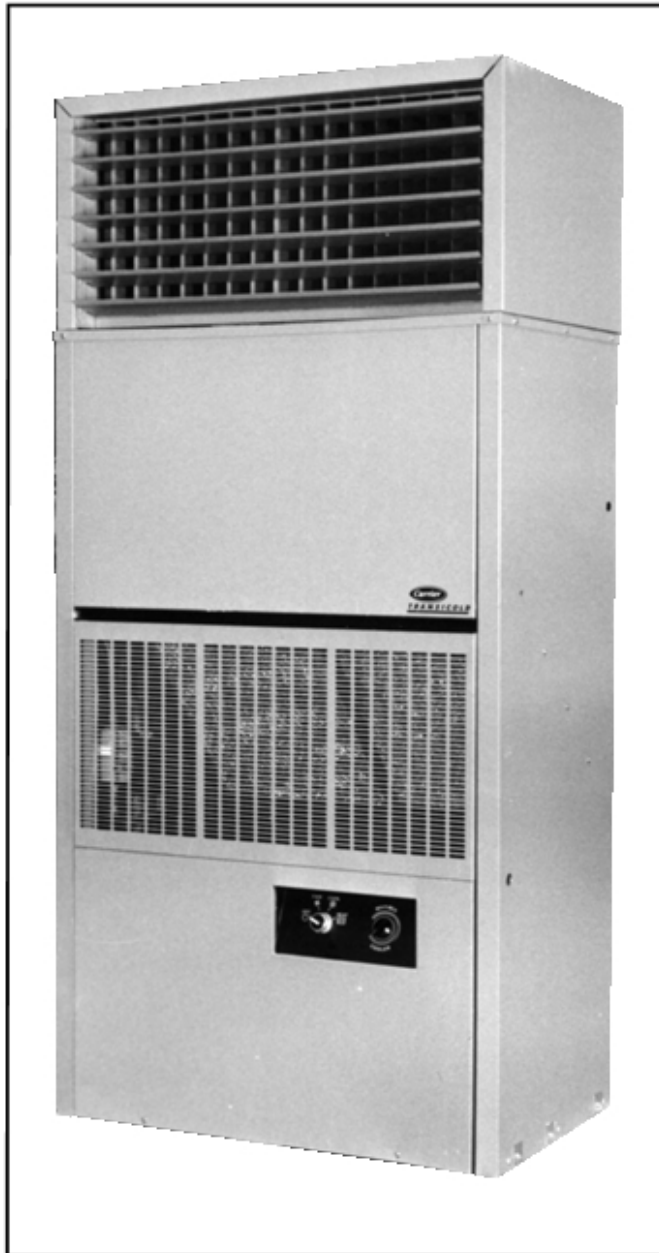


Product Data



90MA/MU Single-Package Marine and Industrial Cooling Units R407C, R-134a, R404A 50 and 60 Hz

Cooling Capacities: 36,000 to 120,000 Btuh (10.5 to 35.1 kW)



Efficient, Self-Contained Units for Today's Cooling Needs

- Water-cooled and condenserless models in nominal 3- to 10-ton capacities (10.5 to 35.1 kW)
- Compact cabinet fits any working environment
- For ducted or free-blow applications
- Available with refrigerants R-407C, R-134a, and R404A
- Factory electric heat available

Features/Benefits

Application versatility

Carrier air conditioning technology leads the way with a proven line of marine and industrial grade single-package cooling units — Models 90MA/MU. The 90M packaged cooling systems are available in four convenient sizes, ranging from 3 to 10 tons (10.5 to 35.1 kW) to ideally meet the needs for a variety of marine and industrial cooling applications. These units can be installed in the conditioned space and specified for either ducted applications or free-blow applications with an accessory plenum.

Easy installation and maintenance

The units are completely prepped and wired at the factory to assure the owner of time- and money-saving installation and servicing. Exterior access panels remove easily to provide speedy inspection and service of internal components and controls. Precision engineered parts translate to a quality- built, reliable design that will operate efficiently and provide years of reliable operation. The 90M systems have earned a solid reputation for rewarding owners with a lifetime of dependable and economical performance.

Designed for customer satisfaction

Where space and styling are important considerations, the 90M series units are designed to exceed expectations. These units can be installed in the equipment room or in the conditioned space. These packaged systems provide the user with economy and product satisfaction in cooling, heating (with accessory electric added), dehumidification, filtering, and air circulation.

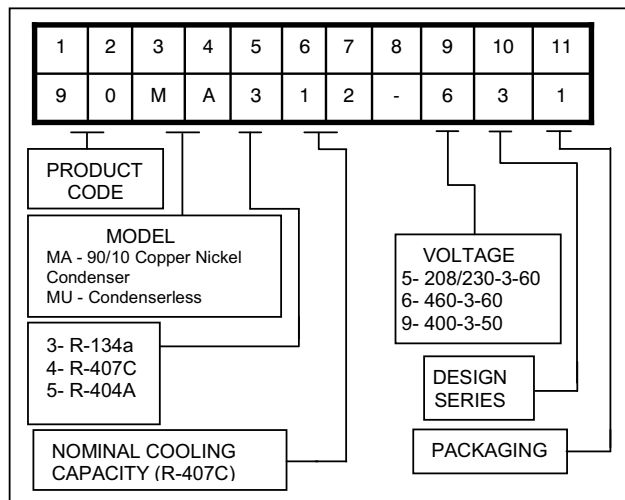
Special features for outstanding performance

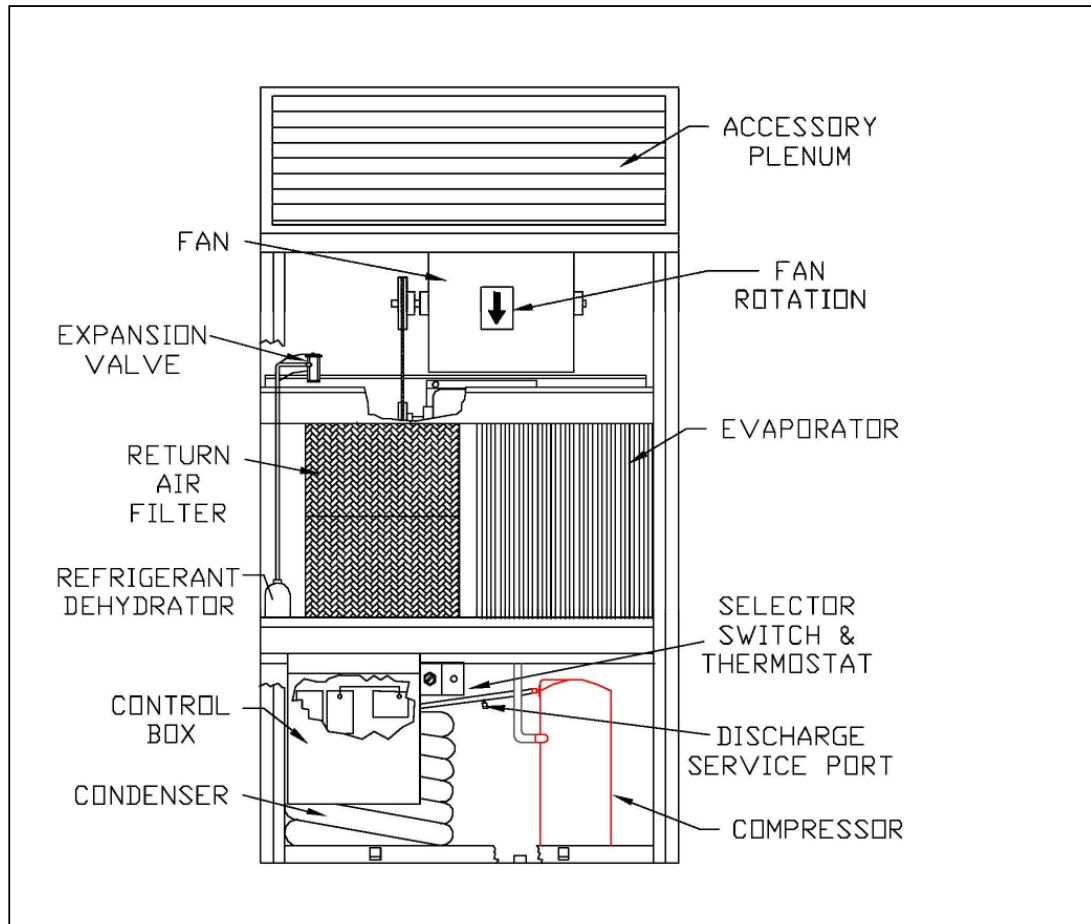
- Attractive air inlet grille enhances unit appearance, while also covering the filter opening.
- High-performance compressors deliver quiet, reliable, extra cooling capacity at low cost. Compressor motor protection is assured by quick sensing elements that prevent trouble before it starts.
- High-efficiency, tube-in-tube seawater condensers provide maximum exposed heat transfer surface for greater heat rejection with less water.
- Space-saver slab-type evaporator coils provide peak heat transfer efficiency with large coil face area. Fins are mechanically bonded to nonferrous seamless tubing for high-capacity performance.
- Quiet fan performance — large volumes of indoor air are moved quietly, at lower rpm than most comparable fans. Compact housing and specially designed discharge air section provide superior air-handling capability.
- Crankcase heaters in 08 and 12 sizes remain on during compressor off cycle. This prevents flooded starts and dilution of oil by refrigerant.
- Convenient electrical control center contains all factory prewired control devices.
- Optional factory installed electric heat for 460-3-60 and 400-3-50 units available.

