57101302 | 288,9107248 | 509,1055465 | 1018,369804 | 43,56357442 | 2,572529021 | 41,93651182 | 29,45842743 | 6,702790377 | 8,084766751 | 0 |
| 523 | 43,5180219 | 43,49728884 | 288,3829807 | 509,0593285 | 1018,280979 | 43,48983791 | 2,572530153 | 42,00655795 | 29,49466705 | 6,733033301 | 8,098158883 | 0 |
| 524 | 43,44431261 | 43,42354641 | 287,8552819 | 509,0158028 | 1018,193323 | 43,4160831 | 2,572535477 | 42,07690587 | 29,53100204 | 6,763299924 | 8,111608217 | 0 |
| 525 | 43,37058533 | 43,349786 | 287,3276293 | 508,9707501 | 1018,102382 | 43,34231022 | 2,57252923 | 42,14737159 | 29,56733704 | 6,793583095 | 8,12507949 | 0 |
| 526 | 43,29684017 | 43,27600754 | 286,8000231 | 508,9258648 | 1018,017019 | 43,26851929 | 2,572542794 | 42,21832616 | 29,60386276 | 6,823896802 | 8,138643666 | 0 |
| 527 | 43,22307701 | 43,20221095 | 286,2724627 | 508,8801378 | 1017,928358 | 43,19471015 | 2,572544731 | 42,28940018 | 29,64038849 | 6,854227048 | 8,15223017 | 0 |
| 528 | 43,14929585 | 43,1283963 | 285,7449485 | 508,8362894 | 1017,83638 | 43,12088302 | 2,572534979 | 42,36059385 | 29,67691422 | 6,8845737 | 8,165838954 | 0 |
| 529 | 43,07549676 | 43,05456346 | 285,2174804 | 508,791251 | 1017,749936 | 43,04703755 | 2,572544886 | 42,43228008 | 29,71363068 | 6,914950879 | 8,179541321 | 0 |
| 530 | 43,0016797 | 42,98071265 | 284,6900591 | 508,7445958 | 1017,660159 | 42,97317405 | 2,572543042 | 42,50408763 | 29,75034714 | 6,94534441 | 8,193266333 | 0 |
| 531 | 42,92784456 | 42,90684368 | 284,1626837 | 508,7006456 | 1017,567036 | 42,89929257 | 2,572529397 | 42,57601669 | 29,7870636 | 6,975754221 | 8,20701399 | 0 |
| 532 | 42,85399151 | 42,83295656 | 283,635355 | 508,6550193 | 1017,479404 | 42,82539256 | 2,572535268 | 42,64844209 | 29,82397079 | 7,006194526 | 8,220855935 | 0 |
| 533 | 42,78012042 | 42,75905136 | 283,1080729 | 508,6098576 | 1017,388405 | 42,75147466 | 2,572529261 | 42,72099069 | 29,86087799 | 7,036650999 | 8,234720842 | 0 |
| 534 | 42,70623127 | 42,68512793 | 282,5808368 | 508,5652811 | 1017,302875 | 42,67753829 | 2,57254269 | 42,79403858 | 29,89797592 | 7,06713787 | 8,248680597 | 0 |
| 535 | 42,63232402 | 42,61118625 | 282,0536466 | 508,5207599 | 1017,213939 | 42,60358372 | 2,572544111 | 42,86721139 | 29,93507385 | 7,097640938 | 8,26266358 | 0 |
| 536 | 42,55839871 | 42,53722649 | 281,5265033 | 508,4750219 | 1017,121607 | 42,52961128 | 2,572533542 | 42,9405093 | 29,97217178 | 7,128160061 | 8,276669914 | 0 |
| 537 | 42,48445537 | 42,46324842 | 280,9994062 | 508,4297621 | 1017,034698 | 42,45562016 | 2,572542257 | 43,01431037 | 30,00946045 | 7,15870954 | 8,290771801 | 0 |
| 538 | 42,41049381 | 42,38925208 | 280,4723549 | 508,3850226 | 1016,944347 | 42,38161072 | 2,572538825 | 43,08823828 | 30,04674911 | 7,189275148 | 8,304897282 | 0 |
| 539 | 42,33651411 | 42,31523758 | 279,9453502 | 508,3406539 | 1016,854983 | 42,30758322 | 2,572538945 | 43,16248282 | 30,08413315 | 7,219863776 | 8,319082665 | 0 |
| 540 | 42,26251638 | 42,24120479 | 279,4183921 | 508,2946759 | 1016,766582 | 42,23353728 | 2,572542539 | 43,23704517 | 30,12161255 | 7,250475531 | 8,333328169 | 0 |
| 541 | 42,18850043 | 42,16715371 | 278,8914801 | 508,2508644 | 1016,674706 | 42,15947301 | 2,572533864 | 43,31173632 | 30,15909195 | 7,281103303 | 8,347597656 | 0 |
| 542 | 42,11446633 | 42,09308422 | 278,3646141 | 508,2058079 | 1016,588189 | 42,08539035 | 2,572544251 | 43,3869376 | 30,19676208 | 7,311761116 | 8,361963937 | 0 |
| 543 | 42,04041401 | 42,0189965 | 277,8377946 | 508,1594649 | 1016,498176 | 42,01128941 | 2,572542291 | 43,46226945 | 30,23443222 | 7,342434846 | 8,376354541 | 0 |
| 544 | 41,96634348 | 41,9448905 | 277,3110216 | 508,1149213 | 1016,409073 | 41,93717007 | 2,572543617 | 43,5379233 | 30,27219772 | 7,373131528 | 8,39080602 | 0 |
| 545 | 41,89225481 | 41,8707661 | 276,784295 | 508,0690512 | 1016,316445 | 41,86303229 | 2,572532488 | 43,61370885 | 30,30996323 | 7,403844104 | 8,405282018 | 0 |
| 546 | 41,8181479 | 41,79662339 | 276,2576149 | 508,0252765 | 1016,229126 | 41,78887622 | 2,572540252 | 43,69001007 | 30,34791946 | 7,434586529 | 8,419855855 | 0 |
| 547 | 41,74402275 | 41,72246231 | 275,7309813 | 507,980184 | 1016,138252 | 41,71470176 | 2,572535456 | 43,76644477 | 30,3858757 | 7,465344745 | 8,434454503 | 0 |
| 548 | 41,66987937 | 41,64828286 | 275,2043941 | 507,9339245 | 1016,048233 | 41,64050867 | 2,572533748 | 43,84320575 | 30,42392731 | 7,496125835 | 8,449114828 | 0 |
| 549 | 41,59571776 | 41,57408498 | 274,6778534 | 507,8892482 | 1015,959062 | 41,5662974 | 2,572535106 | 43,92029425 | 30,46207428 | 7,526929581 | 8,463837026 | 0 |
| 550 | 41,52153788 | 41,4998687 | 274,1513592 | 507,8433219 | 1015,870717 | 41,49206749 | 2,572539447 | 43,99771152 | 30,50031662 | 7,557756123 | 8,478621339 | 0 |
| 551 | 41,44733962 | 41,42563397 | 273,6249111 | 507,7994603 | 1015,778761 | 41,41781911 | 2,572531029 | 44,07526526 | 30,53855896 | 7,588598315 | 8,493430998 | 0 |
| 552 | 41,37312307 | 41,35138082 | 273,0985096 | 507,7543105 | 1015,692029 | 41,3435521 | 2,572541207 | 44,15334352 | 30,57699203 | 7,619470255 | 8,508340175 | 0 |
| 553 | 41,29888822 | 41,27710923 | 272,5721547 | 507,7078203 | 1015,601667 | 41,26926687 | 2,572538553 | 44,2315601 | 30,61542511 | 7,650357664 | 8,523275038 | 0 |
| 554 | 41,22463503 | 41,2028191 | 272,045846 | 507,6630355 | 1015,512076 | 41,19496288 | 2,572538687 | 44,31010983 | 30,65395355 | 7,681267753 | 8,538272843 | 0 |
| 555 | 41,15036342 | 41,12851037 | 271,5195831 | 507,6189375 | 1015,423239 | 41,1206403 | 2,572541558 | 44,38899401 | 30,69257736 | 7,712200406 | 8,553333786 | 0 |
| 556 | 41,07607342 | 41,05418325 | 270,9933671 | 507,5731496 | 1015,33073 | 41,04629932 | 2,572531437 | 44,46801863 | 30,73120117 | 7,743148472 | 8,568420804 | 0 |
| 557 | 41,00176511 | 40,97983766 | 270,4671979 | 507,5276917 | 1015,243364 | 40,97193967 | 2,572539637 | 44,54757522 | 30,77001572 | 7,774126084 | 8,583608655 | 0 |
| 558 | 40,92743842 | 40,90547338 | 269,9410748 | 507,4825094 | 1015,152295 | 40,89756134 | 2,572534739 | 44,62727414 | 30,80883026 | 7,80511914 | 8,598822969 | 0 |
| 559 | 40,85309328 | 40,83109063 | 269,4149982 | 507,4373464 | 1015,061929 | 40,82316454 | 2,572532392 | 44,707312 | 30,84774017 | 7,836134544 | 8,614101248 | 0 |
| 560 | 40,7787297 | 40,75668938 | 268,8889684 | 507,3928288 | 1014,972252 | 40,74874929 | 2,572532546 | 44,7876901 | 30,88674545 | 7,867172257 | 8,629443735 | 0 |
| 561 | 40,70434778 | 40,68226953 | 268,3629854 | 507,3465828 | 1014,883242 | 40,67431522 | 2,57253512 | 44,86840977 | 30,9258461 | 7,898232364 | 8,644850672 | 0 |
| 562 | 40,62994742 | 40,60783107 | 267,8370488 | 507,3006731 | 1014,794889 | 40,59986257 | 2,572540083 | 44,94947232 | 30,96504211 | 7,929314742 | 8,660322305 | 0 |
| 563 | 40,5555285 | 40,53337397 | 267,3111584 | 507,2567142 | 1014,702757 | 40,52539105 | 2,572531672 | 45,03068133 | 31,00423813 | 7,960412412 | 8,675821131 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 564 | 40,48109112 | 40,45889827 | 266,7853147 | 507,2114011 | 1014,615665 | 40,450901 | 2,572541223 | 45,11243331 | 31,04362488 | 7,99153928 | 8,691422784 | 0 |
| 565 | 40,40663523 | 40,3844039 | 266,2595173 | 507,1663106 | 1014,524774 | 40,37639228 | 2,572537327 | 45,19433371 | 31,08301163 | 8,022681284 | 8,70705202 | 0 |
| 566 | 40,33216089 | 40,30989094 | 265,733767 | 507,1195524 | 1014,434475 | 40,30186479 | 2,572535586 | 45,27658164 | 31,12249374 | 8,053845454 | 8,722746778 | 0 |
| 567 | 40,25766802 | 40,23535924 | 265,2080628 | 507,0750194 | 1014,344753 | 40,22731858 | 2,572535951 | 45,35917846 | 31,16207123 | 8,085031719 | 8,7385073 | 0 |
| 568 | 40,18315659 | 40,16080881 | 264,6824051 | 507,0303383 | 1014,2556 | 40,1527537 | 2,57253839 | 45,44212553 | 31,20174408 | 8,116240032 | 8,754333879 | 0 |
| 569 | 40,10862661 | 40,08623982 | 264,1567944 | 506,9843162 | 1014,166992 | 40,07817007 | 2,572542818 | 45,52542423 | 31,2415123 | 8,147470367 | 8,770226709 | 0 |
| 570 | 40,03407803 | 40,01165192 | 263,6312294 | 506,9389857 | 1014,074508 | 40,00356755 | 2,572533519 | 45,60887562 | 31,28128052 | 8,1787157 | 8,786147901 | 0 |
| 571 | 39,95951086 | 39,93704539 | 263,1057114 | 506,8934602 | 1013,986945 | 39,92894627 | 2,57254177 | 45,69288133 | 31,32123947 | 8,209990014 | 8,802173964 | 0 |
| 572 | 39,88492518 | 39,86242019 | 262,5802406 | 506,847657 | 1013,895479 | 39,8543061 | 2,572536193 | 45,77704177 | 31,36119843 | 8,241279239 | 8,818228777 | 0 |
| 573 | 39,81032088 | 39,78777618 | 262,0548161 | 506,8026183 | 1013,804503 | 39,7796474 | 2,572532409 | 45,86155863 | 31,40125275 | 8,272590224 | 8,834350718 | 0 |
| 574 | 39,73569797 | 39,71311339 | 261,5294382 | 506,7576952 | 1013,713994 | 39,70496975 | 2,57253034 | 45,94643333 | 31,44140244 | 8,303923093 | 8,850540077 | 0 |
| 575 | 39,66105644 | 39,63843185 | 261,0041071 | 506,7110833 | 1013,623937 | 39,63027319 | 2,572529928 | 46,03166727 | 31,48164749 | 8,335277784 | 8,866797099 | 0 |
| 576 | 39,58639628 | 39,56373147 | 260,4788226 | 506,6661669 | 1013,534317 | 39,55555764 | 2,572531123 | 46,11726185 | 31,52198792 | 8,366654291 | 8,883122074 | 0 |
| 577 | 39,51171742 | 39,48901236 | 259,9535849 | 506,6203086 | 1013,445119 | 39,48082342 | 2,572533873 | 46,20321852 | 31,56242371 | 8,398052428 | 8,899515199 | 0 |
| 578 | 39,4370199 | 39,41427426 | 259,4283934 | 506,5757934 | 1013,356325 | 39,40607029 | 2,57253811 | 46,28953869 | 31,60295486 | 8,429472258 | 8,915976764 | 0 |
| 579 | 39,36230365 | 39,33951742 | 258,9032488 | 506,529896 | 1013,263513 | 39,33129822 | 2,572528102 | 46,37602014 | 31,64348602 | 8,460906684 | 8,932468199 | 0 |
| 580 | 39,28756877 | 39,26474164 | 258,3781508 | 506,4841383 | 1013,175481 | 39,2565071 | 2,572535155 | 46,46307127 | 31,68420792 | 8,492369823 | 8,949067424 | 0 |
| 581 | 39,2128151 | 39,189947 | 257,8530992 | 506,4400614 | 1013,083397 | 39,18169715 | 2,57252784 | 46,5502858 | 31,72492981 | 8,523847419 | 8,965696859 | 0 |
| 582 | 39,1380427 | 39,11513347 | 257,3280945 | 506,3946539 | 1012,996057 | 39,10686823 | 2,572537459 | 46,63807368 | 31,76584244 | 8,555353604 | 8,982434717 | 0 |
| 583 | 39,06325159 | 39,04030111 | 256,8031367 | 506,3474193 | 1012,904634 | 39,03202051 | 2,572532597 | 46,72602713 | 31,80675507 | 8,586874142 | 8,999203174 | 0 |
| 584 | 38,98844178 | 38,96544982 | 256,2782258 | 506,302199 | 1012,813521 | 38,95715373 | 2,572528888 | 46,81435205 | 31,84776306 | 8,618416161 | 9,016041581 | 0 |
| 585 | 38,91361314 | 38,89057952 | 255,7533612 | 506,2572514 | 1012,727086 | 38,88226763 | 2,572541887 | 46,9032559 | 31,88896179 | 8,649986753 | 9,032989383 | 0 |
| 586 | 38,83876569 | 38,81569025 | 255,2285431 | 506,2118998 | 1012,636527 | 38,80736282 | 2,572540253 | 46,99232859 | 31,93016052 | 8,68157153 | 9,049968417 | 0 |
| 587 | 38,76389942 | 38,74078196 | 254,7037715 | 506,167083 | 1012,546221 | 38,73243887 | 2,572539572 | 47,08177721 | 31,97145462 | 8,713177674 | 9,067018179 | 0 |
| 588 | 38,68901432 | 38,66585471 | 254,1790466 | 506,1205041 | 1012,456144 | 38,65749584 | 2,572539758 | 47,17160326 | 32,01284409 | 8,744805099 | 9,084138863 | 0 |
| 589 | 38,61411035 | 38,59090836 | 253,6543679 | 506,0759149 | 1012,36629 | 38,5825336 | 2,572540784 | 47,26180825 | 32,05432892 | 8,776453834 | 9,101330858 | 0 |
| 590 | 38,53918755 | 38,51594319 | 253,1297367 | 506,0294183 | 1012,276643 | 38,50755262 | 2,572542601 | 47,3523937 | 32,09590912 | 8,808123629 | 9,118594359 | 0 |
| 591 | 38,46424594 | 38,44095885 | 252,6051519 | 505,9845581 | 1012,182771 | 38,43255234 | 2,572529418 | 47,44315278 | 32,13748932 | 8,839807592 | 9,13588992 | 0 |
| 592 | 38,38928546 | 38,36595549 | 252,0806138 | 505,9386573 | 1012,093466 | 38,35753296 | 2,572532555 | 47,53450334 | 32,17926025 | 8,871519728 | 9,153297212 | 0 |
| 593 | 38,3143061 | 38,2909332 | 251,556123 | 505,8924142 | 1012,004309 | 38,28249455 | 2,572536267 | 47,62623895 | 32,22112656 | 8,903252898 | 9,170776837 | 0 |
| 594 | 38,23930784 | 38,21589166 | 251,0316783 | 505,8477705 | 1011,91528 | 38,20743679 | 2,572540487 | 47,71836118 | 32,26308823 | 8,93500718 | 9,188329135 | 0 |
| 595 | 38,16429062 | 38,14083116 | 250,5072807 | 505,8016541 | 1011,826369 | 38,13236019 | 2,57254518 | 47,81087157 | 32,30514526 | 8,966782334 | 9,20595435 | 0 |
| 596 | 38,08925452 | 38,06575146 | 249,9829296 | 505,7555702 | 1011,733152 | 38,05726424 | 2,572534575 | 47,90356131 | 32,3472023 | 8,998571433 | 9,223612696 | 0 |
| 597 | 38,01419946 | 37,99065271 | 249,4586254 | 505,7110375 | 1011,644397 | 37,98214899 | 2,572539921 | 47,99685233 | 32,38945007 | 9,030388535 | 9,241384475 | 0 |
| 598 | 37,93912551 | 37,91553479 | 248,9343681 | 505,6648912 | 1011,555709 | 37,90701469 | 2,57254556 | 48,09053624 | 32,43179321 | 9,062226448 | 9,259230095 | 0 |
| 599 | 37,86403255 | 37,84039781 | 248,4101577 | 505,6189106 | 1011,462662 | 37,83186121 | 2,572535704 | 48,18440301 | 32,47413635 | 9,094078093 | 9,27710943 | 0 |
| 600 | 37,78892068 | 37,76524174 | 247,8859947 | 505,57289 | 1011,374032 | 37,75668859 | 2,57254165 | 48,27887705 | 32,51667023 | 9,125957543 | 9,295103366 | 0 |
| 601 | 37,71378978 | 37,69006628 | 247,3618775 | 505,528439 | 1011,281 | 37,68149648 | 2,572531949 | 48,37353633 | 32,5592041 | 9,157850745 | 9,313131454 | 0 |
| 602 | 37,63863986 | 37,61487179 | 246,8378077 | 505,4824275 | 1011,19235 | 37,6062853 | 2,57253792 | 48,46880694 | 32,60192871 | 9,18977163 | 9,331274873 | 0 |
| 603 | 37,56347093 | 37,53965797 | 246,3137842 | 505,4364259 | 1011,099264 | 37,53105468 | 2,572528122 | 48,56426518 | 32,64465332 | 9,221706144 | 9,349452882 | 0 |
| 604 | 37,48828304 | 37,46442514 | 245,7898086 | 505,3902269 | 1011,010526 | 37,45580502 | 2,572533878 | 48,66033884 | 32,68756866 | 9,253668238 | 9,367747 | 0 |
| 605 | 37,41307612 | 37,38917296 | 245,2658795 | 505,3441661 | 1010,921706 | 37,38053595 | 2,572539393 | 48,75681669 | 32,73057938 | 9,285650921 | 9,386116907 | 0 |
| 606 | 37,33785005 | 37,31390153 | 244,7419968 | 505,2995874 | 1010,828396 | 37,30524754 | 2,572528938 | 48,85348583 | 32,77359009 | 9,317647044 | 9,404522036 | 0 |
| 607 | 37,26260491 | 37,23861087 | 244,2181612 | 505,2538533 | 1010,739369 | 37,22993988 | 2,572533811 | 48,95077659 | 32,81679153 | 9,349670672 | 9,423044393 | 0 |
| 608 | 37,18734077 | 37,16330092 | 243,6943726 | 505,2071586 | 1010,650207 | 37,15461268 | 2,572538255 | 49,04847652 | 32,86008835 | 9,381714801 | 9,441643512 | 0 |
| 609 | 37,11205741 | 37,0879715 | 243,1706299 | 505,1628465 | 1010,560886 | 37,07926616 | 2,57254218 | 49,14658729 | 32,90348053 | 9,413779279 | 9,460319586 | 0 |
| 610 | 37,03675489 | 37,01262292 | 242,6469344 | 505,1164808 | 1010,471388 | 37,00390023 | 2,572545523 | 49,24511059 | 32,94696808 | 9,445864088 | 9,479072956 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 611 | 36,96143327 | 36,93725487 | 242,1232853 | 505,0715013 | 1010,377312 | 36,92851495 | 2,572532575 | 49,34383139 | 32,99045563 | 9,477962092 | 9,497862717 | 0 |
| 612 | 36,88609256 | 36,86186772 | 241,5996841 | 505,0248867 | 1010,287416 | 36,85311038 | 2,572534595 | 49,44318439 | 33,03413391 | 9,510087366 | 9,516771603 | 0 |
| 613 | 36,81073273 | 36,78646111 | 241,0761296 | 504,9786638 | 1010,197283 | 36,77768633 | 2,572535815 | 49,54295501 | 33,07790756 | 9,542232852 | 9,535758711 | 0 |
| 614 | 36,73535372 | 36,71103511 | 240,5526218 | 504,9333522 | 1010,106892 | 36,70224265 | 2,572536165 | 49,64314499 | 33,12177658 | 9,574398551 | 9,554824379 | 0 |
| 615 | 36,65995553 | 36,63558974 | 240,029161 | 504,8879033 | 1010,016232 | 36,62677977 | 2,572535604 | 49,74375605 | 33,16574097 | 9,606584253 | 9,573968901 | 0 |
| 616 | 36,58453815 | 36,56012502 | 239,5057471 | 504,8412954 | 1009,925272 | 36,55129732 | 2,572534018 | 49,84478992 | 33,20980072 | 9,63879004 | 9,593192568 | 0 |
| 617 | 36,50910155 | 36,48464085 | 238,9823801 | 504,7956949 | 1009,834002 | 36,47579541 | 2,572531372 | 49,94624835 | 33,25395584 | 9,671015829 | 9,612495769 | 0 |
| 618 | 36,43364572 | 36,40913726 | 238,45906 | 504,7502522 | 1009,746771 | 36,40027391 | 2,572543195 | 50,04835291 | 33,2983017 | 9,703268678 | 9,63192053 | 0 |
| 619 | 36,35817062 | 36,3336142 | 237,9357865 | 504,7046836 | 1009,654802 | 36,3247329 | 2,572538152 | 50,1506662 | 33,34264755 | 9,735534371 | 9,651383724 | 0 |
| 620 | 36,28267631 | 36,25807175 | 237,4125603 | 504,6585523 | 1009,562456 | 36,24917248 | 2,572531807 | 50,25340935 | 33,38708878 | 9,767819869 | 9,670927329 | 0 |
| 621 | 36,20716275 | 36,18250985 | 236,8893811 | 504,6127012 | 1009,474091 | 36,17359246 | 2,572539726 | 50,35680531 | 33,43172073 | 9,800132285 | 9,690593758 | 0 |
| 622 | 36,13162995 | 36,10692838 | 236,3662488 | 504,5665357 | 1009,385297 | 36,09799269 | 2,572546165 | 50,46063561 | 33,47644806 | 9,832464538 | 9,710341424 | 0 |
| 623 | 36,05607781 | 36,03132751 | 235,8431634 | 504,5203277 | 1009,291689 | 36,02237366 | 2,572535455 | 50,56468 | 33,52117538 | 9,864809313 | 9,73012845 | 0 |
| 624 | 35,98050641 | 35,95570702 | 235,3201249 | 504,4752901 | 1009,201988 | 35,9467347 | 2,572538746 | 50,66938399 | 33,56609344 | 9,897180971 | 9,750039515 | 0 |
| 625 | 35,90491569 | 35,88006718 | 234,7971339 | 504,4286168 | 1009,11181 | 35,87107658 | 2,572540383 | 50,77452777 | 33,61110687 | 9,929572076 | 9,770032792 | 0 |
| 626 | 35,82930564 | 35,80440763 | 234,2741892 | 504,3836151 | 1009,021116 | 35,79539858 | 2,572540224 | 50,8801132 | 33,65621567 | 9,961982853 | 9,790108619 | 0 |
| 627 | 35,75367623 | 35,72872858 | 233,7512917 | 504,3365913 | 1008,929891 | 35,71970092 | 2,572538215 | 50,98614211 | 33,70141983 | 9,994413164 | 9,810267339 | 0 |
| 628 | 35,67802748 | 35,65302995 | 233,2284411 | 504,2910713 | 1008,838112 | 35,64398351 | 2,572534272 | 51,09261636 | 33,74671936 | 10,02686299 | 9,830509291 | 0 |
| 629 | 35,60235944 | 35,57731185 | 232,7056383 | 504,244783 | 1008,745762 | 35,56824685 | 2,572528332 | 51,19953782 | 33,79211426 | 10,05933207 | 9,850834719 | 0 |
| 630 | 35,52667198 | 35,50157409 | 232,182882 | 504,1993355 | 1008,657187 | 35,49249023 | 2,572535937 | 51,30713371 | 33,83769989 | 10,09182772 | 9,871286912 | 0 |
| 631 | 35,4509651 | 35,42581659 | 231,6601722 | 504,1531524 | 1008,567992 | 35,41671374 | 2,572541369 | 51,41518151 | 33,88338089 | 10,12434277 | 9,891823554 | 0 |
| 632 | 35,37523889 | 35,35003973 | 231,1375106 | 504,1060124 | 1008,473778 | 35,34091788 | 2,572528906 | 51,52345684 | 33,92906189 | 10,15686987 | 9,912401842 | 0 |
| 633 | 35,29949331 | 35,27424309 | 230,6148957 | 504,0610521 | 1008,387647 | 35,26510219 | 2,572545393 | 51,63264048 | 33,97502899 | 10,18943041 | 9,933151256 | 0 |
| 634 | 35,2237282 | 35,19842677 | 230,0923275 | 504,0141284 | 1008,296455 | 35,18926682 | 2,572543827 | 51,74205549 | 34,02099609 | 10,22200302 | 9,953943094 | 0 |
| 635 | 35,1479436 | 35,12259067 | 229,5698057 | 503,9699824 | 1008,204539 | 35,11341137 | 2,572539722 | 51,85193008 | 34,06705856 | 10,25459486 | 9,974820696 | 0 |
| 636 | 35,07213959 | 35,04673506 | 229,0473317 | 503,9222902 | 1008,111895 | 35,03753646 | 2,572533056 | 51,96226621 | 34,1132164 | 10,28720566 | 9,9957844 | 0 |
| 637 | 34,99631621 | 34,97085971 | 228,524905 | 503,8759678 | 1008,022854 | 34,96164156 | 2,572539326 | 52,07329451 | 34,15956497 | 10,31984264 | 10,01687798 | 0 |
| 638 | 34,9204732 | 34,89496458 | 228,0025246 | 503,831428 | 1007,93304 | 34,88572712 | 2,572542875 | 52,18478923 | 34,20600891 | 10,35249849 | 10,0380586 | 0 |
| 639 | 34,84461073 | 34,81904972 | 227,4801913 | 503,7845577 | 1007,842405 | 34,80979249 | 2,572543534 | 52,29675235 | 34,25254822 | 10,38517339 | 10,05932653 | 0 |
| 640 | 34,76872877 | 34,74311513 | 226,9579053 | 503,7387091 | 1007,750948 | 34,73383838 | 2,572541299 | 52,40918586 | 34,29918289 | 10,41786703 | 10,08068217 | 0 |
| 641 | 34,69282722 | 34,66716072 | 226,4356658 | 503,6931085 | 1007,658627 | 34,65786419 | 2,572536021 | 52,52209177 | 34,34591293 | 10,45057956 | 10,10212586 | 0 |
| 642 | 34,61690618 | 34,59118664 | 225,913474 | 503,6468998 | 1007,565427 | 34,58187022 | 2,572527638 | 52,63547207 | 34,39273834 | 10,48331081 | 10,12365794 | 0 |
| 643 | 34,54096566 | 34,51519274 | 225,3913293 | 503,6004149 | 1007,475693 | 34,50585639 | 2,572531708 | 52,74956046 | 34,43975449 | 10,51606786 | 10,14532282 | 0 |
| 644 | 34,46500552 | 34,4391791 | 224,8692318 | 503,5549619 | 1007,385026 | 34,42982274 | 2,572532484 | 52,86412831 | 34,486866 | 10,54884352 | 10,16707697 | 0 |
| 645 | 34,38902591 | 34,3631457 | 224,3471819 | 503,5076121 | 1007,293408 | 34,35376925 | 2,572529901 | 52,97917767 | 34,53407288 | 10,58163775 | 10,18892082 | 0 |
| 646 | 34,31302669 | 34,28709229 | 223,8251783 | 503,4618706 | 1007,205162 | 34,27769555 | 2,572539435 | 53,09494378 | 34,58147049 | 10,61445772 | 10,21089893 | 0 |
| 647 | 34,2370078 | 34,21101914 | 223,3032221 | 503,4155487 | 1007,111559 | 34,20160217 | 2,572529837 | 53,21096285 | 34,6288681 | 10,64728899 | 10,23292336 | 0 |
| 648 | 34,16096934 | 34,13492604 | 222,7813127 | 503,3702084 | 1007,021275 | 34,12548849 | 2,572532167 | 53,32770385 | 34,67645645 | 10,68014592 | 10,25508297 | 0 |
| 649 | 34,08491126 | 34,0588133 | 222,2594513 | 503,3230339 | 1006,934313 | 34,04935531 | 2,572546442 | 53,44517041 | 34,72423553 | 10,71302814 | 10,2773785 | 0 |
| 650 | 34,00883349 | 33,98268045 | 221,7376361 | 503,2774359 | 1006,841896 | 33,97320193 | 2,572541225 | 53,56289572 | 34,77201462 | 10,74592167 | 10,29972127 | 0 |
| 651 | 33,93273612 | 33,90652768 | 221,2158681 | 503,2310767 | 1006,748366 | 33,89702842 | 2,572532068 | 53,68111611 | 34,81988907 | 10,77883351 | 10,32215612 | 0 |
| 652 | 33,85661905 | 33,83035508 | 220,6941475 | 503,185745 | 1006,658062 | 33,82083492 | 2,57253451 | 53,80006998 | 34,86795425 | 10,81177065 | 10,34472826 | 0 |
| 653 | 33,78048238 | 33,75416259 | 220,1724743 | 503,1385002 | 1006,566606 | 33,74462165 | 2,57253287 | 53,91952425 | 34,91611481 | 10,84472584 | 10,36739345 | 0 |
| 654 | 33,70432603 | 33,67795016 | 219,6508484 | 503,0922464 | 1006,473966 | 33,66838824 | 2,572527036 | 54,03948108 | 34,96437073 | 10,87769918 | 10,39015215 | 0 |
| 655 | 33,62814999 | 33,60171781 | 219,1292698 | 503,0462259 | 1006,384464 | 33,59213477 | 2,572532484 | 54,16018051 | 35,01281738 | 10,91069765 | 10,41304967 | 0 |
| 656 | 33,55195422 | 33,52546535 | 218,6077379 | 503,0007179 | 1006,293716 | 33,51586118 | 2,572533517 | 54,28138792 | 35,06135941 | 10,94371411 | 10,43604158 | 0 |
| 657 | 33,47573876 | 33,44919305 | 218,0862537 | 502,9532323 | 1006,206061 | 33,43956759 | 2,572545682 | 54,40334444 | 35,11009216 | 10,97675556 | 10,45917358 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 658 | 33,39950349 | 33,37290064 | 217,5648161 | 502,9072313 | 1006,112756 | 33,36325386 | 2,572537642 | 54,52557497 | 35,15882492 | 11,00980781 | 10,4823556 | 0 |
| 659 | 33,32324851 | 33,2965882 | 217,0434258 | 502,8605194 | 1006,022475 | 33,28691996 | 2,572540484 | 54,64856013 | 35,20774841 | 11,04288497 | 10,50567859 | 0 |
| 660 | 33,24697381 | 33,22025578 | 216,5220831 | 502,8144059 | 1005,930849 | 33,21056593 | 2,572538551 | 54,77206324 | 35,25676727 | 11,07597989 | 10,52909781 | 0 |
| 661 | 33,17067928 | 33,14390329 | 216,0007872 | 502,7685006 | 1005,837838 | 33,13419167 | 2,572531696 | 54,89608656 | 35,3058815 | 11,10909253 | 10,55261355 | 0 |
| 662 | 33,09436504 | 33,06753089 | 215,4795393 | 502,721713 | 1005,747777 | 33,0577974 | 2,572535463 | 55,02087399 | 35,35518646 | 11,14222983 | 10,57627201 | 0 |
| 663 | 33,01803097 | 32,99113825 | 214,958338 | 502,6760203 | 1005,656286 | 32,98138307 | 2,572534148 | 55,14618727 | 35,40458679 | 11,17538467 | 10,60002806 | 0 |
| 664 | 32,94167706 | 32,91472543 | 214,4371835 | 502,6299543 | 1005,567676 | 32,90494814 | 2,572543208 | 55,27227146 | 35,45417786 | 11,20856428 | 10,6239281 | 0 |
| 665 | 32,86530323 | 32,83829258 | 213,9160761 | 502,5834387 | 1005,473227 | 32,82849333 | 2,572531375 | 55,39864391 | 35,50376892 | 11,24175412 | 10,64788059 | 0 |
| 666 | 32,7889097 | 32,76183967 | 213,3950167 | 502,5372279 | 1005,381602 | 32,75201807 | 2,57252971 | 55,52579302 | 35,55355072 | 11,27496853 | 10,67197804 | 0 |
| 667 | 32,71249631 | 32,68536669 | 212,8740046 | 502,4899059 | 1005,292775 | 32,67552266 | 2,572538128 | 55,6537228 | 35,60352325 | 11,30820734 | 10,69622114 | 0 |
| 668 | 32,63606304 | 32,60887344 | 212,3530393 | 502,4432149 | 1005,202374 | 32,59900718 | 2,572540943 | 55,78219231 | 35,65359116 | 11,34146334 | 10,72056426 | 0 |
| 669 | 32,55960988 | 32,53236003 | 211,8321212 | 502,3971052 | 1005,110361 | 32,52247114 | 2,572538023 | 55,91120393 | 35,70375443 | 11,37473668 | 10,74500789 | 0 |
| 670 | 32,48313685 | 32,45582652 | 211,3112507 | 502,3507041 | 1005,016707 | 32,4459152 | 2,572529257 | 56,04076005 | 35,75401306 | 11,408027 | 10,76955223 | 0 |
| 671 | 32,40664395 | 32,37927274 | 210,7904273 | 502,3050064 | 1004,93008 | 32,36933838 | 2,572545749 | 56,17135644 | 35,8045578 | 11,44134886 | 10,79429143 | 0 |
| 672 | 32,33013096 | 32,30269862 | 210,26965 | 502,259367 | 1004,837397 | 32,29274139 | 2,572540557 | 56,30225718 | 35,85510254 | 11,47468056 | 10,81908581 | 0 |
| 673 | 32,25359818 | 32,22610459 | 209,7489216 | 502,2107535 | 1004,747343 | 32,21612446 | 2,572544843 | 56,43395867 | 35,90583801 | 11,50803617 | 10,84402943 | 0 |
| 674 | 32,17704553 | 32,1494902 | 209,2282402 | 502,1646978 | 1004,651179 | 32,13948705 | 2,572527242 | 56,56596822 | 35,95657349 | 11,54140163 | 10,86902901 | 0 |
| 675 | 32,10047294 | 32,07285563 | 208,7076063 | 502,1184454 | 1004,561908 | 32,06282919 | 2,572534427 | 56,69903361 | 36,00759506 | 11,57479816 | 10,89422599 | 0 |
| 676 | 32,02388039 | 31,99620073 | 208,1870196 | 502,0717674 | 1004,470819 | 31,98615094 | 2,57253513 | 56,83266161 | 36,05871201 | 11,60821147 | 10,91952709 | 0 |
| 677 | 31,94726784 | 31,91952554 | 207,6664799 | 502,0265218 | 1004,377869 | 31,90945234 | 2,572529198 | 56,96685474 | 36,10992432 | 11,64164145 | 10,94493258 | 0 |
| 678 | 31,87063531 | 31,84283003 | 207,1459875 | 501,9797563 | 1004,287389 | 31,83273342 | 2,572532172 | 57,10186629 | 36,16132736 | 11,67509516 | 10,97049053 | 0 |
| 679 | 31,7939828 | 31,76611432 | 206,6255428 | 501,9321464 | 1004,199331 | 31,75599402 | 2,572543891 | 57,23770057 | 36,21292114 | 11,70857256 | 10,99620162 | 0 |
| 680 | 31,71731023 | 31,68937825 | 206,1051451 | 501,8856829 | 1004,104972 | 31,67923418 | 2,572533028 | 57,37385797 | 36,26451492 | 11,74205936 | 11,02197119 | 0 |
| 681 | 31,6406177 | 31,61262183 | 205,5847949 | 501,8394799 | 1004,012982 | 31,602454 | 2,572530716 | 57,51084441 | 36,31629944 | 11,77556967 | 11,04789508 | 0 |
| 682 | 31,56390515 | 31,53584514 | 205,0644923 | 501,7929156 | 1003,923305 | 31,52565301 | 2,572536753 | 57,6486643 | 36,36827469 | 11,80910358 | 11,07397395 | 0 |
| 683 | 31,48717258 | 31,45904807 | 204,5442371 | 501,7456326 | 1003,831591 | 31,44883191 | 2,572535518 | 57,78706824 | 36,42034531 | 11,84265366 | 11,10016063 | 0 |
| 684 | 31,41041993 | 31,38223057 | 204,024029 | 501,7004648 | 1003,737801 | 31,37199037 | 2,572526868 | 57,92605887 | 36,47251129 | 11,87621996 | 11,12645561 | 0 |
| 685 | 31,33364726 | 31,30539274 | 203,5038686 | 501,6531841 | 1003,650559 | 31,29512802 | 2,572541788 | 58,06614885 | 36,52496338 | 11,90981675 | 11,15295567 | 0 |
| 686 | 31,25685438 | 31,2285344 | 202,9837547 | 501,6070532 | 1003,556831 | 31,21824512 | 2,572533446 | 58,20657763 | 36,57741547 | 11,94342255 | 11,17951705 | 0 |
| 687 | 31,18004153 | 31,15165574 | 202,4636889 | 501,559562 | 1003,465275 | 31,14134197 | 2,572532955 | 58,34785853 | 36,63005829 | 11,97705138 | 11,20623682 | 0 |
| 688 | 31,10320852 | 31,07475661 | 201,9436702 | 501,5133194 | 1003,375825 | 31,06441784 | 2,572540072 | 58,4899961 | 36,68289185 | 12,01070345 | 11,23311566 | 0 |
| 689 | 31,02635545 | 30,99783706 | 201,4236992 | 501,4658583 | 1003,284135 | 30,98747362 | 2,572539184 | 58,63273743 | 36,73582077 | 12,04437122 | 11,26010573 | 0 |
| 690 | 30,94948221 | 30,92089703 | 200,9037753 | 501,4195252 | 1003,194485 | 30,91050843 | 2,572545676 | 58,77634338 | 36,78894043 | 12,07806207 | 11,28725633 | 0 |
| 691 | 30,87258885 | 30,84393649 | 200,3838988 | 501,372901 | 1003,102516 | 30,83352278 | 2,572543872 | 58,92055983 | 36,84215546 | 12,11176862 | 11,31451931 | 0 |
| 692 | 30,79567529 | 30,76695547 | 199,8640695 | 501,3264109 | 1003,008186 | 30,75651642 | 2,572533624 | 59,06538954 | 36,89546585 | 12,14549088 | 11,34189516 | 0 |
| 693 | 30,71874158 | 30,68995387 | 199,3442874 | 501,2805437 | 1002,91581 | 30,67948957 | 2,572530442 | 59,21109533 | 36,94896698 | 12,17923581 | 11,36943359 | 0 |
| 694 | 30,64178771 | 30,61293187 | 198,8245532 | 501,2336136 | 1002,825345 | 30,60244218 | 2,572534175 | 59,35768194 | 37,00265884 | 12,21300336 | 11,39713538 | 0 |
| 695 | 30,56481374 | 30,53588939 | 198,3048669 | 501,1865059 | 1002,736745 | 30,52537387 | 2,57254466 | 59,50515412 | 37,05654144 | 12,24679358 | 11,42500141 | 0 |
| 696 | 30,48781955 | 30,45882623 | 197,7852274 | 501,1398697 | 1002,645645 | 30,44828496 | 2,572546196 | 59,65325467 | 37,11051941 | 12,28059916 | 11,45298294 | 0 |
| 697 | 30,41080508 | 30,38174254 | 197,2656352 | 501,0932025 | 1002,552003 | 30,37117533 | 2,572538635 | 59,80198646 | 37,16459274 | 12,31442007 | 11,48108045 | 0 |
| 698 | 30,33377051 | 30,30463836 | 196,7460913 | 501,0455756 | 1002,460125 | 30,2940451 | 2,572537461 | 59,95161568 | 37,21885681 | 12,3482633 | 11,50934424 | 0 |
| 699 | 30,25671567 | 30,22751359 | 196,2265945 | 500,9990081 | 1002,365635 | 30,21689409 | 2,572526932 | 60,10188324 | 37,27321625 | 12,38212171 | 11,53772528 | 0 |
| 700 | 30,1796406 | 30,15036814 | 195,7071451 | 500,9529337 | 1002,27716 | 30,13972235 | 2,572538088 | 60,2533213 | 37,32786179 | 12,41600945 | 11,56632407 | 0 |
| 701 | 30,10254525 | 30,07320206 | 195,1877429 | 500,9054653 | 1002,186004 | 30,06252983 | 2,572539638 | 60,40540623 | 37,38260269 | 12,44991223 | 11,59504166 | 0 |
| 702 | 30,0254296 | 29,99601535 | 194,6683882 | 500,8589811 | 1002,092118 | 29,98531654 | 2,572531411 | 60,55814099 | 37,43743896 | 12,48382995 | 11,62387845 | 0 |
| 703 | 29,94829374 | 29,91880805 | 194,1490813 | 500,8113778 | 1002,004126 | 29,90808236 | 2,572544434 | 60,71206186 | 37,49256134 | 12,5177768 | 11,65293571 | 0 |
| 704 | 29,87113757 | 29,84158012 | 193,6298219 | 500,7643851 | 1001,909009 | 29,83082764 | 2,57253186 | 60,86637394 | 37,54768372 | 12,55173122 | 11,68206323 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 705 | 29,79396121 | 29,76433159 | 193,1106106 | 500,7173719 | 1001,819704 | 29,75355204 | 2,572540249 | 61,02188222 | 37,60309219 | 12,58571462 | 11,71141297 | 0 |
| 706 | 29,71676445 | 29,68706215 | 192,5914458 | 500,6716978 | 1001,727511 | 29,67625543 | 2,572538283 | 61,1780565 | 37,65859604 | 12,61971271 | 11,74088473 | 0 |
| 707 | 29,63954734 | 29,60977202 | 192,0723285 | 500,624346 | 1001,63241 | 29,59893803 | 2,572525894 | 61,33489986 | 37,71419525 | 12,65372536 | 11,7704792 | 0 |
| 708 | 29,56230995 | 29,5324613 | 191,5532592 | 500,5773178 | 1001,542995 | 29,5215998 | 2,572534015 | 61,4929555 | 37,77008057 | 12,68776669 | 11,80029861 | 0 |
| 709 | 29,48505217 | 29,45512975 | 191,034237 | 500,5303073 | 1001,454905 | 29,44424069 | 2,57254695 | 61,65195998 | 37,82615662 | 12,72182953 | 11,83029326 | 0 |
| 710 | 29,40777405 | 29,37777759 | 190,5152628 | 500,4826428 | 1001,35946 | 29,36686087 | 2,572533446 | 61,8113756 | 37,88223267 | 12,75589952 | 11,86036167 | 0 |
| 711 | 29,33047565 | 29,30040467 | 189,9963364 | 500,4358686 | 1001,269576 | 29,28946008 | 2,572540011 | 61,97201993 | 37,93859482 | 12,789998 | 11,89065795 | 0 |
| 712 | 29,25315681 | 29,22301083 | 189,4774569 | 500,3897993 | 1001,176562 | 29,21203806 | 2,572535346 | 62,13335464 | 37,99505234 | 12,82411076 | 11,92108054 | 0 |
| 713 | 29,17581758 | 29,1455962 | 188,9586249 | 500,3431481 | 1001,084706 | 29,13459526 | 2,572534893 | 62,29565655 | 38,05170059 | 12,85824464 | 11,95168147 | 0 |
| 714 | 29,09845797 | 29,06816081 | 188,4398407 | 500,2949103 | 1000,99397 | 29,05713148 | 2,572538518 | 62,45893103 | 38,10853958 | 12,89239965 | 11,98246183 | 0 |
| 715 | 29,0210779 | 28,99070471 | 187,9211042 | 500,2483834 | 1000,899986 | 28,97964695 | 2,572530484 | 62,62290848 | 38,16547394 | 12,92656847 | 12,01337053 | 0 |
| 716 | 28,9436775 | 28,91322757 | 187,4024149 | 500,2016678 | 1000,811332 | 28,90214098 | 2,572541697 | 62,78814368 | 38,2226944 | 12,96076552 | 12,04451216 | 0 |
| 717 | 28,86625653 | 28,8357297 | 186,8837731 | 500,1544236 | 1000,715048 | 28,82461447 | 2,57252546 | 62,95381487 | 38,27991486 | 12,99496903 | 12,07573185 | 0 |
| 718 | 28,78881524 | 28,75821094 | 186,3651792 | 500,107102 | 1000,628318 | 28,74706651 | 2,572543693 | 63,12103206 | 38,33751678 | 13,02920771 | 12,10723855 | 0 |
| 719 | 28,71135344 | 28,68067133 | 185,8466328 | 500,0599402 | 1000,533874 | 28,6694979 | 2,572534172 | 63,2886934 | 38,39511871 | 13,06345272 | 12,13882477 | 0 |
| 720 | 28,63387118 | 28,60311078 | 185,3281338 | 500,013181 | 1000,440266 | 28,59190795 | 2,572527705 | 63,45735748 | 38,45291138 | 13,09771843 | 12,17059547 | 0 |
| 721 | 28,55636844 | 28,52552928 | 184,8096822 | 499,9668813 | 1000,351772 | 28,51429694 | 2,572539714 | 63,62730935 | 38,51099014 | 13,13201176 | 12,20260426 | 0 |
| 722 | 28,47884527 | 28,44792718 | 184,2912795 | 499,9176304 | 1000,25974 | 28,43666513 | 2,572539011 | 63,79799658 | 38,56916428 | 13,16631831 | 12,23474714 | 0 |
| 723 | 28,40130158 | 28,37030375 | 183,772923 | 499,8721971 | 1000,164093 | 28,35901206 | 2,572525319 | 63,96942265 | 38,62743378 | 13,20063814 | 12,2670245 | 0 |
| 724 | 28,32373738 | 28,29265952 | 183,2546146 | 499,8236727 | 1000,073429 | 28,28133787 | 2,572529638 | 64,14215443 | 38,68598938 | 13,23498534 | 12,29954316 | 0 |
| 725 | 28,24615262 | 28,2149944 | 182,7363539 | 499,7776246 | 999,9833868 | 28,20364246 | 2,572536238 | 64,31591756 | 38,74473572 | 13,26935276 | 12,33225136 | 0 |
| 726 | 28,1685474 | 28,13730819 | 182,2181407 | 499,7294529 | 999,8939084 | 28,12592585 | 2,572544917 | 64,49071788 | 38,80367279 | 13,30374025 | 12,36514999 | 0 |
| 727 | 28,09092155 | 28,05960106 | 181,6999751 | 499,6830634 | 999,7963575 | 28,04818861 | 2,572524525 | 64,66599327 | 38,86260986 | 13,33813331 | 12,39813329 | 0 |
| 728 | 28,01327525 | 27,98187275 | 181,1818568 | 499,6363332 | 999,707875 | 27,97042951 | 2,572536883 | 64,84288415 | 38,92192841 | 13,37256075 | 12,43141568 | 0 |
| 729 | 27,93560828 | 27,90412361 | 180,6637866 | 499,5887143 | 999,615529 | 27,89264948 | 2,572535348 | 65,02054446 | 38,98134232 | 13,40700078 | 12,464838 | 0 |
| 730 | 27,85792078 | 27,82635332 | 180,1457636 | 499,5412959 | 999,523547 | 27,81484824 | 2,57253517 | 65,19926422 | 39,04094696 | 13,4414605 | 12,49845444 | 0 |
| 731 | 27,78021268 | 27,74856196 | 179,6277883 | 499,4935632 | 999,4319103 | 27,73702567 | 2,57253628 | 65,37904949 | 39,10074234 | 13,47593991 | 12,53226647 | 0 |
| 732 | 27,70248404 | 27,6707497 | 179,1098613 | 499,4460159 | 999,3405462 | 27,65918217 | 2,572538416 | 65,55990636 | 39,16072845 | 13,51043869 | 12,56627466 | 0 |
| 733 | 27,62473475 | 27,59291629 | 178,5919816 | 499,3990195 | 999,2451152 | 27,58131722 | 2,57252592 | 65,74155226 | 39,22080994 | 13,54494988 | 12,60042618 | 0 |
| 734 | 27,54696492 | 27,51506185 | 178,07415 | 499,3517668 | 999,1584684 | 27,50343112 | 2,572545166 | 65,92485955 | 39,28127289 | 13,57949457 | 12,63488469 | 0 |
| 735 | 27,46917443 | 27,43718615 | 177,5563655 | 499,3042658 | 999,0633396 | 27,42552345 | 2,572533845 | 66,10867797 | 39,34173584 | 13,6140444 | 12,669434 | 0 |
| 736 | 27,39136329 | 27,35928929 | 177,0386285 | 499,2568719 | 998,9725795 | 27,34759447 | 2,572538335 | 66,29388237 | 39,40248489 | 13,64862045 | 12,70423824 | 0 |
| 737 | 27,31353148 | 27,28137139 | 176,5209394 | 499,2096456 | 998,881854 | 27,26964426 | 2,572542993 | 66,48018956 | 39,46342468 | 13,68321553 | 12,73924429 | 0 |
| 738 | 27,23567892 | 27,20343223 | 176,0032974 | 499,1628582 | 998,7868033 | 27,19167278 | 2,57253208 | 66,66731313 | 39,52445984 | 13,71782242 | 12,77439816 | 0 |
| 739 | 27,15780584 | 27,1254721 | 175,4857042 | 499,1148871 | 998,6959645 | 27,11368 | 2,572536415 | 66,85584425 | 39,5857811 | 13,75245522 | 12,80981066 | 0 |
| 740 | 27,07991207 | 27,04749075 | 174,9681585 | 499,0674472 | 998,6049929 | 27,03566565 | 2,572540315 | 67,04549743 | 39,64729309 | 13,78710686 | 12,84542828 | 0 |
| 741 | 27,00199761 | 26,96948805 | 174,45066 | 499,0202125 | 998,5095359 | 26,95762998 | 2,572528061 | 67,2359839 | 39,70890045 | 13,82177 | 12,88119654 | 0 |
| 742 | 26,92406244 | 26,89146416 | 173,9332093 | 498,9728041 | 998,4224341 | 26,87957287 | 2,572546024 | 67,42819609 | 39,77088928 | 13,85646593 | 12,91728298 | 0 |
| 743 | 26,8461064 | 26,81341898 | 173,4158055 | 498,9257417 | 998,3264448 | 26,80149449 | 2,572531932 | 67,62095777 | 39,83287811 | 13,89116601 | 12,95346654 | 0 |
| 744 | 26,76812978 | 26,73535278 | 172,8984507 | 498,8777152 | 998,2386815 | 26,72339447 | 2,572547595 | 67,81546184 | 39,89524841 | 13,92589873 | 12,98997101 | 0 |
| 745 | 26,69013245 | 26,65726507 | 172,3811428 | 498,8296861 | 998,1419233 | 26,64527296 | 2,572530809 | 68,01052538 | 39,95761871 | 13,96063548 | 13,02657436 | 0 |
| 746 | 26,61211435 | 26,57915633 | 171,8638834 | 498,7818412 | 998,0532957 | 26,56713025 | 2,572543439 | 68,2073482 | 40,02037048 | 13,99540447 | 13,06350153 | 0 |
| 747 | 26,53407547 | 26,50102623 | 171,3466713 | 498,7349902 | 997,9598613 | 26,48896608 | 2,572538746 | 68,40504106 | 40,08321762 | 14,03018437 | 13,10058567 | 0 |
| 748 | 26,45601587 | 26,42287463 | 170,8295065 | 498,6880455 | 997,8658321 | 26,41077995 | 2,572531947 | 68,6039095 | 40,14625549 | 14,06498236 | 13,1378839 | 0 |
| 749 | 26,37793549 | 26,34470193 | 170,31239 | 498,6395147 | 997,7754566 | 26,33257256 | 2,572538394 | 68,80426262 | 40,20957947 | 14,09980516 | 13,17545389 | 0 |
| 750 | 26,29983435 | 26,2665079 | 169,7953215 | 498,5917858 | 997,6843981 | 26,25434383 | 2,572542417 | 69,00580698 | 40,27309418 | 14,1346456 | 13,21324068 | 0 |
| 751 | 26,22171248 | 26,18829249 | 169,2783007 | 498,5437128 | 997,5925661 | 26,17609332 | 2,572543689 | 69,20854961 | 40,33679962 | 14,1695037 | 13,25124526 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 752 | 26,14356966 | 26,11005547 | 168,7613264 | 498,4977236 | 997,4999288 | 26,09782101 | 2,572542095 | 69,41249761 | 40,4006958 | 14,20437939 | 13,28946917 | 0 |
| 753 | 26,06540611 | 26,03179739 | 168,2444011 | 498,4478498 | 997,4064175 | 26,01952749 | 2,572537382 | 69,6176581 | 40,46478271 | 14,23927229 | 13,3279132 | 0 |
| 754 | 25,98722179 | 25,95351785 | 167,7275236 | 498,4006771 | 997,3119692 | 25,94121216 | 2,572529325 | 69,8240383 | 40,52906036 | 14,27418253 | 13,36657881 | 0 |
| 755 | 25,90901664 | 25,87521695 | 167,210694 | 498,3530848 | 997,2251102 | 25,86287543 | 2,572548754 | 70,03226057 | 40,59371948 | 14,30912406 | 13,40558244 | 0 |
| 756 | 25,83079068 | 25,79689474 | 166,6939126 | 498,3047091 | 997,1286101 | 25,78451698 | 2,572533363 | 70,24110378 | 40,6583786 | 14,34406841 | 13,44469499 | 0 |
| 757 | 25,75254398 | 25,71855108 | 166,1771793 | 498,2565686 | 997,0395724 | 25,70613708 | 2,572545004 | 70,45180742 | 40,72341919 | 14,37904384 | 13,4841487 | 0 |
| 758 | 25,67427631 | 25,64018577 | 165,6604929 | 498,2103513 | 996,9450471 | 25,62773502 | 2,572536842 | 70,66345345 | 40,78855515 | 14,41402914 | 13,52377134 | 0 |
| 759 | 25,59598778 | 25,56179905 | 165,1438543 | 498,1618319 | 996,8492905 | 25,54931184 | 2,572524269 | 70,87635785 | 40,85388184 | 14,44903089 | 13,5636219 | 0 |
| 760 | 25,51767837 | 25,48339092 | 164,6272639 | 498,1148291 | 996,7607778 | 25,47086656 | 2,572537944 | 71,09115259 | 40,91959 | 14,4840636 | 13,60381866 | 0 |
| 761 | 25,43934815 | 25,40496141 | 164,1107219 | 498,0658026 | 996,6708866 | 25,39239947 | 2,572546678 | 71,30722461 | 40,98548889 | 14,51911278 | 13,64424664 | 0 |
| 762 | 25,36099697 | 25,32651016 | 163,5942267 | 498,0176865 | 996,5752801 | 25,31391095 | 2,572534778 | 71,52426747 | 41,05148315 | 14,55417105 | 13,68484824 | 0 |
| 763 | 25,28262487 | 25,24803749 | 163,0777797 | 497,9706728 | 996,486711 | 25,23540036 | 2,572548388 | 71,74323128 | 41,11785889 | 14,58925986 | 13,72580111 | 0 |
| 764 | 25,20423184 | 25,1695432 | 162,5613801 | 497,9231323 | 996,3880299 | 25,15686843 | 2,572525448 | 71,96286544 | 41,18423462 | 14,62435038 | 13,76687118 | 0 |
| 765 | 25,12581802 | 25,09102766 | 162,0450299 | 497,8737944 | 996,2962622 | 25,07831464 | 2,572527569 | 72,18444005 | 41,25099182 | 14,6594711 | 13,80829583 | 0 |
| 766 | 25,04738327 | 25,0124903 | 161,5287267 | 497,8270288 | 996,2027739 | 24,99973871 | 2,57252351 | 72,4073329 | 41,31793976 | 14,69460778 | 13,84995851 | 0 |
| 767 | 24,96892753 | 24,93393143 | 161,0124714 | 497,7790277 | 996,1160556 | 24,92114108 | 2,572544002 | 72,63218994 | 41,38526917 | 14,72977434 | 13,89197967 | 0 |
| 768 | 24,89045083 | 24,85535088 | 160,4962637 | 497,7308991 | 996,0189391 | 24,84252173 | 2,572526897 | 72,85774526 | 41,45259857 | 14,7649422 | 13,9341225 | 0 |
| 769 | 24,81195321 | 24,77674885 | 159,9801044 | 497,682182 | 995,9284651 | 24,7638804 | 2,572533884 | 73,08528493 | 41,52030945 | 14,80013981 | 13,97662752 | 0 |
| 770 | 24,73343463 | 24,69812503 | 159,4639925 | 497,634853 | 995,8359972 | 24,68521738 | 2,572533699 | 73,31417919 | 41,58821106 | 14,83535266 | 14,01937641 | 0 |
| 771 | 24,65489505 | 24,61947972 | 158,947929 | 497,5856358 | 995,7414653 | 24,60653229 | 2,572526083 | 73,54443631 | 41,65630341 | 14,87058076 | 14,06237072 | 0 |
| 772 | 24,57633448 | 24,5408127 | 158,431913 | 497,5379579 | 995,653322 | 24,52782505 | 2,572541651 | 73,77671264 | 41,72477722 | 14,90583823 | 14,10573268 | 0 |
| 773 | 24,49775281 | 24,46212383 | 157,9159442 | 497,4905887 | 995,5629865 | 24,44909611 | 2,572549326 | 74,01037265 | 41,79344177 | 14,94111054 | 14,14934356 | 0 |
| 774 | 24,41915013 | 24,38341338 | 157,4000235 | 497,44221 | 995,4703688 | 24,37034508 | 2,572548782 | 74,24542484 | 41,86229706 | 14,97639772 | 14,19320475 | 0 |
| 775 | 24,34052654 | 24,30468127 | 156,8841512 | 497,3936938 | 995,3754056 | 24,29157226 | 2,572539785 | 74,48187775 | 41,93134308 | 15,01169948 | 14,23731761 | 0 |
| 776 | 24,26188199 | 24,22592728 | 156,3683265 | 497,3454236 | 995,2822843 | 24,21277747 | 2,572537507 | 74,72006818 | 42,0006752 | 15,04702288 | 14,28174478 | 0 |
| 777 | 24,1832164 | 24,14715196 | 155,852551 | 497,296251 | 995,1866634 | 24,1339609 | 2,572526216 | 74,95967875 | 42,07019806 | 15,08236058 | 14,32642674 | 0 |
| 778 | 24,1045298 | 24,06835457 | 155,3368225 | 497,2493177 | 995,0969666 | 24,05512195 | 2,572536438 | 75,20137878 | 42,14010239 | 15,11772686 | 14,37148801 | 0 |
| 779 | 24,02582213 | 23,98953557 | 154,8211424 | 497,2005676 | 995,0046267 | 23,97626099 | 2,572537129 | 75,44452081 | 42,21019745 | 15,15310726 | 14,41680796 | 0 |
| 780 | 23,94709343 | 23,91069464 | 154,3055098 | 497,1517826 | 994,9137935 | 23,89737777 | 2,572543328 | 75,68944622 | 42,28057861 | 15,18850879 | 14,46244963 | 0 |
| 781 | 23,86834353 | 23,83183171 | 153,789924 | 497,1050253 | 994,8201484 | 23,81847253 | 2,572539383 | 75,93583375 | 42,35115051 | 15,22392414 | 14,50835309 | 0 |
| 782 | 23,7895726 | 23,75294726 | 153,2743873 | 497,0559031 | 994,7236274 | 23,73954577 | 2,572525057 | 76,18369251 | 42,42191315 | 15,25935294 | 14,55451971 | 0 |
| 783 | 23,7107807 | 23,67404104 | 152,7588991 | 497,006886 | 994,6326331 | 23,66059637 | 2,572530812 | 76,43370301 | 42,49305725 | 15,29480969 | 14,60107616 | 0 |
| 784 | 23,63196764 | 23,59511285 | 152,2434582 | 496,9598448 | 994,5385812 | 23,58162504 | 2,57252553 | 76,68520754 | 42,56439209 | 15,33027974 | 14,64789947 | 0 |
| 785 | 23,55313367 | 23,51616292 | 151,7280662 | 496,9093331 | 994,4499018 | 23,50263149 | 2,572539776 | 76,93889124 | 42,6361084 | 15,36577727 | 14,69511709 | 0 |
| 786 | 23,47427845 | 23,43719111 | 151,2127218 | 496,8618089 | 994,3579988 | 23,42361584 | 2,572542381 | 77,19409221 | 42,70801544 | 15,40128786 | 14,74260546 | 0 |
| 787 | 23,39540217 | 23,35819734 | 150,6974252 | 496,8136646 | 994,2628018 | 23,34457799 | 2,572533088 | 77,45081995 | 42,78011322 | 15,43681142 | 14,79036634 | 0 |
| 788 | 23,31650475 | 23,2791815 | 150,1821761 | 496,7651297 | 994,1726905 | 23,26551767 | 2,572542289 | 77,70976665 | 42,85259247 | 15,47236204 | 14,83852776 | 0 |
| 789 | 23,23758615 | 23,20014387 | 149,6669752 | 496,7153933 | 994,0791129 | 23,1864354 | 2,572538965 | 77,97026397 | 42,92526245 | 15,50792518 | 14,88696538 | 0 |
| 790 | 23,15864647 | 23,12108437 | 149,1518227 | 496,6669265 | 993,981981 | 23,10733111 | 2,572522793 | 78,23232168 | 42,99812317 | 15,54350072 | 14,93568078 | 0 |
| 791 | 23,07968569 | 23,04200287 | 148,6367182 | 496,6193025 | 993,8896742 | 23,02820418 | 2,572524174 | 78,49663913 | 43,07136536 | 15,57910291 | 14,98480353 | 0 |
| 792 | 23,00070387 | 22,9628996 | 148,1216628 | 496,5683712 | 993,8021454 | 22,9490552 | 2,572542941 | 78,76323326 | 43,14498901 | 15,6147314 | 15,03433676 | 0 |
| 793 | 22,92170078 | 22,88377417 | 147,6066544 | 496,5214604 | 993,7107643 | 22,86988367 | 2,572547781 | 79,03142699 | 43,21880341 | 15,65037196 | 15,08415399 | 0 |
| 794 | 22,84267652 | 22,80462679 | 147,0916941 | 496,4718934 | 993,6154746 | 22,79069013 | 2,572538484 | 79,30123049 | 43,29280853 | 15,68602424 | 15,13425697 | 0 |
| 795 | 22,76363105 | 22,725457 | 146,5767806 | 496,4249054 | 993,5246352 | 22,71147369 | 2,572545391 | 79,57335294 | 43,36719513 | 15,7217026 | 15,18477705 | 0 |
| 796 | 22,68456434 | 22,64626549 | 146,0619159 | 496,3746491 | 993,4296909 | 22,63223521 | 2,572537446 | 79,84711053 | 43,44177246 | 15,75739232 | 15,23558678 | 0 |
| 797 | 22,60547659 | 22,56705213 | 145,5471003 | 496,3252203 | 993,3390671 | 22,55297473 | 2,572545234 | 80,12321747 | 43,51673126 | 15,79310746 | 15,28681886 | 0 |
| 798 | 22,52636771 | 22,48781658 | 145,0323327 | 496,2765974 | 993,2441174 | 22,4736915 | 2,572537367 | 80,40098539 | 43,5918808 | 15,82883387 | 15,33834469 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 799 | 22,44723761 | 22,40855906 | 144,5176134 | 496,2277278 | 993,1532704 | 22,39438592 | 2,572544446 | 80,6811336 | 43,6674118 | 15,86458547 | 15,39029774 | 0 |
| 800 | 22,36808636 | 22,32927937 | 144,0029421 | 496,1789404 | 993,0579272 | 22,31505797 | 2,57253525 | 80,9629691 | 43,74313354 | 15,90034785 | 15,44254882 | 0 |
| 801 | 22,28891389 | 22,24997745 | 143,4883185 | 496,1297895 | 992,9664788 | 22,23570746 | 2,572540249 | 81,2472164 | 43,81923676 | 15,93613512 | 15,49523219 | 0 |
| 802 | 22,20972009 | 22,17065334 | 142,9737424 | 496,081828 | 992,870354 | 22,15633462 | 2,572528314 | 81,5331778 | 43,8955307 | 15,97193281 | 15,54821806 | 0 |
| 803 | 22,13050508 | 22,09130709 | 142,4592145 | 496,0322528 | 992,7778975 | 22,07693907 | 2,572529753 | 81,82158305 | 43,97220612 | 16,00775505 | 15,6016411 | 0 |
| 804 | 22,05126889 | 22,01193888 | 141,9447355 | 495,9826689 | 992,6890183 | 21,99752103 | 2,572544239 | 82,11245096 | 44,049263 | 16,04360156 | 15,65550442 | 0 |
| 805 | 21,97201132 | 21,93254804 | 141,4303027 | 495,9355805 | 992,5951471 | 21,91808003 | 2,572540645 | 82,40507669 | 44,12651062 | 16,0794582 | 15,70967746 | 0 |
| 806 | 21,89273255 | 21,85313545 | 140,9159196 | 495,8853681 | 992,504668 | 21,8386171 | 2,572549426 | 82,70019806 | 44,20413971 | 16,11533852 | 15,76429603 | 0 |
| 807 | 21,81343258 | 21,77370055 | 140,4015846 | 495,8355307 | 992,4089734 | 21,7591313 | 2,572539309 | 82,99710539 | 44,28195953 | 16,1512285 | 15,8192284 | 0 |
