



SUBMERSIBLE PUMPS

RESIDENTIAL & LIGHT COMMERCIAL



SUBMERSIBLE PUMPS

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MODEL NUMBER NOMENCLATURE

PUMP & MOTOR BRAND/SERIES CODES

WA = Water Horse 4" Pump
 WE = Water Horse Environmental
 WH = Water Horse Brand

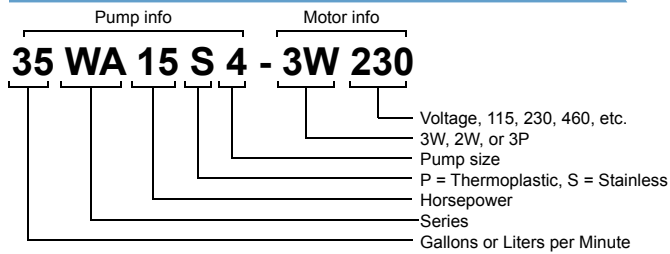
MATERIAL CODES

CI = Cast Iron
 P = Thermoplastic
 S = Stainless Steel

HORSEPOWER CODES

HP	1/3	1/2	3/4	1	1.5	2	3	5	7.5	10	15	20	25	30	35	40	50	60	75	100	125	150	175	200
Code	03	05	07	1	15	2	3	5	7	10	15	20	25	30	35	40	50	60	75	100	125	150	175	200

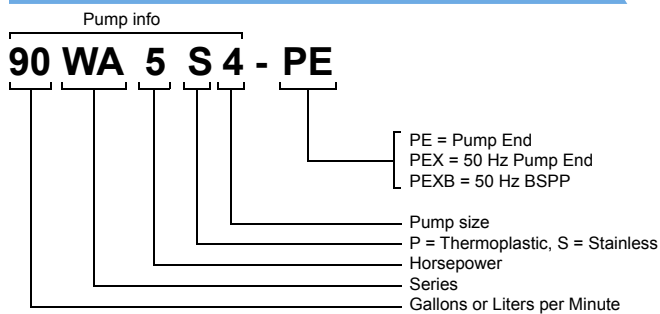
4" 5-25 GPM SUBMERSIBLE PUMPS/MOTORS



Examples:

45WA1S4-2W230 = 45 gpm, Water Horse, Stainless Steel / 1 hp, 230 V, 2-wire motor
 35WA15SA-3W230 = 35 gpm, Water Horse, Stainless Steel / 1.5 hp, 230 V, 3-wire motor

PUMP END



Examples:

85WA3S4-PE = 45 gpm, Water Horse High Capacity, 3 hp, Stainless Steel, Pump End
 25WE1P4-PEXB = 25 gpm, Water Horse E-Series, 1 hp, Thermoplastic, 50 Hz Pump End BSPP Threads

YOUR SUBMERSIBLE PUMP TEAM

Franklin's technical service hotline is made up of real people, offering real answers, in real time. Serving professional water systems distributors and contractors, our hotline boasts decades of collective industry experience. For answers to your water systems questions, contact our hotline by phone or email.

CUSTOMER RELATIONS

Please contact us at:

Toll free: 800-269-0063

Fax: 260-827-5800

E-mail: cleanwater@fele.com

TECHNICAL SERVICE HOTLINE

Please contact us at:

Toll free: 800-348-2420

E-mail: hotline@fele.com



EXPERIENCE
SERVICE

4" 3200 SERIES PUMPS

The 3200 Series submersible pumps are designed so that all parts of the pump end, including the cable guard, fall within the diameter of Franklin Electric's industry-leading submersible 4" motor. This reduced diameter pump end makes it ideal for installations where the well is considered encrusted or tight in comparison to a standard 4" well. The 3200 Series also offers a hydraulic stage design optimized for greater water and pressure output when installed at deeper well depths. For details on how to become a registered dealer and receive a 5-year warranty, contact your local distributor.

FEATURES

- Pump diameter is smaller than a standard 4" submersible for easier installation in reduced diameter 4" wells
- Hex rubber bearing and ceramic shaft sleeve allows sand and abrasives to pass through, virtually eliminating shaft wear and upper bearing failures
- Improved hydraulic performance for deeper set depths at all horsepower and flow ratings
 - Floating stage design allows for maximum efficiency while minimizing the downthrust load that is transferred to the motor
 - Advanced thermoplastic diffuser and disc with 300 Series stainless steel thrust and eye seal protection for durability and abrasion resistance
 - Scalloped impellers provide high performance to increase pressure output while reducing system losses from friction
- Removable spring-loaded check valve
- Stainless steel pump intake screen and stainless steel cable guard
- Maximum water temperature: 120 °F/49 °C
- Powered by corrosion-resistant Franklin Electric submersible 4" motor with lightning protection



UL 778
 CSA 108
 NSF/ANSI 372
 NSF/ANSI 61 (Pump end only)

4" 3200 SERIES PUMPS - ORDERING INFORMATION

THERMOPLASTIC ORDERING INFORMATION

GPM	HP	Stages	Volts	2-Wire		3-Wire		
				Model No.	Order No.	Model No.	Order No.	Control Box
5	1/2	13	115	5WR05P4-2W115	96270505	5WR05P4-3W115	96270530	2801044915
	1/2	13	230	5WR05P4-2W230	96270510	5WR05P4-3W230	96270535	2801054915
	3/4	18	230	5WR07P4-2W230	96270515	5WR07P4-3W230	96270540	2801074915
	1	22	230	5WR1P4-2W230	96270520	5WR1P4-3W230	96270545	2801084915
7	1/2	10	115	7WR05P4-2W115	96270705	7WR05P4-3W115	96270730	2801044915
	1/2	10	230	7WR05P4-2W230	96270710	7WR05P4-3W230	96270735	2801054915
	3/4	13	230	7WR07P4-2W230	96270715	7WR07P4-3W230	96270740	2801074915
	1	18	230	7WR1P4-2W230	96270720	7WR1P4-3W230	96270745	2801084915
10	1/2	11	115	10WRD05P4-2W115	96271005	10WRD05P4-3W115	96271030	2801044915
	1/2	11	230	10WRD05P4-2W230	96271010	10WRD05P4-3W230	96271035	2801054915
	3/4	14	230	10WRD07P4-2W230	96271015	10WRD07P4-3W230	96271040	2801074915
	1	19	230	10WRD1P4-2W230	96271020	10WRD1P4-3W230	96271045	2801084915

STAINLESS STEEL ORDERING INFORMATION

GPM	HP	Stages	Volts	2-Wire		3-Wire		
				Model No.	Order No.	Model No.	Order No.	Control Box
5	1/2	13	115	5WR05S4-2W115	96370505	5WR05S4-3W115	96370530	2801044915
	1/2	13	230	5WR05S4-2W230	96370510	5WR05S4-3W230	96370535	2801054915
	3/4	18	230	5WR07S4-2W230	96370515	5WR07S4-3W230	96370540	2801074915
	1	22	230	5WR1S4-2W230	96370520	5WR1S4-3W230	96370545	2801084915
	1.5	30	230	5WR15S4-2W230	96370525	5WR15S4-3W230	96370550	2823008610
7	1/2	10	115	7WR05S4-2W115	96370705	7WR05S4-3W115	96370730	2801044915
	1/2	10	230	7WR05S4-2W230	96370710	7WR05S4-3W230	96370735	2801054915
	3/4	13	230	7WR07S4-2W230	96370715	7WR07S4-3W230	96370740	2801074915
	1	18	230	7WR1S4-2W230	96370720	7WR1S4-3W230	96370745	2801084915
	1.5	23	230	7WR15S4-2W230	96370725	7WR15S4-3W230	96370750	2823008610
10	1/2	11	115	10WRD05S4-2W115	96371005	10WRD05S4-3W115	96371030	2801044915
	1/2	11	230	10WRD05S4-2W230	96371010	10WRD05S4-3W230	96371035	2801054915
	3/4	14	230	10WRD07S4-2W230	96371015	10WRD07S4-3W230	96371040	2801074915
	1	19	230	10WRD1S4-2W230	96371020	10WRD1S4-3W230	96371045	2801084915
	1.5	24	230	10WRD15S4-2W230	96371025	10WRD15S4-3W230	96371050	2823008610

PUMP ENDS ORDERING INFORMATION

THERMOPLASTIC

GPM	HP	Stages	Model No.	Order No.
5	1/2	13	5WR05P4-PE	96280500
	3/4	18	5WR07P4-PE	96280501
	1	22	5WR1P4-PE	96280502
7	1/2	10	7WR05P4-PE	96280700
	3/4	13	7WR07P4-PE	96280701
	1	18	7WR1P4-PE	96280702
10	1/2	11	10WRD05P4-PE	96281000
	3/4	14	10WRD07P4-PE	96281001
	1	19	10WRD1P4-PE	96281002

STAINLESS STEEL

GPM	HP	Stages	Model No.	Order No.
5	1/2	13	5WR05S4-PE	96380500
	3/4	18	5WR07S4-PE	96380501
	1	22	5WR1S4-PE	96380502
	1.5	30	5WR15S4-PE	96380503
	2	38	5WR2S4-PE	96380504
7	1/2	10	7WR05S4-PE	96380700
	3/4	13	7WR07S4-PE	96380701
	1	18	7WR1S4-PE	96380702
	1.5	23	7WR15S4-PE	96380703
	2	30	7WR2S4-PE	96380704
10	3	38	7WR3S4-PE	96380705
	1/2	11	10WRD05S4-PE	96381000
	3/4	14	10WRD07S4-PE	96381001
	1	19	10WRD1S4-PE	96381002
	1.5	24	10WRD15S4-PE	96381003

NOTES: Discharge is 1-1/4" NPT. Maximum diameter across cable guard on all models is 3.75".

4" 3200 SERIES PUMPS - 5 GPM

PERFORMANCE

The graph displays the performance characteristics of five different pump models. The y-axis represents head in meters and feet, and the x-axis represents flow rate in GPM and M³/H. A shaded region indicates the 'BEST EFFICIENCY RANGE' between approximately 3.2 and 7.0 GPM. A larger shaded region indicates the 'PUMP OPERATING RANGE' from 0 to 8.0 GPM. A callout box shows a 50 FT head at 0.5 GPM flow.

Flow (GPM)	Flow (M ³ /H)	2 HP Head (FT)	1.5 HP Head (FT)	1 HP Head (FT)	3/4 HP Head (FT)	1/2 HP Head (FT)
0	0	1150	900	650	550	400
1	0.1	1050	850	620	530	380
2	0.5	950	800	580	500	350
3	1.0	850	750	540	470	320
4	1.0	780	700	500	440	300
5	1.0	700	650	460	410	280
6	1.5	620	600	420	380	260
7	1.5	550	550	380	350	240
8	1.9	480	500	340	320	220

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4" 3200 SERIES PUMPS - 5 GPM

PERFORMANCE

HP	PSI	Depth To Pumping Water Level (Lift) in Feet. Shaded Areas Indicate Most Efficient Performance																				Shut-off (ft)		
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	600	700	800	900		1000	
1/2	0				8	8	8	7	7	7	6	5	4	3									390	
	20		8	8	8	7	7	7	6	6	6	4	3											
	30	8	8	7	7	7	7	6	6	6	5	4	1											
	40	8	7	7	7	7	6	6	6	5	5	3												
	50	7	7	7	7	6	6	5	5	4	4	2												
	60	7	7	6	6	6	5	5	4	4	3													
80	6	6	6	5	5	4	4	3	2															
Shut-off PSI		161	152	143	135	126	117	109	100	91	83	61	39	18										
3/4	0					8	8	8	8	7	7	6	6	5	4	2							541	
	20				8	8	8	7	7	7	7	6	6	5	4	2								
	30			8	8	8	7	7	7	7	7	6	5	4	3	1								
	40		8	8	8	7	7	7	7	7	6	6	5	4	3									
	50	8	8	8	7	7	7	7	7	6	6	5	4	3	2									
	60	8	8	7	7	7	7	6	6	6	6	5	4	3										
80	7	7	7	7	6	6	6	6	5	5	4	3	1											
Shut-off PSI		226	217	209	200	191	183	174	165	157	148	126	105	83	61	39	18							
1	0							8	8	8	8	7	7	6	6	5	5	2					666	
	20					8	8	8	8	7	7	7	6	6	5	5	4	1						
	30				8	8	8	8	7	7	7	7	6	6	5	4	3							
	40			8	8	8	8	7	7	7	7	6	6	5	5	4	3							
	50		8	8	8	8	7	7	7	7	7	6	6	5	4	3	2							
	60	8	8	8	7	7	7	7	7	7	6	6	5	5	4	3	1							
80	8	7	7	7	7	7	7	6	6	6	5	5	4	3	1									
Shut-off PSI		280	271	263	254	245	237	228	219	211	202	180	159	137	115	94	72	29						
1.5	0										8	8	8	7	7	7	6	5	4	3			899	
	20										8	8	8	7	7	7	6	6	5	4	2			
	30									8	8	8	7	7	7	6	6	6	5	3	1			
	40								8	8	8	8	7	7	7	6	6	5	4	3				
	50						8	8	8	8	7	7	7	6	6	6	5	4	3					
	60				8	8	8	8	8	7	7	7	7	6	6	5	5	4	2					
80		8	8	8	8	8	7	7	7	7	7	6	6	5	5	4	3	1						
Shut-off PSI		381	372	364	355	346	338	329	320	312	303	281	260	238	216	195	173	130	86	43				
2	0											8	8	8	7	7	7	6	6	5	4	3	1152	
	20											8	8	8	7	7	7	6	5	5	4	2		
	30										8	8	8	8	7	7	7	6	5	4	3	2		
	40									8	8	8	8	7	7	7	7	6	6	5	4	3		1
	50								8	8	8	8	8	7	7	7	7	6	6	5	4	3		1
	60							8	8	8	8	8	7	7	7	7	6	6	5	5	4	2		
80				8	8	8	8	8	8	7	7	7	7	6	6	6	5	4	3	2				
Shut-off PSI		491	482	473	465	456	447	439	430	421	413	391	369	348	326	304	282	239	195	152	109	66		

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" 3200 SERIES PUMPS - 7 GPM

PERFORMANCE

The chart displays the performance of 4" 3200 series pumps at a constant flow rate of 7 GPM. The y-axis represents head in meters and feet, and the x-axis represents flow in GPM and M³/H. A shaded region indicates the best efficiency range, and a larger region indicates the pump operating range.

HP	Flow (GPM)	Head (Feet)	Head (Meters)
3 HP	0	1250	360
	1	1200	340
	2	1100	310
	3	1000	280
	4	900	250
	5	800	220
	6	700	190
	7	600	160
	8	500	130
	9	400	100
	10	300	70
	11	200	40
2 HP	0	950	280
	1	900	260
	2	800	220
	3	700	190
	4	600	160
	5	500	130
	6	400	100
	7	300	70
	8	200	40
	9	150	20
	10	100	10
	11	50	5
1.5 HP	0	750	210
	1	700	190
	2	600	160
	3	500	130
	4	400	100
	5	300	70
	6	200	40
	7	150	20
	8	100	10
	9	50	5
	10	20	2
	11	10	1
1 HP	0	580	160
	1	550	150
	2	480	130
	3	420	110
	4	360	90
	5	300	70
	6	240	50
	7	180	30
	8	120	15
	9	80	10
	10	40	5
	11	20	2
3/4 HP	0	420	110
	1	400	100
	2	350	80
	3	300	60
	4	250	40
	5	200	30
	6	150	20
	7	100	10
	8	70	5
	9	40	2
	10	20	1
	11	10	0.5
1/2 HP	0	320	80
	1	300	70
	2	250	50
	3	200	30
	4	150	20
	5	100	10
	6	70	5
	7	40	2
	8	20	1
	9	10	0.5
	10	5	0.2
	11	2	0.1

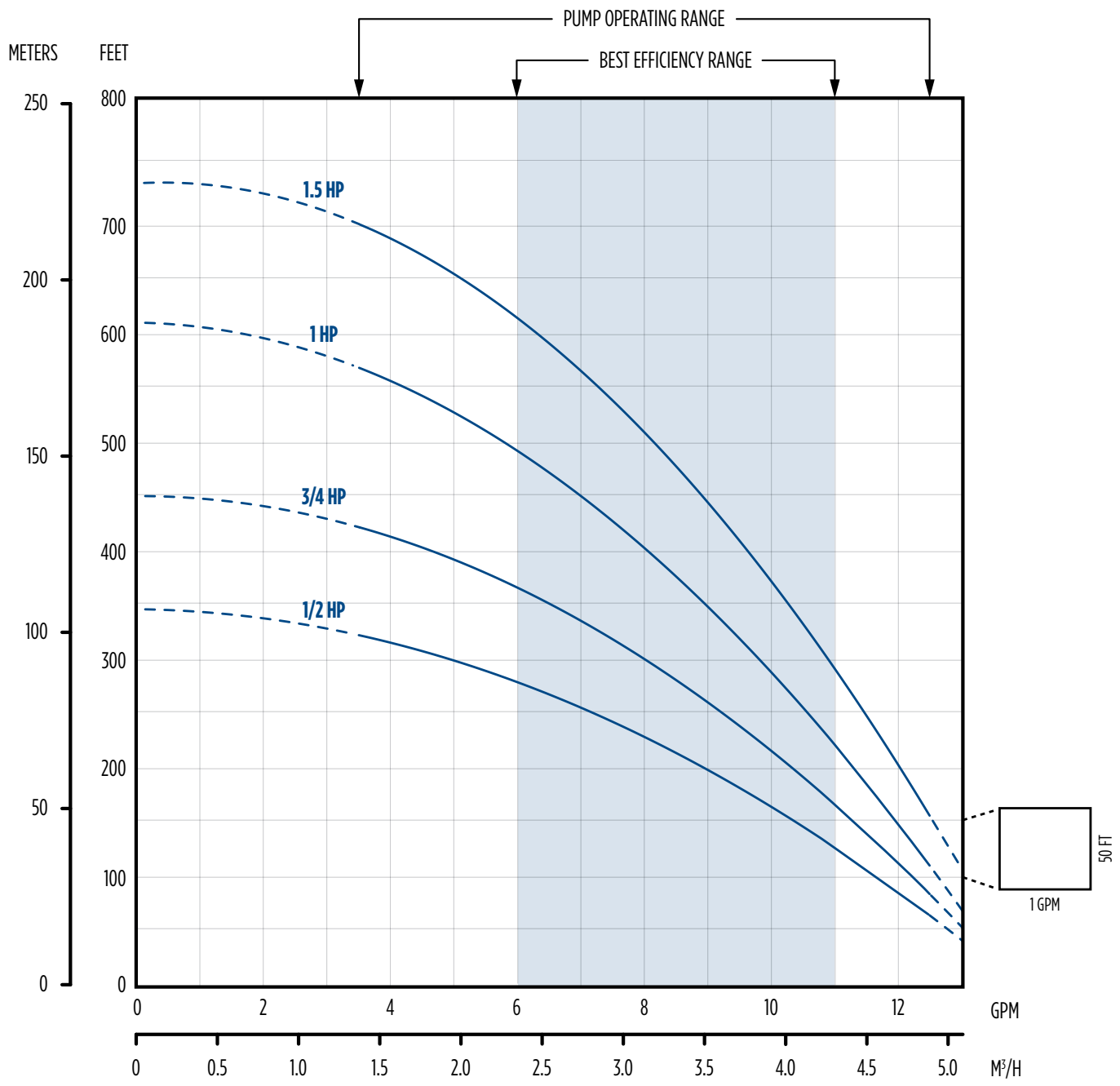
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MENU

4" 3200 SERIES PUMPS - 10 GPM

PERFORMANCE



4" 3200 SERIES PUMPS - 10 GPM

PERFORMANCE

HP	PSI	Depth To Pumping Water Level, Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																								Shut-off (ft)		
		0	20	40	60	80	100	120	140	160	180	200	240	280	320	360	400	440	480	500	550	600	650	700	750		800	
1/2	0	14	13	13	13	12	12	11	11	10	10	9	8	6	4	0												
	10	13	13	13	12	12	11	11	10	9	9	8	7	5	1	0												
	20	13	12	12	12	11	11	10	9	9	8	7	6	3	0													
	30	12	12	11	11	10	10	9	9	8	7	6	4	0														
	40	12	11	11	10	10	9	9	8	7	6	5	3	0														
	50	11	11	10	10	9	8	8	7	6	5	4	0															
	60	11	10	10	9	8	8	7	6	5	4	2	0															
	70	10	10	9	8	8	7	6	5	4	2	0																
80	9	9	8	7	7	6	5	3	1	0																		
Shut-off PSI		153	144	135	127	118	110	101	92	84	75	66	49	32	14	0												
3/4	0	14	14	13	13	13	12	12	12	11	11	10	9	9	7	6	5	2	0									
	10	13	13	13	13	12	12	11	11	11	10	10	9	8	7	5	3	0										
	20	13	13	12	12	12	11	11	11	10	10	9	8	7	6	4	1	0										
	30	13	12	12	12	11	11	11	10	10	9	9	8	7	5	3	0											
	40	12	12	12	11	11	10	10	10	9	9	8	7	6	4	0												
	50	12	12	11	11	10	10	10	9	9	8	8	6	5	3	0												
	60	12	11	11	10	10	10	9	9	8	8	7	6	4	0													
	70	11	11	10	10	9	9	8	8	7	7	6	5	2	0													
80	11	10	10	9	9	8	8	7	7	6	5	3	0															
Shut-off PSI		197	188	180	171	162	154	145	136	128	119	110	93	76	58	41	24	6	0									
1	0	14	14	13	13	13	13	12	12	12	12	11	11	10	10	9	9	8	7	6	6	4	2	0				
	10	14	13	13	13	13	12	12	12	12	11	11	10	10	9	8	8	7	6	5	3	0						
	20	13	13	13	13	12	12	12	12	11	11	11	10	9	9	8	7	6	5	4	2	0						
	30	13	13	13	12	12	12	11	11	11	11	10	10	9	8	7	7	6	4	4	0							
	40	13	12	12	12	12	11	11	11	11	10	10	9	9	8	7	6	5	3	2	0							
	50	12	12	12	12	11	11	11	11	10	10	10	9	8	7	6	5	4	2	0								
	60	12	12	12	11	11	11	10	10	10	10	9	8	8	7	6	5	3	0									
	70	12	12	11	11	11	10	10	10	9	9	9	8	7	6	5	4	2	0									
80	12	11	11	11	10	10	10	9	9	9	8	8	7	6	4	3	0											
Shut-off PSI		268	259	250	242	233	224	216	207	198	190	181	164	146	129	112	94	77	60	51	29	8	0					
1.5	0	14	14	14	14	14	13	13	13	13	13	12	12	11	11	11	10	9	9	9	8	7	6	4	2	0		
	10	14	14	14	14	13	13	13	13	13	12	12	12	11	11	10	10	9	9	8	7	6	5	4	0			
	20	14	14	13	13	13	13	13	12	12	12	12	11	11	10	10	9	9	8	8	7	6	5	3	0			
	30	14	13	13	13	13	13	12	12	12	12	12	11	11	10	10	9	8	8	7	7	5	4	0				
	40	13	13	13	13	13	12	12	12	12	12	11	11	10	10	9	9	8	7	7	6	5	3	0				
	50	13	13	13	13	12	12	12	12	12	11	11	11	10	10	9	9	8	8	7	7	5	4	0				
	60	13	13	13	12	12	12	12	11	11	11	11	10	10	9	9	8	7	7	6	5	3	0					
	70	13	13	12	12	12	12	11	11	11	11	11	10	9	9	8	8	7	6	6	4	0						
80	12	12	12	12	12	11	11	11	11	10	10	10	9	9	8	7	6	5	5	3	0							
Shut-off PSI		331	323	314	305	297	288	279	271	262	253	245	227	210	193	175	158	141	123	115	93	71	50	28	6	0		