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Model Number Nomenclature





FIELD-INSTALLED ACCESSORIES

- **Supply-air discharge plenum —**
Field- installed with adjustable louvers for controlled free-blow into the conditioned space. Mounts easily on top of base unit.
- **24-V control circuit —**
Allows for quick, economical field installation of remote thermostat.
- **Evaporator defrost thermostat —**
Provides coil freeze-up protection under low ambient conditions.
- **Nonstandard drive package —**
Field-installed drive packages increase range of evaporatorair fan.



90MA/MU Physical Data - Refrigerant 404A

		R - 404A - English Units				R - 404A - Metric Units			
BASE UNIT 90MA/MU	UNITS English (Metric)	504	506	508	512	504	506	508	512
NOMINAL CAPACITY	Tons (kW)	3	5	7.5	10	10.5	17.6	26.4	35.1
OPERATING WEIGHT									
Base Unit -- 90MA	Pounds (kg)	390	427	895	950	177	194	406	431
Base Unit -- 90MU	Pounds (kg)	330	360	835	890	150	163	379	404
Discharge Plenum	Pounds (kg)	25	25	50	50	11.3	11.3	22.7	22.7
COMPRESSOR TYPE		Welded Hermetic Scroll		Semi-Hermetic Reciprocating		Welded Hermetic Scroll		Semi-Hermetic Reciprocating	
Quantity of Cylinders		--	--	4	6	--	--	4	6
Quantity of Unloading Cylinders		--	--	0	2	--	--	0	2
Quantity of Capacity Steps		--	--	1	2	--	--	1	2
DISCHARGE PRESSURE SWITCH									
Opens -- 90MA	psig (kPa)	395±10				2725±69			
Closes -- 90MA-	psig (kPa)	295±20				2034±138			
Opens -- 90MU	psig (kPa)	426±7				2937±48			
Closes -- 90MU-	psig (kPa)	320±20				2206±138			
SUCTION PRESSURE SWITCH									
Opens	psig (kPa)	27±4				186±28			
Closes	psig (kPa)	67±7				462±48			
OPERATING CHARGE -- 90MA	pounds (kg)	3.1	5.3	11.2	10	1.4	2.4	5.1	4.5
CONDENSER -- 90MA									
Number & Type		1...Tube In Tube							
Water Volume	gallon (liter)	0.39	0.86	2.42		1.48	3.3	9.2	
EVAPORATOR AIR FAN									
Adjustable, Belt Driven Centrifugal: 1750 RPM Motor @ 60 Hz									
Nominal Flow	cfm (m ³ /h)	1200	2000	3000	4000	1698	2830	4245	5660
Standard Speed Range	RPM	647-915	647-915	487-690	591-838	534-757	534-757	402-570	488-692
Maximum Allowable RPM		1250							
Belt Quantity / Pulley Pitch Diameter	inches (cm)	1 / 6.4	1 / 6.4	1 / 8.5	1 / 7.0	1 / 16.3	1 / 16.3	1 / 21.6	1 / 17.8
Motor Pulley Pitch Diameter Range	inches (cm)	2.4 to 3.4				6.1 to 8.6			
Motor Nominal Rating(@60 Hz)...Frame Size									
Standard	horse power	1/3...56	3/4...56	1...56	2...56	.25 / 56	.56 / 56	.75 / 56	1.5 / 56
Alternate (See Note 1)	horse power	3/4...56	1...56	2...56	3...56	.56 / 56	.75 / 56	1.5 / 56	2.2 / 56
Alternate (See Note 1)	horse power	----	----	3...56	----	----	----	2.2 / 56	----
EVAPORATOR COIL									
3/8 (.95 cm) OD, Copper Tubes, Aluminum Fins									
Tube Type									
Prime									
Quantity of Rows...fin Spacing	fins/inch(cm)	2...14.4	3...14.4	3...12.5		2...5.7	3...5.7	3...4.9	
Face Area	sq ft (sq m)	5	5	7.3	8.5	0.46	0.46	0.68	0.79
RETURN AIR FILTERS									
Factory Supplied, Cleanable									
Quantity...Size	inches (cm)	2...16 x 25 x 1		4...16 x 20 x 1		2...40.6x63.5x2.5		4...40.6x50.8x2.5	
CONDENSER CONNECTIONS									
Water Inlet (bottom) & Outlet (top)	inches FPT	1/2	3/4	1	1	1/2	3/4	1	1
Maximum Working Pressure (refrigerant side)	psig (kPa)	400				2758			
CONDENSATE DRAIN CONNECTIONS	inches FPT	3/4				3/4			

LEGEND

FPT = Female Pipe Thread MPT = Male Pipe Thread ODF = Outside Diameter Female

NOTE:

1. Motors and drives other than those furnished with unit must be purchased separately. Contact your Carrier Marine representative.



90MA/ MU Physical Data - Refrigerant 407C

		R - 407C - English Units				R - 407C - Metric Units			
UNITS									
English (Metric)									
BASE UNIT 90MA/MU		404	406	408	412	404	406	408	412
NOMINAL CAPACITY	Tons (kW)	3	5	7.5	10	10.5	17.6	26.4	35.1
OPERATING WEIGHT									
Base Unit -- 90MA	Pounds (kg)	390	427	895	950	177	194	406	431
Base Unit -- 90MU	Pounds (kg)	330	360	835	890	150	163	379	404
Discharge Plenum	Pounds (kg)	25	25	50	50	11.3	11.3	22.7	22.7
COMPRESSOR TYPE		Welded Hermetic Scroll		Semi--Hermetic Reciprocating		Welded Hermetic Scroll		Semi--Hermetic Reciprocating	
Quantity of Cylinders		--	--	4	6	--	--	4	6
Quantity of Unloading Cylinders		--	--	0	2	--	--	0	2
Quantity of Capacity Steps		--	--	1	2	--	--	1	2
DISCHARGE PRESSURE SWITCH									
Opens -- 90MA	psig (kPa)	395±10				2725±69			
Closes -- 90MA-	psig (kPa)	295±20				2034±138			
Opens -- 90MU	psig (kPa)	426±7				2937±48			
Closes -- 90MU-	psig (kPa)	320±20				2206±138			
SUCTION PRESSURE SWITCH									
Opens	psig (kPa)	27±4				186±28			
Closes	psig (kPa)	67±7				462±48			
OPERATING CHARGE -- 90MA	pounds (kg)	3.1	5.3	11.2	10.0	1.4	2.4	5.1	4.5
CONDENSER -- 90MA									
Number & Type		1...Tube In Tube							
Water Volume	gallon (liter)	0.39	0.86	2.42		1.48	3.3	9.2	
EVAPORATOR AIR FAN									
Adjustable, Belt Driven Centrifugal: 1750 RPM Motor @ 60 Hz									
Nominal Flow	cfm (m ³ /h)	1200	2000	3000	4000	1698	2830	4245	5660
Standard Speed Range	RPM	647-915	647-915	487-690	591-838	534-757	534-757	402-570	488-692
Maximum Allowable RPM		1250							
Belt Quantity / Pulley Pitch Diameter	inches (cm)	1 / 6.4	1 / 6.4	1 / 8.5	1 / 7.0	1 / 16.3	1 / 16.3	1 / 21.6	1 / 17.8
Motor Pulley Pitch Diameter Range	inches (cm)	2.4 to 3.4				6.1 to 8.6			
Motor Nominal Rating(@60 Hz)...Frame Size									
Standard	horse power	1/3...56	3/4...56	1...56	2...56	.25 / 56	.56 / 56	.75 / 56	1.5 / 56
Alternate (See Note 1)	horse power	3/4...56	1...56	2...56	3...56	.56 / 56	.75 / 56	1.5 / 56	2.2 / 56
Alternate (See Note 1)	horse power	----	----	3...56	----	----	----	2.2 / 56	----
EVAPORATOR COIL									
3/8 OD, Copper Tubes, Aluminum Fins									
Tube Type		Prime							
Quantity of Rows...fin Spacing	fins/inch(cm)	2...14.4	3...14.4	3...12.5		2...5.7	3...5.7	3...4.9	
Face Area	sq ft (sq m)	5	5	7.3	8.5	0.46	0.46	0.68	0.79
RETURN AIR FILTERS									
Factory Supplied, Cleanable									
Quantity... Size	inches (cm)	2...16 x 25 x 1		4...16 x 20 x 1		2...40.6x63.5x2.5		4...40.6x50.8x2.5	
CONDENSER CONNECTIONS									
Water Inlet (bottom) & Outlet (top)	inches FPT	1/2	3/4	1	1	1/2	3/4	1	1
Maximum Working Pressure (refrigerant side)	psig (kPa)	400				2758			
CONDENSATE DRAIN CONNECTIONS	inches FPT	3/4				3/4			

LEGEND

FPT = Female Pipe Thread MPT = Male Pipe Thread ODF = Outside Diameter Female

NOTE:

1. Motors and drives other than those furnished with unit must be purchased separately. Contact your Carrier Marine representative.