| 808 | 21,73411134 | 21,69424314 | 139,8872966 | 495,7876832 | 992,3164328 | 21,67962288 | 2,572540706 | 83,29654194 | 44,36016083 | 16,18714204 | 15,87461177 | 0 |
| 809 | 21,65476882 | 21,61476379 | 139,3730578 | 495,7379188 | 992,218496 | 21,60009203 | 2,572522542 | 83,5977931 | 44,43855286 | 16,22306471 | 15,93031362 | 0 |
| 810 | 21,57540511 | 21,53526217 | 138,8588674 | 495,6881053 | 992,1319432 | 21,52053842 | 2,572545809 | 83,90234464 | 44,51751709 | 16,25902476 | 15,98660814 | 0 |
| 811 | 21,49602011 | 21,45573817 | 138,3447247 | 495,6378829 | 992,0397561 | 21,4409623 | 2,572548652 | 84,20874534 | 44,59667206 | 16,29499353 | 16,0432264 | 0 |
| 812 | 21,41661378 | 21,3761919 | 137,8306301 | 495,5890345 | 991,9418385 | 21,36136324 | 2,572530715 | 84,51700734 | 44,67601776 | 16,33097104 | 16,10017073 | 0 |
| 813 | 21,33718625 | 21,29662333 | 137,316584 | 495,5399267 | 991,8465005 | 21,28174165 | 2,572522209 | 84,82788797 | 44,75574493 | 16,36697101 | 16,15757989 | 0 |
| 814 | 21,25773752 | 21,21703281 | 136,8025876 | 495,4895658 | 991,7536818 | 21,20209793 | 2,572522916 | 85,14140783 | 44,83585358 | 16,40299315 | 16,21545777 | 0 |
| 815 | 21,17826751 | 21,13741949 | 136,288638 | 495,4406291 | 991,6631909 | 21,12243072 | 2,572532145 | 85,45758768 | 44,91634369 | 16,43903775 | 16,2738075 | 0 |
| 816 | 21,09877609 | 21,05778391 | 135,7747366 | 495,3914068 | 991,5749221 | 21,04274059 | 2,572549512 | 85,77644854 | 44,99721527 | 16,47510433 | 16,33263218 | 0 |
| 817 | 21,01926326 | 20,97812569 | 135,2608822 | 495,3429563 | 991,4803399 | 20,96302763 | 2,572543976 | 86,09725539 | 45,07827759 | 16,51117852 | 16,39179599 | 0 |
| 818 | 20,93972913 | 20,89844545 | 134,7470773 | 495,2927756 | 991,3877826 | 20,88329259 | 2,572545859 | 86,42078024 | 45,15972137 | 16,54727396 | 16,45144061 | 0 |
| 819 | 20,86017378 | 20,8187425 | 134,23332 | 495,2431686 | 991,2886637 | 20,80353418 | 2,57252393 | 86,74628273 | 45,2413559 | 16,5833768 | 16,51142942 | 0 |
| 820 | 20,78059716 | 20,73901739 | 133,7196119 | 495,1932426 | 991,1997182 | 20,723753 | 2,572539067 | 87,07530572 | 45,32356262 | 16,61951484 | 16,57204577 | 0 |
| 821 | 20,70099912 | 20,65926968 | 133,2059514 | 495,1434635 | 991,1039687 | 20,6439489 | 2,572529506 | 87,40634441 | 45,40596008 | 16,65565963 | 16,63301198 | 0 |
| 822 | 20,62137979 | 20,5794998 | 132,6923401 | 495,0930271 | 991,0097383 | 20,56412248 | 2,57252553 | 87,74018298 | 45,48873901 | 16,69182486 | 16,69447184 | 0 |
| 823 | 20,54173935 | 20,4997073 | 132,1787774 | 495,0431273 | 990,9168664 | 20,48427281 | 2,572526555 | 88,07684386 | 45,57189941 | 16,72801065 | 16,75642907 | 0 |
| 824 | 20,46207743 | 20,41989232 | 131,6652626 | 494,9938959 | 990,8252287 | 20,40439984 | 2,572532131 | 88,41634975 | 45,65544128 | 16,7642168 | 16,81888736 | 0 |
| 825 | 20,38239415 | 20,34005451 | 131,151795 | 494,9444282 | 990,7346747 | 20,32450376 | 2,572541714 | 88,75872355 | 45,73936462 | 16,80044297 | 16,88184984 | 0 |
| 826 | 20,30268948 | 20,26019454 | 130,6383768 | 494,8928509 | 990,636721 | 20,24458565 | 2,572524418 | 89,10320577 | 45,8234787 | 16,83667439 | 16,94517639 | 0 |
| 827 | 20,22296354 | 20,18031184 | 130,1250065 | 494,8437146 | 990,5479644 | 20,16464375 | 2,572540665 | 89,45138207 | 45,90816498 | 16,87293972 | 17,00915775 | 0 |
| 828 | 20,14321613 | 20,10040645 | 129,6116839 | 494,7943951 | 990,4515179 | 20,08467888 | 2,572528977 | 89,80170768 | 45,99304199 | 16,90921019 | 17,07350982 | 0 |
| 829 | 20,06344741 | 20,02047864 | 129,0984102 | 494,743263 | 990,3640192 | 20,00469089 | 2,572549929 | 90,15578095 | 46,07849121 | 16,94551383 | 17,13852508 | 0 |
| 830 | 19,98365733 | 19,94052807 | 128,5851844 | 494,6936583 | 990,2685496 | 19,92467994 | 2,57254192 | 90,5120453 | 46,16413116 | 16,98182209 | 17,20391727 | 0 |
| 831 | 19,90384587 | 19,86055495 | 128,0720072 | 494,64283 | 990,1733249 | 19,84464571 | 2,572534862 | 90,87131384 | 46,25015259 | 17,01814892 | 17,2698345 | 0 |
| 832 | 19,82401312 | 19,78055942 | 127,5588793 | 494,5930721 | 990,0782843 | 19,76458908 | 2,572528536 | 91,23361114 | 46,33655548 | 17,0544938 | 17,33628125 | 0 |
| 833 | 19,74415908 | 19,70054115 | 127,0457997 | 494,5420876 | 989,9832074 | 19,68450884 | 2,572522139 | 91,59896202 | 46,42333984 | 17,09085689 | 17,40326102 | 0 |
| 834 | 19,66428363 | 19,62049999 | 126,5327677 | 494,4928221 | 989,8963302 | 19,60440503 | 2,57254568 | 91,9681994 | 46,51069641 | 17,12725201 | 17,47092561 | 0 |
| 835 | 19,58438673 | 19,54043625 | 126,0197843 | 494,4416299 | 989,8007429 | 19,52427821 | 2,572537554 | 92,33973625 | 46,59824371 | 17,16365044 | 17,53898311 | 0 |
| 836 | 19,50446845 | 19,46034964 | 125,5068488 | 494,3919814 | 989,7047224 | 19,44412826 | 2,572527912 | 92,71440279 | 46,68617249 | 17,20006613 | 17,60758573 | 0 |
| 837 | 19,42452879 | 19,38024049 | 124,9939623 | 494,3405156 | 989,6164389 | 19,36395524 | 2,57254653 | 93,09304259 | 46,77467346 | 17,2365128 | 17,67688603 | 0 |
| 838 | 19,34456761 | 19,30010822 | 124,4811226 | 494,2915577 | 989,5189744 | 19,28375835 | 2,572531758 | 93,47404977 | 46,86336517 | 17,27296231 | 17,74658976 | 0 |
| 839 | 19,26458515 | 19,2199535 | 123,9683327 | 494,2404106 | 989,428979 | 19,20353861 | 2,572544273 | 93,85908957 | 46,95262909 | 17,30944222 | 17,81700093 | 0 |
| 840 | 19,18458137 | 19,13977624 | 123,4555923 | 494,1879179 | 989,3295545 | 19,12329612 | 2,572522484 | 94,24654326 | 47,04208374 | 17,34592399 | 17,88782256 | 0 |
| 841 | 19,10455629 | 19,05957578 | 122,9428993 | 494,1376108 | 989,2371639 | 19,04302925 | 2,572526405 | 94,63809015 | 47,1321106 | 17,38243609 | 17,95936019 | 0 |
| 842 | 19,02450972 | 18,97935276 | 122,4302554 | 494,0868235 | 989,1434061 | 18,96273987 | 2,572525409 | 95,03293318 | 47,22251892 | 17,4189635 | 18,03146787 | 0 |
| 843 | 18,94444174 | 18,89910651 | 121,9176587 | 494,0372638 | 989,0563706 | 18,8824262 | 2,572548996 | 95,43193824 | 47,31349945 | 17,45552064 | 18,10430247 | 0 |
| 844 | 18,8643523 | 18,8188376 | 121,4051109 | 493,9853828 | 988,9592356 | 18,80208945 | 2,572535827 | 95,83346032 | 47,40467072 | 17,49207858 | 18,17756273 | 0 |
| 845 | 18,78424155 | 18,73854587 | 120,8926121 | 493,9342757 | 988,8685203 | 18,72172938 | 2,572546139 | 96,23920775 | 47,49641418 | 17,52866528 | 18,25155926 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 846 | 18,70410946 | 18,65823113 | 120,3801616 | 493,8826577 | 988,7673667 | 18,64134598 | 2,572518453 | 96,64752197 | 47,58834839 | 17,56525227 | 18,32598886 | 0 |
| 847 | 18,62395591 | 18,57789353 | 119,8677597 | 493,8329901 | 988,6805777 | 18,56093823 | 2,572543232 | 97,0609787 | 47,68104553 | 17,60188184 | 18,40131979 | 0 |
| 848 | 18,543781 | 18,49753281 | 119,3554058 | 493,7806966 | 988,5830238 | 18,48050758 | 2,572528818 | 97,47706039 | 47,77393341 | 17,63851093 | 18,47709236 | 0 |
| 849 | 18,46358461 | 18,41714919 | 118,8431004 | 493,7302445 | 988,4911812 | 18,40005337 | 2,572535313 | 97,8975054 | 47,86739349 | 17,67516763 | 18,55362225 | 0 |
| 850 | 18,38336681 | 18,33674276 | 118,3308442 | 493,6788144 | 988,3965025 | 18,31957558 | 2,572531534 | 98,32149114 | 47,96123505 | 17,71183748 | 18,63075806 | 0 |
| 851 | 18,30312765 | 18,25631309 | 117,8186358 | 493,6281173 | 988,3071337 | 18,23907402 | 2,572547209 | 98,74991525 | 48,0556488 | 17,74853431 | 18,7086621 | 0 |
| 852 | 18,22286703 | 18,17586023 | 117,3064753 | 493,5766485 | 988,2062274 | 18,1585485 | 2,572520857 | 99,18107733 | 48,1502533 | 17,78522975 | 18,78702417 | 0 |
| 853 | 18,14258507 | 18,09538456 | 116,7943644 | 493,5244188 | 988,1185827 | 18,07799952 | 2,57254298 | 99,61762193 | 48,24562073 | 17,82196543 | 18,86632343 | 0 |
| 854 | 18,06228167 | 18,01488591 | 116,2823022 | 493,4718725 | 988,0273668 | 17,99742668 | 2,572552149 | 100,0578457 | 48,34136963 | 17,85871308 | 18,94624965 | 0 |
| 855 | 17,98195686 | 17,93436401 | 115,770288 | 493,4216513 | 987,9323618 | 17,91683057 | 2,572547568 | 100,5017804 | 48,4375 | 17,89547205 | 19,02680636 | 0 |
| 856 | 17,90161068 | 17,85381888 | 115,2583222 | 493,3689364 | 987,8334013 | 17,83621048 | 2,572528625 | 100,9494582 | 48,53401184 | 17,93224235 | 19,10799939 | 0 |
| 857 | 17,82124306 | 17,77325043 | 114,7464042 | 493,3186137 | 987,7468076 | 17,75556555 | 2,572554915 | 101,4026928 | 48,63128662 | 17,96905195 | 19,19015534 | 0 |
| 858 | 17,74085383 | 17,69265921 | 114,2345354 | 493,2664001 | 987,6476068 | 17,67489826 | 2,572535254 | 101,8588569 | 48,72875214 | 18,0058575 | 19,272797 | 0 |
| 859 | 17,66044352 | 17,61204486 | 113,7227164 | 493,2128586 | 987,5520811 | 17,59420671 | 2,572529094 | 102,3197694 | 48,82678986 | 18,04268735 | 19,35625212 | 0 |
| 860 | 17,58001188 | 17,53140729 | 113,2109462 | 493,1613241 | 987,460049 | 17,5134909 | 2,572535776 | 102,7854759 | 48,92539978 | 18,07954118 | 19,44052811 | 0 |
| 861 | 17,49955876 | 17,45074634 | 112,6992239 | 493,1093502 | 987,3712793 | 17,43275111 | 2,572554463 | 103,256023 | 49,02458191 | 18,11641846 | 19,52563122 | 0 |
| 862 | 17,41908418 | 17,37006198 | 112,1875495 | 493,0571295 | 987,2772672 | 17,35198763 | 2,57255409 | 103,7305464 | 49,12414551 | 18,15330466 | 19,6114034 | 0 |
| 863 | 17,3385882 | 17,28935448 | 111,6759241 | 493,0051458 | 987,1778055 | 17,27120004 | 2,572533893 | 104,2090813 | 49,22409058 | 18,19019959 | 19,69785013 | 0 |
| 864 | 17,25807083 | 17,2086236 | 111,1643471 | 492,9528315 | 987,0891948 | 17,19038817 | 2,572553429 | 104,693502 | 49,32479858 | 18,22713089 | 19,78530774 | 0 |
| 865 | 17,17753211 | 17,12786971 | 110,6528198 | 492,8997482 | 986,9947113 | 17,10955285 | 2,572551597 | 105,1820223 | 49,42588806 | 18,26406988 | 19,87345236 | 0 |
| 866 | 17,09697207 | 17,04709208 | 110,1413402 | 492,8475027 | 986,8940987 | 17,02869309 | 2,572527458 | 105,6746786 | 49,52735901 | 18,30101653 | 19,96228947 | 0 |
| 867 | 17,01639069 | 16,96629175 | 109,6299115 | 492,7939686 | 986,8036395 | 16,94780961 | 2,572540514 | 106,1733727 | 49,6295929 | 18,33799808 | 20,0521589 | 0 |
| 868 | 16,93578806 | 16,88546775 | 109,118531 | 492,7409164 | 986,7065513 | 16,86690159 | 2,572529436 | 106,6762942 | 49,73220825 | 18,37498646 | 20,14273329 | 0 |
| 869 | 16,85516414 | 16,8046204 | 108,6071997 | 492,6874564 | 986,6191438 | 16,78596939 | 2,57255384 | 107,1853638 | 49,83558655 | 18,41200911 | 20,23435677 | 0 |
| 870 | 16,77451864 | 16,72374921 | 108,0959152 | 492,6372218 | 986,524607 | 16,70501267 | 2,572552282 | 107,6987547 | 49,93934631 | 18,4490377 | 20,32669809 | 0 |
| 871 | 16,69385181 | 16,64285481 | 107,5846802 | 492,5826847 | 986,4227509 | 16,62403212 | 2,572524058 | 108,2165057 | 50,04348755 | 18,48607156 | 20,4197627 | 0 |
| 872 | 16,6131637 | 16,56193701 | 107,0734946 | 492,5298371 | 986,3297808 | 16,54302729 | 2,57252842 | 108,7405662 | 50,14839172 | 18,52313834 | 20,51389863 | 0 |
| 873 | 16,53245427 | 16,48099572 | 106,5623578 | 492,4768805 | 986,2372085 | 16,46199803 | 2,572534338 | 109,2700439 | 50,2538681 | 18,56022372 | 20,60894395 | 0 |
| 874 | 16,45172346 | 16,40003067 | 106,051269 | 492,4231507 | 986,1447343 | 16,38094417 | 2,572540719 | 109,8049932 | 50,35991669 | 18,59732723 | 20,7049057 | 0 |
| 875 | 16,37097125 | 16,31904212 | 105,5402291 | 492,3703151 | 986,0521022 | 16,29986577 | 2,572546627 | 110,345469 | 50,46653748 | 18,6344484 | 20,80179167 | 0 |
| 876 | 16,29019766 | 16,23803008 | 105,029238 | 492,3163536 | 985,9590328 | 16,21876292 | 2,572551041 | 110,8915273 | 50,57373047 | 18,67158669 | 20,89960926 | 0 |
| 877 | 16,20940282 | 16,15699447 | 104,5182962 | 492,2627349 | 985,8570788 | 16,13763644 | 2,572523057 | 111,4422455 | 50,68130493 | 18,7087274 | 20,99819112 | 0 |
| 878 | 16,12858678 | 16,07593536 | 104,007404 | 492,2089308 | 985,7623795 | 16,05648493 | 2,572521719 | 111,9996337 | 50,78964233 | 18,7458985 | 21,09789577 | 0 |
| 879 | 16,04774958 | 15,9948526 | 103,4965611 | 492,1543504 | 985,6745616 | 15,97530865 | 2,572545672 | 112,5637645 | 50,89874268 | 18,78309922 | 21,19873143 | 0 |
| 880 | 15,96689094 | 15,91374585 | 102,9857658 | 492,1011603 | 985,5769746 | 15,89410771 | 2,57253399 | 113,1327243 | 51,00822449 | 18,82030126 | 21,30035474 | 0 |
| 881 | 15,88601088 | 15,83261536 | 102,4750189 | 492,0475435 | 985,4857432 | 15,81288215 | 2,572545681 | 113,7085549 | 51,11846924 | 18,85753194 | 21,40312778 | 0 |
| 882 | 15,80510947 | 15,75146109 | 101,9643205 | 491,9940833 | 985,3841256 | 15,73163172 | 2,572519472 | 114,2893242 | 51,22909546 | 18,89476293 | 21,50670252 | 0 |
| 883 | 15,72418698 | 15,6702834 | 101,4536727 | 491,9378355 | 985,2964658 | 15,65035678 | 2,572544469 | 114,8781049 | 51,34067535 | 18,93203537 | 21,61162479 | 0 |
| 884 | 15,6432431 | 15,58908164 | 100,9430727 | 491,8852788 | 985,1978078 | 15,56905722 | 2,572529326 | 115,4719473 | 51,45263672 | 18,96930694 | 21,71736477 | 0 |
| 885 | 15,56227813 | 15,50785651 | 100,4325235 | 491,828977 | 985,1042747 | 15,4877333 | 2,572533062 | 116,0729376 | 51,56536102 | 19,00660485 | 21,82429192 | 0 |
| 886 | 15,48129196 | 15,42660702 | 99,9220219 | 491,7755335 | 985,0154186 | 15,40638326 | 2,572554051 | 116,6811554 | 51,67884827 | 19,04392915 | 21,93241677 | 0 |
| 887 | 15,40028445 | 15,34533359 | 99,41156874 | 491,7205071 | 984,9146783 | 15,32500879 | 2,572531646 | 117,2946207 | 51,79271698 | 19,0812509 | 22,0413847 | 0 |
| 888 | 15,31925567 | 15,26403651 | 98,90116524 | 491,6659041 | 984,8180235 | 15,24360947 | 2,572524326 | 117,9154542 | 51,90734863 | 19,11859741 | 22,15156868 | 0 |
| 889 | 15,23820573 | 15,18271552 | 98,39081103 | 491,61049 | 984,7251289 | 15,16218519 | 2,572530907 | 118,5437387 | 52,02274323 | 19,15596815 | 22,26298041 | 0 |
| 890 | 15,15713468 | 15,10137052 | 97,88050596 | 491,5549089 | 984,6355998 | 15,08073598 | 2,572549949 | 119,1795581 | 52,13890076 | 19,19336243 | 22,37563004 | 0 |
| 891 | 15,07604228 | 15,02000143 | 97,37024918 | 491,4998946 | 984,5409478 | 14,99926117 | 2,572550361 | 119,8219451 | 52,25563049 | 19,2307661 | 22,48934396 | 0 |
| 892 | 14,99492876 | 14,93860834 | 96,86004173 | 491,4442099 | 984,4408288 | 14,91776211 | 2,572530876 | 120,4709692 | 52,37293243 | 19,26817795 | 22,60412921 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 893 | 14,91379419 | 14,85719155 | 96,34988483 | 491,3878317 | 984,3430413 | 14,83623773 | 2,572520068 | 121,1277644 | 52,49099731 | 19,30561167 | 22,72018435 | 0 |
| 894 | 14,83263855 | 14,77575043 | 95,83977652 | 491,3330244 | 984,2552814 | 14,75468722 | 2,572546148 | 121,7934893 | 52,61001587 | 19,34308073 | 22,83770953 | 0 |
| 895 | 14,75146178 | 14,69428499 | 95,32971673 | 491,2771618 | 984,1528291 | 14,67311236 | 2,572518528 | 122,4650244 | 52,72941589 | 19,38054225 | 22,95614883 | 0 |
| 896 | 14,67026395 | 14,61279598 | 94,81970809 | 491,2191611 | 984,0677465 | 14,59151154 | 2,572554714 | 123,1467521 | 52,84996033 | 19,41805147 | 23,07627157 | 0 |
| 897 | 14,58904491 | 14,53128203 | 94,30974591 | 491,1650521 | 983,9671663 | 14,50988551 | 2,572534247 | 123,8344501 | 52,97088623 | 19,45555213 | 23,19732873 | 0 |
| 898 | 14,5078047 | 14,44974432 | 93,79983407 | 491,1087447 | 983,8670019 | 14,42823438 | 2,57251545 | 124,5303638 | 53,09257507 | 19,49307122 | 23,31971278 | 0 |
| 899 | 14,42654358 | 14,36818226 | 93,28997164 | 491,0520525 | 983,7829293 | 14,34655705 | 2,572555806 | 125,2367884 | 53,21540833 | 19,53063589 | 23,44382086 | 0 |
| 900 | 14,34526133 | 14,28659583 | 92,78015788 | 490,9953349 | 983,6821883 | 14,2648545 | 2,572535204 | 125,9494329 | 53,33862305 | 19,56818994 | 23,5688946 | 0 |
| 901 | 14,2639581 | 14,20498521 | 92,27039399 | 490,9380018 | 983,5886916 | 14,1831266 | 2,572541325 | 126,6716957 | 53,46279144 | 19,60577409 | 23,69552659 | 0 |
| 902 | 14,18263385 | 14,12335009 | 91,76067882 | 490,8816449 | 983,4937968 | 14,10137252 | 2,572542483 | 127,4025765 | 53,58772278 | 19,64337399 | 23,82353466 | 0 |
| 903 | 14,1012886 | 14,04169092 | 91,25101402 | 490,8231116 | 983,3971763 | 14,01959341 | 2,572537476 | 128,1421766 | 53,71341705 | 19,68098854 | 23,95293207 | 0 |
| 904 | 14,01992251 | 13,96000679 | 90,74139724 | 490,7657161 | 983,2982696 | 13,93778803 | 2,572524252 | 128,8905987 | 53,83987427 | 19,71861732 | 24,08373056 | 0 |
| 905 | 13,9385354 | 13,87829877 | 90,23183141 | 490,7079654 | 983,2047732 | 13,85595686 | 2,572531046 | 129,6490858 | 53,96728516 | 19,75627319 | 24,21614274 | 0 |
| 906 | 13,85712753 | 13,796566 | 89,72231467 | 490,6498687 | 983,1081377 | 13,77410002 | 2,572526501 | 130,4166184 | 54,09545898 | 19,79394154 | 24,3499841 | 0 |
| 907 | 13,77569863 | 13,71480848 | 89,21284625 | 490,5927876 | 983,0158413 | 13,69221646 | 2,572538058 | 131,1944567 | 54,22458649 | 19,83163553 | 24,48546727 | 0 |
| 908 | 13,69424883 | 13,6330267 | 88,70342816 | 490,5342505 | 982,9194886 | 13,61030764 | 2,572534913 | 131,9815712 | 54,35447693 | 19,86934019 | 24,62240774 | 0 |
| 909 | 13,61277823 | 13,55122045 | 88,19406012 | 490,4759083 | 982,8265222 | 13,52837232 | 2,572544383 | 132,7792394 | 54,48532104 | 19,90706873 | 24,76102048 | 0 |
| 910 | 13,53128669 | 13,46938878 | 87,6847388 | 490,4190516 | 982,7284503 | 13,44641099 | 2,572535308 | 133,5864219 | 54,6169281 | 19,94480645 | 24,90111863 | 0 |
| 911 | 13,44977436 | 13,3875332 | 87,17546946 | 490,3584251 | 982,6327473 | 13,3644237 | 2,57253512 | 134,4044141 | 54,74948883 | 19,98256602 | 25,04291875 | 0 |
| 912 | 13,36824144 | 13,30565313 | 86,66625097 | 490,2984875 | 982,5309493 | 13,28241082 | 2,572512752 | 135,2321664 | 54,8828125 | 20,02033282 | 25,18623319 | 0 |
| 913 | 13,28668786 | 13,2237478 | 86,15708082 | 490,2398818 | 982,4463444 | 13,20036972 | 2,572553715 | 136,0733829 | 55,01747131 | 20,05814774 | 25,33169436 | 0 |
| 914 | 13,20511345 | 13,14181799 | 85,64796095 | 490,1798162 | 982,3465982 | 13,11830375 | 2,572539291 | 136,9234402 | 55,15270233 | 20,09595409 | 25,47849551 | 0 |
| 915 | 13,12351841 | 13,05986286 | 85,13888942 | 490,1209367 | 982,2549156 | 13,03621024 | 2,572554693 | 137,7860692 | 55,28907776 | 20,13379264 | 25,6272714 | 0 |
| 916 | 13,04190264 | 12,9778833 | 84,62986875 | 490,0603055 | 982,1549566 | 12,95409123 | 2,572539913 | 138,6590045 | 55,42621613 | 20,17163455 | 25,77762491 | 0 |
| 917 | 12,96026631 | 12,89587841 | 84,12089678 | 490,0007239 | 982,0618862 | 12,87194434 | 2,572550658 | 139,5448244 | 55,5644989 | 20,20950675 | 25,92998987 | 0 |
| 918 | 12,8786094 | 12,81384893 | 83,61197581 | 489,9389207 | 981,9672888 | 12,78977164 | 2,572556021 | 140,4424712 | 55,70373535 | 20,24739393 | 26,08417555 | 0 |
| 919 | 12,79693193 | 12,73179406 | 83,10310348 | 489,8793569 | 981,8624874 | 12,70757197 | 2,572524126 | 141,3508584 | 55,84373474 | 20,28528175 | 26,23998575 | 0 |
| 920 | 12,71523395 | 12,64971442 | 82,5942819 | 489,8183536 | 981,7628658 | 12,62534576 | 2,572511494 | 142,272619 | 55,98487854 | 20,32319627 | 26,39786367 | 0 |
| 921 | 12,63351556 | 12,56760933 | 82,08550937 | 489,7569671 | 981,667634 | 12,54309184 | 2,572515234 | 143,2079376 | 56,12716675 | 20,36113663 | 26,55782885 | 0 |
| 922 | 12,55177671 | 12,4854797 | 81,57678865 | 489,6940055 | 981,576243 | 12,46081099 | 2,572533337 | 144,1570023 | 56,27059937 | 20,3991015 | 26,71990395 | 0 |
| 923 | 12,47001741 | 12,40332412 | 81,06811544 | 489,6340402 | 981,4878973 | 12,37850253 | 2,572562894 | 145,1200045 | 56,41517639 | 20,43708984 | 26,88410852 | 0 |
| 924 | 12,3882374 | 12,32114343 | 80,5594916 | 489,5734621 | 981,3862167 | 12,29616792 | 2,572543695 | 146,0945727 | 56,56051636 | 20,47507296 | 27,0500283 | 0 |
| 925 | 12,3064373 | 12,23893768 | 80,05091927 | 489,5093467 | 981,2862342 | 12,21380598 | 2,572531 | 147,0834371 | 56,70700073 | 20,51307703 | 27,21811586 | 0 |
| 926 | 12,22461698 | 12,1567062 | 79,54239607 | 489,4470032 | 981,1872112 | 12,13141599 | 2,572522103 | 148,0867991 | 56,85462952 | 20,55110109 | 27,38839387 | 0 |
| 927 | 12,14277633 | 12,07444977 | 79,03392409 | 489,3841282 | 981,0884683 | 12,04899905 | 2,572514511 | 149,1048636 | 57,00340271 | 20,58914345 | 27,56088346 | 0 |
| 928 | 12,06091559 | 11,99216759 | 78,52550173 | 489,3203289 | 981,0049125 | 11,96655362 | 2,572563057 | 150,1404769 | 57,15370178 | 20,62723025 | 27,7360528 | 0 |
| 929 | 11,97903438 | 11,90985966 | 78,01712783 | 489,2587312 | 980,9043277 | 11,88408106 | 2,572549272 | 151,1885951 | 57,30476379 | 20,66530579 | 27,91303434 | 0 |
| 930 | 11,89713329 | 11,82752667 | 77,50880642 | 489,1927541 | 980,8016858 | 11,80158098 | 2,572528214 | 152,2520538 | 57,45697021 | 20,70339578 | 28,09229393 | 0 |
| 931 | 11,81521227 | 11,74516799 | 77,00053551 | 489,1279101 | 980,7118956 | 11,71905283 | 2,572554738 | 153,3337672 | 57,61070251 | 20,74152593 | 28,27430835 | 0 |
| 932 | 11,733271 | 11,6627829 | 76,49231192 | 489,0657482 | 980,6026589 | 11,63649681 | 2,572510036 | 154,4285916 | 57,76519775 | 20,77964091 | 28,45819443 | 0 |
| 933 | 11,65130982 | 11,58037278 | 75,98414099 | 489,0005057 | 980,520072 | 11,55391175 | 2,572563706 | 155,5448951 | 57,92160034 | 20,81781999 | 28,64534031 | 0 |
| 934 | 11,56932867 | 11,49793637 | 75,47601881 | 488,9351788 | 980,4164715 | 11,47129968 | 2,572540388 | 156,6747725 | 58,07876587 | 20,85598075 | 28,8344048 | 0 |
| 935 | 11,48732771 | 11,41547449 | 74,96794837 | 488,8686712 | 980,3220749 | 11,38865854 | 2,572551277 | 157,8239472 | 58,23745728 | 20,89417573 | 29,0263274 | 0 |
| 936 | 11,40530709 | 11,3329865 | 74,45992829 | 488,801872 | 980,2205013 | 11,30598971 | 2,572536099 | 158,9899297 | 58,39729309 | 20,93237626 | 29,22067514 | 0 |
| 937 | 11,32326673 | 11,25047271 | 73,95195929 | 488,7350379 | 980,1262431 | 11,22329167 | 2,572548203 | 160,1757813 | 58,55865479 | 20,97060776 | 29,41793733 | 0 |
| 938 | 11,24120665 | 11,16793242 | 73,4440394 | 488,668516 | 980,0228125 | 11,14056506 | 2,572526909 | 161,3789826 | 58,72116089 | 21,00884171 | 29,61767478 | 0 |
| 939 | 11,15912689 | 11,08536614 | 72,93617033 | 488,602164 | 979,9248248 | 11,05780995 | 2,572526026 | 162,6026476 | 58,88519287 | 21,04710304 | 29,82038459 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 940 | 11,07702761 | 11,00277389 | 72,42835273 | 488,5335394 | 979,831183 | 10,97502618 | 2,572541531 | 163,8471042 | 59,05075073 | 21,08538989 | 30,02609653 | 0 |
| 941 | 10,99490895 | 10,92015536 | 71,92058615 | 488,4645179 | 979,7253615 | 10,89221345 | 2,57251258 | 165,1097864 | 59,217453 | 21,12367405 | 30,23436515 | 0 |
| 942 | 10,91277091 | 10,83751058 | 71,41287071 | 488,3967823 | 979,6371141 | 10,80937071 | 2,572548758 | 166,3968145 | 59,38606262 | 21,16200688 | 30,44617372 | 0 |
| 943 | 10,83061342 | 10,75483878 | 70,90520393 | 488,3281728 | 979,5345104 | 10,72649865 | 2,572532481 | 167,702713 | 59,55581665 | 21,20033337 | 30,66059693 | 0 |
| 944 | 10,74843661 | 10,67214127 | 70,39759029 | 488,2576134 | 979,4319753 | 10,64359828 | 2,57251688 | 169,0307376 | 59,72709656 | 21,23867769 | 30,87814443 | 0 |
| 945 | 10,66624081 | 10,58941674 | 69,89002682 | 488,1873122 | 979,3434506 | 10,56066691 | 2,572553341 | 170,3842441 | 59,90028381 | 21,27706488 | 31,09933525 | 0 |
| 946 | 10,58402574 | 10,50666575 | 69,38251446 | 488,117532 | 979,237238 | 10,4777071 | 2,572525084 | 171,7576404 | 60,07461548 | 21,31543945 | 31,32322849 | 0 |
| 947 | 10,50179184 | 10,42388831 | 68,87505467 | 488,0451286 | 979,1426048 | 10,39471682 | 2,572539961 | 173,1573159 | 60,25085449 | 21,35385235 | 31,55083399 | 0 |
| 948 | 10,41953894 | 10,34108375 | 68,3676449 | 487,9740051 | 979,043033 | 10,31169667 | 2,572537121 | 174,5806649 | 60,42861938 | 21,39227498 | 31,78169698 | 0 |
| 949 | 10,33726712 | 10,25825185 | 67,86028481 | 487,9026655 | 978,9372497 | 10,22864645 | 2,57251188 | 176,0280827 | 60,60791016 | 21,4307052 | 32,0158504 | 0 |
| 950 | 10,25497652 | 10,17539358 | 67,35297791 | 487,8291075 | 978,8390769 | 10,14556542 | 2,572515196 | 177,5030913 | 60,78910828 | 21,4691669 | 32,25382738 | 0 |
| 951 | 10,1726673 | 10,0925081 | 66,84572212 | 487,7548382 | 978,7470741 | 10,06245343 | 2,572541785 | 179,0061823 | 60,97221375 | 21,50765765 | 32,49566868 | 0 |
| 952 | 10,09033948 | 10,00959544 | 66,33851767 | 487,6814177 | 978,6447195 | 9,979311735 | 2,572530749 | 180,534687 | 61,15684509 | 21,54614849 | 32,74090705 | 0 |
| 953 | 10,00799323 | 9,926655724 | 65,83136552 | 487,6063008 | 978,5456535 | 9,8961384 | 2,572532392 | 182,092237 | 61,34338379 | 21,58466357 | 32,99008815 | 0 |
| 954 | 9,925628615 | 9,843688414 | 65,32426428 | 487,5313078 | 978,4484011 | 9,812934638 | 2,572541299 | 183,6793577 | 61,53182983 | 21,62319979 | 33,24325122 | 0 |
| 955 | 9,843245592 | 9,760693849 | 64,81721494 | 487,456358 | 978,3512068 | 9,729699424 | 2,57255101 | 185,296587 | 61,72218323 | 21,66175445 | 33,50043393 | 0 |
| 956 | 9,760844442 | 9,677671305 | 64,3102162 | 487,3786431 | 978,252551 | 9,646431784 | 2,572555942 | 186,9444752 | 61,91444397 | 21,70032532 | 33,76168334 | 0 |
| 957 | 9,67842505 | 9,594620734 | 63,80326762 | 487,3034595 | 978,1507546 | 9,563133392 | 2,572549916 | 188,6235858 | 62,10861206 | 21,73890871 | 34,02703404 | 0 |
| 958 | 9,595987617 | 9,511543064 | 63,29637272 | 487,2250556 | 978,0441954 | 9,479802997 | 2,572526958 | 190,3344956 | 62,3046875 | 21,77750222 | 34,29653308 | 0 |
| 959 | 9,513532392 | 9,428436937 | 62,78952818 | 487,1472123 | 977,9457595 | 9,396439592 | 2,572534641 | 192,0811692 | 62,50305176 | 21,81612835 | 34,57074188 | 0 |
| 960 | 9,431059383 | 9,345303574 | 62,2827378 | 487,0663658 | 977,853953 | 9,313044316 | 2,572567479 | 193,8643048 | 62,70370483 | 21,8547839 | 34,84972004 | 0 |
| 961 | 9,348568937 | 9,26214164 | 61,77599864 | 486,9864934 | 977,7369935 | 9,229618448 | 2,572508191 | 195,6777434 | 62,90588379 | 21,89341374 | 35,13243924 | 0 |
| 962 | 9,266061135 | 9,178951908 | 61,26931336 | 486,9041049 | 977,6520101 | 9,146157349 | 2,572567667 | 197,5359046 | 63,1111145 | 21,93211769 | 35,42108195 | 0 |
| 963 | 9,183535893 | 9,09573366 | 60,76267958 | 486,8228362 | 977,5380586 | 9,062664714 | 2,57252096 | 199,425724 | 63,31787109 | 21,97078951 | 35,71355688 | 0 |
| 964 | 9,100993672 | 9,01248697 | 60,25609898 | 486,7395644 | 977,4372524 | 8,979138548 | 2,572523565 | 201,358383 | 63,52729797 | 22,0095022 | 36,01152289 | 0 |
| 965 | 9,018434464 | 8,929211744 | 59,74957133 | 486,6556923 | 977,3326661 | 8,895579251 | 2,572513018 | 203,3312024 | 63,73901367 | 22,04822639 | 36,314491 | 0 |
| 966 | 8,935858503 | 8,845908531 | 59,24309906 | 486,5692565 | 977,2366521 | 8,811986312 | 2,572534964 | 205,3486011 | 63,95339966 | 22,08698333 | 36,62305715 | 0 |
| 967 | 8,853265963 | 8,762575832 | 58,7366782 | 486,4838078 | 977,1322167 | 8,728358799 | 2,572526673 | 207,4078763 | 64,17007446 | 22,12574414 | 36,93672927 | 0 |
| 968 | 8,770656816 | 8,679213759 | 58,23030907 | 486,3979312 | 977,0315788 | 8,644696741 | 2,572533305 | 209,513565 | 64,38941956 | 22,16452963 | 37,2561096 | 0 |
| 969 | 8,688031092 | 8,595822796 | 57,72399329 | 486,3109087 | 976,9319881 | 8,560999311 | 2,572544732 | 211,6666587 | 64,61143494 | 22,2033352 | 37,58124861 | 0 |
| 970 | 8,605389079 | 8,512401622 | 57,21772777 | 486,2240702 | 976,8310354 | 8,477267168 | 2,572552091 | 213,868177 | 64,83612061 | 22,24215634 | 37,91220611 | 0 |
| 971 | 8,522730916 | 8,42895246 | 56,71151978 | 486,1325856 | 976,726059 | 8,393501318 | 2,572545565 | 216,1191679 | 65,06347656 | 22,28098775 | 38,24903263 | 0 |
| 972 | 8,440057136 | 8,345473191 | 56,20536453 | 486,0415202 | 976,6284681 | 8,309699104 | 2,572567365 | 218,4245457 | 65,29388428 | 22,31985001 | 38,59235243 | 0 |
| 973 | 8,357367672 | 8,261963773 | 55,69926177 | 485,9497605 | 976,5067482 | 8,225861462 | 2,572501037 | 220,7777849 | 65,52658081 | 22,35868838 | 38,94108419 | 0 |
| 974 | 8,274662788 | 8,178424348 | 55,19321278 | 485,8567814 | 976,4149182 | 8,141985277 | 2,572546305 | 223,1955833 | 65,76309204 | 22,39759668 | 39,29757047 | 0 |
| 975 | 8,191942563 | 8,094855281 | 54,68721897 | 485,7622688 | 976,3072956 | 8,058075162 | 2,572534329 | 225,6676086 | 66,00227356 | 22,43649431 | 39,66015311 | 0 |
| 976 | 8,109207329 | 8,01125529 | 54,18127751 | 485,6673874 | 976,1944296 | 7,974127386 | 2,572504147 | 228,1990816 | 66,24450684 | 22,4754007 | 40,02945659 | 0 |
| 977 | 8,02645744 | 7,927625571 | 53,67539317 | 485,5682838 | 976,0874141 | 7,890142367 | 2,572496822 | 230,7954391 | 66,49017334 | 22,51433436 | 40,40613355 | 0 |
| 978 | 7,943693038 | 7,843965249 | 53,16956379 | 485,4704909 | 975,9962327 | 7,806117935 | 2,572549345 | 233,4623465 | 66,73965454 | 22,55331307 | 40,79082745 | 0 |
| 979 | 7,860914149 | 7,760273252 | 52,66378624 | 485,3717322 | 975,8892741 | 7,722056302 | 2,57254484 | 236,1932627 | 66,9921875 | 22,5922814 | 41,18242894 | 0 |
| 980 | 7,778121086 | 7,676549809 | 52,15806223 | 485,2711521 | 975,7905481 | 7,63795506 | 2,572572176 | 238,9981056 | 67,24853516 | 22,63128118 | 41,5821804 | 0 |
| 981 | 7,695314292 | 7,59279618 | 51,65239698 | 485,1651037 | 975,6682494 | 7,553817378 | 2,572513709 | 241,8702463 | 67,50793457 | 22,67025606 | 41,98894131 | 0 |
| 982 | 7,612494079 | 7,509010655 | 51,14678632 | 485,0618155 | 975,573487 | 7,469637854 | 2,572558632 | 244,8285091 | 67,77191162 | 22,70929569 | 42,40517701 | 0 |
| 983 | 7,529660528 | 7,425192527 | 50,64122839 | 484,9565614 | 975,460386 | 7,385419203 | 2,572537235 | 247,8621391 | 68,0393219 | 22,74831984 | 42,82914818 | 0 |
| 984 | 7,446814 | 7,341343464 | 50,1357294 | 484,8470652 | 975,351678 | 7,301160513 | 2,572533699 | 250,9818536 | 68,31092834 | 22,78736732 | 43,26211013 | 0 |
| 985 | 7,363954921 | 7,257462123 | 49,63028664 | 484,7374921 | 975,2424965 | 7,216860702 | 2,572530085 | 254,1899494 | 68,58673096 | 22,82642981 | 43,7041329 | 0 |
| 986 | 7,281083572 | 7,173548187 | 49,12490005 | 484,6255251 | 975,1276206 | 7,132518612 | 2,572507126 | 257,4888041 | 68,86672974 | 22,86549824 | 44,15527412 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 987 | 7,198200343 | 7,089601633 | 48,61957079 | 484,5111055 | 975,0154408 | 7,048135818 | 2,572495963 | 260,885462 | 69,15130615 | 22,90458595 | 44,61620302 | 0 |
| 988 | 7,11530549 | 7,00562216 | 48,11429879 | 484,3945925 | 974,9265702 | 6,963707539 | 2,572573034 | 264,3919442 | 69,44122314 | 22,94372947 | 45,08821933 | 0 |
| 989 | 7,032399272 | 6,921608166 | 47,60908003 | 484,2773493 | 974,8016557 | 6,879236808 | 2,572518571 | 267,9926309 | 69,73495483 | 22,98282525 | 45,56889105 | 0 |
| 990 | 6,949481942 | 6,83756139 | 47,1039206 | 484,1588567 | 974,6882835 | 6,79472346 | 2,572508915 | 271,709171 | 70,0340271 | 23,02195427 | 46,06075999 | 0 |
| 991 | 6,866554111 | 6,753480201 | 46,59881746 | 484,0363865 | 974,5790066 | 6,710163175 | 2,572516586 | 275,5450124 | 70,33843994 | 23,06110463 | 46,56387195 | 0 |
| 992 | 6,783615956 | 6,669365032 | 46,09377251 | 483,9127764 | 974,4673963 | 6,625559157 | 2,572517853 | 279,5037395 | 70,64819336 | 23,10026334 | 47,07827907 | 0 |
| 993 | 6,700668201 | 6,585215609 | 45,58878718 | 483,7843716 | 974,3716437 | 6,540906975 | 2,572580251 | 283,5990432 | 70,96405029 | 23,13946229 | 47,60528829 | 0 |
| 994 | 6,617711133 | 6,501030318 | 45,08385749 | 483,6548898 | 974,2581261 | 6,456207909 | 2,572579256 | 287,8251314 | 71,2852478 | 23,17864253 | 48,14366618 | 0 |
| 995 | 6,534745013 | 6,416809806 | 44,57898625 | 483,5240244 | 974,1445484 | 6,371461888 | 2,5725806 | 292,1963133 | 71,61254883 | 23,21783342 | 48,69470131 | 0 |
| 996 | 6,451770609 | 6,332553899 | 44,07417531 | 483,3880379 | 974,0223117 | 6,286669034 | 2,572552511 | 296,7172689 | 71,94595337 | 23,25701907 | 49,25840901 | 0 |
| 997 | 6,368788409 | 6,248262463 | 43,56942578 | 483,2492665 | 973,9073345 | 6,201825354 | 2,572554146 | 301,4034664 | 72,28622437 | 23,29622689 | 49,83609098 | 0 |
| 998 | 6,285798874 | 6,163933591 | 43,06473334 | 483,1098883 | 973,7896823 | 6,116929873 | 2,572548802 | 306,2605032 | 72,63336182 | 23,33543907 | 50,42775056 | 0 |
| 999 | 6,202802555 | 6,07956871 | 42,56010403 | 482,963734 | 973,6595228 | 6,031986747 | 2,572500123 | 311,2942293 | 72,98736572 | 23,37463586 | 51,03336004 | 0 |
| 1000 | 6,119800216 | 5,99516659 | 42,05553647 | 482,816357 | 973,5544696 | 5,946987947 | 2,572547838 | 316,5330006 | 73,34976196 | 23,41388283 | 51,65550236 | 0 |
| 1001 | 6,036792156 | 5,910725939 | 41,55102773 | 482,6656396 | 973,4381016 | 5,861936077 | 2,572556964 | 321,9730395 | 73,7197876 | 23,45311523 | 52,29282655 | 0 |
| 1002 | 5,953778988 | 5,826246407 | 41,04657865 | 482,512123 | 973,3219769 | 5,776828731 | 2,57257056 | 327,6331722 | 74,09820557 | 23,4923518 | 52,94656741 | 0 |
| 1003 | 5,870761272 | 5,74172911 | 40,54219434 | 482,3545855 | 973,1929615 | 5,691667415 | 2,572540029 | 333,5216824 | 74,48501587 | 23,53156737 | 53,61662973 | 0 |
| 1004 | 5,78774007 | 5,65717206 | 40,03787203 | 482,1906689 | 973,060546 | 5,606448887 | 2,572500794 | 339,6592016 | 74,88098145 | 23,5707773 | 54,30421794 | 0 |
| 1005 | 5,704715893 | 5,57257562 | 39,53361443 | 482,0245502 | 972,9557201 | 5,521170917 | 2,572568165 | 346,0798541 | 75,28762817 | 23,61003276 | 55,01181173 | 0 |
| 1006 | 5,621689507 | 5,487938601 | 39,02942029 | 481,8531623 | 972,8151413 | 5,435835814 | 2,572507081 | 352,7705799 | 75,70343018 | 23,64922225 | 55,73656814 | 0 |
| 1007 | 5,538661985 | 5,403261687 | 38,52529494 | 481,6755298 | 972,6899315 | 5,350438577 | 2,572507668 | 359,7802182 | 76,13067627 | 23,6884315 | 56,48221761 | 0 |
| 1008 | 5,455634064 | 5,318542059 | 38,02123218 | 481,495872 | 972,5829387 | 5,264976451 | 2,572580806 | 367,1354687 | 76,57012939 | 23,7276634 | 57,24982991 | 0 |
| 1009 | 5,372606226 | 5,233779849 | 37,5172339 | 481,3111442 | 972,4282506 | 5,17945301 | 2,572481763 | 374,8254136 | 77,02026367 | 23,76680087 | 58,03636273 | 0 |
| 1010 | 5,289579593 | 5,148974493 | 37,0133018 | 481,1213097 | 972,3139513 | 5,093859767 | 2,572538247 | 382,9319748 | 77,4848938 | 23,80599262 | 58,84806221 | 0 |
| 1011 | 5,206554865 | 5,064126089 | 36,50943834 | 480,9255632 | 972,1925001 | 5,00820111 | 2,572573841 | 391,4613525 | 77,96325684 | 23,84515211 | 59,68306261 | 0 |
| 1012 | 5,123533389 | 4,979233325 | 36,00564367 | 480,7228249 | 972,0582725 | 4,922473539 | 2,572567937 | 400,4479456 | 78,45611572 | 23,88426607 | 60,54208643 | 0 |
| 1013 | 5,04051613 | 4,894293593 | 35,50191289 | 480,5155089 | 971,9034509 | 4,836674156 | 2,572491781 | 409,9287927 | 78,9642334 | 23,92331728 | 61,42575695 | 0 |
| 1014 | 4,957504135 | 4,809309472 | 34,99825692 | 480,3012959 | 971,7780991 | 4,750798754 | 2,572531999 | 419,9881026 | 79,49066162 | 23,96238514 | 62,33847601 | 0 |
| 1015 | 4,874498754 | 4,724278382 | 34,49467211 | 480,0789918 | 971,6457247 | 4,664848394 | 2,57255324 | 430,6572505 | 80,03540039 | 24,00140153 | 63,2792063 | 0 |
| 1016 | 4,791501054 | 4,639198981 | 33,99115767 | 479,8501187 | 971,506474 | 4,578818863 | 2,572556474 | 442,0010156 | 80,59997559 | 24,04036057 | 64,24933807 | 0 |
| 1017 | 4,708512293 | 4,554070037 | 33,48771373 | 479,6161596 | 971,3561668 | 4,492709097 | 2,572526588 | 454,0900829 | 81,18591309 | 24,07924773 | 65,25002537 | 0 |
| 1018 | 4,625533844 | 4,468891473 | 32,9843442 | 479,3717271 | 971,2218447 | 4,406513758 | 2,572564793 | 467,0345916 | 81,79626465 | 24,11810052 | 66,28468928 | 0 |
| 1019 | 4,542567132 | 4,383662135 | 32,48104994 | 479,1200657 | 971,0498984 | 4,320235181 | 2,572471928 | 480,8884662 | 82,43103027 | 24,15681834 | 67,35127089 | 0 |
| 1020 | 4,459614046 | 4,298383122 | 31,9778399 | 478,8562663 | 970,9237491 | 4,233863716 | 2,572559392 | 495,849666 | 83,09631348 | 24,19553132 | 68,45742716 | 0 |
| 1021 | 4,376676203 | 4,213048461 | 31,4747011 | 478,5862365 | 970,7722177 | 4,147398497 | 2,57256263 | 511,9953782 | 83,79211426 | 24,23410877 | 69,60010185 | 0 |
| 1022 | 4,293754956 | 4,127660357 | 30,97164421 | 478,3051504 | 970,620687 | 4,060836709 | 2,572576903 | 529,5219417 | 84,52301025 | 24,27257856 | 70,78312693 | 0 |
| 1023 | 4,210852429 | 4,042216902 | 30,4686699 | 478,0132393 | 970,4465547 | 3,974177558 | 2,572518662 | 548,61139 | 85,29205322 | 24,31088761 | 72,00700634 | 0 |
| 1024 | 4,127970384 | 3,956715001 | 29,96577422 | 477,712704 | 970,2746008 | 3,887411688 | 2,572481138 | 569,5484694 | 86,10534668 | 24,34906091 | 73,27600547 | 0 |
| 1025 | 4,045110888 | 3,87115606 | 29,46296758 | 477,3975194 | 970,107778 | 3,800537044 | 2,572476243 | 592,6573002 | 86,96899414 | 24,38708191 | 74,59291633 | 0 |
| 1026 | 3,962276335 | 3,785537052 | 28,9602481 | 477,0693218 | 969,9514139 | 3,713546657 | 2,572524884 | 618,3526915 | 87,890625 | 24,42493699 | 75,96101217 | 0 |
| 1027 | 3,879468764 | 3,699855457 | 28,45761437 | 476,7294172 | 969,7787065 | 3,626437396 | 2,572528073 | 647,114496 | 88,87786865 | 24,46255589 | 77,38118934 | 0 |
| 1028 | 3,796690664 | 3,614110699 | 27,95507212 | 476,3752427 | 969,6048403 | 3,53920289 | 2,572543657 | 679,6454254 | 89,94293213 | 24,49993304 | 78,85791037 | 0 |
| 1029 | 3,713944556 | 3,528300571 | 27,45262232 | 476,0064545 | 969,4385698 | 3,451835416 | 2,572605651 | 716,8779788 | 91,10107422 | 24,53704792 | 80,39549541 | 0 |
| 1030 | 3,631233175 | 3,442422475 | 26,95026539 | 475,6216756 | 969,2205073 | 3,364337354 | 2,572493441 | 759,9321699 | 92,36755371 | 24,57376547 | 81,99265034 | 0 |
| 1031 | 3,548559534 | 3,356474823 | 26,4480056 | 475,2205905 | 969,036726 | 3,276687316 | 2,572530348 | 810,7968201 | 93,77441406 | 24,61017704 | 83,66106596 | 0 |
| 1032 | 3,465926659 | 3,270456659 | 25,94584912 | 474,8002819 | 968,8417698 | 3,188887788 | 2,572548125 | 872,0236182 | 95,35522461 | 24,64615586 | 85,40132533 | 0 |
| 1033 | 3,383338176 | 3,184365191 | 25,44379845 | 474,3592819 | 968,6174646 | 3,100932208 | 2,57248058 | 947,6785704 | 97,16186523 | 24,68161163 | 87,21673211 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1034 | 3,300797907 | 3,098199807 | 24,94186315 | 473,8955914 | 968,4158702 | 3,012801277 | 2,572524662 | 1044,91387 | 99,28283691 | 24,71654957 | 89,11769054 | 0 |
| 1034,4 | 3,267796187 | 3,063711041 | 24,74111827 | 473,7045489 | 966,2766166 | 2,977890699 | 2,565060724 | 1080 | 100 | 24,72736898 | 89,70727437 | 0 |
| 1035 | 3,218324835 | 3,012583684 | 24,44195185 | 473,0660956 | 953,8794349 | 2,927887833 | 2,52049052 | 1080 | 100 | 24,73000669 | 89,71449509 | 0 |
| 1036 | 3,136252592 | 2,929789799 | 23,95180759 | 469,3097853 | 933,7719326 | 2,846923747 | 2,44835929 | 1080 | 100 | 24,73431474 | 89,7275183 | 0 |
| 1037 | 3,055055071 | 2,849525582 | 23,47195934 | 463,3233282 | 914,2410056 | 2,76843926 | 2,37848022 | 1080 | 100 | 24,73853135 | 89,74180531 | 0 |
| 1038 | 2,975015261 | 2,771418097 | 23,0021297 | 456,0605518 | 895,1933928 | 2,692072635 | 2,310529162 | 1080 | 100 | 24,74267886 | 89,75742191 | 0 |
| 1039 | 2,896294031 | 2,695229465 | 22,54207992 | 448,0854322 | 876,5733862 | 2,617590409 | 2,244299138 | 1080 | 100 | 24,7467697 | 89,77449593 | 0 |
| 1040 | 2,818979272 | 2,620803392 | 22,09159716 | 439,7366681 | 858,3446813 | 2,54483902 | 2,179651338 | 1080 | 100 | 24,75081081 | 89,79306557 | 0 |
| 1041 | 2,743114767 | 2,548033207 | 21,65048527 | 431,2196301 | 840,478932 | 2,473713193 | 2,116493655 | 1080 | 100 | 24,75480874 | 89,8132662 | 0 |
| 1042 | 2,66871747 | 2,476842885 | 21,21855979 | 422,659179 | 822,9563266 | 2,404141665 | 2,054761164 | 1080 | 100 | 24,75877101 | 89,835144 | 0 |
| 1043 | 2,595787979 | 2,407175713 | 20,79564542 | 414,1311978 | 805,7669298 | 2,336068469 | 1,994403375 | 1080 | 100 | 24,76269997 | 89,85876668 | 0 |
| 1044 | 2,524316935 | 2,338986676 | 20,38157239 | 405,6817191 | 788,8979622 | 2,269446784 | 1,93537766 | 1080 | 100 | 24,76659575 | 89,88419356 | 0 |
| 1045 | 2,454288972 | 2,272238653 | 19,97617689 | 397,338034 | 772,3391993 | 2,204241416 | 1,877654662 | 1080 | 100 | 24,77046347 | 89,91157248 | 0 |
| 1046 | 2,385685171 | 2,206899318 | 19,57929912 | 389,1162468 | 756,0821795 | 2,140421814 | 1,821207733 | 1080 | 100 | 24,77430726 | 89,94101321 | 0 |
| 1047 | 2,318484578 | 2,142939839 | 19,190784 | 381,0248184 | 740,1223914 | 2,077959253 | 1,766005897 | 1080 | 100 | 24,77812595 | 89,97243838 | 0 |
| 1048 | 2,252665145 | 2,080333563 | 18,81047994 | 373,0682205 | 724,4511473 | 2,016828516 | 1,71202969 | 1080 | 100 | 24,78192465 | 90,00603395 | 0 |
| 1049 | 2,188204317 | 2,019055175 | 18,43823817 | 365,2482062 | 709,0648385 | 1,957000912 | 1,659252888 | 1080 | 100 | 24,78570013 | 90,04187513 | 0 |
| 1050 | 2,125079343 | 1,959080544 | 18,07391313 | 357,5648793 | 693,9520074 | 1,898458525 | 1,607660619 | 1080 | 100 | 24,78946293 | 90,08009483 | 0 |
| 1051 | 2,063267587 | 1,900386784 | 17,71736361 | 350,016782 | 679,1102679 | 1,841175118 | 1,557229033 | 1080 | 100 | 24,79320969 | 90,12077994 | 0 |
| 1052 | 2,002746597 | 1,842950941 | 17,36844901 | 342,6027085 | 664,5370649 | 1,785127876 | 1,507933164 | 1080 | 100 | 24,79693911 | 90,16387034 | 0 |
| 1053 | 1,943494174 | 1,786751594 | 17,02703429 | 335,3203704 | 650,2206064 | 1,730297883 | 1,459762373 | 1080 | 100 | 24,80066003 | 90,20968709 | 0 |
| 1054 | 1,885488519 | 1,731767067 | 16,69298512 | 328,1675076 | 636,1592651 | 1,676663538 | 1,41269181 | 1080 | 100 | 24,80437054 | 90,25813633 | 0 |
| 1055 | 1,828708166 | 1,677976659 | 16,36617129 | 321,1415932 | 622,3441838 | 1,624203619 | 1,366707217 | 1080 | 100 | 24,8080743 | 90,30949679 | 0 |
| 1056 | 1,773132057 | 1,625360004 | 16,046465 | 314,24027 | 608,7783553 | 1,572898259 | 1,321782245 | 1080 | 100 | 24,81176736 | 90,36355265 | 0 |
| 1057 | 1,718739519 | 1,573897007 | 15,73374068 | 307,4610143 | 595,4489415 | 1,52272805 | 1,277905223 | 1080 | 100 | 24,81545624 | 90,42062293 | 0 |
| 1058 | 1,665510254 | 1,523568048 | 15,42787546 | 300,8015457 | 582,3510871 | 1,473674653 | 1,235060682 | 1080 | 100 | 24,81914429 | 90,48085596 | 0 |
| 1059 | 1,613424389 | 1,474354143 | 15,12874982 | 294,2589704 | 569,4798342 | 1,425717423 | 1,193230063 | 1080 | 100 | 24,82283033 | 90,5443644 | 0 |
| 1060 | 1,562462473 | 1,426236445 | 14,83624614 | 287,8311211 | 556,8408983 | 1,378839684 | 1,152385833 | 1080 | 100 | 24,82650993 | 90,61074196 | 0 |
| 1061 | 1,512605381 | 1,379196885 | 14,55025022 | 281,5154039 | 544,4149057 | 1,333022002 | 1,112526597 | 1080 | 100 | 24,83019312 | 90,68075423 | 0 |
| 1062 | 1,463834477 | 1,333216994 | 14,27064835 | 275,3093301 | 532,2026001 | 1,288248317 | 1,07363017 | 1080 | 100 | 24,83387923 | 90,75419268 | 0 |
| 1063 | 1,416131409 | 1,288279457 | 13,99733121 | 269,210808 | 520,2052837 | 1,244499608 | 1,03567387 | 1080 | 100 | 24,83756248 | 90,83092104 | 0 |
| 1064 | 1,369478267 | 1,244367061 | 13,73019132 | 263,2171852 | 508,4013598 | 1,201761874 | 0,998662144 | 1080 | 100 | 24,84126042 | 90,91179545 | 0 |
| 1065 | 1,323857559 | 1,201462757 | 13,46912304 | 257,3261464 | 496,8110161 | 1,160014672 | 0,962550226 | 1080 | 100 | 24,84495012 | 90,99575354 | 0 |
| 1066 | 1,27925203 | 1,159549688 | 13,21402219 | 251,536195 | 485,4119238 | 1,119242995 | 0,927342741 | 1080 | 100 | 24,84864761 | 91,08370875 | 0 |
| 1067 | 1,235644837 | 1,118612119 | 12,96478926 | 245,8445117 | 474,2064369 | 1,079430979 | 0,89301661 | 1080 | 100 | 24,85234721 | 91,17536285 | 0 |
| 1068 | 1,193019565 | 1,078634037 | 12,72132535 | 240,2484873 | 463,1839967 | 1,040564041 | 0,859565776 | 1080 | 100 | 24,85605615 | 91,2711514 | 0 |
| 1069 | 1,151360152 | 1,039600137 | 12,48353483 | 234,7462658 | 452,3406929 | 1,002627539 | 0,826975475 | 1080 | 100 | 24,85977469 | 91,37110989 | 0 |
| 1070 | 1,110650895 | 1,001495383 | 12,25132404 | 229,3355978 | 441,6885165 | 0,965602885 | 0,795213616 | 1080 | 100 | 24,86348585 | 91,47458104 | 0 |
| 1071 | 1,070876421 | 0,964304415 | 12,02459952 | 224,0145691 | 431,2085963 | 0,929478651 | 0,764281747 | 1080 | 100 | 24,86720473 | 91,58223181 | 0 |
| 1072 | 1,032021659 | 0,928012654 | 11,80327109 | 218,7814463 | 420,8972458 | 0,894239242 | 0,734164844 | 1080 | 100 | 24,87092871 | 91,69410861 | 0 |
| 1073 | 0,994071845 | 0,892605426 | 11,58724934 | 213,6341954 | 410,750654 | 0,859869667 | 0,704847668 | 1080 | 100 | 24,87465576 | 91,81021277 | 0 |
| 1074 | 0,957012634 | 0,858070077 | 11,37645217 | 208,5695777 | 400,7659702 | 0,826358779 | 0,676319406 | 1080 | 100 | 24,87838685 | 91,93058519 | 0 |
| 1075 | 0,92083005 | 0,824392494 | 11,17079437 | 203,58665 | 390,9499498 | 0,793689596 | 0,648553761 | 1080 | 100 | 24,88210845 | 92,05470729 | 0 |
| 1076 | 0,885510423 | 0,791559435 | 10,97019431 | 198,6829414 | 381,2904873 | 0,761851567 | 0,62154838 | 1080 | 100 | 24,88582914 | 92,18302001 | 0 |
| 1077 | 0,851040432 | 0,759557749 | 10,77457179 | 193,8561549 | 371,773208 | 0,730832324 | 0,595298228 | 1080 | 100 | 24,88955426 | 92,31593083 | 0 |
| 1078 | 0,817407011 | 0,728373716 | 10,58384576 | 189,1059603 | 362,4058156 | 0,700616181 | 0,569779072 | 1080 | 100 | 24,89327135 | 92,45293679 | 0 |
| 1079 | 0,784597413 | 0,697997313 | 10,39794709 | 184,428324 | 353,186486 | 0,671193248 | 0,544979979 | 1080 | 100 | 24,89697743 | 92,59395788 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t min | P Inicio Duto kgf/cm2 g | P Final Duto kgf/cm2 g | Inventário t | Q Duto mil Pm3/dia | Q blowdown mil Pm3/dia | P ent Valv kgf/cm2 g | P saida valv kgf/cm2 g | CV | Abert Valv % | T saida valv °C | Pout/Pin % | P Saída kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1080 | 0,752599418 | 0,668414381 | 10,21679614 | 179,821971 | 344,1124376 | 0,642549625 | 0,520885693 | 1080 | 100 | 24,90066936 | 92,73886432 | 0 |
| 1081 | 0,7214008 | 0,639613265 | 10,0403207 | 175,2865825 | 335,1560126 | 0,614677006 | 0,497506831 | 1080 | 100 | 24,90436463 | 92,88876551 | 0 |
| 1082 | 0,690989916 | 0,611583906 | 9,868455064 | 170,8173508 | 326,339537 | 0,587561423 | 0,474808611 | 1080 | 100 | 24,90803772 | 93,04236106 | 0 |
| 1083 | 0,661355451 | 0,584313626 | 9,701126874 | 166,4148026 | 317,661232 | 0,561190195 | 0,452777309 | 1080 | 100 | 24,91168451 | 93,19950112 | 0 |
| 1084 | 0,63248625 | 0,557791833 | 9,538270453 | 162,0757771 | 309,1195534 | 0,535551686 | 0,431399074 | 1080 | 100 | 24,91529856 | 93,35995027 | 0 |
| 1085 | 0,604371444 | 0,532007585 | 9,379820021 | 157,7991158 | 300,6839165 | 0,510639447 | 0,410688082 | 1080 | 100 | 24,91889967 | 93,52495391 | 0 |
| 1086 | 0,577000561 | 0,506950342 | 9,225712213 | 153,5836692 | 292,3809004 | 0,486438687 | 0,390605902 | 1080 | 100 | 24,92245921 | 93,6928824 | 0 |
| 1087 | 0,550363496 | 0,482610091 | 9,075886373 | 149,4252558 | 284,2098663 | 0,462938112 | 0,37114008 | 1080 | 100 | 24,92597045 | 93,86351404 | 0 |
| 1088 | 0,524450182 | 0,45897492 | 8,930276451 | 145,3263172 | 276,1370272 | 0,440130881 | 0,352304171 | 1080 | 100 | 24,92945376 | 94,03809187 | 0 |
| 1089 | 0,499250902 | 0,436036185 | 8,78882708 | 141,2826275 | 268,1592598 | 0,418008112 | 0,334088077 | 1080 | 100 | 24,93290385 | 94,2164324 | 0 |
| 1090 | 0,474756418 | 0,41378455 | 8,651482349 | 137,2912818 | 260,3083208 | 0,39655524 | 0,316453194 | 1080 | 100 | 24,93628985 | 94,39671556 | 0 |
| 1091 | 0,450957724 | 0,392210778 | 8,518187371 | 133,3518828 | 252,5479935 | 0,375767095 | 0,299414662 | 1080 | 100 | 24,93963027 | 94,58019475 | 0 |
| 1092 | 0,427846102 | 0,371305635 | 8,388888176 | 129,4628074 | 244,9128946 | 0,35562945 | 0,282933719 | 1080 | 100 | 24,94289454 | 94,76492952 | 0 |
| 1093 | 0,405413159 | 0,351059816 | 8,263531598 | 125,6210242 | 237,3650344 | 0,336137663 | 0,267027649 | 1080 | 100 | 24,94610266 | 94,95229619 | 0 |
| 1094 | 0,383650729 | 0,331463984 | 8,142065099 | 121,8273539 | 229,9014987 | 0,31728176 | 0,251684414 | 1080 | 100 | 24,94924825 | 95,14195126 | 0 |
| 1095 | 0,362551116 | 0,312512785 | 8,02444928 | 118,0758867 | 222,520475 | 0,299056322 | 0,236896941 | 1080 | 100 | 24,95232605 | 95,33357715 | 0 |