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" 3200 SERIES PUMPS - DIMENSIONS

THERMOPLASTIC

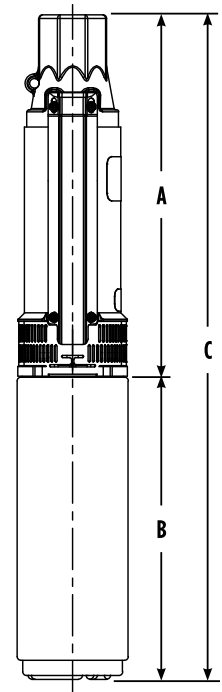
GPM	HP	Stages	2-Wire						3-Wire					
			Dimensions (in)			Wt. (lbs)			Dimensions (in)			Wt. (lbs)		
			A	B	C	PE	PMA	A	B	C	PE	PMA		
5	1/2	13	18.4	9.5	27.9	8	27	18.4	9.5	27.9	8	27		
	3/4	18	22.6	10.6	33.3	10	31	22.6	10.6	33.3	10	31		
	1	22	26.0	11.7	37.7	11	35	26.0	11.7	37.7	11	35		
7	1/2	10	15.9	9.5	25.4	7	26	15.9	9.5	25.4	7	26		
	3/4	13	18.4	10.6	29.0	9	30	18.4	10.6	29.0	9	30		
	1	18	22.6	11.7	34.3	11	35	22.6	11.7	34.3	11	35		
10	1/2	11	16.7	9.5	26.2	8	27	16.7	9.5	26.2	8	27		
	1/2	11	16.7	9.5	26.2	8	27	16.7	9.5	26.2	8	27		
	3/4	14	19.2	10.6	29.8	10	31	19.2	10.6	29.8	10	31		
		1	19	23.5	11.7	35.2	12	36	23.5	11.7	35.2	12	36	

NOTES: PE = Pump end only; PMA = Pump and motor assembly

STAINLESS STEEL

GPM	HP	Stages	2-Wire						3-Wire					
			Dimensions (in)			Wt. (lbs)			Dimensions (in)			Wt. (lbs)		
			A	B	C	PE	PMA	A	B	C	PE	PMA		
5	1/2	13	18.4	9.5	27.9	10	29	18.4	9.5	27.9	10	29		
	3/4	18	22.6	10.6	33.3	12	33	22.6	10.6	33.3	12	33		
	1	22	26.0	11.7	37.7	13	27	26.0	11.7	37.7	13	27		
	1.5	30	34.1	15.1	49.2	19	50	34.1	13.6	47.7	19	50		
	2	38	-	-	-	-	-	40.9	15.1	56.0	23	-		
7	1/2	10	15.9	9.5	25.4	9	28	15.9	9.5	25.4	9	28		
	3/4	13	18.4	10.6	29.0	11	32	18.4	10.6	29.0	11	32		
	1	18	22.6	11.7	34.3	13	37	22.6	11.7	34.3	13	37		
	1.5	23	26.8	15.1	41.9	17	48	26.8	13.6	40.4	17	48		
	2	30	-	-	-	-	-	34.1	15.1	49.2	20	-		
	3	38	-	-	-	-	-	40.9	19.04	59.9	23	-		
10	1/2	11	16.7	9.5	26.2	10	29	16.7	9.5	26.2	10	29		
	1/2	11	16.7	9.5	26.2	10	29	16.7	9.5	26.2	10	29		
	3/4	14	19.2	10.6	29.8	12	33	19.2	10.6	29.8	12	33		
	1	19	23.5	11.7	35.2	14	38	23.5	11.7	35.2	14	38		
	1.5	24	27.7	15.1	42.8	18	49	27.7	13.6	41.3	18	49		

NOTES: PE = Pump end only; PMA = Pump and motor assembly



4" STANDARD CAPACITY PUMPS

FEATURES

- Five performance ranges: 5, 7, 10, 15, and 20 gpm
- Available with thermoplastic or stainless steel discharge and motor bracket
- Acetal disk allows for close tolerances for increased performance
- Thermoplastic impellers and stages for maximum efficiency
- Stainless steel upthrust washer prevents excessive wear in severe applications
- Built-in removable valve keeps water in your system at all times
- Stainless steel shaft features high quality, premium materials at a competitive price
- Sintered stainless steel top bearing to provide years of trouble-free service
- Maximum water temperature with proper flow is 120 °F (49 °C); consult factory for further details
- Removable suction screen prevents debris from clogging impellers and provides full flow performance
- Hex rubber-top bearing has an extra large surface area to assure shaft stability and multiple flow channels to keep small particulates away from bearing surfaces
- Powered by Franklin corrosion-resistant submersible motors



4" STANDARD CAPACITY PUMPS - ORDERING INFORMATION

THERMOPLASTIC ORDERING INFORMATION

GPM	HP	Stages	Volts	2-Wire		3-Wire	
				Model No.	Order No.	Model No.	Order No.
5	1/2	13	115	5WA05P4-2W115	94320505	5WA05P4-3W115	94320525
	1/2	13	230	5WA05P4-2W230	94320510	5WA05P4-3W230	94320530
	3/4	18	230	5WA07P4-2W230	94320515	5WA07P4-3W230	94320535
	1	21	230	5WA1P4-2W230	94320520	5WA1P4-3W230	94320540
7	1/2	9	115	7WA05P4-2W115	94320705	7WA05P4-3W115	94320730
	1/2	9	230	7WA05P4-2W230	94320710	7WA05P4-3W230	94320735
	3/4	12	230	7WA07P4-2W230	94320715	7WA07P4-3W230	94320740
	1	15	230	7WA1P4-2W230	94320720	7WA1P4-3W230	94320745
	1.5	21	230	7WA15P4-2W230	94320725	7WA15P4-3W230	94320750
10	1/2	7	115	10WA05P4-2W115	94321005	10WA05P4-3W115	94321030
	1/2	7	230	10WA05P4-2W230	94321010	10WA05P4-3W230	94321035
	3/4	9	230	10WA07P4-2W230	94321015	10WA07P4-3W230	94321040
	1	12	230	10WA1P4-2W230	94321020	10WA1P4-3W230	94321045
	1.5	17	230	10WA15P4-2W230	94321025	10WA15P4-3W230	94321050
15	3/4	8	230	15WA07P4-2W230	94321505	15WA07P4-3W230	94320720
	1	10	230	15WA1P4-2W230	94321510	15WA1P4-3W230	94320725
	1.5	14	230	15WA15P4-2W230	94321515	15WA15P4-3W230	94320730
20	3/4	5	230	20WA07P4-2W230	94322005	20WA07P4-3W230	94322020
	1	7	230	20WA1P4-2W230	94322010	20WA1P4-3W230	94322025
	1.5	9	230	20WA15P4-2W230	94322015	20WA15P4-3W230	94322030

NOTES: All listed above have 1-1/4" NPT discharge and feature our removable Flomatic™ poppet assembly.

STAINLESS STEEL ORDERING INFORMATION

GPM	HP	Stages	Volts	2-Wire		3-Wire	
				Model No.	Order No.	Model No.	Order No.
5	1/2	13	115	5WA05S4-2W115	94350505	5WA05S4-3W115	94350525
	1/2	13	230	5WA05S4-2W230	94350510	5WA05S4-3W230	94350530
	3/4	18	230	5WA07S4-2W230	94350515	5WA07S4-3W230	94350535
	1	21	230	5WA1S4-2W230	94350520	5WA1S4-3W230	94350540
7	1/2	9	115	7WA05S4-2W115	94350705	7WA05S4-3W115	94350730
	1/2	9	230	7WA05S4-2W230	94350710	7WA05S4-3W230	94350735
	3/4	12	230	7WA07S4-2W230	94350715	7WA07S4-3W230	94350740
	1	15	230	7WA1S4-2W230	94350720	7WA1S4-3W230	94350745
	1.5	21	230	7WA15S4-2W230	94350725	7WA15S4-3W230	94350750
10	1/2	7	115	10WA05S4-2W115	94351005	10WA05S4-3W115	94351030
	1/2	7	230	10WA05S4-2W230	94351010	10WA05S4-3W230	94351035
	3/4	9	230	10WA07S4-2W230	94351015	10WA07S4-3W230	94351040
	1	12	230	10WA1S4-2W230	94351020	10WA1S4-3W230	94351045
	1.5	17	230	10WA15S4-2W230	94351025	10WA15S4-3W230	94351050
15	3/4	8	230	15WA07S4-2W230	94351505	15WA07S4-3W230	94351520
	1	10	230	15WA1S4-2W230	94351510	15WA1S4-3W230	94351525
	1.5	14	230	15WA15S4-2W230	94351515	15WA15S4-3W230	94351530
20	3/4	5	230	20WA07S4-2W230	94352005	20WA07S4-3W230	94352020
	1	7	230	20WA1S4-2W230	94352010	20WA1S4-3W230	94352025
	1.5	9	230	20WA15S4-2W230	94352015	20WA15S4-3W230	94352030

NOTES: All listed above have 1-1/4" NPT discharge and feature our removable Flomatic™ poppet assembly.

4" STANDARD CAPACITY PUMPS - ORDERING INFORMATION

PUMP ENDS ORDERING INFORMATION

THERMOPLASTIC

GPM	HP	Stages	Model No.	Order No.
5	1/2	13	5WA05P4-PE	94330505
	3/4	18	5WA07P4-PE	94330510
	1	21	5WA1P4-PE	94330515
7	1/2	9	7WA05P4-PE	94330705
	3/4	12	7WA07P4-PE	94330710
	1	15	7WA1P4-PE	94330715
	1.5	21	7WA15P4-PE	94330720
10	1/2	7	10WA05P4-PE	94331005
	3/4	9	10WA07P4-PE	94331010
	1	12	10WA1P4-PE	94331015
	1.5	17	10WA15P4-PE	94331020
15	3/4	8	15WA07P4-PE	94331505
	1	10	15WA1P4-PE	94331510
	1.5	14	15WA15P4-PE	94331515
20	3/4	5	20WA07P4-PE	94332005
	1	7	20WA1P4-PE	94332010
	1.5	9	20WA15P4-PE	94332015

STAINLESS STEEL

GPM	HP	Stages	Model No.	Order No.
5	1/2	13	5WA05S4-PE	94360505
	3/4	18	5WA07S4-PE	94360510
	1	21	5WA1S4-PE	94360515
	1.5	28	5WA15S4-PE	94360520
7	1/2	9	7WA05S4-PE	94360705
	3/4	12	7WA07S4-PE	94360710
	1	15	7WA1S4-PE	94360715
	1.5	21	7WA15S4-PE	94360720
	2	24	7WA2S4-PE	94360725
10	1/2	7	10WA05S4-PE	94361005
	3/4	9	10WA07S4-PE	94361010
	1	12	10WA1S4-PE	94361015
	1.5	17	10WA15S4-PE	94361020
	2	19	10WA2S4-PE	94361025
15	3	26	10WA3S4-PE	94361030
	3/4	8	15WA07S4-PE	94361505
	1	10	15WA1S4-PE	94361510
	1.5	14	15WA15S4-PE	94361515
	2	18	10WA2S4-PE	94361520
20	3	24	10WA3S4-PE	94361525
	3/4	5	20WA07S4-PE	94362005
	1	7	20WA1S4-PE	94362010
	1.5	9	20WA15S4-PE	94362015
	2	11	20WA2S4-PE	94362020
20	3	15	20WA3S4-PE	94362025
	5	25	20WA5S4-PE	94362030

4" STANDARD CAPACITY PUMPS - 5 GPM

PERFORMANCE

The graph displays the performance of four different pump models. The y-axis represents head in meters and feet, and the x-axis represents flow rate in GPM and M³/H. A shaded region indicates the 'BEST EFFICIENCY RANGE' between approximately 3.2 and 7.0 GPM. A larger bracketed area indicates the 'PUMP OPERATING RANGE' from 0 to 8 GPM.

Flow Rate (GPM)	Flow Rate (M ³ /H)	1.5 HP Head (ft)	1.5 HP Head (m)	1 HP Head (ft)	1 HP Head (m)	3/4 HP Head (ft)	3/4 HP Head (m)	1/2 HP Head (ft)	1/2 HP Head (m)
0	0	260	80	190	60	165	50	115	35
1	0.2	255	78	185	58	160	48	115	35
2	0.4	240	74	175	54	155	46	110	33
3	0.6	220	68	165	50	150	44	105	31
4	0.8	200	62	155	46	145	42	100	29
5	1.0	180	56	145	42	140	40	95	27
6	1.2	160	50	135	38	135	38	90	25
7	1.6	140	44	125	34	130	36	85	23
8	1.8	120	38	115	30	125	34	80	21

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4" STANDARD CAPACITY PUMPS - 5 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																				Shut-off (ft)			
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700		750	800	
1/2	0								7.3	7.0	6.6	5.6	4.4	2.7											390
	20						7.2	6.9	6.5	6.1	5.7	4.4	2.9												
	30				7.5	7.2	6.8	6.5	6.0	5.6	5.1	3.8	1.7												
	40			7.5	7.1	6.8	6.4	6.0	5.5	5.0	4.5	3.0													
	50		7.4	7.1	6.7	6.3	5.9	5.4	5.0	4.5	3.9	1.9													
	60	7.4	7.0	6.7	6.3	5.8	5.4	4.9	4.4	3.8	3.2														
80	6.5	6.1	5.7	5.2	4.7	4.2	3.7	3.0	2.0																
Shut-off PSI		160	152	143	134	126	117	108	100	91	82	61	39	17											
3/4	0										7.5	6.9	6.3	5.4	4.4	3.6	2.5								540
	20								7.4	7.2	7.0	6.3	5.4	4.5	3.7	2.6									
	30							7.4	7.2	6.9	6.7	5.9	5.0	4.1	3.2	1.8									
	40						7.4	7.1	6.9	6.7	6.4	5.5	4.6	3.7	2.7										
	50					7.3	7.1	6.9	6.6	6.3	6.0	5.1	4.2	3.3	2.0										
	60			7.5	7.3	7.1	6.8	6.6	6.3	6.0	5.6	4.6	3.8	2.8											
80	7.5	7.2	7.0	6.8	6.5	6.2	5.8	5.5	5.1	4.7	3.8	2.9	1.0												
Shut-off PSI		225	217	208	199	191	182	173	165	156	147	126	104	82	61	39	17								
1	0											7.3	6.9	6.3	5.6	4.7	4.0	3.2	1.9						625
	20										7.4	6.9	6.4	5.6	4.8	4.0	3.2	2.0							
	30										7.3	7.2	6.7	6.0	5.2	4.4	3.7	2.8	1.1						
	40								7.3	7.1	7.0	6.4	5.7	4.9	4.1	3.3	2.2								
	50						7.5	7.3	7.1	6.9	6.7	6.1	5.3	4.5	3.7	2.9	1.3								
	60					7.5	7.3	7.1	6.9	6.7	6.5	5.7	4.9	4.1	3.4	2.3									
80			7.4	7.2	7.0	6.8	6.6	6.4	6.1	5.8	5.0	4.2	3.4	2.4											
Shut-off PSI		262	253	245	236	227	219	210	201	193	184	162	141	119	97	76	54	32	11						
1.5	0													7.5	7.0	6.6	6.1	5.5	5.0	4.5	3.8	3.1	2.1		850
	20													7.5	7.1	6.6	6.1	5.6	5.1	4.5	3.9	3.1	2.2		
	30													7.3	6.9	6.4	5.9	5.3	4.8	4.2	3.6	2.7	1.6		
	40													7.1	6.6	6.1	5.6	5.1	4.5	3.9	3.2	2.2			
	50												7.4	6.9	6.4	5.9	5.4	4.8	4.3	3.6	2.8	1.7			
	60												7.2	6.7	6.2	5.7	5.1	4.6	4.0	3.3	2.3	1.1			
80										7.4	7.2	6.7	6.2	5.7	5.2	4.6	4.0	3.3	2.4	1.2					
Shut-off PSI		359	351	342	333	325	316	307	299	290	281	260	238	217	195	173	152	130	108	87	65	43	22		

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" STANDARD CAPACITY PUMPS - 7 GPM

PERFORMANCE

The graph displays the performance characteristics of five different pump models. The vertical axis represents head in meters and feet, while the horizontal axis represents flow rate in GPM and M³/H. A shaded region indicates the 'BEST EFFICIENCY RANGE' between approximately 5 and 9 GPM. A larger bracketed area above the graph indicates the 'PUMP OPERATING RANGE' from 0 to 11 GPM.

Flow Rate (GPM)	Flow Rate (M ³ /H)	2 HP Head (ft)	1.5 HP Head (ft)	1 HP Head (ft)	3/4 HP Head (ft)	1/2 HP Head (ft)
0	0	700	600	450	350	250
1	0.5	680	580	440	340	240
2	1.0	650	550	430	330	230
3	1.5	600	500	410	310	220
4	2.0	550	450	380	280	210
5	2.5	500	400	350	250	200
6	3.0	450	350	310	220	180
7	3.5	400	300	270	190	160
8	4.0	350	250	230	160	140
9	4.5	300	200	190	130	120
10	5.0	250	150	150	100	90
11	5.5	200	100	110	70	60

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4" STANDARD CAPACITY PUMPS - 7 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																								
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700	750	Shut-off (ft)			
1/2	0								10.0	9.0	8.0	4.3												280		
	20						9.7	8.7	7.7	6.6	4.8															
	30					9.5	8.5	7.6	6.4	4.4																
	40				9.4	8.4	7.4	6.2	4.0																	
	50			9.2	8.2	7.3	5.9	3.5																		
	60		9.0	8.1	7.1	5.7	2.9																			
	80	7.8	6.7	5.0																						
Shut-off PSI		113	104	95	87	78	69	61	52	43	35	13														
3/4	0												9.0	6.9	3.0									374		
	20									9.8	9.1	7.1	3.4													
	30								9.7	9.0	8.3	5.8														
	40							9.6	8.9	8.2	7.3	3.8														
	50						9.5	8.8	8.0	7.2	6.0															
	60					9.4	8.7	7.9	7.0	5.8	4.2															
	80		9.9	9.2	8.5	7.7	6.7	5.4	3.6																	
Shut-off PSI		153	145	136	127	119	110	101	93	84	75	54	32	10												
1	0												9.2	7.9	6.1									450		
	20												9.3	8.0	6.3											
	30												10.0	8.7	7.4	4.8										
	40									9.9	9.4	8.1	6.5	2.4												
	50								9.9	9.3	8.8	7.5	5.1													
	60							9.8	9.2	8.7	8.2	6.7	2.9													
	80					9.6	9.0	8.5	8.0	7.5	6.8	3.4														
Shut-off PSI		186	178	169	160	152	143	134	126	117	108	87	65	43	22											
1.5	0														9.6	8.4	7.2	5.7	3.0					615		
	20														9.7	8.5	7.3	5.8	3.3							
	30														9.2	8.0	6.7	4.8								
	40														9.8	8.6	7.4	5.9	3.5							
	50														9.2	8.1	6.8	5.0								
	60													9.9	8.7	7.5	6.1	3.8								
	80												10.0	8.8	7.6	6.2	4.0									
Shut-off PSI		258	249	240	232	223	214	206	197	188	180	158	136	115	93	71	50	28	6	30	9					
2.0	0															9.8	8.9	8.1	7.2	5.8	3.3			720		
	20															9.9	9.0	8.1	7.3	5.9	3.3					
	30															9.5	8.6	7.8	6.8	4.9						
	40														10.0	9.0	8.2	7.4	6.1	3.6						
	50															9.5	8.6	7.8	6.9	5.1						
	60															10.0	9.1	8.3	7.4	6.2	3.8					
	80															9.2	8.3	7.5	6.3	4.1						
Shut-off PSI		303	294	286	277	268	260	251	242	234	225	204	182	160	139	117	95	74	52	30	9					

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

MENU

4" STANDARD CAPACITY PUMPS - 10 GPM

PERFORMANCE

The chart displays the performance curves for six different pump models. The y-axis represents head in meters (0 to 300) and feet (0 to 900). The x-axis represents flow rate in GPM (0 to 16) and M³/H (0 to 3.5). A shaded region indicates the best efficiency range, and a larger bracketed region indicates the pump operating range. A small inset box shows a 20-foot vertical scale for 0.2 GPM.

Flow Rate (GPM)	Flow Rate (M³/H)	3 HP Head (FT)	2 HP Head (FT)	1.5 HP Head (FT)	1 HP Head (FT)	3/4 HP Head (FT)	1/2 HP Head (FT)
0	0	280	200	170	140	110	90
2	0.5	270	190	160	130	100	80
4	1.0	250	175	150	120	90	70
6	1.5	220	155	135	105	80	60
8	2.0	180	130	110	85	65	50
10	2.5	140	105	85	65	50	40
12	3.0	100	80	65	50	40	30
14	3.5	60	55	45	35	25	20
15	3.75	45	40	30	25	15	15

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4" STANDARD CAPACITY PUMPS - 10 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																				Shut-off (ft)			
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700		750	800	850
1/2	0							14.0	12.1	10.2	8.6														
	20					13.4	11.5	9.7	8.1	5.5															
	30				13.2	11.2	9.4	7.8	4.8																
	40			12.9	10.9	9.2	7.5	3.9																	
	50		12.6	10.6	9.0	7.2	3.0																		
	60	12.2	10.3	8.7	6.8																				
	80	8.2	5.8																						
Shut-off PSI		95	87	78	69	61	52	43	35	26	17														
3/4	0									13.9	12.8	8.9													
	20							13.6	12.4	11.1	9.3														
	30						13.4	12.2	10.8	9.0	6.4														
	40					13.2	12.0	10.6	8.6	6.0															
	50				13.1	11.8	10.3	8.3	5.5																
	60		14.0	12.9	11.6	10.0	7.9	4.9																	
	80	12.5	11.2	9.4	7.1	3.8																			
Shut-off PSI		119	110	102	93	84	76	67	58	50	41	19													
1	0											13.6	10.9	8.2											
	20											13.8	11.1	8.4											
	30											13.7	12.6	10.0	6.2										
	40										13.5	12.4	11.3	8.7											
	50						13.3	12.2	11.2	10.2	6.7														
	60					13.2	12.1	11.0	10.0	8.9															
	80			13.9	12.8	11.7	10.7	9.7	8.5	6.8	3.6														
Shut-off PSI		162	154	145	136	128	119	110	102	93	84	63	41	19											
1.5	0													13.7	11.9	10.0	7.4								
	20													13.8	12.1	10.1	7.7	3.2							
	30													13.1	11.2	9.1	6.0								
	40													13.9	12.2	10.3	7.9	3.7							
	50													13.2	11.4	9.3	6.3								
	60													12.4	10.5	8.1	4.1								
	80									13.9	13.2	12.5	10.6	8.3	4.6										
Shut-off PSI		234	225	217	208	199	191	182	173	165	156	134	113	91	69	48	26								
2.0	0														13.5	12.1	10.7	8.9	6.3						
	20														13.6	12.2	10.8	9.0	6.5	3.0					
	30														12.9	11.6	10.1	8.0	5.0						
	40														13.7	12.3	10.9	9.2	6.8	3.3					
	50														13.0	11.7	10.2	8.2	5.3						
	60														13.8	12.4	11.1	9.4	7.0	3.6					
	80												13.9	12.5	11.2	9.5	7.2	3.9							
Shut-off PSI		276	268	259	250	242	233	224	216	207	198	177	155	133	112	90	68	47	25						
3.0	0															13.6	12.4	11.3	10.1	8.8	6.9	3.9			
	20															13.6	12.5	11.4	10.2	8.9	7.1	4.2			
	30															13.1	12.0	10.9	9.7	8.2	5.9				
	40															13.7	12.6	11.5	10.3	9.0	7.3	4.5			
	50															13.2	12.1	11.0	9.8	8.3	6.2				
	60															13.8	12.7	11.6	10.4	9.1	7.4	4.8			
	80															13.9	12.8	11.7	10.5	9.2	7.6	5.0			
Shut-off PSI		372	364	355	346	338	329	320	312	303	294	273	251	229	208	186	165	143	121	100	78	56	35	13	

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

MENU

4" STANDARD CAPACITY PUMPS - 15 GPM

PERFORMANCE

The chart displays the performance of five different pump models. The y-axis represents head in meters and feet, and the x-axis represents flow rate in GPM and M³/H. A shaded region indicates the 'BEST EFFICIENCY RANGE' between approximately 8.5 and 18 GPM. A larger shaded region indicates the 'PUMP OPERATING RANGE' from approximately 3 to 21 GPM.