90MA/MU Physical Data - Refrigerant 134a

		R - 134a -- English Units		R - 134a - Metric Units	
BASE UNIT 90MA	UNITS English (Metric)	308	312	308	312
NOMINAL CAPACITY	Tons (kW)	5.5	8	19.3	28.1
OPERATING WEIGHT					
Base Unit	Pounds (kg)	895	950	406	431
Discharge Plenum	Pounds (kg)	50	50	22.7	22.7
COMPRESSOR TYPE - Reciprocating		Semi-Hermetic		Semi-Hermetic	
Quantity of Cylinders		4	6	4	6
Quantity of Unloading Cylinders		0	2	0	2
Quantity of Capacity Steps		1	2	1	2
DISCHARGE PRESSURE SWITCH					
Opens	psig (kPa)	335±10		2310±69	
Closes	psig (kPa)	235±20		1620±138	
SUCTION PRESSURE SWITCH					
Opens	psig (kPa)	7±3		48±21	
Closes	psig (kPa)	22±5		152±35	
OPERATING CHARGE	pounds (kg)	11.2	10	5.1	4.5
CONDENSER					
Number & Type		1...Tube in Tube			
Water Volume	gallon (liter)	2.42		9.2	
EVAPORATOR AIR FAN		Adjustable, Belt Driven Centrifugal: 1750 RPM Motor @ 60Hz			
Nominal Flow	cfm (m ³ /h)	3000	4000	4245	5660
Standard Speed Range	RPM	487-690	591-838	402-570	488-692
Maximum Allowable RPM		12 50			
Belt Quantity / Pulley Pitch Diameter	inches (cm)	1 / 8.5	1 / 7.0	1 / 21.6	1 / 17.8
Motor Pulley Pitch Diameter Range	inches (cm)	2.4 to 3.4		6.1 to 8.6	
Motor Nominal Rating(@60 Hz)...Frame Size					
Standard	horse power	1...56	2...56	.75 / 56	1.5 / 56
Alternate (See Note 1)	horse power	2...56	3...56	1.5 / 56	2.2 / 56
Alternate (See Note 1)	horse power	3...56		2.2/56	
EVAPORATOR COIL					
Tube Type		3/8 OD (.95cm), Copper Tubes, Aluminum Fins			
Quantity of Rows...fin Spacing	fins/inch(cm)	3...12.5		3...14.9	
Face Area	sq ft (sq m)	7.3	8.5	0.68	0.79
RETURN AIR FILTERS					
Quantity...Size	inches (cm)	4...16 x 20 x 1		4...40.6x50.8x2.5	
CONDENSER CONNECTIONS					
Water Inlet-(bottom) & Outlet (top)	inches FPT	1	1	1	1
Maximum Working Pressure (refrigerant side)	psig (kPa)	400		2758	
CONDENSATE DRAIN CONNECTIONS	inches FPT	3/4		3/4	

LEGEND

FPT = Female Pipe Thread MPT = Male Pipe Thread ODF = Outside Diameter Female

NOTES:

1. Motors and drives other than those furnished with unit must be purchased separately. Contact your Carrier Marine representative.

Selection procedure (with example) — ENGLISH

I. Determine design conditions.

Given:

Cooling Requirements

Total Cooling Capacity (TC, Btuh)	115,000
Sensible Cooling Capacity (SHC, Btuh)	90,000
Refrigerant	R-407C
Evaporator Air Quantity (cfm)	4000
Summer Entering-Air Conditions:	
Entering Dry Bulb (edb)	82°F
Entering Wet Bulb (ewb)	67°F
Entering Condenser Water	
Temperature (ewt)	85°F
Water Flow Rate (gpm)	20
Unit Voltage	460 V

Fan Requirements

External Static Pressure Required ESP (in. wg)	0.4
---	-----

II. Select unit(s) based on cooling requirements.

Selection Method —

A. 90MA412, R-407C, 60 Hz

Enter the cooling capacity tables for unit at 4000 cfm, 67° EWB and read down to the section displaying capacities with 85°F ewt. Find capacity closest to design requirements and read over to find required gpm. For our example:

Unit selection — 90MA412. Selected at 4000 cfm of 82°F/67°F entering air.

TC — 114,937 Btuh, Corrected SHC — 9,441 Btuh (see SHC Correction Table, page 49).

Compressor: Power Input — 9.72 kW.

Condenser: Pressure Drop — 4.9 ft wg (2.1 psig). ewt — 85°F, gpm — 20.0.

B. Fan Requirements

External static pressure (ESP) required (without plenum) 0.40 (in. wg).

Enter Evaporator Fan Performance table, page 51, with selected unit size, cfm, and static pressure required to obtain the following data:

For 90MA412 at 4000 cfm and 0.4 ESP, by interpolation the fan operates at 588 rpm and requires 1.92 brake horsepower. Since Model 90MA412 standard motor horsepower is 2.0, it will produce the necessary cfm and ESP for this job.

If plenum is to be used, use ESP drop for plenum rather than the ESP described above.

Cooling Capacity Notes:

1. Water gpm values are calculated using a 0.0005 fouling factor.
2. Direct interpolation is permissible. Do not extrapolate.
3. Gross capacities do not include deduction for indoor fan motor heat.
4. Refrigerant is as noted in the rating tables, at optimum charge.

Selection procedure (with example) — SI

I. Determine design conditions.

Given:

Cooling Requirements

Total Cooling Capacity (TC, kW)	33
Sensible Cooling Capacity (SHC, kW)	26.2
Evaporator Air Quantity (m ³ /h)	6797
Summer Entering-Air Conditions:	
Entering Dry Bulb (edb)	27.8°C
Entering Wet Bulb (ewb)	19°C
Entering Condenser Water Temperature (ewt)	29°C
Water Flow Rate (L/s)	1.27
Unit Voltage	460 V

Fan Requirements

External Static Pressure Required ESP (Pa)	99.63
--	-------

II. Select unit(s) based on cooling requirements.

Selection Method —

A. 90MA412, R-407C, 60Hz

Enter the cooling capacity tables for unit at 6797 m³/h, and read down to the section displaying capacities with 29°C ewt. Find capacity closest to design requirements and read over to find required L/s. For our example:

Unit selection — 90MA412. Selected at 6797 m³/h of 29°C/19°C entering air.

TC — 33.67 kW, Corrected SHC — 26.4 kW (See SHC Correction Table, page 50).

Compressor: Power Input — 9.72 kW.
Condenser: Pressure Drop — 14.48 kPa. ewt — 29°C, L/s — 1.27.

B. Fan Requirements

External static pressure (ESP) required (without plenum) 99.63 (Pa).

Enter Evaporator Fan Performance table, page 52, with selected unit size, air flow, and static pressure required to obtain the following data:

For 90MA412 at 6797 m³/h and 99.63 Pa ESP, by interpolation the fan operates at 527 rpm and requires .38 kW power. Since Model 90MA412 standard motor rating is 1.5 kW, it will produce the necessary cfm and ESP for this job.

If plenum is to be used, use ESP drop for plenum rather than the ESP described above.

Cooling Capacity Notes:

1. Water flow (L/s) values are calculated using a 0.0005 fouling factor.
2. Direct interpolation is permissible. Do not extrapolate.
3. Gross capacities do not include deduction for indoor fan motor heat.
4. Refrigerant is as noted in the rating tables, at optimum charge.