| 1096 | 0,342106923 | 0,294193738 | 7,91062473 | 114,3688786 | 215,2612776 | 0,281443045 | 0,222620729 | 1080 | 100 | 24,95530475 | 95,52492471 | 0 |
| 1097 | 0,322310458 | 0,27650067 | 7,80054975 | 110,7054662 | 208,0823028 | 0,264440774 | 0,20887697 | 1080 | 100 | 24,95820492 | 95,71743037 | 0 |
| 1098 | 0,303154979 | 0,259426673 | 7,694183321 | 107,0784876 | 200,9818526 | 0,248041805 | 0,195656093 | 1080 | 100 | 24,96102081 | 95,91069455 | 0 |
| 1099 | 0,284633677 | 0,24296046 | 7,591471414 | 103,4934554 | 193,9576505 | 0,232234355 | 0,182944876 | 1080 | 100 | 24,96374755 | 96,10432019 | 0 |
| 1100 | 0,266740094 | 0,227098469 | 7,492383758 | 99,94275658 | 187,0560158 | 0,217009506 | 0,170707012 | 1080 | 100 | 24,96635674 | 96,29582864 | 0 |
| 1101 | 0,249468131 | 0,211832241 | 7,396876792 | 96,42634751 | 180,1824689 | 0,202368784 | 0,158992296 | 1080 | 100 | 24,96889252 | 96,48878226 | 0 |
| 1102 | 0,232812021 | 0,197151256 | 7,304901934 | 92,94518539 | 173,3812751 | 0,188295793 | 0,147757136 | 1080 | 100 | 24,97132628 | 96,68068475 | 0 |
| 1103 | 0,216765657 | 0,183052454 | 7,216431537 | 89,49892315 | 166,7028662 | 0,174781698 | 0,136967155 | 1080 | 100 | 24,97363278 | 96,86909122 | 0 |
| 1104 | 0,201323854 | 0,169526726 | 7,131422943 | 86,08145433 | 160,0458466 | 0,161827509 | 0,126669911 | 1080 | 100 | 24,97585409 | 97,05751683 | 0 |
| 1105 | 0,186481471 | 0,156566753 | 7,049838907 | 82,69174982 | 153,4592112 | 0,149420353 | 0,116826467 | 1080 | 100 | 24,97796546 | 97,24346031 | 0 |
| 1106 | 0,172233946 | 0,144170376 | 6,971659074 | 79,32735314 | 146,9430468 | 0,137557291 | 0,107432252 | 1080 | 100 | 24,97996504 | 97,42643623 | 0 |
| 1107 | 0,158576779 | 0,132330052 | 6,89684749 | 75,98886966 | 140,4969663 | 0,126230762 | 0,098478089 | 1080 | 100 | 24,98185225 | 97,60594065 | 0 |
| 1108 | 0,145505837 | 0,121033859 | 6,825356478 | 72,67836243 | 134,1201607 | 0,115428164 | 0,089950266 | 1080 | 100 | 24,98362671 | 97,78149833 | 0 |
| 1109 | 0,133016236 | 0,110280592 | 6,757167627 | 69,39119611 | 127,75566 | 0,105152684 | 0,081872445 | 1080 | 100 | 24,98530601 | 97,95455919 | 0 |
| 1110 | 0,121104842 | 0,100061283 | 6,692244923 | 66,12525557 | 121,5174245 | 0,095385641 | 0,074180974 | 1080 | 100 | 24,98685631 | 98,12079613 | 0 |
| 1111 | 0,109767023 | 0,090372812 | 6,630565128 | 62,87965016 | 115,2897501 | 0,086132707 | 0,066923403 | 1080 | 100 | 24,9883124 | 98,28355437 | 0 |
| 1112 | 0,099000082 | 0,081210095 | 6,572104963 | 59,65326515 | 109,0700269 | 0,077388305 | 0,060091452 | 1080 | 100 | 24,98967389 | 98,44226992 | 0 |
| 1113 | 0,088800983 | 0,072564231 | 6,516828981 | 56,44291224 | 102,9788686 | 0,06913438 | 0,053626497 | 1080 | 100 | 24,99091426 | 98,59292272 | 0 |
| 1114 | 0,079166673 | 0,064432833 | 6,464720823 | 53,24953212 | 96,89479367 | 0,061376979 | 0,04757285 | 1080 | 100 | 24,99206448 | 98,73863133 | 0 |
| 1115 | 0,070094502 | 0,056808826 | 6,415751585 | 50,07645422 | 90,81555181 | 0,054108388 | 0,041920338 | 1080 | 100 | 24,99312564 | 98,87885611 | 0 |
| 1116 | 0,061581523 | 0,049689957 | 6,369905657 | 46,91476971 | 84,86827622 | 0,04731839 | 0,036623416 | 1080 | 100 | 24,99407835 | 99,01001648 | 0 |
| 1117 | 0,05362624 | 0,043067988 | 6,327154166 | 43,7612921 | 78,92562642 | 0,041006136 | 0,031715293 | 1080 | 100 | 24,99494906 | 99,13493573 | 0 |
| 1118 | 0,046229004 | 0,036967263 | 6,287569229 | 40,57894718 | 72,69570374 | 0,035183343 | 0,027269533 | 1080 | 100 | 24,99577068 | 99,25913375 | 0 |
| 1119 | 0,039401794 | 0,031396623 | 6,251211606 | 37,32757589 | 66,47400778 | 0,029873362 | 0,023231843 | 1080 | 100 | 24,99650968 | 99,37513548 | 0 |
| 1120 | 0,033152905 | 0,026332298 | 6,218035651 | 34,05038544 | 60,39279379 | 0,025047616 | 0,019547218 | 1080 | 100 | 24,99715522 | 99,48013698 | 0 |
| 1121 | 0,027478194 | 0,021758461 | 6,18798256 | 30,81856684 | 54,31545487 | 0,020694598 | 0,016232007 | 1080 | 100 | 24,99772717 | 99,5764815 | 0 |
| 1122 | 0,022374095 | 0,017663515 | 6,161007652 | 27,60277979 | 48,65106029 | 0,016788701 | 0,013198356 | 1080 | 100 | 24,99819607 | 99,65799358 | 0 |
| 1123 | 0,017825758 | 0,01402308 | 6,136995701 | 24,49849964 | 42,71621719 | 0,013329712 | 0,010555168 | 1080 | 100 | 24,99862461 | 99,73483081 | 0 |
| 1124 | 0,013831263 | 0,010838332 | 6,115944363 | 21,38647346 | 37,3365086 | 0,010293296 | 0,008168908 | 1080 | 100 | 24,99895873 | 99,79637679 | 0 |
| 1125 | 0,010371313 | 0,008098923 | 6,097766567 | 18,36114448 | 31,6823842 | 0,007692862 | 0,006160334 | 1080 | 100 | 24,99925694 | 99,85273971 | 0 |
| 1126 | 0,007446096 | 0,005784507 | 6,082403086 | 15,37740862 | 26,58799442 | 0,00548798 | 0,004406914 | 1080 | 100 | 24,99948039 | 99,89589994 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t<br>min | P Inicio Duto<br>kgf/cm2 g | P Final Duto<br>kgf/cm2 g | Inventário<br>t | Q Duto<br>mil Pm3/dia | Q blowdown<br>mil Pm3/dia | P ent Valv<br>kgf/cm2 g | P saida valv<br>kgf/cm2 g | CV | Abert Valv<br>% | T saida valv<br>°C | Pout/Pin<br>% | P Saída<br>kgf/cm2 g |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1127 | 0,005029142 | 0,003901673 | 6,069795521 | 12,48821877 | 21,49634747 | 0,003698147 | 0,002990553 | 1080 | 100 | 24,99966246 | 99,93174544 | 0 |
| 1128 | 0,003117976 | 0,002393075 | 6,059768398 | 9,67841749 | 16,40592576 | 0,002268464 | 0,001855877 | 1080 | 100 | 24,99980446 | 99,96014686 | 0 |
| 1129 | 0,001675724 | 0,001275496 | 6,052262743 | 7,131796089 | 11,3151991 | 0,001211568 | 0,001015151 | 1080 | 100 | 24,99990738 | 99,98100802 | 0 |
| 1130 | 0,000692155 | 0,000519166 | 6,047161227 | 4,640504681 | 6,789012391 | 0,000493657 | 0,00042291 | 1080 | 100 | 24,99996675 | 99,99315454 | 0 |
| 1131 | 0,000156322 | 9,50414E-05 | 6,044815647 | 2,430361533 | 4,525525198 | 0,000156151 | 0,000124705 | 1080 | 100 | 24,99998524 | 99,99695637 | 0 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 0 | -26,08035004 | 336,912457 | 0,010650597 | 0,238411546 | 0,8 | 3270836,692 | 0,014064842 | 124,88414 | 111,0998 | 125,0621 | 7,000707 | 23,96335 | 25,49829 | 11,61938 |
| 1 | -26,06290872 | 336,8981562 | 0,01066014 | 0,238411546 | 0,8 | 3272280,485 | 0,014064842 | 124,884474 | 111,1012 | 125,0625 | 7,000425 | 23,96301 | 25,49773 | 11,61915 |
| 2 | -26,04686164 | 336,8849652 | 0,010668921 | 0,238411546 | 0,8 | 3273606,376 | 0,014064842 | 124,88478 | 111,1026 | 125,0629 | 7,000166 | 23,9627 | 25,49722 | 11,61893 |
| 3 | -26,03078767 | 336,8722457 | 0,010677733 | 0,238411546 | 0,8 | 3274937,023 | 0,014064842 | 124,885092 | 111,1039 | 125,0632 | 6,999906 | 23,96239 | 25,49671 | 11,61872 |
| 4 | -26,01469 | 336,8592618 | 0,010686551 | 0,238411546 | 0,8 | 3276265,266 | 0,014064842 | 124,885402 | 111,1053 | 125,0636 | 6,999646 | 23,96208 | 25,49619 | 11,6185 |
| 5 | -25,99856859 | 336,8460139 | 0,010695377 | 0,238411546 | 0,8 | 3277591,108 | 0,014064842 | 124,885708 | 111,1066 | 125,0639 | 6,999386 | 23,96176 | 25,49568 | 11,61829 |
| 6 | -25,98242059 | 336,8332406 | 0,010704234 | 0,238411546 | 0,8 | 3278921,711 | 0,014064842 | 124,88602 | 111,108 | 125,0643 | 6,999125 | 23,96145 | 25,49516 | 11,61807 |
| 7 | -25,96624886 | 336,8202015 | 0,010713098 | 0,238411546 | 0,8 | 3280249,894 | 0,014064842 | 124,886329 | 111,1093 | 125,0646 | 6,998864 | 23,96113 | 25,49464 | 11,61785 |
| 8 | -25,95005347 | 336,8068971 | 0,010721969 | 0,238411546 | 0,8 | 3281575,655 | 0,014064842 | 124,886634 | 111,1107 | 125,065 | 6,998602 | 23,96082 | 25,49413 | 11,61763 |
| 9 | -25,93383148 | 336,7940655 | 0,010730871 | 0,238411546 | 0,8 | 3282906,167 | 0,014064842 | 124,886946 | 111,112 | 125,0653 | 6,998341 | 23,9605 | 25,49361 | 11,61741 |
| 10 | -25,91758582 | 336,7809671 | 0,01073978 | 0,238411546 | 0,8 | 3284234,242 | 0,014064842 | 124,887255 | 111,1134 | 125,0657 | 6,998078 | 23,96018 | 25,49309 | 11,6172 |
| 11 | -25,90131354 | 336,76834 | 0,01074872 | 0,238411546 | 0,8 | 3285567,058 | 0,014064842 | 124,88757 | 111,1147 | 125,066 | 6,997816 | 23,95986 | 25,49257 | 11,61698 |
| 12 | -25,88502053 | 336,7547058 | 0,010757645 | 0,238411546 | 0,8 | 3286890,228 | 0,014064842 | 124,887872 | 111,1161 | 125,0664 | 6,997553 | 23,95954 | 25,49204 | 11,61676 |
| 13 | -25,86869803 | 336,742282 | 0,010766623 | 0,238411546 | 0,8 | 3288225,337 | 0,014064842 | 124,888189 | 111,1175 | 125,0667 | 6,99729 | 23,95922 | 25,49152 | 11,61654 |
| 14 | -25,85235477 | 336,7288488 | 0,010775586 | 0,238411546 | 0,8 | 3289550,771 | 0,014064842 | 124,888494 | 111,1188 | 125,0671 | 6,997027 | 23,9589 | 25,491 | 11,61632 |
| 15 | -25,83598494 | 336,7158851 | 0,010784579 | 0,238411546 | 0,8 | 3290880,933 | 0,014064842 | 124,888805 | 111,1202 | 125,0674 | 6,996763 | 23,95858 | 25,49047 | 11,61609 |
| 16 | -25,81958855 | 336,7033906 | 0,010793604 | 0,238411546 | 0,8 | 3292215,825 | 0,014064842 | 124,889122 | 111,1215 | 125,0678 | 6,996499 | 23,95826 | 25,48994 | 11,61587 |
| 17 | -25,80316852 | 336,6906252 | 0,010802636 | 0,238411546 | 0,8 | 3293548,232 | 0,014064842 | 124,889436 | 111,1229 | 125,0682 | 6,996234 | 23,95793 | 25,48941 | 11,61565 |
| 18 | -25,78672486 | 336,677588 | 0,010811676 | 0,238411546 | 0,8 | 3294878,141 | 0,014064842 | 124,889746 | 111,1243 | 125,0685 | 6,995969 | 23,95761 | 25,48889 | 11,61543 |
| 19 | -25,77025756 | 336,664279 | 0,010820723 | 0,238411546 | 0,8 | 3296205,55 | 0,014064842 | 124,890053 | 111,1256 | 125,0689 | 6,995704 | 23,95728 | 25,48836 | 11,6152 |
| 20 | -25,75376373 | 336,6514358 | 0,010829801 | 0,238411546 | 0,8 | 3297537,658 | 0,014064842 | 124,890367 | 111,127 | 125,0692 | 6,995438 | 23,95695 | 25,48783 | 11,61498 |
| 21 | -25,73724626 | 336,6383198 | 0,010838887 | 0,238411546 | 0,8 | 3298867,255 | 0,014064842 | 124,890676 | 111,1283 | 125,0696 | 6,995173 | 23,95662 | 25,48729 | 11,61476 |
| 22 | -25,72070229 | 336,6256696 | 0,010848004 | 0,238411546 | 0,8 | 3300201,556 | 0,014064842 | 124,890992 | 111,1297 | 125,0699 | 6,994906 | 23,9563 | 25,48676 | 11,61453 |
| 23 | -25,7041347 | 336,6127441 | 0,010857129 | 0,238411546 | 0,8 | 3301533,319 | 0,014064842 | 124,891305 | 111,1311 | 125,0703 | 6,99464 | 23,95597 | 25,48623 | 11,61431 |
| 24 | -25,68754352 | 336,5995444 | 0,010866262 | 0,238411546 | 0,8 | 3302862,549 | 0,014064842 | 124,891614 | 111,1324 | 125,0706 | 6,994373 | 23,95563 | 25,48569 | 11,61408 |
| 25 | -25,67092583 | 336,5868078 | 0,010875426 | 0,238411546 | 0,8 | 3304196,463 | 0,014064842 | 124,891929 | 111,1338 | 125,071 | 6,994106 | 23,9553 | 25,48515 | 11,61386 |
| 26 | -25,65428452 | 336,5737954 | 0,010884598 | 0,238411546 | 0,8 | 3305527,828 | 0,014064842 | 124,892241 | 111,1352 | 125,0713 | 6,993838 | 23,95497 | 25,48462 | 11,61363 |
| 27 | -25,63761967 | 336,5605058 | 0,010893777 | 0,238411546 | 0,8 | 3306856,627 | 0,014064842 | 124,892549 | 111,1365 | 125,0717 | 6,99357 | 23,95464 | 25,48408 | 11,6134 |
| 28 | -25,62092831 | 336,5476785 | 0,010902988 | 0,238411546 | 0,8 | 3308190,104 | 0,014064842 | 124,892864 | 111,1379 | 125,072 | 6,993302 | 23,9543 | 25,48354 | 11,61318 |
| 29 | -25,60421045 | 336,5353122 | 0,010912231 | 0,238411546 | 0,8 | 3309528,252 | 0,014064842 | 124,893184 | 111,1393 | 125,0724 | 6,993033 | 23,95397 | 25,483 | 11,61295 |
| 30 | -25,58747196 | 336,5219278 | 0,010921457 | 0,238411546 | 0,8 | 3310856,567 | 0,014064842 | 124,893492 | 111,1406 | 125,0728 | 6,992764 | 23,95363 | 25,48246 | 11,61272 |
| 31 | -25,57070697 | 336,5090034 | 0,010930715 | 0,238411546 | 0,8 | 3312189,542 | 0,014064842 | 124,893805 | 111,142 | 125,0731 | 6,992495 | 23,95329 | 25,48192 | 11,61249 |
| 32 | -25,55391847 | 336,4958003 | 0,010939981 | 0,238411546 | 0,8 | 3313519,928 | 0,014064842 | 124,894115 | 111,1434 | 125,0735 | 6,992225 | 23,95295 | 25,48137 | 11,61226 |
| 33 | -25,53710345 | 336,4830547 | 0,010949279 | 0,238411546 | 0,8 | 3314854,955 | 0,014064842 | 124,894432 | 111,1448 | 125,0738 | 6,991955 | 23,95261 | 25,48083 | 11,61203 |
| 34 | -25,52026494 | 336,4700287 | 0,010958585 | 0,238411546 | 0,8 | 3316187,375 | 0,014064842 | 124,894744 | 111,1461 | 125,0742 | 6,991685 | 23,95227 | 25,48028 | 11,6118 |
| 35 | -25,50339996 | 336,4574603 | 0,010967922 | 0,238411546 | 0,8 | 3317524,441 | 0,014064842 | 124,895063 | 111,1475 | 125,0745 | 6,991414 | 23,95193 | 25,47973 | 11,61157 |
| 36 | -25,48651143 | 336,4446096 | 0,010977268 | 0,238411546 | 0,8 | 3318858,88 | 0,014064842 | 124,895378 | 111,1489 | 125,0749 | 6,991143 | 23,95159 | 25,47919 | 11,61134 |
| 37 | -25,46959942 | 336,4314765 | 0,010986621 | 0,238411546 | 0,8 | 3320190,688 | 0,014064842 | 124,89569 | 111,1503 | 125,0753 | 6,990872 | 23,95125 | 25,47864 | 11,61111 |
| 38 | -25,45266096 | 336,4187985 | 0,010996006 | 0,238411546 | 0,8 | 3321527,12 | 0,014064842 | 124,896007 | 111,1517 | 125,0756 | 6,9906 | 23,9509 | 25,47809 | 11,61088 |
| 39 | -25,43569898 | 336,4058368 | 0,0110054 | 0,238411546 | 0,8 | 3322860,906 | 0,014064842 | 124,896322 | 111,153 | 125,076 | 6,990328 | 23,95056 | 25,47754 | 11,61064 |
| 40 | -25,41871058 | 336,3933296 | 0,011014825 | 0,238411546 | 0,8 | 3324199,315 | 0,014064842 | 124,896642 | 111,1544 | 125,0763 | 6,990056 | 23,95021 | 25,47698 | 11,61041 |
| 41 | -25,40170166 | 336,3797986 | 0,011024234 | 0,238411546 | 0,8 | 3325527,781 | 0,014064842 | 124,896949 | 111,1558 | 125,0767 | 6,989783 | 23,94987 | 25,47643 | 11,61018 |
| 42 | -25,38466335 | 336,3674591 | 0,0110337 | 0,238411546 | 0,8 | 3326868,138 | 0,014064842 | 124,897271 | 111,1572 | 125,0771 | 6,98951 | 23,94952 | 25,47588 | 11,60994 |
| 43 | -25,36760451 | 336,3540949 | 0,011043149 | 0,238411546 | 0,8 | 3328198,532 | 0,014064842 | 124,897581 | 111,1586 | 125,0774 | 6,989237 | 23,94917 | 25,47532 | 11,60971 |
| 44 | -25,35051928 | 336,3411825 | 0,011052631 | 0,238411546 | 0,8 | 3329533,527 | 0,014064842 | 124,897896 | 111,1599 | 125,0778 | 6,988963 | 23,94882 | 25,47477 | 11,60947 |
| 45 | -25,33340764 | 336,3287213 | 0,011062145 | 0,238411546 | 0,8 | 3330873,121 | 0,014064842 | 124,898217 | 111,1613 | 125,0781 | 6,988689 | 23,94847 | 25,47421 | 11,60924 |
| 46 | -25,31627254 | 336,3159716 | 0,011071667 | 0,238411546 | 0,8 | 3332210,013 | 0,014064842 | 124,898535 | 111,1627 | 125,0785 | 6,988415 | 23,94812 | 25,47365 | 11,609 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 47 | -25,29911401 | 336,3029334 | 0,011081198 | 0,238411546 | 0,8 | 3333544,196 | 0,014064842 | 124,898849 | 111,1641 | 125,0789 | 6,98814 | 23,94777 | 25,47309 | 11,60877 |
| 48 | -25,28192909 | 336,2903441 | 0,011090761 | 0,238411546 | 0,8 | 3334882,96 | 0,014064842 | 124,899169 | 111,1655 | 125,0792 | 6,987865 | 23,94741 | 25,47253 | 11,60853 |
| 49 | -25,26472071 | 336,2774644 | 0,011100332 | 0,238411546 | 0,8 | 3336218,997 | 0,014064842 | 124,899486 | 111,1669 | 125,0796 | 6,987589 | 23,94706 | 25,47197 | 11,60829 |
| 50 | -25,24748896 | 336,2642957 | 0,011109911 | 0,238411546 | 0,8 | 3337552,314 | 0,014064842 | 124,899799 | 111,1683 | 125,0799 | 6,987314 | 23,94671 | 25,47141 | 11,60805 |
| 51 | -25,23023081 | 336,2515726 | 0,011119523 | 0,238411546 | 0,8 | 3338890,184 | 0,014064842 | 124,900117 | 111,1697 | 125,0803 | 6,987038 | 23,94635 | 25,47084 | 11,60782 |
| 52 | -25,21294927 | 336,2385586 | 0,011129143 | 0,238411546 | 0,8 | 3340225,315 | 0,014064842 | 124,900432 | 111,1711 | 125,0807 | 6,986761 | 23,94599 | 25,47028 | 11,60758 |
| 53 | -25,19564138 | 336,2259905 | 0,011138795 | 0,238411546 | 0,8 | 3341565,003 | 0,014064842 | 124,900753 | 111,1725 | 125,081 | 6,986484 | 23,94564 | 25,46971 | 11,60734 |
| 54 | -25,17831009 | 336,2131293 | 0,011148456 | 0,238411546 | 0,8 | 3342901,928 | 0,014064842 | 124,901071 | 111,1738 | 125,0814 | 6,986207 | 23,94528 | 25,46915 | 11,6071 |
| 55 | -25,1609554 | 336,1999735 | 0,011158126 | 0,238411546 | 0,8 | 3344236,074 | 0,014064842 | 124,901384 | 111,1752 | 125,0817 | 6,98593 | 23,94492 | 25,46858 | 11,60686 |
| 56 | -25,14357439 | 336,1872626 | 0,011167828 | 0,238411546 | 0,8 | 3345574,77 | 0,014064842 | 124,901704 | 111,1766 | 125,0821 | 6,985652 | 23,94456 | 25,46801 | 11,60662 |
| 57 | -25,12617002 | 336,1742567 | 0,011177538 | 0,238411546 | 0,8 | 3346910,678 | 0,014064842 | 124,90202 | 111,178 | 125,0825 | 6,985374 | 23,9442 | 25,46744 | 11,60638 |
| 58 | -25,10873932 | 336,161693 | 0,011187282 | 0,238411546 | 0,8 | 3348251,115 | 0,014064842 | 124,902341 | 111,1794 | 125,0828 | 6,985096 | 23,94383 | 25,46687 | 11,60613 |
| 59 | -25,09128528 | 336,1488334 | 0,011197034 | 0,238411546 | 0,8 | 3349588,754 | 0,014064842 | 124,902659 | 111,1808 | 125,0832 | 6,984817 | 23,94347 | 25,4663 | 11,60589 |
| 60 | -25,07380787 | 336,1356768 | 0,011206794 | 0,238411546 | 0,8 | 3350923,578 | 0,014064842 | 124,902973 | 111,1822 | 125,0835 | 6,984538 | 23,94311 | 25,46572 | 11,60565 |
| 61 | -25,0563042 | 336,1229615 | 0,011216587 | 0,238411546 | 0,8 | 3352262,928 | 0,014064842 | 124,903293 | 111,1836 | 125,0839 | 6,984258 | 23,94274 | 25,46515 | 11,60541 |
| 62 | -25,03877716 | 336,1099471 | 0,011226389 | 0,238411546 | 0,8 | 3353599,44 | 0,014064842 | 124,90361 | 111,185 | 125,0843 | 6,983979 | 23,94237 | 25,46457 | 11,60516 |
| 63 | -25,02122385 | 336,0973722 | 0,011236224 | 0,238411546 | 0,8 | 3354940,461 | 0,014064842 | 124,903932 | 111,1864 | 125,0846 | 6,983699 | 23,94201 | 25,464 | 11,60492 |
| 64 | -25,00364723 | 336,084498 | 0,011246068 | 0,238411546 | 0,8 | 3356278,642 | 0,014064842 | 124,90425 | 111,1878 | 125,085 | 6,983418 | 23,94164 | 25,46342 | 11,60468 |
| 65 | -24,98604434 | 336,072062 | 0,011255944 | 0,238411546 | 0,8 | 3357621,325 | 0,014064842 | 124,904574 | 111,1892 | 125,0854 | 6,983137 | 23,94127 | 25,46284 | 11,60443 |
| 66 | -24,96841814 | 336,0593249 | 0,01126583 | 0,238411546 | 0,8 | 3358961,146 | 0,014064842 | 124,904895 | 111,1906 | 125,0857 | 6,982856 | 23,9409 | 25,46226 | 11,60418 |
| 67 | -24,95076866 | 336,0462865 | 0,011275724 | 0,238411546 | 0,8 | 3360298,1 | 0,014064842 | 124,905211 | 111,192 | 125,0861 | 6,982575 | 23,94053 | 25,46168 | 11,60394 |
| 68 | -24,93309291 | 336,0336841 | 0,011285651 | 0,238411546 | 0,8 | 3361639,536 | 0,014064842 | 124,905534 | 111,1935 | 125,0865 | 6,982293 | 23,94016 | 25,4611 | 11,60369 |
| 69 | -24,91539386 | 336,0207786 | 0,011295587 | 0,238411546 | 0,8 | 3362978,085 | 0,014064842 | 124,905852 | 111,1949 | 125,0868 | 6,982011 | 23,93979 | 25,46052 | 11,60345 |
| 70 | -24,89767158 | 336,0075704 | 0,011305532 | 0,238411546 | 0,8 | 3364313,747 | 0,014064842 | 124,906167 | 111,1963 | 125,0872 | 6,981728 | 23,93941 | 25,45994 | 11,6032 |
| 71 | -24,87992305 | 335,9947952 | 0,01131551 | 0,238411546 | 0,8 | 3365653,863 | 0,014064842 | 124,906487 | 111,1977 | 125,0875 | 6,981446 | 23,93904 | 25,45935 | 11,60295 |
| 72 | -24,86214834 | 335,9824536 | 0,011325522 | 0,238411546 | 0,8 | 3366998,448 | 0,014064842 | 124,906814 | 111,1991 | 125,0879 | 6,981163 | 23,93866 | 25,45877 | 11,6027 |
| 73 | -24,84435035 | 335,9698066 | 0,011335542 | 0,238411546 | 0,8 | 3368340,117 | 0,014064842 | 124,907136 | 111,2005 | 125,0883 | 6,980879 | 23,93829 | 25,45818 | 11,60245 |
| 74 | -24,82652912 | 335,9568536 | 0,011345572 | 0,238411546 | 0,8 | 3369678,86 | 0,014064842 | 124,907455 | 111,2019 | 125,0886 | 6,980595 | 23,93791 | 25,45759 | 11,60221 |
| 75 | -24,80868465 | 335,9435942 | 0,01135561 | 0,238411546 | 0,8 | 3371014,669 | 0,014064842 | 124,907769 | 111,2033 | 125,089 | 6,980311 | 23,93753 | 25,457 | 11,60196 |
| 76 | -24,79081107 | 335,9315027 | 0,011365706 | 0,238411546 | 0,8 | 3372362,298 | 0,014064842 | 124,908099 | 111,2048 | 125,0894 | 6,980027 | 23,93715 | 25,45641 | 11,60171 |
| 77 | -24,77291719 | 335,9183655 | 0,011375787 | 0,238411546 | 0,8 | 3373699,594 | 0,014064842 | 124,908416 | 111,2062 | 125,0897 | 6,979742 | 23,93677 | 25,45582 | 11,60146 |
| 78 | -24,75499717 | 335,9056573 | 0,011385902 | 0,238411546 | 0,8 | 3375041,315 | 0,014064842 | 124,908738 | 111,2076 | 125,0901 | 6,979457 | 23,93639 | 25,45523 | 11,60121 |
| 79 | -24,73705394 | 335,8926396 | 0,011396025 | 0,238411546 | 0,8 | 3376380,067 | 0,014064842 | 124,909056 | 111,209 | 125,0905 | 6,979172 | 23,93601 | 25,45464 | 11,60095 |
| 80 | -24,71908455 | 335,8800495 | 0,011406183 | 0,238411546 | 0,8 | 3377723,237 | 0,014064842 | 124,90938 | 111,2104 | 125,0908 | 6,978886 | 23,93563 | 25,45404 | 11,6007 |
| 81 | -24,70109197 | 335,8671486 | 0,011416349 | 0,238411546 | 0,8 | 3379063,421 | 0,014064842 | 124,9097 | 111,2118 | 125,0912 | 6,9786 | 23,93524 | 25,45345 | 11,60045 |
| 82 | -24,68307327 | 335,8546745 | 0,01142655 | 0,238411546 | 0,8 | 3380408,017 | 0,014064842 | 124,910026 | 111,2133 | 125,0916 | 6,978313 | 23,93486 | 25,45285 | 11,6002 |
| 83 | -24,66503142 | 335,8418881 | 0,011436759 | 0,238411546 | 0,8 | 3381749,61 | 0,014064842 | 124,910348 | 111,2147 | 125,0919 | 6,978026 | 23,93447 | 25,45226 | 11,59994 |
| 84 | -24,64696341 | 335,829526 | 0,011447003 | 0,238411546 | 0,8 | 3383095,598 | 0,014064842 | 124,910675 | 111,2161 | 125,0923 | 6,977739 | 23,93409 | 25,45166 | 11,59969 |
| 85 | -24,62887522 | 335,8161133 | 0,011457231 | 0,238411546 | 0,8 | 3384431,157 | 0,014064842 | 124,910989 | 111,2175 | 125,0927 | 6,977452 | 23,9337 | 25,45106 | 11,59944 |
| 86 | -24,61075798 | 335,8038614 | 0,011467517 | 0,238411546 | 0,8 | 3385778,512 | 0,014064842 | 124,911318 | 111,219 | 125,093 | 6,977164 | 23,93331 | 25,45046 | 11,59918 |
| 87 | -24,59261755 | 335,7912937 | 0,011477814 | 0,238411546 | 0,8 | 3387122,827 | 0,014064842 | 124,911643 | 111,2204 | 125,0934 | 6,976876 | 23,93292 | 25,44986 | 11,59893 |
| 88 | -24,57445402 | 335,778411 | 0,011488119 | 0,238411546 | 0,8 | 3388464,1 | 0,014064842 | 124,911964 | 111,2218 | 125,0938 | 6,976588 | 23,93253 | 25,44926 | 11,59867 |
| 89 | -24,5562674 | 335,7652126 | 0,011498433 | 0,238411546 | 0,8 | 3389802,32 | 0,014064842 | 124,912281 | 111,2232 | 125,0941 | 6,976299 | 23,93214 | 25,44865 | 11,59841 |
| 90 | -24,53805172 | 335,7531716 | 0,011508808 | 0,238411546 | 0,8 | 3391152,322 | 0,014064842 | 124,912613 | 111,2247 | 125,0945 | 6,97601 | 23,93175 | 25,44805 | 11,59816 |
| 91 | -24,51981591 | 335,7400756 | 0,011519166 | 0,238411546 | 0,8 | 3392491,828 | 0,014064842 | 124,912932 | 111,2261 | 125,0949 | 6,975721 | 23,93136 | 25,44744 | 11,5979 |
| 92 | -24,50155405 | 335,7273993 | 0,011529559 | 0,238411546 | 0,8 | 3393835,686 | 0,014064842 | 124,913256 | 111,2275 | 125,0953 | 6,975431 | 23,93096 | 25,44684 | 11,59764 |
| 93 | -24,4832691 | 335,7144036 | 0,011539961 | 0,238411546 | 0,8 | 3395176,453 | 0,014064842 | 124,913577 | 111,2289 | 125,0956 | 6,975141 | 23,93057 | 25,44623 | 11,59739 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 94 | -24,4649581 | 335,7018248 | 0,011550397 | 0,238411546 | 0,8 | 3396521,549 | 0,014064842 | 124,913902 | 111,2304 | 125,096 | 6,97485 | 23,93018 | 25,44562 | 11,59713 |
| 95 | -24,44662107 | 335,689663 | 0,011560869 | 0,238411546 | 0,8 | 3397870,983 | 0,014064842 | 124,914234 | 111,2318 | 125,0964 | 6,97456 | 23,92978 | 25,44501 | 11,59687 |
| 96 | -24,42826398 | 335,6764437 | 0,011571324 | 0,238411546 | 0,8 | 3399209,867 | 0,014064842 | 124,914551 | 111,2332 | 125,0967 | 6,974269 | 23,92938 | 25,4444 | 11,59661 |
| 97 | -24,40988083 | 335,6636387 | 0,011581814 | 0,238411546 | 0,8 | 3400553,058 | 0,014064842 | 124,914874 | 111,2347 | 125,0971 | 6,973977 | 23,92898 | 25,44379 | 11,59635 |
| 98 | -24,39147171 | 335,6512488 | 0,011592339 | 0,238411546 | 0,8 | 3401900,569 | 0,014064842 | 124,915203 | 111,2361 | 125,0975 | 6,973686 | 23,92858 | 25,44318 | 11,59609 |
| 99 | -24,37303954 | 335,6385352 | 0,011602874 | 0,238411546 | 0,8 | 3403244,935 | 0,014064842 | 124,915528 | 111,2376 | 125,0978 | 6,973394 | 23,92818 | 25,44256 | 11,59583 |
| 100 | -24,35458435 | 335,6254981 | 0,011613418 | 0,238411546 | 0,8 | 3404586,152 | 0,014064842 | 124,915848 | 111,239 | 125,0982 | 6,973101 | 23,92778 | 25,44195 | 11,59557 |
| 101 | -24,33610318 | 335,612873 | 0,011623997 | 0,238411546 | 0,8 | 3405931,661 | 0,014064842 | 124,916174 | 111,2404 | 125,0986 | 6,972809 | 23,92738 | 25,44133 | 11,59531 |
| 102 | -24,31759602 | 335,600659 | 0,011634611 | 0,238411546 | 0,8 | 3407281,455 | 0,014064842 | 124,916505 | 111,2419 | 125,099 | 6,972516 | 23,92698 | 25,44072 | 11,59504 |
| 103 | -24,29906588 | 335,5881194 | 0,011645234 | 0,238411546 | 0,8 | 3408628,078 | 0,014064842 | 124,916833 | 111,2433 | 125,0993 | 6,972222 | 23,92658 | 25,4401 | 11,59478 |
| 104 | -24,28051275 | 335,5752529 | 0,011655868 | 0,238411546 | 0,8 | 3409971,514 | 0,014064842 | 124,917156 | 111,2448 | 125,0997 | 6,971929 | 23,92617 | 25,43948 | 11,59452 |
| 105 | -24,26193669 | 335,5620594 | 0,01166651 | 0,238411546 | 0,8 | 3411311,756 | 0,014064842 | 124,917475 | 111,2462 | 125,1001 | 6,971635 | 23,92577 | 25,43886 | 11,59426 |
| 106 | -24,24333167 | 335,5500103 | 0,011677214 | 0,238411546 | 0,8 | 3412663,722 | 0,014064842 | 124,917809 | 111,2477 | 125,1005 | 6,97134 | 23,92536 | 25,43824 | 11,59399 |
| 107 | -24,22470668 | 335,5368958 | 0,011687902 | 0,238411546 | 0,8 | 3414005,005 | 0,014064842 | 124,918129 | 111,2491 | 125,1008 | 6,971046 | 23,92495 | 25,43762 | 11,59373 |
| 108 | -24,20605577 | 335,5241882 | 0,011698625 | 0,238411546 | 0,8 | 3415350,536 | 0,014064842 | 124,918455 | 111,2505 | 125,1012 | 6,970751 | 23,92454 | 25,437 | 11,59346 |
| 109 | -24,18737894 | 335,5118868 | 0,011709384 | 0,238411546 | 0,8 | 3416700,314 | 0,014064842 | 124,918786 | 111,252 | 125,1016 | 6,970456 | 23,92413 | 25,43637 | 11,5932 |
| 110 | -24,16867917 | 335,4992535 | 0,011720152 | 0,238411546 | 0,8 | 3418046,845 | 0,014064842 | 124,919113 | 111,2534 | 125,1019 | 6,97016 | 23,92372 | 25,43575 | 11,59293 |
| 111 | -24,14995651 | 335,4862889 | 0,011730931 | 0,238411546 | 0,8 | 3419390,128 | 0,014064842 | 124,919435 | 111,2549 | 125,1023 | 6,969864 | 23,92331 | 25,43512 | 11,59267 |
| 112 | -24,13120794 | 335,4737282 | 0,011741744 | 0,238411546 | 0,8 | 3420737,636 | 0,014064842 | 124,919763 | 111,2563 | 125,1027 | 6,969568 | 23,9229 | 25,43449 | 11,5924 |
| 113 | -24,11243649 | 335,4608342 | 0,011752568 | 0,238411546 | 0,8 | 3422081,874 | 0,014064842 | 124,920087 | 111,2578 | 125,1031 | 6,969271 | 23,92249 | 25,43387 | 11,59213 |
| 114 | -24,09363915 | 335,4483421 | 0,011763428 | 0,238411546 | 0,8 | 3423430,32 | 0,014064842 | 124,920416 | 111,2592 | 125,1034 | 6,968974 | 23,92208 | 25,43324 | 11,59186 |
| 115 | -24,07481896 | 335,4355148 | 0,011774297 | 0,238411546 | 0,8 | 3424775,473 | 0,014064842 | 124,920741 | 111,2607 | 125,1038 | 6,968677 | 23,92166 | 25,43261 | 11,5916 |
| 116 | -24,05597288 | 335,4230888 | 0,011785202 | 0,238411546 | 0,8 | 3426124,832 | 0,014064842 | 124,921071 | 111,2621 | 125,1042 | 6,96838 | 23,92125 | 25,43198 | 11,59133 |
| 117 | -24,03710398 | 335,4103263 | 0,011796117 | 0,238411546 | 0,8 | 3427470,882 | 0,014064842 | 124,921397 | 111,2636 | 125,1046 | 6,968082 | 23,92083 | 25,43134 | 11,59106 |
| 118 | -24,01820919 | 335,3979622 | 0,011807068 | 0,238411546 | 0,8 | 3428821,111 | 0,014064842 | 124,921728 | 111,2651 | 125,1049 | 6,967784 | 23,92041 | 25,43071 | 11,59079 |
| 119 | -23,9992916 | 335,3852607 | 0,011818029 | 0,238411546 | 0,8 | 3430168,019 | 0,014064842 | 124,922055 | 111,2665 | 125,1053 | 6,967485 | 23,91999 | 25,43008 | 11,59052 |
| 120 | -23,98034819 | 335,3729569 | 0,011829027 | 0,238411546 | 0,8 | 3431519,1 | 0,014064842 | 124,922388 | 111,268 | 125,1057 | 6,967186 | 23,91957 | 25,42944 | 11,59025 |
| 121 | -23,96138197 | 335,3603136 | 0,011840034 | 0,238411546 | 0,8 | 3432866,837 | 0,014064842 | 124,922715 | 111,2694 | 125,1061 | 6,966887 | 23,91915 | 25,42881 | 11,58998 |
| 122 | -23,94238991 | 335,3480656 | 0,011851077 | 0,238411546 | 0,8 | 3434218,728 | 0,014064842 | 124,923049 | 111,2709 | 125,1064 | 6,966588 | 23,91873 | 25,42817 | 11,58971 |
| 123 | -23,92337507 | 335,335477 | 0,011862131 | 0,238411546 | 0,8 | 3435567,258 | 0,014064842 | 124,923377 | 111,2724 | 125,1068 | 6,966288 | 23,91831 | 25,42753 | 11,58944 |
| 124 | -23,90433746 | 335,3225467 | 0,011873195 | 0,238411546 | 0,8 | 3436912,412 | 0,014064842 | 124,923702 | 111,2738 | 125,1072 | 6,965988 | 23,91789 | 25,42689 | 11,58916 |
| 125 | -23,88527407 | 335,3100098 | 0,011884295 | 0,238411546 | 0,8 | 3438261,703 | 0,014064842 | 124,924032 | 111,2753 | 125,1076 | 6,965687 | 23,91747 | 25,42625 | 11,58889 |
| 126 | -23,8661879 | 335,2971296 | 0,011895406 | 0,238411546 | 0,8 | 3439607,598 | 0,014064842 | 124,924357 | 111,2767 | 125,1079 | 6,965387 | 23,91704 | 25,42561 | 11,58862 |
| 127 | -23,84707599 | 335,2846416 | 0,011906552 | 0,238411546 | 0,8 | 3440957,617 | 0,014064842 | 124,924688 | 111,2782 | 125,1083 | 6,965085 | 23,91662 | 25,42497 | 11,58834 |
| 128 | -23,82794133 | 335,2718084 | 0,01191771 | 0,238411546 | 0,8 | 3442304,22 | 0,014064842 | 124,925014 | 111,2797 | 125,1087 | 6,964784 | 23,91619 | 25,42433 | 11,58807 |
| 129 | -23,80878093 | 335,2593656 | 0,011928903 | 0,238411546 | 0,8 | 3443654,934 | 0,014064842 | 124,925345 | 111,2811 | 125,1091 | 6,964482 | 23,91576 | 25,42368 | 11,5878 |
| 130 | -23,78959781 | 335,2465765 | 0,011940108 | 0,238411546 | 0,8 | 3445002,213 | 0,014064842 | 124,925672 | 111,2826 | 125,1094 | 6,96418 | 23,91533 | 25,42304 | 11,58752 |
| 131 | -23,77038898 | 335,2341761 | 0,011951348 | 0,238411546 | 0,8 | 3446353,589 | 0,014064842 | 124,926005 | 111,2841 | 125,1098 | 6,963878 | 23,91491 | 25,42239 | 11,58725 |
| 132 | -23,75115745 | 335,2214276 | 0,0119626 | 0,238411546 | 0,8 | 3447701,51 | 0,014064842 | 124,926332 | 111,2856 | 125,1102 | 6,963575 | 23,91448 | 25,42174 | 11,58697 |
| 133 | -23,7319002 | 335,2090661 | 0,011973888 | 0,238411546 | 0,8 | 3449053,516 | 0,014064842 | 124,926665 | 111,287 | 125,1106 | 6,963272 | 23,91404 | 25,42109 | 11,58669 |
| 134 | -23,71262027 | 335,1963548 | 0,011985186 | 0,238411546 | 0,8 | 3450402,044 | 0,014064842 | 124,926994 | 111,2885 | 125,1109 | 6,962969 | 23,91361 | 25,42045 | 11,58642 |
| 135 | -23,69331464 | 335,1840283 | 0,011996522 | 0,238411546 | 0,8 | 3451754,636 | 0,014064842 | 124,927327 | 111,29 | 125,1113 | 6,962665 | 23,91318 | 25,41979 | 11,58614 |
| 136 | -23,67398637 | 335,1713516 | 0,012007868 | 0,238411546 | 0,8 | 3453103,744 | 0,014064842 | 124,927656 | 111,2915 | 125,1117 | 6,962361 | 23,91275 | 25,41914 | 11,58586 |
| 137 | -23,65463244 | 335,159058 | 0,012019251 | 0,238411546 | 0,8 | 3454456,899 | 0,014064842 | 124,927991 | 111,2929 | 125,1121 | 6,962057 | 23,91231 | 25,41849 | 11,58558 |
| 138 | -23,63525585 | 335,1464117 | 0,012030645 | 0,238411546 | 0,8 | 3455806,544 | 0,014064842 | 124,92832 | 111,2944 | 125,1125 | 6,961753 | 23,91188 | 25,41784 | 11,58531 |
| 139 | -23,61585363 | 335,1341472 | 0,012042075 | 0,238411546 | 0,8 | 3457160,225 | 0,014064842 | 124,928655 | 111,2959 | 125,1128 | 6,961448 | 23,91144 | 25,41718 | 11,58503 |
| 140 | -23,59642882 | 335,1215287 | 0,012053517 | 0,238411546 | 0,8 | 3458510,376 | 0,014064842 | 124,928985 | 111,2974 | 125,1132 | 6,961142 | 23,911 | 25,41653 | 11,58475 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 141 | -23,57698134 | 335,1085544 | 0,012064969 | 0,238411546 | 0,8 | 3459856,975 | 0,014064842 | 124,929311 | 111,2988 | 125,1136 | 6,960837 | 23,91057 | 25,41587 | 11,58447 |
| 142 | -23,55750527 | 335,0966957 | 0,012076486 | 0,238411546 | 0,8 | 3461215,169 | 0,014064842 | 124,929651 | 111,3003 | 125,114 | 6,960531 | 23,91013 | 25,41521 | 11,58419 |
| 143 | -23,53800963 | 335,0837443 | 0,012087986 | 0,238411546 | 0,8 | 3462562,221 | 0,014064842 | 124,929978 | 111,3018 | 125,1144 | 6,960225 | 23,90969 | 25,41456 | 11,58391 |
| 144 | -23,51848841 | 335,0711711 | 0,012099524 | 0,238411546 | 0,8 | 3463913,277 | 0,014064842 | 124,930309 | 111,3033 | 125,1147 | 6,959918 | 23,90925 | 25,4139 | 11,58362 |
| 145 | -23,49894159 | 335,0589747 | 0,012111099 | 0,238411546 | 0,8 | 3465268,327 | 0,014064842 | 124,930645 | 111,3048 | 125,1151 | 6,959611 | 23,9088 | 25,41324 | 11,58334 |
| 146 | -23,47937221 | 335,0464181 | 0,012122686 | 0,238411546 | 0,8 | 3466619,773 | 0,014064842 | 124,930977 | 111,3063 | 125,1155 | 6,959304 | 23,90836 | 25,41258 | 11,58306 |
| 147 | -23,45978031 | 335,0335023 | 0,012134283 | 0,238411546 | 0,8 | 3467967,62 | 0,014064842 | 124,931304 | 111,3078 | 125,1159 | 6,958997 | 23,90792 | 25,41191 | 11,58278 |
| 148 | -23,44016283 | 335,0209602 | 0,012145918 | 0,238411546 | 0,8 | 3469319,43 | 0,014064842 | 124,931636 | 111,3092 | 125,1163 | 6,958689 | 23,90747 | 25,41125 | 11,5825 |
| 149 | -23,42051982 | 335,0087918 | 0,012157591 | 0,238411546 | 0,8 | 3470675,208 | 0,014064842 | 124,931973 | 111,3107 | 125,1166 | 6,958381 | 23,90703 | 25,41059 | 11,58221 |
| 150 | -23,4008543 | 334,9962609 | 0,012169274 | 0,238411546 | 0,8 | 3472027,35 | 0,014064842 | 124,932306 | 111,3122 | 125,117 | 6,958073 | 23,90658 | 25,40992 | 11,58193 |
| 151 | -23,38116325 | 334,9841014 | 0,012180996 | 0,238411546 | 0,8 | 3473383,44 | 0,014064842 | 124,932643 | 111,3137 | 125,1174 | 6,957764 | 23,90614 | 25,40925 | 11,58164 |
| 152 | -23,3614497 | 334,9715777 | 0,012192729 | 0,238411546 | 0,8 | 3474735,873 | 0,014064842 | 124,932976 | 111,3152 | 125,1178 | 6,957455 | 23,90569 | 25,40859 | 11,58136 |
| 153 | -23,34171369 | 334,9586882 | 0,012204473 | 0,238411546 | 0,8 | 3476084,627 | 0,014064842 | 124,933304 | 111,3167 | 125,1182 | 6,957146 | 23,90524 | 25,40792 | 11,58107 |
| 154 | -23,3219522 | 334,9461688 | 0,012216255 | 0,238411546 | 0,8 | 3477437,314 | 0,014064842 | 124,933637 | 111,3182 | 125,1185 | 6,956836 | 23,90479 | 25,40725 | 11,58079 |
| 155 | -23,30216523 | 334,9340176 | 0,012228075 | 0,238411546 | 0,8 | 3478793,919 | 0,014064842 | 124,933975 | 111,3197 | 125,1189 | 6,956526 | 23,90434 | 25,40658 | 11,5805 |
| 156 | -23,2823558 | 334,9214976 | 0,012239906 | 0,238411546 | 0,8 | 3480146,813 | 0,014064842 | 124,934308 | 111,3212 | 125,1193 | 6,956216 | 23,90389 | 25,40591 | 11,58021 |
| 157 | -23,26252397 | 334,9086106 | 0,012251749 | 0,238411546 | 0,8 | 3481496,007 | 0,014064842 | 124,934637 | 111,3227 | 125,1197 | 6,955905 | 23,90344 | 25,40523 | 11,57993 |
| 158 | -23,24266665 | 334,8960878 | 0,01226363 | 0,238411546 | 0,8 | 3482849,078 | 0,014064842 | 124,93497 | 111,3242 | 125,1201 | 6,955594 | 23,90298 | 25,40456 | 11,57964 |
| 159 | -23,22278392 | 334,8839305 | 0,012275549 | 0,238411546 | 0,8 | 3484206,044 | 0,014064842 | 124,935309 | 111,3257 | 125,1205 | 6,955283 | 23,90253 | 25,40389 | 11,57935 |
| 160 | -23,20287879 | 334,8714016 | 0,01228748 | 0,238411546 | 0,8 | 3485559,262 | 0,014064842 | 124,935642 | 111,3272 | 125,1208 | 6,954971 | 23,90207 | 25,40321 | 11,57906 |
| 161 | -23,18294826 | 334,859236 | 0,012299449 | 0,238411546 | 0,8 | 3486916,356 | 0,014064842 | 124,935981 | 111,3287 | 125,1212 | 6,95466 | 23,90162 | 25,40253 | 11,57877 |
| 162 | -23,1629953 | 334,8466962 | 0,01231143 | 0,238411546 | 0,8 | 3488269,669 | 0,014064842 | 124,936314 | 111,3302 | 125,1216 | 6,954347 | 23,90116 | 25,40186 | 11,57849 |
| 163 | -23,14301701 | 334,8345194 | 0,012323449 | 0,238411546 | 0,8 | 3489626,856 | 0,014064842 | 124,936653 | 111,3317 | 125,122 | 6,954035 | 23,9007 | 25,40118 | 11,5782 |
| 164 | -23,12301635 | 334,8219669 | 0,01233548 | 0,238411546 | 0,8 | 3490980,243 | 0,014064842 | 124,936986 | 111,3332 | 125,1224 | 6,953722 | 23,90024 | 25,4005 | 11,57791 |
| 165 | -23,1029933 | 334,8090383 | 0,012347523 | 0,238411546 | 0,8 | 3492329,819 | 0,014064842 | 124,937315 | 111,3347 | 125,1228 | 6,953409 | 23,89979 | 25,39982 | 11,57761 |
| 166 | -23,0829419 | 334,7972035 | 0,012359631 | 0,238411546 | 0,8 | 3493690,875 | 0,014064842 | 124,937658 | 111,3362 | 125,1232 | 6,953096 | 23,89932 | 25,39914 | 11,57732 |
| 167 | -23,06287123 | 334,7842568 | 0,012371724 | 0,238411546 | 0,8 | 3495040,464 | 0,014064842 | 124,937987 | 111,3377 | 125,1235 | 6,952782 | 23,89886 | 25,39846 | 11,57703 |
| 168 | -23,0427752 | 334,7716666 | 0,012383856 | 0,238411546 | 0,8 | 3496393,862 | 0,014064842 | 124,938321 | 111,3392 | 125,1239 | 6,952468 | 23,8984 | 25,39777 | 11,57674 |
| 169 | -23,02265384 | 334,759432 | 0,012396027 | 0,238411546 | 0,8 | 3497751,063 | 0,014064842 | 124,938659 | 111,3407 | 125,1243 | 6,952154 | 23,89794 | 25,39709 | 11,57645 |
| 170 | -23,00251019 | 334,7468173 | 0,01240821 | 0,238411546 | 0,8 | 3499104,408 | 0,014064842 | 124,938992 | 111,3422 | 125,1247 | 6,951839 | 23,89747 | 25,3964 | 11,57615 |
| 171 | -22,98234126 | 334,7345563 | 0,012420432 | 0,238411546 | 0,8 | 3500461,538 | 0,014064842 | 124,93933 | 111,3438 | 125,1251 | 6,951524 | 23,89701 | 25,39572 | 11,57586 |
| 172 | -22,96214702 | 334,7226482 | 0,012432693 | 0,238411546 | 0,8 | 3501822,451 | 0,014064842 | 124,939673 | 111,3453 | 125,1255 | 6,951209 | 23,89654 | 25,39503 | 11,57557 |
| 173 | -22,94193359 | 334,7096232 | 0,012444939 | 0,238411546 | 0,8 | 3503171,813 | 0,014064842 | 124,940002 | 111,3468 | 125,1258 | 6,950893 | 23,89608 | 25,39434 | 11,57527 |
| 174 | -22,92169181 | 334,6976831 | 0,012457251 | 0,238411546 | 0,8 | 3504532,597 | 0,014064842 | 124,940344 | 111,3483 | 125,1262 | 6,950577 | 23,89561 | 25,39365 | 11,57498 |
| 175 | -22,90142783 | 334,6853586 | 0,012469575 | 0,238411546 | 0,8 | 3505889,467 | 0,014064842 | 124,940682 | 111,3498 | 125,1266 | 6,950261 | 23,89514 | 25,39296 | 11,57468 |
| 176 | -22,88114163 | 334,6726493 | 0,012481912 | 0,238411546 | 0,8 | 3507242,417 | 0,014064842 | 124,941015 | 111,3513 | 125,127 | 6,949945 | 23,89467 | 25,39227 | 11,57439 |
| 177 | -22,86083023 | 334,660288 | 0,012494287 | 0,238411546 | 0,8 | 3508599,1 | 0,014064842 | 124,941352 | 111,3529 | 125,1274 | 6,949628 | 23,8942 | 25,39158 | 11,57409 |
| 178 | -22,8404966 | 334,6475389 | 0,012506676 | 0,238411546 | 0,8 | 3509951,828 | 0,014064842 | 124,941684 | 111,3544 | 125,1278 | 6,949311 | 23,89373 | 25,39088 | 11,57379 |
| 179 | -22,82013778 | 334,635137 | 0,012519103 | 0,238411546 | 0,8 | 3511308,282 | 0,014064842 | 124,942022 | 111,3559 | 125,1282 | 6,948993 | 23,89326 | 25,39019 | 11,5735 |
| 180 | -22,79975375 | 334,6230795 | 0,012531571 | 0,238411546 | 0,8 | 3512668,438 | 0,014064842 | 124,942363 | 111,3574 | 125,1285 | 6,948675 | 23,89279 | 25,38949 | 11,5732 |
| 181 | -22,77934756 | 334,610633 | 0,01254405 | 0,238411546 | 0,8 | 3514024,622 | 0,014064842 | 124,9427 | 111,359 | 125,1289 | 6,948357 | 23,89231 | 25,3888 | 11,5729 |
| 182 | -22,75891618 | 334,5985288 | 0,01255657 | 0,238411546 | 0,8 | 3515384,486 | 0,014064842 | 124,943041 | 111,3605 | 125,1293 | 6,948039 | 23,89184 | 25,3881 | 11,5726 |
| 183 | -22,73846268 | 334,5860333 | 0,012569102 | 0,238411546 | 0,8 | 3516740,35 | 0,014064842 | 124,943377 | 111,362 | 125,1297 | 6,94772 | 23,89136 | 25,3874 | 11,57231 |
| 184 | -22,71798711 | 334,5731454 | 0,012581646 | 0,238411546 | 0,8 | 3518092,194 | 0,014064842 | 124,943709 | 111,3635 | 125,1301 | 6,947401 | 23,89089 | 25,3867 | 11,57201 |
| 185 | -22,6974833 | 334,5613314 | 0,012594258 | 0,238411546 | 0,8 | 3519455,395 | 0,014064842 | 124,944054 | 111,3651 | 125,1305 | 6,947082 | 23,89041 | 25,386 | 11,57171 |
| 186 | -22,67695741 | 334,5491229 | 0,012606882 | 0,238411546 | 0,8 | 3520814,557 | 0,014064842 | 124,944394 | 111,3666 | 125,1309 | 6,946763 | 23,88993 | 25,3853 | 11,57141 |
| 187 | -22,65640946 | 334,5365198 | 0,012619519 | 0,238411546 | 0,8 | 3522169,672 | 0,014064842 | 124,94473 | 111,3681 | 125,1313 | 6,946443 | 23,88945 | 25,3846 | 11,57111 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 188 | -22,63583637 | 334,5242532 | 0,012632196 | 0,238411546 | 0,8 | 3523528,415 | 0,014064842 | 124,945069 | 111,3697 | 125,1317 | 6,946122 | 23,88897 | 25,3839 | 11,57081 |
| 189 | -22,61524125 | 334,5115894 | 0,012644886 | 0,238411546 | 0,8 | 3524883,078 | 0,014064842 | 124,945404 | 111,3712 | 125,132 | 6,945802 | 23,88849 | 25,38319 | 11,5705 |
| 190 | -22,59462104 | 334,4992615 | 0,012657616 | 0,238411546 | 0,8 | 3526241,365 | 0,014064842 | 124,945743 | 111,3727 | 125,1324 | 6,945481 | 23,88801 | 25,38249 | 11,5702 |
| 191 | -22,57397884 | 334,4865346 | 0,012670359 | 0,238411546 | 0,8 | 3527595,549 | 0,014064842 | 124,946077 | 111,3742 | 125,1328 | 6,94516 | 23,88753 | 25,38178 | 11,5699 |
| 192 | -22,55330845 | 334,4748744 | 0,01268317 | 0,238411546 | 0,8 | 3528961,048 | 0,014064842 | 124,946425 | 111,3758 | 125,1332 | 6,944839 | 23,88705 | 25,38107 | 11,5696 |
| 193 | -22,53261919 | 334,4620801 | 0,012695966 | 0,238411546 | 0,8 | 3530314,707 | 0,014064842 | 124,946758 | 111,3773 | 125,1336 | 6,944517 | 23,88656 | 25,38037 | 11,56929 |
| 194 | -22,51190179 | 334,45035 | 0,012708831 | 0,238411546 | 0,8 | 3531679,663 | 0,014064842 | 124,947106 | 111,3789 | 125,134 | 6,944195 | 23,88608 | 25,37966 | 11,56899 |
| 195 | -22,49116547 | 334,4374834 | 0,01272168 | 0,238411546 | 0,8 | 3533032,745 | 0,014064842 | 124,947438 | 111,3804 | 125,1344 | 6,943873 | 23,88559 | 25,37895 | 11,56869 |
| 196 | -22,47040108 | 334,4256802 | 0,012734599 | 0,238411546 | 0,8 | 3534397,121 | 0,014064842 | 124,947785 | 111,3819 | 125,1348 | 6,94355 | 23,8851 | 25,37824 | 11,56838 |
| 197 | -22,44961474 | 334,4134718 | 0,01274753 | 0,238411546 | 0,8 | 3535757,321 | 0,014064842 | 124,948126 | 111,3835 | 125,1352 | 6,943227 | 23,88462 | 25,37752 | 11,56808 |
| 198 | -22,42880647 | 334,4008572 | 0,012760474 | 0,238411546 | 0,8 | 3537113,331 | 0,014064842 | 124,948462 | 111,385 | 125,1356 | 6,942904 | 23,88413 | 25,37681 | 11,56777 |
| 199 | -22,40797322 | 334,3885698 | 0,01277346 | 0,238411546 | 0,8 | 3538472,882 | 0,014064842 | 124,948803 | 111,3866 | 125,1359 | 6,94258 | 23,88364 | 25,3761 | 11,56747 |
| 200 | -22,38711804 | 334,3758733 | 0,012786458 | 0,238411546 | 0,8 | 3539828,205 | 0,014064842 | 124,949138 | 111,3881 | 125,1363 | 6,942256 | 23,88315 | 25,37538 | 11,56716 |
| 201 | -22,36623793 | 334,3635022 | 0,012799498 | 0,238411546 | 0,8 | 3541187,051 | 0,014064842 | 124,949478 | 111,3896 | 125,1367 | 6,941932 | 23,88266 | 25,37467 | 11,56685 |
| 202 | -22,34533286 | 334,351454 | 0,012812578 | 0,238411546 | 0,8 | 3542549,401 | 0,014064842 | 124,949822 | 111,3912 | 125,1371 | 6,941608 | 23,88216 | 25,37395 | 11,56655 |
| 203 | -22,32440595 | 334,3389951 | 0,012825672 | 0,238411546 | 0,8 | 3543907,501 | 0,014064842 | 124,95016 | 111,3927 | 125,1375 | 6,941283 | 23,88167 | 25,37323 | 11,56624 |
| 204 | -22,30345412 | 334,3268584 | 0,012838808 | 0,238411546 | 0,8 | 3545269,096 | 0,014064842 | 124,950503 | 111,3943 | 125,1379 | 6,940958 | 23,88118 | 25,37251 | 11,56593 |
| 205 | -22,28248042 | 334,3143082 | 0,012851957 | 0,238411546 | 0,8 | 3546626,407 | 0,014064842 | 124,950841 | 111,3958 | 125,1383 | 6,940633 | 23,88068 | 25,37179 | 11,56562 |
| 206 | -22,26148183 | 334,3020769 | 0,012865147 | 0,238411546 | 0,8 | 3547987,182 | 0,014064842 | 124,951183 | 111,3974 | 125,1387 | 6,940307 | 23,88019 | 25,37107 | 11,56531 |
| 207 | -22,24045834 | 334,2901639 | 0,012878379 | 0,238411546 | 0,8 | 3549351,415 | 0,014064842 | 124,951529 | 111,399 | 125,1391 | 6,939981 | 23,87969 | 25,37035 | 11,565 |
| 208 | -22,21941306 | 334,2778346 | 0,012891624 | 0,238411546 | 0,8 | 3550711,332 | 0,014064842 | 124,95187 | 111,4005 | 125,1395 | 6,939655 | 23,87919 | 25,36963 | 11,56469 |
| 209 | -22,19834295 | 334,2658231 | 0,012904911 | 0,238411546 | 0,8 | 3552074,703 | 0,014064842 | 124,952215 | 111,4021 | 125,1399 | 6,939328 | 23,8787 | 25,36891 | 11,56438 |
| 210 | -22,1772541 | 334,2526588 | 0,012918184 | 0,238411546 | 0,8 | 3553425,943 | 0,014064842 | 124,952545 | 111,4036 | 125,1402 | 6,939001 | 23,8782 | 25,36818 | 11,56407 |
| 211 | -22,15613738 | 334,2405425 | 0,012931526 | 0,238411546 | 0,8 | 3554788,378 | 0,014064842 | 124,952889 | 111,4052 | 125,1406 | 6,938674 | 23,8777 | 25,36746 | 11,56376 |
| 212 | -22,13499582 | 334,2287395 | 0,012944911 | 0,238411546 | 0,8 | 3556154,225 | 0,014064842 | 124,953237 | 111,4067 | 125,141 | 6,938347 | 23,8772 | 25,36673 | 11,56345 |
| 213 | -22,11383253 | 334,2165151 | 0,012958309 | 0,238411546 | 0,8 | 3557515,691 | 0,014064842 | 124,953579 | 111,4083 | 125,1414 | 6,938019 | 23,87669 | 25,366 | 11,56314 |
| 214 | -22,09264444 | 334,2046015 | 0,01297175 | 0,238411546 | 0,8 | 3558880,542 | 0,014064842 | 124,953926 | 111,4099 | 125,1418 | 6,937691 | 23,87619 | 25,36527 | 11,56283 |
| 215 | -22,07143464 | 334,1922649 | 0,012985204 | 0,238411546 | 0,8 | 3560240,991 | 0,014064842 | 124,954267 | 111,4114 | 125,1422 | 6,937362 | 23,87569 | 25,36454 | 11,56251 |
| 216 | -22,05020316 | 334,1795044 | 0,012998672 | 0,238411546 | 0,8 | 3561597,02 | 0,014064842 | 124,954603 | 111,413 | 125,1426 | 6,937034 | 23,87518 | 25,36381 | 11,5622 |
| 217 | -22,02894383 | 334,1677846 | 0,013012211 | 0,238411546 | 0,8 | 3562964,194 | 0,014064842 | 124,954953 | 111,4145 | 125,143 | 6,936705 | 23,87468 | 25,36308 | 11,56189 |
| 218 | -22,0076659 | 334,1549046 | 0,013025735 | 0,238411546 | 0,8 | 3564319,118 | 0,014064842 | 124,955287 | 111,4161 | 125,1434 | 6,936376 | 23,87417 | 25,36235 | 11,56157 |
| 219 | -21,98636019 | 334,1430638 | 0,01303933 | 0,238411546 | 0,8 | 3565685,179 | 0,014064842 | 124,955636 | 111,4177 | 125,1438 | 6,936046 | 23,87367 | 25,36162 | 11,56126 |
| 220 | -21,96503283 | 334,1307951 | 0,01305294 | 0,238411546 | 0,8 | 3567046,775 | 0,014064842 | 124,955978 | 111,4192 | 125,1442 | 6,935716 | 23,87316 | 25,36088 | 11,56094 |
| 221 | -21,94368384 | 334,1180964 | 0,013066563 | 0,238411546 | 0,8 | 3568403,875 | 0,014064842 | 124,956316 | 111,4208 | 125,1446 | 6,935386 | 23,87265 | 25,36015 | 11,56063 |
| 222 | -21,92231017 | 334,1057004 | 0,01308023 | 0,238411546 | 0,8 | 3569764,278 | 0,014064842 | 124,956657 | 111,4224 | 125,145 | 6,935056 | 23,87214 | 25,35941 | 11,56031 |
| 223 | -21,90090874 | 334,0943382 | 0,013093967 | 0,238411546 | 0,8 | 3571135,784 | 0,014064842 | 124,957011 | 111,424 | 125,1454 | 6,934725 | 23,87163 | 25,35867 | 11,56 |
| 224 | -21,8794888 | 334,0818105 | 0,013107691 | 0,238411546 | 0,8 | 3572494,954 | 0,014064842 | 124,957351 | 111,4255 | 125,1458 | 6,934394 | 23,87112 | 25,35794 | 11,55968 |
| 225 | -21,85804419 | 334,069581 | 0,013121457 | 0,238411546 | 0,8 | 3573857,384 | 0,014064842 | 124,957695 | 111,4271 | 125,1462 | 6,934062 | 23,87061 | 25,3572 | 11,55936 |
| 226 | -21,83657496 | 334,0576509 | 0,013135267 | 0,238411546 | 0,8 | 3575223,094 | 0,014064842 | 124,958042 | 111,4287 | 125,1466 | 6,933731 | 23,87009 | 25,35646 | 11,55905 |
| 227 | -21,81508418 | 334,0452835 | 0,01314909 | 0,238411546 | 0,8 | 3576584,217 | 0,014064842 | 124,958385 | 111,4302 | 125,147 | 6,933399 | 23,86958 | 25,35572 | 11,55873 |
| 228 | -21,79357187 | 334,0324804 | 0,013162929 | 0,238411546 | 0,8 | 3577940,77 | 0,014064842 | 124,958721 | 111,4318 | 125,1474 | 6,933067 | 23,86907 | 25,35497 | 11,55841 |
| 229 | -21,77203188 | 334,0207036 | 0,013176839 | 0,238411546 | 0,8 | 3579308,364 | 0,014064842 | 124,959071 | 111,4334 | 125,1478 | 6,932734 | 23,86855 | 25,35423 | 11,55809 |
| 230 | -21,75047038 | 334,0084879 | 0,013190764 | 0,238411546 | 0,8 | 3580671,354 | 0,014064842 | 124,959415 | 111,435 | 125,1482 | 6,932401 | 23,86803 | 25,35349 | 11,55777 |
| 231 | -21,72888435 | 333,996565 | 0,013204732 | 0,238411546 | 0,8 | 3582037,555 | 0,014064842 | 124,959763 | 111,4366 | 125,1486 | 6,932068 | 23,86752 | 25,35274 | 11,55745 |
| 232 | -21,70727678 | 333,9842 | 0,013218715 | 0,238411546 | 0,8 | 3583399,108 | 0,014064842 | 124,960106 | 111,4381 | 125,149 | 6,931735 | 23,867 | 25,352 | 11,55713 |
| 233 | -21,68564472 | 333,9721263 | 0,013232742 | 0,238411546 | 0,8 | 3584763,861 | 0,014064842 | 124,960452 | 111,4397 | 125,1494 | 6,931401 | 23,86648 | 25,35125 | 11,55681 |