Flow Rate (GPM)	Flow Rate (M ³ /H)	3 HP Head (FT)	2 HP Head (FT)	1.5 HP Head (FT)	1 HP Head (FT)	3/4 HP Head (FT)
0	0	650	500	350	250	200
3	1.0	650	500	350	250	200
6	2.0	640	490	340	240	190
9	3.0	620	470	320	220	170
12	4.0	580	430	280	180	130
15	5.0	520	370	230	130	80
18	6.0	440	290	160	70	40
21	7.0	340	190	100	30	10
24	8.0	220	100	50	10	0

22

4" STANDARD CAPACITY PUMPS - 15 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	
3/4	0							19	17	15	12										220
	10						19	17	14	11											
	20				20	18	16	14	10												
	30			20	18	16	13	10													
	40		20	18	16	13	9														
	50	20	17	15	13	7															
	60	17	15	12	6																
	70	14	11																		
	80	11																			
	90																				
	100																				
	110																				
	120																				
	130																				
	140																				
	150																				
	160																				
Shut-off PSI		87	78	69	61	52	43	35	26	18	9										
1	0									20	18	12								280	
	10									20	18	16	7								
	20								19	18	15	13									
	30							19	17	15	12	8									
	40				20	19	17	15	12	7											
	50			20	19	17	14	11	6												
	60		20	18	16	14	10	5													
	70	20	18	16	13	10	4														
	80	18	16	13	9																
	90	15	12	8																	
	100	12	8																		
	110	7																			
	120																				
	130																				
	140																				
	150																				
	160																				
Shut-off PSI		113	104	95	87	78	69	61	52	43	35	13									
1.5	0											19	15	9						369	
	10												17	13							
	20										20	19	15	10							
	30										20	19	17	13							
	40								20	18	17	15	10								
	50						20	18	17	15	13	5									
	60					19	18	16	15	13	11										
	70				19	18	16	15	13	11	6										
	80		20	19	17	16	14	13	10	5											
	90	20	19	17	16	14	12	9	4												
	100	19	17	15	14	12	9														
	110	17	15	14	12	8															
	120	15	13	11	7																
	130	13	11	7																	
	140	10	6																		
	150	5																			
	160																				
Shut-off PSI		151	143	134	125	117	108	99	91	82	73	52	30	8							

NOTE: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" STANDARD CAPACITY PUMPS - 15 GPM

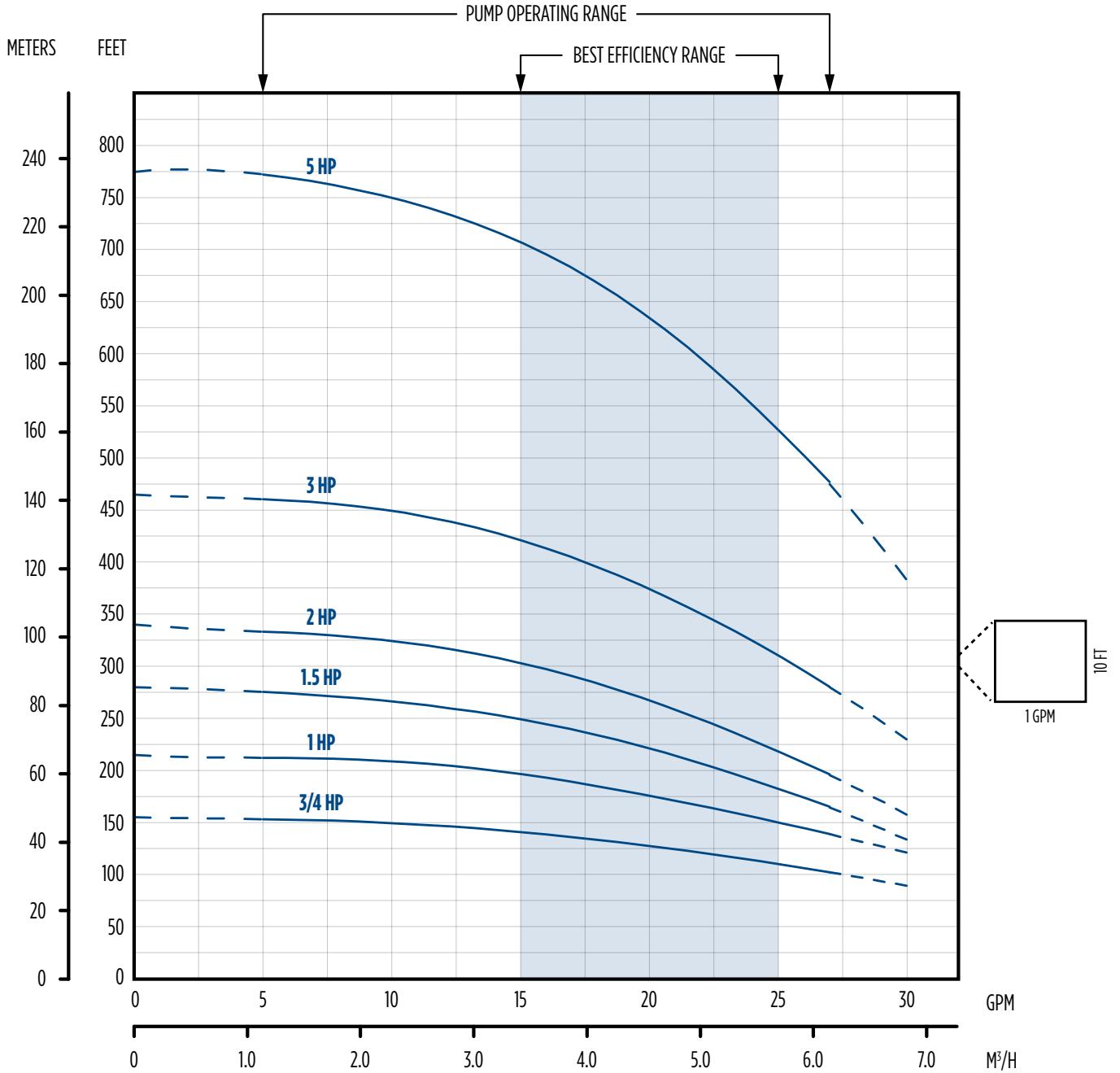
PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	
2	0												20	18	16	13	6				
	10												19	17	15	11					
	20											20	18	17	14	7					
	30											19	18	16	11						
	40											19	17	14	8						
	50									20	20	18	16	12							
	60								20	20	19	17	14	8							
	70							20	19	19	18	16	12								
	80					20	19	18	18	17	15	9									
	90				20	19	18	18	17	16	13										
	100			20	19	18	17	16	15	10											
	110		20	20	19	18	17	16	15	13											
	120	20	20	19	18	17	16	14	13	10											
	130	19	19	18	17	16	15	14	12	10	6										
	140	19	18	17	16	15	14	12	9												
	150	18	17	16	15	14	12	9													
160	15	13	10	7																	
Shut-off PSI		208	200	191	182	174	165	156	148	139	130	109	87	66	44	22	s				
3	0															18	16	13	8		
	10															19	17	15	12		
	20															18	16	14	9		
	30														19	18	15	12			
	40														18	16	14	10			
	50													19	18	15	13				
	60													18	17	14	10				
	70													19	18	15 s	13				
	80													18	17	14	11				
	90											19	18	16	13	6					
	100										19	17	14	11							
	110									19	18	16	13	7							
	120									19	19	17	15	12							
	130								19	19	18	16	13	8							
	140						19	18	18	17	15	12									
	150					19	18	18	17	16	14	9									
160		19	19	18	18	17	16	15	14	13											
Shut-off PSI		277	269	260	251	243	234	225	217	208	199	178	156	134	113	91	69	48	26	5	

NOTE: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" STANDARD CAPACITY PUMPS - 20 GPM

PERFORMANCE



4" STANDARD CAPACITY PUMPS - 20 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																							
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700	750	Shut-off (ft)		
3/4	0					27	22	15																153	
	10				27	21	14																		
	20			26	20	12																			
	30		25	19	10																				
	40	25	18	7																					
	50	17																							
	60																								
	70																								
	80																								
	90																								
	100																								
	110																								
	120																								
	130																								
	140																								
	150																								
	160																								
Shut-off PSI		58	49	40	32	23	14	6																	
1	0							27	23	19	14												212		
	10						26	23	18	13															
	20					26	22	18	11																
	30				25	21	17	9																	
	40			25	20	16																			
	50	27	24	20	16																				
	60	24	19	15																					
	70	19	13																						
	80	12																							
	90																								
	100																								
	110																								
	120																								
	130																								
	140																								
	150																								
	160																								
Shut-off PSI		83	75	66	57	49	40	31	23	14	5														
1 1/2	0								27	25	23	15											280		
	10								27	25	23	20	7												
	20								27	25	22	19	16												
	30						26	24	22	19	15	9													
	40				26	24	24	21	18	14	7														
	50			26	24	21	18	14																	
	60	27	26	23	20	17	13																		
	70	25	23	20	17	12																			
	80	22	19	16	11																				
	90	19	15	9																					
	100	15	8																						
	110	6																							
	120																								
	130																								
	140																								
	150																								
	160																								
Shut-off PSI		113	104	95	87	78	69	61	52	43	35	13													

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" STANDARD CAPACITY PUMPS - 20 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet - Shaded Areas Indicate Most Efficient Performance																				Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700		750
2	0										27	22	16										
	10									26	25	19	10										
	20							27	26	24	22	16											
	30						27	26	24	22	20	11											
	40					27	26	24	22	19	17												
	50				27	25	24	21	19	16	12												
	60			27	25	23	21	19	16	12													
	70		26	25	23	20	18	15	11														
	80	26	25	22	20	18	15	10															
	90	24	22	20	17	14	8																
	100	22	19	17	14	7																	
	110	19	17	13																			
	120	16	12																				
	130	11																					
	140																						
	150																						
	160																						
Shut-off PSI		139	130	121	113	104	95	87	78	69	61	39	17										
3	0												26	22	18	9							
	10												27	24	20	15							
	20												26	22	18	10							
	30											27	25	20	15								
	40										27	26	23	18	11								
	50										27	26	25	21	16								
	60							27	26	25	23	19	12										
	70						27	26	24	23	21	16											
	80					27	26	24	22	21	19	13											
	90				27	25	24	22	20	19	17	7											
	100		27	26	25	24	22	20	18	16	14												
	110	27	26	25	23	22	20	18	16	13	8												
	120	26	25	23	21	20	18	16	13	7													
	130	24	23	21	19	18	15	12															
	140	23	21	19	17	15	11																
	150	21	19	17	14	10																	
	160	13	8																				
Shut-off PSI		193	184	175	167	158	149	141	132	123	115	93	71	50	28	6							
5	0														27	26	24	22	19	15	10		
	10														27	25	23	21	17	13			
	20														27	26	25	22	19	16	10		
	30														27	25	24	21	18	14	7		
	40														27	26	25	22	20	16	11		
	50														27	25	24	21	18	14	8		
	60														26	25	23	20	16	11			
	70													27	26	24	21	18	14	8			
	80														26	25	23	20	17	12			
	90											27	26	24	22	19	15	9					
	100											26	25	23	20	17	12						
	110											27	26	24	22	19	15	9					
	120									27	26	25	23	21	17	13							
	130							27	27	26	26	24	22	19	15	10							
	140						27	27	26	26	25	23	21	17	13								
	150					27	27	26	26	25	25	22	19	16	10								
	160		27	26	26	25	25	24	23	22	21	18	14	7									
Shut-off PSI		326	317	309	300	291	283	274	265	257	248	226	205	183	161	140	118	96	75	53	32	10	

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" STANDARD CAPACITY PUMPS - DIMENSIONS

THERMOPLASTIC

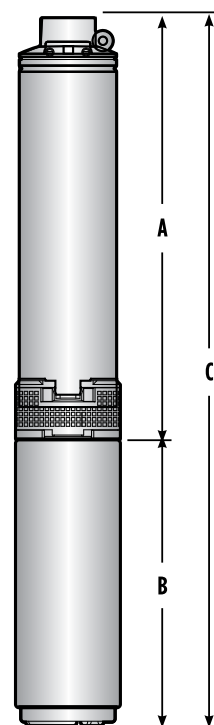
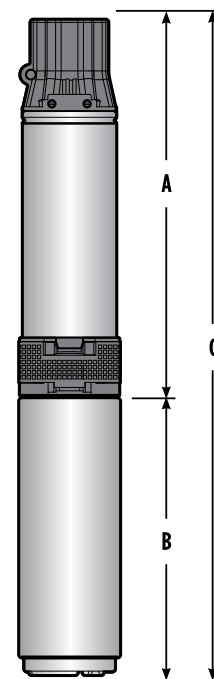
GPM	HP	Stages	2-Wire					3-Wire				
			Dimensions (in)			Wt. (lbs)		Dimensions (in)			Wt. (lbs)	
			A	B	C	PE	PMA	A	B	C	PE	PMA
5	1/2	13	17.54	9.51	27.05	8	26	17.54	9.51	27.05	8	25
	3/4	18	21.51	10.64	32.15	10	29	21.51	10.64	32.15	10	30
	1	21	22.27	11.73	34.00	11	33	22.27	11.73	34.00	10	34
7	1/2	9	14.30	9.51	23.81	4	24	14.30	9.51	23.81	4	24
	3/4	12	16.65	10.64	27.29	7	28	16.65	10.64	27.29	7	28
	1	15	19.00	11.73	30.73	8	33	19.00	11.73	30.73	8	33
	1.5	21	23.70	15.10	38.90	10	42	23.70	13.60	37.30	10	42
10	1/2	7	12.73	9.51	22.49	6	24	12.73	9.51	22.49	6	24
	3/4	9	14.30	10.64	24.94	7	28	14.30	10.64	24.94	7	28
	1	12	16.65	11.73	28.38	8	31	16.65	11.73	28.38	8	32
	1.5	17	20.57	15.10	35.67	12	38	20.57	13.60	34.17	12	39
15	3/4	8	16.12	10.64	26.76	7	28	16.12	10.64	26.76	7	27
	1	10	18.34	11.73	30.07	7	31	18.34	11.73	30.07	7	30
	1.5	14	21.66	15.10	36.76	10	40	21.66	13.60	35.26	10	39
20	3/4	5	12.79	10.64	23.43	6	27	12.79	10.64	23.43	6	27
	1	7	15.01	11.73	26.74	7	30	15.01	11.73	26.74	7	33
	1.5	9	17.23	15.10	32.33	8	40	17.23	13.60	30.83	8	39

NOTE: Maximum diameter with cable guard is 3.90"

STAINLESS STEEL

GPM	HP	Stages	2-Wire					3-Wire				
			Dimensions (in)			Wt. (lbs)		Dimensions (in)			Wt. (lbs)	
			A	B	C	PE	PMA	A	B	C	PE	PMA
5	1/2	13	17.95	9.51	27.46	9	26	17.95	9.51	27.46	9	25
	3/4	18	21.91	10.64	32.55	11	29	21.91	10.64	32.55	11	30
	1	21	24.29	11.73	36.02	12	33	24.29	11.73	36.02	12	34
	1.5	28	31.92	15.10	47.02	14	43	31.92	13.60	45.52	14	44
7	1/2	9	14.62	9.51	24.13	5	24	14.62	9.51	24.13	5	24
	3/4	12	16.97	10.64	26.61	8	28	16.97	10.64	26.61	8	28
	1	15	19.32	11.73	31.05	9	33	19.32	11.73	31.05	9	33
	1.5	21	24.03	15.10	39.13	11	42	24.03	13.60	37.63	11	42
	2	24	-	-	-	-	-	26.38	15.10	41.48	13	N/A
10	1/2	7	13.05	9.51	22.66	7	24	13.05	9.51	22.66	7	24
	3/4	9	14.62	10.64	25.26	8	28	14.62	10.64	25.26	8	28
	1	12	16.97	11.73	28.70	9	31	16.97	11.73	28.70	9	32
	1.5	17	20.89	15.10	35.99	13	38	20.89	13.60	34.49	13	39
	2	19	-	-	-	-	-	22.46	15.10	37.56	15	-
15	3/4	8	16.44	10.64	27.08	8	28	16.44	10.64	27.08	8	27
	1	10	18.66	11.73	30.39	8	31	18.66	11.73	30.39	8	30
	1.5	14	21.98	15.10	37.08	11	40	21.98	13.60	35.58	11	39
	2	18	-	-	-	-	-	27.53	15.10	42.63	13	-
	3	24	-	-	-	-	-	30.76	19.04	49.80	16	N/A
20	3/4	5	13.11	10.64	23.75	7	27	13.11	10.64	23.75	7	-
	1	7	15.33	11.73	27.06	8	30	15.33	11.73	27.06	8	33
	1.5	9	17.55	15.10	32.65	9	40	17.55	13.60	31.15	9	39
	2	11	-	-	-	-	-	19.77	15.10	34.87	10	-
	3	15	-	-	-	-	-	24.20	19.04	43.24	12	-
5	25	-	-	-	-	-	37.38	29.19	66.57	19	-	

NOTES: PE= Pump End Only; PMA= Pump and Motor Assembly



4" HIGH CAPACITY PUMPS

FEATURES

- Stainless steel discharge head and motor bracket
- High flow impellers and stages are glass-filled modified PPO for maximum efficiency
- Ceramic shaft sleeve and rubber discharge bearing eliminates sand wear
- Intermediate bearing for increased shaft stability
- Floating eye and hub seals for improved performance and efficiency
- Stainless steel hex pump shaft, shell, and shaft coupling
- High capacity upthrust assembly for protection during start-up and operation (50 and 85 gpm models)
- Powered by Franklin's corrosion-resistant 4" submersible motors
- 2" NPT discharge



4" HIGH CAPACITY PUMPS - ORDERING INFORMATION

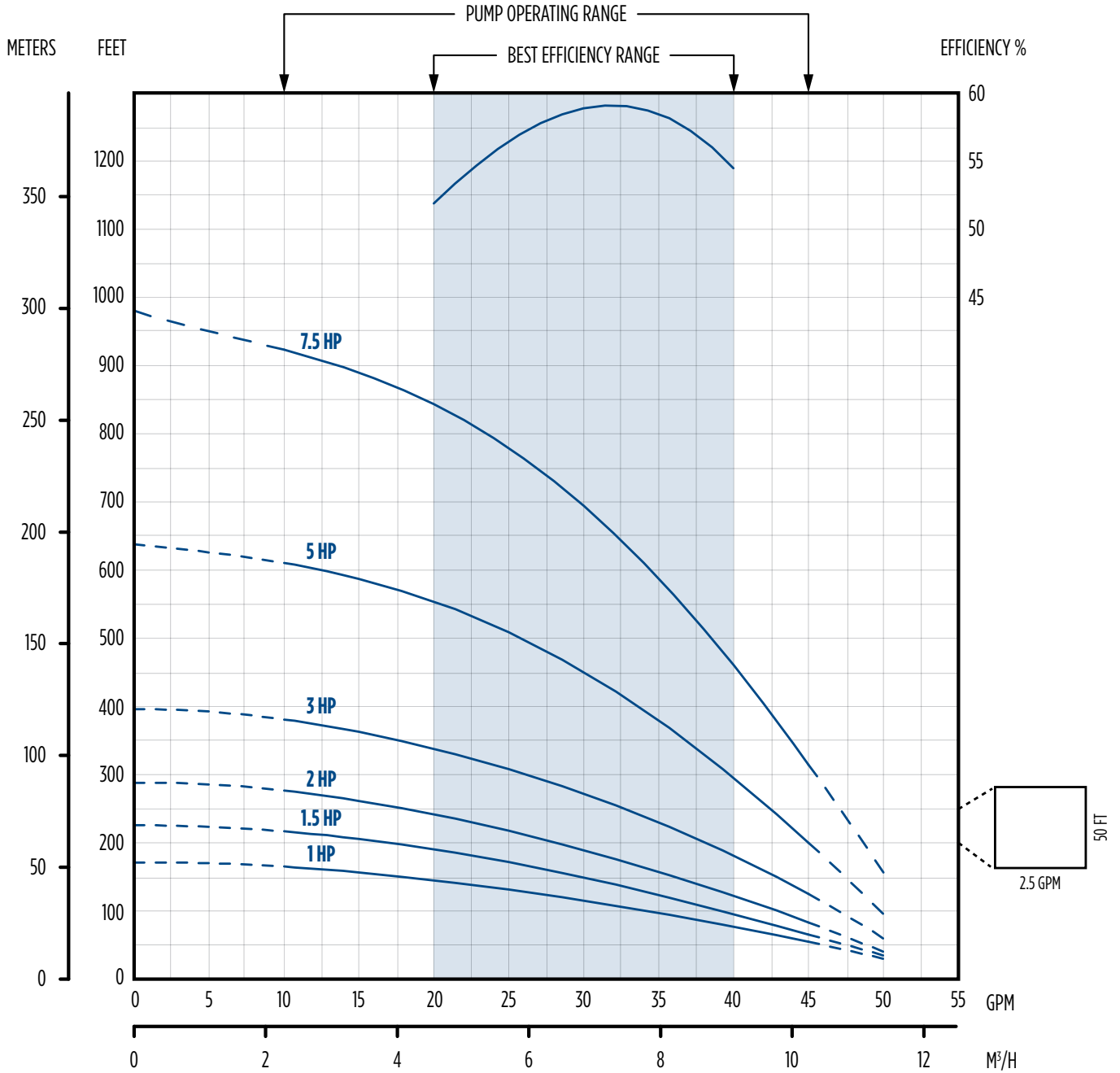
PUMP ENDS ORDERING INFORMATION

GPM	HP	Stages	Model No.	Order No.		Dimensions (in)	Wt. (lbs)
				With Check Valve	Without Check Valve	Pump End Only	
30	1	6	30WA1S4-PE	90673010	92203010	15	9
	1.5	8	30WA1S4-PE	90673015	92203015	17.5	10
	2	10	30WA2S4-PE	90673020	92203020	20	11
	3	14	30WA3S4-PE	90673030	92203030	25	13
	5	22	30WA5S4-PE	90673050	92203050	35	17
50	7.5	34	30WA7S4-PE	90673075	92203075	52.17	25
	1.5	4	50WA1S4-PE	90675015	92205015	15	14
	2	6	50WA2S4-PE	90675020	92205020	21	15
	3	8	50WA3S4-PE	90675030	92205030	25.5	17
	5	13	50WA5S4-PE	90675050	92205050	36.75	21
	7.5	17	50WA7S4-PE	90675075	92205075	45.25	25
85	10	24	50WA10S4-PE	90675100	92205100	61	31
	2	5	85WA2S4-PE	90678520	92208520	22.56	15
	3	7	85WA3S4-PE	90678530	92208530	28.56	17
	5	12	85WA5S4-PE	90678550	92208550	43.56	21
	7.5	19	85WA7S4-PE	90678575	92208575	64.5	27

NOTES: Discharge is 2" NPT; Maximum diameter with cable guard is 3.90"