PERFORMANCE DATA — ENGLISH
90MA404
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					900/0.16			1200/0.21			1500/0.26		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	6	10.9	4.7	TC	40493	37298	34454	42264	39101	36304	43461	40234	37653
				SHC	20272	24414	28530	21953	27156	32272	23407	29485	35564
				KW	2.58	2.48	2.39	2.64	2.54	2.44	2.68	2.57	2.48
	7.5	16.4	7.1	TC	40607	37381	34521	42394	39204	36389	43610	40361	37739
				SHC	20316	24455	28571	21996	27192	32314	23460	29539	35632
				KW	2.52	2.43	2.35	2.58	2.48	2.40	2.62	2.52	2.43
	9	23.5	10.15	TC	40687	37441	34566	42483	39273	36451	43712	40440	37798
				SHC	20354	24487	28599	22037	27228	32366	23508	29576	35691
				KW	2.49	2.40	2.32	2.54	2.45	2.37	2.59	2.49	2.40
75	6	10.9	4.7	TC	39032	35982	33271	40703	37682	35027	41740	38707	36266
				SHC	19643	23781	27900	21302	26480	31647	22715	28771	34739
				KW	2.92	2.82	2.73	2.99	2.88	2.78	3.03	2.91	2.82
	7.5	16.4	7.1	TC	39172	36090	33357	40868	37804	35134	41923	38861	36385
				SHC	19703	23842	27957	21378	26543	31713	22796	28883	34809
				KW	2.87	2.77	2.68	2.93	2.83	2.73	2.96	2.86	2.77
	9	23.5	10.15	TC	39256	36160	33411	40964	37884	35200	42030	38946	36460
				SHC	19744	23876	27990	21417	26584	31758	22835	28906	34863
				KW	2.83	2.73	2.65	2.89	2.79	2.69	2.93	2.82	2.74
	10.5	32	13.7	TC	39317	36206	33449	41033	37939	35247	42109	39007	36518
				SHC	19771	23900	28014	21446	26611	31790	22871	28937	34871
				KW	2.81	2.71	2.63	2.86	2.77	2.67	2.90	2.80	2.71
85	6	10.9	4.7	TC	37446	34528	31959	38966	36089	33638	39878	37062	34879
				SHC	18978	23092	27187	20601	25735	31014	21983	28040	33843
				KW	3.29	3.18	3.09	3.36	3.24	3.13	3.39	3.27	3.19
	7.5	16.4	7.1	TC	37593	34681	32058	39155	36233	33748	40079	37220	35008
				SHC	19046	23192	27243	20688	25831	31091	22076	28119	33918
				KW	3.23	3.12	3.04	3.29	3.18	3.08	3.32	3.21	3.13
	9	23.5	10.15	TC	37687	34756	32119	39269	36323	33819	40201	37320	35087
				SHC	19087	23215	27278	20736	25874	31147	22123	28169	33986
				KW	3.19	3.09	3.00	3.25	3.14	3.04	3.28	3.17	3.09
	10.5	32	13.7	TC	37753	34809	32162	39340	36386	33867	40290	37387	35141
				SHC	19116	23240	27303	20763	25905	31185	22162	28204	34034
				KW	3.16	3.06	2.98	3.22	3.12	3.02	3.25	3.15	3.07
95	7.5	16.4	7.1	TC	35870	33153	30684	37274	34557	32221	38106	35473	33418
				SHC	18338	22470	26555	19946	25097	30254	21318	27335	33418
				KW	3.61	3.51	3.42	3.67	3.56	3.46	3.70	3.59	3.51
	9	23.5	10.15	TC	35979	33236	30753	37393	34650	32298	38233	35571	33499
				SHC	18383	22505	26596	19990	25127	30313	21365	27368	33499
				KW	3.57	3.47	3.38	3.63	3.52	3.42	3.66	3.55	3.47
	10.5	32	13.7	TC	36047	33296	30802	37474	34718	32351	38326	35639	33554
				SHC	18408	22538	26624	20028	25168	30358	21392	27401	33554
				KW	3.54	3.44	3.36	3.60	3.49	3.40	3.63	3.52	3.45

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA404
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				1530/0.16			2038/0.21			2549/0.26		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.38	32.41	TC	11.43	10.54	9.75	11.92	11.04	10.26	12.23	11.34	10.62
			SHC	5.75	6.97	8.17	6.24	7.76	9.27	6.65	8.43	10.18
			kW	2.92	2.82	2.73	2.99	2.88	2.78	3.03	2.91	2.82
	0.47	48.95	TC	11.48	10.57	9.77	11.97	11.08	10.29	12.28	11.38	10.66
			SHC	5.77	6.98	8.19	6.26	7.78	9.29	6.68	8.46	10.20
			kW	2.87	2.77	2.68	2.93	2.83	2.73	2.96	2.86	2.77
	0.57	69.98	TC	11.50	10.59	9.79	12.00	11.10	10.31	12.31	11.41	10.68
			SHC	5.78	6.99	8.20	6.27	7.79	9.30	6.69	8.47	10.21
			kW	2.83	2.73	2.65	2.89	2.79	2.69	2.93	2.82	2.74
29	0.38	32.41	TC	10.97	10.12	9.36	11.42	10.57	9.85	11.68	10.86	10.22
			SHC	5.56	6.77	7.96	6.04	7.54	9.09	6.44	8.21	9.91
			kW	3.29	3.18	3.09	3.36	3.24	3.13	3.39	3.27	3.19
	0.47	48.95	TC	11.01	10.16	9.39	11.47	10.62	9.89	11.74	10.90	10.26
			SHC	5.58	6.79	7.98	6.06	7.57	9.11	6.47	8.24	9.94
			kW	3.23	3.12	3.04	3.29	3.18	3.08	3.32	3.21	3.13
	0.57	69.98	TC	11.04	10.18	9.41	11.50	10.64	9.91	11.78	10.93	10.28
			SHC	5.59	6.80	7.99	6.07	7.58	9.12	6.48	8.25	9.96
			kW	3.19	3.09	3.00	3.25	3.14	3.04	3.28	3.17	3.09
32	0.38	32.41	TC	10.69	9.84	9.10	11.11	10.27	9.57	11.34	10.55	10.00
			SHC	5.46	5.79	8.02	5.93	7.42	9.19	6.31	8.09	9.85
			kW	3.48	3.37	3.27	3.54	3.42	3.32	3.57	3.45	3.38
	0.47	48.95	TC	10.76	9.94	9.19	11.20	10.37	9.66	11.45	10.65	10.02
			SHC	5.48	6.69	7.88	5.95	7.46	8.99	6.36	8.12	9.86
			kW	3.42	3.32	3.23	3.48	3.37	3.27	3.51	3.40	3.32
	0.57	69.98	TC	10.79	9.96	9.21	11.23	10.40	9.68	11.49	10.68	10.05
			SHC	5.49	6.70	7.89	5.97	7.47	9.00	6.37	8.14	9.89
			kW	3.38	3.28	3.19	3.44	3.33	3.23	3.47	3.36	3.28
0.67	94.46	TC	10.81	9.98	9.22	11.25	10.42	9.70	11.52	10.70	10.06	
		SHC	5.50	6.71	7.90	5.98	7.48	9.01	6.38	8.15	9.90	
		kW	3.35	3.25	3.17	3.41	3.30	3.21	3.44	3.34	3.26	
35	0.38	32.41	TC	10.41	9.56	8.83	10.81	9.97	9.29	11.00	10.23	9.79
			SHC	5.34	6.49	8.07	5.79	7.29	9.29	6.21	7.99	9.79
			kW	3.67	3.55	3.45	3.73	3.60	3.51	3.75	3.64	3.57
	0.47	48.95	TC	10.51	9.71	8.99	10.92	10.12	9.44	11.16	10.39	9.79
			SHC	5.37	6.58	7.78	5.84	7.35	8.86	6.25	8.01	9.79
			kW	3.61	3.51	3.42	3.67	3.56	3.46	3.70	3.59	3.51
	0.57	69.98	TC	10.54	9.74	9.01	10.95	10.15	9.46	11.20	10.42	9.81
			SHC	5.39	6.59	7.79	5.86	7.36	8.88	6.26	8.02	9.81
			kW	3.57	3.47	3.38	3.63	3.52	3.42	3.66	3.55	3.47
0.67	94.46	TC	10.56	9.75	9.02	10.98	10.17	9.48	11.23	10.44	9.83	
		SHC	5.39	6.60	7.80	5.87	7.37	8.89	6.27	8.03	9.83	
		kW	3.54	3.44	3.36	3.60	3.49	3.40	3.63	3.52	3.45	
38	0.47	48.95	TC	10.17	9.35	8.63	10.55	9.74	9.08	10.74	9.99	9.58
			SHC	5.36	6.67	7.95	5.84	7.47	9.00	6.37	8.17	9.58
			kW	3.82	3.71	3.61	3.87	3.75	3.65	3.90	3.79	3.73
	0.57	69.98	TC	10.20	9.37	8.65	10.59	9.77	9.11	10.78	10.03	9.61
			SHC	5.37	6.68	7.96	5.86	7.48	9.03	6.40	8.19	9.61
			kW	3.77	3.67	3.57	3.83	3.71	3.61	3.86	3.74	3.68
	0.67	94.46	TC	10.22	9.39	8.67	10.62	9.79	9.12	10.81	10.05	9.63
			SHC	5.38	6.69	7.97	5.87	7.49	9.04	6.40	8.20	9.63
			kW	3.74	3.64	3.54	3.80	3.68	3.59	3.82	3.71	3.65