| 234 | -21,6639912 | 333,9596085 | 0,013246783 | 0,238411546 | 0,8 | 3586123,937 | 0,014064842 | 124,960793 | 111,4413 | 125,1497 | 6,931067 | 23,86596 | 25,3505 | 11,55649 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 235 | -21,64231315 | 333,9473775 | 0,013260868 | 0,238411546 | 0,8 | 3587487,164 | 0,014064842 | 124,961138 | 111,4429 | 125,1501 | 6,930733 | 23,86544 | 25,34975 | 11,55617 |
| 236 | -21,62061061 | 333,9354347 | 0,013274998 | 0,238411546 | 0,8 | 3588853,558 | 0,014064842 | 124,961486 | 111,4445 | 125,1505 | 6,930398 | 23,86492 | 25,349 | 11,55585 |
| 237 | -21,59888665 | 333,9230436 | 0,013289142 | 0,238411546 | 0,8 | 3590215,227 | 0,014064842 | 124,961829 | 111,446 | 125,1509 | 6,930063 | 23,8644 | 25,34825 | 11,55552 |
| 238 | -21,57713825 | 333,9109376 | 0,01330333 | 0,238411546 | 0,8 | 3591580,031 | 0,014064842 | 124,962175 | 111,4476 | 125,1513 | 6,929728 | 23,86387 | 25,3475 | 11,5552 |
| 239 | -21,55536536 | 333,8991147 | 0,013317562 | 0,238411546 | 0,8 | 3592947,953 | 0,014064842 | 124,962525 | 111,4492 | 125,1517 | 6,929393 | 23,86335 | 25,34675 | 11,55488 |
| 240 | -21,53357113 | 333,8868419 | 0,013331809 | 0,238411546 | 0,8 | 3594311,126 | 0,014064842 | 124,96287 | 111,4508 | 125,1521 | 6,929057 | 23,86282 | 25,346 | 11,55456 |
| 241 | -21,51175248 | 333,8748502 | 0,013346101 | 0,238411546 | 0,8 | 3595677,396 | 0,014064842 | 124,963218 | 111,4524 | 125,1525 | 6,928721 | 23,8623 | 25,34524 | 11,55423 |
| 242 | -21,48991244 | 333,8624047 | 0,013360408 | 0,238411546 | 0,8 | 3597038,869 | 0,014064842 | 124,96356 | 111,454 | 125,1529 | 6,928385 | 23,86177 | 25,34449 | 11,55391 |
| 243 | -21,46804807 | 333,8502398 | 0,013374759 | 0,238411546 | 0,8 | 3598403,431 | 0,014064842 | 124,963906 | 111,4556 | 125,1533 | 6,928048 | 23,86124 | 25,34373 | 11,55358 |
| 244 | -21,44615925 | 333,8383505 | 0,013389155 | 0,238411546 | 0,8 | 3599771,035 | 0,014064842 | 124,964256 | 111,4572 | 125,1537 | 6,927711 | 23,86072 | 25,34297 | 11,55326 |
| 245 | -21,4242492 | 333,8260067 | 0,013403566 | 0,238411546 | 0,8 | 3601133,829 | 0,014064842 | 124,9646 | 111,4588 | 125,1541 | 6,927374 | 23,86019 | 25,34222 | 11,55293 |
| 246 | -21,40231471 | 333,8139355 | 0,013418022 | 0,238411546 | 0,8 | 3602499,633 | 0,014064842 | 124,964948 | 111,4604 | 125,1545 | 6,927036 | 23,85966 | 25,34146 | 11,55261 |
| 247 | -21,3803559 | 333,8021397 | 0,013432523 | 0,238411546 | 0,8 | 3603868,477 | 0,014064842 | 124,965299 | 111,462 | 125,1549 | 6,926699 | 23,85913 | 25,3407 | 11,55228 |
| 248 | -21,35837588 | 333,7898851 | 0,013447039 | 0,238411546 | 0,8 | 3605232,459 | 0,014064842 | 124,965644 | 111,4636 | 125,1553 | 6,92636 | 23,85859 | 25,33994 | 11,55195 |
| 249 | -21,3363746 | 333,777169 | 0,013461571 | 0,238411546 | 0,8 | 3606591,542 | 0,014064842 | 124,965984 | 111,4652 | 125,1557 | 6,926022 | 23,85806 | 25,33917 | 11,55162 |
| 250 | -21,31434592 | 333,7654551 | 0,013476177 | 0,238411546 | 0,8 | 3607961,499 | 0,014064842 | 124,966336 | 111,4668 | 125,1561 | 6,925683 | 23,85753 | 25,33841 | 11,5513 |
| 251 | -21,29229605 | 333,7532782 | 0,013490799 | 0,238411546 | 0,8 | 3609326,541 | 0,014064842 | 124,966683 | 111,4684 | 125,1565 | 6,925344 | 23,85699 | 25,33765 | 11,55097 |
| 252 | -21,27022192 | 333,7413703 | 0,013505466 | 0,238411546 | 0,8 | 3610694,56 | 0,014064842 | 124,967033 | 111,47 | 125,1569 | 6,925005 | 23,85646 | 25,33688 | 11,55064 |
| 253 | -21,24812658 | 333,7289959 | 0,01352015 | 0,238411546 | 0,8 | 3612057,619 | 0,014064842 | 124,967377 | 111,4716 | 125,1573 | 6,924666 | 23,85592 | 25,33612 | 11,55031 |
| 254 | -21,22600704 | 333,7168874 | 0,013534878 | 0,238411546 | 0,8 | 3613423,623 | 0,014064842 | 124,967725 | 111,4732 | 125,1577 | 6,924326 | 23,85539 | 25,33535 | 11,54998 |
| 255 | -21,2038632 | 333,7050418 | 0,013549652 | 0,238411546 | 0,8 | 3614792,54 | 0,014064842 | 124,968077 | 111,4748 | 125,1581 | 6,923986 | 23,85485 | 25,33458 | 11,54965 |
| 256 | -21,18169829 | 333,692729 | 0,013564442 | 0,238411546 | 0,8 | 3616156,482 | 0,014064842 | 124,968422 | 111,4764 | 125,1585 | 6,923645 | 23,85431 | 25,33382 | 11,54932 |
| 257 | -21,15950917 | 333,6806776 | 0,013579278 | 0,238411546 | 0,8 | 3617523,323 | 0,014064842 | 124,968771 | 111,478 | 125,159 | 6,923305 | 23,85377 | 25,33305 | 11,54899 |
| 258 | -21,13729897 | 333,6681547 | 0,01359413 | 0,238411546 | 0,8 | 3618885,136 | 0,014064842 | 124,969113 | 111,4796 | 125,1593 | 6,922964 | 23,85323 | 25,33228 | 11,54866 |
| 259 | -21,11506144 | 333,656622 | 0,013609057 | 0,238411546 | 0,8 | 3620257,734 | 0,014064842 | 124,969469 | 111,4812 | 125,1598 | 6,922623 | 23,85269 | 25,3315 | 11,54833 |
| 260 | -21,09280289 | 333,6446163 | 0,013624001 | 0,238411546 | 0,8 | 3621625,288 | 0,014064842 | 124,969819 | 111,4829 | 125,1602 | 6,922281 | 23,85215 | 25,33073 | 11,548 |
| 261 | -21,07052326 | 333,6321358 | 0,013638961 | 0,238411546 | 0,8 | 3622987,773 | 0,014064842 | 124,970162 | 111,4845 | 125,1606 | 6,921939 | 23,8516 | 25,32996 | 11,54766 |
| 262 | -21,04821643 | 333,6206422 | 0,013653997 | 0,238411546 | 0,8 | 3624361,018 | 0,014064842 | 124,970519 | 111,4861 | 125,161 | 6,921597 | 23,85106 | 25,32919 | 11,54733 |
| 263 | -21,02588858 | 333,6086711 | 0,01366905 | 0,238411546 | 0,8 | 3625729,163 | 0,014064842 | 124,970869 | 111,4877 | 125,1614 | 6,921255 | 23,85052 | 25,32841 | 11,547 |
| 264 | -21,00353969 | 333,5962218 | 0,013684118 | 0,238411546 | 0,8 | 3627092,197 | 0,014064842 | 124,971213 | 111,4893 | 125,1618 | 6,920912 | 23,84997 | 25,32763 | 11,54666 |
| 265 | -20,98116675 | 333,5840236 | 0,013699234 | 0,238411546 | 0,8 | 3628458,021 | 0,014064842 | 124,971561 | 111,4909 | 125,1622 | 6,920569 | 23,84943 | 25,32686 | 11,54633 |
| 266 | -20,95876975 | 333,5720772 | 0,013714396 | 0,238411546 | 0,8 | 3629826,647 | 0,014064842 | 124,971912 | 111,4926 | 125,1626 | 6,920226 | 23,84888 | 25,32608 | 11,54599 |
| 267 | -20,93634864 | 333,5603787 | 0,013729604 | 0,238411546 | 0,8 | 3631198,034 | 0,014064842 | 124,972266 | 111,4942 | 125,163 | 6,919882 | 23,84833 | 25,3253 | 11,54566 |
| 268 | -20,9139066 | 333,548196 | 0,013744829 | 0,238411546 | 0,8 | 3632564,237 | 0,014064842 | 124,972614 | 111,4958 | 125,1634 | 6,919538 | 23,84778 | 25,32452 | 11,54532 |
| 269 | -20,89144367 | 333,5355302 | 0,013760071 | 0,238411546 | 0,8 | 3633925,26 | 0,014064842 | 124,972956 | 111,4974 | 125,1638 | 6,919194 | 23,84723 | 25,32374 | 11,54499 |
| 270 | -20,86895356 | 333,5238394 | 0,01377539 | 0,238411546 | 0,8 | 3635296,943 | 0,014064842 | 124,97331 | 111,4991 | 125,1642 | 6,91885 | 23,84668 | 25,32296 | 11,54465 |
| 271 | -20,8464426 | 333,5116625 | 0,013790726 | 0,238411546 | 0,8 | 3636663,412 | 0,014064842 | 124,973659 | 111,5007 | 125,1646 | 6,918505 | 23,84613 | 25,32218 | 11,54432 |
| 272 | -20,82390768 | 333,4997285 | 0,013806109 | 0,238411546 | 0,8 | 3638032,59 | 0,014064842 | 124,97401 | 111,5023 | 125,165 | 6,91816 | 23,84558 | 25,32139 | 11,54398 |
| 273 | -20,80134879 | 333,4880357 | 0,013821539 | 0,238411546 | 0,8 | 3639404,461 | 0,014064842 | 124,974365 | 111,5039 | 125,1654 | 6,917815 | 23,84503 | 25,32061 | 11,54364 |
| 274 | -20,778769 | 333,4758509 | 0,013836986 | 0,238411546 | 0,8 | 3640771,05 | 0,014064842 | 124,974714 | 111,5056 | 125,1658 | 6,917469 | 23,84447 | 25,31982 | 11,5433 |
| 275 | -20,75616531 | 333,4639055 | 0,013852481 | 0,238411546 | 0,8 | 3642140,313 | 0,014064842 | 124,975065 | 111,5072 | 125,1662 | 6,917124 | 23,84392 | 25,31904 | 11,54297 |
| 276 | -20,73354079 | 333,4514666 | 0,013867993 | 0,238411546 | 0,8 | 3643504,265 | 0,014064842 | 124,975411 | 111,5088 | 125,1666 | 6,916778 | 23,84336 | 25,31825 | 11,54263 |
| 277 | -20,71088926 | 333,4399942 | 0,013883583 | 0,238411546 | 0,8 | 3644878,815 | 0,014064842 | 124,975769 | 111,5105 | 125,167 | 6,916431 | 23,84281 | 25,31746 | 11,54229 |
| 278 | -20,68821695 | 333,4280263 | 0,01389919 | 0,238411546 | 0,8 | 3646248,034 | 0,014064842 | 124,97612 | 111,5121 | 125,1674 | 6,916084 | 23,84225 | 25,31667 | 11,54195 |
| 279 | -20,66552386 | 333,4155604 | 0,013914814 | 0,238411546 | 0,8 | 3647611,888 | 0,014064842 | 124,976465 | 111,5137 | 125,1678 | 6,915738 | 23,84169 | 25,31588 | 11,54161 |
| 280 | -20,64280379 | 333,4040581 | 0,013930517 | 0,238411546 | 0,8 | 3648986,32 | 0,014064842 | 124,976823 | 111,5154 | 125,1683 | 6,91539 | 23,84113 | 25,31509 | 11,54127 |
| 281 | -20,62006301 | 333,3920551 | 0,013946237 | 0,238411546 | 0,8 | 3650355,356 | 0,014064842 | 124,977175 | 111,517 | 125,1687 | 6,915043 | 23,84057 | 25,3143 | 11,54093 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 282 | -20,59730149 | 333,3795506 | 0,013961975 | 0,238411546 | 0,8 | 3651718,98 | 0,014064842 | 124,97752 | 111,5186 | 125,1691 | 6,914695 | 23,84001 | 25,31351 | 11,54059 |
| 283 | -20,5745131 | 333,3680059 | 0,013977792 | 0,238411546 | 0,8 | 3653093,15 | 0,014064842 | 124,977877 | 111,5203 | 125,1695 | 6,914347 | 23,83945 | 25,31272 | 11,54024 |
| 284 | -20,55170394 | 333,355956 | 0,013993626 | 0,238411546 | 0,8 | 3654461,868 | 0,014064842 | 124,978228 | 111,5219 | 125,1699 | 6,913999 | 23,83889 | 25,31192 | 11,5399 |
| 285 | -20,52887417 | 333,3434013 | 0,014009479 | 0,238411546 | 0,8 | 3655825,132 | 0,014064842 | 124,978573 | 111,5236 | 125,1703 | 6,91365 | 23,83833 | 25,31113 | 11,53956 |
| 286 | -20,5060175 | 333,3318019 | 0,01402541 | 0,238411546 | 0,8 | 3657198,903 | 0,014064842 | 124,97893 | 111,5252 | 125,1707 | 6,913301 | 23,83776 | 25,31033 | 11,53922 |
| 287 | -20,4831402 | 333,3196943 | 0,014041359 | 0,238411546 | 0,8 | 3658567,181 | 0,014064842 | 124,97928 | 111,5269 | 125,1711 | 6,912952 | 23,8372 | 25,30953 | 11,53887 |
| 288 | -20,46023916 | 333,3078072 | 0,014057357 | 0,238411546 | 0,8 | 3659937,934 | 0,014064842 | 124,979634 | 111,5285 | 125,1715 | 6,912602 | 23,83663 | 25,30874 | 11,53853 |
| 289 | -20,43731439 | 333,2961401 | 0,014073404 | 0,238411546 | 0,8 | 3661311,163 | 0,014064842 | 124,97999 | 111,5302 | 125,1719 | 6,912253 | 23,83607 | 25,30794 | 11,53819 |
| 290 | -20,41436904 | 333,2839619 | 0,014089469 | 0,238411546 | 0,8 | 3662678,857 | 0,014064842 | 124,98034 | 111,5318 | 125,1723 | 6,911903 | 23,8355 | 25,30714 | 11,53784 |
| 291 | -20,39139995 | 333,2719986 | 0,014105583 | 0,238411546 | 0,8 | 3664048,968 | 0,014064842 | 124,980693 | 111,5335 | 125,1727 | 6,911552 | 23,83493 | 25,30634 | 11,5375 |
| 292 | -20,36840726 | 333,2602534 | 0,014121746 | 0,238411546 | 0,8 | 3665421,534 | 0,014064842 | 124,981049 | 111,5351 | 125,1732 | 6,911202 | 23,83436 | 25,30553 | 11,53715 |
| 293 | -20,34539397 | 333,2479901 | 0,014137927 | 0,238411546 | 0,8 | 3666788,48 | 0,014064842 | 124,981398 | 111,5368 | 125,1736 | 6,910851 | 23,83379 | 25,30473 | 11,53681 |
| 294 | -20,32235397 | 333,2366711 | 0,014154189 | 0,238411546 | 0,8 | 3668165,848 | 0,014064842 | 124,981759 | 111,5384 | 125,174 | 6,9105 | 23,83322 | 25,30393 | 11,53646 |
| 295 | -20,29929343 | 333,224833 | 0,014170469 | 0,238411546 | 0,8 | 3669537,585 | 0,014064842 | 124,982114 | 111,5401 | 125,1744 | 6,910148 | 23,83265 | 25,30312 | 11,53611 |
| 296 | -20,27621245 | 333,2124752 | 0,014186768 | 0,238411546 | 0,8 | 3670903,674 | 0,014064842 | 124,982462 | 111,5417 | 125,1748 | 6,909797 | 23,83208 | 25,30232 | 11,53577 |
| 297 | -20,25310781 | 333,2003255 | 0,014203116 | 0,238411546 | 0,8 | 3672272,107 | 0,014064842 | 124,982813 | 111,5434 | 125,1752 | 6,909445 | 23,83151 | 25,30151 | 11,53542 |
| 298 | -20,22997964 | 333,1883829 | 0,014219514 | 0,238411546 | 0,8 | 3673642,878 | 0,014064842 | 124,983166 | 111,545 | 125,1756 | 6,909093 | 23,83094 | 25,3007 | 11,53507 |
| 299 | -20,2068279 | 333,1766468 | 0,014235962 | 0,238411546 | 0,8 | 3675015,977 | 0,014064842 | 124,983522 | 111,5467 | 125,176 | 6,90874 | 23,83036 | 25,2999 | 11,53472 |
| 300 | -20,18365257 | 333,1651136 | 0,01425246 | 0,238411546 | 0,8 | 3676391,375 | 0,014064842 | 124,983882 | 111,5484 | 125,1764 | 6,908387 | 23,82979 | 25,29909 | 11,53437 |
| 301 | -20,1604569 | 333,1530545 | 0,014268977 | 0,238411546 | 0,8 | 3677761,048 | 0,014064842 | 124,984234 | 111,55 | 125,1769 | 6,908034 | 23,82921 | 25,29828 | 11,53402 |
| 302 | -20,13724079 | 333,140465 | 0,014285513 | 0,238411546 | 0,8 | 3679124,935 | 0,014064842 | 124,984579 | 111,5517 | 125,1773 | 6,907681 | 23,82863 | 25,29747 | 11,53367 |
| 303 | -20,11399811 | 333,1288073 | 0,01430213 | 0,238411546 | 0,8 | 3680499,142 | 0,014064842 | 124,984937 | 111,5533 | 125,1777 | 6,907327 | 23,82805 | 25,29665 | 11,53333 |
| 304 | -20,09073505 | 333,116617 | 0,014318767 | 0,238411546 | 0,8 | 3681867,539 | 0,014064842 | 124,985288 | 111,555 | 125,1781 | 6,906973 | 23,82748 | 25,29584 | 11,53297 |
| 305 | -20,06744542 | 333,1053555 | 0,014335485 | 0,238411546 | 0,8 | 3683246,234 | 0,014064842 | 124,985651 | 111,5567 | 125,1785 | 6,906619 | 23,8269 | 25,29503 | 11,53262 |
| 306 | -20,04413544 | 333,0935582 | 0,014352223 | 0,238411546 | 0,8 | 3684619,081 | 0,014064842 | 124,986007 | 111,5584 | 125,1789 | 6,906265 | 23,82632 | 25,29421 | 11,53227 |
| 307 | -20,0208052 | 333,0812251 | 0,01436898 | 0,238411546 | 0,8 | 3685986,078 | 0,014064842 | 124,986356 | 111,56 | 125,1793 | 6,90591 | 23,82574 | 25,2934 | 11,53192 |
| 308 | -19,99744839 | 333,0698147 | 0,014385819 | 0,238411546 | 0,8 | 3687363,314 | 0,014064842 | 124,986717 | 111,5617 | 125,1797 | 6,905555 | 23,82515 | 25,29258 | 11,53157 |
| 309 | -19,97407129 | 333,0578652 | 0,014402678 | 0,238411546 | 0,8 | 3688734,656 | 0,014064842 | 124,987072 | 111,5634 | 125,1801 | 6,9052 | 23,82457 | 25,29177 | 11,53122 |
| 310 | -19,95067397 | 333,0453763 | 0,014419556 | 0,238411546 | 0,8 | 3690100,098 | 0,014064842 | 124,987419 | 111,565 | 125,1806 | 6,904844 | 23,82399 | 25,29095 | 11,53086 |
| 311 | -19,92725016 | 333,033805 | 0,014436517 | 0,238411546 | 0,8 | 3691475,732 | 0,014064842 | 124,987779 | 111,5667 | 125,181 | 6,904488 | 23,8234 | 25,29013 | 11,53051 |
| 312 | -19,90380616 | 333,0216912 | 0,014453498 | 0,238411546 | 0,8 | 3692845,428 | 0,014064842 | 124,988131 | 111,5684 | 125,1814 | 6,904132 | 23,82282 | 25,28931 | 11,53016 |
| 313 | -19,88033564 | 333,010491 | 0,014470562 | 0,238411546 | 0,8 | 3694225,284 | 0,014064842 | 124,988495 | 111,5701 | 125,1818 | 6,903776 | 23,82223 | 25,28849 | 11,5298 |
| 314 | -19,85684811 | 332,9980157 | 0,014487614 | 0,238411546 | 0,8 | 3695591,093 | 0,014064842 | 124,988843 | 111,5717 | 125,1822 | 6,903419 | 23,82165 | 25,28767 | 11,52945 |
| 315 | -19,83333408 | 332,9864516 | 0,01450475 | 0,238411546 | 0,8 | 3696967,039 | 0,014064842 | 124,989203 | 111,5734 | 125,1826 | 6,903063 | 23,82106 | 25,28684 | 11,5291 |
| 316 | -19,80980002 | 332,9743398 | 0,014521905 | 0,238411546 | 0,8 | 3698336,976 | 0,014064842 | 124,989556 | 111,5751 | 125,183 | 6,902705 | 23,82047 | 25,28602 | 11,52874 |
| 317 | -19,78623947 | 332,9631348 | 0,014539144 | 0,238411546 | 0,8 | 3699717,013 | 0,014064842 | 124,989921 | 111,5768 | 125,1835 | 6,902348 | 23,81988 | 25,2852 | 11,52838 |
| 318 | -19,76266199 | 332,9506495 | 0,014556372 | 0,238411546 | 0,8 | 3701082,922 | 0,014064842 | 124,990269 | 111,5785 | 125,1839 | 6,90199 | 23,81929 | 25,28437 | 11,52803 |
| 319 | -19,73905813 | 332,9390696 | 0,014573684 | 0,238411546 | 0,8 | 3702458,917 | 0,014064842 | 124,990628 | 111,5801 | 125,1843 | 6,901632 | 23,8187 | 25,28355 | 11,52767 |
| 320 | -19,71543421 | 332,9269339 | 0,014591015 | 0,238411546 | 0,8 | 3703828,805 | 0,014064842 | 124,990981 | 111,5818 | 125,1847 | 6,901274 | 23,81811 | 25,28272 | 11,52732 |
| 321 | -19,69178395 | 332,9157013 | 0,014608432 | 0,238411546 | 0,8 | 3705208,765 | 0,014064842 | 124,991346 | 111,5835 | 125,1851 | 6,900915 | 23,81752 | 25,28189 | 11,52696 |
| 322 | -19,66811365 | 332,9039105 | 0,014625868 | 0,238411546 | 0,8 | 3706582,588 | 0,014064842 | 124,991703 | 111,5852 | 125,1855 | 6,900557 | 23,81692 | 25,28106 | 11,5266 |
| 323 | -19,64442337 | 332,8915602 | 0,014643326 | 0,238411546 | 0,8 | 3707950,25 | 0,014064842 | 124,992053 | 111,5869 | 125,1859 | 6,900198 | 23,81633 | 25,28023 | 11,52624 |
| 324 | -19,62070676 | 332,8801071 | 0,014660868 | 0,238411546 | 0,8 | 3709327,931 | 0,014064842 | 124,992415 | 111,5886 | 125,1864 | 6,899838 | 23,81573 | 25,2794 | 11,52588 |
| 325 | -19,59697018 | 332,8680909 | 0,014678431 | 0,238411546 | 0,8 | 3710699,407 | 0,014064842 | 124,99277 | 111,5903 | 125,1868 | 6,899479 | 23,81514 | 25,27857 | 11,52553 |
| 326 | -19,5732105 | 332,85624 | 0,014696046 | 0,238411546 | 0,8 | 3712072,774 | 0,014064842 | 124,993127 | 111,592 | 125,1872 | 6,899119 | 23,81454 | 25,27774 | 11,52517 |
| 327 | -19,54943087 | 332,8438232 | 0,014713683 | 0,238411546 | 0,8 | 3713439,894 | 0,014064842 | 124,993477 | 111,5936 | 125,1876 | 6,898759 | 23,81395 | 25,2769 | 11,52481 |
| 328 | -19,5256219 | 332,8330278 | 0,014731437 | 0,238411546 | 0,8 | 3714825,109 | 0,014064842 | 124,993847 | 111,5954 | 125,188 | 6,898398 | 23,81335 | 25,27607 | 11,52445 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 329 | -19,50179928 | 332,8202031 | 0,014749148 | 0,238411546 | 0,8 | 3716187,79 | 0,014064842 | 124,994192 | 111,597 | 125,1884 | 6,898038 | 23,81275 | 25,27524 | 11,52409 |
| 330 | -19,47794734 | 332,8089964 | 0,014766977 | 0,238411546 | 0,8 | 3717568,535 | 0,014064842 | 124,994558 | 111,5987 | 125,1888 | 6,897677 | 23,81215 | 25,2744 | 11,52373 |
| 331 | -19,45407552 | 332,7972173 | 0,014784827 | 0,238411546 | 0,8 | 3718942,959 | 0,014064842 | 124,994916 | 111,6004 | 125,1893 | 6,897316 | 23,81155 | 25,27356 | 11,52337 |
| 332 | -19,43018071 | 332,7855936 | 0,014802731 | 0,238411546 | 0,8 | 3720319,166 | 0,014064842 | 124,995276 | 111,6021 | 125,1897 | 6,896954 | 23,81095 | 25,27273 | 11,523 |
| 333 | -19,40626606 | 332,7733952 | 0,014820657 | 0,238411546 | 0,8 | 3721689,017 | 0,014064842 | 124,995629 | 111,6038 | 125,1901 | 6,896592 | 23,81035 | 25,27189 | 11,52264 |
| 334 | -19,38232529 | 332,7620769 | 0,014838668 | 0,238411546 | 0,8 | 3723068,732 | 0,014064842 | 124,995994 | 111,6055 | 125,1905 | 6,89623 | 23,80974 | 25,27105 | 11,52228 |
| 335 | -19,3583647 | 332,7501803 | 0,014856702 | 0,238411546 | 0,8 | 3724442,048 | 0,014064842 | 124,996351 | 111,6072 | 125,1909 | 6,895868 | 23,80914 | 25,27021 | 11,52192 |
| 336 | -19,33438436 | 332,7377038 | 0,014874757 | 0,238411546 | 0,8 | 3725808,937 | 0,014064842 | 124,9967 | 111,6089 | 125,1913 | 6,895506 | 23,80853 | 25,26937 | 11,52155 |
| 337 | -19,31037795 | 332,7261025 | 0,014892898 | 0,238411546 | 0,8 | 3727185,644 | 0,014064842 | 124,997061 | 111,6106 | 125,1918 | 6,895143 | 23,80793 | 25,26852 | 11,52119 |
| 338 | -19,28634864 | 332,7146476 | 0,014911095 | 0,238411546 | 0,8 | 3728564,04 | 0,014064842 | 124,997424 | 111,6124 | 125,1922 | 6,89478 | 23,80732 | 25,26768 | 11,52083 |
| 339 | -19,2622996 | 332,7026074 | 0,014929313 | 0,238411546 | 0,8 | 3729935,943 | 0,014064842 | 124,997779 | 111,6141 | 125,1926 | 6,894416 | 23,80672 | 25,26684 | 11,52046 |
| 340 | -19,23822772 | 332,69071 | 0,014947586 | 0,238411546 | 0,8 | 3731309,488 | 0,014064842 | 124,998137 | 111,6158 | 125,193 | 6,894053 | 23,80611 | 25,26599 | 11,5201 |
| 341 | -19,21412985 | 332,6796807 | 0,014965947 | 0,238411546 | 0,8 | 3732692,795 | 0,014064842 | 124,998506 | 111,6175 | 125,1934 | 6,893689 | 23,8055 | 25,26515 | 11,51973 |
| 342 | -19,19001226 | 332,6680621 | 0,014984329 | 0,238411546 | 0,8 | 3734069,559 | 0,014064842 | 124,998867 | 111,6192 | 125,1939 | 6,893325 | 23,80489 | 25,2643 | 11,51937 |
| 343 | -19,16587503 | 332,6558509 | 0,015002735 | 0,238411546 | 0,8 | 3735439,74 | 0,014064842 | 124,99922 | 111,6209 | 125,1943 | 6,892961 | 23,80428 | 25,26345 | 11,519 |
| 344 | -19,14171186 | 332,6445046 | 0,015021228 | 0,238411546 | 0,8 | 3736819,649 | 0,014064842 | 124,999585 | 111,6226 | 125,1947 | 6,892596 | 23,80367 | 25,26261 | 11,51863 |
| 345 | -19,1175291 | 332,6325629 | 0,015039744 | 0,238411546 | 0,8 | 3738192,938 | 0,014064842 | 124,999942 | 111,6243 | 125,1951 | 6,892231 | 23,80306 | 25,26176 | 11,51827 |
| 346 | -19,09332672 | 332,6200243 | 0,015058282 | 0,238411546 | 0,8 | 3739559,581 | 0,014064842 | 125,000292 | 111,626 | 125,1955 | 6,891866 | 23,80245 | 25,26091 | 11,5179 |
| 347 | -19,06909851 | 332,6083459 | 0,015076909 | 0,238411546 | 0,8 | 3740935,91 | 0,014064842 | 125,000652 | 111,6277 | 125,1959 | 6,8915 | 23,80183 | 25,26006 | 11,51753 |
| 348 | -19,04484438 | 332,5975226 | 0,015095624 | 0,238411546 | 0,8 | 3742321,88 | 0,014064842 | 125,001024 | 111,6295 | 125,1964 | 6,891135 | 23,80122 | 25,2592 | 11,51717 |
| 349 | -19,02057385 | 332,58537 | 0,01511433 | 0,238411546 | 0,8 | 3743692,985 | 0,014064842 | 125,001379 | 111,6312 | 125,1968 | 6,890769 | 23,8006 | 25,25835 | 11,5168 |
| 350 | -18,99627749 | 332,5740704 | 0,015133124 | 0,238411546 | 0,8 | 3745073,707 | 0,014064842 | 125,001745 | 111,6329 | 125,1972 | 6,890403 | 23,79999 | 25,2575 | 11,51643 |
| 351 | -18,97196483 | 332,5614375 | 0,015151909 | 0,238411546 | 0,8 | 3746439,502 | 0,014064842 | 125,002093 | 111,6346 | 125,1976 | 6,890036 | 23,79937 | 25,25664 | 11,51606 |
| 352 | -18,94762642 | 332,5496563 | 0,015170783 | 0,238411546 | 0,8 | 3747814,905 | 0,014064842 | 125,002453 | 111,6363 | 125,198 | 6,889669 | 23,79875 | 25,25579 | 11,51569 |
| 353 | -18,92326208 | 332,5387202 | 0,015189746 | 0,238411546 | 0,8 | 3749199,856 | 0,014064842 | 125,002824 | 111,6381 | 125,1985 | 6,889302 | 23,79814 | 25,25493 | 11,51532 |
| 354 | -18,89887844 | 332,5271757 | 0,015208734 | 0,238411546 | 0,8 | 3750578,013 | 0,014064842 | 125,003187 | 111,6398 | 125,1989 | 6,888935 | 23,79752 | 25,25408 | 11,51495 |
| 355 | -18,87447527 | 332,5150173 | 0,015227744 | 0,238411546 | 0,8 | 3751949,311 | 0,014064842 | 125,003542 | 111,6415 | 125,1993 | 6,888568 | 23,7969 | 25,25322 | 11,51458 |
| 356 | -18,85004646 | 332,5037035 | 0,015246845 | 0,238411546 | 0,8 | 3753330,153 | 0,014064842 | 125,003908 | 111,6433 | 125,1997 | 6,8882 | 23,79628 | 25,25236 | 11,51421 |
| 357 | -18,82559819 | 332,4917731 | 0,015265969 | 0,238411546 | 0,8 | 3754704,102 | 0,014064842 | 125,004266 | 111,645 | 125,2002 | 6,887832 | 23,79566 | 25,2515 | 11,51384 |
| 358 | -18,80112744 | 332,4799533 | 0,01528515 | 0,238411546 | 0,8 | 3756079,337 | 0,014064842 | 125,004626 | 111,6467 | 125,2006 | 6,887464 | 23,79503 | 25,25064 | 11,51347 |
| 359 | -18,77663415 | 332,4682428 | 0,015304389 | 0,238411546 | 0,8 | 3757455,845 | 0,014064842 | 125,004987 | 111,6485 | 125,201 | 6,887095 | 23,79441 | 25,24978 | 11,51309 |
| 360 | -18,75211839 | 332,4566391 | 0,015323685 | 0,238411546 | 0,8 | 3758833,6 | 0,014064842 | 125,00535 | 111,6502 | 125,2014 | 6,886726 | 23,79379 | 25,24892 | 11,51272 |
| 361 | -18,72758015 | 332,4451409 | 0,015343039 | 0,238411546 | 0,8 | 3760212,589 | 0,014064842 | 125,005714 | 111,6519 | 125,2019 | 6,886357 | 23,79316 | 25,24805 | 11,51235 |
| 362 | -18,70302266 | 332,433019 | 0,015362417 | 0,238411546 | 0,8 | 3761584,584 | 0,014064842 | 125,00607 | 111,6537 | 125,2023 | 6,885988 | 23,79254 | 25,24719 | 11,51197 |
| 363 | -18,67843951 | 332,4217259 | 0,015381886 | 0,238411546 | 0,8 | 3762965,973 | 0,014064842 | 125,006437 | 111,6554 | 125,2027 | 6,885618 | 23,79191 | 25,24633 | 11,5116 |
| 364 | -18,65383714 | 332,4098048 | 0,01540138 | 0,238411546 | 0,8 | 3764340,316 | 0,014064842 | 125,006795 | 111,6571 | 125,2031 | 6,885248 | 23,79129 | 25,24546 | 11,51123 |
| 365 | -18,62920925 | 332,3987096 | 0,015420965 | 0,238411546 | 0,8 | 3765724,027 | 0,014064842 | 125,007165 | 111,6589 | 125,2035 | 6,884878 | 23,79066 | 25,24459 | 11,51085 |
| 366 | -18,60456208 | 332,3869824 | 0,015440575 | 0,238411546 | 0,8 | 3767100,643 | 0,014064842 | 125,007526 | 111,6606 | 125,204 | 6,884508 | 23,79003 | 25,24373 | 11,51048 |
| 367 | -18,57989577 | 332,374622 | 0,01546021 | 0,238411546 | 0,8 | 3768470,14 | 0,014064842 | 125,00788 | 111,6623 | 125,2044 | 6,884137 | 23,7894 | 25,24286 | 11,5101 |
| 368 | -18,5552039 | 332,363081 | 0,015479937 | 0,238411546 | 0,8 | 3769848,939 | 0,014064842 | 125,008244 | 111,6641 | 125,2048 | 6,883767 | 23,78877 | 25,24199 | 11,50973 |
| 369 | -18,53048976 | 332,3516316 | 0,015499723 | 0,238411546 | 0,8 | 3771228,816 | 0,014064842 | 125,008609 | 111,6658 | 125,2052 | 6,883395 | 23,78814 | 25,24112 | 11,50935 |
| 370 | -18,50575651 | 332,3395431 | 0,015519534 | 0,238411546 | 0,8 | 3772601,501 | 0,014064842 | 125,008966 | 111,6676 | 125,2057 | 6,883024 | 23,78751 | 25,24025 | 11,50897 |
| 371 | -18,48099778 | 332,328268 | 0,015539438 | 0,238411546 | 0,8 | 3773983,432 | 0,014064842 | 125,009334 | 111,6693 | 125,2061 | 6,882652 | 23,78688 | 25,23938 | 11,5086 |
| 372 | -18,45621998 | 332,3163508 | 0,015559367 | 0,238411546 | 0,8 | 3775358,133 | 0,014064842 | 125,009693 | 111,6711 | 125,2065 | 6,882281 | 23,78624 | 25,23851 | 11,50822 |
| 373 | -18,43141994 | 332,3045168 | 0,015579355 | 0,238411546 | 0,8 | 3776733,813 | 0,014064842 | 125,010053 | 111,6728 | 125,2069 | 6,881909 | 23,78561 | 25,23763 | 11,50784 |
| 374 | -18,40659452 | 332,2934905 | 0,015599437 | 0,238411546 | 0,8 | 3778118,687 | 0,014064842 | 125,010425 | 111,6746 | 125,2074 | 6,881536 | 23,78498 | 25,23676 | 11,50746 |
| 375 | -18,38175002 | 332,2818153 | 0,015619544 | 0,238411546 | 0,8 | 3779496,247 | 0,014064842 | 125,010787 | 111,6763 | 125,2078 | 6,881163 | 23,78434 | 25,23588 | 11,50709 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 376 | -18,3568834 | 332,2702191 | 0,015639711 | 0,238411546 | 0,8 | 3780874,739 | 0,014064842 | 125,011151 | 111,6781 | 125,2082 | 6,880791 | 23,78371 | 25,23501 | 11,50671 |
| 377 | -18,33199776 | 332,2579688 | 0,015659904 | 0,238411546 | 0,8 | 3782245,847 | 0,014064842 | 125,011507 | 111,6798 | 125,2086 | 6,880417 | 23,78307 | 25,23413 | 11,50633 |
| 378 | -18,30708364 | 332,2472471 | 0,015680225 | 0,238411546 | 0,8 | 3783634,344 | 0,014064842 | 125,011882 | 111,6816 | 125,2091 | 6,880044 | 23,78243 | 25,23326 | 11,50595 |
| 379 | -18,28215057 | 332,2358697 | 0,015700573 | 0,238411546 | 0,8 | 3785015,439 | 0,014064842 | 125,012249 | 111,6833 | 125,2095 | 6,87967 | 23,78179 | 25,23238 | 11,50557 |
| 380 | -18,25719857 | 332,2238333 | 0,015720947 | 0,238411546 | 0,8 | 3786389,084 | 0,014064842 | 125,012607 | 111,6851 | 125,2099 | 6,879296 | 23,78115 | 25,2315 | 11,50519 |
| 381 | -18,2322213 | 332,2125919 | 0,015741415 | 0,238411546 | 0,8 | 3787771,8 | 0,014064842 | 125,012976 | 111,6869 | 125,2103 | 6,878922 | 23,78051 | 25,23062 | 11,50481 |
| 382 | -18,20722516 | 332,2006882 | 0,01576191 | 0,238411546 | 0,8 | 3789147,024 | 0,014064842 | 125,013336 | 111,6886 | 125,2108 | 6,878548 | 23,77987 | 25,22974 | 11,50443 |
| 383 | -18,18220702 | 332,1888474 | 0,015782465 | 0,238411546 | 0,8 | 3790522,997 | 0,014064842 | 125,013697 | 111,6904 | 125,2112 | 6,878173 | 23,77923 | 25,22886 | 11,50405 |
| 384 | -18,15716366 | 332,177797 | 0,015803117 | 0,238411546 | 0,8 | 3791908,001 | 0,014064842 | 125,014069 | 111,6921 | 125,2116 | 6,877798 | 23,77859 | 25,22797 | 11,50366 |
| 385 | -18,13210465 | 332,1653498 | 0,01582376 | 0,238411546 | 0,8 | 3793277,138 | 0,014064842 | 125,014422 | 111,6939 | 125,212 | 6,877423 | 23,77795 | 25,22709 | 11,50328 |
| 386 | -18,10702053 | 332,153689 | 0,015844499 | 0,238411546 | 0,8 | 3794655,262 | 0,014064842 | 125,014786 | 111,6956 | 125,2125 | 6,877048 | 23,7773 | 25,22621 | 11,5029 |
| 387 | -18,08191116 | 332,1428081 | 0,015865334 | 0,238411546 | 0,8 | 3796042,31 | 0,014064842 | 125,01516 | 111,6974 | 125,2129 | 6,876672 | 23,77666 | 25,22532 | 11,50252 |
| 388 | -18,05678314 | 332,1312552 | 0,015886197 | 0,238411546 | 0,8 | 3797421,739 | 0,014064842 | 125,015525 | 111,6992 | 125,2133 | 6,876296 | 23,77601 | 25,22444 | 11,50213 |
| 389 | -18,03163632 | 332,1190247 | 0,015907086 | 0,238411546 | 0,8 | 3798793,474 | 0,014064842 | 125,015881 | 111,7009 | 125,2137 | 6,87592 | 23,77537 | 25,22355 | 11,50175 |
| 390 | -18,00646441 | 332,1075702 | 0,015928073 | 0,238411546 | 0,8 | 3800174,091 | 0,014064842 | 125,016248 | 111,7027 | 125,2142 | 6,875544 | 23,77472 | 25,22266 | 11,50137 |
| 391 | -17,9812707 | 332,0961654 | 0,015949121 | 0,238411546 | 0,8 | 3801555,312 | 0,014064842 | 125,016615 | 111,7045 | 125,2146 | 6,875167 | 23,77407 | 25,22177 | 11,50098 |
| 392 | -17,95605504 | 332,0848027 | 0,015970232 | 0,238411546 | 0,8 | 3802937,049 | 0,014064842 | 125,016983 | 111,7063 | 125,215 | 6,87479 | 23,77342 | 25,22088 | 11,5006 |
| 393 | -17,9308176 | 332,0734841 | 0,015991405 | 0,238411546 | 0,8 | 3804319,324 | 0,014064842 | 125,017352 | 111,708 | 125,2155 | 6,874413 | 23,77277 | 25,21999 | 11,50021 |
| 394 | -17,90555831 | 332,0622056 | 0,016012641 | 0,238411546 | 0,8 | 3805702,095 | 0,014064842 | 125,017721 | 111,7098 | 125,2159 | 6,874035 | 23,77212 | 25,2191 | 11,49983 |
| 395 | -17,88028047 | 332,0502395 | 0,016033905 | 0,238411546 | 0,8 | 3807077,039 | 0,014064842 | 125,018081 | 111,7116 | 125,2163 | 6,873658 | 23,77147 | 25,21821 | 11,49944 |
| 396 | -17,85497754 | 332,0390353 | 0,016055267 | 0,238411546 | 0,8 | 3808460,729 | 0,014064842 | 125,018452 | 111,7134 | 125,2168 | 6,87328 | 23,77082 | 25,21732 | 11,49905 |
| 397 | -17,82965616 | 332,027141 | 0,016076657 | 0,238411546 | 0,8 | 3809836,558 | 0,014064842 | 125,018813 | 111,7151 | 125,2172 | 6,872902 | 23,77017 | 25,21643 | 11,49867 |
| 398 | -17,8043098 | 332,0160043 | 0,016098145 | 0,238411546 | 0,8 | 3811221,085 | 0,014064842 | 125,019184 | 111,7169 | 125,2176 | 6,872523 | 23,76952 | 25,21553 | 11,49828 |
| 399 | -17,77894499 | 332,0041718 | 0,016119662 | 0,238411546 | 0,8 | 3812597,683 | 0,014064842 | 125,019547 | 111,7187 | 125,218 | 6,872145 | 23,76886 | 25,21464 | 11,49789 |
| 400 | -17,75355845 | 331,9923671 | 0,016141242 | 0,238411546 | 0,8 | 3813974,627 | 0,014064842 | 125,019909 | 111,7205 | 125,2185 | 6,871766 | 23,76821 | 25,21374 | 11,4975 |
| 401 | -17,72814704 | 331,9813155 | 0,016162922 | 0,238411546 | 0,8 | 3815360,231 | 0,014064842 | 125,020282 | 111,7223 | 125,2189 | 6,871387 | 23,76755 | 25,21284 | 11,49712 |
| 402 | -17,70272037 | 331,9688333 | 0,016184595 | 0,238411546 | 0,8 | 3816729,471 | 0,014064842 | 125,020636 | 111,724 | 125,2193 | 6,871007 | 23,7669 | 25,21195 | 11,49673 |
| 403 | -17,67726566 | 331,957826 | 0,016206403 | 0,238411546 | 0,8 | 3818115,647 | 0,014064842 | 125,021009 | 111,7258 | 125,2198 | 6,870628 | 23,76624 | 25,21105 | 11,49634 |
| 404 | -17,65179257 | 331,9461117 | 0,016228239 | 0,238411546 | 0,8 | 3819493,747 | 0,014064842 | 125,021373 | 111,7276 | 125,2202 | 6,870248 | 23,76558 | 25,21015 | 11,49595 |
| 405 | -17,62629794 | 331,9344159 | 0,016250141 | 0,238411546 | 0,8 | 3820872,089 | 0,014064842 | 125,021738 | 111,7294 | 125,2206 | 6,869868 | 23,76493 | 25,20925 | 11,49556 |
| 406 | -17,60077848 | 331,9234592 | 0,016272142 | 0,238411546 | 0,8 | 3822258,945 | 0,014064842 | 125,022112 | 111,7312 | 125,221 | 6,869487 | 23,76427 | 25,20835 | 11,49517 |
| 407 | -17,57524069 | 331,9117902 | 0,016294173 | 0,238411546 | 0,8 | 3823637,656 | 0,014064842 | 125,022477 | 111,733 | 125,2215 | 6,869107 | 23,76361 | 25,20745 | 11,49478 |
| 408 | -17,54967823 | 331,9008593 | 0,016316305 | 0,238411546 | 0,8 | 3825024,873 | 0,014064842 | 125,022852 | 111,7348 | 125,2219 | 6,868726 | 23,76295 | 25,20655 | 11,49439 |
| 409 | -17,52409741 | 331,8892082 | 0,016338467 | 0,238411546 | 0,8 | 3826403,848 | 0,014064842 | 125,023217 | 111,7365 | 125,2223 | 6,868345 | 23,76228 | 25,20564 | 11,494 |
| 410 | -17,49849835 | 331,8768377 | 0,016360658 | 0,238411546 | 0,8 | 3827774,579 | 0,014064842 | 125,023573 | 111,7383 | 125,2228 | 6,867963 | 23,76162 | 25,20474 | 11,49361 |
| 411 | -17,47287461 | 331,8651968 | 0,01638295 | 0,238411546 | 0,8 | 3829153,722 | 0,014064842 | 125,023939 | 111,7401 | 125,2232 | 6,867582 | 23,76096 | 25,20383 | 11,49321 |
| 412 | -17,44722629 | 331,8542848 | 0,016405344 | 0,238411546 | 0,8 | 3830541,281 | 0,014064842 | 125,024314 | 111,7419 | 125,2236 | 6,8672 | 23,7603 | 25,20293 | 11,49282 |
| 413 | -17,42155968 | 331,8426442 | 0,016427769 | 0,238411546 | 0,8 | 3831920,487 | 0,014064842 | 125,024679 | 111,7437 | 125,2241 | 6,866818 | 23,75963 | 25,20202 | 11,49243 |
| 414 | -17,3958685 | 331,8317278 | 0,016450295 | 0,238411546 | 0,8 | 3833308,06 | 0,014064842 | 125,025055 | 111,7455 | 125,2245 | 6,866436 | 23,75897 | 25,20111 | 11,49204 |
| 415 | -17,37015919 | 331,8200808 | 0,016472852 | 0,238411546 | 0,8 | 3834687,248 | 0,014064842 | 125,02542 | 111,7473 | 125,2249 | 6,866053 | 23,7583 | 25,20021 | 11,49164 |
| 416 | -17,34442844 | 331,8084234 | 0,016495475 | 0,238411546 | 0,8 | 3836066,341 | 0,014064842 | 125,025786 | 111,7491 | 125,2254 | 6,86567 | 23,75763 | 25,1993 | 11,49125 |
| 417 | -17,31867325 | 331,7974839 | 0,016518201 | 0,238411546 | 0,8 | 3837453,739 | 0,014064842 | 125,026161 | 111,7509 | 125,2258 | 6,865287 | 23,75697 | 25,19839 | 11,49085 |
| 418 | -17,29290316 | 331,7850806 | 0,016540922 | 0,238411546 | 0,8 | 3838824,283 | 0,014064842 | 125,026517 | 111,7527 | 125,2262 | 6,864904 | 23,7563 | 25,19748 | 11,49046 |
| 419 | -17,26710855 | 331,7733881 | 0,016563747 | 0,238411546 | 0,8 | 3840203,047 | 0,014064842 | 125,026883 | 111,7545 | 125,2266 | 6,86452 | 23,75563 | 25,19657 | 11,49007 |
| 420 | -17,24128948 | 331,7624047 | 0,016586674 | 0,238411546 | 0,8 | 3841590,022 | 0,014064842 | 125,027257 | 111,7563 | 125,2271 | 6,864137 | 23,75496 | 25,19565 | 11,48967 |
| 421 | -17,21545242 | 331,7506767 | 0,016609633 | 0,238411546 | 0,8 | 3842968,428 | 0,014064842 | 125,027622 | 111,7581 | 125,2275 | 6,863753 | 23,75429 | 25,19474 | 11,48927 |
| 422 | -17,18959096 | 331,7396534 | 0,016632696 | 0,238411546 | 0,8 | 3844354,998 | 0,014064842 | 125,027997 | 111,7599 | 125,228 | 6,863368 | 23,75362 | 25,19383 | 11,48888 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 423 | -17,16371146 | 331,7278779 | 0,016655791 | 0,238411546 | 0,8 | 3845732,906 | 0,014064842 | 125,028361 | 111,7617 | 125,2284 | 6,862984 | 23,75295 | 25,19291 | 11,48848 |
| 424 | -17,13780761 | 331,7168043 | 0,01667899 | 0,238411546 | 0,8 | 3847118,951 | 0,014064842 | 125,028735 | 111,7635 | 125,2288 | 6,862599 | 23,75227 | 25,192 | 11,48809 |
| 425 | -17,11188578 | 331,7049745 | 0,016702221 | 0,238411546 | 0,8 | 3848496,276 | 0,014064842 | 125,029099 | 111,7653 | 125,2293 | 6,862214 | 23,7516 | 25,19108 | 11,48769 |
| 426 | -17,08593969 | 331,6938409 | 0,016725557 | 0,238411546 | 0,8 | 3849881,681 | 0,014064842 | 125,029472 | 111,7671 | 125,2297 | 6,861829 | 23,75093 | 25,19016 | 11,48729 |
| 427 | -17,05997564 | 331,6819459 | 0,016748925 | 0,238411546 | 0,8 | 3851258,296 | 0,014064842 | 125,029836 | 111,7689 | 125,2301 | 6,861444 | 23,75025 | 25,18925 | 11,48689 |
| 428 | -17,03398734 | 331,6707422 | 0,016772398 | 0,238411546 | 0,8 | 3852642,94 | 0,014064842 | 125,030208 | 111,7707 | 125,2306 | 6,861058 | 23,74958 | 25,18833 | 11,48649 |
| 429 | -17,00797476 | 331,6602239 | 0,016795977 | 0,238411546 | 0,8 | 3854035,551 | 0,014064842 | 125,030589 | 111,7726 | 125,231 | 6,860672 | 23,7489 | 25,18741 | 11,4861 |
| 430 | -16,98194755 | 331,6482141 | 0,016819553 | 0,238411546 | 0,8 | 3855410,906 | 0,014064842 | 125,030951 | 111,7744 | 125,2314 | 6,860286 | 23,74822 | 25,18649 | 11,4857 |
| 431 | -16,95589616 | 331,6368875 | 0,016843234 | 0,238411546 | 0,8 | 3856794,2 | 0,014064842 | 125,031322 | 111,7762 | 125,2319 | 6,8599 | 23,74755 | 25,18557 | 11,4853 |
| 432 | -16,92982375 | 331,6255138 | 0,016866985 | 0,238411546 | 0,8 | 3858176,973 | 0,014064842 | 125,031692 | 111,778 | 125,2323 | 6,859513 | 23,74687 | 25,18464 | 11,4849 |
| 433 | -16,90373361 | 331,6133672 | 0,016890769 | 0,238411546 | 0,8 | 3859550,8 | 0,014064842 | 125,032053 | 111,7798 | 125,2327 | 6,859126 | 23,74619 | 25,18372 | 11,4845 |
| 434 | -16,87761929 | 331,6018949 | 0,016914661 | 0,238411546 | 0,8 | 3860932,471 | 0,014064842 | 125,032422 | 111,7816 | 125,2332 | 6,858739 | 23,74551 | 25,1828 | 11,4841 |
| 435 | -16,85148089 | 331,5910947 | 0,016938659 | 0,238411546 | 0,8 | 3862321,968 | 0,014064842 | 125,0328 | 111,7835 | 125,2336 | 6,858352 | 23,74483 | 25,18187 | 11,4837 |
| 436 | -16,82532474 | 331,5795133 | 0,016962691 | 0,238411546 | 0,8 | 3863702,418 | 0,014064842 | 125,033168 | 111,7853 | 125,234 | 6,857964 | 23,74415 | 25,18095 | 11,4833 |
| 437 | -16,79914458 | 331,5685996 | 0,016986831 | 0,238411546 | 0,8 | 3865090,649 | 0,014064842 | 125,033545 | 111,7871 | 125,2345 | 6,857576 | 23,74346 | 25,18002 | 11,4829 |
| 438 | -16,77294671 | 331,5568979 | 0,017011004 | 0,238411546 | 0,8 | 3866469,743 | 0,014064842 | 125,033911 | 111,7889 | 125,2349 | 6,857188 | 23,74278 | 25,1791 | 11,48249 |
| 439 | -16,74672489 | 331,5458595 | 0,017035286 | 0,238411546 | 0,8 | 3867856,571 | 0,014064842 | 125,034286 | 111,7907 | 125,2354 | 6,8568 | 23,7421 | 25,17817 | 11,48209 |
| 440 | -16,72048535 | 331,5340281 | 0,017059602 | 0,238411546 | 0,8 | 3869234,197 | 0,014064842 | 125,034651 | 111,7926 | 125,2358 | 6,856412 | 23,74141 | 25,17724 | 11,48169 |
| 441 | -16,69422194 | 331,5228544 | 0,017084027 | 0,238411546 | 0,8 | 3870619,494 | 0,014064842 | 125,035025 | 111,7944 | 125,2362 | 6,856023 | 23,74073 | 25,17631 | 11,48129 |
| 442 | -16,66794092 | 331,5108835 | 0,017108486 | 0,238411546 | 0,8 | 3871995,533 | 0,014064842 | 125,035388 | 111,7962 | 125,2367 | 6,855634 | 23,74004 | 25,17538 | 11,48088 |
| 443 | -16,64163595 | 331,4995641 | 0,017133055 | 0,238411546 | 0,8 | 3873379,173 | 0,014064842 | 125,03576 | 111,798 | 125,2371 | 6,855245 | 23,73936 | 25,17445 | 11,48048 |
| 444 | -16,61530713 | 331,4888944 | 0,017157733 | 0,238411546 | 0,8 | 3874770,408 | 0,014064842 | 125,03614 | 111,7999 | 125,2375 | 6,854855 | 23,73867 | 25,17352 | 11,48008 |
| 445 | -16,58896074 | 331,4774183 | 0,017182447 | 0,238411546 | 0,8 | 3876152,267 | 0,014064842 | 125,03651 | 111,8017 | 125,238 | 6,854466 | 23,73798 | 25,17259 | 11,47967 |
| 446 | -16,56259058 | 331,4665888 | 0,01720727 | 0,238411546 | 0,8 | 3877541,685 | 0,014064842 | 125,036888 | 111,8035 | 125,2384 | 6,854076 | 23,73729 | 25,17165 | 11,47927 |
| 447 | -16,53620294 | 331,454948 | 0,017232129 | 0,238411546 | 0,8 | 3878921,662 | 0,014064842 | 125,037256 | 111,8054 | 125,2388 | 6,853685 | 23,7366 | 25,17072 | 11,47886 |
| 448 | -16,50979146 | 331,4439446 | 0,017257099 | 0,238411546 | 0,8 | 3880309,095 | 0,014064842 | 125,037632 | 111,8072 | 125,2393 | 6,853295 | 23,73591 | 25,16979 | 11,47846 |
| 449 | -16,48336264 | 331,4321274 | 0,017282104 | 0,238411546 | 0,8 | 3881687,047 | 0,014064842 | 125,037998 | 111,809 | 125,2397 | 6,852905 | 23,73522 | 25,16885 | 11,47805 |
| 450 | -16,45690999 | 331,4209414 | 0,017307221 | 0,238411546 | 0,8 | 3883072,388 | 0,014064842 | 125,038372 | 111,8109 | 125,2402 | 6,852514 | 23,73453 | 25,16791 | 11,47764 |
| 451 | -16,43044006 | 331,4089371 | 0,017332374 | 0,238411546 | 0,8 | 3884448,185 | 0,014064842 | 125,038735 | 111,8127 | 125,2406 | 6,852123 | 23,73384 | 25,16698 | 11,47724 |
| 452 | -16,40394637 | 331,3975589 | 0,017357638 | 0,238411546 | 0,8 | 3885831,312 | 0,014064842 | 125,039107 | 111,8145 | 125,241 | 6,851731 | 23,73314 | 25,16604 | 11,47683 |
| 453 | -16,37742897 | 331,386804 | 0,017383014 | 0,238411546 | 0,8 | 3887221,749 | 0,014064842 | 125,039486 | 111,8164 | 125,2415 | 6,85134 | 23,73245 | 25,1651 | 11,47642 |
| 454 | -16,35089435 | 331,3752234 | 0,017408427 | 0,238411546 | 0,8 | 3888602,548 | 0,014064842 | 125,039855 | 111,8182 | 125,2419 | 6,850948 | 23,73175 | 25,16416 | 11,47602 |
| 455 | -16,32433605 | 331,3642599 | 0,017433953 | 0,238411546 | 0,8 | 3889990,584 | 0,014064842 | 125,040233 | 111,8201 | 125,2424 | 6,850556 | 23,73106 | 25,16322 | 11,47561 |
| 456 | -16,29776054 | 331,3524626 | 0,017459516 | 0,238411546 | 0,8 | 3891368,877 | 0,014064842 | 125,040599 | 111,8219 | 125,2428 | 6,850164 | 23,73036 | 25,16228 | 11,4752 |
| 457 | -16,27116142 | 331,3412793 | 0,017485192 | 0,238411546 | 0,8 | 3892754,375 | 0,014064842 | 125,040973 | 111,8237 | 125,2432 | 6,849771 | 23,72967 | 25,16134 | 11,47479 |
| 458 | -16,24454196 | 331,3299813 | 0,017510943 | 0,238411546 | 0,8 | 3894138,545 | 0,014064842 | 125,041346 | 111,8256 | 125,2437 | 6,849379 | 23,72897 | 25,1604 | 11,47438 |
| 459 | -16,21789893 | 331,3192908 | 0,017536808 | 0,238411546 | 0,8 | 3895529,856 | 0,014064842 | 125,041727 | 111,8274 | 125,2441 | 6,848986 | 23,72827 | 25,15945 | 11,47397 |
| 460 | -16,19124201 | 331,3070313 | 0,017562673 | 0,238411546 | 0,8 | 3896902,784 | 0,014064842 | 125,042088 | 111,8292 | 125,2445 | 6,848593 | 23,72757 | 25,15851 | 11,47356 |
| 461 | -16,16455828 | 331,2960973 | 0,01758869 | 0,238411546 | 0,8 | 3898291,275 | 0,014064842 | 125,042465 | 111,8311 | 125,245 | 6,848199 | 23,72687 | 25,15756 | 11,47315 |
| 462 | -16,13785763 | 331,2843148 | 0,017614745 | 0,238411546 | 0,8 | 3899669,821 | 0,014064842 | 125,042832 | 111,8329 | 125,2454 | 6,847806 | 23,72617 | 25,15662 | 11,47274 |
| 463 | -16,11113022 | 331,2738515 | 0,017640954 | 0,238411546 | 0,8 | 3901063,871 | 0,014064842 | 125,043216 | 111,8348 | 125,2459 | 6,847412 | 23,72547 | 25,15567 | 11,47233 |
| 464 | -16,08438582 | 331,262532 | 0,017667201 | 0,238411546 | 0,8 | 3902447,885 | 0,014064842 | 125,043589 | 111,8367 | 125,2463 | 6,847018 | 23,72477 | 25,15473 | 11,47192 |
| 465 | -16,05762443 | 331,2503532 | 0,017693487 | 0,238411546 | 0,8 | 3903821,815 | 0,014064842 | 125,043951 | 111,8385 | 125,2467 | 6,846624 | 23,72407 | 25,15378 | 11,47151 |
| 466 | -16,03083318 | 331,240211 | 0,017719966 | 0,238411546 | 0,8 | 3905219,695 | 0,014064842 | 125,04434 | 111,8404 | 125,2472 | 6,846229 | 23,72336 | 25,15283 | 11,4711 |
| 467 | -16,00403147 | 331,2277559 | 0,017746406 | 0,238411546 | 0,8 | 3906590,398 | 0,014064842 | 125,044698 | 111,8422 | 125,2476 | 6,845835 | 23,72266 | 25,15188 | 11,47069 |
| 468 | -15,9772 | 331,2173302 | 0,01777304 | 0,238411546 | 0,8 | 3907984,98 | 0,014064842 | 125,045083 | 111,8441 | 125,2481 | 6,84544 | 23,72195 | 25,15093 | 11,47027 |
| 469 | -15,95035162 | 331,2060338 | 0,017799714 | 0,238411546 | 0,8 | 3909369,337 | 0,014064842 | 125,045457 | 111,8459 | 125,2485 | 6,845044 | 23,72125 | 25,14998 | 11,46986 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 470 | -15,92348643 | 331,1938651 | 0,017826427 | 0,238411546 | 0,8 | 3910743,437 | 0,014064842 | 125,045819 | 111,8477 | 125,249 | 6,844649 | 23,72054 | 25,14903 | 11,46945 |
| 471 | -15,89659148 | 331,183717 | 0,017853335 | 0,238411546 | 0,8 | 3912141,341 | 0,014064842 | 125,046208 | 111,8496 | 125,2494 | 6,844253 | 23,71984 | 25,14807 | 11,46903 |
| 472 | -15,86968303 | 331,1719649 | 0,017880245 | 0,238411546 | 0,8 | 3913520,365 | 0,014064842 | 125,046576 | 111,8515 | 125,2498 | 6,843858 | 23,71913 | 25,14712 | 11,46862 |
| 473 | -15,84275128 | 331,1607793 | 0,017907272 | 0,238411546 | 0,8 | 3914906,079 | 0,014064842 | 125,046951 | 111,8533 | 125,2503 | 6,843461 | 23,71842 | 25,14617 | 11,46821 |
| 474 | -15,8157996 | 331,1494326 | 0,017934379 | 0,238411546 | 0,8 | 3916289,905 | 0,014064842 | 125,047324 | 111,8552 | 125,2507 | 6,843065 | 23,71771 | 25,14521 | 11,46779 |
| 475 | -15,78882477 | 331,138646 | 0,017961605 | 0,238411546 | 0,8 | 3917680,35 | 0,014064842 | 125,047705 | 111,8571 | 125,2512 | 6,842669 | 23,717 | 25,14426 | 11,46738 |
| 476 | -15,76183325 | 331,12697 | 0,017988871 | 0,238411546 | 0,8 | 3919060,314 | 0,014064842 | 125,048074 | 111,8589 | 125,2516 | 6,842272 | 23,71629 | 25,1433 | 11,46696 |
| 477 | -15,7348186 | 331,1158457 | 0,018016256 | 0,238411546 | 0,8 | 3920446,799 | 0,014064842 | 125,04845 | 111,8608 | 125,2521 | 6,841875 | 23,71558 | 25,14234 | 11,46655 |
| 478 | -15,70778727 | 331,1038251 | 0,018043683 | 0,238411546 | 0,8 | 3921822,714 | 0,014064842 | 125,048815 | 111,8626 | 125,2525 | 6,841478 | 23,71487 | 25,14139 | 11,46613 |
| 479 | -15,68072647 | 331,0937989 | 0,018071308 | 0,238411546 | 0,8 | 3923222,193 | 0,014064842 | 125,049205 | 111,8645 | 125,253 | 6,84108 | 23,71416 | 25,14043 | 11,46571 |
| 480 | -15,6536555 | 331,0814225 | 0,018098896 | 0,238411546 | 0,8 | 3924593,915 | 0,014064842 | 125,049566 | 111,8663 | 125,2534 | 6,840683 | 23,71344 | 25,13947 | 11,4653 |
| 481 | -15,62655511 | 331,0710359 | 0,018126684 | 0,238411546 | 0,8 | 3925989,167 | 0,014064842 | 125,049952 | 111,8682 | 125,2538 | 6,840285 | 23,71273 | 25,13851 | 11,46488 |
| 482 | -15,59943821 | 331,0597391 | 0,018154514 | 0,238411546 | 0,8 | 3927373,669 | 0,014064842 | 125,050326 | 111,8701 | 125,2543 | 6,839887 | 23,71201 | 25,13755 | 11,46446 |
| 483 | -15,57229831 | 331,0489773 | 0,018182465 | 0,238411546 | 0,8 | 3928764,512 | 0,014064842 | 125,050707 | 111,872 | 125,2547 | 6,839488 | 23,7113 | 25,13658 | 11,46405 |
| 484 | -15,54514193 | 331,0372995 | 0,018210458 | 0,238411546 | 0,8 | 3930144,527 | 0,014064842 | 125,051077 | 111,8738 | 125,2552 | 6,83909 | 23,71058 | 25,13562 | 11,46363 |
| 485 | -15,51796267 | 331,0261513 | 0,018238574 | 0,238411546 | 0,8 | 3931530,817 | 0,014064842 | 125,051453 | 111,8757 | 125,2556 | 6,838691 | 23,70987 | 25,13466 | 11,46321 |
| 486 | -15,49076693 | 331,0140794 | 0,018266732 | 0,238411546 | 0,8 | 3932906,175 | 0,014064842 | 125,051818 | 111,8775 | 125,256 | 6,838292 | 23,70915 | 25,13369 | 11,46279 |
| 487 | -15,46354189 | 331,0039773 | 0,018295092 | 0,238411546 | 0,8 | 3934304,879 | 0,014064842 | 125,052208 | 111,8794 | 125,2565 | 6,837893 | 23,70843 | 25,13273 | 11,46237 |
| 488 | -15,43630055 | 330,9929481 | 0,018323496 | 0,238411546 | 0,8 | 3935692,611 | 0,014064842 | 125,052586 | 111,8813 | 125,2569 | 6,837494 | 23,70771 | 25,13176 | 11,46195 |
| 489 | -15,40904279 | 330,9809857 | 0,018351943 | 0,238411546 | 0,8 | 3937069,285 | 0,014064842 | 125,052952 | 111,8832 | 125,2574 | 6,837094 | 23,70699 | 25,1308 | 11,46153 |
| 490 | -15,38176232 | 330,9695367 | 0,018380514 | 0,238411546 | 0,8 | 3938452,05 | 0,014064842 | 125,053325 | 111,885 | 125,2578 | 6,836694 | 23,70627 | 25,12983 | 11,46111 |
| 491 | -15,35445908 | 330,9585969 | 0,018409209 | 0,238411546 | 0,8 | 3939840,866 | 0,014064842 | 125,053705 | 111,8869 | 125,2583 | 6,836294 | 23,70555 | 25,12886 | 11,46069 |
| 492 | -15,32713307 | 330,9481603 | 0,018438028 | 0,238411546 | 0,8 | 3941235,668 | 0,014064842 | 125,054091 | 111,8888 | 125,2587 | 6,835894 | 23,70483 | 25,1279 | 11,46027 |
| 493 | -15,29979085 | 330,9367792 | 0,018466892 | 0,238411546 | 0,8 | 3942619,265 | 0,014064842 | 125,054465 | 111,8907 | 125,2592 | 6,835493 | 23,70411 | 25,12693 | 11,45985 |
| 494 | -15,2724292 | 330,9251761 | 0,01849584 | 0,238411546 | 0,8 | 3944000,228 | 0,014064842 | 125,054836 | 111,8925 | 125,2596 | 6,835093 | 23,70338 | 25,12596 | 11,45943 |
| 495 | -15,24504486 | 330,9140648 | 0,018524914 | 0,238411546 | 0,8 | 3945387,045 | 0,014064842 | 125,055213 | 111,8944 | 125,2601 | 6,834692 | 23,70266 | 25,12499 | 11,45901 |
| 496 | -15,21764119 | 330,9027247 | 0,018554074 | 0,238411546 | 0,8 | 3946771,144 | 0,014064842 | 125,055588 | 111,8963 | 125,2605 | 6,834291 | 23,70193 | 25,12401 | 11,45859 |
| 497 | -15,19021496 | 330,8918732 | 0,018583359 | 0,238411546 | 0,8 | 3948161,061 | 0,014064842 | 125,055969 | 111,8982 | 125,2609 | 6,833889 | 23,70121 | 25,12304 | 11,45816 |
| 498 | -15,1627726 | 330,88006 | 0,01861269 | 0,238411546 | 0,8 | 3949539,544 | 0,014064842 | 125,056337 | 111,9 | 125,2614 | 6,833488 | 23,70048 | 25,12207 | 11,45774 |
| 499 | -15,13530771 | 330,8687285 | 0,018642148 | 0,238411546 | 0,8 | 3950923,76 | 0,014064842 | 125,056712 | 111,9019 | 125,2618 | 6,833086 | 23,69976 | 25,12109 | 11,45732 |
| 500 | -15,10782036 | 330,8578762 | 0,018671733 | 0,238411546 | 0,8 | 3952313,688 | 0,014064842 | 125,057093 | 111,9038 | 125,2623 | 6,832684 | 23,69903 | 25,12012 | 11,45689 |