4" HIGH CAPACITY PUMPS - 30 GPM

PERFORMANCE



4" HIGH CAPACITY PUMPS - 30 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600		
1	0			44	40	34	28	22	13												
	10		43	39	33	27	21	11													
	20	43	38	32	26	20															
	30	37	31	26	19																
	40	30	25	18																	
	50	24	16																		
	60	14																			
	70																				
80																					
Shut-off PSI		65	57	48	39	31	22	13	5												
1.5	0			45	43	40	36	31	27	23	18										
	10		45	42	39	35	31	27	23	16											
	20	45	42	38	34	30	26	22	15												
	30	41	38	34	30	26	21	14													
	40	37	33	29	25	20	12														
	50	32	29	24	19	10															
	60	28	24	18																	
	70	23	17																		
80	16																				
Shut-off PSI		89	81	72	63	55	46	37	29	20	11										
2	0			45	43	41	38	34	31	28	19										
	10		45	43	40	37	34	31	27	24	11										
	20	44	42	39	36	33	30	27	24	20											
	30	44	42	39	36	33	30	26	23	19	12										
	40	42	39	36	32	29	26	22	18	11											
	50	39	35	32	29	25	22	17	10												
	60	35	31	28	25	21	16														
	70	31	28	24	21	15															
80	27	24	20	14																	
Shut-off PSI		116	107	99	90	81	73	64	55	47	38	16									
3	0			45	43	41	38	34	31	28	19										
	10		45	43	40	37	34	31	27	24	11										
	20	44	42	39	36	33	30	27	24	20											
	30	44	42	39	36	33	30	26	23	19	12										
	40	44	42	39	36	33	30	26	23	19	12										
	50	44	43	41	39	37	34	32	29	27	24	14									
	60	43	41	39	36	34	31	29	26	24	21										
	70	40	38	36	33	31	28	26	23	20	15										
80	38	35	33	30	28	25	23	19	15												
Shut-off PSI		163	154	145	137	128	120	111	102	94	85	63	42	20							
5	0			45	43	41	38	34	31	28	19										
	10		45	43	40	37	34	31	27	24	11										
	20	44	42	39	36	33	30	27	24	20											
	30	44	42	39	36	33	30	26	23	19	12										
	40	44	42	39	36	33	30	26	23	19	12										
	50	44	43	41	39	37	34	32	29	27	24	14									
	60	43	41	39	36	34	31	29	26	24	21										
	70	40	38	36	33	31	28	26	23	20	15										
80	38	35	33	30	28	25	23	19	15												
Shut-off PSI		268	259	250	242	233	224	216	207	198	190	168	146	125	103	81	60	38	16		

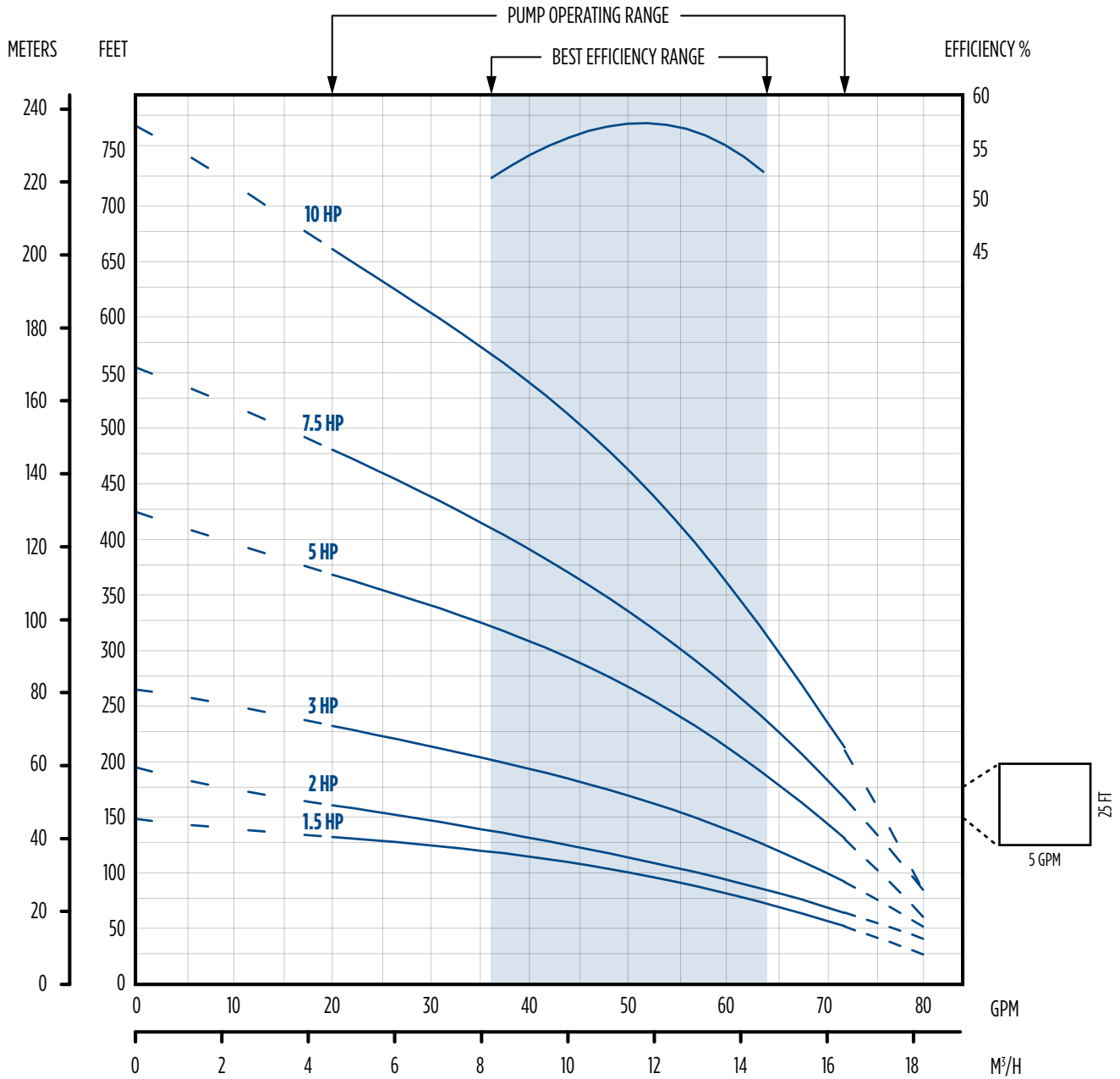
NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	Shut-off (ft)
7.5	0								44	42	40	38	36	34	32	30	27	24	19	13	980
	10							45	43	41	39	38	36	33	31	29	26	22	17	10	
	20							44	42	40	39	37	35	32	30	27	24	20	14		
	30						45	43	41	40	38	36	34	31	29	26	22	17	11		
	40						44	42	41	39	37	35	33	30	27	24	20	14			
	50					45	43	42	40	38	36	34	32	29	25	22	18	11			
	60				45	44	43	41	39	37	35	33	30	28	24	20	15				
	70		45	45	44	43	42	40	38	36	34	32	29	26	23	18	12				
80	45	45	44	43	43	41	39	37	35	33	31	28	25	21	15						
Shut-off PSI		373	364	355	347	338	316	295	274	251	230	208	186	165	143	121	100	78	56	35	

NOTES: Performance shown does not include friction loss in the drop pipe or check valve. All performance data is based on rated motor nameplate voltage.

4" HIGH CAPACITY PUMPS - 50 GPM

PERFORMANCE



HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																		Shut-off (ft)		
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600		650	
1.5	0			69	61	51	34															149
	10		67	59	49	31																
	20	66	58	47	28																	
	30	57	44	24																		
	40	42	20																			
	50																					
Shut-off PSI		56	47	38	30	21	12															

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

4" HIGH CAPACITY PUMPS - 50 GPM

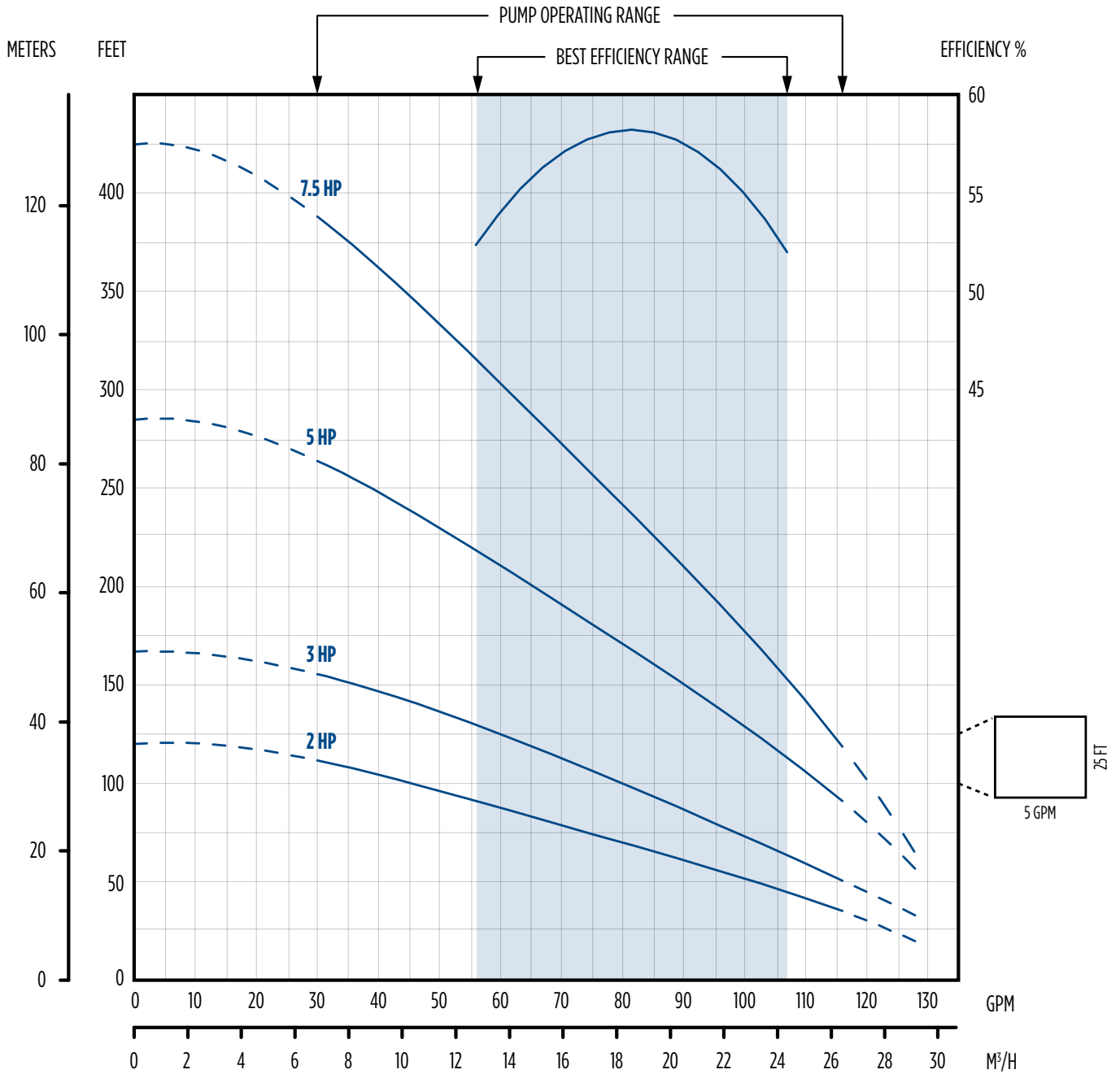
PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650		
2	0				66	57	47	35	21												195	
	10			65	56	45	33	18														
	20	71	63	54	43	30																
	30	62	52	41	28																	
	40	51	40	26																		
	50	38	24																			
	60	22																				
Shut-off PSI		76	67	58	50	41	32	24	15													
3	0					70	66	60	53	46	37										265	
	10					69	65	59	52	44	35	25										
	20		73	69	64	58	51	43	34	24												
	30	72	68	63	57	50	42	32	22													
	40	67	62	56	49	40	31	20														
	50	61	55	48	39	29																
	60	54	46	37	28																	
Shut-off PSI		106	97	89	80	71	63	54	45	37	28											
5	0							71	68	65	62	54	42	27							425	
	10						70	68	65	62	59	49	36									
	20					70	67	64	61	58	54	43	28									
	30				72	69	67	64	61	57	54	50	37	20								
	40		72	69	66	63	60	57	53	49	44	29										
	50	71	69	66	63	60	56	53	48	43	38	21										
	60	68	65	62	59	56	52	48	43	37	31											
	70	65	62	59	55	51	47	42	36	30	23											
	80	61	58	55	51	46	41	35	28	21												
	90	58	54	50	45	40	34	27	20													
	100	54	49	45	39	33	26															
Shut-off PSI		175	167	158	149	141	132	123	115	106	97	76	54	32								
7.5	0								71	68	63	56	48	38	27						555	
	10								72	70	68	66	59	52	43	33	22					
	20							72	70	68	65	63	56	48	39	28						
	30						72	70	67	65	63	60	53	44	34	23						
	40				71	69	67	65	62	60	57	49	40	29								
	50			71	69	67	64	62	59	56	53	45	35	24								
	60		71	69	66	64	61	59	56	53	49	40	30									
	70	70	68	66	64	61	58	55	52	48	45	36	25									
	80	68	66	63	61	58	55	52	48	45	41	31										
	90	65	63	60	57	54	51	48	44	41	37	26										
	100	62	60	57	54	51	47	44	40	36	32	20										
	110	59	57	53	50	47	43	39	35	31	26											
	120	56	53	50	46	43	39	35	30	26	21											
	130	52	49	46	42	38	34	30	25	20												
	140	49	45	41	37	33	29	24	19													
150	45	41	37	33	28	24																
160	31	26	21																			
Shut-off PSI		232	223	214	206	197	188	180	171	162	154	132	110	89	67	45						
10	0											69	65	61	57	51	45	39	31	22	772	
	10											71	67	63	59	54	49	42	35	27		
	20									72	71	69	66	61	57	52	46	39	31	23		
	30								72	71	69	68	64	59	55	49	43	36	28			
	40							72	70	69	67	66	62	57	52	46	40	32	24			
	50					72	70	69	67	66	64	60	55	50	43	36	28					
	60				72	70	68	67	65	64	62	58	53	47	40	33	24					
	70			71	70	68	67	65	64	62	60	55	50	44	37	29	20					
	80		71	70	68	66	65	63	62	60	58	53	47	41	33	25						
	90	71	69	68	66	65	63	61	60	58	56	51	44	37	29	21						
	100	69	68	66	64	63	61	59	57	56	53	48	41	34	26							
	110	67	66	64	62	61	59	57	55	53	51	45	38	30	22							
	120	65	64	62	61	59	57	55	53	51	48	42	34	26								
	130	64	62	60	58	57	55	52	51	48	45	39	31	22								
	140	62	60	58	56	54	52	50	48	45	42	35	27									
	150	60	58	56	54	52	50	47	45	42	39	31	23									
	160	53	51	48	46	43	41	38	35	31	28											
Shut-off PSI		326	317	308	300	291	282	274	265	256	248	226	204	183	161	139	118	96	74	53		

NOTES: Performance shown does not include friction loss in the drop pipe or check valve. All performance data is based on rated motor nameplate voltage.

4" HIGH CAPACITY PUMPS - 85 GPM

PERFORMANCE



4" HIGH CAPACITY PUMPS - 85 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550		
2	0		113	92	67	48														120
	10	110	88	64	45															
	20	84	61	40																
	30	58	35																	
	40																			
	50																			
Shut-off PSI		43	35	26	17	9														
3	0			110	96	79	64	49												167
	10		108	93	76	61	46													
	20	106	90	74	59	43														
	30	88	71	57	39															
	40	69	55	35																
	50	53	30																	
Shut-off PSI		64	55	46	38	29	20	12												
5	0					113	106	96	85	74	64	41								285
	10				112	104	94	83	72	63	55									
	20			111	103	92	81	71	62	53	44									
	30		110	101	91	80	69	60	52	42										
	40	100	100	89	78	68	59	51	40											
	50	98	87	76	66	58	49	38												
	60	85	75	65	56	48	35													
	70	73	63	55	46	33														
	80	62	54	45	30															
	90	53	43																	
Shut-off PSI		115	106	97	89	80	71	63	54	45	37	15								
7.5	0						116	112	107	101	94	76	60	46						425
	10					115	111	108	100	93	86	68	54	38						
	20				115	110	105	99	92	85	77	61	47							
	30			114	109	104	98	91	83	76	70	55	40							
	40		113	109	103	96	90	82	75	69	62	49								
	50	113	108	102	95	88	81	74	68	61	56	41								
	60	107	101	94	87	80	73	67	61	55	50	31								
	70	100	93	86	79	72	66	60	54	49	42									
	80	92	85	78	71	65	59	53	48	41	33									
	90	84	77	70	64	58	53	47	40	31										
	100	76	69	63	57	52	46	39												
	110	68	62	56	51	45	38													
	120	61	55	50	44	36														
	130	55	49	43	35															
140	48	42	33																	
150	41	32																		
160																				
Shut-off PSI		175	167	158	149	141	132	123	115	106	97	76	54	32						

NOTES: Performance shown does not include friction loss in the drop pipe or check valve. All performance data is based on rated motor nameplate voltage.

6" HIGH CAPACITY PUMPS

FEATURES

- Heavy-duty stainless steel discharge head and motor bracket
- Stainless steel shaft, shell, intake screen, and cable shield for corrosion resistance and longer life
- Stainless steel wear ring and urethane floating eye seal for improved performance and efficiency
- Glass-filled modified PPO impeller stage assemblies for incredible strength and durability
- Ceramic shaft sleeve and rubber discharge bearing minimizes bearing wear and shaft misalignment without affecting pump efficiency
- 3" NPT heavy-duty stainless steel discharge head
- Fastener kit supplied for both 4" and 6" motors. Enabling 5-10 hp units to be mounted to either a 4" or 6" submersible motor
- One year unconditional warranty against failure from sand locking in abrasive well conditions



6" HIGH CAPACITY PUMPS - ORDERING INFORMATION

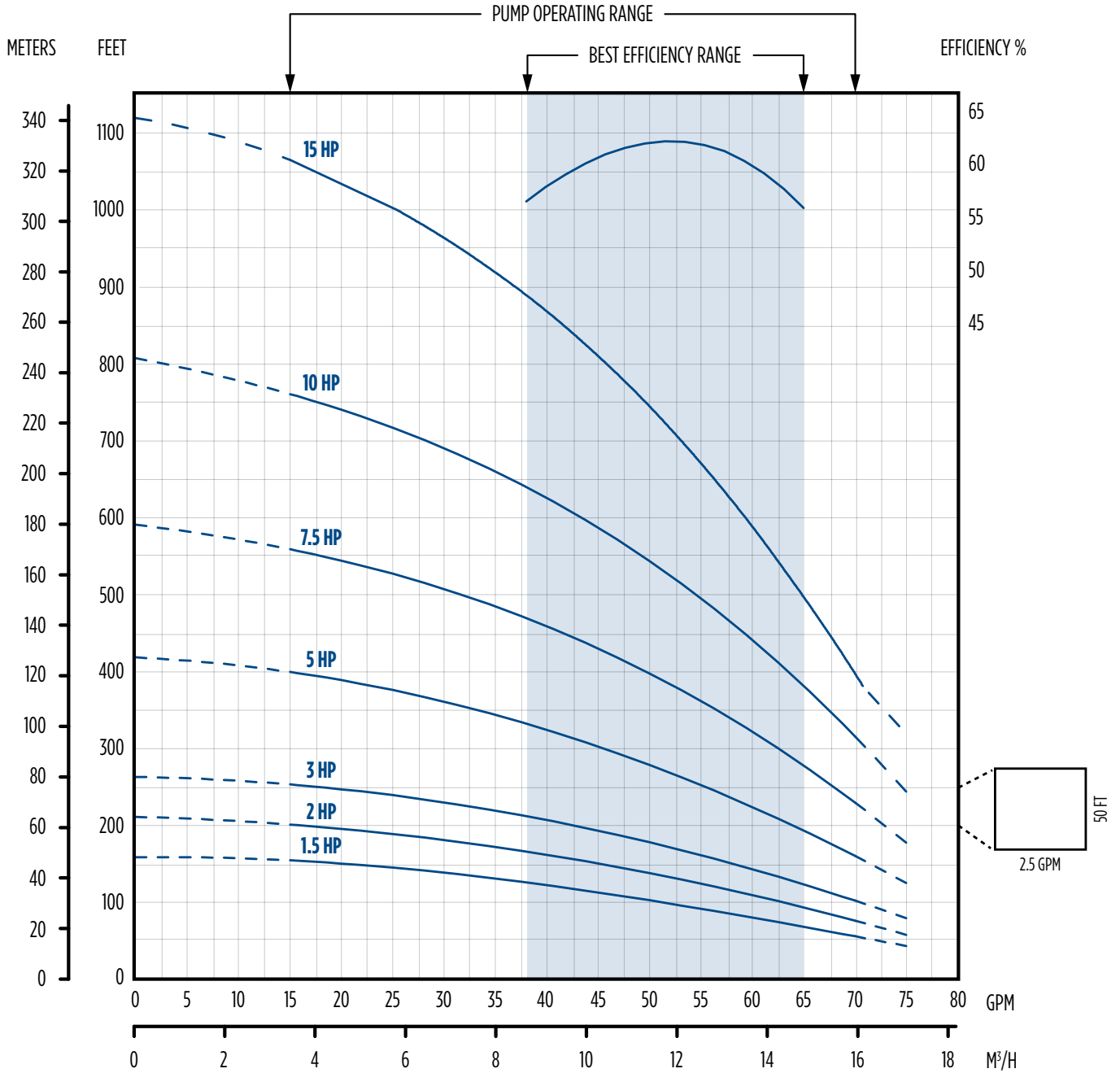
PUMP ENDS ORDERING INFORMATION

GPM	HP	Stages	Motor Fit (in)	Ordering Info.		Dimensions (in)	Wt. (lbs)
				Model No.	Order No.	Pump End Only	
50	1.5	3	4	50WA15S6-PE	94985003	13.51	30
	2	4	4	50WA2S6-PE	94985004	15.13	31
	3	5	4	50WA3S6-PE	94985005	16.76	32
	5	8	4 & 6	50WA5S6-PE	94985008	21.63	36
	7.5	11	4 & 6	50WA7S6-PE	94985011	26.51	40
	10	15	4 & 6	50WA10S6-PE	94985015	32.94	46
75	15	22	6	50WA15S6-PE	94985022	47.64	59
	3	3	4	75WA3S6-PE	94987503	13.51	30
	5	5	4 & 6	75WA5S6-PE	94987505	16.76	32
	7.5	7	4 & 6	75WA7S6-PE	94987507	20.01	35
	10	9	4 & 6	75WA10S6-PE	94987509	23.26	38
	15	13	6	75WA15S6-PE	94987513	29.76	43
	20	17	6	75WA20S6-PE	94987517	36.19	48
100	25	23	6	75WA25S6-PE	94987523	46.00	52
	5	3	4 & 6	100WA5S6-PE	94980003	14.62	30
	7.5	5	4 & 6	100WA7S6-PE	94980005	18.51	32
	10	6	4 & 6	100WA10S6-PE	94980006	20.49	34
	15	9	6	100WA15S6-PE	94980009	26.31	38
	20	13	6	100WA20S6-PE	94980013	34.07	43
125	25	16	6	100WA25S6-PE	94980016	39.94	47
	5	2	4 & 6	125WA5S6-PE	94982502	12.94	29
	7.5	3	4 & 6	125WA7S6-PE	94982503	15.05	30
	10	4	4 & 6	125WA10S6-PE	94982504	17.13	31
	15	7	6	125WA15S6-PE	94982507	23.37	35
	20	9	6	125WA20S6-PE	94982509	27.54	38
	25	11	6	125WA25S6-PE	94982511	31.70	40
	30	13	6	125WA30S6-PE	94982513	35.87	43
40	18	6	125WA40S6-PE	94982518	46.27	48	

NOTES: Discharge is 3" NPT. Maximum diameter with cable guard is 5.5". Pump and motor will be individually cartoned and require assembly.