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb (°C)
- kW — Compressor Motor Power Input (Kilowatts)
- SHC — Sensible Heat Capacity (Kilowatts)
- TC — Total Capacity (Kilowatts), Gross
- Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA404
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					750/0.15			1000/0.18			1250/0.23		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	6	10.9	4.7	TC	34913	32273	29948	36545	33734	31304	37516	34728	32226
				SHC	17461	21787	25934	18949	23400	27854	20204	25471	30319
	kW	1.97	1.90	1.84	2.02	1.95	1.88	2.04	1.97	1.90			
	7.5	16.4	7.1	TC	34966	32317	29989	36619	33797	31362	37602	34803	32296
				SHC	17478	21805	25956	18978	23429	27890	20235	25510	30366
	kW	1.94	1.87	1.81	1.98	1.91	1.84	2.00	1.93	1.86			
9	23.5	10.15	TC	35011	32351	30020	36669	33839	31401	37660	34844	32334	
			SHC	17498	21822	25976	18999	23451	27915	20259	25524	30383	
kW	1.91	1.85	1.78	1.95	1.89	1.82	1.98	1.91	1.84				
75	6	10.9	4.7	TC	33727	31220	28970	35237	32561	30215	36148	33518	31103
				SHC	16944	21266	25314	18407	22854	27205	19648	24924	29668
				kW	2.26	2.18	2.11	2.30	2.23	2.15	2.33	2.25	2.17
				TC	33807	31283	29029	35336	32641	30289	36255	33606	31185
	SHC	16978	21299	25353	18453	22904	27264	19703	24980	29735			
	kW	2.22	2.15	2.07	2.26	2.19	2.11	2.28	2.21	2.13			
	9	23.5	10.15	TC	33857	31321	29065	35394	32695	30340	36319	33647	31223
				SHC	17000	21316	25374	18476	22935	27301	19728	24985	29742
				kW	2.19	2.12	2.05	2.24	2.16	2.09	2.26	2.19	2.11
				TC	33879	31346	29088	35437	32721	30364	36344	33695	31267
	SHC	17008	21331	25392	18494	22941	27308	19733	25024	29787			
	kW	2.17	2.11	2.03	2.22	2.15	2.07	2.24	2.17	2.09			
10.5	32	13.7	TC	32407	30054	27889	33807	31271	29018	34602	32174	29856	
			SHC	16384	20676	24611	17827	22264	26502	19061	24304	28931	
			kW	2.56	2.48	2.40	2.60	2.52	2.43	2.62	2.55	2.46	
			TC	32496	30123	27953	33919	31361	29102	34722	32268	29943	
SHC	16427	20715	24658	17889	22322	26571	19110	24350	28986				
kW	2.52	2.44	2.36	2.56	2.48	2.39	2.58	2.51	2.42				
9	23.5	10.15	TC	32550	30166	27993	33985	31416	29153	34797	32330	30000	
			SHC	16450	20742	24691	17912	22347	26602	19134	24381	29023	
			kW	2.49	2.42	2.33	2.53	2.45	2.37	2.55	2.48	2.39	
			TC	32592	30201	28025	34035	31454	29188	34839	32370	30038	
SHC	16468	20762	24714	17934	22367	26625	19146	24398	29043				
kW	2.47	2.40	2.31	2.51	2.44	2.35	2.53	2.46	2.37				
95	7.5	16.4	7.1	TC	31119	28888	26807	32357	29976	27816	33125	30812	28593
				SHC	15861	20146	23981	17266	21706	25838	18464	23693	28204
				kW	2.83	2.75	2.66	2.87	2.79	2.69	2.89	2.82	2.72
	9	23.5	10.15	TC	31185	28941	26856	32430	30036	27872	33203	30877	28653
				SHC	15886	20165	24004	17296	21737	25874	18498	23714	28228
				kW	2.80	2.73	2.63	2.84	2.76	2.67	2.86	2.79	2.69
	10.5	32	13.7	TC	31227	28978	26890	32482	30079	27912	33253	30923	28695
				SHC	15904	20186	24028	17319	21759	25901	18516	23740	28259
				kW	2.78	2.71	2.61	2.82	2.74	2.65	2.84	2.77	2.67

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA404
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				1530/0.16			2038/0.21			2549/0.26		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.38	32.41	TC	9.88	9.15	8.49	10.32	9.54	8.85	10.59	9.82	9.11
			SHC	4.96	6.23	7.42	5.39	6.70	7.97	5.76	7.30	8.69
			kW	2.26	2.18	2.11	2.30	2.23	2.15	2.33	2.25	2.17
	0.47	48.95	TC	9.90	9.16	8.50	10.35	9.56	8.87	10.62	9.85	9.14
			SHC	4.97	6.24	7.43	5.41	6.71	7.99	5.77	7.32	8.71
			kW	2.22	2.15	2.07	2.26	2.19	2.11	2.28	2.21	2.13
	0.57	69.98	TC	9.92	9.18	8.51	10.37	9.58	8.89	10.64	9.86	9.15
			SHC	4.98	6.24	7.43	5.41	6.72	8.00	5.78	7.32	8.71
			kW	2.19	2.12	2.05	2.24	2.16	2.09	2.26	2.19	2.11
29	0.38	32.41	TC	9.49	8.80	8.17	9.90	9.16	8.50	10.14	9.43	8.75
			SHC	4.80	6.06	7.21	5.22	6.52	7.76	5.58	7.12	8.48
			kW	2.56	2.48	2.40	2.60	2.52	2.43	2.62	2.55	2.46
	0.47	48.95	TC	9.52	8.82	8.19	9.94	9.19	8.53	10.17	9.45	8.77
			SHC	4.81	6.07	7.22	5.24	6.54	7.78	5.60	7.13	8.49
			kW	2.52	2.44	2.36	2.56	2.48	2.39	2.58	2.51	2.42
	0.57	69.98	TC	9.54	8.84	8.20	9.96	9.20	8.54	10.19	9.47	8.79
			SHC	4.82	6.08	7.23	5.25	6.55	7.79	5.61	7.14	8.50
			kW	2.49	2.42	2.33	2.53	2.45	2.37	2.55	2.48	2.39
32	0.38	32.41	TC	9.26	8.54	7.91	9.63	8.90	8.27	9.83	9.14	8.54
			SHC	4.70	5.95	7.12	5.13	6.43	7.66	5.49	7.03	8.37
			kW	2.71	2.63	2.54	2.75	2.66	2.58	2.77	2.69	2.62
	0.47	48.95	TC	9.32	8.64	8.02	9.71	8.98	8.34	9.94	9.24	8.57
			SHC	4.73	5.99	7.12	5.15	6.45	7.68	5.50	7.04	8.38
			kW	2.67	2.60	2.51	2.71	2.64	2.54	2.74	2.66	2.57
	0.57	69.98	TC	9.34	8.66	8.03	9.73	9.00	8.35	9.96	9.26	8.59
			SHC	4.74	5.99	7.13	5.16	6.46	7.69	5.51	7.05	8.39
			kW	2.65	2.57	2.48	2.68	2.61	2.52	2.71	2.63	2.54
0.67	94.46	TC	9.35	8.67	8.04	9.74	9.01	8.36	9.97	9.27	8.60	
		SHC	4.74	6.00	7.14	5.16	6.46	7.69	5.52	7.05	8.39	
		kW	2.63	2.55	2.46	2.66	2.59	2.50	2.69	2.61	2.52	
35	0.38	32.41	TC	9.04	8.28	7.64	9.36	8.63	8.04	9.52	8.86	8.32
			SHC	4.60	5.83	7.03	5.03	6.34	7.55	5.40	6.94	8.25
			kW	2.87	2.79	2.69	2.90	2.81	2.73	2.92	2.83	2.78
	0.47	48.95	TC	9.12	8.46	7.85	9.48	8.78	8.15	9.70	9.03	8.38
			SHC	4.65	5.90	7.03	5.06	6.36	7.57	5.41	6.94	8.26
			kW	2.83	2.75	2.66	2.87	2.79	2.69	2.89	2.82	2.72
	0.57	69.98	TC	9.14	8.48	7.87	9.50	8.80	8.17	9.73	9.05	8.39
			SHC	4.65	5.91	7.03	5.07	6.37	7.58	5.42	6.95	8.27
			kW	2.80	2.73	2.63	2.84	2.76	2.67	2.86	2.79	2.69
0.67	94.46	TC	9.15	8.49	7.88	9.52	8.81	8.18	9.74	9.06	8.41	
		SHC	4.66	5.91	7.04	5.07	6.37	7.59	5.42	6.95	8.28	
		kW	2.78	2.71	2.61	2.82	2.74	2.65	2.84	2.77	2.67	
38	0.47	48.95	TC	8.80	8.10	7.47	9.14	8.43	7.86	9.29	8.65	8.30
			SHC	4.67	5.75	6.93	5.09	6.51	7.84	5.55	7.12	8.29
			kW	2.97	2.93	2.81	3.01	2.92	2.84	3.04	2.95	2.90
	0.57	69.98	TC	8.83	8.11	7.49	9.17	8.46	7.88	9.33	8.68	8.32
			SHC	4.68	5.76	6.93	5.10	6.52	7.86	5.57	7.14	8.32
			kW	2.94	2.90	2.78	2.98	2.89	2.81	3.00	2.92	2.87
	0.67	94.46	TC	8.85	8.12	7.50	9.19	8.48	7.90	9.35	8.70	8.33
			SHC	4.69	5.76	6.94	5.11	6.53	7.87	5.57	7.14	8.33
			kW	2.91	2.88	2.76	2.96	2.87	2.79	2.98	2.89	2.85