| 501 | -15,08031043 | 330,8474956 | 0,018701446 | 0,238411546 | 0,8 | 3953709,248 | 0,014064842 | 125,05748 | 111,9057 | 125,2627 | 6,832282 | 23,6983 | 25,11914 | 11,45647 |
| 502 | -15,05278457 | 330,8361416 | 0,018731205 | 0,238411546 | 0,8 | 3955093,217 | 0,014064842 | 125,057855 | 111,9076 | 125,2632 | 6,831879 | 23,69757 | 25,11817 | 11,45605 |
| 503 | -15,02523629 | 330,8252554 | 0,018761093 | 0,238411546 | 0,8 | 3956482,765 | 0,014064842 | 125,058236 | 111,9094 | 125,2636 | 6,831476 | 23,69684 | 25,11719 | 11,45562 |
| 504 | -14,9976721 | 330,8133885 | 0,018791027 | 0,238411546 | 0,8 | 3957860,623 | 0,014064842 | 125,058604 | 111,9113 | 125,2641 | 6,831074 | 23,69611 | 25,11622 | 11,4552 |
| 505 | -14,97008557 | 330,8019815 | 0,018821091 | 0,238411546 | 0,8 | 3959243,966 | 0,014064842 | 125,058978 | 111,9132 | 125,2645 | 6,830671 | 23,69538 | 25,11524 | 11,45477 |
| 506 | -14,94247667 | 330,7910308 | 0,018851284 | 0,238411546 | 0,8 | 3960632,76 | 0,014064842 | 125,059358 | 111,9151 | 125,265 | 6,830267 | 23,69465 | 25,11426 | 11,45435 |
| 507 | -14,91484545 | 330,7805335 | 0,018881607 | 0,238411546 | 0,8 | 3962026,974 | 0,014064842 | 125,059745 | 111,917 | 125,2654 | 6,829864 | 23,69392 | 25,11328 | 11,45392 |
| 508 | -14,88719845 | 330,769041 | 0,018911978 | 0,238411546 | 0,8 | 3963409,308 | 0,014064842 | 125,060118 | 111,9189 | 125,2659 | 6,82946 | 23,69319 | 25,1123 | 11,45349 |
| 509 | -14,85952916 | 330,7579927 | 0,018942479 | 0,238411546 | 0,8 | 3964796,951 | 0,014064842 | 125,060497 | 111,9207 | 125,2663 | 6,829056 | 23,69245 | 25,11132 | 11,45307 |
| 510 | -14,83183768 | 330,7473882 | 0,018973112 | 0,238411546 | 0,8 | 3966189,904 | 0,014064842 | 125,060882 | 111,9226 | 125,2668 | 6,828652 | 23,69172 | 25,11033 | 11,45264 |
| 511 | -14,80413044 | 330,7357768 | 0,019003793 | 0,238411546 | 0,8 | 3967570,823 | 0,014064842 | 125,061254 | 111,9245 | 125,2672 | 6,828247 | 23,69098 | 25,10935 | 11,45221 |
| 512 | -14,77640108 | 330,7246007 | 0,019034606 | 0,238411546 | 0,8 | 3968956,946 | 0,014064842 | 125,061631 | 111,9264 | 125,2677 | 6,827843 | 23,69025 | 25,10837 | 11,45179 |
| 513 | -14,74864957 | 330,7138565 | 0,019065551 | 0,238411546 | 0,8 | 3970348,242 | 0,014064842 | 125,062014 | 111,9283 | 125,2681 | 6,827438 | 23,68951 | 25,10738 | 11,45136 |
| 514 | -14,72088243 | 330,7020946 | 0,019096546 | 0,238411546 | 0,8 | 3971727,358 | 0,014064842 | 125,062384 | 111,9302 | 125,2685 | 6,827033 | 23,68878 | 25,1064 | 11,45093 |
| 515 | -14,6930932 | 330,6907565 | 0,019127673 | 0,238411546 | 0,8 | 3973111,547 | 0,014064842 | 125,06276 | 111,9321 | 125,269 | 6,826628 | 23,68804 | 25,10541 | 11,4505 |
| 516 | -14,66528189 | 330,679836 | 0,019158934 | 0,238411546 | 0,8 | 3974500,739 | 0,014064842 | 125,063141 | 111,934 | 125,2694 | 6,826222 | 23,6873 | 25,10443 | 11,45007 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 517 | -14,63744857 | 330,6693341 | 0,019190329 | 0,238411546 | 0,8 | 3975894,954 | 0,014064842 | 125,063528 | 111,9359 | 125,2699 | 6,825817 | 23,68656 | 25,10344 | 11,44964 |
| 518 | -14,60959973 | 330,657799 | 0,019221774 | 0,238411546 | 0,8 | 3977276,783 | 0,014064842 | 125,063901 | 111,9377 | 125,2703 | 6,825411 | 23,68582 | 25,10245 | 11,44921 |
| 519 | -14,58172895 | 330,6466731 | 0,019253354 | 0,238411546 | 0,8 | 3978663,52 | 0,014064842 | 125,06428 | 111,9396 | 125,2708 | 6,825005 | 23,68508 | 25,10146 | 11,44878 |
| 520 | -14,55383624 | 330,6359525 | 0,019285069 | 0,238411546 | 0,8 | 3980055,123 | 0,014064842 | 125,064664 | 111,9415 | 125,2712 | 6,824599 | 23,68434 | 25,10048 | 11,44835 |
| 521 | -14,52592807 | 330,6241866 | 0,019316835 | 0,238411546 | 0,8 | 3981434,18 | 0,014064842 | 125,065034 | 111,9434 | 125,2717 | 6,824192 | 23,6836 | 25,09949 | 11,44792 |
| 522 | -14,49799803 | 330,6128184 | 0,019348737 | 0,238411546 | 0,8 | 3982818,007 | 0,014064842 | 125,065409 | 111,9453 | 125,2721 | 6,823785 | 23,68286 | 25,09849 | 11,44749 |
| 523 | -14,47004621 | 330,6018439 | 0,019380775 | 0,238411546 | 0,8 | 3984206,558 | 0,014064842 | 125,06579 | 111,9472 | 125,2726 | 6,823378 | 23,68211 | 25,0975 | 11,44706 |
| 524 | -14,4420725 | 330,5912583 | 0,01941295 | 0,238411546 | 0,8 | 3985599,79 | 0,014064842 | 125,066176 | 111,9491 | 125,273 | 6,822971 | 23,68137 | 25,09651 | 11,44663 |
| 525 | -14,41408349 | 330,5796123 | 0,019445177 | 0,238411546 | 0,8 | 3986980,272 | 0,014064842 | 125,066548 | 111,951 | 125,2735 | 6,822564 | 23,68062 | 25,09552 | 11,4462 |
| 526 | -14,38606625 | 330,5697913 | 0,019477627 | 0,238411546 | 0,8 | 3988382,704 | 0,014064842 | 125,066944 | 111,9529 | 125,274 | 6,822156 | 23,67988 | 25,09452 | 11,44577 |
| 527 | -14,35803373 | 330,5589047 | 0,01951013 | 0,238411546 | 0,8 | 3989772,324 | 0,014064842 | 125,067326 | 111,9548 | 125,2744 | 6,821749 | 23,67913 | 25,09353 | 11,44533 |
| 528 | -14,32998605 | 330,546947 | 0,019542686 | 0,238411546 | 0,8 | 3991149,048 | 0,014064842 | 125,067695 | 111,9567 | 125,2748 | 6,821341 | 23,67839 | 25,09254 | 11,4449 |
| 529 | -14,30191015 | 330,5368001 | 0,019575466 | 0,238411546 | 0,8 | 3992547,575 | 0,014064842 | 125,068087 | 111,9586 | 125,2753 | 6,820933 | 23,67764 | 25,09154 | 11,44447 |
| 530 | -14,27381914 | 330,5255765 | 0,0196083 | 0,238411546 | 0,8 | 3993933,131 | 0,014064842 | 125,068464 | 111,9605 | 125,2758 | 6,820524 | 23,67689 | 25,09054 | 11,44404 |
| 531 | -14,24571309 | 330,5132714 | 0,019641188 | 0,238411546 | 0,8 | 3995305,651 | 0,014064842 | 125,068828 | 111,9624 | 125,2762 | 6,820116 | 23,67614 | 25,08955 | 11,4436 |
| 532 | -14,21757884 | 330,5027638 | 0,019674301 | 0,238411546 | 0,8 | 3996699,831 | 0,014064842 | 125,069216 | 111,9643 | 125,2766 | 6,819707 | 23,67539 | 25,08855 | 11,44317 |
| 533 | -14,18942966 | 330,4911679 | 0,01970747 | 0,238411546 | 0,8 | 3998080,884 | 0,014064842 | 125,069589 | 111,9662 | 125,2771 | 6,819298 | 23,67465 | 25,08755 | 11,44273 |
| 534 | -14,16125238 | 330,4813621 | 0,019740865 | 0,238411546 | 0,8 | 3999483,532 | 0,014064842 | 125,069985 | 111,9681 | 125,2776 | 6,818889 | 23,67389 | 25,08655 | 11,4423 |
| 535 | -14,13306013 | 330,4704559 | 0,019774316 | 0,238411546 | 0,8 | 4000872,906 | 0,014064842 | 125,070368 | 111,97 | 125,278 | 6,818479 | 23,67314 | 25,08555 | 11,44186 |
| 536 | -14,10485304 | 330,4584511 | 0,019807822 | 0,238411546 | 0,8 | 4002249,01 | 0,014064842 | 125,070736 | 111,9719 | 125,2785 | 6,81807 | 23,67239 | 25,08455 | 11,44143 |
| 537 | -14,0766179 | 330,4482222 | 0,019841557 | 0,238411546 | 0,8 | 4003646,557 | 0,014064842 | 125,071127 | 111,9738 | 125,2789 | 6,81766 | 23,67164 | 25,08355 | 11,44099 |
| 538 | -14,04836785 | 330,4368804 | 0,019875349 | 0,238411546 | 0,8 | 4005030,659 | 0,014064842 | 125,071504 | 111,9757 | 125,2794 | 6,81725 | 23,67089 | 25,08255 | 11,44056 |
| 539 | -14,02009652 | 330,4258685 | 0,019909284 | 0,238411546 | 0,8 | 4006418,741 | 0,014064842 | 125,071885 | 111,9776 | 125,2798 | 6,81684 | 23,67013 | 25,08154 | 11,44012 |
| 540 | -13,99180382 | 330,4151792 | 0,019943362 | 0,238411546 | 0,8 | 4007810,721 | 0,014064842 | 125,07227 | 111,9795 | 125,2803 | 6,816429 | 23,66938 | 25,08054 | 11,43968 |
| 541 | -13,96349631 | 330,403366 | 0,019977498 | 0,238411546 | 0,8 | 4009189,102 | 0,014064842 | 125,072641 | 111,9814 | 125,2807 | 6,816019 | 23,66862 | 25,07953 | 11,43925 |
| 542 | -13,93516104 | 330,3933078 | 0,020011865 | 0,238411546 | 0,8 | 4010588,717 | 0,014064842 | 125,073035 | 111,9833 | 125,2812 | 6,815608 | 23,66787 | 25,07853 | 11,43881 |
| 543 | -13,90681106 | 330,3821185 | 0,02004629 | 0,238411546 | 0,8 | 4011974,638 | 0,014064842 | 125,073414 | 111,9852 | 125,2816 | 6,815197 | 23,66711 | 25,07752 | 11,43837 |
| 544 | -13,87843986 | 330,3712346 | 0,020080861 | 0,238411546 | 0,8 | 4013364,25 | 0,014064842 | 125,073797 | 111,9871 | 125,2821 | 6,814785 | 23,66635 | 25,07652 | 11,43793 |
| 545 | -13,85005398 | 330,3592097 | 0,020115491 | 0,238411546 | 0,8 | 4014740,033 | 0,014064842 | 125,074165 | 111,989 | 125,2825 | 6,814374 | 23,6656 | 25,07551 | 11,4375 |
| 546 | -13,8216405 | 330,3489242 | 0,020150354 | 0,238411546 | 0,8 | 4016136,887 | 0,014064842 | 125,074556 | 111,9909 | 125,283 | 6,813962 | 23,66484 | 25,0745 | 11,43706 |
| 547 | -13,79321244 | 330,337488 | 0,020185277 | 0,238411546 | 0,8 | 4017519,787 | 0,014064842 | 125,074932 | 111,9928 | 125,2834 | 6,81355 | 23,66408 | 25,07349 | 11,43662 |
| 548 | -13,76476323 | 330,3263392 | 0,020220347 | 0,238411546 | 0,8 | 4018906,162 | 0,014064842 | 125,075311 | 111,9947 | 125,2839 | 6,813138 | 23,66332 | 25,07248 | 11,43618 |
| 549 | -13,73629308 | 330,3154753 | 0,020255565 | 0,238411546 | 0,8 | 4020295,989 | 0,014064842 | 125,075695 | 111,9966 | 125,2843 | 6,812726 | 23,66256 | 25,07147 | 11,43574 |
| 550 | -13,70780186 | 330,3048888 | 0,020290932 | 0,238411546 | 0,8 | 4021689,18 | 0,014064842 | 125,076082 | 111,9986 | 125,2848 | 6,812314 | 23,6618 | 25,07046 | 11,4353 |
| 551 | -13,67929618 | 330,2931337 | 0,020326359 | 0,238411546 | 0,8 | 4023068,173 | 0,014064842 | 125,076454 | 112,0004 | 125,2852 | 6,811901 | 23,66104 | 25,06945 | 11,43486 |
| 552 | -13,650763 | 330,2830904 | 0,020362024 | 0,238411546 | 0,8 | 4024467,949 | 0,014064842 | 125,076849 | 112,0024 | 125,2857 | 6,811488 | 23,66027 | 25,06844 | 11,43442 |
| 553 | -13,62221553 | 330,2718715 | 0,020397751 | 0,238411546 | 0,8 | 4025853,44 | 0,014064842 | 125,077228 | 112,0043 | 125,2862 | 6,811075 | 23,65951 | 25,06743 | 11,43398 |
| 554 | -13,59364709 | 330,2609123 | 0,020433628 | 0,238411546 | 0,8 | 4027242,079 | 0,014064842 | 125,07761 | 112,0062 | 125,2866 | 6,810662 | 23,65875 | 25,06641 | 11,43354 |
| 555 | -13,5650578 | 330,2502078 | 0,020469656 | 0,238411546 | 0,8 | 4028633,811 | 0,014064842 | 125,077996 | 112,0081 | 125,2871 | 6,810248 | 23,65798 | 25,0654 | 11,4331 |
| 556 | -13,53645427 | 330,2383133 | 0,020505746 | 0,238411546 | 0,8 | 4030011,056 | 0,014064842 | 125,078367 | 112,01 | 125,2875 | 6,809835 | 23,65722 | 25,06439 | 11,43265 |
| 557 | -13,50782342 | 330,2281051 | 0,020542077 | 0,238411546 | 0,8 | 4031408,81 | 0,014064842 | 125,078759 | 112,0119 | 125,288 | 6,809421 | 23,65645 | 25,06337 | 11,43221 |
| 558 | -13,47917831 | 330,2166972 | 0,020578472 | 0,238411546 | 0,8 | 4032791,956 | 0,014064842 | 125,079136 | 112,0138 | 125,2884 | 6,809007 | 23,65568 | 25,06235 | 11,43177 |
| 559 | -13,45051253 | 330,205527 | 0,020615019 | 0,238411546 | 0,8 | 4034177,984 | 0,014064842 | 125,079516 | 112,0157 | 125,2889 | 6,808593 | 23,65492 | 25,06134 | 11,43133 |
| 560 | -13,42182614 | 330,1945898 | 0,02065172 | 0,238411546 | 0,8 | 4035566,84 | 0,014064842 | 125,079899 | 112,0176 | 125,2893 | 6,808178 | 23,65415 | 25,06032 | 11,43088 |
| 561 | -13,39311905 | 330,1838783 | 0,020688576 | 0,238411546 | 0,8 | 4036958,438 | 0,014064842 | 125,080285 | 112,0195 | 125,2898 | 6,807763 | 23,65338 | 25,0593 | 11,43044 |
| 562 | -13,36439138 | 330,1733895 | 0,020725585 | 0,238411546 | 0,8 | 4038352,746 | 0,014064842 | 125,080675 | 112,0215 | 125,2903 | 6,807349 | 23,65261 | 25,05828 | 11,43 |
| 563 | -13,33564958 | 330,161676 | 0,02076266 | 0,238411546 | 0,8 | 4039732,107 | 0,014064842 | 125,081048 | 112,0233 | 125,2907 | 6,806934 | 23,65184 | 25,05726 | 11,42955 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 564 | -13,30688078 | 330,1516152 | 0,020799981 | 0,238411546 | 0,8 | 4041131,622 | 0,014064842 | 125,081442 | 112,0253 | 125,2912 | 6,806518 | 23,65107 | 25,05624 | 11,42911 |
| 565 | -13,278098 | 330,140323 | 0,020837367 | 0,238411546 | 0,8 | 4042516,101 | 0,014064842 | 125,081821 | 112,0272 | 125,2916 | 6,806103 | 23,6503 | 25,05522 | 11,42866 |
| 566 | -13,24929474 | 330,129232 | 0,02087491 | 0,238411546 | 0,8 | 4043903,023 | 0,014064842 | 125,082203 | 112,0291 | 125,2921 | 6,805687 | 23,64953 | 25,0542 | 11,42822 |
| 567 | -13,22047105 | 330,1183377 | 0,020912611 | 0,238411546 | 0,8 | 4045292,339 | 0,014064842 | 125,082587 | 112,031 | 125,2925 | 6,805271 | 23,64876 | 25,05318 | 11,42777 |
| 568 | -13,19162698 | 330,1076372 | 0,020950469 | 0,238411546 | 0,8 | 4046684,013 | 0,014064842 | 125,082973 | 112,0329 | 125,293 | 6,804855 | 23,64799 | 25,05215 | 11,42733 |
| 569 | -13,16276256 | 330,0971227 | 0,020988486 | 0,238411546 | 0,8 | 4048077,951 | 0,014064842 | 125,083362 | 112,0348 | 125,2934 | 6,804439 | 23,64721 | 25,05113 | 11,42688 |
| 570 | -13,13388428 | 330,0853511 | 0,02102657 | 0,238411546 | 0,8 | 4049456,508 | 0,014064842 | 125,083735 | 112,0367 | 125,2939 | 6,804023 | 23,64644 | 25,0501 | 11,42644 |
| 571 | -13,10497921 | 330,0751941 | 0,021064906 | 0,238411546 | 0,8 | 4050854,801 | 0,014064842 | 125,084129 | 112,0386 | 125,2944 | 6,803606 | 23,64566 | 25,04908 | 11,42599 |
| 572 | -13,07606036 | 330,0637711 | 0,021103309 | 0,238411546 | 0,8 | 4052237,59 | 0,014064842 | 125,084506 | 112,0405 | 125,2948 | 6,803189 | 23,64489 | 25,04805 | 11,42554 |
| 573 | -13,0471214 | 330,0525159 | 0,021141874 | 0,238411546 | 0,8 | 4053622,419 | 0,014064842 | 125,084886 | 112,0424 | 125,2953 | 6,802772 | 23,64411 | 25,04703 | 11,4251 |
| 574 | -13,01816221 | 330,0414215 | 0,021180599 | 0,238411546 | 0,8 | 4055009,203 | 0,014064842 | 125,085268 | 112,0443 | 125,2957 | 6,802355 | 23,64333 | 25,046 | 11,42465 |
| 575 | -12,98918285 | 330,0304826 | 0,021219487 | 0,238411546 | 0,8 | 4056397,878 | 0,014064842 | 125,085651 | 112,0462 | 125,2962 | 6,801938 | 23,64256 | 25,04497 | 11,4242 |
| 576 | -12,96018334 | 330,0196945 | 0,021258536 | 0,238411546 | 0,8 | 4057788,389 | 0,014064842 | 125,086037 | 112,0481 | 125,2966 | 6,80152 | 23,64178 | 25,04394 | 11,42375 |
| 577 | -12,93116382 | 330,0090524 | 0,021297749 | 0,238411546 | 0,8 | 4059180,678 | 0,014064842 | 125,086425 | 112,0501 | 125,2971 | 6,801102 | 23,641 | 25,04291 | 11,4233 |
| 578 | -12,90212427 | 329,99855 | 0,021337125 | 0,238411546 | 0,8 | 4060574,674 | 0,014064842 | 125,086815 | 112,052 | 125,2975 | 6,800684 | 23,64022 | 25,04188 | 11,42286 |
| 579 | -12,87307121 | 329,9867435 | 0,021376573 | 0,238411546 | 0,8 | 4061952,651 | 0,014064842 | 125,087188 | 112,0539 | 125,298 | 6,800266 | 23,63944 | 25,04085 | 11,42241 |
| 580 | -12,84399163 | 329,9765062 | 0,021416278 | 0,238411546 | 0,8 | 4063349,875 | 0,014064842 | 125,087581 | 112,0558 | 125,2985 | 6,799848 | 23,63866 | 25,03982 | 11,42196 |
| 581 | -12,81489868 | 329,9649535 | 0,021456056 | 0,238411546 | 0,8 | 4064730,934 | 0,014064842 | 125,087957 | 112,0577 | 125,2989 | 6,799429 | 23,63788 | 25,03879 | 11,42151 |
| 582 | -12,7857793 | 329,9549582 | 0,021496092 | 0,238411546 | 0,8 | 4066131,111 | 0,014064842 | 125,088353 | 112,0596 | 125,2994 | 6,79901 | 23,6371 | 25,03775 | 11,42106 |
| 583 | -12,75664666 | 329,9436373 | 0,021536202 | 0,238411546 | 0,8 | 4067514,984 | 0,014064842 | 125,088733 | 112,0615 | 125,2998 | 6,798592 | 23,63632 | 25,03672 | 11,42061 |
| 584 | -12,72749417 | 329,9324254 | 0,021576479 | 0,238411546 | 0,8 | 4068900,18 | 0,014064842 | 125,089113 | 112,0634 | 125,3003 | 6,798172 | 23,63553 | 25,03569 | 11,42016 |
| 585 | -12,69831527 | 329,92275 | 0,021617018 | 0,238411546 | 0,8 | 4070304,261 | 0,014064842 | 125,089514 | 112,0653 | 125,3007 | 6,797753 | 23,63475 | 25,03465 | 11,41971 |
| 586 | -12,66912326 | 329,911735 | 0,021657631 | 0,238411546 | 0,8 | 4071691,853 | 0,014064842 | 125,089897 | 112,0672 | 125,3012 | 6,797334 | 23,63396 | 25,03362 | 11,41926 |
| 587 | -12,6399115 | 329,9008107 | 0,021698413 | 0,238411546 | 0,8 | 4073080,548 | 0,014064842 | 125,090282 | 112,0691 | 125,3017 | 6,796914 | 23,63318 | 25,03258 | 11,4188 |
| 588 | -12,61068007 | 329,8899693 | 0,021739365 | 0,238411546 | 0,8 | 4074470,246 | 0,014064842 | 125,090668 | 112,071 | 125,3021 | 6,796494 | 23,63239 | 25,03154 | 11,41835 |
| 589 | -12,58142895 | 329,8792082 | 0,021780487 | 0,238411546 | 0,8 | 4075860,92 | 0,014064842 | 125,091055 | 112,0729 | 125,3026 | 6,796074 | 23,63161 | 25,03051 | 11,4179 |
| 590 | -12,55215836 | 329,8685229 | 0,02182178 | 0,238411546 | 0,8 | 4077252,511 | 0,014064842 | 125,091442 | 112,0749 | 125,303 | 6,795654 | 23,63082 | 25,02947 | 11,41745 |
| 591 | -12,52287468 | 329,8564647 | 0,02186315 | 0,238411546 | 0,8 | 4078627,162 | 0,014064842 | 125,091812 | 112,0767 | 125,3035 | 6,795233 | 23,63003 | 25,02843 | 11,417 |
| 592 | -12,49356495 | 329,845907 | 0,021904787 | 0,238411546 | 0,8 | 4080020,293 | 0,014064842 | 125,092202 | 112,0786 | 125,3039 | 6,794812 | 23,62924 | 25,02739 | 11,41654 |
| 593 | -12,46423579 | 329,8354053 | 0,021946597 | 0,238411546 | 0,8 | 4081414,099 | 0,014064842 | 125,092592 | 112,0806 | 125,3044 | 6,794392 | 23,62846 | 25,02635 | 11,41609 |
| 594 | -12,43488712 | 329,8249533 | 0,02198858 | 0,238411546 | 0,8 | 4082808,508 | 0,014064842 | 125,092984 | 112,0825 | 125,3049 | 6,793971 | 23,62767 | 25,02531 | 11,41564 |
| 595 | -12,40551915 | 329,814548 | 0,022030738 | 0,238411546 | 0,8 | 4084203,478 | 0,014064842 | 125,093375 | 112,0844 | 125,3053 | 6,793549 | 23,62688 | 25,02427 | 11,41518 |
| 596 | -12,3761383 | 329,8027426 | 0,022072975 | 0,238411546 | 0,8 | 4085581,144 | 0,014064842 | 125,093749 | 112,0862 | 125,3058 | 6,793128 | 23,62609 | 25,02323 | 11,41473 |
| 597 | -12,34673156 | 329,7924036 | 0,022115483 | 0,238411546 | 0,8 | 4086976,901 | 0,014064842 | 125,094141 | 112,0882 | 125,3062 | 6,792706 | 23,62529 | 25,02218 | 11,41427 |
| 598 | -12,31730559 | 329,7820946 | 0,022158167 | 0,238411546 | 0,8 | 4088373,017 | 0,014064842 | 125,094535 | 112,0901 | 125,3067 | 6,792285 | 23,6245 | 25,02114 | 11,41382 |
| 599 | -12,28786693 | 329,7703676 | 0,022200932 | 0,238411546 | 0,8 | 4089751,584 | 0,014064842 | 125,094909 | 112,092 | 125,3072 | 6,791863 | 23,62371 | 25,02009 | 11,41336 |
| 600 | -12,25840257 | 329,7600932 | 0,022243972 | 0,238411546 | 0,8 | 4091148,092 | 0,014064842 | 125,095303 | 112,0939 | 125,3076 | 6,79144 | 23,62292 | 25,01905 | 11,41291 |
| 601 | -12,2289255 | 329,7483869 | 0,022287092 | 0,238411546 | 0,8 | 4092526,871 | 0,014064842 | 125,095678 | 112,0957 | 125,3081 | 6,791018 | 23,62212 | 25,018 | 11,41245 |
| 602 | -12,19942284 | 329,7381211 | 0,022330489 | 0,238411546 | 0,8 | 4093923,455 | 0,014064842 | 125,096072 | 112,0976 | 125,3085 | 6,790596 | 23,62133 | 25,01696 | 11,412 |
| 603 | -12,16990759 | 329,7264124 | 0,022373967 | 0,238411546 | 0,8 | 4095302,156 | 0,014064842 | 125,096447 | 112,0995 | 125,309 | 6,790173 | 23,62053 | 25,01591 | 11,41154 |
| 604 | -12,14036684 | 329,7161333 | 0,022417724 | 0,238411546 | 0,8 | 4096698,538 | 0,014064842 | 125,096841 | 112,1014 | 125,3094 | 6,78975 | 23,61974 | 25,01486 | 11,41108 |
| 605 | -12,11080707 | 329,7058351 | 0,022461662 | 0,238411546 | 0,8 | 4098094,673 | 0,014064842 | 125,097234 | 112,1033 | 125,3099 | 6,789327 | 23,61894 | 25,01382 | 11,41063 |
| 606 | -12,08123487 | 329,6940758 | 0,022505683 | 0,238411546 | 0,8 | 4099472,676 | 0,014064842 | 125,097609 | 112,1052 | 125,3104 | 6,788904 | 23,61814 | 25,01277 | 11,41017 |
| 607 | -12,05163726 | 329,6837252 | 0,022549986 | 0,238411546 | 0,8 | 4100868,123 | 0,014064842 | 125,098002 | 112,1071 | 125,3108 | 6,78848 | 23,61735 | 25,01172 | 11,40971 |
| 608 | -12,02202069 | 329,6733383 | 0,022594471 | 0,238411546 | 0,8 | 4102263,105 | 0,014064842 | 125,098394 | 112,109 | 125,3113 | 6,788056 | 23,61655 | 25,01067 | 11,40925 |
| 609 | -11,99238532 | 329,6629069 | 0,02263914 | 0,238411546 | 0,8 | 4103657,522 | 0,014064842 | 125,098786 | 112,1109 | 125,3117 | 6,787633 | 23,61575 | 25,00962 | 11,4088 |
| 610 | -11,96273116 | 329,6524254 | 0,022683995 | 0,238411546 | 0,8 | 4105051,297 | 0,014064842 | 125,099178 | 112,1128 | 125,3122 | 6,787209 | 23,61495 | 25,00857 | 11,40834 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 611 | -11,9330648 | 329,6404534 | 0,022728936 | 0,238411546 | 0,8 | 4106426,543 | 0,014064842 | 125,09955 | 112,1147 | 125,3127 | 6,786784 | 23,61415 | 25,00751 | 11,40788 |
| 612 | -11,90337324 | 329,6298568 | 0,022774162 | 0,238411546 | 0,8 | 4107818,843 | 0,014064842 | 125,09994 | 112,1166 | 125,3131 | 6,78636 | 23,61335 | 25,00646 | 11,40742 |
| 613 | -11,873663 | 329,61919 | 0,022819574 | 0,238411546 | 0,8 | 4109210,255 | 0,014064842 | 125,100329 | 112,1185 | 125,3136 | 6,785936 | 23,61255 | 25,00541 | 11,40696 |
| 614 | -11,84393407 | 329,6084466 | 0,022865175 | 0,238411546 | 0,8 | 4110600,693 | 0,014064842 | 125,100717 | 112,1203 | 125,314 | 6,785511 | 23,61175 | 25,00435 | 11,4065 |
| 615 | -11,81418666 | 329,5976228 | 0,022910964 | 0,238411546 | 0,8 | 4111990,111 | 0,014064842 | 125,101104 | 112,1222 | 125,3145 | 6,785086 | 23,61094 | 25,0033 | 11,40604 |
| 616 | -11,78442069 | 329,5867082 | 0,022956942 | 0,238411546 | 0,8 | 4113378,375 | 0,014064842 | 125,10149 | 112,1241 | 125,315 | 6,784661 | 23,61014 | 25,00224 | 11,40558 |
| 617 | -11,75463622 | 329,5756996 | 0,02300311 | 0,238411546 | 0,8 | 4114765,447 | 0,014064842 | 125,101875 | 112,126 | 125,3154 | 6,784235 | 23,60934 | 25,00119 | 11,40512 |
| 618 | -11,72482675 | 329,5660203 | 0,023049569 | 0,238411546 | 0,8 | 4116169,05 | 0,014064842 | 125,102277 | 112,1279 | 125,3159 | 6,78381 | 23,60853 | 25,00013 | 11,40466 |
| 619 | -11,69500541 | 329,5547982 | 0,02309612 | 0,238411546 | 0,8 | 4117553,42 | 0,014064842 | 125,10266 | 112,1298 | 125,3163 | 6,783384 | 23,60773 | 24,99907 | 11,4042 |
| 620 | -11,66516576 | 329,5434598 | 0,023142862 | 0,238411546 | 0,8 | 4118936,313 | 0,014064842 | 125,10304 | 112,1316 | 125,3168 | 6,782959 | 23,60692 | 24,99802 | 11,40374 |
| 621 | -11,63530123 | 329,5334319 | 0,023189899 | 0,238411546 | 0,8 | 4120335,517 | 0,014064842 | 125,103438 | 112,1335 | 125,3173 | 6,782532 | 23,60612 | 24,99696 | 11,40328 |
| 622 | -11,60541837 | 329,5232713 | 0,023237129 | 0,238411546 | 0,8 | 4121733,051 | 0,014064842 | 125,103834 | 112,1354 | 125,3177 | 6,782106 | 23,60531 | 24,9959 | 11,40281 |
| 623 | -11,57552394 | 329,5115422 | 0,023284453 | 0,238411546 | 0,8 | 4123110,996 | 0,014064842 | 125,10421 | 112,1373 | 125,3182 | 6,78168 | 23,6045 | 24,99484 | 11,40235 |
| 624 | -11,54560466 | 329,5010994 | 0,023332074 | 0,238411546 | 0,8 | 4124504,964 | 0,014064842 | 125,104602 | 112,1391 | 125,3186 | 6,781253 | 23,60369 | 24,99378 | 11,40189 |
| 625 | -11,5156674 | 329,490508 | 0,023379892 | 0,238411546 | 0,8 | 4125897,054 | 0,014064842 | 125,104993 | 112,141 | 125,3191 | 6,780827 | 23,60289 | 24,99272 | 11,40143 |
| 626 | -11,48571197 | 329,479755 | 0,023427906 | 0,238411546 | 0,8 | 4127287,107 | 0,014064842 | 125,105382 | 112,1429 | 125,3196 | 6,7804 | 23,60208 | 24,99165 | 11,40096 |
| 627 | -11,45573848 | 329,4688356 | 0,023476119 | 0,238411546 | 0,8 | 4128675,055 | 0,014064842 | 125,105768 | 112,1448 | 125,32 | 6,779973 | 23,60127 | 24,99059 | 11,4005 |
| 628 | -11,42574695 | 329,4577422 | 0,023524531 | 0,238411546 | 0,8 | 4130060,801 | 0,014064842 | 125,106152 | 112,1466 | 125,3205 | 6,779545 | 23,60046 | 24,98953 | 11,40004 |
| 629 | -11,39573763 | 329,4464687 | 0,023573142 | 0,238411546 | 0,8 | 4131444,267 | 0,014064842 | 125,106534 | 112,1485 | 125,3209 | 6,779118 | 23,59964 | 24,98847 | 11,39957 |
| 630 | -11,36570375 | 329,4364394 | 0,023622056 | 0,238411546 | 0,8 | 4132843,268 | 0,014064842 | 125,106932 | 112,1503 | 125,3214 | 6,77869 | 23,59883 | 24,9874 | 11,39911 |
| 631 | -11,33565194 | 329,4262141 | 0,023671172 | 0,238411546 | 0,8 | 4134239,8 | 0,014064842 | 125,107328 | 112,1522 | 125,3219 | 6,778262 | 23,59802 | 24,98634 | 11,39864 |
| 632 | -11,30558899 | 329,4143522 | 0,023720387 | 0,238411546 | 0,8 | 4135615,818 | 0,014064842 | 125,107702 | 112,1541 | 125,3223 | 6,777835 | 23,59721 | 24,98527 | 11,39818 |
| 633 | -11,27549514 | 329,4051457 | 0,023770012 | 0,238411546 | 0,8 | 4137025,057 | 0,014064842 | 125,108112 | 112,156 | 125,3228 | 6,777406 | 23,59639 | 24,9842 | 11,39771 |
| 634 | -11,24539014 | 329,3942881 | 0,023819737 | 0,238411546 | 0,8 | 4138413,602 | 0,014064842 | 125,108499 | 112,1578 | 125,3232 | 6,776978 | 23,59558 | 24,98314 | 11,39725 |
| 635 | -11,21526734 | 329,383201 | 0,023869668 | 0,238411546 | 0,8 | 4139799,245 | 0,014064842 | 125,108884 | 112,1597 | 125,3237 | 6,776549 | 23,59477 | 24,98207 | 11,39678 |
| 636 | -11,18512704 | 329,3718825 | 0,023919804 | 0,238411546 | 0,8 | 4141181,953 | 0,014064842 | 125,109265 | 112,1615 | 125,3242 | 6,776121 | 23,59395 | 24,981 | 11,39632 |
| 637 | -11,15496254 | 329,3617518 | 0,023970251 | 0,238411546 | 0,8 | 4142579,528 | 0,014064842 | 125,109662 | 112,1634 | 125,3246 | 6,775692 | 23,59313 | 24,97993 | 11,39585 |
| 638 | -11,1247806 | 329,3513749 | 0,024020906 | 0,238411546 | 0,8 | 4143973,995 | 0,014064842 | 125,110056 | 112,1652 | 125,3251 | 6,775263 | 23,59232 | 24,97886 | 11,39538 |
| 639 | -11,09458105 | 329,3407363 | 0,024071769 | 0,238411546 | 0,8 | 4145365,153 | 0,014064842 | 125,110447 | 112,1671 | 125,3256 | 6,774834 | 23,5915 | 24,97779 | 11,39492 |
| 640 | -11,06436418 | 329,3298356 | 0,024122842 | 0,238411546 | 0,8 | 4146752,994 | 0,014064842 | 125,110834 | 112,1689 | 125,326 | 6,774404 | 23,59068 | 24,97672 | 11,39445 |
| 641 | -11,03412985 | 329,3186591 | 0,024174125 | 0,238411546 | 0,8 | 4148137,343 | 0,014064842 | 125,111218 | 112,1708 | 125,3265 | 6,773975 | 23,58987 | 24,97565 | 11,39398 |
| 642 | -11,00387822 | 329,3072013 | 0,02422562 | 0,238411546 | 0,8 | 4149518,124 | 0,014064842 | 125,111598 | 112,1726 | 125,3269 | 6,773545 | 23,58905 | 24,97458 | 11,39352 |
| 643 | -10,97360274 | 329,296887 | 0,024277432 | 0,238411546 | 0,8 | 4150913,244 | 0,014064842 | 125,111993 | 112,1744 | 125,3274 | 6,773115 | 23,58823 | 24,97351 | 11,39305 |
| 644 | -10,94331007 | 329,2862739 | 0,024329457 | 0,238411546 | 0,8 | 4152304,582 | 0,014064842 | 125,112384 | 112,1763 | 125,3278 | 6,772685 | 23,58741 | 24,97243 | 11,39258 |
| 645 | -10,91300023 | 329,2753562 | 0,024381696 | 0,238411546 | 0,8 | 4153692,06 | 0,014064842 | 125,112771 | 112,1781 | 125,3283 | 6,772255 | 23,58659 | 24,97136 | 11,39211 |
| 646 | -10,8826666 | 329,2655511 | 0,024434257 | 0,238411546 | 0,8 | 4155093,511 | 0,014064842 | 125,113173 | 112,18 | 125,3288 | 6,771824 | 23,58577 | 24,97029 | 11,39164 |
| 647 | -10,85232252 | 329,2539969 | 0,024486928 | 0,238411546 | 0,8 | 4156472,923 | 0,014064842 | 125,113552 | 112,1818 | 125,3292 | 6,771394 | 23,58494 | 24,96921 | 11,39117 |
| 648 | -10,82195473 | 329,2435379 | 0,024539922 | 0,238411546 | 0,8 | 4157866,091 | 0,014064842 | 125,113946 | 112,1836 | 125,3297 | 6,770963 | 23,58412 | 24,96814 | 11,3907 |
| 649 | -10,79156357 | 329,2341757 | 0,024593241 | 0,238411546 | 0,8 | 4159273,043 | 0,014064842 | 125,114353 | 112,1855 | 125,3302 | 6,770532 | 23,5833 | 24,96706 | 11,39023 |
| 650 | -10,76116195 | 329,2230315 | 0,024646672 | 0,238411546 | 0,8 | 4160657,529 | 0,014064842 | 125,114738 | 112,1873 | 125,3306 | 6,770101 | 23,58247 | 24,96598 | 11,38976 |
| 651 | -10,73074341 | 329,2115294 | 0,024700324 | 0,238411546 | 0,8 | 4162037,469 | 0,014064842 | 125,115118 | 112,1891 | 125,3311 | 6,769669 | 23,58165 | 24,96491 | 11,38929 |
| 652 | -10,70030149 | 329,2010924 | 0,024754303 | 0,238411546 | 0,8 | 4163430,8 | 0,014064842 | 125,115511 | 112,1909 | 125,3315 | 6,769238 | 23,58083 | 24,96383 | 11,38882 |
| 653 | -10,66984288 | 329,1902845 | 0,024808505 | 0,238411546 | 0,8 | 4164819,425 | 0,014064842 | 125,1159 | 112,1927 | 125,332 | 6,768806 | 23,58 | 24,96275 | 11,38835 |
| 654 | -10,6393675 | 329,1790955 | 0,024862931 | 0,238411546 | 0,8 | 4166203,21 | 0,014064842 | 125,116284 | 112,1945 | 125,3324 | 6,768374 | 23,57917 | 24,96167 | 11,38788 |
| 655 | -10,6088689 | 329,1689424 | 0,024917688 | 0,238411546 | 0,8 | 4167600,036 | 0,014064842 | 125,116682 | 112,1964 | 125,3329 | 6,767942 | 23,57835 | 24,96059 | 11,38741 |
| 656 | -10,57835366 | 329,1583879 | 0,02497267 | 0,238411546 | 0,8 | 4168991,771 | 0,014064842 | 125,117074 | 112,1982 | 125,3334 | 6,76751 | 23,57752 | 24,95951 | 11,38694 |
| 657 | -10,54781533 | 329,1488554 | 0,025027988 | 0,238411546 | 0,8 | 4170396,383 | 0,014064842 | 125,11748 | 112,2 | 125,3338 | 6,767078 | 23,57669 | 24,95843 | 11,38647 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 658 | -10,51726701 | 329,137476 | 0,025083425 | 0,238411546 | 0,8 | 4171777,637 | 0,014064842 | 125,117862 | 112,2018 | 125,3343 | 6,766645 | 23,57586 | 24,95734 | 11,38599 |
| 659 | -10,48669568 | 329,1270957 | 0,025139198 | 0,238411546 | 0,8 | 4173171,484 | 0,014064842 | 125,118257 | 112,2036 | 125,3348 | 6,766213 | 23,57504 | 24,95626 | 11,38552 |
| 660 | -10,45610793 | 329,1162811 | 0,025195202 | 0,238411546 | 0,8 | 4174559,809 | 0,014064842 | 125,118646 | 112,2054 | 125,3352 | 6,76578 | 23,57421 | 24,95518 | 11,38505 |
| 661 | -10,4255038 | 329,105019 | 0,025251436 | 0,238411546 | 0,8 | 4175942,439 | 0,014064842 | 125,119029 | 112,2072 | 125,3357 | 6,765347 | 23,57338 | 24,9541 | 11,38458 |
| 662 | -10,39487688 | 329,0947318 | 0,025308011 | 0,238411546 | 0,8 | 4177337,369 | 0,014064842 | 125,119426 | 112,209 | 125,3361 | 6,764914 | 23,57255 | 24,95301 | 11,3841 |
| 663 | -10,36423375 | 329,0839824 | 0,025364819 | 0,238411546 | 0,8 | 4178726,421 | 0,014064842 | 125,119816 | 112,2108 | 125,3366 | 6,76448 | 23,57171 | 24,95193 | 11,38363 |
| 664 | -10,33356772 | 329,0741854 | 0,025421971 | 0,238411546 | 0,8 | 4180127,504 | 0,014064842 | 125,120218 | 112,2126 | 125,3371 | 6,764047 | 23,57088 | 24,95084 | 11,38316 |
| 665 | -10,30289225 | 329,0624789 | 0,025479249 | 0,238411546 | 0,8 | 4181504,369 | 0,014064842 | 125,120596 | 112,2143 | 125,3375 | 6,763613 | 23,57005 | 24,94976 | 11,38268 |
| 666 | -10,27219405 | 329,0517059 | 0,025536872 | 0,238411546 | 0,8 | 4182893,021 | 0,014064842 | 125,120986 | 112,2161 | 125,338 | 6,763179 | 23,56922 | 24,94867 | 11,38221 |
| 667 | -10,24147332 | 329,0418586 | 0,025594844 | 0,238411546 | 0,8 | 4184293,374 | 0,014064842 | 125,121388 | 112,2179 | 125,3384 | 6,762745 | 23,56838 | 24,94758 | 11,38173 |
| 668 | -10,21073669 | 329,0315012 | 0,025653055 | 0,238411546 | 0,8 | 4185687,236 | 0,014064842 | 125,121784 | 112,2197 | 125,3389 | 6,762311 | 23,56755 | 24,94649 | 11,38126 |
| 669 | -10,17998403 | 329,0206217 | 0,025711506 | 0,238411546 | 0,8 | 4187074,442 | 0,014064842 | 125,122172 | 112,2214 | 125,3393 | 6,761877 | 23,56672 | 24,9454 | 11,38078 |
| 670 | -10,14921569 | 329,0092101 | 0,025770197 | 0,238411546 | 0,8 | 4188454,856 | 0,014064842 | 125,122554 | 112,2232 | 125,3398 | 6,761442 | 23,56588 | 24,94432 | 11,38031 |
| 671 | -10,11841819 | 329,0001126 | 0,025829354 | 0,238411546 | 0,8 | 4189864,616 | 0,014064842 | 125,122966 | 112,225 | 125,3403 | 6,761007 | 23,56504 | 24,94323 | 11,37983 |
| 672 | -10,0876116 | 328,9890336 | 0,025888643 | 0,238411546 | 0,8 | 4191249,188 | 0,014064842 | 125,123352 | 112,2267 | 125,3407 | 6,760572 | 23,56421 | 24,94214 | 11,37935 |
| 673 | -10,0567829 | 328,9788246 | 0,025948288 | 0,238411546 | 0,8 | 4192644,772 | 0,014064842 | 125,12375 | 112,2285 | 125,3412 | 6,760137 | 23,56337 | 24,94104 | 11,37888 |
| 674 | -10,02594511 | 328,9666159 | 0,026008067 | 0,238411546 | 0,8 | 4194014,906 | 0,014064842 | 125,124121 | 112,2302 | 125,3416 | 6,759702 | 23,56253 | 24,93995 | 11,3784 |
| 675 | -9,995078598 | 328,9566776 | 0,026068318 | 0,238411546 | 0,8 | 4195413,863 | 0,014064842 | 125,124523 | 112,232 | 125,3421 | 6,759267 | 23,5617 | 24,93886 | 11,37793 |
| 676 | -9,96419658 | 328,9461492 | 0,026128817 | 0,238411546 | 0,8 | 4196805,285 | 0,014064842 | 125,124916 | 112,2337 | 125,3426 | 6,758831 | 23,56086 | 24,93777 | 11,37745 |
| 677 | -9,933299148 | 328,9350163 | 0,026189565 | 0,238411546 | 0,8 | 4198188,981 | 0,014064842 | 125,125302 | 112,2355 | 125,343 | 6,758396 | 23,56002 | 24,93667 | 11,37697 |
| 678 | -9,902379794 | 328,9247009 | 0,026250678 | 0,238411546 | 0,8 | 4199583,046 | 0,014064842 | 125,125698 | 112,2372 | 125,3435 | 6,75796 | 23,55918 | 24,93558 | 11,37649 |
| 679 | -9,871438535 | 328,9151883 | 0,026312157 | 0,238411546 | 0,8 | 4200987,3 | 0,014064842 | 125,126105 | 112,239 | 125,3439 | 6,757524 | 23,55834 | 24,93449 | 11,37601 |
| 680 | -9,840488591 | 328,9036126 | 0,026373775 | 0,238411546 | 0,8 | 4202365,244 | 0,014064842 | 125,126485 | 112,2407 | 125,3444 | 6,757088 | 23,5575 | 24,93339 | 11,37554 |
| 681 | -9,809516922 | 328,8928218 | 0,026435762 | 0,238411546 | 0,8 | 4203753,148 | 0,014064842 | 125,126876 | 112,2424 | 125,3448 | 6,756651 | 23,55665 | 24,9323 | 11,37506 |
| 682 | -9,778523434 | 328,8827975 | 0,026498119 | 0,238411546 | 0,8 | 4205150,784 | 0,014064842 | 125,127276 | 112,2441 | 125,3453 | 6,756215 | 23,55581 | 24,9312 | 11,37458 |
| 683 | -9,747515006 | 328,8721106 | 0,026560734 | 0,238411546 | 0,8 | 4206539,94 | 0,014064842 | 125,127668 | 112,2459 | 125,3458 | 6,755778 | 23,55497 | 24,9301 | 11,3741 |
| 684 | -9,716491585 | 328,8607481 | 0,026623607 | 0,238411546 | 0,8 | 4207920,441 | 0,014064842 | 125,128051 | 112,2476 | 125,3462 | 6,755341 | 23,55413 | 24,929 | 11,37362 |
| 685 | -9,685439989 | 328,8515443 | 0,02668697 | 0,238411546 | 0,8 | 4209328,447 | 0,014064842 | 125,128462 | 112,2493 | 125,3467 | 6,754904 | 23,55328 | 24,92791 | 11,37314 |
| 686 | -9,654380065 | 328,8402154 | 0,02675048 | 0,238411546 | 0,8 | 4210709,3 | 0,014064842 | 125,128846 | 112,251 | 125,3471 | 6,754467 | 23,55244 | 24,92681 | 11,37266 |
| 687 | -9,623298844 | 328,8296072 | 0,026814368 | 0,238411546 | 0,8 | 4212099,313 | 0,014064842 | 125,129239 | 112,2527 | 125,3476 | 6,75403 | 23,55159 | 24,92571 | 11,37218 |
| 688 | -9,592196158 | 328,8196975 | 0,026878636 | 0,238411546 | 0,8 | 4213498,211 | 0,014064842 | 125,129641 | 112,2544 | 125,3481 | 6,753592 | 23,55075 | 24,92461 | 11,3717 |
| 689 | -9,561078954 | 328,8090583 | 0,026943169 | 0,238411546 | 0,8 | 4214887,755 | 0,014064842 | 125,130033 | 112,2561 | 125,3485 | 6,753155 | 23,5499 | 24,92351 | 11,37122 |
| 690 | -9,529940416 | 328,7990966 | 0,027008086 | 0,238411546 | 0,8 | 4216285,924 | 0,014064842 | 125,130435 | 112,2578 | 125,349 | 6,752717 | 23,54905 | 24,92241 | 11,37074 |
| 691 | -9,498787373 | 328,7883789 | 0,027073272 | 0,238411546 | 0,8 | 4217674,392 | 0,014064842 | 125,130827 | 112,2595 | 125,3494 | 6,752279 | 23,54821 | 24,9213 | 11,37026 |
| 692 | -9,467619808 | 328,7768917 | 0,027138726 | 0,238411546 | 0,8 | 4219052,972 | 0,014064842 | 125,131208 | 112,2611 | 125,3499 | 6,751841 | 23,54736 | 24,9202 | 11,36978 |
| 693 | -9,436431288 | 328,7660532 | 0,02720457 | 0,238411546 | 0,8 | 4220439,813 | 0,014064842 | 125,131598 | 112,2628 | 125,3503 | 6,751402 | 23,54651 | 24,9191 | 11,36929 |
| 694 | -9,405221869 | 328,7558495 | 0,027270803 | 0,238411546 | 0,8 | 4221834,739 | 0,014064842 | 125,131997 | 112,2645 | 125,3508 | 6,750964 | 23,54566 | 24,918 | 11,36881 |
| 695 | -9,373991487 | 328,7462659 | 0,027337429 | 0,238411546 | 0,8 | 4223237,571 | 0,014064842 | 125,132403 | 112,2661 | 125,3513 | 6,750525 | 23,54481 | 24,91689 | 11,36833 |
| 696 | -9,342746914 | 328,7358665 | 0,02740433 | 0,238411546 | 0,8 | 4224629,922 | 0,014064842 | 125,1328 | 112,2678 | 125,3517 | 6,750086 | 23,54396 | 24,91579 | 11,36785 |
| 697 | -9,311488174 | 328,724638 | 0,027471509 | 0,238411546 | 0,8 | 4226011,606 | 0,014064842 | 125,133185 | 112,2694 | 125,3522 | 6,749647 | 23,54311 | 24,91468 | 11,36737 |
| 698 | -9,280208806 | 328,713996 | 0,027539084 | 0,238411546 | 0,8 | 4227400,765 | 0,014064842 | 125,133578 | 112,2711 | 125,3526 | 6,749208 | 23,54226 | 24,91358 | 11,36688 |
| 699 | -9,248915401 | 328,7025013 | 0,02760694 | 0,238411546 | 0,8 | 4228778,945 | 0,014064842 | 125,133959 | 112,2727 | 125,3531 | 6,748769 | 23,54141 | 24,91247 | 11,3664 |
| 700 | -9,217594894 | 328,6929916 | 0,027675316 | 0,238411546 | 0,8 | 4230182,552 | 0,014064842 | 125,134367 | 112,2743 | 125,3535 | 6,74833 | 23,54056 | 24,91136 | 11,36591 |
| 701 | -9,186260485 | 328,6826062 | 0,027743975 | 0,238411546 | 0,8 | 4231574,887 | 0,014064842 | 125,134764 | 112,276 | 125,354 | 6,74789 | 23,5397 | 24,91026 | 11,36543 |
| 702 | -9,154912269 | 328,6713296 | 0,027812919 | 0,238411546 | 0,8 | 4232955,737 | 0,014064842 | 125,135148 | 112,2776 | 125,3544 | 6,74745 | 23,53885 | 24,90915 | 11,36495 |
| 703 | -9,123537126 | 328,661998 | 0,02788239 | 0,238411546 | 0,8 | 4234361,527 | 0,014064842 | 125,135559 | 112,2792 | 125,3549 | 6,74701 | 23,538 | 24,90804 | 11,36446 |
| 704 | -9,092154984 | 328,650329 | 0,027952028 | 0,238411546 | 0,8 | 4235737,249 | 0,014064842 | 125,135938 | 112,2808 | 125,3553 | 6,74657 | 23,53714 | 24,90693 | 11,36398 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 705 | -9,060746068 | 328,6405788 | 0,028022197 | 0,238411546 | 0,8 | 4237137,585 | 0,014064842 | 125,136343 | 112,2824 | 125,3558 | 6,74613 | 23,53629 | 24,90582 | 11,36349 |
| 706 | -9,029323565 | 328,6298845 | 0,028092657 | 0,238411546 | 0,8 | 4238525,751 | 0,014064842 | 125,136736 | 112,284 | 125,3563 | 6,74569 | 23,53543 | 24,90471 | 11,36301 |
| 707 | -8,997887613 | 328,61824 | 0,028163411 | 0,238411546 | 0,8 | 4239901,651 | 0,014064842 | 125,137116 | 112,2856 | 125,3567 | 6,745249 | 23,53458 | 24,9036 | 11,36252 |
| 708 | -8,966425147 | 328,6084726 | 0,028234701 | 0,238411546 | 0,8 | 4241301,652 | 0,014064842 | 125,13752 | 112,2872 | 125,3572 | 6,744809 | 23,53372 | 24,90249 | 11,36204 |
| 709 | -8,9349428 | 328,5991475 | 0,028306411 | 0,238411546 | 0,8 | 4242707,317 | 0,014064842 | 125,137931 | 112,2888 | 125,3576 | 6,744368 | 23,53286 | 24,90137 | 11,36155 |
| 710 | -8,903453848 | 328,5874086 | 0,028378296 | 0,238411546 | 0,8 | 4244081,861 | 0,014064842 | 125,13831 | 112,2904 | 125,3581 | 6,743927 | 23,532 | 24,90026 | 11,36106 |
| 711 | -8,871938567 | 328,5775061 | 0,028450725 | 0,238411546 | 0,8 | 4245480,011 | 0,014064842 | 125,138713 | 112,2919 | 125,3585 | 6,743486 | 23,53115 | 24,89915 | 11,36058 |
| 712 | -8,84041009 | 328,5665799 | 0,028523456 | 0,238411546 | 0,8 | 4246864,933 | 0,014064842 | 125,139103 | 112,2935 | 125,359 | 6,743044 | 23,53029 | 24,89803 | 11,36009 |
| 713 | -8,808862086 | 328,5560409 | 0,028596613 | 0,238411546 | 0,8 | 4248254,802 | 0,014064842 | 125,139498 | 112,295 | 125,3594 | 6,742603 | 23,52943 | 24,89692 | 11,3596 |
| 714 | -8,777294556 | 328,545877 | 0,028670198 | 0,238411546 | 0,8 | 4249649,466 | 0,014064842 | 125,139897 | 112,2966 | 125,3599 | 6,742161 | 23,52857 | 24,89581 | 11,35912 |
| 715 | -8,74571426 | 328,5346502 | 0,028744089 | 0,238411546 | 0,8 | 4251030,373 | 0,014064842 | 125,140283 | 112,2981 | 125,3603 | 6,74172 | 23,52771 | 24,89469 | 11,35863 |
| 716 | -8,714107871 | 328,5251843 | 0,028818537 | 0,238411546 | 0,8 | 4252433,963 | 0,014064842 | 125,140692 | 112,2997 | 125,3608 | 6,741278 | 23,52685 | 24,89357 | 11,35814 |
| 717 | -8,682495511 | 328,5132127 | 0,028893171 | 0,238411546 | 0,8 | 4253805,166 | 0,014064842 | 125,141068 | 112,3012 | 125,3612 | 6,740836 | 23,52598 | 24,89246 | 11,35765 |
| 718 | -8,650850651 | 328,5043929 | 0,028968491 | 0,238411546 | 0,8 | 4255217,02 | 0,014064842 | 125,141486 | 112,3027 | 125,3617 | 6,740393 | 23,52512 | 24,89134 | 11,35716 |
| 719 | -8,619199941 | 328,4930396 | 0,029044 | 0,238411546 | 0,8 | 4256596,113 | 0,014064842 | 125,14187 | 112,3042 | 125,3621 | 6,739951 | 23,52426 | 24,89022 | 11,35668 |
| 720 | -8,587530092 | 328,4819677 | 0,02911995 | 0,238411546 | 0,8 | 4257978,791 | 0,014064842 | 125,142258 | 112,3057 | 125,3626 | 6,739508 | 23,5234 | 24,8891 | 11,35619 |
| 721 | -8,555834718 | 328,4725862 | 0,029196468 | 0,238411546 | 0,8 | 4259383,277 | 0,014064842 | 125,142669 | 112,3072 | 125,363 | 6,739066 | 23,52253 | 24,88798 | 11,3557 |
| 722 | -8,524127127 | 328,4620455 | 0,029273306 | 0,238411546 | 0,8 | 4260772,731 | 0,014064842 | 125,143064 | 112,3087 | 125,3635 | 6,738623 | 23,52167 | 24,88686 | 11,35521 |
| 723 | -8,492407265 | 328,4503206 | 0,029350466 | 0,238411546 | 0,8 | 4262146,825 | 0,014064842 | 125,143443 | 112,3101 | 125,3639 | 6,73818 | 23,5208 | 24,88574 | 11,35472 |
| 724 | -8,4606621 | 328,4402432 | 0,029428201 | 0,238411546 | 0,8 | 4263542,186 | 0,014064842 | 125,143845 | 112,3116 | 125,3644 | 6,737737 | 23,51994 | 24,88462 | 11,35423 |
| 725 | -8,428898258 | 328,4303766 | 0,02950639 | 0,238411546 | 0,8 | 4264940,232 | 0,014064842 | 125,144249 | 112,3131 | 125,3648 | 6,737293 | 23,51907 | 24,8835 | 11,35374 |
| 726 | -8,397115854 | 328,420702 | 0,029585032 | 0,238411546 | 0,8 | 4266340,729 | 0,014064842 | 125,144655 | 112,3146 | 125,3653 | 6,73685 | 23,5182 | 24,88238 | 11,35325 |
| 727 | -8,365328306 | 328,4083742 | 0,029663877 | 0,238411546 | 0,8 | 4267706,81 | 0,014064842 | 125,145027 | 112,316 | 125,3657 | 6,736406 | 23,51734 | 24,88126 | 11,35276 |
| 728 | -8,333508988 | 328,3990401 | 0,029743436 | 0,238411546 | 0,8 | 4269111,635 | 0,014064842 | 125,145438 | 112,3174 | 125,3662 | 6,735962 | 23,51647 | 24,88014 | 11,35227 |
| 729 | -8,301678025 | 328,3884393 | 0,029823329 | 0,238411546 | 0,8 | 4270499,996 | 0,014064842 | 125,145833 | 112,3189 | 125,3666 | 6,735519 | 23,5156 | 24,87901 | 11,35178 |
| 730 | -8,269828866 | 328,3779645 | 0,029903685 | 0,238411546 | 0,8 | 4271889,949 | 0,014064842 | 125,146229 | 112,3203 | 125,3671 | 6,735074 | 23,51473 | 24,87789 | 11,35128 |
| 731 | -8,237961514 | 328,3676096 | 0,029984508 | 0,238411546 | 0,8 | 4273281,411 | 0,014064842 | 125,146627 | 112,3217 | 125,3675 | 6,73463 | 23,51386 | 24,87676 | 11,35079 |
| 732 | -8,206076254 | 328,3573506 | 0,0300658 | 0,238411546 | 0,8 | 4274674,07 | 0,014064842 | 125,147026 | 112,3231 | 125,368 | 6,734186 | 23,51299 | 24,87564 | 11,3503 |
| 733 | -8,174179526 | 328,3457575 | 0,030147434 | 0,238411546 | 0,8 | 4276049,363 | 0,014064842 | 125,147408 | 112,3245 | 125,3684 | 6,733741 | 23,51212 | 24,87451 | 11,34981 |
| 734 | -8,142251831 | 328,3370653 | 0,0302298 | 0,238411546 | 0,8 | 4277462,28 | 0,014064842 | 125,147828 | 112,3259 | 125,3689 | 6,733297 | 23,51125 | 24,87339 | 11,34932 |
| 735 | -8,110319398 | 328,3255838 | 0,030312383 | 0,238411546 | 0,8 | 4278838,925 | 0,014064842 | 125,148211 | 112,3272 | 125,3693 | 6,732852 | 23,51038 | 24,87226 | 11,34882 |
| 736 | -8,078362715 | 328,3155483 | 0,030395575 | 0,238411546 | 0,8 | 4280234,309 | 0,014064842 | 125,148613 | 112,3286 | 125,3698 | 6,732407 | 23,50951 | 24,87113 | 11,34833 |
| 737 | -8,046388456 | 328,3055302 | 0,030479249 | 0,238411546 | 0,8 | 4281629,876 | 0,014064842 | 125,149016 | 112,33 | 125,3702 | 6,731962 | 23,50864 | 24,87 | 11,34784 |
| 738 | -8,014403283 | 328,2940924 | 0,030563275 | 0,238411546 | 0,8 | 4283006,935 | 0,014064842 | 125,1494 | 112,3313 | 125,3706 | 6,731517 | 23,50776 | 24,86888 | 11,34734 |
| 739 | -7,982394157 | 328,284049 | 0,030647919 | 0,238411546 | 0,8 | 4284402,078 | 0,014064842 | 125,149802 | 112,3326 | 125,3711 | 6,731071 | 23,50689 | 24,86775 | 11,34685 |
| 740 | -7,950367618 | 328,2739679 | 0,030733052 | 0,238411546 | 0,8 | 4285796,687 | 0,014064842 | 125,150204 | 112,334 | 125,3715 | 6,730625 | 23,50602 | 24,86662 | 11,34636 |
| 741 | -7,91833045 | 328,2624139 | 0,030818544 | 0,238411546 | 0,8 | 4287172,075 | 0,014064842 | 125,150586 | 112,3353 | 125,372 | 6,73018 | 23,50514 | 24,86549 | 11,34586 |
| 742 | -7,886262977 | 328,2536207 | 0,030904797 | 0,238411546 | 0,8 | 4288583,37 | 0,014064842 | 125,151005 | 112,3366 | 125,3724 | 6,729734 | 23,50427 | 24,86436 | 11,34537 |
| 743 | -7,854191665 | 328,2419031 | 0,030991281 | 0,238411546 | 0,8 | 4289956,523 | 0,014064842 | 125,151385 | 112,3379 | 125,3729 | 6,729288 | 23,50339 | 24,86322 | 11,34487 |
| 744 | -7,822090191 | 328,2329039 | 0,031078531 | 0,238411546 | 0,8 | 4291365,049 | 0,014064842 | 125,151801 | 112,3392 | 125,3733 | 6,728842 | 23,50251 | 24,86209 | 11,34438 |
| 745 | -7,789984995 | 328,2209446 | 0,031166017 | 0,238411546 | 0,8 | 4292734,942 | 0,014064842 | 125,152179 | 112,3404 | 125,3737 | 6,728395 | 23,50164 | 24,86096 | 11,34388 |
| 746 | -7,757849997 | 328,2116723 | 0,031254276 | 0,238411546 | 0,8 | 4294139,823 | 0,014064842 | 125,152591 | 112,3417 | 125,3742 | 6,727949 | 23,50076 | 24,85983 | 11,34339 |
| 747 | -7,725704911 | 328,2008208 | 0,031342909 | 0,238411546 | 0,8 | 4295524,057 | 0,014064842 | 125,152983 | 112,3429 | 125,3746 | 6,727502 | 23,49988 | 24,85869 | 11,34289 |
| 748 | -7,693543107 | 328,189779 | 0,031432053 | 0,238411546 | 0,8 | 4296905,759 | 0,014064842 | 125,153373 | 112,3441 | 125,3751 | 6,727056 | 23,499 | 24,85756 | 11,3424 |
| 749 | -7,661358374 | 328,1799482 | 0,031521846 | 0,238411546 | 0,8 | 4298303,216 | 0,014064842 | 125,153778 | 112,3454 | 125,3755 | 6,726609 | 23,49813 | 24,85643 | 11,3419 |
| 750 | -7,629157344 | 328,169898 | 0,031612157 | 0,238411546 | 0,8 | 4299697,764 | 0,014064842 | 125,154181 | 112,3466 | 125,3759 | 6,726162 | 23,49725 | 24,85529 | 11,3414 |
| 751 | -7,596939989 | 328,1595986 | 0,031702987 | 0,238411546 | 0,8 | 4301089,01 | 0,014064842 | 125,15458 | 112,3478 | 125,3764 | 6,725714 | 23,49637 | 24,85416 | 11,34091 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 752 | -7,564706371 | 328,1490395 | 0,03179434 | 0,238411546 | 0,8 | 4302476,816 | 0,014064842 | 125,154976 | 112,349 | 125,3768 | 6,725267 | 23,49549 | 24,85302 | 11,34041 |
| 753 | -7,532456854 | 328,1381977 | 0,031886219 | 0,238411546 | 0,8 | 4303860,869 | 0,014064842 | 125,155368 | 112,3502 | 125,3772 | 6,72482 | 23,4946 | 24,85188 | 11,33991 |
| 754 | -7,500191307 | 328,1270526 | 0,031978626 | 0,238411546 | 0,8 | 4305240,9 | 0,014064842 | 125,155756 | 112,3513 | 125,3777 | 6,724372 | 23,49372 | 24,85075 | 11,33942 |
| 755 | -7,467896836 | 328,1184175 | 0,032071841 | 0,238411546 | 0,8 | 4306653,724 | 0,014064842 | 125,156178 | 112,3525 | 125,3781 | 6,723924 | 23,49284 | 24,84961 | 11,33892 |
| 756 | -7,43559976 | 328,1066069 | 0,032165315 | 0,238411546 | 0,8 | 4308024,937 | 0,014064842 | 125,156557 | 112,3536 | 125,3786 | 6,723476 | 23,49196 | 24,84847 | 11,33842 |
| 757 | -7,403273963 | 328,0972647 | 0,032259603 | 0,238411546 | 0,8 | 4309428,415 | 0,014064842 | 125,156969 | 112,3547 | 125,379 | 6,723028 | 23,49108 | 24,84733 | 11,33792 |
| 758 | -7,370939043 | 328,0861173 | 0,032354294 | 0,238411546 | 0,8 | 4310808,205 | 0,014064842 | 125,157357 | 112,3558 | 125,3794 | 6,72258 | 23,49019 | 24,84619 | 11,33742 |
| 759 | -7,338588916 | 328,0745691 | 0,032449529 | 0,238411546 | 0,8 | 4312182,686 | 0,014064842 | 125,157741 | 112,3569 | 125,3798 | 6,722132 | 23,48931 | 24,84505 | 11,33692 |
| 760 | -7,306210182 | 328,0654177 | 0,03254559 | 0,238411546 | 0,8 | 4313588,525 | 0,014064842 | 125,158155 | 112,358 | 125,3803 | 6,721683 | 23,48842 | 24,84391 | 11,33643 |
| 761 | -7,273816217 | 328,0558172 | 0,032642203 | 0,238411546 | 0,8 | 4314988,432 | 0,014064842 | 125,158564 | 112,3591 | 125,3807 | 6,721235 | 23,48754 | 24,84277 | 11,33593 |
| 762 | -7,241413855 | 328,0443358 | 0,03273923 | 0,238411546 | 0,8 | 4316363,622 | 0,014064842 | 125,158948 | 112,3601 | 125,3811 | 6,720786 | 23,48665 | 24,84163 | 11,33543 |
| 763 | -7,20898326 | 328,0351833 | 0,032837095 | 0,238411546 | 0,8 | 4317769,316 | 0,014064842 | 125,159363 | 112,3612 | 125,3816 | 6,720337 | 23,48577 | 24,84049 | 11,33493 |
| 764 | -7,176551098 | 328,0226981 | 0,03293524 | 0,238411546 | 0,8 | 4319131,215 | 0,014064842 | 125,159734 | 112,3622 | 125,382 | 6,719888 | 23,48488 | 24,83934 | 11,33443 |
| 765 | -7,144091014 | 328,012501 | 0,033034231 | 0,238411546 | 0,8 | 4320523,088 | 0,014064842 | 125,160135 | 112,3632 | 125,3824 | 6,719439 | 23,48399 | 24,8382 | 11,33393 |
| 766 | -7,111616175 | 328,0017416 | 0,033133789 | 0,238411546 | 0,8 | 4321907,527 | 0,014064842 | 125,160529 | 112,3642 | 125,3829 | 6,718989 | 23,48311 | 24,83706 | 11,33343 |