6" HIGH CAPACITY PUMPS - 50 GPM

PERFORMANCE



6" HIGH CAPACITY PUMPS - 50 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	
1.5	0			68	61	51	41	30											
	20	66	58	47	38	25													
	30	56	46	37	21														
	40	44	35	16															
	50	33																	
Shut-off PSI		60	51	43	34	25	17	8											
2	0				69	63	57	49	41	31	16								
	20		67	62	54	46	38	27											
	30	67	60	53	45	37	25												
	40	59	52	44	35	23													
	50	51	42	34	20														
Shut-off PSI		83	74	65	57	48	39	31	22	13	5								
3	0					70	66	61	55	49	42	17							
	20				69	65	60	53	47	40	33	21							
	30		68	64	59	52	46	39	31	18									
	40	68	63	58	51	45	38	30	15										
	50	63	57	50	44	37	28												
Shut-off PSI		105	97	88	79	71	62	53	45	36	27	6							
5	0								70	67	64	55	45	34					
	20						69	66	63	60	56	46	35	16					
	30					69	66	63	59	56	51	41	28						
	40				68	66	62	59	55	51	47	36	18						
	50		70	68	65	62	58	54	50	46	42	29							
Shut-off PSI		173	164	155	147	138	129	121	112	103	95	73	51	30					
7.5	0											68	63	57	49	42	32	18	
	20									70	68	63	57	50	42	33	19		
	30								70	68	66	60	54	47	38	27			
	40							70	68	66	64	58	51	43	34	21			
	50						69	67	65	63	61	54	47	39	28				
Shut-off PSI		247	239	230	221	213	204	195	187	178	169	148	126	104	83	61	39	18	

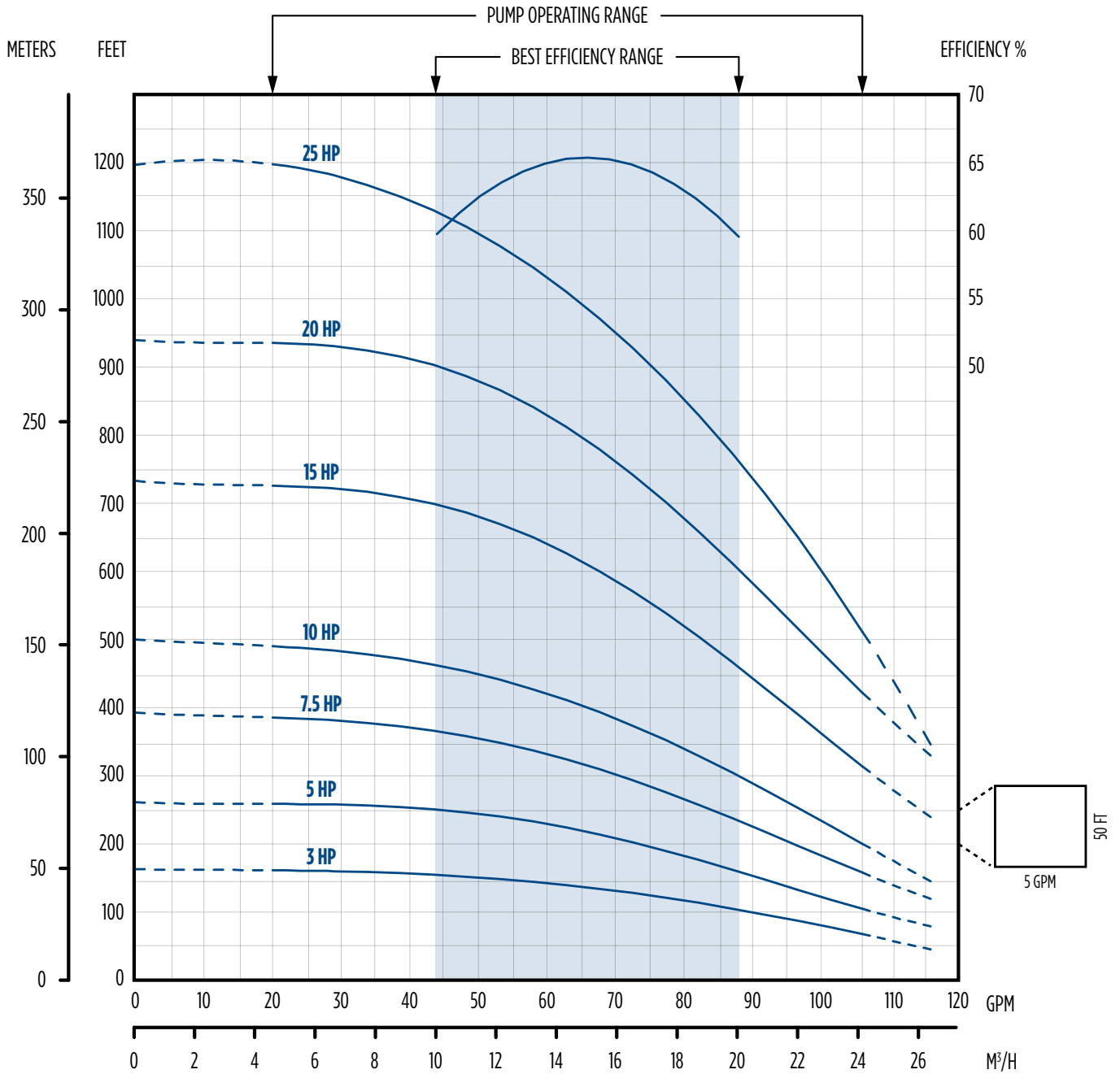
NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance															Shut-off (ft)		
		100	120	140	160	180	200	250	300	350	400	450	500	550	600	650		700	750
10	0										68	64	59	54	49	43	37	28	18
	20									68	64	60	55	50	44	37	29	19	
	30							70	66	62	57	52	47	41	34	25			
	40							68	64	60	55	50	44	38	30	20			
	50						70	68	66	62	58	53	47	41	34	26			
Shut-off PSI		306	298	289	281	272	263	242	220	198	177	155	133	112	90	68	47	25	

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

6" HIGH CAPACITY PUMPS - 75 GPM

PERFORMANCE



6" HIGH CAPACITY PUMPS - 75 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)			
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550				
3	0			108	101	89	77	64	26													
	20	106	98	85	73	57																
	30	96	83	72	53																	
	40	81	70	47																		
	50	68	40																			
Shut-off PSI		61	53	44	35	27	18	9	1													
5	0				116	106	102	96	88	79	73	41										
	20		112	105	100	93	85	77	71	64	47											
	30	110	104	99	92	84	76	70	63	43												
	40	103	98	91	82	75	69	61	37													
	50	97	89	81	74	68	58	31														
Shut-off PSI		103	95	86	77	69	60	51	43	34	25	4										
7.5	0					116	109	105	101	97	83	70	54									
	20				114	108	104	100	96	90	85	71	56									
	30			112	107	103	99	95	89	84	78	65	40									
	40		111	106	103	99	94	88	83	77	72	57										
	50	111	106	102	98	93	88	82	76	71	66	43										
Shut-off PSI		159	150	142	133	124	116	107	98	90	81	59	38	16								
10	0								112	109	106	98	88	77	66	50						
	20					116	111	108	105	102	99	89	78	67	52							
	30				115	111	107	104	101	98	94	84	73	61	39							
	40			114	110	107	104	101	98	94	89	78	68	54	18							
	50		114	109	106	104	100	97	93	89	84	74	63	42								
Shut-off PSI		205	196	187	179	170	161	153	144	135	127	105	84	62	40	19						

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	120	140	160	180	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	Shut-off (ft)	
15	0						114	107	102	97	89	81	74	68	60	41							
	20					115	107	103	97	90	82	75	69	61	43								
	30				114	110	105	100	94	86	78	72	66	55	28								
	40			113	110	107	103	98	90	82	75	69	62	45									
	50		113	109	107	105	101	95	87	79	73	66	56	31									
Shut-off PSI		263	254	245	237	228	206	185	163	142	120	98	77	55	33	12							
20	0								113	107	103	100	94	88	82	76	71	66	58	43			
	20							113	107	104	100	95	89	82	76	72	67	59	44				
	30							110	106	102	98	92	86	79	74	69	64	54	33				
	40						114	108	104	100	95	89	83	77	72	67	60	46					
	50						110	106	102	98	93	86	80	74	70	64	55	35					
Shut-off PSI		353	345	336	327	319	297	275	254	232	210	189	167	145	124	102	80	59	37	15			

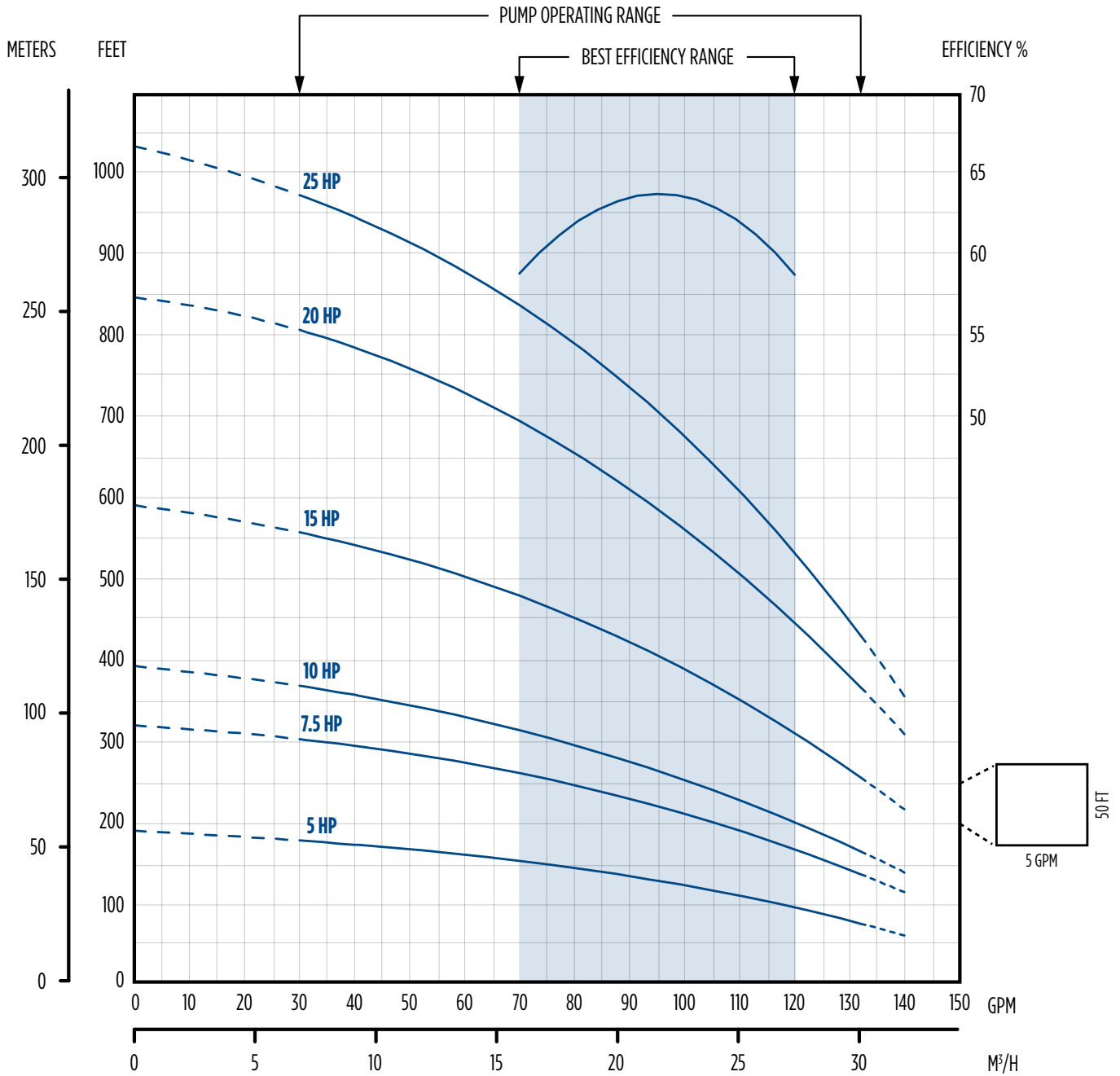
NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	Shut-off (ft)
25	0			116	112	109	107	104	101	97	93	89	84	79	75	70	65	59	50	38	19	
	20		116	112	109	107	104	101	98	93	89	84	80	75	70	65	59	51	39	21		
	30		114	111	108	106	103	100	96	91	87	82	78	73	68	63	56	46	31			
	40		112	109	107	104	101	98	94	89	85	80	75	71	66	60	51	40	23			
	50	114	111	108	106	103	100	96	92	87	83	78	73	69	63	56	47	33				
Shut-off PSI		412	391	369	347	326	304	283	261	239	218	196	174	153	131	109	88	66	44	23	1	

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

6" HIGH CAPACITY PUMPS - 100 GPM

PERFORMANCE



6" HIGH CAPACITY PUMPS - 100 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550		
5	0				130	119	104	85	62											191
	20			127	115	98	78	54												
	30	125		112	95	75	49													
	40	110	92	71	44															
	50	89	68	38																
	60	64	32																	
Shut-off PSI		74	65	57	48	39	31	22	13											
7.5	0							131	123	115	107	79	32							320
	20					129	121	113	104	93	82	37								
	30				127	120	111	102	92	79	64									
	40			126	118	110	101	90	77	62	42									
	50		125	117	109	99	88	75	59	38										
	60	124	116	107	97	86	73	56	34											
Shut-off PSI		130	121	113	104	95	87	78	69	61	52	30	9							
10	0									127	121	102	79	45						393
	20						132	125	118	111	104	81	48							
	30					131	124	117	110	102	94	67	28							
	40				130	123	116	109	101	92	83	51								
	50			129	122	115	108	100	91	81	70	31								
	60		128	121	114	107	99	90	79	68	54									
Shut-off PSI		161	153	144	135	127	118	110	101	92	84	62	40	19						
15	0												123	111	98	82	61	32		590
	20												123	112	99	83	62			
	30											129	118	107	93	74	51			
	40								132	128	124	119	108	94	76	53				
	50						131	127	123	119	114	102	86	66	39					
	60					130	126	122	118	113	109	95	78	55						
Shut-off PSI		247	238	229	221	212	204	195	186	178	169	147	126	104	82	61	39	17		

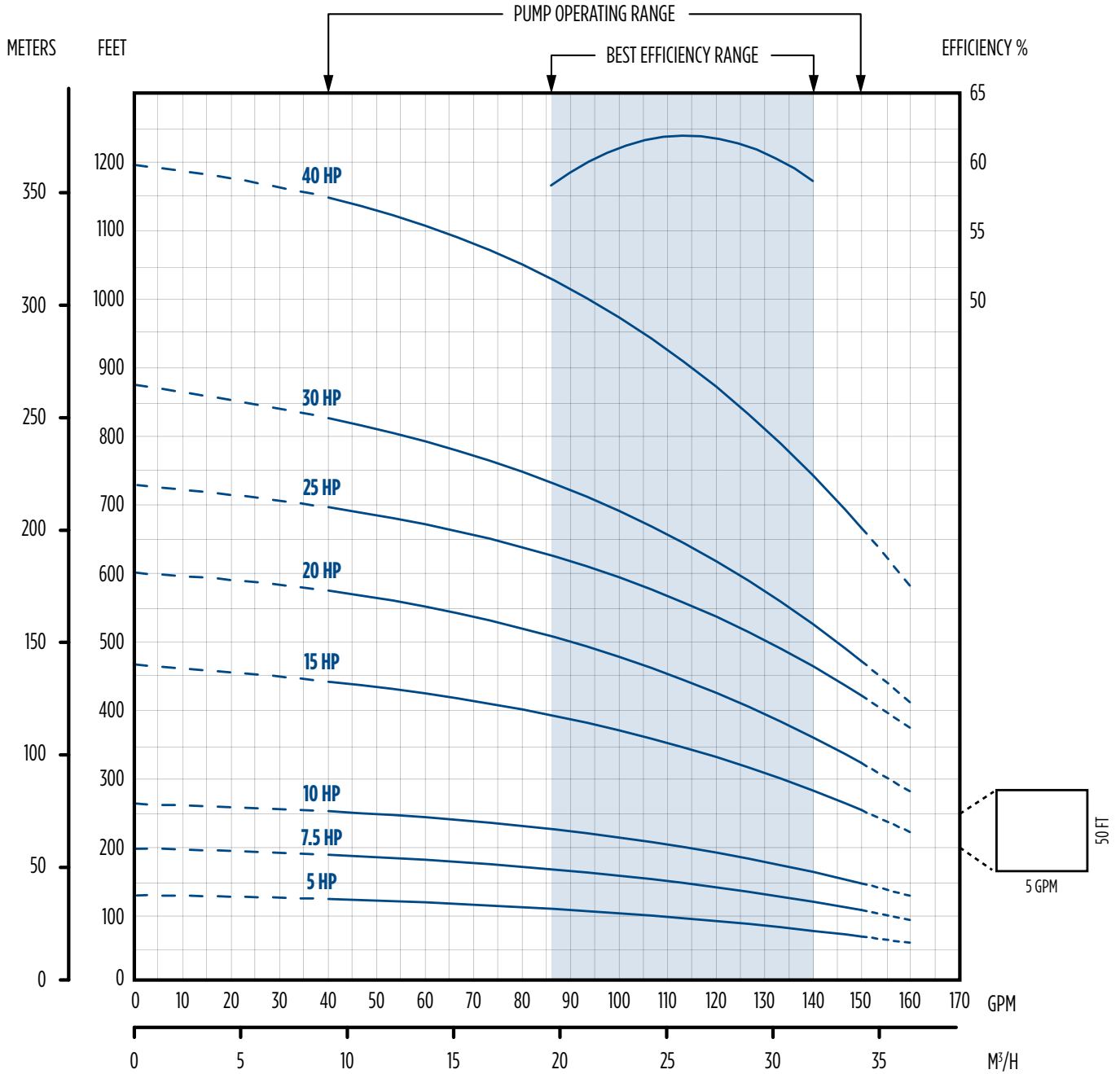
NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	Shut-off (ft)	
20	0					127	119	111	103	94	82	69	52							846
	20				127	120	112	104	94	83	70	53	31							
	30			131	124	116	108	99	89	78	63	44								
	40			128	120	112	104	95	84	71	55	33								
	50		132	124	117	109	100	90	79	64	45									
	60		128	121	113	105	96	85	72	56	35									
Shut-off PSI		280	258	236	215	193	172	150	128	107	85	63	42							
25	0						130	124	118	111	104	96	87	78	67	53	37			1030
	20					130	124	118	112	105	97	88	79	68	55	39				
	30					128	122	116	109	101	93	84	74	62	48	30				
	40				130	125	119	112	105	97	89	79	68	56	40					
	50				128	122	116	109	102	94	85	75	63	49	31					
	60			131	125	119	113	106	98	90	80	69	57	41						
Shut-off PSI		359	338	316	294	273	251	229	208	186	164	143	121	99						

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

6" HIGH CAPACITY PUMPS - 125 GPM

PERFORMANCE



6" HIGH CAPACITY PUMPS - 125 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600	650	
5	0				140	106	62														130
	20		131	94																	
	30	126	88																		
	40	82																			
Shut-off PSI		48	39	30	22	13	4														
7.5	0						141	122	99	64											198
	20				135	116	90	48													
	30		150	133	112	85															
	40	147	130	109	79																
	50	127	105	73																	
	60	101	67																		
Shut-off PSI		77	69	60	51	43	34	25	17	8											
10	0							143	129	114	45										263
	20						139	125	109	88	54										
	30				149	137	122	106	84	47											
	40			148	135	120	103	79													
	50		146	132	118	100	74														
	60	144	130	115	97	69															
Shut-off PSI		105	97	88	79	71	62	53	45	36	27	6									
15	0											134	112	81							467
	20										135	114	84								
	30									145	126	101	65								
	40								144	137	116	87									
	50						149	143	136	128	104	68									
	60					148	142	134	126	117	89	44									
Shut-off PSI			185	176	168	159	150	142	133	124	116	94	72	51	29						
20	0												143	129	113	91	59				601
	20												144	130	114	93	62				
	30												138	123	105	81	41				
	40											145	131	115	95	65					
	50											139	124	107	83	45					
	60									146	132	117	97	68							
Shut-off PSI		252	243	234	226	217	208	200	191	182	174	152	130	109	87	65	44	22			
25	0														143	133	119	99	71		734
	20													144	134	120	101	74			
	30													149	140	128	112	90	57		
	40													145	135	121	103	76			
	50												150	140	129	114	92	60			
	60												146	135	123	104	78	42			
Shut-off PSI				292	283	275	266	257	249	240	231	210	188	166	145	123	101	80	58	37	

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

HP	PSI	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	Shut-off (ft)	
30	0						143	134	125	113	99	79	54							873
	20					144	135	126	114	100	81	56								
	30				149	140	131	121	108	92	70	43								
	40				145	136	126	115	101	83	58									
	50			149	141	132	122	109	93	72	45									
	60			145	136	127	116	102	84	60										
Shut-off PSI		270	248	226	205	183	161	140	118	96	75	53	31							
40	0									150	144	138	132	125	117	107	95	80		1194
	20									150	145	139	132	126	118	108	96	82	62	
	30									148	142	136	129	122	114	103	90	73	52	
	40									145	139	133	126	118	109	97	83	64	40	
	50							148	142	136	130	123	114	104	91	75	53			
	60							145	139	133	127	119	110	98	84	66	42			
Shut-off PSI		409	387	365	344	322	300	279	257	235	214	192	170							

NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

E-SERIES ENVIRONMENTAL PUMPS

FEATURES

- Ideal for effluent pumping applications.
- Stainless steel or thermoplastic discharge and motor bracket are tough and non-corrosive; both materials are highly resistant to damage by minerals, metals, and other substances typically found in water
- Heavy-duty, 300 V, 10' SJ00W motor leads
- Ceramic bearing sleeve has time proven durability for years of reliable service
- Hex rubber bearing has extra large surface assuring shaft stability and multiple flow channels keeping particles away from bearing surfaces
- Proven hydraulic staging allows close tolerances and increased performance
- Carbon phenolic upthrust washer prevents excessive wear in severe applications
- Removable built-in check valve on 10-20 gpm pumps; no built in check valve on high capacity pumps
- Powered by Franklin Electric submersible motor

APPLICATIONS

- Filtered effluent service
- Aeration
- Ornamental fountains and waterfalls



E-SERIES ENVIRONMENTAL PUMPS - ORDERING INFORMATION

THERMOPLASTIC ORDERING INFORMATION

GPM	HP	Volts	Wire	Ordering Info.		Wt. (lbs)
				Model No.	Order No.	
10	1/2	115	2	10WE05P4-2W115	94681005	25
	1/2	230	2	10WE05P4-2W230	94681010	25
	3/4	230	2	10WE07P4-2W230	94681015	29
	1	230	2	10WE1P4-2W230	94681020	33
	1.5	230	2	10WE15P4-2W230	94681025	41
20	1/2	115	2	20WE05P4-2W115	94682005	24
	1/2	230	2	20WE05P4-2W230	94682010	24
	3/4	230	2	20WE07P4-2W230	94682015	28
	1	230	2	20WE1P4-2W230	94682020	31
	1.5	230	2	20WE15P4-2W230	94682025	39

NOTES: Discharge is 1-1/4" NPT. Maximum diameter across cable guard is 3.90" on all models.