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb (°C)
- kW — Compressor Motor Power Input (Kilowatts)
- SHC — Sensible Heat Capacity (Kilowatts)
- TC — Total Capacity (Kilowatts), Gross
- Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA406
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop		Evaporator Airflow - CFM/BF									
				1500/0.12			2000/0.15			2500/0.18			
		ft	psig	TC	Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	10	10	4.3	TC	69042	63586	58633	72199	66777	61632	74213	68687	64070
				SHC	34767	42262	49742	38191	47832	56895	41303	52779	62647
				KW	3.69	3.59	3.49	3.77	3.66	3.55	3.81	3.70	3.60
	12.5	15.7	6.7	TC	69368	63813	58854	72580	67072	61896	74625	68999	64334
				SHC	34916	42384	49754	38352	47951	56991	41470	52906	62757
				KW	3.62	3.51	3.43	3.69	3.58	3.48	3.73	3.62	3.53
	15	21.9	9.5	TC	69549	63972	58985	72810	67257	62116	74879	69208	64493
				SHC	34984	42463	49838	38444	48044	57061	41564	53008	62915
				KW	3.57	3.47	3.38	3.62	3.54	3.44	3.68	3.57	3.48
75	10	10	4.3	TC	66626	61513	56722	69672	64600	59623	71616	66448	61982
				SHC	33796	41325	47394	37125	46771	54210	40150	51609	59691
				KW	4.20	4.09	3.95	4.28	4.17	4.02	4.34	4.22	4.07
	12.5	15.7	6.7	TC	66965	61601	56803	70066	64747	59740	72040	66608	62093
				SHC	33929	41374	47415	37269	46808	54311	40298	51645	59807
				KW	4.12	4.01	3.86	4.20	4.09	3.93	4.25	4.13	3.98
	15	21.9	9.5	TC	67185	61799	56985	70336	64971	60010	72335	66856	62307
				SHC	34027	41471	47489	37393	46922	54372	40427	51769	59950
				KW	4.07	3.96	3.80	4.13	4.04	3.86	4.19	4.08	3.91
17.5	29.9	12.9	TC	67327	61893	57072	70484	65070	60101	72488	66958	62402	
			SHC	34085	41517	47523	37457	46974	54411	40496	51827	59993	
			KW	4.03	3.92	3.77	4.09	4.00	3.83	4.15	4.04	3.88	
85	10	10	4.3	TC	64294	58963	54873	67271	61975	57710	69166	63755	59983
				SHC	32392	40129	46125	35580	45400	52834	38473	50091	58180
				KW	4.72	4.65	4.47	4.81	4.74	4.55	4.87	4.78	4.61
	12.5	15.7	6.7	TC	64621	59238	54952	67652	62279	57868	69574	64086	60083
				SHC	32500	40295	46205	35714	45591	52902	38612	50301	58329
				KW	4.58	4.55	4.40	4.66	4.64	4.47	4.72	4.69	4.52
	15	21.9	9.5	TC	64815	59413	55128	67854	62464	58054	69783	64276	60276
				SHC	32626	40368	46416	35853	45674	53143	38762	50392	58595
				KW	4.54	4.50	4.33	4.61	4.59	4.40	4.67	4.63	4.45
17.5	29.9	12.9	TC	64952	59532	55212	67997	62589	58142	69930	64405	60368	
			SHC	32662	40423	46930	35892	45737	53732	38804	50462	59244	
			KW	4.49	4.46	4.28	4.56	4.55	4.35	4.63	4.59	4.41	
95	12.5	15.7	6.7	TC	62382	56965	53161	65307	59890	55982	67164	61627	58125
				SHC	31454	38065	44929	34565	43068	51441	37370	47518	56718
				KW	5.20	5.09	4.96	5.28	5.18	5.04	5.36	5.24	5.10
	15	21.9	9.5	TC	62569	57134	53331	65503	60067	56162	67365	61810	58311
				SHC	31462	38072	45153	34573	43076	51697	37379	47527	57000
				KW	5.09	4.98	4.91	5.17	5.07	4.99	5.24	5.12	5.05
	17.5	29.9	12.9	TC	62701	57248	53412	65641	60188	56247	67507	61934	58400
				SHC	31667	38101	45400	34799	43109	51981	37623	47562	57313
				KW	5.07	4.95	4.83	5.15	5.05	4.91	5.23	5.10	4.97

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°F)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA406
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				2594/0.12			3402/0.15			4248/0.18		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.63	29.64	TC	19.52	18.02	16.62	20.41	18.93	17.47	20.98	19.47	18.16
			SHC	10.21	12.48	14.31	11.21	14.13	16.37	12.13	15.59	18.03
			kW	4.20	4.09	3.95	4.28	4.17	4.02	4.34	4.22	4.07
	0.78	46.2	TC	19.62	18.05	16.64	20.53	18.97	17.50	21.10	19.51	18.19
			SHC	10.25	12.50	14.32	11.26	14.14	16.40	12.17	15.60	18.06
			kW	4.12	4.01	3.86	4.20	4.09	3.93	4.25	4.13	3.98
	0.95	65.5	TC	19.68	18.10	16.69	20.61	19.03	17.58	21.19	19.59	18.25
			SHC	10.28	12.53	14.34	11.29	14.17	16.42	12.21	15.64	18.11
			kW	4.07	3.96	3.80	4.13	4.04	3.86	4.19	4.08	3.91
29	0.63	29.64	TC	18.84	17.27	16.08	19.71	18.16	16.91	20.26	18.68	17.57
			SHC	9.78	12.12	13.93	10.75	13.71	15.96	11.62	15.13	17.57
			kW	4.72	4.65	4.47	4.81	4.74	4.55	4.87	4.78	4.61
	0.78	46.2	TC	18.93	17.35	16.10	19.82	18.25	16.95	20.38	18.77	17.60
			SHC	9.82	12.17	13.95	10.79	13.77	15.98	11.66	15.19	17.62
			kW	4.58	4.55	4.40	4.66	4.64	4.47	4.72	4.69	4.52
	0.95	65.5	TC	18.99	17.41	16.15	19.88	18.30	17.01	20.44	18.83	17.66
			SHC	9.85	12.19	14.02	10.83	13.79	16.05	11.71	15.22	17.70
			kW	4.54	4.50	4.33	4.61	4.59	4.40	4.67	4.63	4.45
32	0.63	29.64	TC	18.32	16.77	15.60	19.18	17.63	16.43	19.73	18.14	17.05
			SHC	9.64	11.81	13.74	10.59	13.36	15.73	11.45	14.74	17.34
			kW	5.04	4.97	4.82	5.12	5.06	4.90	5.19	5.11	4.96
	0.78	46.2	TC	18.60	17.02	15.84	19.48	17.90	16.68	20.03	18.41	17.32
			SHC	9.66	11.83	13.76	10.61	13.39	15.76	11.47	14.77	17.37
			kW	4.89	4.82	4.68	4.97	4.91	4.75	5.04	4.96	4.81
	0.95	65.5	TC	18.66	17.07	15.89	19.53	17.95	16.73	20.09	18.47	17.37
			SHC	9.68	11.85	13.83	10.64	13.40	15.83	11.50	14.79	17.46
			kW	4.81	4.74	4.62	4.89	4.83	4.69	4.96	4.88	4.75
1.1	88.95	TC	18.70	17.11	15.91	19.58	17.98	16.76	20.13	18.51	17.40	
		SHC	9.71	11.86	13.94	10.68	13.42	15.96	11.54	14.80	17.60	
		kW	2.39	2.35	2.28	2.43	2.40	2.32	2.47	2.42	2.35	
35	0.63	29.64	TC	17.81	16.26	15.18	18.65	17.10	15.98	19.18	17.60	16.60
			SHC	9.48	11.47	13.54	10.42	12.98	15.50	11.26	14.32	17.10
			kW	5.36	5.24	5.11	5.44	5.34	5.19	5.52	5.40	5.26
	0.78	46.2	TC	18.28	16.69	15.57	19.13	17.55	16.40	19.68	18.05	17.03
			SHC	9.50	11.50	13.57	10.44	13.01	15.54	11.29	14.35	17.13
			kW	5.20	5.09	4.96	5.28	5.18	5.04	5.36	5.24	5.10
	0.95	65.5	TC	18.33	16.74	15.62	19.19	17.60	16.45	19.74	18.11	17.08
			SHC	9.50	11.50	13.64	10.44	13.01	15.61	11.29	14.35	17.22
			kW	5.09	4.98	4.91	5.17	5.07	4.99	5.24	5.12	5.05
1.1	88.95	TC	18.37	16.77	15.65	19.23	17.63	16.48	19.78	18.14	17.11	
		SHC	9.56	11.51	13.71	10.51	13.02	15.70	11.36	14.36	17.31	
		kW	4.78	4.71	4.56	4.86	4.80	4.63	4.93	4.85	4.69	
38	0.78	46.2	TC	17.45	15.93	14.86	18.10	16.60	15.51	18.52	16.99	16.02
			SHC	9.58	11.53	13.74	10.62	13.16	15.87	11.55	14.60	16.52
			kW	5.61	5.52	5.34	5.67	5.60	5.41	5.71	5.61	5.43
	0.95	65.5	TC	17.53	16.00	14.93	18.20	16.69	15.59	18.62	17.08	16.11
			SHC	9.62	11.57	13.79	10.66	13.21	15.93	11.59	14.65	16.57
			kW	5.53	5.44	5.27	5.59	5.53	5.33	5.63	5.54	5.36
	1.1	88.95	TC	17.57	16.04	14.97	18.25	16.74	15.64	18.68	17.13	16.16
			SHC	9.64	11.59	13.81	10.69	13.24	15.96	11.62	14.69	16.61
			kW	5.49	5.40	5.22	5.55	5.48	5.29	5.59	5.49	5.31