| 767 | -7,079113728 | 327,9932233 | 0,033234203 | 0,238411546 | 0,8 | 4323321,366 | 0,014064842 | 125,160952 | 112,3652 | 125,3833 | 6,71854 | 23,48222 | 24,83591 | 11,33293 |
| 768 | -7,046610077 | 327,9812771 | 0,033334907 | 0,238411546 | 0,8 | 4324690,1 | 0,014064842 | 125,16133 | 112,3661 | 125,3837 | 6,71809 | 23,48133 | 24,83477 | 11,33243 |
| 769 | -7,014078928 | 327,9715302 | 0,033436475 | 0,238411546 | 0,8 | 4326087,691 | 0,014064842 | 125,161737 | 112,3671 | 125,3841 | 6,71764 | 23,48044 | 24,83362 | 11,33192 |
| 770 | -6,981533701 | 327,9611304 | 0,033538626 | 0,238411546 | 0,8 | 4327476,649 | 0,014064842 | 125,162136 | 112,368 | 125,3846 | 6,717191 | 23,47955 | 24,83248 | 11,33142 |
| 771 | -6,948974368 | 327,9500545 | 0,033641361 | 0,238411546 | 0,8 | 4328856,651 | 0,014064842 | 125,162526 | 112,3689 | 125,385 | 6,716741 | 23,47866 | 24,83133 | 11,33092 |
| 772 | -6,916387899 | 327,9410946 | 0,033744973 | 0,238411546 | 0,8 | 4330264,454 | 0,014064842 | 125,162943 | 112,3698 | 125,3854 | 6,71629 | 23,47777 | 24,83018 | 11,33042 |
| 773 | -6,883787708 | 327,9314162 | 0,03384918 | 0,238411546 | 0,8 | 4331662,759 | 0,014064842 | 125,163351 | 112,3707 | 125,3859 | 6,71584 | 23,47688 | 24,82904 | 11,32992 |
| 774 | -6,851173784 | 327,9209896 | 0,033953983 | 0,238411546 | 0,8 | 4333051,155 | 0,014064842 | 125,16375 | 112,3716 | 125,3863 | 6,715389 | 23,47598 | 24,82789 | 11,32941 |
| 775 | -6,818546369 | 327,9097937 | 0,034059386 | 0,238411546 | 0,8 | 4334429,356 | 0,014064842 | 125,164138 | 112,3724 | 125,3867 | 6,714939 | 23,47509 | 24,82674 | 11,32891 |
| 776 | -6,785898964 | 327,8992118 | 0,03416554 | 0,238411546 | 0,8 | 4335815,596 | 0,014064842 | 125,164534 | 112,3732 | 125,3871 | 6,714488 | 23,4742 | 24,82559 | 11,32841 |
| 777 | -6,753238344 | 327,8878096 | 0,034272301 | 0,238411546 | 0,8 | 4337190,951 | 0,014064842 | 125,16492 | 112,374 | 125,3875 | 6,714037 | 23,47331 | 24,82444 | 11,32791 |
| 778 | -6,720551304 | 327,8783704 | 0,034379967 | 0,238411546 | 0,8 | 4338592,15 | 0,014064842 | 125,165332 | 112,3748 | 125,3879 | 6,713586 | 23,47241 | 24,82329 | 11,3274 |
| 779 | -6,687851215 | 327,8680635 | 0,034488249 | 0,238411546 | 0,8 | 4339981,846 | 0,014064842 | 125,165732 | 112,3756 | 125,3884 | 6,713135 | 23,47152 | 24,82214 | 11,3269 |
| 780 | -6,655131593 | 327,8582602 | 0,034597299 | 0,238411546 | 0,8 | 4341378,14 | 0,014064842 | 125,166138 | 112,3764 | 125,3888 | 6,712684 | 23,47062 | 24,82099 | 11,3264 |
| 781 | -6,622399205 | 327,8475331 | 0,034706973 | 0,238411546 | 0,8 | 4342762,188 | 0,014064842 | 125,166533 | 112,3771 | 125,3892 | 6,712232 | 23,46973 | 24,81984 | 11,32589 |
| 782 | -6,589654383 | 327,8358607 | 0,034817276 | 0,238411546 | 0,8 | 4344133,683 | 0,014064842 | 125,166915 | 112,3778 | 125,3896 | 6,711781 | 23,46883 | 24,81869 | 11,32539 |
| 783 | -6,556883725 | 327,8260207 | 0,034928507 | 0,238411546 | 0,8 | 4345529,328 | 0,014064842 | 125,167322 | 112,3785 | 125,39 | 6,711329 | 23,46794 | 24,81753 | 11,32488 |
| 784 | -6,524100776 | 327,8151756 | 0,035040375 | 0,238411546 | 0,8 | 4346911,634 | 0,014064842 | 125,167715 | 112,3792 | 125,3904 | 6,710877 | 23,46704 | 24,81638 | 11,32438 |
| 785 | -6,491292432 | 327,8061119 | 0,035153184 | 0,238411546 | 0,8 | 4348317,442 | 0,014064842 | 125,168131 | 112,3798 | 125,3909 | 6,710425 | 23,46614 | 24,81523 | 11,32387 |
| 786 | -6,458472012 | 327,7959881 | 0,035266638 | 0,238411546 | 0,8 | 4349709,179 | 0,014064842 | 125,168534 | 112,3805 | 125,3913 | 6,709973 | 23,46524 | 24,81407 | 11,32337 |
| 787 | -6,42563961 | 327,7847808 | 0,035380742 | 0,238411546 | 0,8 | 4351086,523 | 0,014064842 | 125,168923 | 112,3811 | 125,3917 | 6,709521 | 23,46435 | 24,81292 | 11,32286 |
| 788 | -6,392782199 | 327,7752605 | 0,035495801 | 0,238411546 | 0,8 | 4352486,143 | 0,014064842 | 125,169333 | 112,3817 | 125,3921 | 6,709068 | 23,46345 | 24,81176 | 11,32236 |
| 789 | -6,359913207 | 327,7645995 | 0,035611519 | 0,238411546 | 0,8 | 4353870,603 | 0,014064842 | 125,169729 | 112,3822 | 125,3925 | 6,708616 | 23,46255 | 24,81061 | 11,32185 |
| 790 | -6,327032759 | 327,7527685 | 0,035727899 | 0,238411546 | 0,8 | 4355239,501 | 0,014064842 | 125,170109 | 112,3828 | 125,3929 | 6,708163 | 23,46165 | 24,80945 | 11,32135 |
| 791 | -6,294127683 | 327,7425385 | 0,03584525 | 0,238411546 | 0,8 | 4356629,55 | 0,014064842 | 125,170511 | 112,3833 | 125,3933 | 6,70771 | 23,46075 | 24,80829 | 11,32084 |
| 792 | -6,261198302 | 327,7338942 | 0,035963581 | 0,238411546 | 0,8 | 4358040,564 | 0,014064842 | 125,170933 | 112,3838 | 125,3937 | 6,707257 | 23,45985 | 24,80714 | 11,32033 |
| 793 | -6,228257762 | 327,7239814 | 0,036082588 | 0,238411546 | 0,8 | 4359434,716 | 0,014064842 | 125,171339 | 112,3843 | 125,3941 | 6,706804 | 23,45894 | 24,80598 | 11,31983 |
| 794 | -6,195306391 | 327,7127812 | 0,036202277 | 0,238411546 | 0,8 | 4360811,732 | 0,014064842 | 125,171728 | 112,3848 | 125,3945 | 6,706351 | 23,45804 | 24,80482 | 11,31932 |
| 795 | -6,162330915 | 327,7030585 | 0,03632296 | 0,238411546 | 0,8 | 4362208,301 | 0,014064842 | 125,172136 | 112,3852 | 125,3949 | 6,705897 | 23,45714 | 24,80366 | 11,31881 |
| 796 | -6,129344937 | 327,6919832 | 0,036444333 | 0,238411546 | 0,8 | 4363586,854 | 0,014064842 | 125,172527 | 112,3856 | 125,3953 | 6,705444 | 23,45624 | 24,8025 | 11,3183 |
| 797 | -6,096335466 | 327,6823425 | 0,036566714 | 0,238411546 | 0,8 | 4364984,395 | 0,014064842 | 125,172936 | 112,386 | 125,3957 | 6,70499 | 23,45533 | 24,80134 | 11,3178 |
| 798 | -6,063315574 | 327,6712762 | 0,036689794 | 0,238411546 | 0,8 | 4366362,943 | 0,014064842 | 125,173327 | 112,3864 | 125,3961 | 6,704536 | 23,45443 | 24,80018 | 11,31729 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 799 | -6,030272409 | 327,6615725 | 0,036813893 | 0,238411546 | 0,8 | 4367759,536 | 0,014064842 | 125,173735 | 112,3867 | 125,3965 | 6,704083 | 23,45352 | 24,79902 | 11,31678 |
| 800 | -5,997219279 | 327,6503865 | 0,036938703 | 0,238411546 | 0,8 | 4369136,37 | 0,014064842 | 125,174125 | 112,387 | 125,3969 | 6,703629 | 23,45262 | 24,79786 | 11,31627 |
| 801 | -5,964143143 | 327,6404946 | 0,037064543 | 0,238411546 | 0,8 | 4370530,354 | 0,014064842 | 125,174531 | 112,3873 | 125,3973 | 6,703174 | 23,45171 | 24,7967 | 11,31576 |
| 802 | -5,931057371 | 327,6290605 | 0,037191104 | 0,238411546 | 0,8 | 4371903,765 | 0,014064842 | 125,174917 | 112,3875 | 125,3977 | 6,70272 | 23,45081 | 24,79553 | 11,31525 |
| 803 | -5,897948918 | 327,6188457 | 0,037318707 | 0,238411546 | 0,8 | 4373293,335 | 0,014064842 | 125,175319 | 112,3878 | 125,3981 | 6,702266 | 23,4499 | 24,79437 | 11,31474 |
| 804 | -5,864818026 | 327,6098201 | 0,03744736 | 0,238411546 | 0,8 | 4374698,679 | 0,014064842 | 125,175737 | 112,388 | 125,3985 | 6,701811 | 23,449 | 24,79321 | 11,31423 |
| 805 | -5,831677776 | 327,5991479 | 0,037576751 | 0,238411546 | 0,8 | 4376082,052 | 0,014064842 | 125,176133 | 112,3882 | 125,3989 | 6,701356 | 23,44809 | 24,79204 | 11,31372 |
| 806 | -5,798515641 | 327,5896035 | 0,037707204 | 0,238411546 | 0,8 | 4377480,383 | 0,014064842 | 125,176544 | 112,3883 | 125,3993 | 6,700901 | 23,44718 | 24,79088 | 11,31321 |
| 807 | -5,765344575 | 327,5783381 | 0,037838404 | 0,238411546 | 0,8 | 4378855,725 | 0,014064842 | 125,176932 | 112,3884 | 125,3996 | 6,700446 | 23,44627 | 24,78971 | 11,3127 |
| 808 | -5,732151731 | 327,568122 | 0,03797068 | 0,238411546 | 0,8 | 4380244,995 | 0,014064842 | 125,177334 | 112,3885 | 125,4 | 6,699991 | 23,44536 | 24,78855 | 11,31219 |
| 809 | -5,698950456 | 327,5561246 | 0,038103714 | 0,238411546 | 0,8 | 4381610,442 | 0,014064842 | 125,177713 | 112,3885 | 125,4004 | 6,699536 | 23,44445 | 24,78738 | 11,31168 |
| 810 | -5,665714632 | 327,5479015 | 0,038238161 | 0,238411546 | 0,8 | 4383026,174 | 0,014064842 | 125,178141 | 112,3886 | 125,4008 | 6,699081 | 23,44354 | 24,78622 | 11,31117 |
| 811 | -5,632470741 | 327,5378182 | 0,03837338 | 0,238411546 | 0,8 | 4384417,039 | 0,014064842 | 125,178545 | 112,3886 | 125,4012 | 6,698625 | 23,44263 | 24,78505 | 11,31066 |
| 812 | -5,59921878 | 327,5258427 | 0,038509374 | 0,238411546 | 0,8 | 4385782,58 | 0,014064842 | 125,178924 | 112,3886 | 125,4015 | 6,69817 | 23,44172 | 24,78388 | 11,31015 |
| 813 | -5,565946054 | 327,5147264 | 0,038646477 | 0,238411546 | 0,8 | 4387159,524 | 0,014064842 | 125,179315 | 112,3885 | 125,4019 | 6,697714 | 23,44081 | 24,78271 | 11,30964 |
| 814 | -5,532652837 | 327,5044494 | 0,038784698 | 0,238411546 | 0,8 | 4388547,607 | 0,014064842 | 125,179716 | 112,3884 | 125,4023 | 6,697258 | 23,4399 | 24,78155 | 11,30913 |
| 815 | -5,499338873 | 327,4949488 | 0,038924042 | 0,238411546 | 0,8 | 4389946,016 | 0,014064842 | 125,180128 | 112,3883 | 125,4027 | 6,696802 | 23,43899 | 24,78038 | 11,30862 |
| 816 | -5,466004587 | 327,4861895 | 0,039064518 | 0,238411546 | 0,8 | 4391354,281 | 0,014064842 | 125,18055 | 112,3881 | 125,4031 | 6,696346 | 23,43807 | 24,77921 | 11,3081 |
| 817 | -5,432663263 | 327,4753444 | 0,039205802 | 0,238411546 | 0,8 | 4392734,607 | 0,014064842 | 125,180944 | 112,3879 | 125,4034 | 6,695889 | 23,43716 | 24,77804 | 11,30759 |
| 818 | -5,399302301 | 327,4651749 | 0,039348232 | 0,238411546 | 0,8 | 4394123,903 | 0,014064842 | 125,181347 | 112,3877 | 125,4038 | 6,695433 | 23,43625 | 24,77687 | 11,30708 |
| 819 | -5,365934506 | 327,4528371 | 0,03949148 | 0,238411546 | 0,8 | 4395484,12 | 0,014064842 | 125,181722 | 112,3874 | 125,4041 | 6,694976 | 23,43533 | 24,7757 | 11,30657 |
| 820 | -5,332534171 | 327,4438746 | 0,039636225 | 0,238411546 | 0,8 | 4396889,446 | 0,014064842 | 125,182141 | 112,3871 | 125,4045 | 6,69452 | 23,43442 | 24,77452 | 11,30605 |
| 821 | -5,2991276 | 327,4326631 | 0,039781802 | 0,238411546 | 0,8 | 4398264,604 | 0,014064842 | 125,18253 | 112,3868 | 125,4049 | 6,694063 | 23,4335 | 24,77335 | 11,30554 |
| 822 | -5,265702139 | 327,4219599 | 0,039928556 | 0,238411546 | 0,8 | 4399646,498 | 0,014064842 | 125,182926 | 112,3864 | 125,4052 | 6,693606 | 23,43259 | 24,77218 | 11,30503 |
| 823 | -5,232257672 | 327,4117119 | 0,040076495 | 0,238411546 | 0,8 | 4401034,431 | 0,014064842 | 125,183329 | 112,386 | 125,4056 | 6,693149 | 23,43167 | 24,77101 | 11,30451 |
| 824 | -5,198794382 | 327,4018782 | 0,040225627 | 0,238411546 | 0,8 | 4402427,856 | 0,014064842 | 125,183736 | 112,3856 | 125,406 | 6,692692 | 23,43075 | 24,76983 | 11,304 |
| 825 | -5,165312599 | 327,3924088 | 0,04037596 | 0,238411546 | 0,8 | 4403826,117 | 0,014064842 | 125,184149 | 112,3851 | 125,4063 | 6,692234 | 23,42984 | 24,76866 | 11,30348 |
| 826 | -5,131825965 | 327,380492 | 0,04052716 | 0,238411546 | 0,8 | 4405191,48 | 0,014064842 | 125,184529 | 112,3846 | 125,4067 | 6,691777 | 23,42892 | 24,76748 | 11,30297 |
| 827 | -5,098307985 | 327,3716286 | 0,04067992 | 0,238411546 | 0,8 | 4406597,752 | 0,014064842 | 125,18495 | 112,384 | 125,407 | 6,691319 | 23,428 | 24,76631 | 11,30245 |
| 828 | -5,064785251 | 327,3602215 | 0,040833563 | 0,238411546 | 0,8 | 4407969,824 | 0,014064842 | 125,185337 | 112,3834 | 125,4074 | 6,690861 | 23,42708 | 24,76513 | 11,30194 |
| 829 | -5,031231864 | 327,3517854 | 0,040988785 | 0,238411546 | 0,8 | 4409381,726 | 0,014064842 | 125,185763 | 112,3828 | 125,4078 | 6,690403 | 23,42616 | 24,76396 | 11,30142 |
| 830 | -4,997674203 | 327,3407122 | 0,041144905 | 0,238411546 | 0,8 | 4410758,153 | 0,014064842 | 125,186155 | 112,3821 | 125,4081 | 6,689946 | 23,42524 | 24,76278 | 11,30091 |
| 831 | -4,964099383 | 327,3297252 | 0,041302274 | 0,238411546 | 0,8 | 4412135,668 | 0,014064842 | 125,186547 | 112,3814 | 125,4084 | 6,689487 | 23,42432 | 24,7616 | 11,30039 |
| 832 | -4,93050788 | 327,3188039 | 0,041460905 | 0,238411546 | 0,8 | 4413513,997 | 0,014064842 | 125,186941 | 112,3806 | 125,4088 | 6,689029 | 23,4234 | 24,76043 | 11,29988 |
| 833 | -4,89689955 | 327,3078758 | 0,041620805 | 0,238411546 | 0,8 | 4414892,163 | 0,014064842 | 125,187334 | 112,3798 | 125,4091 | 6,688571 | 23,42248 | 24,75925 | 11,29936 |
| 834 | -4,863261608 | 327,2996716 | 0,041782336 | 0,238411546 | 0,8 | 4416306,915 | 0,014064842 | 125,187764 | 112,379 | 125,4095 | 6,688112 | 23,42156 | 24,75807 | 11,29885 |
| 835 | -4,829620617 | 327,2885844 | 0,041944802 | 0,238411546 | 0,8 | 4417682,817 | 0,014064842 | 125,188155 | 112,378 | 125,4098 | 6,687654 | 23,42064 | 24,75689 | 11,29833 |
| 836 | -4,795963666 | 327,2773583 | 0,042108566 | 0,238411546 | 0,8 | 4419056,785 | 0,014064842 | 125,188545 | 112,3771 | 125,4101 | 6,687195 | 23,41972 | 24,75571 | 11,29781 |
| 837 | -4,762278078 | 327,2687031 | 0,042273992 | 0,238411546 | 0,8 | 4420465,302 | 0,014064842 | 125,188969 | 112,3761 | 125,4105 | 6,686736 | 23,41879 | 24,75453 | 11,2973 |
| 838 | -4,728589873 | 327,2570082 | 0,042440376 | 0,238411546 | 0,8 | 4421832,824 | 0,014064842 | 125,189352 | 112,375 | 125,4108 | 6,686277 | 23,41787 | 24,75335 | 11,29678 |
| 839 | -4,69487357 | 327,2477954 | 0,042608446 | 0,238411546 | 0,8 | 4423233,717 | 0,014064842 | 125,189768 | 112,374 | 125,4111 | 6,685818 | 23,41694 | 24,75217 | 11,29626 |
| 840 | -4,661155543 | 327,2354598 | 0,042777493 | 0,238411546 | 0,8 | 4424592,451 | 0,014064842 | 125,190143 | 112,3728 | 125,4114 | 6,685359 | 23,41602 | 24,75099 | 11,29574 |
| 841 | -4,627409488 | 327,2254626 | 0,042948243 | 0,238411546 | 0,8 | 4425982,645 | 0,014064842 | 125,19055 | 112,3716 | 125,4117 | 6,684899 | 23,4151 | 24,74981 | 11,29523 |
| 842 | -4,593649282 | 327,2150166 | 0,043120352 | 0,238411546 | 0,8 | 4427366,721 | 0,014064842 | 125,19095 | 112,3704 | 125,4121 | 6,68444 | 23,41417 | 24,74863 | 11,29471 |
| 843 | -4,559861599 | 327,2068061 | 0,04329419 | 0,238411546 | 0,8 | 4428780,907 | 0,014064842 | 125,191379 | 112,3691 | 125,4124 | 6,68398 | 23,41324 | 24,74744 | 11,29419 |
| 844 | -4,526073177 | 327,1952497 | 0,043469041 | 0,238411546 | 0,8 | 4430149,874 | 0,014064842 | 125,191765 | 112,3678 | 125,4127 | 6,68352 | 23,41232 | 24,74626 | 11,29367 |
| 845 | -4,49225818 | 327,1858282 | 0,043645645 | 0,238411546 | 0,8 | 4431547,597 | 0,014064842 | 125,192179 | 112,3664 | 125,413 | 6,68306 | 23,41139 | 24,74508 | 11,29315 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 846 | -4,458442906 | 327,1729479 | 0,043823278 | 0,238411546 | 0,8 | 4432898,538 | 0,014064842 | 125,192547 | 112,3649 | 125,4133 | 6,682601 | 23,41046 | 24,74389 | 11,29263 |
| 847 | -4,424588275 | 327,1648394 | 0,044003056 | 0,238411546 | 0,8 | 4434313,877 | 0,014064842 | 125,192978 | 112,3634 | 125,4137 | 6,68214 | 23,40954 | 24,74271 | 11,29211 |
| 848 | -4,390734092 | 327,1531634 | 0,044183886 | 0,238411546 | 0,8 | 4435680,946 | 0,014064842 | 125,193362 | 112,3618 | 125,4139 | 6,68168 | 23,40861 | 24,74152 | 11,29159 |
| 849 | -4,356854397 | 327,1433876 | 0,044366518 | 0,238411546 | 0,8 | 4437073,637 | 0,014064842 | 125,193771 | 112,3602 | 125,4142 | 6,68122 | 23,40768 | 24,74034 | 11,29107 |
| 850 | -4,322962543 | 327,1326754 | 0,044550591 | 0,238411546 | 0,8 | 4438453,596 | 0,014064842 | 125,194168 | 112,3585 | 125,4145 | 6,680759 | 23,40675 | 24,73915 | 11,29055 |
| 851 | -4,289045745 | 327,1237307 | 0,044736493 | 0,238411546 | 0,8 | 4439857,412 | 0,014064842 | 125,194588 | 112,3568 | 125,4149 | 6,680298 | 23,40582 | 24,73796 | 11,29003 |
| 852 | -4,255130243 | 327,1109611 | 0,044923482 | 0,238411546 | 0,8 | 4441209,396 | 0,014064842 | 125,194958 | 112,355 | 125,4151 | 6,679838 | 23,40489 | 24,73678 | 11,28951 |
| 853 | -4,221177546 | 327,1025987 | 0,045112704 | 0,238411546 | 0,8 | 4442620,973 | 0,014064842 | 125,195386 | 112,3532 | 125,4154 | 6,679377 | 23,40396 | 24,73559 | 11,28899 |
| 854 | -4,187213788 | 327,0930558 | 0,045303416 | 0,238411546 | 0,8 | 4444016,509 | 0,014064842 | 125,195798 | 112,3512 | 125,4157 | 6,678916 | 23,40303 | 24,7344 | 11,28847 |
| 855 | -4,153239563 | 327,0822596 | 0,045495627 | 0,238411546 | 0,8 | 4445395,007 | 0,014064842 | 125,196194 | 112,3493 | 125,416 | 6,678455 | 23,4021 | 24,73321 | 11,28795 |
| 856 | -4,119254864 | 327,0701548 | 0,045689352 | 0,238411546 | 0,8 | 4446755,699 | 0,014064842 | 125,196573 | 112,3472 | 125,4163 | 6,677993 | 23,40117 | 24,73202 | 11,28743 |
| 857 | -4,085233845 | 327,0621616 | 0,045885367 | 0,238411546 | 0,8 | 4448172,067 | 0,014064842 | 125,197006 | 112,3451 | 125,4166 | 6,677532 | 23,40023 | 24,73083 | 11,28691 |
| 858 | -4,051216576 | 327,0499864 | 0,046082538 | 0,238411546 | 0,8 | 4449531,656 | 0,014064842 | 125,197383 | 112,3429 | 125,4168 | 6,677071 | 23,3993 | 24,72964 | 11,28639 |
| 859 | -4,017176845 | 327,0390365 | 0,046281642 | 0,238411546 | 0,8 | 4450907,787 | 0,014064842 | 125,197777 | 112,3406 | 125,4171 | 6,676609 | 23,39837 | 24,72845 | 11,28587 |
| 860 | -3,983114947 | 327,0292517 | 0,046482699 | 0,238411546 | 0,8 | 4452299,664 | 0,014064842 | 125,198187 | 112,3383 | 125,4174 | 6,676147 | 23,39743 | 24,72726 | 11,28534 |
| 861 | -3,949031377 | 327,0205555 | 0,046685724 | 0,238411546 | 0,8 | 4453706,266 | 0,014064842 | 125,19861 | 112,3359 | 125,4176 | 6,675685 | 23,3965 | 24,72607 | 11,28482 |
| 862 | -3,914939561 | 327,0101228 | 0,046890339 | 0,238411546 | 0,8 | 4455089,234 | 0,014064842 | 125,199011 | 112,3335 | 125,4179 | 6,675223 | 23,39556 | 24,72488 | 11,2843 |
| 863 | -3,880839678 | 326,9978846 | 0,047096556 | 0,238411546 | 0,8 | 4456447,596 | 0,014064842 | 125,199388 | 112,3309 | 125,4181 | 6,674761 | 23,39463 | 24,72369 | 11,28378 |
| 864 | -3,846706174 | 326,989256 | 0,047305179 | 0,238411546 | 0,8 | 4457854,944 | 0,014064842 | 125,199813 | 112,3283 | 125,4184 | 6,674299 | 23,39369 | 24,72249 | 11,28325 |
| 865 | -3,812565573 | 326,978681 | 0,047515434 | 0,238411546 | 0,8 | 4459235,77 | 0,014064842 | 125,200212 | 112,3256 | 125,4187 | 6,673836 | 23,39276 | 24,7213 | 11,28273 |
| 866 | -3,778417882 | 326,9660744 | 0,047727334 | 0,238411546 | 0,8 | 4460588,899 | 0,014064842 | 125,200584 | 112,3228 | 125,4189 | 6,673374 | 23,39182 | 24,72011 | 11,28221 |
| 867 | -3,744237944 | 326,9568459 | 0,04794169 | 0,238411546 | 0,8 | 4461987,898 | 0,014064842 | 125,201001 | 112,32 | 125,4191 | 6,672911 | 23,39088 | 24,71891 | 11,28168 |
| 868 | -3,710051692 | 326,9454197 | 0,04815772 | 0,238411546 | 0,8 | 4463356,929 | 0,014064842 | 125,201389 | 112,317 | 125,4194 | 6,672449 | 23,38994 | 24,71772 | 11,28116 |
| 869 | -3,675833768 | 326,9372151 | 0,048376245 | 0,238411546 | 0,8 | 4464769,754 | 0,014064842 | 125,20182 | 112,314 | 125,4196 | 6,671986 | 23,38901 | 24,71652 | 11,28064 |
| 870 | -3,64161035 | 326,9266464 | 0,048596475 | 0,238411546 | 0,8 | 4466150,335 | 0,014064842 | 125,202219 | 112,3109 | 125,4199 | 6,671523 | 23,38807 | 24,71533 | 11,28011 |
| 871 | -3,607382056 | 326,9136495 | 0,048818422 | 0,238411546 | 0,8 | 4467497,758 | 0,014064842 | 125,202586 | 112,3077 | 125,42 | 6,67106 | 23,38713 | 24,71413 | 11,27959 |
| 872 | -3,573123338 | 326,9036107 | 0,049042918 | 0,238411546 | 0,8 | 4468885,409 | 0,014064842 | 125,202992 | 112,3044 | 125,4203 | 6,670597 | 23,38619 | 24,71293 | 11,27906 |
| 873 | -3,538847442 | 326,8937088 | 0,049269574 | 0,238411546 | 0,8 | 4470274,866 | 0,014064842 | 125,2034 | 112,3011 | 125,4205 | 6,670133 | 23,38525 | 24,71174 | 11,27854 |
| 874 | -3,504554779 | 326,8838444 | 0,049498407 | 0,238411546 | 0,8 | 4471664,776 | 0,014064842 | 125,203809 | 112,2976 | 125,4207 | 6,66967 | 23,38431 | 24,71054 | 11,27801 |
| 875 | -3,470245794 | 326,8739323 | 0,049729436 | 0,238411546 | 0,8 | 4473053,972 | 0,014064842 | 125,204217 | 112,2941 | 125,4209 | 6,669206 | 23,38337 | 24,70934 | 11,27749 |
| 876 | -3,435920981 | 326,8638797 | 0,049962677 | 0,238411546 | 0,8 | 4474441,185 | 0,014064842 | 125,204623 | 112,2905 | 125,4211 | 6,668742 | 23,38243 | 24,70814 | 11,27696 |
| 877 | -3,401593942 | 326,8508775 | 0,050197734 | 0,238411546 | 0,8 | 4475788,063 | 0,014064842 | 125,204991 | 112,2867 | 125,4213 | 6,668279 | 23,38149 | 24,70694 | 11,27644 |
| 878 | -3,367238811 | 326,8402921 | 0,050435457 | 0,238411546 | 0,8 | 4477167,857 | 0,014064842 | 125,20539 | 112,2828 | 125,4215 | 6,667815 | 23,38054 | 24,70574 | 11,27591 |
| 879 | -3,332856299 | 326,8319997 | 0,050675869 | 0,238411546 | 0,8 | 4478578,913 | 0,014064842 | 125,20582 | 112,279 | 125,4217 | 6,667351 | 23,3796 | 24,70454 | 11,27539 |
| 880 | -3,298472569 | 326,8204636 | 0,050918149 | 0,238411546 | 0,8 | 4479945,591 | 0,014064842 | 125,206206 | 112,2749 | 125,4219 | 6,666886 | 23,37866 | 24,70334 | 11,27486 |
| 881 | -3,264062372 | 326,8110457 | 0,051163161 | 0,238411546 | 0,8 | 4481341,156 | 0,014064842 | 125,206621 | 112,2708 | 125,4221 | 6,666422 | 23,37771 | 24,70214 | 11,27433 |
| 882 | -3,229651888 | 326,7981782 | 0,051410073 | 0,238411546 | 0,8 | 4482689,483 | 0,014064842 | 125,20699 | 112,2665 | 125,4222 | 6,665958 | 23,37677 | 24,70094 | 11,27381 |
| 883 | -3,195203094 | 326,7899576 | 0,051660189 | 0,238411546 | 0,8 | 4484101,294 | 0,014064842 | 125,207421 | 112,2622 | 125,4224 | 6,665493 | 23,37582 | 24,69974 | 11,27328 |
| 884 | -3,16075511 | 326,7780836 | 0,051912244 | 0,238411546 | 0,8 | 4485463,06 | 0,014064842 | 125,207803 | 112,2577 | 125,4226 | 6,665029 | 23,37488 | 24,69854 | 11,27275 |
| 885 | -3,126282768 | 326,7679187 | 0,052167119 | 0,238411546 | 0,8 | 4486848,139 | 0,014064842 | 125,208208 | 112,2531 | 125,4227 | 6,664564 | 23,37393 | 24,69733 | 11,27222 |
| 886 | -3,091786049 | 326,7593148 | 0,052424837 | 0,238411546 | 0,8 | 4488254,541 | 0,014064842 | 125,208634 | 112,2485 | 125,4229 | 6,664099 | 23,37299 | 24,69613 | 11,2717 |
| 887 | -3,057291676 | 326,7467618 | 0,052684553 | 0,238411546 | 0,8 | 4489606,79 | 0,014064842 | 125,209008 | 112,2436 | 125,423 | 6,663634 | 23,37204 | 24,69493 | 11,27117 |
| 888 | -3,022774428 | 326,7355725 | 0,052947156 | 0,238411546 | 0,8 | 4490977,637 | 0,014064842 | 125,209399 | 112,2387 | 125,4232 | 6,663169 | 23,37109 | 24,69372 | 11,27064 |
| 889 | -2,988234777 | 326,7256389 | 0,053212674 | 0,238411546 | 0,8 | 4492365,627 | 0,014064842 | 125,209807 | 112,2336 | 125,4233 | 6,662703 | 23,37015 | 24,69252 | 11,27011 |
| 890 | -2,953673372 | 326,7168299 | 0,053481132 | 0,238411546 | 0,8 | 4493768,981 | 0,014064842 | 125,21023 | 112,2285 | 125,4235 | 6,662238 | 23,3692 | 24,69131 | 11,26958 |
| 891 | -2,919103292 | 326,7063211 | 0,053752111 | 0,238411546 | 0,8 | 4495148,963 | 0,014064842 | 125,210631 | 112,2232 | 125,4236 | 6,661772 | 23,36825 | 24,69011 | 11,26905 |
| 892 | -2,884525651 | 326,6939972 | 0,054025633 | 0,238411546 | 0,8 | 4496503,97 | 0,014064842 | 125,211008 | 112,2177 | 125,4237 | 6,661307 | 23,3673 | 24,6889 | 11,26853 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 893 | -2,84992779 | 326,6824537 | 0,054302167 | 0,238411546 | 0,8 | 4497869,599 | 0,014064842 | 125,211395 | 112,2121 | 125,4238 | 6,660841 | 23,36635 | 24,68769 | 11,268 |
| 894 | -2,815297272 | 326,6742526 | 0,05458219 | 0,238411546 | 0,8 | 4499281,058 | 0,014064842 | 125,211826 | 112,2065 | 125,424 | 6,660375 | 23,3654 | 24,68649 | 11,26747 |
| 895 | -2,780673717 | 326,6611655 | 0,054864379 | 0,238411546 | 0,8 | 4500625,354 | 0,014064842 | 125,212192 | 112,2006 | 125,424 | 6,659909 | 23,36445 | 24,68528 | 11,26694 |
| 896 | -2,746006084 | 326,653865 | 0,055150563 | 0,238411546 | 0,8 | 4502049,071 | 0,014064842 | 125,212636 | 112,1947 | 125,4242 | 6,659443 | 23,3635 | 24,68407 | 11,26641 |
| 897 | -2,71134636 | 326,6414103 | 0,05543896 | 0,238411546 | 0,8 | 4503401,908 | 0,014064842 | 125,213011 | 112,1885 | 125,4242 | 6,658977 | 23,36255 | 24,68286 | 11,26588 |
| 898 | -2,676669602 | 326,6290982 | 0,055730503 | 0,238411546 | 0,8 | 4504756,615 | 0,014064842 | 125,213388 | 112,1822 | 125,4243 | 6,658511 | 23,3616 | 24,68166 | 11,26535 |
| 899 | -2,641950712 | 326,6221485 | 0,056026138 | 0,238411546 | 0,8 | 4506185,009 | 0,014064842 | 125,213836 | 112,1759 | 125,4244 | 6,658044 | 23,36065 | 24,68045 | 11,26482 |
| 900 | -2,607241646 | 326,6096536 | 0,056324057 | 0,238411546 | 0,8 | 4507537,062 | 0,014064842 | 125,21421 | 112,1692 | 125,4245 | 6,657578 | 23,3597 | 24,67924 | 11,26429 |
| 901 | -2,572504752 | 326,5995753 | 0,056625674 | 0,238411546 | 0,8 | 4508922,297 | 0,014064842 | 125,214617 | 112,1625 | 125,4245 | 6,657111 | 23,35874 | 24,67803 | 11,26376 |
| 902 | -2,537753306 | 326,5890361 | 0,056930549 | 0,238411546 | 0,8 | 4510301,126 | 0,014064842 | 125,215017 | 112,1556 | 125,4246 | 6,656644 | 23,35779 | 24,67681 | 11,26323 |
| 903 | -2,502988322 | 326,5779267 | 0,057238718 | 0,238411546 | 0,8 | 4511672,028 | 0,014064842 | 125,21541 | 112,1486 | 125,4246 | 6,656177 | 23,35684 | 24,6756 | 11,26269 |
| 904 | -2,46821018 | 326,5660605 | 0,057550207 | 0,238411546 | 0,8 | 4513032,44 | 0,014064842 | 125,215793 | 112,1413 | 125,4247 | 6,65571 | 23,35588 | 24,67439 | 11,26216 |
| 905 | -2,433407 | 326,5560007 | 0,057865519 | 0,238411546 | 0,8 | 4514417,665 | 0,014064842 | 125,2162 | 112,1339 | 125,4247 | 6,655243 | 23,35493 | 24,67318 | 11,26163 |
| 906 | -2,398592296 | 326,5448999 | 0,058184218 | 0,238411546 | 0,8 | 4515788,48 | 0,014064842 | 125,216593 | 112,1263 | 125,4247 | 6,654776 | 23,35397 | 24,67197 | 11,2611 |
| 907 | -2,363753886 | 326,5352493 | 0,058506805 | 0,238411546 | 0,8 | 4517179,23 | 0,014064842 | 125,217006 | 112,1186 | 125,4247 | 6,654308 | 23,35302 | 24,67075 | 11,26057 |
| 908 | -2,328905613 | 326,5242518 | 0,058832845 | 0,238411546 | 0,8 | 4518551,336 | 0,014064842 | 125,2174 | 112,1107 | 125,4247 | 6,653841 | 23,35206 | 24,66954 | 11,26003 |
| 909 | -2,294035275 | 326,5143871 | 0,059162844 | 0,238411546 | 0,8 | 4519939,005 | 0,014064842 | 125,21781 | 112,1026 | 125,4248 | 6,653373 | 23,3511 | 24,66833 | 11,2595 |
| 910 | -2,259156446 | 326,502826 | 0,059496362 | 0,238411546 | 0,8 | 4521303,208 | 0,014064842 | 125,218197 | 112,0942 | 125,4247 | 6,652905 | 23,35015 | 24,66711 | 11,25897 |
| 911 | -2,224257427 | 326,4920585 | 0,059833908 | 0,238411546 | 0,8 | 4522678,286 | 0,014064842 | 125,218595 | 112,0857 | 125,4247 | 6,652437 | 23,34919 | 24,6659 | 11,25844 |
| 912 | -2,189351719 | 326,4792644 | 0,060175039 | 0,238411546 | 0,8 | 4524025,291 | 0,014064842 | 125,218966 | 112,077 | 125,4247 | 6,65197 | 23,34823 | 24,66468 | 11,2579 |
| 913 | -2,154401546 | 326,4722047 | 0,060521254 | 0,238411546 | 0,8 | 4525451,478 | 0,014064842 | 125,219413 | 112,0681 | 125,4247 | 6,651501 | 23,34727 | 24,66347 | 11,25737 |
| 914 | -2,119459284 | 326,4601034 | 0,060870638 | 0,238411546 | 0,8 | 4526807,924 | 0,014064842 | 125,219793 | 112,0589 | 125,4246 | 6,651033 | 23,34631 | 24,66225 | 11,25684 |
| 915 | -2,08448727 | 326,4506943 | 0,061224697 | 0,238411546 | 0,8 | 4528201,535 | 0,014064842 | 125,220209 | 112,0496 | 125,4246 | 6,650565 | 23,34535 | 24,66103 | 11,2563 |
| 916 | -2,049512144 | 326,438531 | 0,061582487 | 0,238411546 | 0,8 | 4529556,982 | 0,014064842 | 125,220588 | 112,04 | 125,4245 | 6,650096 | 23,3444 | 24,65982 | 11,25577 |
| 917 | -2,014509024 | 326,4286686 | 0,061945036 | 0,238411546 | 0,8 | 4530944,201 | 0,014064842 | 125,220998 | 112,0302 | 125,4245 | 6,649628 | 23,34344 | 24,6586 | 11,25523 |
| 918 | -1,979492069 | 326,4183015 | 0,062311893 | 0,238411546 | 0,8 | 4532324,373 | 0,014064842 | 125,221401 | 112,0202 | 125,4244 | 6,649159 | 23,34247 | 24,65738 | 11,2547 |
| 919 | -1,944474506 | 326,4045373 | 0,062682588 | 0,238411546 | 0,8 | 4533657,44 | 0,014064842 | 125,221759 | 112,0099 | 125,4243 | 6,64869 | 23,34151 | 24,65616 | 11,25417 |
| 920 | -1,90943228 | 326,3925041 | 0,063058175 | 0,238411546 | 0,8 | 4535014,395 | 0,014064842 | 125,222141 | 111,9994 | 125,4241 | 6,648221 | 23,34055 | 24,65494 | 11,25363 |
| 921 | -1,874366164 | 326,3819391 | 0,063438699 | 0,238411546 | 0,8 | 4536391,628 | 0,014064842 | 125,222541 | 111,9886 | 125,424 | 6,647752 | 23,33959 | 24,65372 | 11,2531 |
| 922 | -1,839277396 | 326,3726594 | 0,06382421 | 0,238411546 | 0,8 | 4537786,605 | 0,014064842 | 125,222959 | 111,9776 | 125,4239 | 6,647283 | 23,33863 | 24,6525 | 11,25256 |
| 923 | -1,804166935 | 326,3644 | 0,064214759 | 0,238411546 | 0,8 | 4539195,701 | 0,014064842 | 125,22339 | 111,9664 | 125,4238 | 6,646814 | 23,33766 | 24,65128 | 11,25202 |
| 924 | -1,7690613 | 326,3516982 | 0,064609356 | 0,238411546 | 0,8 | 4540543,127 | 0,014064842 | 125,223763 | 111,9548 | 125,4237 | 6,646344 | 23,3367 | 24,65006 | 11,25149 |
| 925 | -1,733936298 | 326,3395669 | 0,065009076 | 0,238411546 | 0,8 | 4541898,387 | 0,014064842 | 125,224143 | 111,943 | 125,4235 | 6,645875 | 23,33574 | 24,64884 | 11,25095 |
| 926 | -1,698792824 | 326,3277603 | 0,065413971 | 0,238411546 | 0,8 | 4543258,086 | 0,014064842 | 125,224527 | 111,9309 | 125,4233 | 6,645405 | 23,33477 | 24,64762 | 11,25042 |
| 927 | -1,663632436 | 326,3160513 | 0,06582409 | 0,238411546 | 0,8 | 4544619,063 | 0,014064842 | 125,224913 | 111,9185 | 125,4232 | 6,644936 | 23,33381 | 24,6464 | 11,24988 |
| 928 | -1,628430974 | 326,309413 | 0,066240545 | 0,238411546 | 0,8 | 4546050,417 | 0,014064842 | 125,225366 | 111,9059 | 125,423 | 6,644465 | 23,33284 | 24,64518 | 11,24934 |
| 929 | -1,59323992 | 326,2970988 | 0,066661272 | 0,238411546 | 0,8 | 4547402,881 | 0,014064842 | 125,225744 | 111,8929 | 125,4228 | 6,643995 | 23,33188 | 24,64395 | 11,24881 |
| 930 | -1,558035518 | 326,2841026 | 0,067087375 | 0,238411546 | 0,8 | 4548745,78 | 0,014064842 | 125,226112 | 111,8795 | 125,4226 | 6,643525 | 23,33091 | 24,64273 | 11,24827 |
| 931 | -1,522793985 | 326,2753986 | 0,067519989 | 0,238411546 | 0,8 | 4550148,289 | 0,014064842 | 125,226538 | 111,8659 | 125,4224 | 6,643055 | 23,32995 | 24,6415 | 11,24773 |
| 932 | -1,487566484 | 326,2602108 | 0,06795701 | 0,238411546 | 0,8 | 4551460,582 | 0,014064842 | 125,226878 | 111,8519 | 125,4221 | 6,642585 | 23,32898 | 24,64028 | 11,2472 |
| 933 | -1,45227973 | 326,2539198 | 0,068401735 | 0,238411546 | 0,8 | 4552896,561 | 0,014064842 | 125,227336 | 111,8377 | 125,4219 | 6,642114 | 23,32801 | 24,63905 | 11,24666 |
| 934 | -1,41700991 | 326,2406212 | 0,068850979 | 0,238411546 | 0,8 | 4554234,994 | 0,014064842 | 125,2277 | 111,823 | 125,4216 | 6,641644 | 23,32704 | 24,63783 | 11,24612 |
| 935 | -1,38170847 | 326,2303987 | 0,069306966 | 0,238411546 | 0,8 | 4555616,17 | 0,014064842 | 125,228106 | 111,808 | 125,4213 | 6,641173 | 23,32607 | 24,6366 | 11,24558 |
| 936 | -1,346401891 | 326,2177852 | 0,069768671 | 0,238411546 | 0,8 | 4556963,999 | 0,014064842 | 125,22848 | 111,7927 | 125,421 | 6,640702 | 23,32511 | 24,63538 | 11,24504 |
| 937 | -1,311066689 | 326,2076179 | 0,070237249 | 0,238411546 | 0,8 | 4558345,835 | 0,014064842 | 125,228886 | 111,7769 | 125,4207 | 6,640231 | 23,32414 | 24,63415 | 11,24451 |
| 938 | -1,275729229 | 326,1943936 | 0,070711657 | 0,238411546 | 0,8 | 4559685,022 | 0,014064842 | 125,229252 | 111,7608 | 125,4204 | 6,63976 | 23,32317 | 24,63292 | 11,24397 |
| 939 | -1,24036646 | 326,1829903 | 0,071193077 | 0,238411546 | 0,8 | 4561049,524 | 0,014064842 | 125,229642 | 111,7443 | 125,4201 | 6,639289 | 23,3222 | 24,6317 | 11,24343 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 940 | -1,204980104 | 326,1730422 | 0,071681574 | 0,238411546 | 0,8 | 4562434,261 | 0,014064842 | 125,230052 | 111,7273 | 125,4197 | 6,638818 | 23,32123 | 24,63047 | 11,24289 |
| 941 | -1,169596239 | 326,1590325 | 0,072176084 | 0,238411546 | 0,8 | 4563762,286 | 0,014064842 | 125,230407 | 111,71 | 125,4193 | 6,638347 | 23,32026 | 24,62924 | 11,24235 |
| 942 | -1,134167381 | 326,1508947 | 0,072678942 | 0,238411546 | 0,8 | 4565172,183 | 0,014064842 | 125,230841 | 111,6922 | 125,419 | 6,637875 | 23,31928 | 24,62801 | 11,24181 |
| 943 | -1,098744391 | 326,1379682 | 0,073187947 | 0,238411546 | 0,8 | 4566515,209 | 0,014064842 | 125,231211 | 111,674 | 125,4186 | 6,637403 | 23,31831 | 24,62678 | 11,24127 |
| 944 | -1,063304917 | 326,1250686 | 0,07370431 | 0,238411546 | 0,8 | 4567858,53 | 0,014064842 | 125,231581 | 111,6553 | 125,4181 | 6,636932 | 23,31734 | 24,62555 | 11,24073 |
| 945 | -1,027825823 | 326,1168524 | 0,074229255 | 0,238411546 | 0,8 | 4569267,222 | 0,014064842 | 125,232014 | 111,6361 | 125,4177 | 6,63646 | 23,31637 | 24,62432 | 11,24019 |
| 946 | -0,992358398 | 326,1027335 | 0,074760549 | 0,238411546 | 0,8 | 4570593,398 | 0,014064842 | 125,232368 | 111,6165 | 125,4173 | 6,635988 | 23,31539 | 24,62309 | 11,23965 |
| 947 | -0,956855539 | 326,0924863 | 0,075300582 | 0,238411546 | 0,8 | 4571973,618 | 0,014064842 | 125,232774 | 111,5963 | 125,4168 | 6,635516 | 23,31442 | 24,62186 | 11,23911 |
| 948 | -0,921343685 | 326,0805941 | 0,075848274 | 0,238411546 | 0,8 | 4573330,802 | 0,014064842 | 125,233158 | 111,5757 | 125,4163 | 6,635043 | 23,31345 | 24,62063 | 11,23857 |
| 949 | -0,885824821 | 326,0666315 | 0,0764037 | 0,238411546 | 0,8 | 4574658,978 | 0,014064842 | 125,233515 | 111,5544 | 125,4158 | 6,634571 | 23,31247 | 24,61939 | 11,23803 |
| 950 | -0,850276864 | 326,0552153 | 0,076968115 | 0,238411546 | 0,8 | 4576022,707 | 0,014064842 | 125,233905 | 111,5327 | 125,4153 | 6,634099 | 23,3115 | 24,61816 | 11,23749 |
| 951 | -0,81470206 | 326,045865 | 0,077541616 | 0,238411546 | 0,8 | 4577415,312 | 0,014064842 | 125,234323 | 111,5104 | 125,4148 | 6,633626 | 23,31052 | 24,61693 | 11,23695 |
| 952 | -0,779127159 | 326,0330606 | 0,078123093 | 0,238411546 | 0,8 | 4578759,526 | 0,014064842 | 125,234695 | 111,4875 | 125,4142 | 6,633153 | 23,30955 | 24,61569 | 11,2364 |
| 953 | -0,743529868 | 326,0213595 | 0,078713827 | 0,238411546 | 0,8 | 4580119,132 | 0,014064842 | 125,235081 | 111,464 | 125,4136 | 6,632681 | 23,30857 | 24,61446 | 11,23586 |
| 954 | -0,707913037 | 326,0102686 | 0,079313919 | 0,238411546 | 0,8 | 4581487,254 | 0,014064842 | 125,235476 | 111,4399 | 125,413 | 6,632208 | 23,30759 | 24,61323 | 11,23532 |
| 955 | -0,672279152 | 325,9992017 | 0,079923443 | 0,238411546 | 0,8 | 4582855,671 | 0,014064842 | 125,235871 | 111,4152 | 125,4124 | 6,631735 | 23,30661 | 24,61199 | 11,23478 |
| 956 | -0,636630299 | 325,987651 | 0,080542505 | 0,238411546 | 0,8 | 4584217,276 | 0,014064842 | 125,23626 | 111,3898 | 125,4118 | 6,631261 | 23,30564 | 24,61076 | 11,23424 |
| 957 | -0,600969863 | 325,975055 | 0,081171192 | 0,238411546 | 0,8 | 4585564,191 | 0,014064842 | 125,236635 | 111,3637 | 125,4111 | 6,630788 | 23,30466 | 24,60952 | 11,23369 |
| 958 | -0,56530008 | 325,9608714 | 0,081809595 | 0,238411546 | 0,8 | 4586888,769 | 0,014064842 | 125,236989 | 111,3369 | 125,4104 | 6,630315 | 23,30368 | 24,60828 | 11,23315 |
| 959 | -0,529600145 | 325,9494073 | 0,082459047 | 0,238411546 | 0,8 | 4588251,471 | 0,014064842 | 125,237379 | 111,3093 | 125,4097 | 6,629841 | 23,3027 | 24,60705 | 11,23261 |
| 960 | -0,49387302 | 325,9401634 | 0,083119683 | 0,238411546 | 0,8 | 4589645,303 | 0,014064842 | 125,237798 | 111,2811 | 125,409 | 6,629368 | 23,30172 | 24,60581 | 11,23206 |
| 961 | -0,458169664 | 325,9225154 | 0,083789065 | 0,238411546 | 0,8 | 4590921,098 | 0,014064842 | 125,238106 | 111,252 | 125,4082 | 6,628894 | 23,30074 | 24,60457 | 11,23152 |
| 962 | -0,422397802 | 325,9155615 | 0,084472343 | 0,238411546 | 0,8 | 4592347,052 | 0,014064842 | 125,238556 | 111,2222 | 125,4075 | 6,62842 | 23,29976 | 24,60333 | 11,23098 |
| 963 | -0,386655645 | 325,8989271 | 0,085164562 | 0,238411546 | 0,8 | 4593636,97 | 0,014064842 | 125,238878 | 111,1914 | 125,4066 | 6,627946 | 23,29878 | 24,6021 | 11,23043 |
| 964 | -0,35087571 | 325,8866917 | 0,085869648 | 0,238411546 | 0,8 | 4594988,665 | 0,014064842 | 125,239258 | 111,1599 | 125,4058 | 6,627472 | 23,2978 | 24,60086 | 11,22989 |
| 965 | -0,315085143 | 325,8731964 | 0,086586431 | 0,238411546 | 0,8 | 4596322,614 | 0,014064842 | 125,239621 | 111,1274 | 125,4049 | 6,626998 | 23,29682 | 24,59962 | 11,22935 |
| 966 | -0,279264307 | 325,8625717 | 0,087316312 | 0,238411546 | 0,8 | 4597696,898 | 0,014064842 | 125,240023 | 111,094 | 125,4041 | 6,626524 | 23,29584 | 24,59838 | 11,2288 |
| 967 | -0,243439898 | 325,8491352 | 0,088058114 | 0,238411546 | 0,8 | 4599031,614 | 0,014064842 | 125,240387 | 111,0597 | 125,4031 | 6,626049 | 23,29485 | 24,59714 | 11,22826 |
| 968 | -0,207592678 | 325,8369728 | 0,08881326 | 0,238411546 | 0,8 | 4600384,245 | 0,014064842 | 125,240768 | 111,0243 | 125,4022 | 6,625575 | 23,29387 | 24,5959 | 11,22771 |
| 969 | -0,171726905 | 325,8251649 | 0,089581847 | 0,238411546 | 0,8 | 4601741,845 | 0,014064842 | 125,241154 | 110,988 | 125,4013 | 6,6251 | 23,29289 | 24,59466 | 11,22717 |
| 970 | -0,13584673 | 325,8129055 | 0,090364024 | 0,238411546 | 0,8 | 4603093,097 | 0,014064842 | 125,241534 | 110,9505 | 125,4003 | 6,624625 | 23,2919 | 24,59341 | 11,22662 |
| 971 | -0,099957073 | 325,7993038 | 0,091159888 | 0,238411546 | 0,8 | 4604425,395 | 0,014064842 | 125,241896 | 110,9119 | 125,3993 | 6,624151 | 23,29092 | 24,59217 | 11,22608 |
| 972 | -0,064038893 | 325,7881768 | 0,091970906 | 0,238411546 | 0,8 | 4605792,569 | 0,014064842 | 125,242292 | 110,8722 | 125,3982 | 6,623675 | 23,28993 | 24,59093 | 11,22553 |
| 973 | -0,028142802 | 325,7689813 | 0,0927945 | 0,238411546 | 0,8 | 4607045,978 | 0,014064842 | 125,24258 | 110,8313 | 125,3971 | 6,623201 | 23,28895 | 24,58969 | 11,22499 |
| 974 | 0,007817923 | 325,7597898 | 0,0936362 | 0,238411546 | 0,8 | 4608440,44 | 0,014064842 | 125,243001 | 110,7891 | 125,396 | 6,622725 | 23,28796 | 24,58844 | 11,22444 |
| 975 | 0,043768794 | 325,7453178 | 0,094492085 | 0,238411546 | 0,8 | 4609760,418 | 0,014064842 | 125,243352 | 110,7456 | 125,3949 | 6,62225 | 23,28698 | 24,5872 | 11,22389 |
| 976 | 0,07972775 | 325,7290948 | 0,095363602 | 0,238411546 | 0,8 | 4611055,68 | 0,014064842 | 125,243679 | 110,7008 | 125,3936 | 6,621775 | 23,28599 | 24,58596 | 11,22335 |
| 977 | 0,115711921 | 325,7148328 | 0,096252277 | 0,238411546 | 0,8 | 4612378,592 | 0,014064842 | 125,244033 | 110,6545 | 125,3924 | 6,621299 | 23,28501 | 24,58471 | 11,2228 |
| 978 | 0,151737718 | 325,7058735 | 0,097159609 | 0,238411546 | 0,8 | 4613776,401 | 0,014064842 | 125,244458 | 110,6068 | 125,3912 | 6,620824 | 23,28402 | 24,58347 | 11,22225 |
| 979 | 0,187753926 | 325,6916377 | 0,098082975 | 0,238411546 | 0,8 | 4615099,725 | 0,014064842 | 125,244812 | 110,5576 | 125,39 | 6,620348 | 23,28303 | 24,58222 | 11,22171 |
| 980 | 0,223799204 | 325,6801608 | 0,099025279 | 0,238411546 | 0,8 | 4616462,059 | 0,014064842 | 125,245203 | 110,5067 | 125,3887 | 6,619872 | 23,28205 | 24,58098 | 11,22116 |
| 981 | 0,259821464 | 325,6607963 | 0,099983811 | 0,238411546 | 0,8 | 4617712,892 | 0,014064842 | 125,245489 | 110,4542 | 125,3872 | 6,619397 | 23,28106 | 24,57973 | 11,22061 |
| 982 | 0,295903576 | 325,6506523 | 0,100964367 | 0,238411546 | 0,8 | 4619094,116 | 0,014064842 | 125,245898 | 110,3999 | 125,3859 | 6,61892 | 23,28007 | 24,57849 | 11,22007 |
| 983 | 0,331971379 | 325,6343723 | 0,101962827 | 0,238411546 | 0,8 | 4620388,608 | 0,014064842 | 125,246226 | 110,3438 | 125,3845 | 6,618444 | 23,27908 | 24,57724 | 11,21952 |
| 984 | 0,368060741 | 325,6195654 | 0,102982119 | 0,238411546 | 0,8 | 4621703,942 | 0,014064842 | 125,246573 | 110,2859 | 125,383 | 6,617968 | 23,27809 | 24,57599 | 11,21897 |
| 985 | 0,404163971 | 325,6046024 | 0,104022384 | 0,238411546 | 0,8 | 4623017,102 | 0,014064842 | 125,246918 | 110,2259 | 125,3815 | 6,617492 | 23,2771 | 24,57475 | 11,21842 |
| 986 | 0,440272698 | 325,5877352 | 0,105083719 | 0,238411546 | 0,8 | 4624303,333 | 0,014064842 | 125,247238 | 110,1638 | 125,3799 | 6,617016 | 23,27611 | 24,5735 | 11,21788 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 987 | 0,476399243 | 325,5717723 | 0,106167704 | 0,238411546 | 0,8 | 4625602,407 | 0,014064842 | 125,24757 | 110,0995 | 125,3783 | 6,61654 | 23,27513 | 24,57225 | 11,21733 |
| 988 | 0,512577376 | 325,5636176 | 0,107277334 | 0,238411546 | 0,8 | 4627012,178 | 0,014064842 | 125,248006 | 110,033 | 125,3768 | 6,616063 | 23,27413 | 24,571 | 11,21678 |
| 989 | 0,548711374 | 325,5433941 | 0,108406857 | 0,238411546 | 0,8 | 4628251,007 | 0,014064842 | 125,248282 | 109,964 | 125,375 | 6,615587 | 23,27315 | 24,56976 | 11,21623 |
| 990 | 0,584876098 | 325,5270368 | 0,109562248 | 0,238411546 | 0,8 | 4629544,677 | 0,014064842 | 125,248609 | 109,8925 | 125,3733 | 6,61511 | 23,27216 | 24,56851 | 11,21568 |
| 991 | 0,621060546 | 325,5120527 | 0,110743538 | 0,238411546 | 0,8 | 4630857,902 | 0,014064842 | 125,248954 | 109,8183 | 125,3716 | 6,614634 | 23,27116 | 24,56726 | 11,21514 |
| 992 | 0,657252716 | 325,4962875 | 0,111950845 | 0,238411546 | 0,8 | 4632160,136 | 0,014064842 | 125,24929 | 109,7414 | 125,3698 | 6,614157 | 23,27017 | 24,56601 | 11,21459 |
| 993 | 0,693482072 | 325,4858353 | 0,113187164 | 0,238411546 | 0,8 | 4633537,878 | 0,014064842 | 125,249696 | 109,6614 | 125,368 | 6,61368 | 23,26918 | 24,56476 | 11,21404 |
| 994 | 0,72969414 | 325,4694323 | 0,114449561 | 0,238411546 | 0,8 | 4634831,297 | 0,014064842 | 125,250023 | 109,5784 | 125,3661 | 6,613203 | 23,26819 | 24,56351 | 11,21349 |
| 995 | 0,765916046 | 325,4530088 | 0,115741029 | 0,238411546 | 0,8 | 4636124,54 | 0,014064842 | 125,25035 | 109,4921 | 125,3642 | 6,612727 | 23,2672 | 24,56226 | 11,21294 |
| 996 | 0,802133115 | 325,4336829 | 0,117061555 | 0,238411546 | 0,8 | 4637376,671 | 0,014064842 | 125,250638 | 109,4023 | 125,3622 | 6,61225 | 23,26621 | 24,56102 | 11,21239 |
| 997 | 0,838370665 | 325,4167879 | 0,118414104 | 0,238411546 | 0,8 | 4638663,459 | 0,014064842 | 125,250959 | 109,3089 | 125,3601 | 6,611773 | 23,26522 | 24,55977 | 11,21184 |
| 998 | 0,874612251 | 325,3989949 | 0,11979863 | 0,238411546 | 0,8 | 4639937,653 | 0,014064842 | 125,251269 | 109,2115 | 125,358 | 6,611296 | 23,26423 | 24,55852 | 11,2113 |
| 999 | 0,910839612 | 325,3770072 | 0,121215045 | 0,238411546 | 0,8 | 4641152,336 | 0,014064842 | 125,251522 | 109,1101 | 125,3559 | 6,61082 | 23,26324 | 24,55727 | 11,21075 |
| 1000 | 0,947113357 | 325,3634305 | 0,12266928 | 0,238411546 | 0,8 | 4642486,828 | 0,014064842 | 125,251888 | 109,0042 | 125,3537 | 6,610343 | 23,26225 | 24,55602 | 11,2102 |
| 1001 | 0,983373633 | 325,346058 | 0,124158114 | 0,238411546 | 0,8 | 4643767,553 | 0,014064842 | 125,252204 | 108,8937 | 125,3515 | 6,609866 | 23,26126 | 24,55477 | 11,20965 |
| 1002 | 1,019637758 | 325,3287625 | 0,125684351 | 0,238411546 | 0,8 | 4645049,612 | 0,014064842 | 125,25252 | 108,7783 | 125,3492 | 6,60939 | 23,26027 | 24,55352 | 11,2091 |
| 1003 | 1,055882478 | 325,30714 | 0,127247676 | 0,238411546 | 0,8 | 4646270,278 | 0,014064842 | 125,25278 | 108,6576 | 125,3469 | 6,608913 | 23,25928 | 24,55228 | 11,20856 |
| 1004 | 1,092121983 | 325,2843707 | 0,128850818 | 0,238411546 | 0,8 | 4647474,847 | 0,014064842 | 125,253024 | 108,5313 | 125,3444 | 6,608437 | 23,25829 | 24,55103 | 11,20801 |
| 1005 | 1,128403571 | 325,2708426 | 0,130499482 | 0,238411546 | 0,8 | 4648811,361 | 0,014064842 | 125,253392 | 108,3989 | 125,3421 | 6,607961 | 23,2573 | 24,54978 | 11,20746 |
| 1006 | 1,164624181 | 325,2453189 | 0,13218689 | 0,238411546 | 0,8 | 4649977,231 | 0,014064842 | 125,2536 | 108,2602 | 125,3395 | 6,607485 | 23,25631 | 24,54854 | 11,20691 |
| 1007 | 1,200863062 | 325,2249371 | 0,133921623 | 0,238411546 | 0,8 | 4651216,692 | 0,014064842 | 125,253877 | 108,1145 | 125,337 | 6,607009 | 23,25532 | 24,54729 | 11,20637 |
| 1008 | 1,237122873 | 325,2106521 | 0,135706067 | 0,238411546 | 0,8 | 4652543,517 | 0,014064842 | 125,254236 | 107,9613 | 125,3345 | 6,606533 | 23,25434 | 24,54605 | 11,20582 |
| 1009 | 1,273295412 | 325,18036 | 0,137532949 | 0,238411546 | 0,8 | 4653642,375 | 0,014064842 | 125,254382 | 107,8003 | 125,3317 | 6,606058 | 23,25335 | 24,54481 | 11,20527 |
| 1010 | 1,309518114 | 325,1635962 | 0,139416695 | 0,238411546 | 0,8 | 4654934,709 | 0,014064842 | 125,254708 | 107,6304 | 125,3291 | 6,605582 | 23,25237 | 24,54356 | 11,20473 |
| 1011 | 1,345710995 | 325,1444164 | 0,141352803 | 0,238411546 | 0,8 | 4656193,053 | 0,014064842 | 125,255003 | 107,4512 | 125,3264 | 6,605107 | 23,25138 | 24,54232 | 11,20418 |
| 1012 | 1,381861802 | 325,1209317 | 0,143342733 | 0,238411546 | 0,8 | 4657390,448 | 0,014064842 | 125,255241 | 107,262 | 125,3236 | 6,604633 | 23,2504 | 24,54108 | 11,20364 |
| 1013 | 1,417954612 | 325,0905168 | 0,145387739 | 0,238411546 | 0,8 | 4658489,404 | 0,014064842 | 125,255387 | 107,0619 | 125,3207 | 6,604159 | 23,24942 | 24,53985 | 11,2031 |
| 1014 | 1,454062812 | 325,0699608 | 0,147497803 | 0,238411546 | 0,8 | 4659729,808 | 0,014064842 | 125,255664 | 106,8495 | 125,3179 | 6,603686 | 23,24844 | 24,53861 | 11,20255 |
| 1015 | 1,490123446 | 325,0470205 | 0,149670303 | 0,238411546 | 0,8 | 4660936,828 | 0,014064842 | 125,255911 | 106,624 | 125,315 | 6,603213 | 23,24747 | 24,53737 | 11,20201 |
| 1016 | 1,526131064 | 325,021741 | 0,151908159 | 0,238411546 | 0,8 | 4662111,156 | 0,014064842 | 125,256128 | 106,3841 | 125,3121 | 6,60274 | 23,24649 | 24,53614 | 11,20147 |
| 1017 | 1,562072256 | 324,9927156 | 0,154213786 | 0,238411546 | 0,8 | 4663232,71 | 0,014064842 | 125,256295 | 106,1285 | 125,3091 | 6,602269 | 23,24552 | 24,53491 | 11,20093 |
| 1018 | 1,597981676 | 324,9690119 | 0,156594753 | 0,238411546 | 0,8 | 4664431,297 | 0,014064842 | 125,256533 | 105,8551 | 125,3061 | 6,601798 | 23,24455 | 24,53369 | 11,20039 |
| 1019 | 1,63376635 | 324,9326374 | 0,159045935 | 0,238411546 | 0,8 | 4665449,467 | 0,014064842 | 125,256604 | 105,5627 | 125,303 | 6,601328 | 23,24359 | 24,53247 | 11,19986 |
| 1020 | 1,669546552 | 324,911577 | 0,161584616 | 0,238411546 | 0,8 | 4666687,938 | 0,014064842 | 125,25688 | 105,2479 | 125,3 | 6,600859 | 23,24263 | 24,53125 | 11,19932 |
| 1021 | 1,705201493 | 324,8819412 | 0,164203286 | 0,238411546 | 0,8 | 4667804,846 | 0,014064842 | 125,257043 | 104,9091 | 125,2969 | 6,600391 | 23,24167 | 24,53004 | 11,19879 |
| 1022 | 1,740756931 | 324,852239 | 0,166910291 | 0,238411546 | 0,8 | 4668922,095 | 0,014064842 | 125,257206 | 104,5428 | 125,2939 | 6,599925 | 23,24072 | 24,52883 | 11,19826 |
| 1023 | 1,776163811 | 324,8148761 | 0,169706285 | 0,238411546 | 0,8 | 4669930,959 | 0,014064842 | 125,257268 | 104,1459 | 125,2908 | 6,59946 | 23,23977 | 24,52763 | 11,19773 |
| 1024 | 1,811445212 | 324,7781595 | 0,172600448 | 0,238411546 | 0,8 | 4670950,668 | 0,014064842 | 125,25734 | 103,7133 | 125,2877 | 6,598997 | 23,23883 | 24,52643 | 11,19721 |
| 1025 | 1,846585863 | 324,7430686 | 0,175598502 | 0,238411546 | 0,8 | 4671995,422 | 0,014064842 | 125,257435 | 103,2398 | 125,2846 | 6,598536 | 23,2379 | 24,52524 | 11,19669 |
| 1026 | 1,881573161 | 324,7113801 | 0,178707182 | 0,238411546 | 0,8 | 4673090,983 | 0,014064842 | 125,257578 | 102,7185 | 125,2817 | 6,598077 | 23,23697 | 24,52406 | 11,19617 |
| 1027 | 1,916342167 | 324,6740831 | 0,181927681 | 0,238411546 | 0,8 | 4674108,283 | 0,014064842 | 125,257647 | 102,1418 | 125,2788 | 6,597621 | 23,23606 | 24,52289 | 11,19566 |
| 1028 | 1,95088774 | 324,6362577 | 0,185269237 | 0,238411546 | 0,8 | 4675120,456 | 0,014064842 | 125,257712 | 101,4991 | 125,276 | 6,597167 | 23,23515 | 24,52173 | 11,19515 |
| 1029 | 1,985190905 | 324,600824 | 0,188740611 | 0,238411546 | 0,8 | 4676169,768 | 0,014064842 | 125,257811 | 100,7764 | 125,2733 | 6,596716 | 23,23425 | 24,52058 | 11,19465 |
| 1030 | 2,019126849 | 324,5478228 | 0,192337751 | 0,238411546 | 0,8 | 4676969,743 | 0,014064842 | 125,257679 | 99,95818 | 125,2705 | 6,59627 | 23,23337 | 24,51945 | 11,19415 |
| 1031 | 2,052779992 | 324,5061245 | 0,196085691 | 0,238411546 | 0,8 | 4677935,627 | 0,014064842 | 125,2577 | 99,01699 | 125,268 | 6,595827 | 23,23251 | 24,51833 | 11,19366 |
| 1032 | 2,086033164 | 324,4604393 | 0,199984312 | 0,238411546 | 0,8 | 4678848,114 | 0,014064842 | 125,257672 | 97,92045 | 125,2657 | 6,595389 | 23,23166 | 24,51723 | 11,19318 |
| 1033 | 2,118802914 | 324,4046307 | 0,204039335 | 0,238411546 | 0,8 | 4679619,394 | 0,014064842 | 125,257513 | 96,61963 | 125,2635 | 6,594957 | 23,23083 | 24,51615 | 11,19271 |