STAINLESS STEEL ORDERING INFORMATION

GPM	HP	Volts	Wire	Ordering Info.		Wt. (lbs)
				Model No.	Order No.	
35	1/2	115	2	35WE05S4-2W115	94683505	25
	1/2	230	2	35WE05S4-2W230	94683510	25
	3/4	230	2	35WE07S4-2W230	94683515	29
	1	230	2	35WE1S4-2W230	94683520	33
	1.5	230	2	35WE15S4-2W230	94683525	39
45	1/2	115	2	45WE05S4-2W115	94684505	28
	1/2	230	2	45WE05S4-2W230	94684510	28
	3/4	230	2	45WE07S4-2W230	94684515	33
	1	230	2	45WE1S4-2W230	94684520	36
	1.5	230	2	45WE15S4-2W230	94684525	44
60	1/2	115	2	60WE05S4-2W115	94686005	29
	1/2	230	2	60WE05S4-2W230	94686010	29
	3/4	230	2	60WE07S4-2W230	94686015	33
	1	230	2	60WE1S4-2W230	94686020	37
	1.5	230	2	60WE15S4-2W230	94686025	45
90	1.5	230	2	90WE15S4-2W230	94689025	44

NOTES: Discharge tapping 2" FNPT with no built in check valve. Maximum diameter across cable guard is 3.90" on all models.

E-SERIES ENVIRONMENTAL PUMPS - ORDERING INFORMATION

PUMP ENDS ORDERING INFORMATION

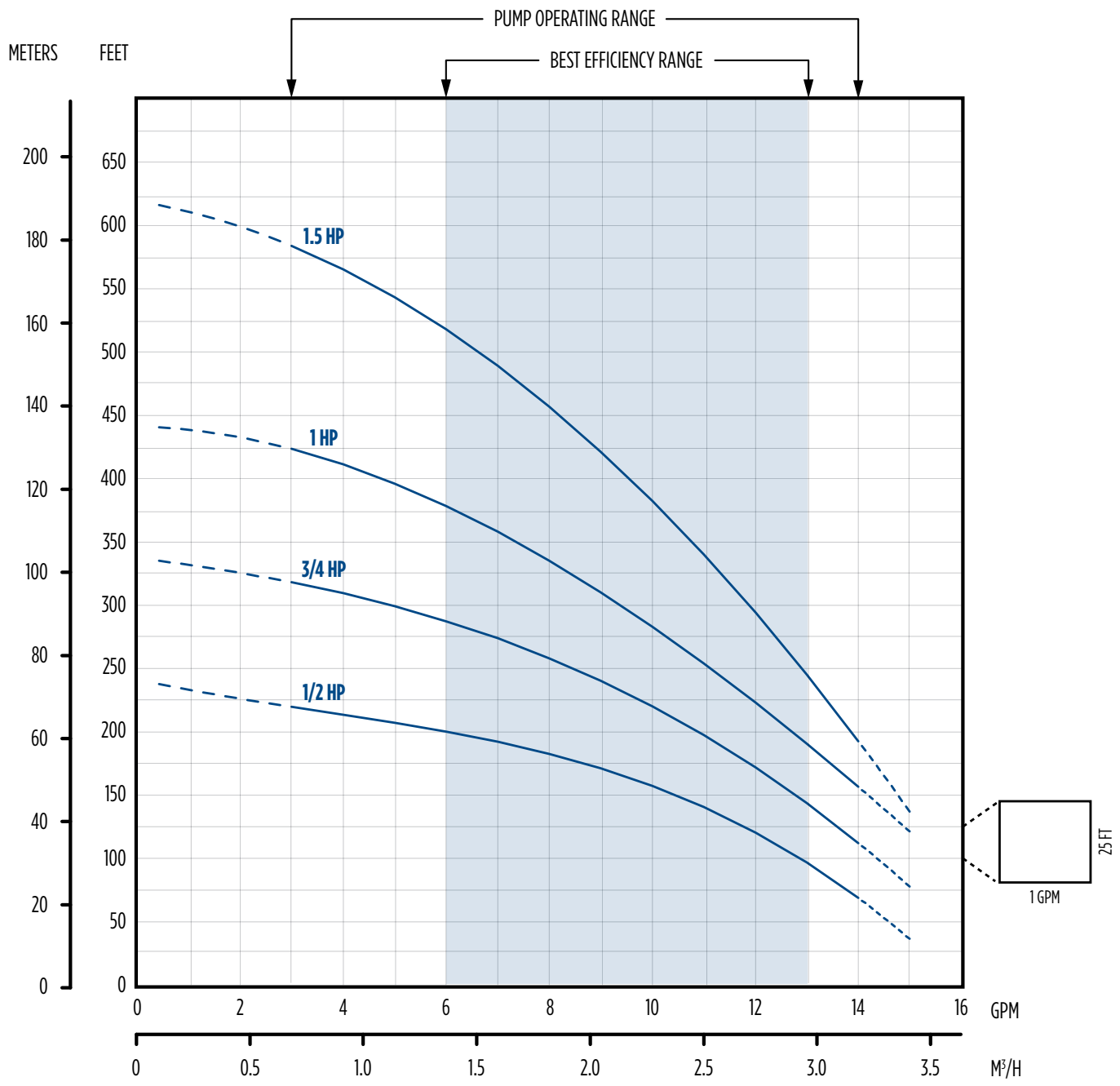
GPM	HP	Ordering Info.		Wt. (lbs)
		Model No.	Order No.	
10	1/2	10WE05P4-PE	94691005	7
	3/4	10WE07P4-PE	94691010	8
	1	10WE1P4-PE	94691015	9
	1.5	10WE15P4-PE	94691020	10
20	1/2	20WE05P4-PE	94692005	6
	3/4	20WE07P4-PE	94692010	6
	1	20WE1P4-PE	94692015	7
	1.5	20WE15P4-PE	94692020	8
	2	20WE2P4-PE	94692025	9
35	1/2	35WE05S4-PE	94693505	7
	3/4	35WE07S4-PE	94693510	8
	1	35WE1S4-PE	94693515	9
	1.5	35WE15S4-PE	94693520	10
	2	35WE2S4-PE	94693525	11
45	3	35WE3S4-PE	94693530	12
	1/2	45WE05S4-PE	94694505	10
	3/4	45WE07S4-PE	94694510	11
	1	45WE1S4-PE	94694515	12
	1.5	45WE15S4-PE	94694520	15
	2	45WE2S4-PE	94694525	16
60	3	45WE3S4-PE	94694530	19
	1/2	60WE05S4-PE	94696005	11
	3/4	60WE07S4-PE	94696010	12
	1	60WE1S4-PE	94696015	13
	1.5	60WE15S4-PE	94696020	14
	2	60WE2S4-PE	94696025	15
90	3	60WE3S4-PE	94696030	17
	1.5	90WE15S4-PE	94699020	15
	2	90WE2S4-PE	94699025	15
	3	90WE3S4-PE	94699030	17

NOTES: Discharge tapping 2" FNPT with no built in check valve. Maximum diameter across cable guard is 3.90" on all models.



E-SERIES ENVIRONMENTAL PUMPS - 10 GPM

PERFORMANCE



E-SERIES ENVIRONMENTAL PUMPS - 10 GPM

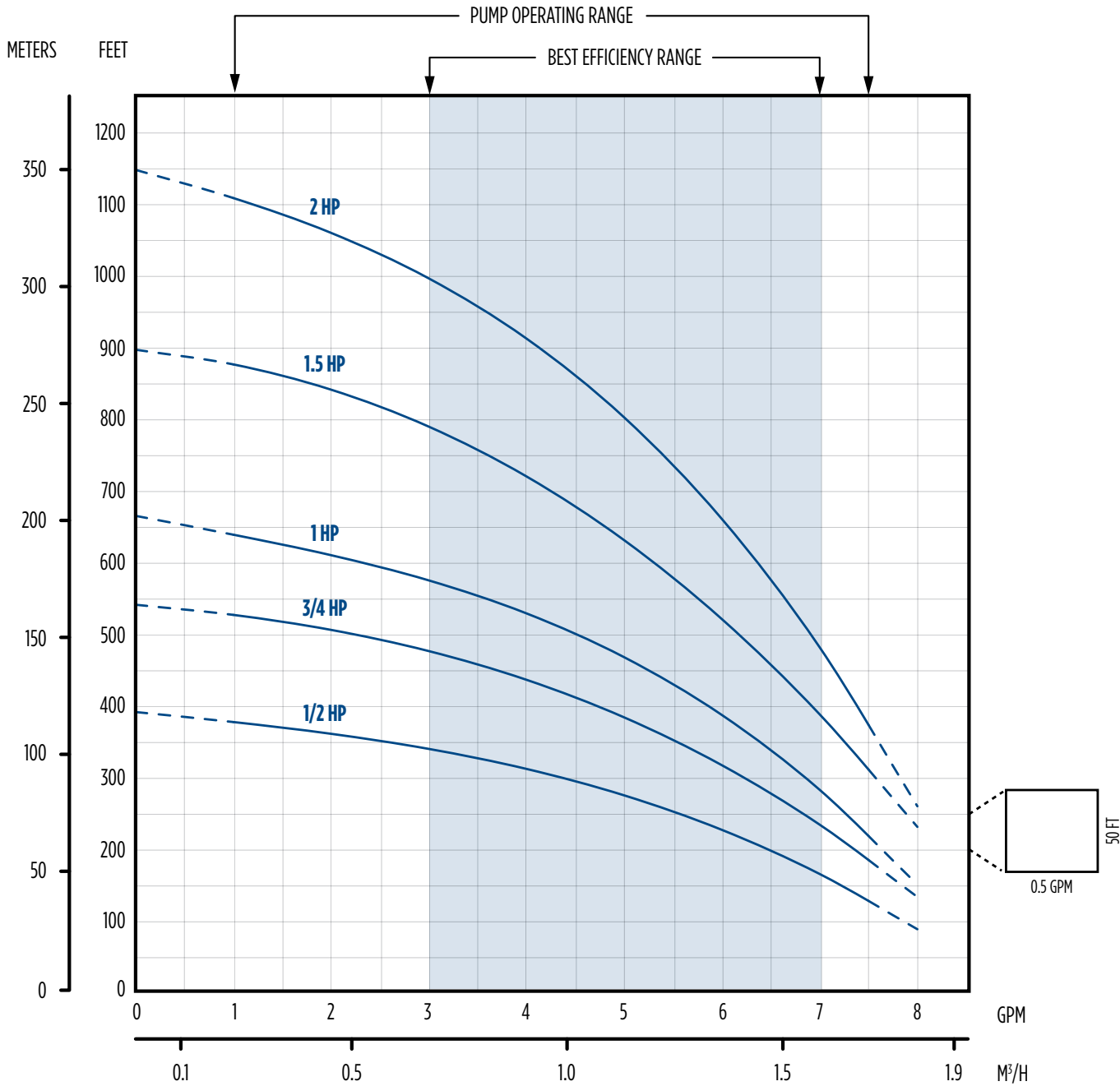
PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																			Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	600		
1/2	0			14	14	13	12	11	10	8	6										242
	20	14	13	13	12	11	9	8	5												
	30	13	12	12	11	9	7	5													
	40	12	11	10	9	7	4														
	50	11	10	9	6	4															
	60	10	8	6	3																
	70	8	6	3																	
	80	5																			
Shut-off PSI		96	87	79	70	61	53	44	35	27	18										
3/4	0					14	14	13	12	12	11	8	5								337
	20			14	14	13	12	11	11	10	9	5									
	30		14	13	13	12	11	10	10	9	7	3									
	40	14	13	13	12	11	10	9	8	7	6										
	50	13	13	12	11	10	9	8	7	5	3										
	60	13	12	11	10	9	8	7	5	3											
	70	12	11	10	9	8	6	5													
	80	11	10	9	8	6	4														
Shut-off PSI		137	129	120	111	103	94	85	77	68	59	38	16								
1	0							14	14	13	13	11	9	7	5						441
	20					14	14	13	13	12	11	9	8	5							
	30				14	14	13	13	12	11	10	9	7	3							
	40			14	13	13	12	12	11	10	10	8	5								
	50	14	14	13	13	12	12	11	10	9	9	7	4								
	60	14	13	13	12	12	11	10	9	9	8	6									
	70	13	13	12	11	11	10	9	8	8	7	4									
	80	13	12	11	11	10	9	8	8	7	6										
Shut-off PSI		182	174	165	156	148	139	130	122	113	105	83	61	40	18						
1.5	0								14	14	13	12	11	9	8	7	5				619
	20					14	14	14	13	13	12	11	10	8	7	5					
	30					14	14	14	13	13	13	12	10	9	8	6	4				
	40				14	14	14	13	13	13	12	11	10	8	7	5					
	50			14	14	14	13	13	12	12	12	10	9	8	6	4					
	60		14	14	14	13	13	12	12	12	11	10	8	7	5	3					
	70	14	14	13	13	13	12	12	11	11	10	9	8	6	4						
	80	14	13	13	13	12	12	11	11	10	10	9	7	5	3						
Shut-off PSI		259	251	242	233	225	216	207	199	190	181	160	138	117	95	73	52	30	8		

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

E-SERIES ENVIRONMENTAL PUMPS - 20 GPM

PERFORMANCE



E-SERIES ENVIRONMENTAL PUMPS - 20 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	
1/2	0				26	22	18	9											152
	20		24	21	16														
	30	24	21	15															
	40	20	13																
	50	12																	
	60																		
	70																		
	80																		
Shut-off PSI		57	48	40	31	22	14	5											
3/4	0				27	25	22	19	15	7									191
	20		26	24	21	18	13												
	30	26	24	21	18	12													
	40	23	20	17	11														
	50	20	16	9															
	60	15	8																
	70	6																	
	80																		
Shut-off PSI		74	65	57	48	39	31	22	13	5									
1	0						26	25	23	20	18	6							251
	20			27	26	24	22	20	18	15	8								
	30		27	26	24	22	19	17	14	7									
	40	27	25	23	21	19	17	13											
	50	25	23	21	19	16	12												
	60	23	21	18	16	11													
	70	20	18	15	10														
	80	18	15	9															
Shut-off PSI		100	91	83	74	65	57	48	40	31	22	1							
1.5	0							27	26	24	21	19	16						368
	20						27	25	24	22	21	17	15	9					
	30					27	25	24	22	20	18	15	12						
	40			27	26	25	23	22	20	18	16	12	7						
	50		27	26	25	23	21	20	18	16	14	6							
	60	27	26	25	23	21	19	18	16	14	10								
	70	24	22	21	19	17	15	13	9										
	80	24	22	21	19	17	15	13	9										
Shut-off PSI		151	142	133	125	116	107	99	90	81	73	55	47	29					
2	0								27	27	24	21	17	12					452
	20								27	26	25	24	21	18	13				
	30						27	26	25	24	23	19	16	9					
	40					27	26	25	24	23	21	18	13						
	50				27	26	25	24	22	21	20	16	10						
	60		27	27	26	25	23	22	21	19	18	14	5						
	70	27	27	26	24	23	22	21	19	18	16	10							
	80	26	25	24	23	22	20	19	18	16	14	6							
Shut-off PSI		187	178	170	161	153	144	135	127	118	109	88	66	44	23				

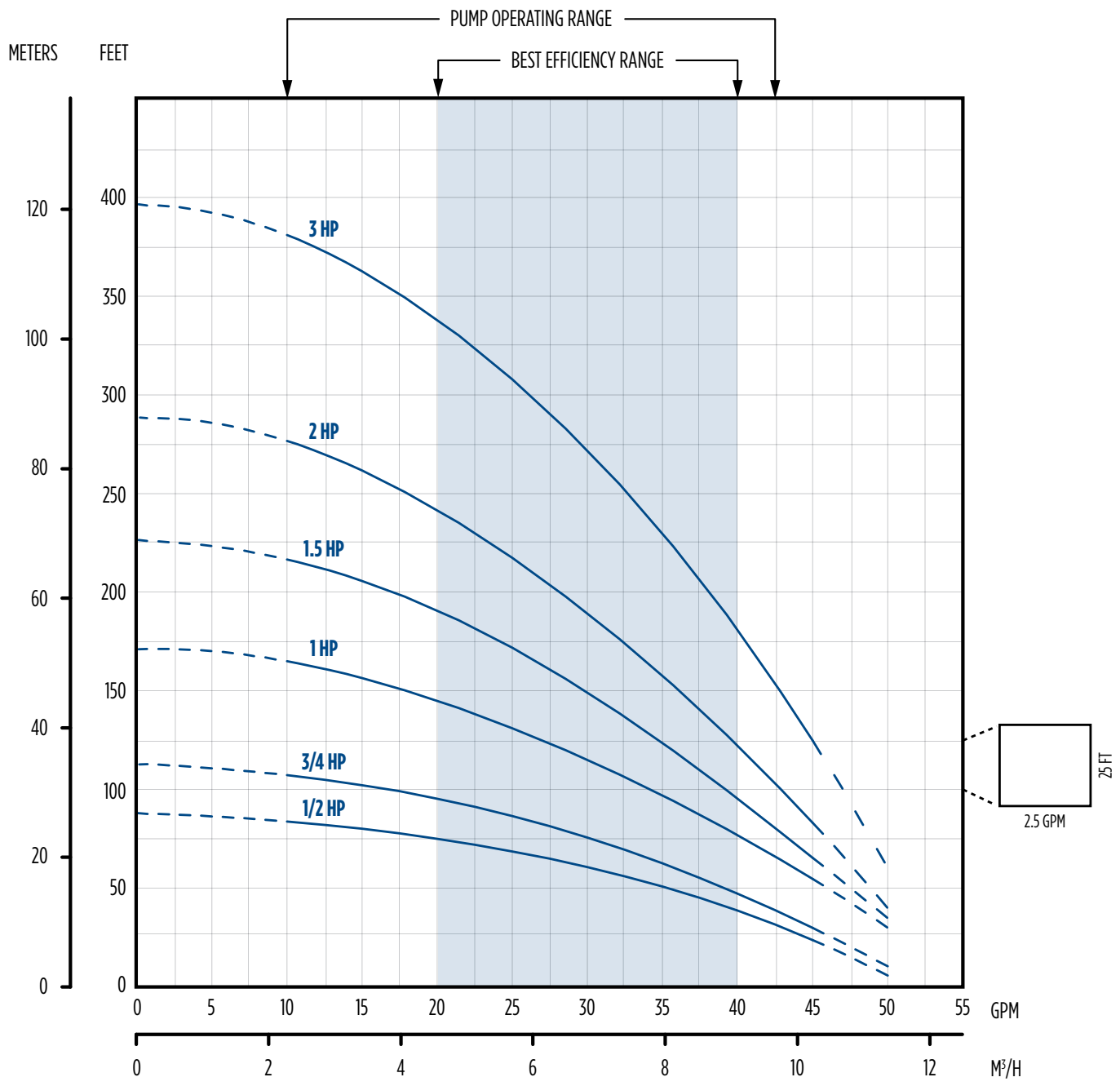
NOTES: Discharge 3" NPT. Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.



MENU

E-SERIES ENVIRONMENTAL PUMPS - 35 GPM

PERFORMANCE



E-SERIES ENVIRONMENTAL PUMPS - 35 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550		
1/2	0		40	30	15															88
	10	38	29	11																
	20	27																		
	30																			
	40																			
	50																			
Shut-off PSI		29	21	12	3															
3/4	0		42	36	28	17														113
	10	42	35	27	14															
	20	33	25	11																
	30	24																		
	40																			
	50																			
Shut-off PSI		40	32	23	14	6														
1	0			44	40	34	28	22	13											171
	10		43	39	33	27	21	11												
	20	43	38	32	26	20														
	30	37	31	26	19															
	40	30	25	17																
	50	24	16																	
60	14																			
Shut-off PSI		65	57	48	39	31	22	13	5											
1.5	0				43	40	36	31	27	23	18									226
	10		45	42	39	35	31	27	23	16										
	20	45	42	38	34	30	26	22	15											
	30	41	38	34	30	26	21	13												
	40	37	33	29	25	20	12													
	50	32	28	24	19	10														
	60	28	24	18																
	70	23	17																	
80	16																			
Shut-off PSI		89	81	72	63	55	46	37	29	20	11									
2	0				45	43	41	38	34	31	28	19								288
	10			45	43	40	37	34	31	27	24	11								
	20		45	42	40	37	33	30	27	24	20									
	30	44	42	39	36	33	30	26	23	19	12									
	40	42	39	36	32	29	26	22	18	11										
	50	38	35	32	29	25	22	17	10											
	60	35	31	28	25	21	16													
	70	31	28	24	21	15														
80	27	24	20	14																
Shut-off PSI		116	107	99	90	81	73	64	55	47	38	16								
3	0					45	44	42	40	38	32	26	18							396
	10					45	44	42	40	38	36	29	23	12						
	20				45	44	42	40	38	35	33	27	19							
	30			45	43	42	39	37	35	32	30	24	13							
	40		45	43	41	39	37	34	32	30	27	20								
	50	44	43	41	39	36	34	32	29	27	24	14								
	60	43	41	38	36	34	31	29	26	24	21									
	70	40	38	36	33	31	28	26	23	20	15									
80	38	35	33	30	28	26	23	19	15											
Shut-off PSI		163	154	145	137	128	119	111	102	94	85	63	42	20						

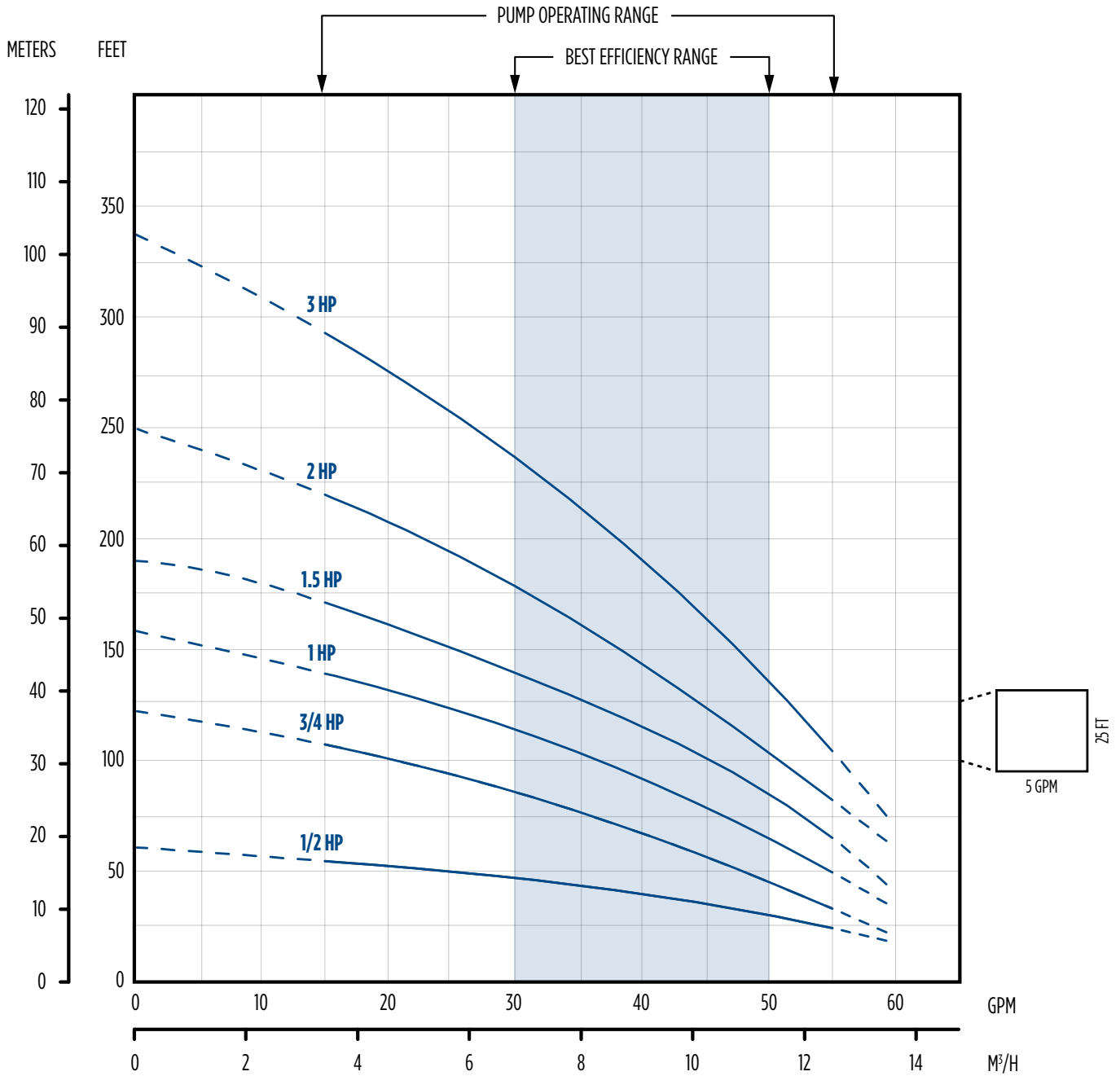
NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.