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA406
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop		Evaporator Airflow - CFM/BF									
				1250/0.09			1670/0.14			2080/0.15			
		ft	psig	Evaporator Air Ewb (°F)									
				72	67	62	72	67	62	72	67	62	
65	10	10	4.3	TC	57743	53370	49437	60556	55882	51549	62139	57509	53191
				SHC	29047	36583	43860	31977	39980	47634	34581	44225	51806
				kW	2.83	2.75	2.69	2.88	2.81	2.73	2.9	2.83	2.76
	12.5	15.7	6.7	TC	57940	53513	49593	60813	56088	51745	62415	57713	53403
				SHC	29136	36657	45309	32097	40077	47713	34696	44319	51878
				kW	2.77	2.71	2.64	2.83	2.76	2.68	2.85	2.78	2.71
	15	21.9	9.5	TC	58051	53617	49690	60960	56211	51905	62576	57842	53515
				SHC	29174	36705	45368	32150	40138	47737	34744	44374	51951
				kW	2.74	2.67	2.60	2.78	2.72	2.65	2.81	2.74	2.67
75	10	10	4.3	TC	55844	51770	47909	58506	54146	49890	60162	55814	51564
				SHC	28279	35846	41712	31116	39156	45202	33686	43366	49449
				kW	3.25	3.17	3.05	3.30	3.22	3.10	3.34	3.26	3.13
	12.5	15.7	6.7	TC	56059	51793	47951	58764	54227	49956	60431	55872	51622
				SHC	28359	35852	43010	31204	39180	45291	33786	43394	49557
				kW	3.19	3.11	2.98	3.24	3.16	3.04	3.27	3.20	3.07
	15	21.9	9.5	TC	56207	51924	48085	58948	54390	50173	60630	56027	51756
				SHC	28419	35913	41759	31290	39267	45339	33878	43405	49608
				kW	3.15	3.07	2.93	3.19	3.13	2.99	3.23	3.16	3.01
	17.5	29.9	12.9	TC	56274	51978	48143	59046	54438	50222	60686	56103	51826
				SHC	28441	35944	41784	31332	39280	46758	33892	43473	49709
				kW	3.12	3.05	2.91	3.17	3.10	2.97	3.21	3.13	2.99
85	10	10	4.3	TC	53972	49784	46449	56614	52090	48292	58215	53686	49804
				SHC	27126	34851	40503	29867	38099	43793	32359	42115	48242
				kW	3.67	3.62	3.47	3.73	3.69	3.53	3.77	3.72	3.55
	12.5	15.7	6.7	TC	54184	49908	46478	56847	52287	48405	58466	53893	49850
				SHC	27191	34911	40566	29955	38216	43855	32422	42253	48352
				kW	3.58	3.56	3.41	3.62	3.60	3.47	3.67	3.66	3.50
	15	21.9	9.5	TC	54302	50020	46605	56962	52404	48543	58591	54011	49992
				SHC	27275	34986	40752	30041	38266	44026	32519	42308	48537
				kW	3.54	3.52	3.36	3.59	3.58	3.42	3.64	3.62	3.45
	17.5	29.9	12.9	TC	54390	50102	46668	57064	52482	48606	58656	54088	50053
				SHC	27293	35029	41206	30071	38306	44499	33552	42343	49040
				kW	3.51	3.49	3.32	3.56	3.55	3.39	3.61	3.59	3.41
95	12.5	15.7	6.7	TC	52496	48147	45050	54991	50391	46878	56632	51925	48240
				SHC	26389	33104	39356	29023	36132	42614	31396	39951	46432
				kW	4.08	3.99	3.85	4.13	4.06	3.92	4.19	4.11	3.95
	15	21.9	9.5	TC	52605	48258	45176	55105	50508	47013	56748	52044	48380
				SHC	26464	34279	39529	29107	36147	42803	31750	41328	46591
				kW	3.99	3.91	3.82	4.04	3.98	3.88	4.10	4.02	3.91
	17.5	29.9	12.9	TC	52688	48328	45230	55189	50580	47073	56814	52126	48444
				SHC	26539	34466	39745	29191	36152	43018	31843	41398	46821
				kW	3.98	3.89	3.76	4.03	3.97	3.82	4.10	4.01	3.85