Roncada Consultoria

**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 1034 | 2,151094066 | 324,3561368 | 0,20827198 | 0,238411546 | 0,8 | 4680500,924 | 0,014064842 | 125,257455 | 95,03302 | 125,2616 | 6,594531 | 23,23002 | 24,51509 | 11,19225 |
| 1034,4 | 2,250526221 | 323,6980666 | 0,209569573 | 0,238396883 | 0,798431396 | 4670902,555 | 0,014064842 | 125,231142 | 94,471 | 125,2348 | 6,594034 | 23,21457 | 24,50283 | 11,18622 |
| 1035 | 2,788027693 | 319,8567471 | 0,209507465 | 0,238304138 | 0,789001465 | 4612059,861 | 0,014064842 | 125,072369 | 94,39876 | 125,0761 | 6,591894 | 23,12242 | 24,43058 | 11,15058 |
| 1036 | 3,655154651 | 313,6058496 | 0,209395647 | 0,238137007 | 0,773620605 | 4516557,617 | 0,014064842 | 124,80966 | 94,27939 | 124,8135 | 6,588728 | 22,96932 | 24,31123 | 11,09165 |
| 1037 | 4,486580483 | 307,5072025 | 0,209273219 | 0,23795414 | 0,758666992 | 4423719,632 | 0,014064842 | 124,54911 | 94,16075 | 124,5531 | 6,586043 | 22,81696 | 24,19328 | 11,03334 |
| 1038 | 5,291305799 | 301,536543 | 0,209138632 | 0,237753391 | 0,743988037 | 4333108,317 | 0,014064842 | 124,288734 | 94,0424 | 124,2928 | 6,583798 | 22,66376 | 24,07552 | 10,97506 |
| 1039 | 6,069714649 | 295,6770202 | 0,208991528 | 0,237534046 | 0,72958374 | 4244463,844 | 0,014064842 | 124,02838 | 93,92395 | 124,0326 | 6,581979 | 22,50968 | 23,95792 | 10,9168 |
| 1040 | 6,822205619 | 289,9181684 | 0,208831549 | 0,237295628 | 0,715454102 | 4157617,922 | 0,014064842 | 123,767978 | 93,80525 | 123,7724 | 6,580578 | 22,35468 | 23,84045 | 10,85855 |
| 1041 | 7,552350394 | 284,2536884 | 0,208657384 | 0,237036347 | 0,701538086 | 4072439,301 | 0,014064842 | 123,506733 | 93,68604 | 123,5113 | 6,579578 | 22,19801 | 23,72256 | 10,80004 |
| 1042 | 8,261984732 | 278,679059 | 0,20846796 | 0,236754656 | 0,687805176 | 3988837,097 | 0,014064842 | 123,244214 | 93,56627 | 123,2489 | 6,578972 | 22,03923 | 23,60395 | 10,74111 |
| 1043 | 8,948252897 | 273,1906868 | 0,208263516 | 0,236450672 | 0,674316406 | 3906767,645 | 0,014064842 | 122,98119 | 93,44583 | 122,986 | 6,578757 | 21,87895 | 23,48509 | 10,68199 |
| 1044 | 9,613033812 | 267,7863299 | 0,20804286 | 0,236123085 | 0,66104126 | 3826173,062 | 0,014064842 | 122,71727 | 93,32467 | 122,7223 | 6,578923 | 21,71673 | 23,36568 | 10,62256 |
| 1045 | 10,25812144 | 262,4644427 | 0,207804918 | 0,235770226 | 0,647949219 | 3747007,516 | 0,014064842 | 122,452045 | 93,20262 | 122,4572 | 6,579465 | 21,55209 | 23,24538 | 10,56262 |
| 1046 | 10,88375385 | 257,223256 | 0,207548738 | 0,235390663 | 0,635040283 | 3669233,469 | 0,014064842 | 122,185501 | 93,07954 | 122,1908 | 6,580379 | 21,38491 | 23,12414 | 10,50217 |
| 1047 | 11,48874971 | 252,0616689 | 0,207274199 | 0,234984517 | 0,622344971 | 3592832,348 | 0,014064842 | 121,918072 | 92,95561 | 121,9236 | 6,581656 | 21,21548 | 23,0022 | 10,44132 |
| 1048 | 12,07485038 | 246,9784368 | 0,206979871 | 0,234549642 | 0,609832764 | 3517765,144 | 0,014064842 | 121,649333 | 92,8306 | 121,655 | 6,583293 | 21,04328 | 22,87921 | 10,37991 |
| 1049 | 12,64093269 | 241,9727306 | 0,206665635 | 0,234086037 | 0,59753418 | 3444017,356 | 0,014064842 | 121,379742 | 92,70444 | 121,3856 | 6,585279 | 20,86864 | 22,75543 | 10,31805 |
| 1050 | 13,19006667 | 237,0427898 | 0,206328988 | 0,233590126 | 0,585388184 | 3371536,223 | 0,014064842 | 121,108389 | 92,57698 | 121,1145 | 6,587618 | 20,69056 | 22,63019 | 10,25542 |
| 1051 | 13,72112164 | 232,188104 | 0,20596993 | 0,233062029 | 0,573425293 | 3300312,912 | 0,014064842 | 120,835731 | 92,44813 | 120,842 | 6,5903 | 20,50933 | 22,50374 | 10,19214 |
| 1052 | 14,23306995 | 227,4081637 | 0,20558846 | 0,232501984 | 0,561676025 | 3230337,676 | 0,014064842 | 120,562263 | 92,31805 | 120,5688 | 6,59331 | 20,32532 | 22,37636 | 10,12836 |
| 1053 | 14,72884565 | 222,7008413 | 0,205181599 | 0,231905699 | 0,550079346 | 3161555,745 | 0,014064842 | 120,287018 | 92,18628 | 120,2937 | 6,596658 | 20,13745 | 22,24735 | 10,06373 |
| 1054 | 15,20741255 | 218,0658553 | 0,204749465 | 0,231273651 | 0,538665771 | 3093961,66 | 0,014064842 | 120,010489 | 92,05302 | 120,0174 | 6,600329 | 19,94604 | 22,11698 | 9,998377 |
| 1055 | 15,670304 | 213,5014103 | 0,204289794 | 0,230602741 | 0,527404785 | 3027514,698 | 0,014064842 | 119,732158 | 91,91787 | 119,7393 | 6,604328 | 19,75044 | 21,98484 | 9,932109 |
| 1056 | 16,11532805 | 209,0083545 | 0,203804135 | 0,229895353 | 0,516357422 | 2962231,686 | 0,014064842 | 119,453086 | 91,78122 | 119,4605 | 6,608625 | 19,55158 | 21,85161 | 9,865263 |
| 1057 | 16,54524017 | 204,5839031 | 0,203288794 | 0,2291466 | 0,505462646 | 2898052,346 | 0,014064842 | 119,172216 | 91,6426 | 119,1799 | 6,613235 | 19,34822 | 21,71651 | 9,797451 |
| 1058 | 16,96027688 | 200,2270274 | 0,202742577 | 0,228354812 | 0,494720459 | 2834955,136 | 0,014064842 | 118,889529 | 91,50181 | 118,8974 | 6,618155 | 19,14018 | 21,57948 | 9,728642 |
| 1059 | 17,36067847 | 195,9366384 | 0,202164173 | 0,227518559 | 0,484130859 | 2772917,925 | 0,014064842 | 118,605003 | 91,35869 | 118,6132 | 6,623376 | 18,92726 | 21,44044 | 9,658803 |
| 1060 | 17,74447287 | 191,7145669 | 0,201556087 | 0,226641655 | 0,473754883 | 2711970,485 | 0,014064842 | 118,31982 | 91,21393 | 118,3283 | 6,62886 | 18,71055 | 21,30017 | 9,588324 |
| 1061 | 18,1153095 | 187,5558614 | 0,20091176 | 0,22571516 | 0,463500977 | 2652020,332 | 0,014064842 | 118,032209 | 91,06631 | 118,0409 | 6,634647 | 18,48797 | 21,15738 | 9,516563 |
| 1062 | 18,47230971 | 183,4609412 | 0,200231791 | 0,224740267 | 0,453399658 | 2593072,87 | 0,014064842 | 117,742739 | 90,91618 | 117,7517 | 6,640713 | 18,25995 | 21,01241 | 9,443694 |
| 1063 | 18,81468851 | 179,4304623 | 0,199517012 | 0,223718643 | 0,443481445 | 2535136,164 | 0,014064842 | 117,452042 | 90,76375 | 117,4613 | 6,647031 | 18,02699 | 20,86568 | 9,369922 |
| 1064 | 19,14580904 | 175,4584345 | 0,198759437 | 0,222639203 | 0,433654785 | 2478106,619 | 0,014064842 | 117,158165 | 90,60762 | 117,1678 | 6,653651 | 17,78669 | 20,71574 | 9,294527 |
| 1065 | 19,46184332 | 171,5510655 | 0,197967172 | 0,221514225 | 0,424041748 | 2422084,219 | 0,014064842 | 116,86372 | 90,44953 | 116,8736 | 6,660481 | 17,54181 | 20,56439 | 9,218425 |
| 1066 | 19,76608396 | 167,7020234 | 0,197131753 | 0,220332146 | 0,414550781 | 2366961,656 | 0,014064842 | 116,566705 | 90,28792 | 116,5769 | 6,667574 | 17,28984 | 20,41019 | 9,140876 |
| 1067 | 20,05778601 | 163,9122632 | 0,196254253 | 0,21909523 | 0,405212402 | 2312751,864 | 0,014064842 | 116,267775 | 90,12327 | 116,2783 | 6,674898 | 17,0313 | 20,25353 | 9,062099 |
| 1068 | 20,33812898 | 160,178812 | 0,195330501 | 0,217797995 | 0,395996094 | 2259404,762 | 0,014064842 | 115,966191 | 89,95477 | 115,9771 | 6,682467 | 16,76507 | 20,09385 | 8,981805 |
| 1069 | 20,60731332 | 156,5006895 | 0,194358885 | 0,21643889 | 0,386901855 | 2206902,617 | 0,014064842 | 115,661892 | 89,78228 | 115,6731 | 6,69027 | 16,49078 | 19,93106 | 8,89995 |
| 1070 | 20,86381489 | 152,8819556 | 0,193344712 | 0,21502614 | 0,377990723 | 2155305,24 | 0,014064842 | 115,356376 | 89,60687 | 115,3679 | 6,698239 | 16,21002 | 19,7662 | 8,817071 |
| 1071 | 21,10965937 | 149,3169212 | 0,192280054 | 0,213549376 | 0,36920166 | 2104521,82 | 0,014064842 | 115,048102 | 89,42728 | 115,06 | 6,706415 | 15,89976 | 19,59812 | 8,732586 |
| 1072 | 21,34505361 | 145,8046379 | 0,191163301 | 0,212007284 | 0,360534668 | 2054535,566 | 0,014064842 | 114,737012 | 89,24328 | 114,7493 | 6,714784 | 15,69571 | 19,42673 | 8,646457 |
| 1073 | 21,57020676 | 142,3441006 | 0,189992785 | 0,210398555 | 0,351989746 | 2005329,03 | 0,014064842 | 114,423039 | 89,05474 | 114,4356 | 6,723329 | 15,48917 | 19,25194 | 8,558648 |
| 1074 | 21,78533269 | 138,9346246 | 0,188767076 | 0,208721876 | 0,343566895 | 1956889,392 | 0,014064842 | 114,106129 | 88,86139 | 114,1191 | 6,732035 | 15,28018 | 19,07368 | 8,469124 |
| 1075 | 21,98991115 | 135,578675 | 0,18748951 | 0,20698297 | 0,335296631 | 1909250,719 | 0,014064842 | 113,787119 | 88,66401 | 113,8004 | 6,740849 | 15,06958 | 18,89256 | 8,378193 |
| 1076 | 22,18494908 | 132,2725251 | 0,186154485 | 0,205174923 | 0,327148438 | 1862354,934 | 0,014064842 | 113,465101 | 88,46158 | 113,4788 | 6,749782 | 14,85668 | 18,70785 | 8,285505 |
| 1077 | 22,37135675 | 129,0116048 | 0,184754968 | 0,203289628 | 0,319091797 | 1816132,811 | 0,014064842 | 113,139051 | 88,25304 | 113,1531 | 6,758846 | 14,64073 | 18,51878 | 8,19067 |
| 1078 | 22,54862636 | 125,7986743 | 0,183294773 | 0,201333284 | 0,311157227 | 1770622,928 | 0,014064842 | 112,809812 | 88,03906 | 112,8243 | 6,767982 | 14,42261 | 18,32594 | 8,094002 |
| 1079 | 22,71698978 | 122,6333485 | 0,181772828 | 0,199305534 | 0,303344727 | 1725817,272 | 0,014064842 | 112,477329 | 87,81948 | 112,4922 | 6,777163 | 14,20242 | 18,1293 | 7,995482 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 1080 | 22,87668114 | 119,5148995 | 0,18018806 | 0,19720614 | 0,295654297 | 1681703,153 | 0,014064842 | 112,141536 | 87,59423 | 112,1568 | 6,786358 | 13,98026 | 17,92879 | 7,895091 |
| 1081 | 23,02912662 | 116,4341807 | 0,178525925 | 0,195017219 | 0,288024902 | 1638146,239 | 0,014064842 | 111,800201 | 87,36056 | 111,8158 | 6,795608 | 13,75446 | 17,72269 | 7,791976 |
| 1082 | 23,17328761 | 113,3988988 | 0,176797926 | 0,192755342 | 0,280517578 | 1595256,432 | 0,014064842 | 111,455302 | 87,12068 | 111,4713 | 6,804802 | 13,5269 | 17,51252 | 7,686913 |
| 1083 | 23,30941142 | 110,4086474 | 0,175003529 | 0,190420985 | 0,273132324 | 1553025,839 | 0,014064842 | 111,106775 | 86,87448 | 111,1231 | 6,813898 | 13,29775 | 17,29827 | 7,579896 |
| 1084 | 23,4377472 | 107,4630921 | 0,173142195 | 0,188014925 | 0,265869141 | 1511447,673 | 0,014064842 | 110,754553 | 86,62196 | 110,7713 | 6,822851 | 13,0672 | 17,0799 | 7,470928 |
| 1085 | 23,55955318 | 104,5519689 | 0,171196997 | 0,185516596 | 0,258666992 | 1470373,109 | 0,014064842 | 110,396104 | 86,35964 | 110,4132 | 6,831684 | 12,83345 | 16,85549 | 7,359054 |
| 1086 | 23,67399347 | 101,6844991 | 0,169183075 | 0,18294704 | 0,251586914 | 1429932,802 | 0,014064842 | 110,033677 | 86,09058 | 110,0512 | 6,840265 | 12,59865 | 16,62683 | 7,245192 |
| 1087 | 23,78132879 | 98,86063912 | 0,167100668 | 0,180307865 | 0,244628906 | 1390124,313 | 0,014064842 | 109,667211 | 85,81468 | 109,6851 | 6,848532 | 12,36307 | 16,39395 | 7,129366 |
| 1088 | 23,8826929 | 96,06894555 | 0,164930582 | 0,177576244 | 0,237731934 | 1350783,043 | 0,014064842 | 109,293892 | 85,52806 | 109,3121 | 6,856486 | 12,12483 | 16,15473 | 7,010544 |
| 1089 | 23,97822442 | 93,3084563 | 0,162670791 | 0,174751401 | 0,230895996 | 1311894,295 | 0,014064842 | 108,913375 | 85,23009 | 108,9319 | 6,864042 | 11,88413 | 15,90901 | 6,888663 |
| 1090 | 24,06728111 | 90,59022361 | 0,160340905 | 0,171859324 | 0,224182129 | 1273614,016 | 0,014064842 | 108,528237 | 84,92449 | 108,5471 | 6,87104 | 11,64339 | 15,65894 | 6,764815 |
| 1091 | 24,15087953 | 87,9019019 | 0,157919407 | 0,168875039 | 0,217529297 | 1235765,588 | 0,014064842 | 108,135342 | 84,60683 | 108,1546 | 6,877441 | 11,40071 | 15,40222 | 6,637889 |
| 1092 | 24,22847202 | 85,25555122 | 0,155428588 | 0,165827334 | 0,210998535 | 1198518,944 | 0,014064842 | 107,737457 | 84,28133 | 107,757 | 6,88307 | 11,15865 | 15,14123 | 6,509081 |
| 1093 | 24,30099812 | 82,63817402 | 0,152845502 | 0,162689567 | 0,204528809 | 1161688,719 | 0,014064842 | 107,331206 | 83,94281 | 107,3511 | 6,887849 | 10,9153 | 14,87355 | 6,377235 |
| 1094 | 24,36861769 | 80,04885583 | 0,150168926 | 0,159462094 | 0,198120117 | 1125261,148 | 0,014064842 | 106,91613 | 83,59068 | 106,9363 | 6,891617 | 10,67102 | 14,59913 | 6,242359 |
| 1095 | 24,43149707 | 77,48706173 | 0,147398055 | 0,156145573 | 0,191772461 | 1089227,816 | 0,014064842 | 106,49175 | 83,22411 | 106,5122 | 6,894188 | 10,42619 | 14,31795 | 6,104487 |
| 1096 | 24,48926287 | 74,96650708 | 0,144560665 | 0,152774572 | 0,185546875 | 1053781,662 | 0,014064842 | 106,061237 | 82,84885 | 106,0819 | 6,895346 | 10,1836 | 14,03286 | 5,965065 |
| 1097 | 24,54270723 | 72,47287593 | 0,141630441 | 0,149319023 | 0,179382324 | 1018719,485 | 0,014064842 | 105,620622 | 82,45842 | 105,6415 | 6,894882 | 9,941352 | 13,7413 | 5,822881 |
| 1098 | 24,59200601 | 70,00565971 | 0,138607413 | 0,145780504 | 0,173278809 | 984033,3968 | 0,014064842 | 105,169322 | 82,05205 | 105,1905 | 6,892522 | 9,699918 | 13,4434 | 5,678069 |
| 1099 | 24,63733767 | 67,5641443 | 0,135491878 | 0,142160773 | 0,167236328 | 949712,6796 | 0,014064842 | 104,706687 | 81,6289 | 104,728 | 6,887949 | 9,459777 | 13,1394 | 5,53081 |
| 1100 | 24,67848017 | 65,16449666 | 0,132317871 | 0,138500333 | 0,161315918 | 915984,5336 | 0,014064842 | 104,236421 | 81,19648 | 104,2579 | 6,880883 | 9,22385 | 12,83284 | 5,382887 |
| 1101 | 24,71645916 | 62,77396881 | 0,129021019 | 0,134726077 | 0,155395508 | 882386,7152 | 0,014064842 | 103,749203 | 80,73773 | 103,7709 | 6,870759 | 8,987738 | 12,51783 | 5,231553 |
| 1102 | 24,75102249 | 60,40799789 | 0,1256347 | 0,130877882 | 0,149536133 | 849136,3557 | 0,014064842 | 103,248397 | 80,25981 | 103,2702 | 6,857144 | 8,754297 | 12,19808 | 5,078703 |
| 1103 | 24,78204345 | 58,08418864 | 0,122197852 | 0,127000511 | 0,143798828 | 816480,8068 | 0,014064842 | 102,738127 | 79,77128 | 102,76 | 6,839679 | 8,526286 | 11,8778 | 4,926453 |
| 1104 | 24,81036367 | 55,76733726 | 0,118639439 | 0,123014688 | 0,138061523 | 783923,8266 | 0,014064842 | 102,207619 | 79,25214 | 102,2296 | 6,817337 | 8,299045 | 11,55112 | 4,772156 |
| 1105 | 24,83582794 | 53,47453527 | 0,114997894 | 0,118964642 | 0,132385254 | 751705,7095 | 0,014064842 | 101,66057 | 78,71059 | 101,6825 | 6,789511 | 8,07498 | 11,22261 | 4,618147 |
| 1106 | 24,85862115 | 51,20586502 | 0,111276001 | 0,114854097 | 0,12677002 | 719827,1962 | 0,014064842 | 101,095791 | 78,14524 | 101,1178 | 6,755308 | 7,853739 | 10,89377 | 4,465307 |
| 1107 | 24,87892732 | 48,96124011 | 0,107477009 | 0,110687062 | 0,12121582 | 688286,7161 | 0,014064842 | 100,511941 | 77,55491 | 100,5339 | 6,713689 | 7,634504 | 10,56639 | 4,314688 |
| 1108 | 24,89692728 | 46,74042338 | 0,103604496 | 0,106467769 | 0,115722656 | 657080,6333 | 0,014064842 | 99,9075039 | 76,93845 | 99,92937 | 6,663448 | 7,415812 | 10,24266 | 4,167536 |
| 1109 | 24,91296527 | 44,52361424 | 0,099617504 | 0,102152169 | 0,110229492 | 625930,1145 | 0,014064842 | 99,274058 | 76,27967 | 99,2958 | 6,602443 | 7,192809 | 9,92161 | 4,023726 |
| 1110 | 24,92686171 | 42,35053893 | 0,095608935 | 0,097840801 | 0,104858398 | 595393,7876 | 0,014064842 | 98,6228501 | 75,60499 | 98,64447 | 6,530401 | 6,966913 | 9,613406 | 3,88812 |
| 1111 | 24,93910156 | 40,18093139 | 0,091492362 | 0,093440518 | 0,099487305 | 564905,0329 | 0,014064842 | 97,937755 | 74,88246 | 97,95919 | 6,443783 | 6,727869 | 9,314524 | 3,759505 |
| 1112 | 24,94979772 | 38,0139075 | 0,087269172 | 0,088953353 | 0,094116211 | 534451,2999 | 0,014064842 | 97,214927 | 74,10648 | 97,2361 | 6,339871 | 6,46804 | 9,029172 | 3,64014 |
| 1113 | 24,95887024 | 35,89151728 | 0,083040677 | 0,084486462 | 0,088867188 | 504623,8702 | 0,014064842 | 96,4669784 | 73,30873 | 96,48792 | 6,218589 | 6,184092 | 8,76771 | 3,534632 |
| 1114 | 24,96668514 | 33,77146001 | 0,078714222 | 0,079941284 | 0,083618164 | 474827,718 | 0,014064842 | 95,6737649 | 72,4492 | 95,69439 | 6,074463 | 5,858089 | 8,527403 | 3,441949 |
| 1115 | 24,97335053 | 31,65297068 | 0,074292392 | 0,075320579 | 0,078369141 | 445052,0417 | 0,014064842 | 94,8293263 | 71,51988 | 94,84955 | 5,903967 | 5,476304 | 8,310561 | 3,362684 |
| 1116 | 24,97885497 | 29,58037258 | 0,069884229 | 0,070737336 | 0,073242188 | 415920,1036 | 0,014064842 | 93,9475717 | 70,55811 | 93,96743 | 5,708797 | 5,039111 | 8,119477 | 3,296003 |
| 1117 | 24,98346401 | 27,5093072 | 0,065391224 | 0,066088039 | 0,068115234 | 386808,0944 | 0,014098202 | 93,0020219 | 69,51293 | 93,02143 | 5,483297 | 4,542098 | 7,937644 | 3,231823 |
| 1118 | 24,98731433 | 25,33804862 | 0,060573459 | 0,061127201 | 0,062744141 | 356285,562 | 0,014317323 | 91,9315669 | 68,24573 | 91,95011 | 5,215724 | 4,008989 | 7,72279 | 3,144792 |
| 1119 | 24,99045612 | 23,16960191 | 0,055679485 | 0,056109702 | 0,057373047 | 325800,8886 | 0,014561438 | 90,7657473 | 66,83314 | 90,78327 | 4,926013 | 3,655385 | 7,397323 | 2,983783 |
| 1120 | 24,99293099 | 21,05007422 | 0,050827906 | 0,051155439 | 0,052124023 | 296002,549 | 0,014829992 | 89,5157296 | 65,31536 | 89,53221 | 0 | 0 | 6,782199 | 2,638846 |
| 1121 | 24,99489185 | 18,9318633 | 0,045911549 | 0,046153299 | 0,046875 | 266221,2502 | 0,015135338 | 88,1332243 | 63,5979 | 88,14848 | 0 | 0 | 0 | 0 |
| 1122 | 24,99632108 | 16,95755716 | 0,041284041 | 0,041460197 | 0,041992188 | 238462,249 | 0,015462177 | 86,6994975 | 61,89162 | 86,71383 | 0 | 0 | 0 | 0 |
| 1123 | 24,99747722 | 14,88896839 | 0,036374066 | 0,03649492 | 0,036865234 | 209376,169 | 0,015861625 | 85,0035078 | 59,73937 | 85,01641 | 0 | 0 | 0 | 0 |
| 1124 | 24,99826834 | 13,01385915 | 0,031890207 | 0,031971957 | 0,032226563 | 183009,827 | 0,016290887 | 83,2508877 | 57,65746 | 83,26285 | 0 | 0 | 0 | 0 |
| 1125 | 24,99888614 | 11,04309236 | 0,027132141 | 0,027182752 | 0,02734375 | 155297,31 | 0,016837752 | 81,1106378 | 54,92245 | 81,12107 | 0 | 0 | 0 | 0 |
| 1126 | 24,99928941 | 9,267417333 | 0,0228202 | 0,022850501 | 0,022949219 | 130327,5386 | 0,017451415 | 78,8275342 | 52,20047 | 78,83697 | 0 | 0 | 0 | 0 |