MENU

E-SERIES ENVIRONMENTAL PUMPS - 45 GPM

PERFORMANCE



E-SERIES ENVIRONMENTAL PUMPS - 45 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550		
1/2	0		40																	61
	10	36																		
	20																			
	30																			
	40																			
	50																			
Shut-off PSI		18	9																	
3/4	0		52	43	33	21														122
	10	51	42	32	18															
	20	40	30	16																
	30	28																		
	40																			
	50																			
Shut-off PSI		44	36	27	18	10														
1	0		51	43	35	25	27													158
	10	49	42	34	23															
	20	41	32	21																
	30	41	32	21																
	40	31	20																	
	50	17																		
Shut-off PSI		60	51	43	34	25	17													
1.5	0		55	51	44	37	28	19												190
	10		55	51	44	37	28	19												
	20	55	50	43	35	27	18													
	30	49	42	34	26	16														
	40	41	33	24																
	50	32	23																	
60	22																			
Shut-off PSI		74	65	56	48	39	30	22	13											
2	0		55	50	45	40	35	29	22											250
	10		55	50	45	40	35	29	22											
	20		54	49	44	39	34	28	21											
	30	53	49	44	38	33	27	19												
	40	48	43	38	32	26	18													
	50	42	37	31	24	17														
60	36	30	23	16																
Shut-off PSI		99	91	82	73	65	56	48	39	30	22									
3	0		56	53	49	46	42	38	27											337
	10		56	53	49	46	42	38	27											
	20		55	52	48	45	41	37	32	28										
	30		54	51	48	44	40	36	32	27	22									
	40	54	51	47	44	40	35	31	26	21	15									
	50	50	47	43	39	35	30	25	20											
	60	46	42	38	34	30	25	19												
	70	42	38	33	29	24	18													
	80	37	33	28	23	17														
	90	32	27	22	16															
100	27	21	16																	
Shut-off PSI		137	129	120	111	103	94	85	77	68	59	38								

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

E-SERIES ENVIRONMENTAL PUMPS - 60 GPM

PERFORMANCE

The chart displays the performance of E-Series Environmental Pumps at a constant flow rate of 60 GPM. The y-axis represents head in meters and feet, and the x-axis represents flow rate in GPM and M³/H. A shaded region indicates the best efficiency range, and a larger bracketed region indicates the pump operating range.

Head (Feet)	Head (Meters)	3 HP (GPM)	2 HP (GPM)	1.5 HP (GPM)	1 HP (GPM)	3/4 HP (GPM)	1/2 HP (GPM)
80	25	15	10	8	6	5	4
70	22	18	12	10	8	6	5
60	18	22	15	12	10	8	6
50	15	28	20	15	12	10	8
40	12	35	25	18	15	12	10
30	9	45	32	22	18	15	12
20	6	60	42	28	22	18	15
10	3	75	52	35	28	22	18
0	0	80	60	45	35	28	22

Operating Ranges:
 - **PUMP OPERATING RANGE:** Approximately 35 GPM to 75 GPM.
 - **BEST EFFICIENCY RANGE:** Approximately 40 GPM to 65 GPM.

Inset Box: 5 GPM, 12.5 FT

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E-SERIES ENVIRONMENTAL PUMPS - 60 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550	
1/2	0	68	44																59
	10	39																	
	20																		
	30																		
	40																		
	50																		
Shut-off PSI		17	8																
3/4	0		64	47															92
	10	62	43																
	20	40																	
	30																		
	40																		
	50																		
Shut-off PSI		31	22	14															
1	0		70	58	42														114
	10	68	56	39															
	20	54	35																
	30	31																	
	40																		
	50																		
Shut-off PSI		41	32	23	15														
1.5	0			69	61	51	34												149
	10		67	59	49	31													
	20	66	58	47	27														
	30	57	44	24															
	40	42	20																
	50																		
Shut-off PSI		56	47	39	30	21	13												
2	0				66	57	47	34	21										195
	10		72	65	56	45	32												
	20	71	64	54	43	30													
	30	62	53	41	28														
	40	51	39	26															
	50	37	24																
60	22																		
Shut-off PSI		76	67	58	50	41	32	24	15										
3	0					70	65	60	53	46	37							265	
	10				70	64	59	52	45	36	25								
	20			69	64	58	51	43	34	24									
	30		68	63	57	50	42	33	22										
	40	67	62	56	49	41	31	20											
	50	61	55	48	39	29													
60	54	46	38	28															
Shut-off PSI		106	98	89	80	72	63	54	46	37	28								

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

E-SERIES ENVIRONMENTAL PUMPS - 90 GPM

PERFORMANCE

The graph displays the performance characteristics of three pump models: 1.5 HP, 2 HP, and 3 HP. The vertical axis represents head in meters and feet, while the horizontal axis represents flow rate in GPM and M³/H. A shaded region indicates the 'BEST EFFICIENCY RANGE' between approximately 55 GPM and 105 GPM. A larger bracketed area indicates the 'PUMP OPERATING RANGE' from approximately 30 GPM to 125 GPM. A small square icon on the right indicates a flow rate of 10 GPM.

Flow Rate (GPM)	Flow Rate (M ³ /H)	3 HP Head (Meters)	3 HP Head (Feet)	2 HP Head (Meters)	2 HP Head (Feet)	1.5 HP Head (Meters)	1.5 HP Head (Feet)
0	0	165	540	120	394	95	312
20	7.6	160	525	115	377	90	295
40	15.2	145	473	105	344	80	262
60	22.8	125	411	90	292	65	213
80	30.4	105	340	75	245	50	164
100	38.0	85	278	60	197	35	115
120	45.6	65	216	45	149	20	66
125	47.3	55	180	40	131	15	49

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E-SERIES ENVIRONMENTAL PUMPS - 90 GPM

PERFORMANCE

HP	PSI	Depth to Pumping Water Level, or Lift, in Feet. Shaded Areas Indicate Most Efficient Performance																	Shut-off (ft)	
		20	40	60	80	100	120	140	160	180	200	250	300	350	400	450	500	550		
1.5	0		99	69	43														95	
	10	94	65	38																
	20	61	32																	
	30																			
	40																			
	50																			
Shut-off PSI		32	24	15	6															
2	0		112	91	68	47													121	
	10	109	88	65	43															
	20	84	61	39																
	30	58	34																	
	40																			
	50																			
Shut-off PSI		44	35	26	18	9														
3	0			110	96	79	64	48											167	
	10		108	93	77	61	45													
	20	106	91	74	59	42														
	30	88	72	57	38															
	40	69	54	34																
	50	52	30																	
Shut-off PSI		64	55	46	38	29	20	12												

NOTES: Performance shown does not include friction loss in the drop pipe. All performance data is based on rated motor nameplate voltage.

C1 SERIES CISTERN PUMPS

Designed for use in gray water / filtered effluent service applications, the C1 Series cistern pump provides high performance and long life in less than ideal water conditions. The C1 Series pump is able to pass solids up to 1/8" without having a negative effect on the internal hydraulic components.

The pump's unique bottom suction design allows for maximum fluid drawdown without compromising durability or overall life, and it does not require the use of a flow induction sleeve. Intended specifically for use in a cistern or tank, C1 Series pumps are suitable for use in agricultural, residential, and commercial installations.

FEATURES

- Supplied with a removable 5" base for secure and reliable mounting
- Bottom suction design
- Robust thermoplastic discharge head design resists breakage during installation and operation
- Single shell housing design provides a compact unit while ensuring cool and quiet operation
- Hydraulic components molded from high quality engineered thermoplastics
- Optimized hydraulic design allows for increased performance and decreased power usage
- All metal components are made of high grade stainless steel for corrosion resistance
- Available with a high quality 115 V or 230 V, 1/2 hp motor
- Fluid flows of 10, 20, and 30 gpm, with a maximum shut-off pressure of 100 psi
- Heavy-duty 600 V, 10 foot SJOOW jacketed lead

APPLICATIONS

- Gray water pumping
- Filtered effluent service water pumping
- Water reclamation projects such as pumping from rain catchment basins
- Aeration and other fountain or pond applications
- Agriculture and livestock water pumping



C1 SERIES CISTERN PUMPS - ORDERING INFORMATION

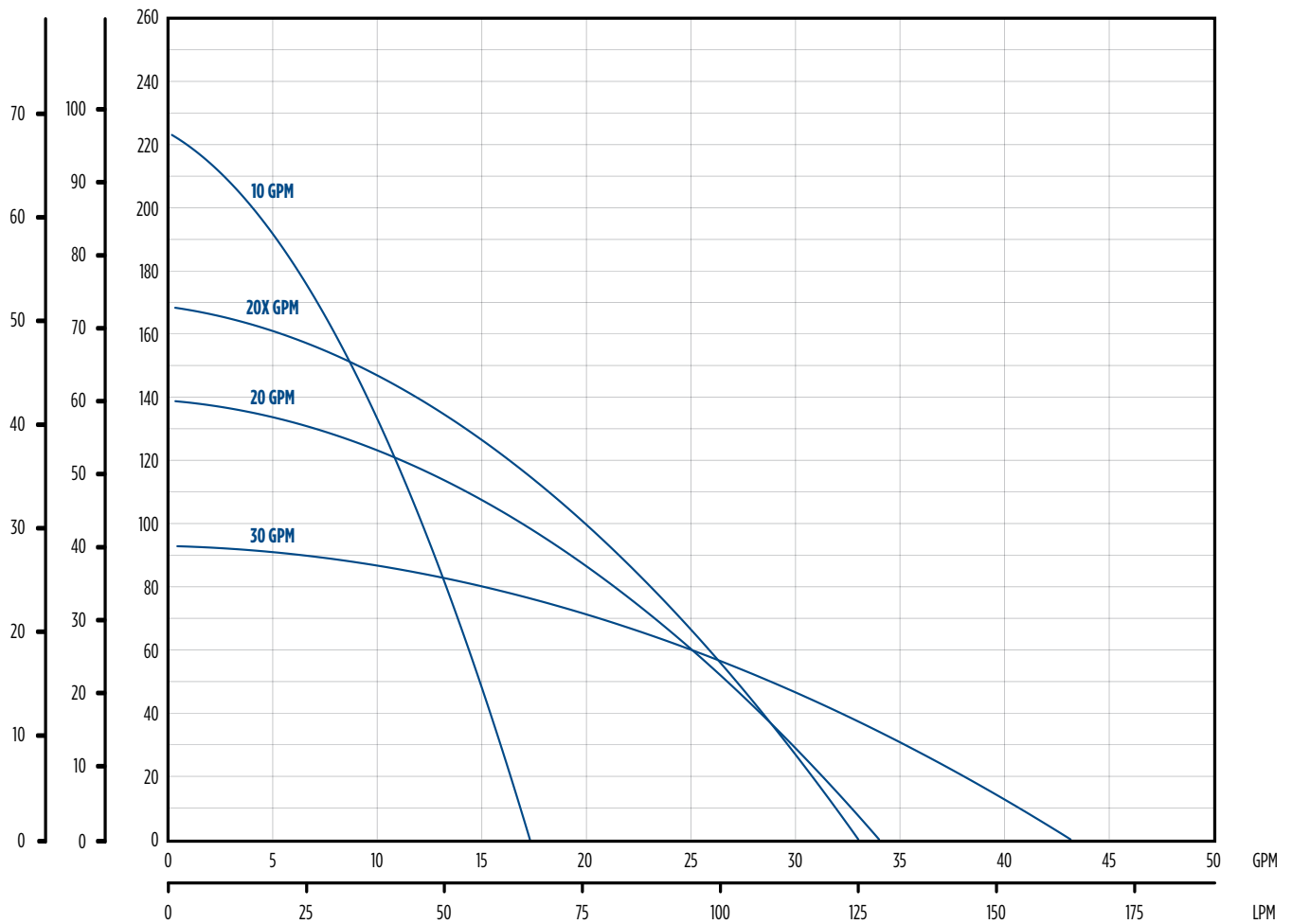
ORDERING INFORMATION

GPM	HP	Volts	Stage	Model	Order	Length (in)	Weight (lbs)
10	1/2	115	7	10C1-05P4-2W115	90301005	26	17
		230	7	10C1-05P4-2W230	90301010	26	17
20		115	5	20C1-05P4-2W115	90302005	25	16
		230	5	20C1-05P4-2W230	90302010	25	16
20X		115	6	20XC1-05P4-2W115	90302015	26	17
		230	6	20XC1-05P4-2W230	90302020	26	17
30		115	4	30C1-05P4-2W115	90303005	25	16
		230	4	30C1-05P4-2W230	90303010	25	16

NOTES: All units have 10 foot long SJ100W leads.

PERFORMANCE

METERS PSI FEET



SUBMERSIBLE PUMP ACCESSORIES

ORDERING INFORMATION

Check Valves - Silicone Bronze

Description	Inlet	Outlet	Case Qty.	Order No.	Wt. (lbs)
Flomatic™ 4221LEB	1-1/4" MNPT	1" FNPT	36	91980631	1.25
Flomatic™ 4242LEB	1-1/4" MNPT	1-1/4" FNPT	36	91980649	1.75

Check Valves - Stainless Steel

Description	Inlet	Outlet	Case Qty.	Order No.	Wt. (lbs)
Flomatic™ 4221LSS2	1-1/4" MNPT	1" FNPT	49	91985317	1.4
Flomatic™ 4242SS2	1-1/4" MNPT	1-1/4" FNPT	49	91985309	1.5

Check Valves - Ductile Iron

Description	Inlet	Outlet	Carton Qty.	Order No.	Wt. (lbs)
Simmons #658SB	2" MNPT	2" FNPT	1	91982157	3.5
Simmons #660SB	3" MNPT	3" FNPT	1	91981266	10
Simmons #661SB	4" MNPT	4" FNPT	1	91980334	21

Flomatic™ Poppet with Removable Ring (Patent Pending)

Description	Order No.	Wt. (lbs)
Flomatic™ Poppet with Removable Ring	91985259R	0.1
T-Handle Poppet Wrench	106964101	1

Reducer Bushing

Description	Inlet	Outlet	PSI Rating	Order No.	Wt.
White PVC Bushing	1-1/4" MNPT	1" FNPT	200 PSI	31031008R	0.2

NOTES: Flomatic™ is a trademark of the Danfoss Corporation.



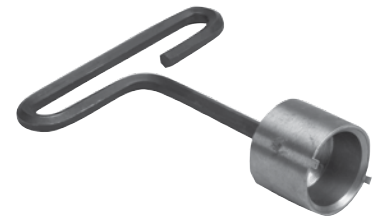
Check Valves



Poppet



Reducer Bushing



T-Handle Poppet Wrench

REFERENCE - FRICTION LOSS

PVC SCHEDULE 80 IPS PLASTIC IN 100 FEET OF PIPE

Pipe Size	1/2"		3/4"		1"		1-1/4"		1-1/2"		2"		2-1/2"		3"		4"	
	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)	Head Loss	Vel. (ft/s)
1	1.87	1.37	0.42	0.74	0.12	0.45	0.03	0.25	0.01	0.18								
2	6.74	2.74	1.52	1.48	0.44	0.89	0.11	0.50	0.05	0.36	0.01	0.22						
3	14.29	4.11	3.21	2.23	0.93	1.34	0.23	0.75	0.10	0.54	0.03	0.33	0.01	0.23				
4	24.34	5.48	5.47	2.97	1.59	1.78	0.39	1.00	0.18	0.73	0.05	0.43	0.02	0.30				
5	36.79	6.85	8.27	3.71	2.40	2.23	0.59	1.25	0.27	0.91	0.08	0.54	0.03	0.38	0.01	0.24		
6	51.57	8.22	11.59	4.45	3.36	2.68	0.82	1.50	0.38	1.09	0.11	0.65	0.04	0.45	0.02	0.29		
7	68.61	9.59	15.43	5.19	4.47	3.12	1.09	1.75	0.50	1.27	0.14	0.76	0.06	0.53	0.02	0.34		
8	87.86	10.96	19.75	5.94	5.73	3.57	1.40	2.00	0.64	1.45	0.18	0.87	0.08	0.61	0.03	0.39		
9	109.27	12.33	24.57	6.68	7.12	4.01	1.74	2.25	0.80	1.63	0.23	0.98	0.01	0.68	0.03	0.44		
10	132.82	13.70	29.86	7.42	8.66	4.46	2.12	2.50	0.97	1.82	0.28	1.09	0.12	0.76	0.04	0.49		
11			35.63	8.16	10.33	4.91	2.53	2.75	1.16	2.00	0.33	1.20	0.14	0.83	0.05	0.53		
12			41.86	8.90	12.14	5.35	2.97	3.00	1.36	2.18	0.39	1.30	0.16	0.91	0.06	0.58		
14			55.69	10.39	16.15	6.24	3.95	3.50	1.81	2.54	0.52	1.52	0.22	1.06	0.07	0.68		
16			71.31	11.87	20.68	7.14	5.06	4.00	2.32	2.90	0.67	1.74	0.28	1.21	0.09	0.78		
18			88.69	13.36	25.72	8.03	6.30	4.50	2.89	3.27	0.83	1.96	0.34	1.36	0.12	0.87		
20			107.80	14.84	31.26	8.92	7.65	5.00	3.51	3.63	1.01	2.17	0.42	1.51	0.14	0.97	0.04	0.56
22					37.29	9.81	9.13	5.50	4.19	3.99	1.20	2.39	0.50	1.67	0.17	1.07	0.04	0.61
24					43.81	10.70	10.72	6.00	4.92	4.36	1.41	2.61	0.59	1.82	0.20	1.17	0.05	0.67
26					50.81	11.60	12.44	6.50	5.71	4.72	1.64	2.83	0.68	1.97	0.23	1.26	0.06	0.73
28					58.29	12.49	14.27	7.00	6.55	5.08	1.88	3.04	0.78	2.12	0.26	1.36	0.07	0.78
30					66.23	13.38	16.21	7.50	7.44	5.45	2.13	3.26	0.89	2.27	0.30	1.46	0.08	0.84
35							21.57	8.75	9.89	6.35	2.84	3.80	1.18	2.65	0.40	1.70	0.10	0.98
40							27.62	10.00	12.67	7.26	3.63	4.35	1.51	3.03	0.51	1.94	0.13	1.12
45		6" Pipe					34.36	11.25	15.76	8.17	4.52	4.89	1.88	3.41	0.64	2.19	0.17	1.26
50	0.03	0.62					41.76	12.51	19.16	9.08	5.49	5.44	2.28	3.78	0.77	2.43	0.20	1.40
55	0.03	0.68					49.82	13.76	22.85	9.99	6.55	5.98	2.72	4.16	0.92	2.67	0.24	1.53
60	0.04	0.74					58.53	15.01	26.85	10.89	7.70	6.52	3.20	4.54	1.09	2.91	0.28	1.67
65	0.04	0.80							31.14	11.80	8.93	7.07	3.71	4.92	1.26	3.16	0.33	1.81
70	0.05	0.86							35.72	12.71	10.24	7.61	4.25	5.30	1.45	3.40	0.38	1.95
75	0.06	0.92							40.59	13.62	11.64	8.15	4.83	5.68	1.64	3.64	0.43	2.09
80	0.07	0.98							45.74	14.52	13.12	8.70	5.45	6.06	1.85	3.89	0.48	2.23
85	0.07	1.05							51.18	15.43	14.68	9.24	6.09	6.43	2.07	4.13	0.54	2.37
90	0.08	1.11							56.89	16.34	16.32	9.78	6.77	6.81	2.30	4.37	0.60	2.51
95	0.09	1.17							62.88	17.25	18.03	10.33	7.49	7.19	2.54	4.61	0.66	2.65
100	0.01	1.23							69.15	18.16	19.83	10.87	8.23	7.57	2.80	4.86	0.73	2.79
125	0.15	1.54									29.98	13.59	12.45	9.46	4.23	6.07	1.01	3.49
150	0.21	1.85									42.02	16.31	17.45	11.35	5.93	7.29	1.54	4.19
175	0.28	2.15											23.21	13.25	7.89	8.50	2.05	4.88

NOTES: Suction velocities should not exceed 8 feet per second. Calculated using Williams and Hazen formula using C = 150.