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**PROGRAMA VENTGAS - Versão 1 - TRANSIENTE** **CASO** 4 Pm3 @ 20°C e 1 atm

| t | T Saída | Força | M | M | M | Re | f | Ruído, dBA | | | Dispersão, m | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| min | °C | kgf | Entrada | Saída Válvula | Saída | | | vent | valv | total | XLI | YLI | SLI | SLS |
| 1127 | 24,99957668 | 7,492694483 | 0,018483634 | 0,018499889 | 0,018554688 | 105370,4849 | 0,018239985 | 76,0580583 | 48,77774 | 76,06617 | 0 | 0 | 0 | 0 |
| 1128 | 24,99977385 | 5,718396126 | 0,014127212 | 0,014134546 | 0,014160156 | 80418,87708 | 0,01931907 | 72,5367218 | 44,31838 | 72,54326 | 0 | 0 | 0 | 0 |
| 1129 | 24,99989991 | 3,943989833 | 0,009754107 | 0,009756563 | 0,009765625 | 55465,33671 | 0,020959465 | 67,6959872 | 37,84058 | 67,70047 | 0 | 0 | 0 | 0 |
| 1130 | 24,99996567 | 2,366356841 | 0,005856659 | 0,005857205 | 0,005859375 | 33278,79079 | 0,023563555 | 61,0404636 | 29,1925 | 61,0433 | 0 | 0 | 0 | 0 |
| 1131 | 24,99998499 | 1,577402903 | 0,003905347 | 0,003905515 | 0,00390625 | 22183,52767 | 0,025976483 | 55,7572657 | 25,63551 | 55,76149 | 0 | 0 | 0 | 0 |

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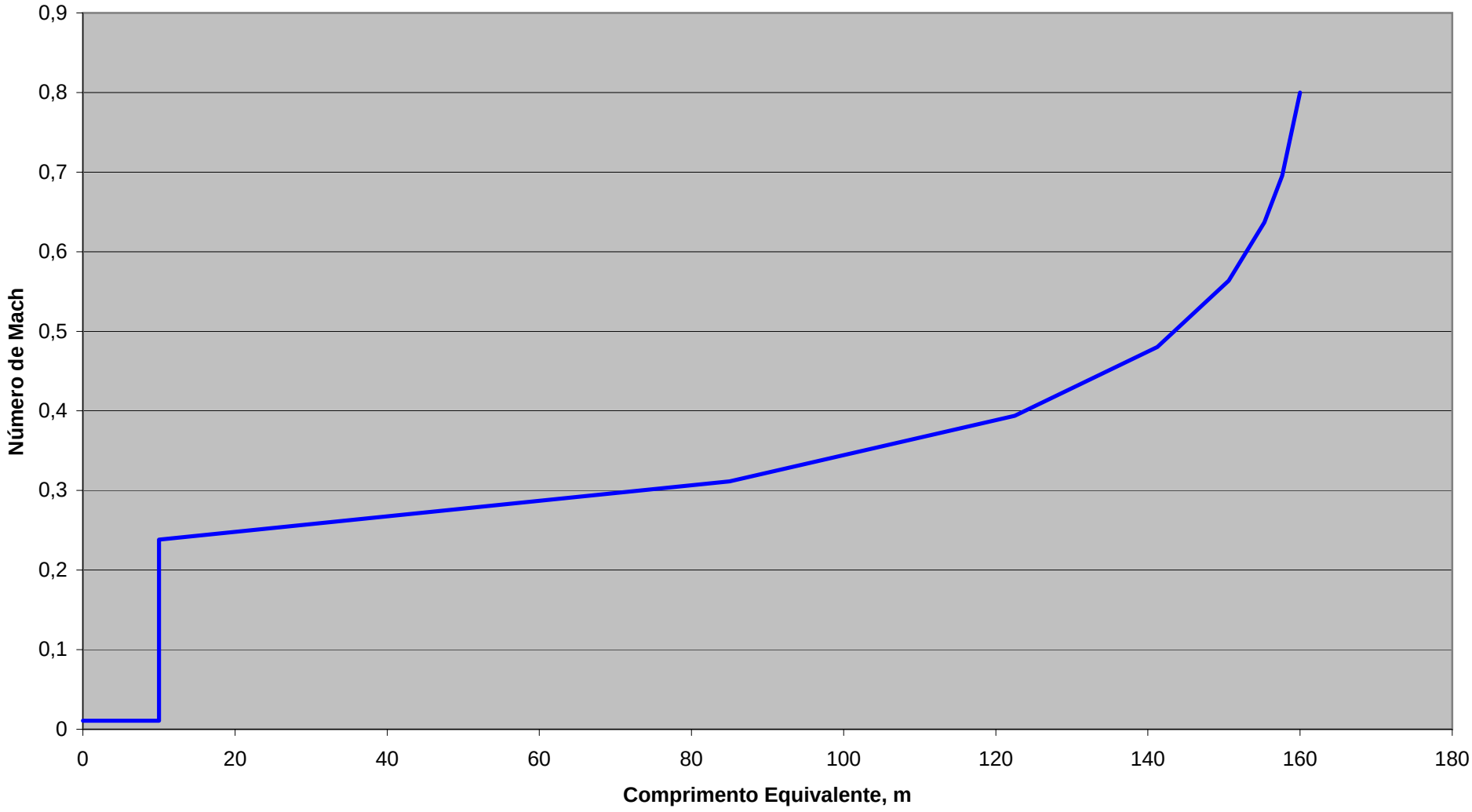
## Simulação do Blowdown - Condição Inicial

**CASO 4**



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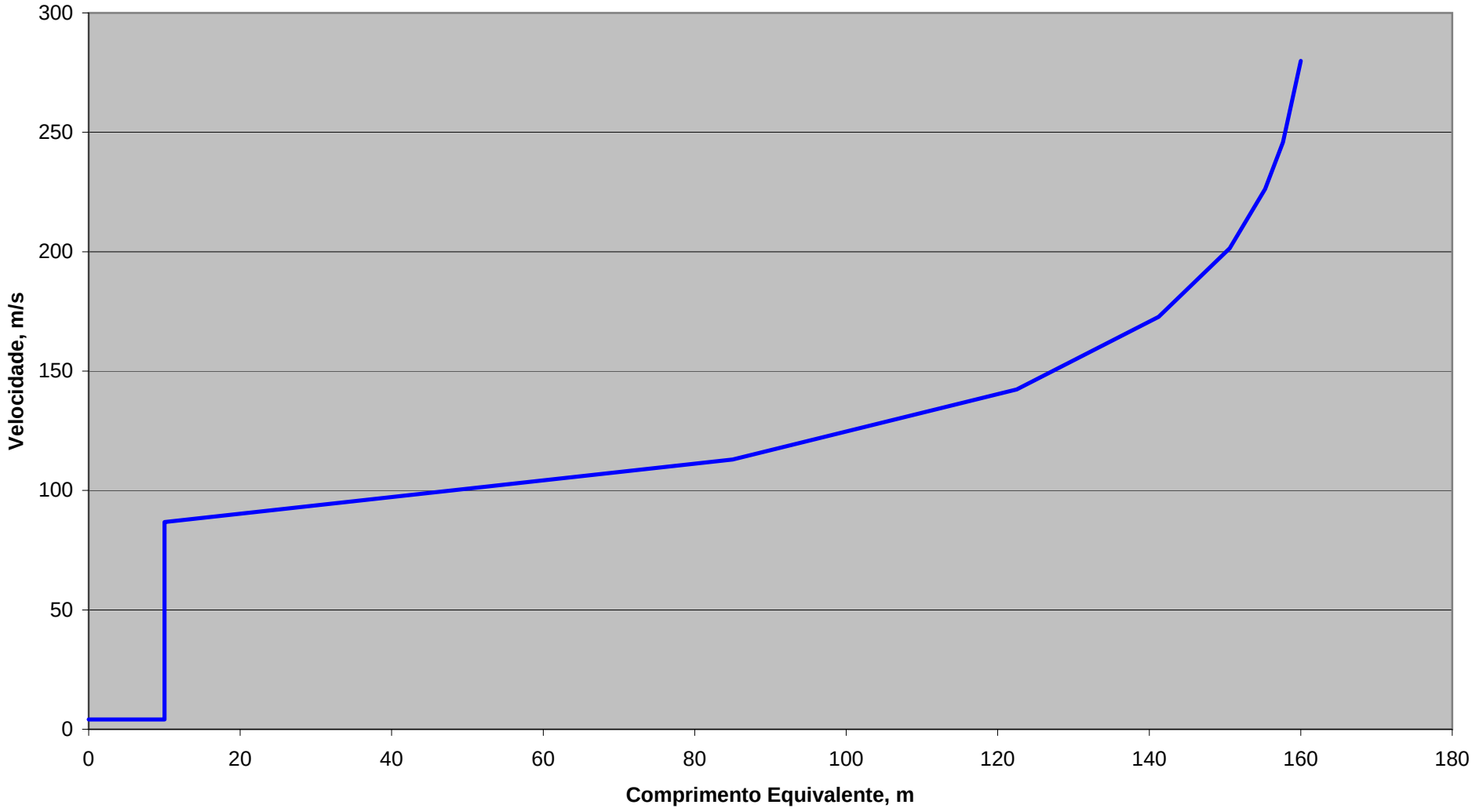
## Simulação do Blowdown - Condição Inicial

**CASO 4**



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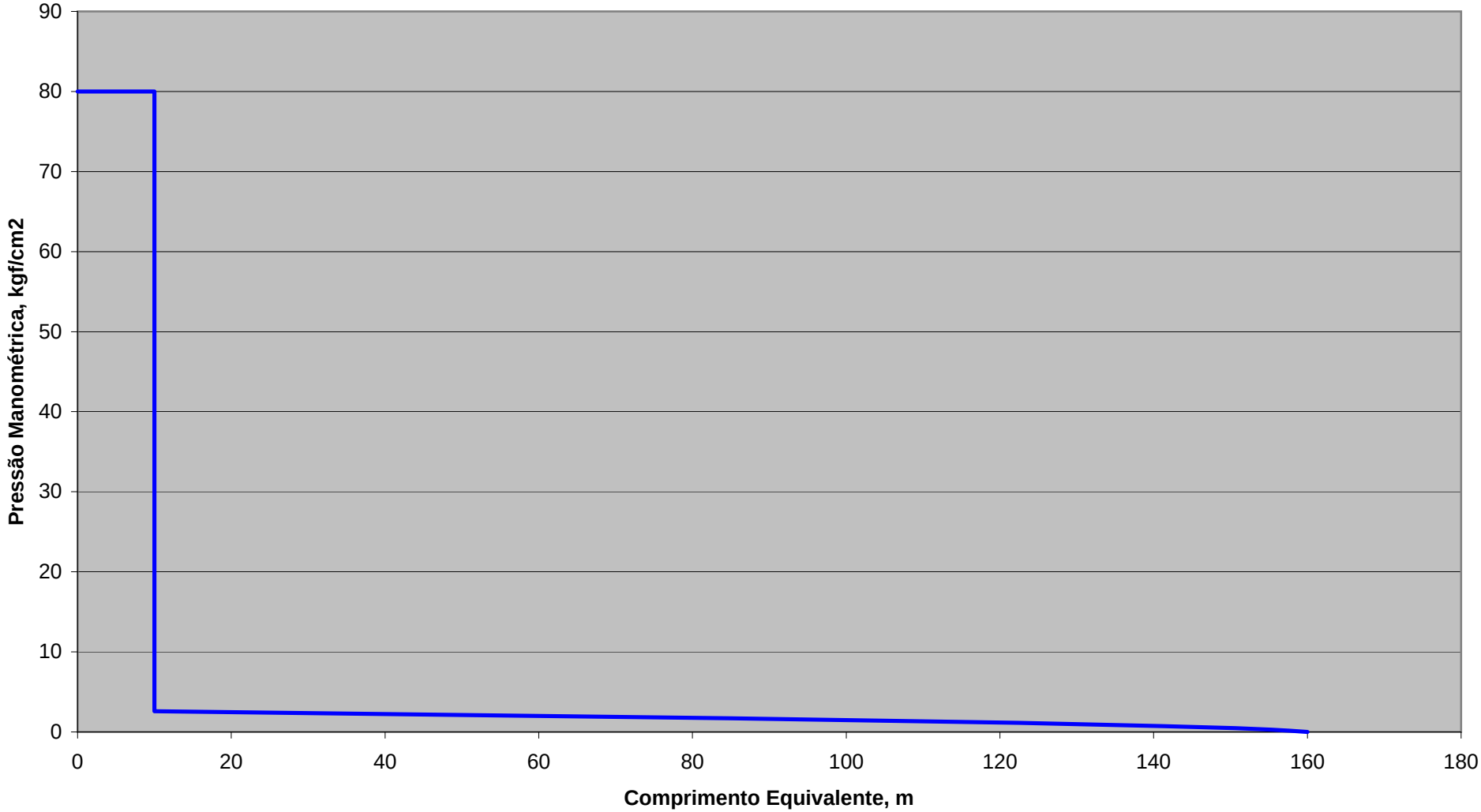
## Simulação do Blowdown - Condição Inicial

**CASO 4**



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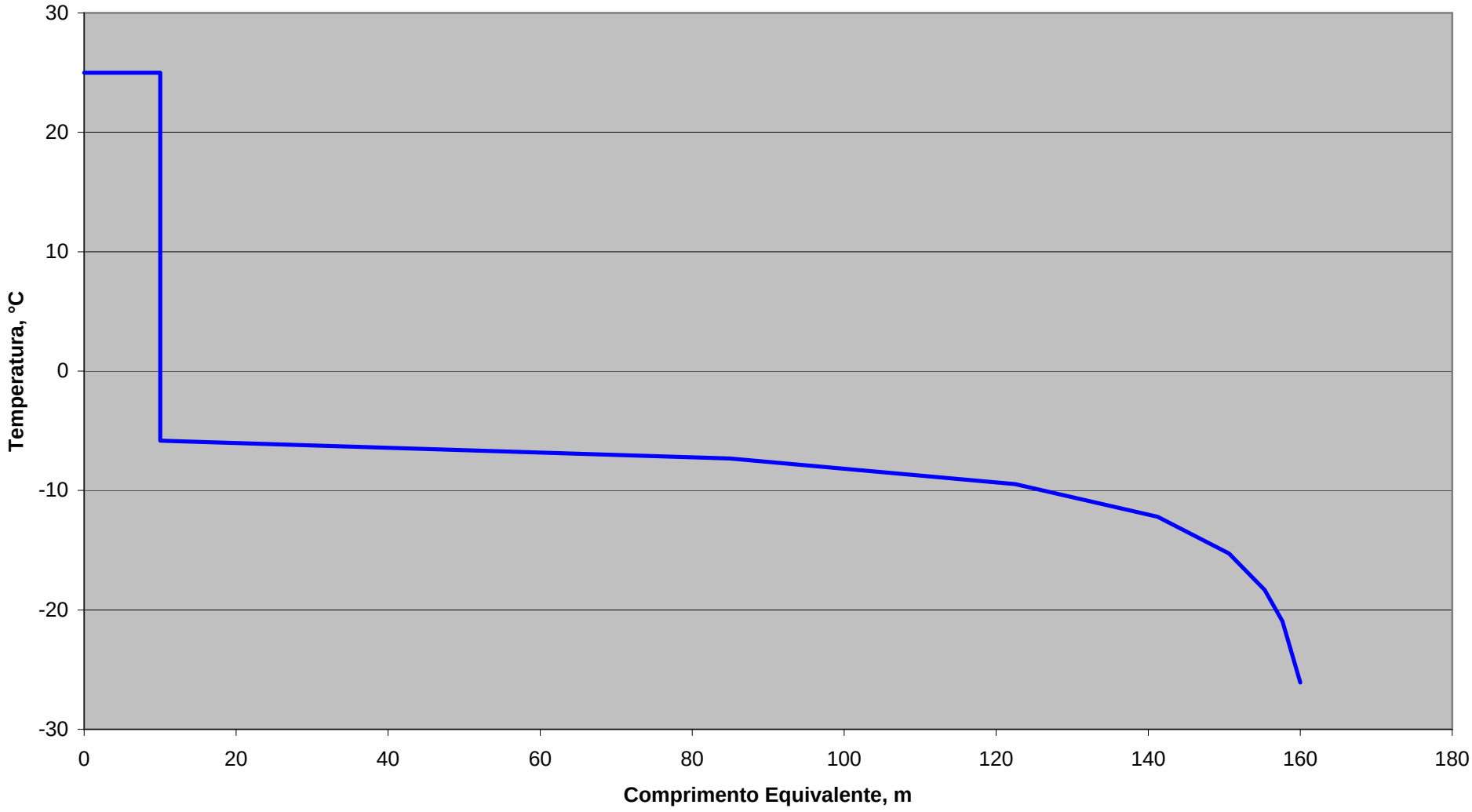
## Simulação do Blowdown - Condição Inicial

**CASO 4**



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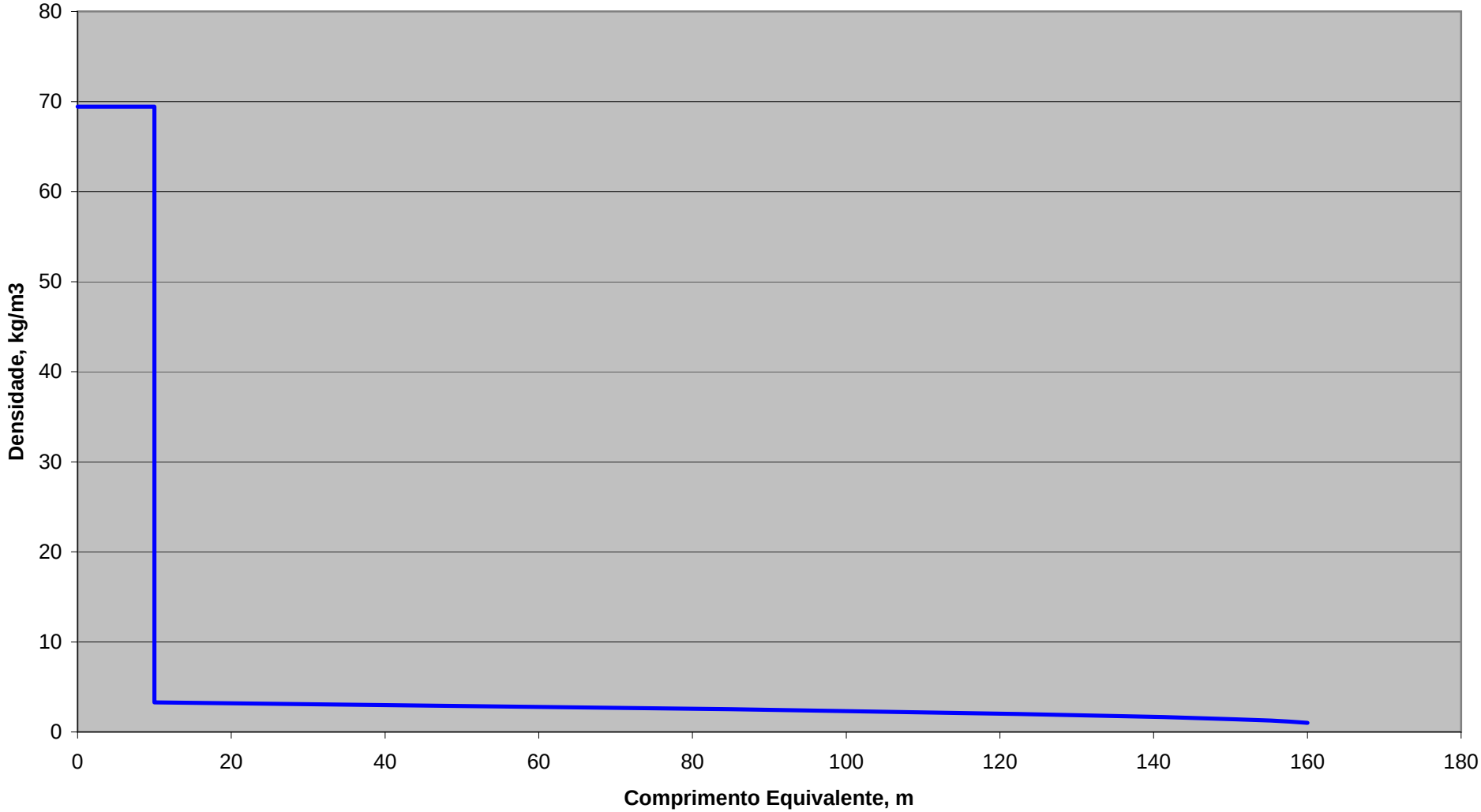
## Simulação do Blowdown - Condição Inicial

**CASO 4**



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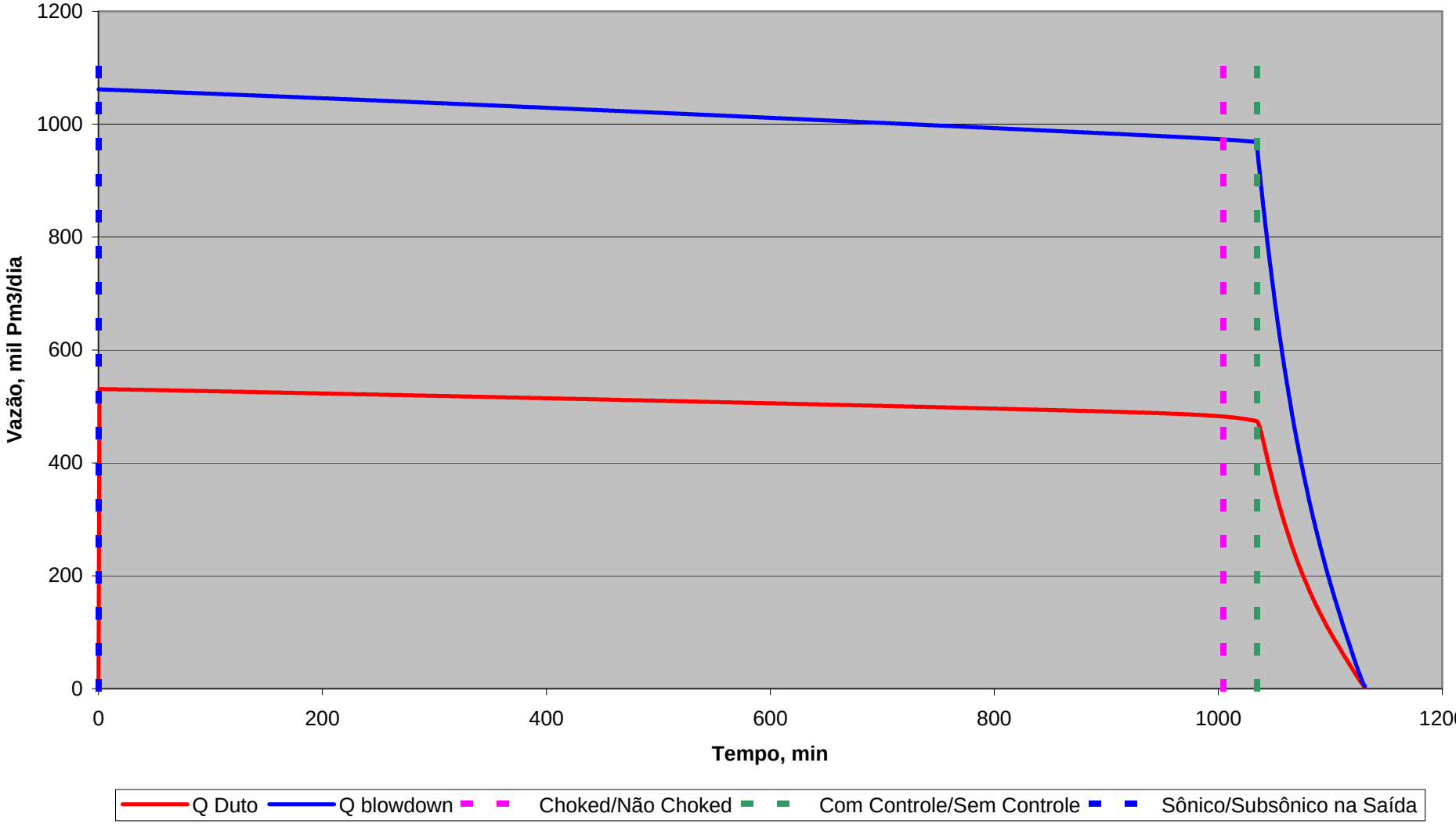
## Simulação do Blowdown - Transiente

**CASO 4**



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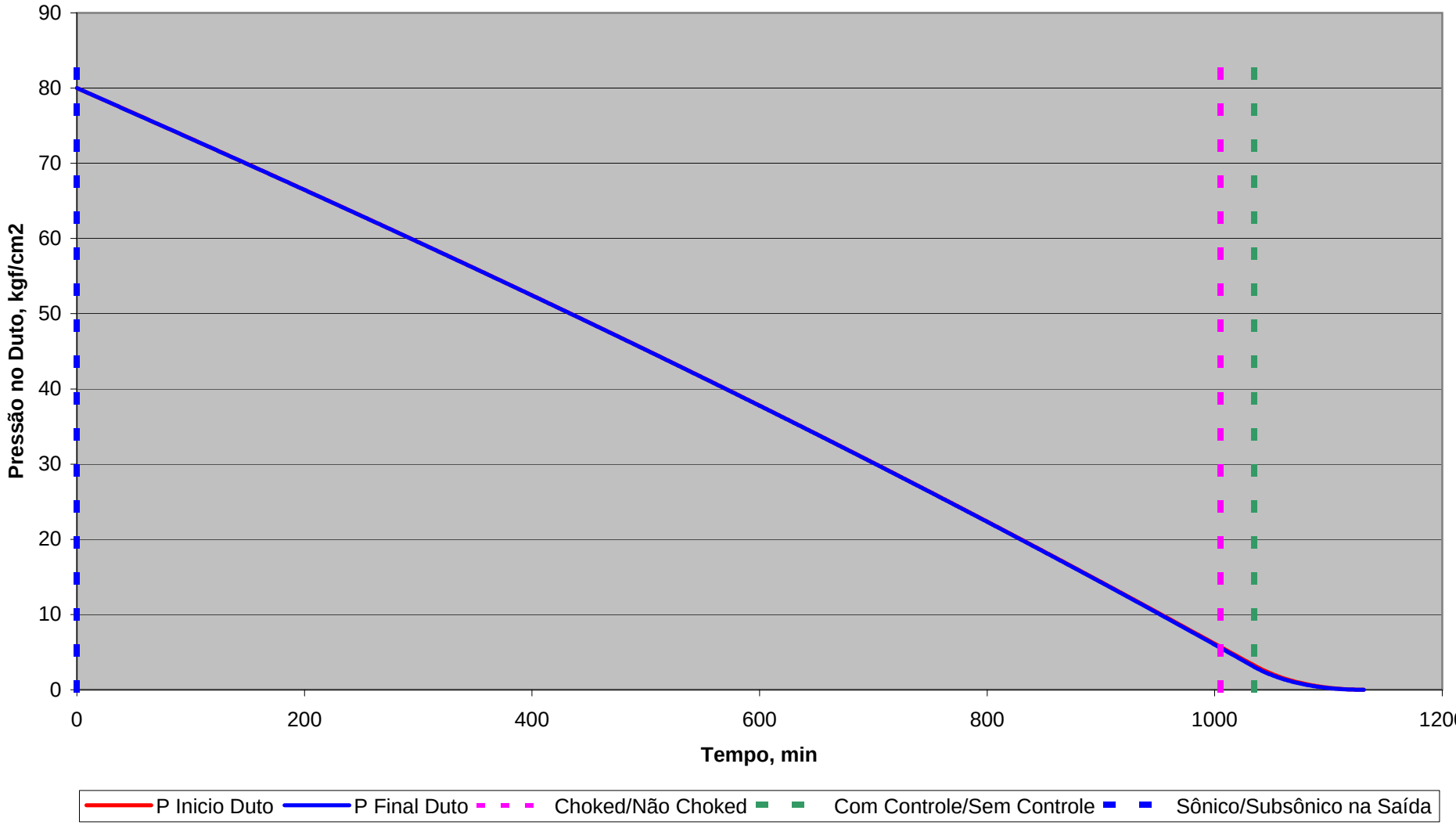
## Simulação do Blowdown - Transiente

**CASO 4**



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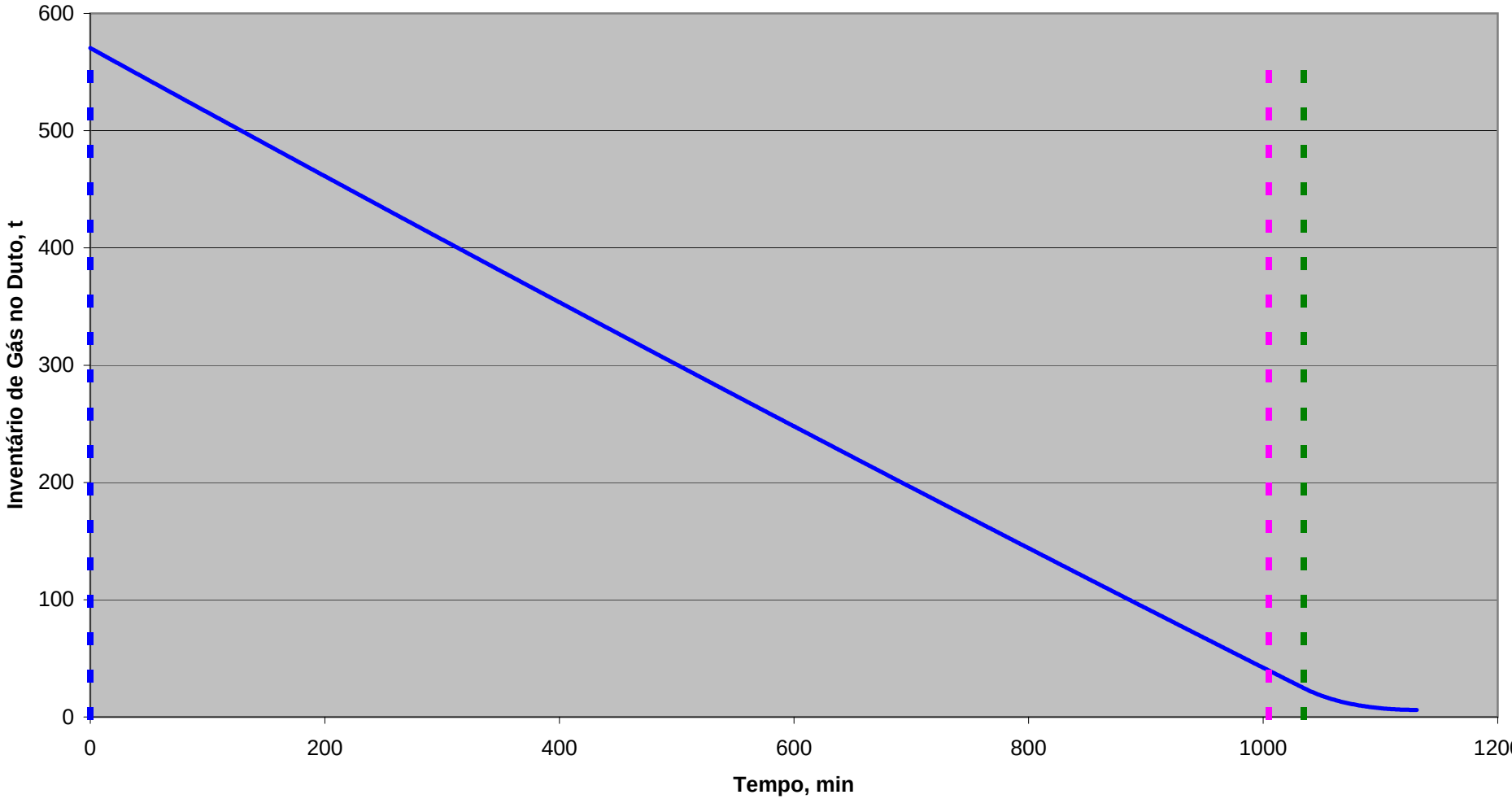
## Simulação de Blowdown - Transiente

**CASO 4**



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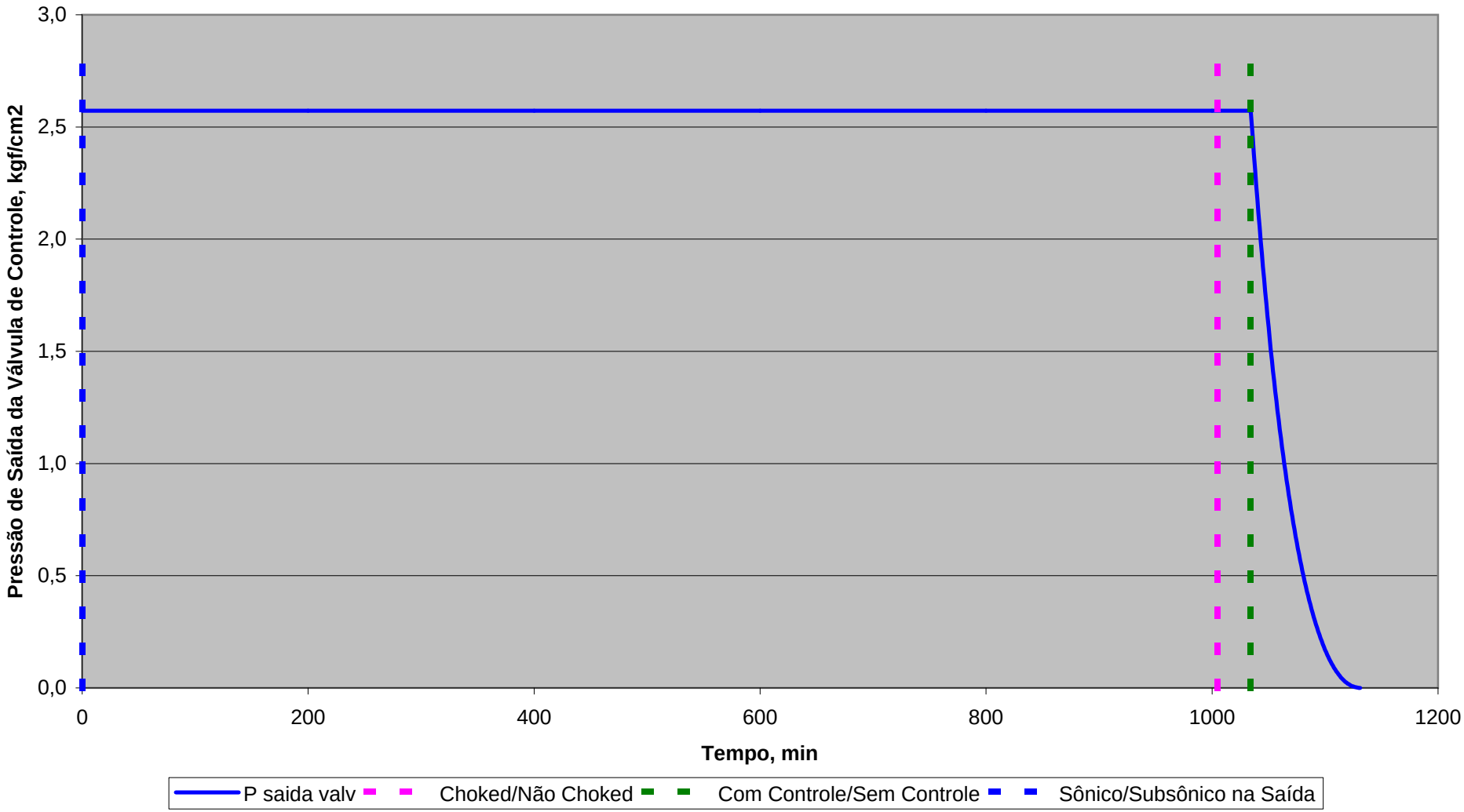
## Simulação do Blowdown - Transiente

**CASO 4**



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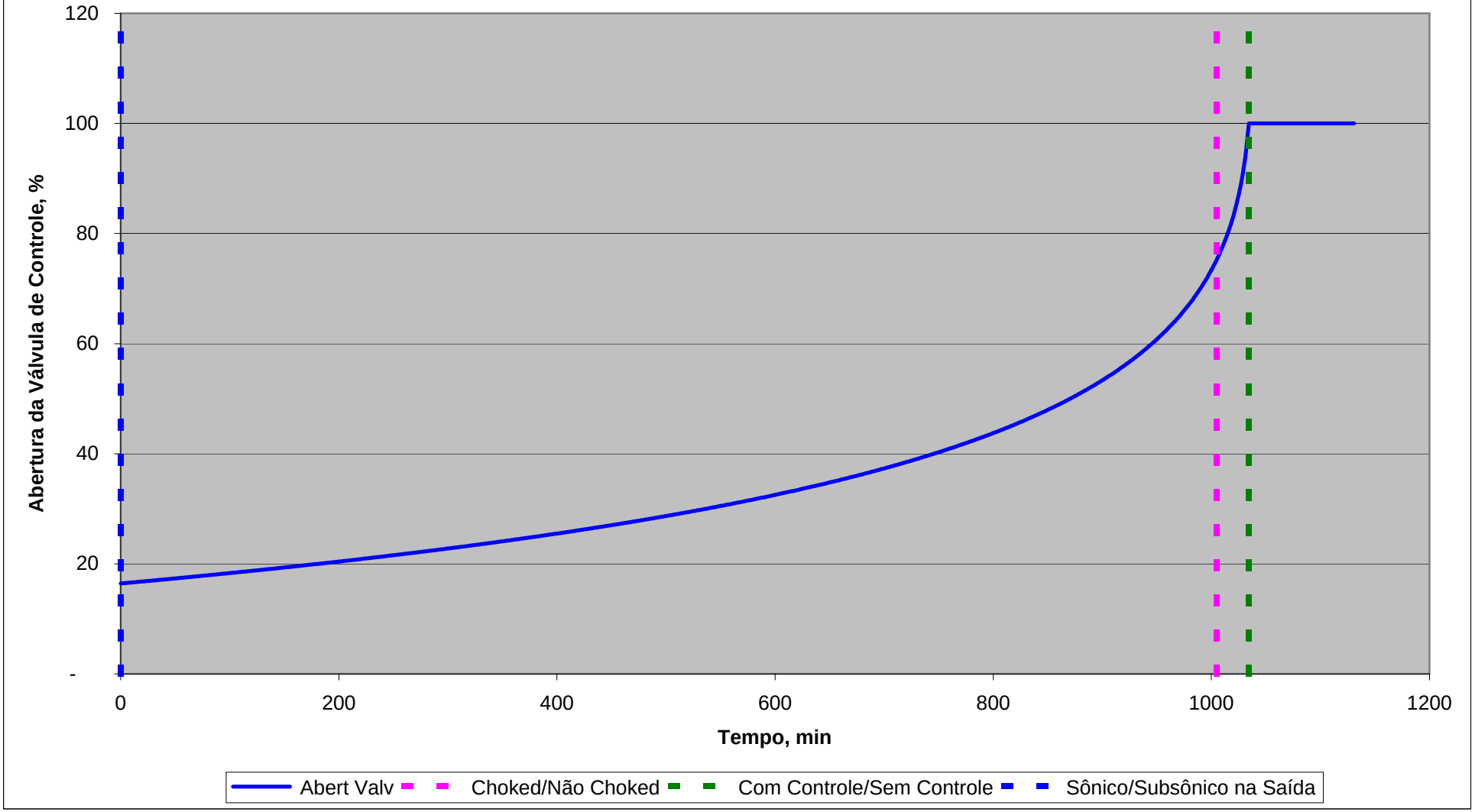
## Simulação do Blowdown - Transiente

**CASO 4**



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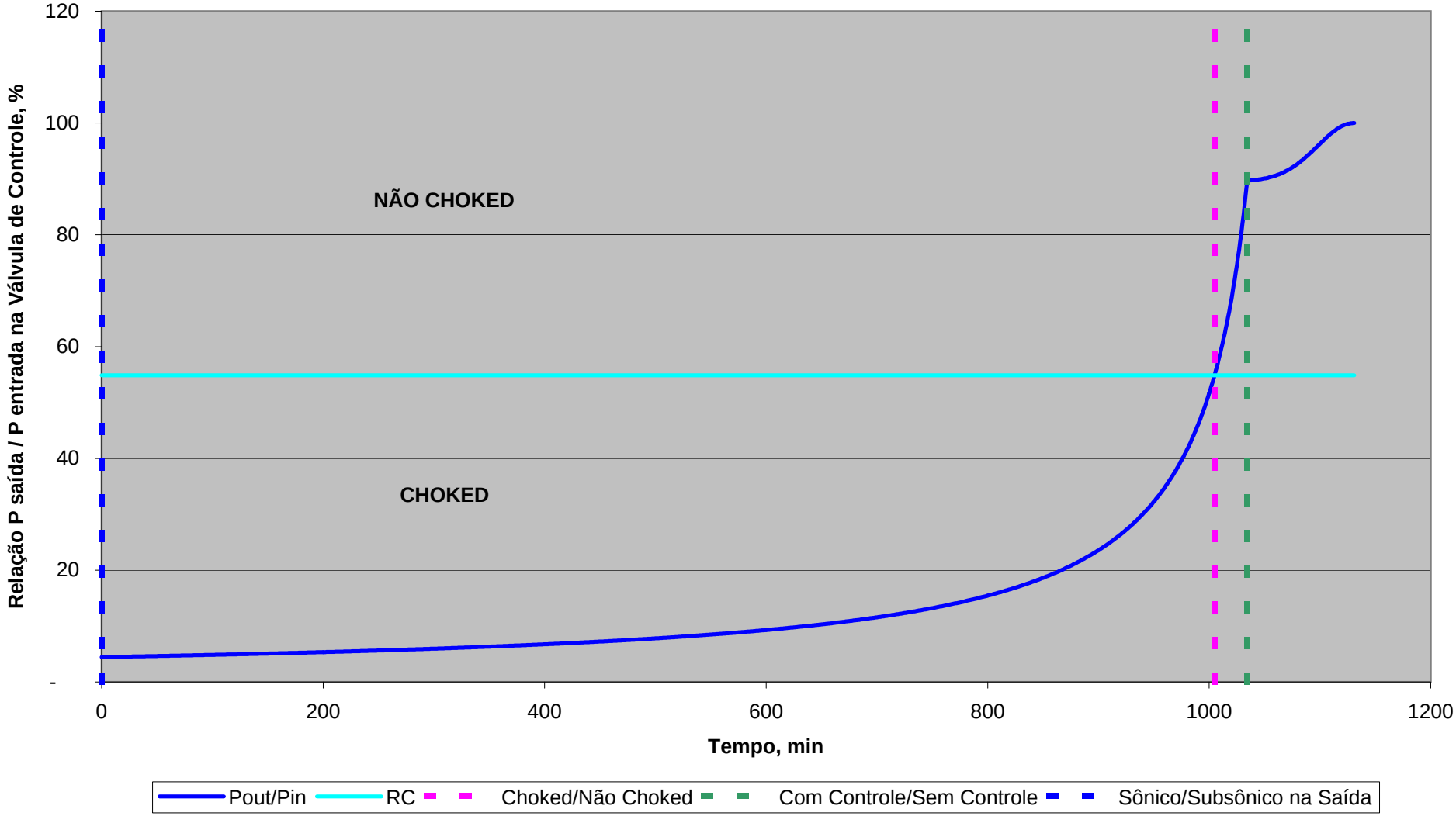
## Simulação do Blowdown - 2 casos

**CASO 4**



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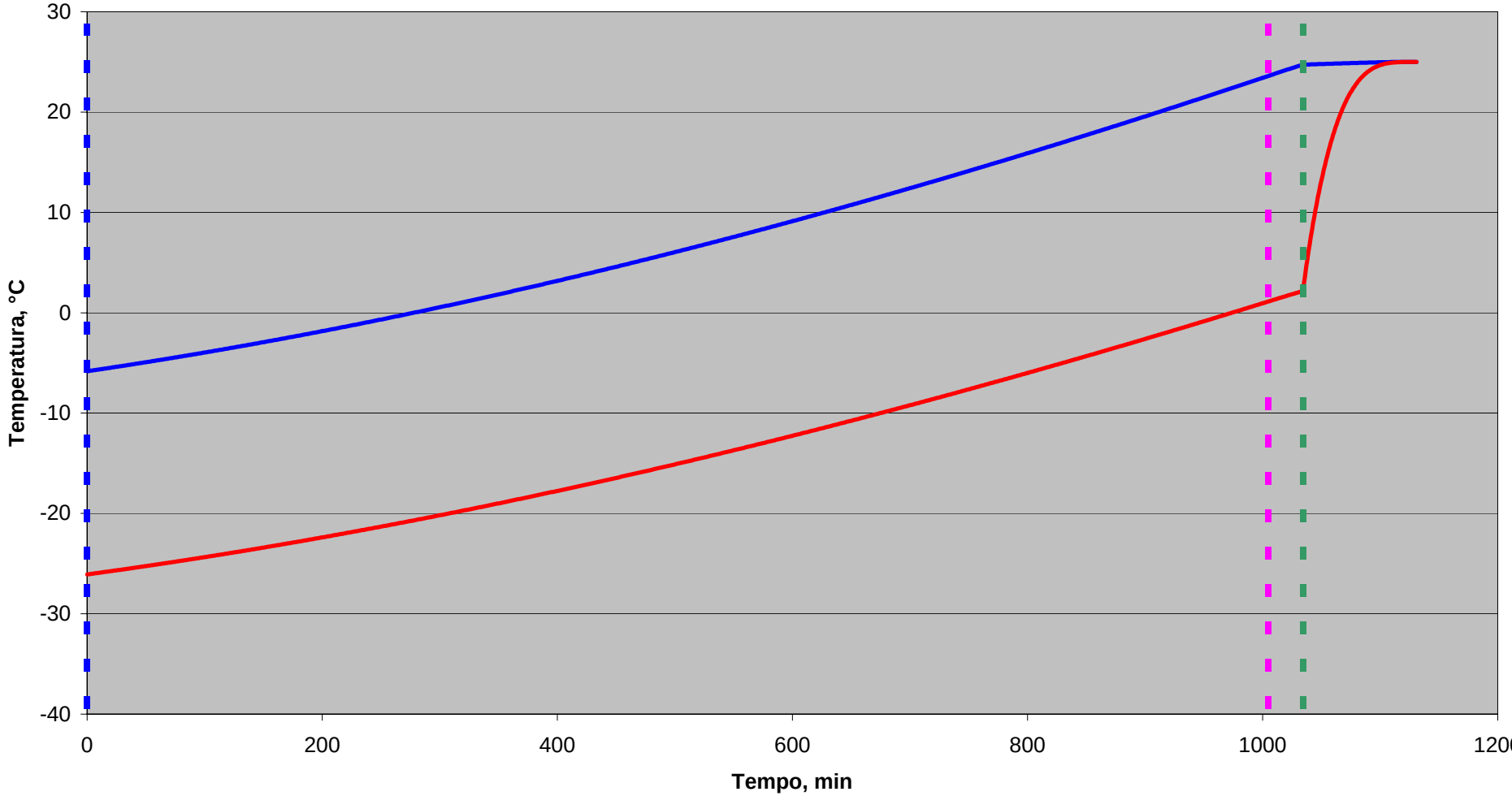
## Simulação do Blowdown - Transiente

**CASO 4**



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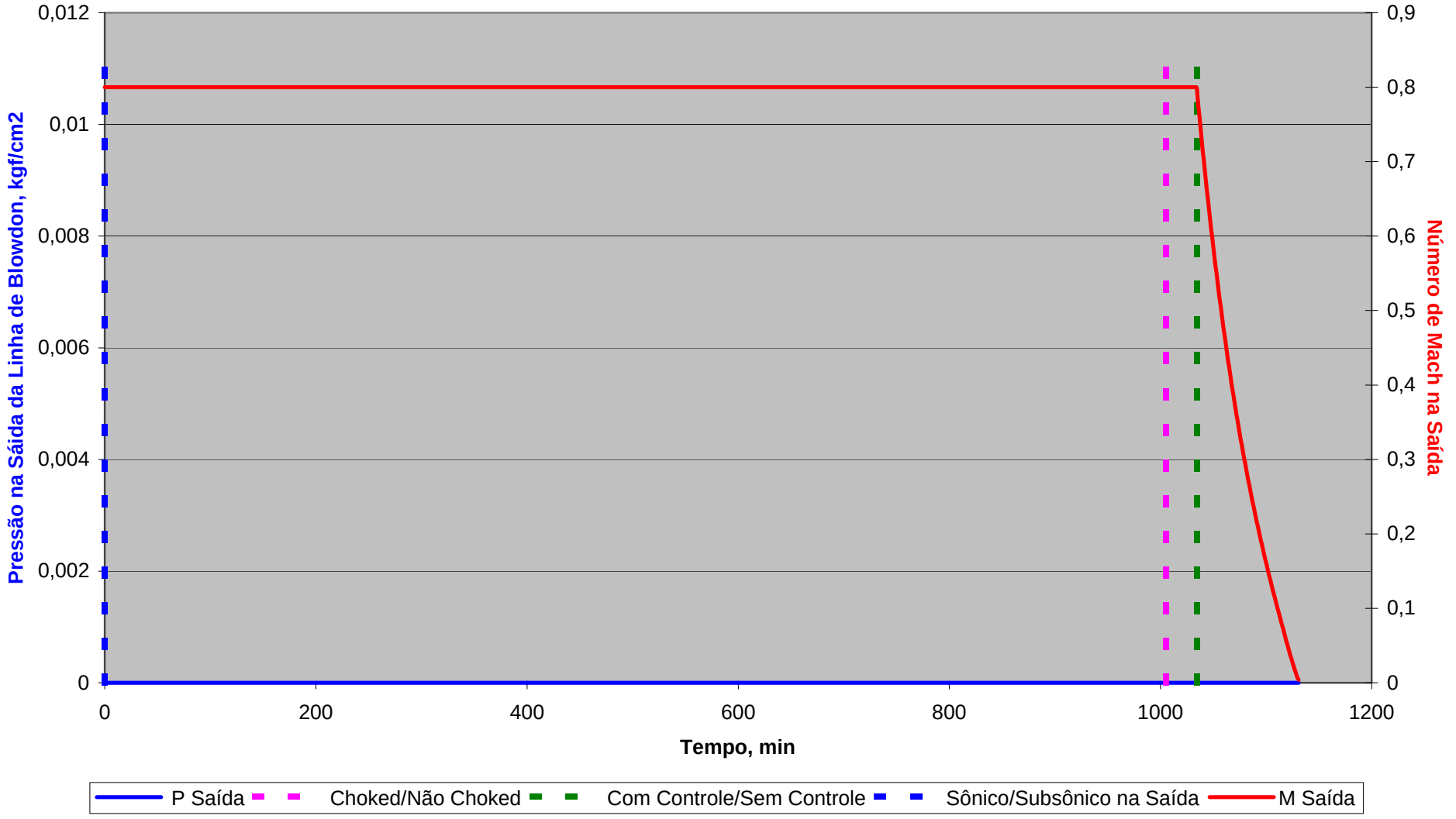
## Simulação de Blowdown - Transiente

**CASO 4**



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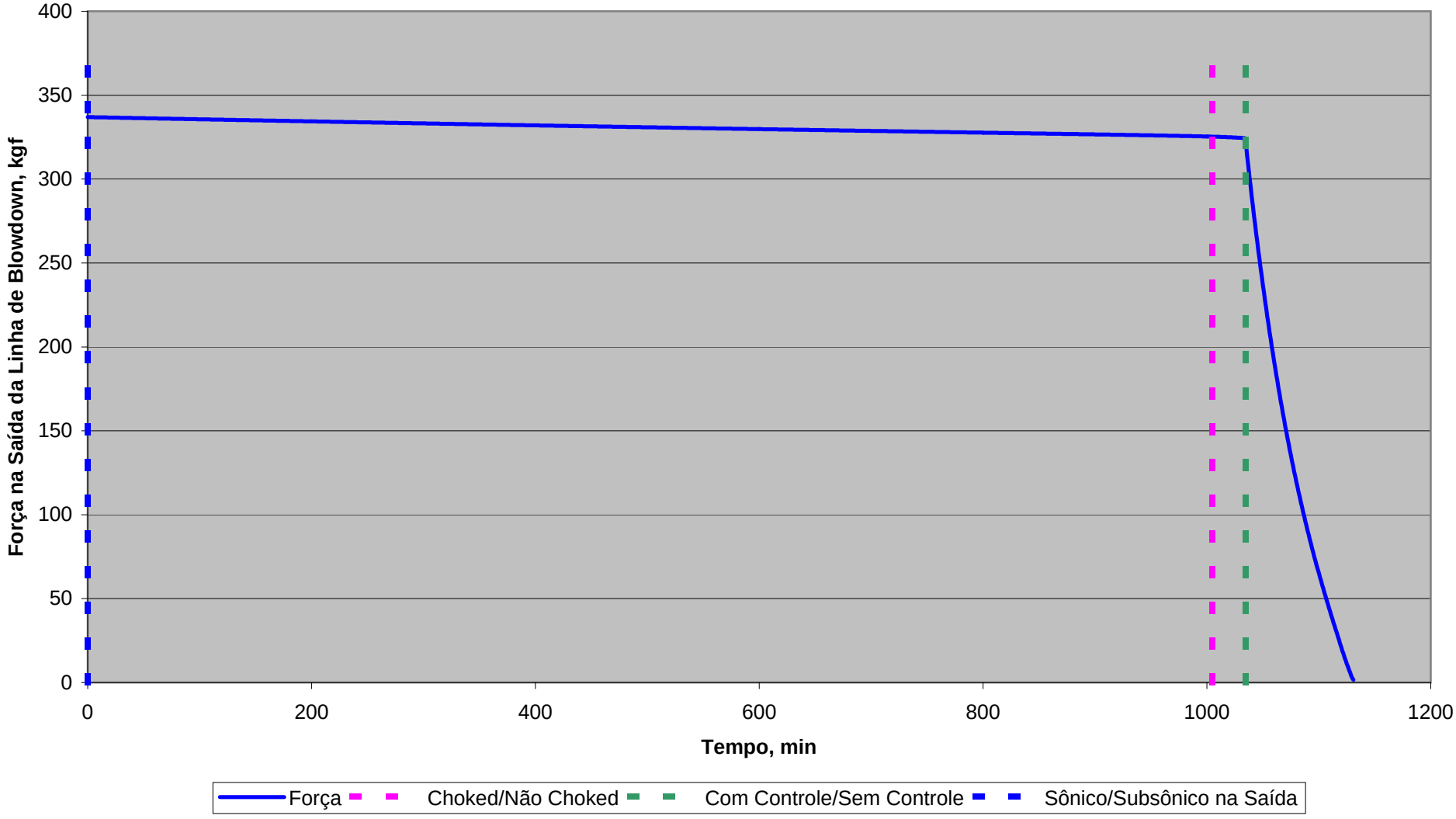
## Simulação de Blowdown - Transiente

**CASO 4**



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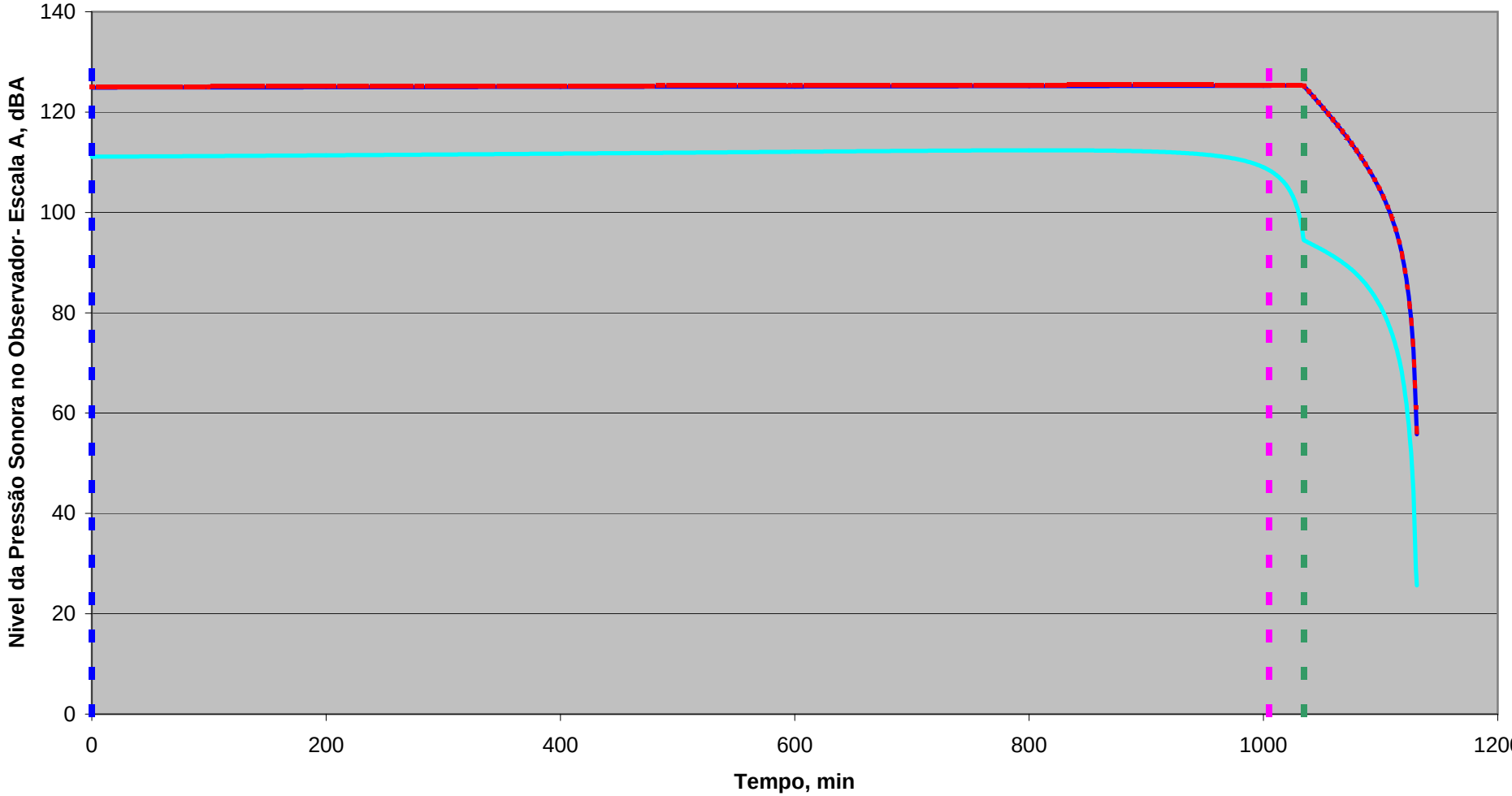
## Simulação de Blowdown - Transiente

**CASO 4**



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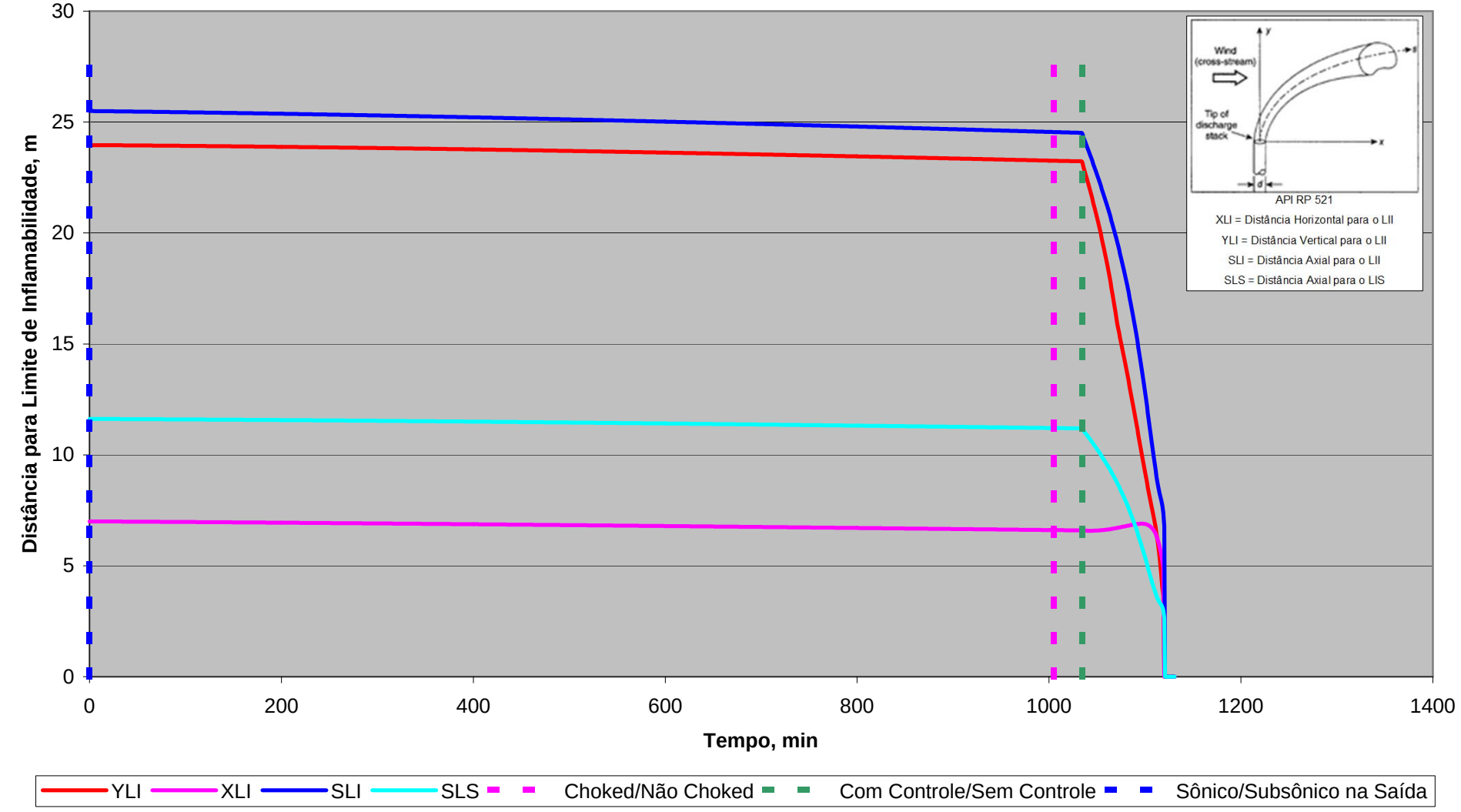
## Simulação de Blowdown - Transiente

**CASO 4**



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## Simulação do Blowdown - Transiente

**CASO 4**