REFERENCE - FRICTION LOSS

WATER IN 100 FEET OF STEEL PIPE

GPM	Pipe Size 1/2" - Actual Size 0.622			Pipe Size 3/4" - Actual Size 0.824			Pipe Size 1" - Actual Size 1.049			Pipe Size 1-1/4" - Actual Size 1.38			Pipe Size 1-1/2" - Actual Size 1.61		
	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)
1	2.099	1.056	0.017	0.534	0.602	0.006	0.165	0.371	0.002	0.043	0.215	0.001	0.021	0.158	0.000
2	7.577	2.112	0.069	1.929	1.203	0.023	0.596	0.742	0.009	0.157	0.429	0.003	0.074	0.315	0.002
3	16.056	3.168	0.156	4.087	1.805	0.051	1.263	1.114	0.019	0.332	0.644	0.006	0.157	0.473	0.003
4	27.354	4.223	0.277	6.962	2.407	0.090	2.151	1.485	0.034	0.566	0.858	0.011	0.268	0.630	0.006
5	41.352	5.279	0.433	10.525	3.008	0.141	3.252	1.856	0.054	0.856	1.073	0.018	0.404	0.788	0.001
6	57.961	6.335	0.624	14.753	3.610	0.203	4.558	2.227	0.077	1.200	1.287	0.026	0.567	0.946	0.014
7	77.112	7.391	0.849	19.628	4.211	0.276	6.064	2.599	0.105	1.597	1.502	0.035	0.754	1.103	0.019
8	98.747	8.447	1.109	25.134	4.813	0.360	7.765	2.970	0.137	2.045	1.716	0.046	0.966	1.261	0.025
9	122.817	9.503	1.404	31.261	5.415	0.456	9.657	3.341	0.173	2.543	1.931	0.058	1.201	1.418	0.031
10	149.280	10.559	1.733	37.997	6.016	0.563	11.738	3.712	0.214	3.091	2.145	0.072	1.460	1.576	0.039
11	178.099	11.615	2.097	45.352	6.618	0.681	14.004	4.083	0.259	3.688	2.360	0.087	1.742	1.734	0.047
12	209.241	12.670	2.495	53.259	7.220	0.810	16.453	4.455	0.308	4.333	2.574	0.103	2.047	1.891	0.056
13	242.675	13.726	2.928	61.769	7.821	0.951	19.082	4.826	0.362	5.025	2.789	0.121	2.374	2.049	0.065
14	278.376	14.782	3.396	70.856	8.423	1.103	21.889	5.197	0.420	5.764	3.003	0.140	2.723	2.206	0.076
15	316.317	15.838	3.899	80.513	9.025	1.266	24.873	5.568	0.482	6.550	3.218	0.161	3.094	2.364	0.087
16				90.735	9.626	1.440	28.031	5.940	0.548	7.381	3.432	0.183	3.487	2.521	0.099
17				101.517	10.228	1.626	31.362	6.311	0.619	8.258	3.647	0.207	3.901	2.679	0.112
18				112.852	10.829	1.823	34.863	6.682	0.694	9.181	3.861	0.232	4.337	2.837	0.125
19				124.738	11.431	2.031	38.535	7.053	0.773	10.148	4.076	0.258	4.793	2.994	0.139
20				137.168	12.033	2.250	42.375	7.425	0.857	11.159	4.290	0.286	5.271	3.152	0.154
21				150.140	12.634	2.481	46.383	7.796	0.945	12.214	4.505	0.315	5.769	3.309	0.170
22				163.649	13.236	2.723	50.556	8.167	1.037	13.313	4.719	0.346	6.288	3.467	0.187
23				177.691	13.838	2.976	54.894	8.538	1.133	14.455	4.934	0.378	6.828	3.625	0.204
24				192.263	14.439	3.241	59.396	8.909	1.234	15.641	5.148	0.412	7.388	3.782	0.222
25				207.363	15.041	3.516	64.061	9.281	1.339	16.869	5.363	0.447	7.968	3.940	0.241
26				222.985	15.643	3.803	68.887	9.652	1.448	18.140	5.577	0.483	8.569	4.097	0.261
27				239.128	16.244	4.101	73.874	10.023	1.561	19.453	5.792	0.521	9.189	4.255	0.281
28				255.789	16.846	4.411	79.021	10.394	1.679	20.809	6.006	0.561	9.829	4.413	0.303
29				272.965	17.448	4.731	84.327	10.766	1.801	22.206	6.221	0.601	10.489	4.570	0.325
30				290.652	18.049	5.063	89.791	11.137	1.928	23.645	6.435	0.644	11.169	4.728	0.347
32							101.191	11.879	2.193	26.647	6.864	0.732	12.587	5.043	0.395
34							113.215	12.622	2.476	29.813	7.293	0.827	14.082	5.358	0.446
36							125.857	13.364	2.776	33.142	7.722	0.927	15.655	5.673	0.500
38							139.112	14.107	3.093	36.633	8.151	1.033	17.304	5.989	0.557
40							152.975	14.849	3.427	40.283	8.580	1.144	19.028	6.304	0.618
42							167.442	15.592	3.778	44.093	9.009	1.261	20.827	6.619	0.681
44							182.507	16.334	4.147	48.060	9.438	1.384	22.701	6.934	0.747
46							198.168	17.076	4.532	52.184	9.867	1.513	24.649	7.249	0.817
48							214.420	17.819	4.935	56.463	10.296	1.648	26.671	7.564	0.889
50							231.259	18.561	5.355	60.898	10.725	1.788	28.765	7.880	0.965
55							275.904	20.417	6.479	72.654	11.798	2.163	34.319	8.668	1.168
60							324.147	22.274	7.711	85.358	12.870	2.574	40.319	9.456	1.390
65							375.943	24.130	9.049	98.997	13.943	3.021	46.762	10.244	1.631
70							431.249	25.986	10.495	113.561	15.015	3.504	53.641	11.032	1.891
75							490.027	27.842	12.048	129.039	16.088	4.023	60.952	11.820	2.171
80							552.241	29.698	13.708	145.422	17.160	4.577	68.691	12.607	2.470
85							617.860	31.554	15.475	162.701	18.233	5.167	76.853	13.395	2.789
90							686.852	33.410	17.349	180.869	19.305	5.793	85.435	14.183	3.127
95							759.190	35.267	19.331	199.918	20.378	6.454	94.433	14.971	3.484
100							834.846	37.123	21.419	219.840	21.450	7.151	103.843	15.759	3.860
110										262.281	23.595	8.653	123.890	17.335	4.671
120										308.142	25.740	10.298	145.553	18.911	5.559
130										357.380	27.885	12.086	168.811	20.487	6.524
140										409.955	30.030	14.016	193.645	22.063	7.566
150										465.831	32.175	16.090	220.039	23.639	8.685

NOTES: Suction Velocities should not exceed 8 feet per second.

REFERENCE - FRICTION LOSS

WATER IN 100 FEET OF STEEL PIPE

GPM	Pipe Size 2" - Actual Size 2.067			Pipe Size 2-1/2" - Actual Size 2.469			Pipe Size 3" - Actual Size 3.068			Pipe Size 3-1/2" - Actual Size 3.548		
	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)	Friction	Vel. (ft/sec)	Vel. Head (ft)
2	0.022	0.191	0.001									
3	0.047	0.287	0.001	0.020	0.201	0.001						
4	0.079	0.383	0.002	0.033	0.268	0.001						
5	0.120	0.478	0.004	0.051	0.335	0.002	0.018	0.217	0.001	0.009	0.162	0.000
6	0.168	0.574	0.005	0.071	0.402	0.003	0.025	0.260	0.001	0.012	0.195	0.001
7	0.224	0.670	0.007	0.094	0.469	0.003	0.033	0.304	0.001	0.016	0.227	0.001
8	0.286	0.765	0.009	0.121	0.536	0.004	0.042	0.347	0.002	0.021	0.260	0.001
9	0.356	0.861	0.012	0.150	0.603	0.006	0.052	0.391	0.002	0.026	0.292	0.001
10	0.433	0.957	0.014	0.182	0.670	0.007	0.063	0.434	0.003	0.031	0.325	0.002
11	0.516	1.052	0.017	0.218	0.737	0.008	0.076	0.477	0.004	0.037	0.357	0.002
12	0.607	1.148	0.020	0.256	0.804	0.010	0.089	0.521	0.004	0.044	0.389	0.002
13	0.704	1.244	0.024	0.296	0.871	0.012	0.103	0.564	0.005	0.051	0.422	0.003
14	0.807	1.339	0.028	0.340	0.938	0.014	0.118	0.608	0.006	0.058	0.454	0.003
15	0.917	1.435	0.032	0.386	1.005	0.016	0.134	0.651	0.007	0.066	0.487	0.004
16	1.034	1.531	0.036	0.435	1.072	0.018	0.151	0.694	0.007	0.075	0.519	0.004
17	1.157	1.626	0.041	0.487	1.139	0.020	0.169	0.738	0.008	0.083	0.552	0.005
18	1.286	1.722	0.046	0.542	1.206	0.023	0.188	0.781	0.009	0.093	0.584	0.005
19	1.421	1.818	0.051	0.599	1.273	0.025	0.208	0.825	0.011	0.103	0.617	0.006
20	1.563	1.913	0.057	0.658	1.340	0.028	0.229	0.868	0.012	0.113	0.649	0.007
21	1.711	2.009	0.063	0.720	1.407	0.031	0.250	0.911	0.013	0.123	0.681	0.007
22	1.865	2.105	0.069	0.785	1.474	0.034	0.273	0.955	0.014	0.135	0.714	0.008
23	2.025	2.200	0.075	0.853	1.541	0.037	0.296	0.998	0.015	0.146	0.746	0.009
24	2.191	2.296	0.082	0.923	1.608	0.040	0.321	1.042	0.017	0.158	0.779	0.009
25	2.363	2.391	0.089	0.995	1.675	0.044	0.346	1.085	0.018	0.171	0.811	0.010
26	2.541	2.487	0.096	1.070	1.742	0.047	0.372	1.128	0.020	0.183	0.844	0.011
27	2.724	2.583	0.104	1.148	1.809	0.051	0.399	1.172	0.021	0.197	0.876	0.012
28	2.914	2.678	0.112	1.227	1.876	0.055	0.427	1.215	0.023	0.210	0.909	0.013
29	3.110	2.774	0.120	1.310	1.943	0.059	0.455	1.259	0.025	0.224	0.941	0.014
30	3.312	2.870	0.128	1.395	2.010	0.063	0.485	1.302	0.026	0.239	0.974	0.015
32	3.732	3.061	0.146	1.572	2.144	0.071	0.546	1.389	0.030	0.269	1.038	0.017
34	4.175	3.252	0.164	1.759	2.278	0.081	0.611	1.476	0.034	0.301	1.103	0.019
36	4.642	3.444	0.184	1.955	2.412	0.090	0.679	1.562	0.038	0.335	1.168	0.021
38	5.130	3.635	0.205	2.161	2.546	0.101	0.751	1.649	0.042	0.370	1.233	0.024
40	5.642	3.826	0.228	2.376	2.680	0.112	0.826	1.736	0.047	0.407	1.298	0.026
42	6.175	4.018	0.251	2.601	2.814	0.123	0.904	1.823	0.052	0.446	1.363	0.029
44	6.731	4.209	0.275	2.835	2.948	0.135	0.985	1.910	0.057	0.486	1.428	0.032
46	7.308	4.400	0.301	3.078	3.083	0.148	1.070	1.996	0.062	0.527	1.493	0.035
48	7.908	4.592	0.328	3.331	3.217	0.161	1.158	2.083	0.067	0.571	1.558	0.038
50	8.529	4.783	0.356	3.592	3.351	0.174	1.248	2.170	0.073	0.616	1.623	0.041
55	10.175	5.261	0.430	4.286	3.686	0.211	1.490	2.387	0.089	0.734	1.785	0.050
60	11.955	5.740	0.512	5.035	4.021	0.251	1.750	2.604	0.105	0.863	1.947	0.059
65	13.865	6.218	0.601	5.840	4.356	0.295	2.030	2.821	0.124	1.001	2.109	0.069
70	15.905	6.696	0.697	6.699	4.691	0.342	2.328	3.038	0.143	1.148	2.272	0.080
75	18.072	7.174	0.800	7.612	5.026	0.393	2.646	3.255	0.165	1.304	2.434	0.092
80	20.367	7.653	0.910	8.578	5.361	0.447	2.981	3.472	0.187	1.470	2.596	0.105
85	22.787	8.131	1.028	9.598	5.696	0.504	3.336	3.689	0.212	1.644	2.758	0.118
90	25.331	8.609	1.152	10.669	6.031	0.565	3.708	3.906	0.237	1.828	2.921	0.133
95	27.999	9.088	1.284	11.793	6.366	0.630	4.099	4.123	0.264	2.021	3.083	0.148
100	30.789	9.566	1.422	12.968	6.701	0.698	4.507	4.340	0.293	2.222	3.245	0.164
110	36.733	10.523	1.721	15.472	7.371	0.845	5.377	4.774	0.354	2.651	3.570	0.198
120	43.156	11.479	2.048	18.177	8.041	1.005	6.317	5.208	0.422	3.114	3.894	0.236
130	50.052	12.436	2.404	21.081	8.711	1.180	7.327	5.642	0.495	3.612	4.219	0.277
140	57.416	13.392	2.788	24.183	9.382	1.368	8.405	6.076	0.574	4.144	4.543	0.321
150	65.241	14.349	3.200	27.479	10.052	1.570	9.550	6.510	0.659	4.708	4.868	0.368

NOTES: Suction Velocities should not exceed 8 feet per second.

REFERENCE - PIPE FITTINGS

CONNECTIONS

Friction losses in terms of equivalent lengths of standard pipe					
Pipe Size	Standard 90° elbow	Long radius elbow	45° Elbow	Tee	Return bend
1/2"	1.5	1.1	0.77	3.4	3.8
3/4"	2.2	1.4	1	4.5	5
1"	2.7	1.7	1.3	5.8	6.1
1-1/4"	3.7	2.4	1.6	7.8	8.5
1-1/2"	4.3	2.8	2	9	10
2"	5.5	3.5	2.5	11	13
2-1/2"	6.5	4.2	3	14	15
3"	8.1	5.1	3.8	17	18
3-1/2"	9.5	6	4.4	19	21
4"	11	7	5	22	24
4-1/2"	12	7.9	5.6	24	27
5"	14	8.9	6.1	27	31
6"	16	11	7.7	33	37

VALVES

Friction losses in terms of equivalent lengths of standard pipe				
Pipe Size	Gate valve open	Globe valve open	Angle valve open	Swing check valve
1/2"	0.35	16	8.4	4
3/4"	0.47	22	12	5
1"	0.6	27	15	7
1-1/4"	0.8	37	18	9
1-1/2"	0.95	44	22	11
2"	1.2	57	28	13
2-1/2"	1.4	66	33	16
3"	1.7	85	42	20
3-1/2"	2	99	50	24
4"	2.3	110	58	26
4-1/2"	2.6	130	61	31
5"	2.9	140	70	33
6"	3.5	160	83	39

REFERENCE - PRESSURE LOSS

SWING CHECK VALVES

Flow GPM	Pressure Loss (PSI) / Valve Size							
	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
2	0.2							
3	.05							
6	1.0	0.3						
8	1.7	0.5						
10	2.6	0.8	0.3					
12	3.6	1.1	0.5					
14	4.8	1.5	0.6					
16		2.0	0.9					
18		2.4	1.0					
20		3.0	1.2	0.4				
22		3.5	1.4	0.5				
24		4.1	1.7	0.6				
26		4.8	2.0	0.7	0.4			
28			2.2	0.8	0.5			
30			2.5	0.9	0.5			
32			2.9	1.1	0.6			
34			3.2	1.2	0.6			
36			3.6	1.3	0.7			
38			3.9	1.5	0.8			
40			4.3	1.6	0.8	0.3		
42			4.7	1.7	0.9	0.3		
44				1.9	1.0	0.4		
46				2.1	1.1	0.4		
48				2.2	1.2	0.5		
50				2.4	1.3	0.5		
55				2.9	1.5	0.6		
60				3.4	1.8	0.7		
65				3.9	2.0	0.8		
70				4.5	2.4	0.9	0.4	
75					2.7	1.0	0.5	
80					3.0	1.2	0.6	
90					3.7	1.5	0.7	
100					4.6	1.8	0.9	0.4
120						2.5	1.2	0.5
140						3.3	1.6	0.7

BRONZE GATE VALVES

Flow GPM	Pressure Loss (PSI) / Valve Size								
	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
1									
2	.01								
5	.06	.02							
8	.16	.05	.02						
10	.24	.08	.03	.01					
15		.17	.06	.02	.01				
20		.31	.11	.03	.02				
30			.24	.07	.04	.01			
40			.43	.13	.07	.02	.01		
50			.67	.21	.11	.04	.02		
60				.30	.15	.05	.03	.01	
80				.54	.28	.10	.05	.02	
100					.43	.15	.07	.03	
120					.62	.22	.10	.04	.02
140					.85	.30	.14	.06	
160						.40	.18	.07	.03

REFERENCE - PRESSURE LOSS

WATER METERS AWWA STANDARD

Flow GPM	Pressure Loss (Normal Size)						
	5/8"	3/4"	1"	1-1/2"	2"	3"	4"
1	0.2	0.1					
2	0.3	0.2					
3	0.4	0.3					
4	0.6	0.5	0.1				
5	0.9	0.6	0.2				
6	1.3	0.7	0.3				
7	1.8	0.8	0.4				
8	2.3	1.0	0.5				
9	3.0	1.3	0.6				
10	3.7	1.6	0.7				
11	4.4	1.9	0.8				
12	5.1	2.2	0.9				
13	6.1	2.6	1.0				
14	7.2	3.1	1.1				
15	8.3	3.6	1.2				
16	9.4	4.1	1.4	0.4			
17	10.7	4.6	1.6	0.5			
18	12.0	5.2	1.8	0.6			
19	13.4	5.8	2.0	0.7			
20	15.0	6.5	2.2	0.8			
22		7.9	2.8	1.0			
24		9.5	3.4	1.2			
26		11.2	4.0	1.4			
28		13.0	4.6	1.6			
30		15.0	5.3	1.8	0.7		
32			6.0	2.1	0.8		
34			6.9	2.4	0.9		
36			7.8	2.7	1.0		
38			8.7	3.0	1.2		
40			9.6	3.3	1.3		
42			10.6	3.6	1.4		
44			11.7	3.9	1.5		
46			12.8	4.2	1.6		
48			13.9	4.5	1.7		
50			15.0	4.9	1.9		
52				5.3	2.1		
54				5.7	2.2		
56				6.2	2.3		
58				6.7	2.5		
60				7.2	2.7	1.0	
65				8.3	3.2	1.1	
70				9.8	3.7	1.3	
75				11.3	4.3	1.5	
80				12.8	4.9	1.6	0.7
90				16.1	6.2	2.0	0.8
100				20.0	7.8	2.5	0.9
110					9.5	2.9	1.0
120					11.3	3.4	1.2
130					13.0	3.9	1.4
140					15.1	4.5	1.6
150					17.3	5.1	1.8

REFERENCE - PRESSURE TANK SIZING

PROPER SYSTEM LIFE MINIMUM TANK VOLUMES

Pump Capacity		Minimum Drawdown	Total Tank Volume (Gallons)								
			Switch Setting (PSI)								
			20-40			30-50			40-60		
GPH	GPM	Gallons	A	B	C	A	B	C	A	B	C
240	4	4	10	15	25	15	15	40	15	15	55
300	5	5	15	15	30	15	20	50	20	20	70
360	6	6	15	20	40	20	20	60	20	25	85
420	7	7	20	20	45	35	25	70	25	30	100
480	8	8	20	25	50	35	25	80	30	30	110
540	9	9	25	25	60	30	30	90	35	35	125
600	10	10	30	30	65	30	35	100	40	40	140
660	11	12	35	35	80	40	40	120	45	45	165
720	12	13	35	40	85	40	45	130	50	50	180
780	13	15	40	45	100	50	50	150	55	60	210
840	14	17	45	50	110	55	55	170	65	65	235
900	15	19	50	55	125	60	65	190	70	75	265
960	16	20	55	55	160	65	65	200	75	75	280
1020	17	23	6	65	150	75	75	230	85	90	320
1080	18	25	70	70	160	80	85	250	95	95	350
1140	19	27	75	75	175	85	90	270	100	105	375
1200	20	30	80	85	195	95	100	300	110	115	415
1260	21	33	90	90	215	105	110	330	125	125	460
1320	22	36	100	100	235	115	120	360	135	135	500
1380	23	38	105	105	345	125	125	380	140	145	530
1440	24	41	110	115	365	135	135	410	155	155	570
1500	25	44	120	120	385	140	145	440	165	165	610
1560	26	47	130	130	305	150	155	470	175	180	655
1620	27	50	135	140	325	160	165	500	185	190	700
1680	28	53	145	145	345	170	175	530	200	200	735
1740	29	57	155	160	370	185	185	570	215	215	790
1800	30	60	165	165	390	195	195	600	225	225	835

NOTES: A = Bladder or Diaphragm Tank Design; B = Floating Wafer Tank Design; C = Plain Steel Tank Design

REFERENCE - EQUIVALENT VALUES OF PRESSURE

EQUIVALENT VALUES OF PRESSURE

Inches of Mercury	Feet of Water	PSI
1	1.13	0.49
2	2.26	0.98
3	3.39	1.47
4	4.52	1.95
5	5.65	2.44
6	6.78	2.93
7	7.91	3.42
8	9.04	3.91
9	10.17	4.4
10	11.3	4.89
11	12.45	5.39
12	13.57	5.87
13	14.7	6.37
14	15.82	6.86
15	16.96	7.35
16	18.09	7.84
17	19.22	8.33
18	20.35	8.82
19	21.75	9.31
20	22.6	9.8
21	23.78	10.3
22	24.88	10.8
23	26	11.28
24	27.15	11.75
25	26.26	12.25
26	29.4	12.73
27	30.52	13.23
28	31.65	13.73
29	32.8	14.22
29.929	33.947	14.697

PROPERTIES OF WATER

Temp. of Water (°F)	Pressure (ft Water)
60	0.59
70	0.84
80	1.17
90	1.61
100	2.19
110	2.94
120	3.91
130	5.14
140	6.67
150	8.58
160	10.9
170	13.8
180	17.3
190	21.6
200	26.6
210	32.6
212	34

ATMOSPHERIC PRESSURE AT VARIOUS ELEVATIONS

Altitude Feet Above Sea Level	Atmospheric Pressure		
	Pounds per Square Inch (PSI)	Feet of Water	Inches of Mercury
Sea Level	14.7	33.8	29.9
500	14.4	33.3	29.4
1000	14.2	32.6	28.8
2000	13.7	31.4	27.8
3000	13.2	30.3	26.8
4000	12.7	29.2	25.8
5000	12.2	28.2	24.9
6000	11.8	27.1	24
7000	11.3	26.1	23.1
8000	10.9	25.1	22.2
9000	10.5	24.2	21.4
10000	10.1	23.2	20.6

REFERENCE - CONVERSIONS

HEAD

To Convert From	To	Multiply By
PSI	Feet	2.31
PSI	Inches of Mercury	2.04
Feet	PSI	0.433
Feet	Meters	0.305
Feet	Inches of Mercury	0.885
Inches of Mercury	Feet of Water	1.132
Meters	Feet	3.28
Kilograms per square inch	PSI	14.22
ATM	PSI	14.7
ATM	Feet of Water	34
ATM	Meters of Water	10.35

VOLUME

To Convert From	To	Multiply By
Gallons	Liters	3.785
Gallons	Cubic Inches	231
Gallons	Cubic Feet	0.137
Gallons	Cubic Meters	0.004
Liters	Gallons	0.264
Barrel (Oil)	Gallons	42
Cubic Feet	Gallons	7.48
Cubic Feet	Cubic Meters	0.028
Acre Foot	Cubic Feet	43560
Acre Foot	Gallons	325829
Acre Inch	Cubic Feet	3630
Acre Inch	Gallons	27100

CAPACITY

To Convert From	To	Multiply By
Gallons Per Minute	Liters Per Second	0.063
Gallons Per Minute	Liters Per Hour	227.1
Gallons Per Minute	Cubic Meters Per Hour	0.227
Gallons Per Minute	Cubic Feet Per Second	0.002
Gallons Per Minute	Pounds Per Hour	500
Cubic Meters Per Hour	Gallons Per Minute	4.402
Cubic Meters Per Hour	Liters Per Second	0.278
Cubic Feet Per Second	Gallons Per Minute	448.831
Acre Foot	Gallons	325.85
Acre Foot Per Day	Gallons Per Minute	227
Acre Inch Per Hour	Gallons Per Minute	454
Liter Per Second	Gallons Per Minute	15.85
Miner's Inch (ID, KS, NE, NM, ND, SD, UT, WA)	Gallons Per Minute	9
Miner's Inch (AZ, CA, MT, NV, OR)	Gallons Per Minute	11.22

NOTES: 1,000,000 US gal./day = 695 US gal./minute

HORSEPOWER

To Convert From	To	Multiply By
H.P.	Kilowatts	0.746
H.P.	ft/lbs per minute	33000
H.P.	ft/lbs per second	550
Kilowatts	H.P.	1.341

LENGTH

To Convert From	To	Multiply By
Inches	Centimeters	2.54
Meters	Feet	3.28
Miles	Feet	5280
Rods	Feet	16.5

WEIGHT

To Convert From	To	Multiply By
Gallons	Pounds	8.33
Cubic Feet of Water	Pounds	62.35
Kilograms	Pounds	2.2

TEMPERATURE

To Convert From	To	Multiply By
Fahrenheit	Celsius	$5/9 \times (°F - 32)$
Celsius	Fahrenheit	$9/5 \times (°C + 32)$

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 2. Physical damage as evidenced by bent shaft, broken or chipped castings, or broken or bent thrust parts.
 3. Sand damage as indicated by abrasive wear of motor seals or splines.
 4. Lightning damage (often referred to as high voltage surge damage).
 5. Electrical failures due to the use of non-approved overload protection.
 6. Unauthorized disassembly.

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