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°F)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA406
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				2594/0.12			3402/0.15			4248/0.18		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.63	29.64	TC	16.36	15.17	14.04	17.14	15.86	14.62	17.63	16.35	15.11
			SHC	8.28	10.50	12.22	9.12	11.47	13.24	9.87	12.70	14.49
			kW	3.25	3.17	3.05	3.30	3.22	3.10	3.34	3.26	3.13
	0.78	46.2	TC	16.42	15.17	14.05	17.22	15.89	14.64	17.70	16.37	15.12
			SHC	8.31	10.50	12.22	9.14	11.48	13.27	9.90	12.71	14.52
			kW	3.19	3.11	2.98	3.24	3.16	3.04	3.27	3.20	3.07
0.95	65.5	TC	16.47	15.21	14.09	17.27	15.93	14.70	17.76	16.41	15.16	
		SHC	8.33	10.52	12.23	9.17	11.50	13.28	9.93	12.72	14.53	
		kW	3.15	3.07	2.93	3.19	3.13	2.99	3.23	3.16	3.01	
29	0.63	29.64	TC	15.81	14.58	13.61	16.59	15.26	14.15	17.05	15.73	14.59
			SHC	7.95	10.21	11.87	8.75	11.16	12.83	9.48	12.34	14.13
			kW	3.67	3.62	3.47	3.73	3.69	3.53	3.77	3.72	3.55
	0.78	46.2	TC	15.87	14.62	13.62	16.65	15.32	14.18	17.13	15.79	14.60
			SHC	7.97	10.23	11.88	8.78	11.20	12.85	9.50	12.38	14.17
			kW	3.58	3.56	3.41	3.62	3.60	3.47	3.67	3.66	3.50
0.95	65.5	TC	15.91	14.65	13.65	16.69	15.35	14.22	17.16	15.82	14.65	
		SHC	7.99	10.25	11.94	8.80	11.21	12.90	9.53	12.39	14.22	
		kW	3.54	3.52	3.36	3.59	3.58	3.42	3.64	3.62	3.45	
32	0.63	29.64	TC	15.38	14.12	13.17	16.12	14.81	13.78	16.58	15.25	14.26
			SHC	7.83	9.81	11.48	8.63	10.86	12.77	9.31	12.00	13.85
			kW	4.10	4.02	3.89	4.16	4.10	3.96	4.22	4.14	4.00
	0.78	46.2	TC	15.63	14.36	13.41	16.38	15.04	13.96	16.86	15.50	14.37
			SHC	7.85	9.96	11.71	8.64	10.89	12.67	9.35	12.04	13.88
			kW	3.83	3.78	3.63	3.87	3.83	3.70	3.93	3.88	3.72
0.95	65.5	TC	15.66	14.40	13.44	16.42	15.07	14.00	16.89	15.54	14.41	
		SHC	7.88	10.00	11.76	8.67	10.90	12.72	9.38	12.07	13.93	
		kW	3.77	3.71	3.59	3.82	3.78	3.65	3.87	3.82	3.68	
1.1	88.95	TC	15.68	14.42	13.46	16.44	15.10	14.02	16.91	15.56	14.43	
		SHC	7.89	10.03	11.86	8.68	10.91	12.82	9.39	12.08	14.04	
		kW	3.75	3.69	3.54	3.79	3.76	3.61	3.85	3.80	3.63	
35	0.63	29.64	TC	14.95	13.65	12.74	15.65	14.35	13.42	16.10	14.77	13.93
			SHC	7.70	9.40	11.10	8.47	10.53	12.71	9.14	11.67	13.57
			kW	4.52	4.42	4.31	4.59	4.51	4.38	4.66	4.56	4.44
	0.78	46.2	TC	15.38	14.11	13.20	16.11	14.76	13.73	16.59	15.21	14.13
			SHC	7.73	9.70	11.53	8.50	10.59	12.48	9.20	11.70	13.60
			kW	4.08	3.99	3.85	4.13	4.06	3.92	4.19	4.11	3.95
0.95	65.5	TC	15.41	14.14	13.23	16.14	14.80	13.77	16.63	15.25	14.17	
		SHC	7.77	9.74	11.58	8.54	10.59	12.54	9.24	11.74	13.65	
		kW	3.99	3.91	3.82	4.04	3.98	3.88	4.10	4.02	3.91	
1.1	88.95	TC	15.44	14.16	13.25	16.17	14.82	13.79	16.64	15.27	14.19	
		SHC	7.78	9.79	11.64	8.55	10.59	12.60	9.25	11.76	13.72	
		kW	3.98	3.89	3.76	4.03	3.97	3.82	4.10	4.01	3.85	
38	0.78	46.2	TC	14.65	13.37	12.48	15.20	13.94	12.92	15.55	14.32	13.45
			SHC	7.85	9.45	11.26	8.71	10.79	13.01	9.47	12.25	13.45
			kW	4.73	4.66	4.51	4.79	4.73	4.56	4.82	4.75	4.58
	0.95	65.5	TC	14.71	13.43	12.53	15.28	13.99	12.99	15.63	14.37	13.52
			SHC	7.88	9.48	11.30	8.74	11.07	12.99	9.50	12.28	13.52
			kW	4.67	4.59	4.45	4.72	4.22	4.16	4.75	4.58	4.52
1.1	88.95	TC	14.75	13.47	12.56	15.32	14.02	13.01	15.68	14.4	13.56	
		SHC	7.9	9.5	11.32	8.76	11.09	13.01	9.52	12.3	13.56	
		kW	4.63	4.56	4.41	4.68	4.19	4.13	4.72	4.52	4.49	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb (°C)
- kW — Compressor Motor Power Input (Kilowatts)
- SHC — Sensible Heat Capacity (Kilowatts)
- TC — Total Capacity (Kilowatts), Gross
- Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA408
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					2250/0.19			3000/0.24			3750/0.26		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	101847	92486	84597	107331	94253	89859	110984	101826	93495
				SHC	50513	59861	69422	55085	65424	78688	59123	73678	87030
				kW	5.96	5.69	5.45	6.12	5.86	5.62	6.22	5.98	5.73
	18.8	7.4	3.2	TC	102565	93083	85014	108235	98733	90438	111993	102586	94222
				SHC	50817	60182	69491	55438	67477	79163	59494	74045	87566
				kW	5.86	5.60	5.37	6.01	5.76	5.54	6.11	5.87	5.65
22.5	10	4.3	TC	103049	93432	85289	108851	99147	90765	112696	103144	94649	
			SHC	51020	60318	69678	55709	67695	79304	59785	74316	87784	
			kW	5.79	5.55	5.33	5.94	5.70	5.48	6.04	5.81	5.60	
75	15	5.8	2.5	TC	97178	88315	80934	102078	93508	85858	105310	96864	88846
				SHC	48569	57872	67400	52910	65051	76850	56909	71568	84178
				kW	6.51	6.20	5.93	6.68	6.40	6.13	6.80	6.52	6.24
	18.8	7.4	3.2	TC	97964	88958	81362	102996	94179	86391	106375	97702	89483
				SHC	48896	58246	67605	53336	65462	77064	57340	71968	84651
				kW	6.41	6.12	5.86	6.58	6.30	6.05	6.69	6.42	6.16
	22.5	10	4.3	TC	98427	89304	81659	103554	94640	86763	107016	98171	89868
				SHC	49075	58396	67797	53554	65712	77261	57581	72134	84850
				kW	6.35	6.07	5.81	6.51	6.25	6.00	6.62	6.36	6.10
	26.3	14.2	6.2	TC	98781	89573	81865	103965	94919	86977	107476	98549	90171
				SHC	49237	58530	67868	53716	65786	77340	57752	72307	85060
				kW	6.31	6.03	5.78	6.46	6.21	5.96	6.57	6.32	6.07
85	15	5.8	2.5	TC	92526	84464	77483	96792	88990	81840	99631	91882	84749
				SHC	46623	56110	65524	50844	63178	74609	54751	69056	81426
				kW	7.05	6.72	6.42	7.23	6.92	6.63	7.35	7.04	6.76
	18.8	7.4	3.2	TC	93268	85017	77930	97721	89737	82383	100679	92709	85306
				SHC	46970	56399	65642	51271	63513	74944	55171	69744	81940
				kW	6.95	6.64	6.35	7.13	6.84	6.55	7.25	6.96	6.67
	22.5	10	4.3	TC	93757	85339	78164	98298	90164	82698	101322	93217	85701
				SHC	47172	56545	65788	51485	63682	75108	55404	69992	82142
				kW	6.90	6.58	6.31	7.07	6.78	6.50	7.18	6.90	6.62
	26.3	14.2	6.2	TC	94065	85602	78379	98682	90499	82917	101776	93575	85981
				SHC	47287	56663	65943	51638	63821	75271	55579	70142	82372
				kW	6.85	6.55	6.28	7.02	6.74	6.46	7.14	6.86	6.58
95	18.8	7.4	3.2	TC	88442	81181	74444	92432	85103	78332	94945	87702	81146
				SHC	44931	54612	63876	49232	61295	72564	53000	67376	81102
				kW	7.49	7.17	6.85	7.68	7.36	7.05	7.80	7.49	7.20
	22.5	10	4.3	TC	88921	81508	74738	93014	85549	78742	95589	88198	81493
				SHC	45112	54757	64056	49439	61650	72922	53230	67559	81198
				kW	7.43	7.12	6.81	7.62	7.30	7.00	7.74	7.43	7.14
26.3	14.2	6.2	TC	89255	81780	74937	93427	85866	78996	96035	88550	81798	
			SHC	45250	54873	64152	49597	61792	73030	53383	67726	81798	
			kW	7.39	7.08	6.78	7.58	7.27	6.97	7.69	7.39	7.11	

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA408
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				3823/0.19			5098/0.24			6372/0.26		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.95	17.24	TC	28.47	25.87	23.71	29.91	27.39	25.15	30.85	28.38	26.03
			SHC	14.23	16.95	19.75	15.50	19.06	22.51	16.67	20.97	24.66
			kW	6.51	6.20	5.93	6.68	6.40	6.13	6.80	6.52	6.24
	1.18	22.06	TC	28.70	26.06	23.84	30.17	27.59	25.31	31.16	28.62	26.22
			SHC	14.32	17.06	19.81	15.63	19.18	22.58	16.80	21.08	24.80
			kW	6.41	6.12	5.86	6.58	6.30	6.05	6.69	6.42	6.16
1.42	29.64	TC	28.84	26.16	23.92	30.34	27.73	25.42	31.35	28.76	26.33	
		SHC	14.38	17.11	19.86	15.69	19.25	22.63	16.87	21.13	24.86	
		kW	6.35	6.07	5.81	6.51	6.25	6.00	6.62	6.36	6.10	
29	0.95	17.24	TC	27.11	24.74	22.70	28.36	26.07	23.98	29.19	26.92	24.83
			SHC	13.66	16.44	19.20	14.90	18.51	21.86	16.04	20.23	23.85
			kW	7.05	6.72	6.42	7.23	6.92	6.63	7.35	7.04	6.76
	1.18	22.06	TC	27.32	24.91	22.83	28.63	26.29	24.14	29.50	27.16	24.99
			SHC	13.76	16.52	19.23	15.02	18.61	21.96	16.16	20.43	24.01
			kW	6.95	6.64	6.35	7.13	6.84	6.55	7.25	6.96	6.67
1.42	29.64	TC	27.47	25.00	22.90	28.80	26.41	24.23	29.68	27.31	25.11	
		SHC	13.82	16.57	19.27	15.08	18.66	22.00	16.23	20.51	24.06	
		kW	6.90	6.58	6.31	7.07	6.78	6.50	7.18	6.90	6.62	
32	0.95	17.24	TC	26.32	24.01	22.03	27.51	25.25	23.20	28.29	26.05	24.03
			SHC	13.34	16.19	18.91	14.71	18.25	21.81	15.80	20.06	23.65
			kW	7.30	6.96	6.64	7.49	7.16	6.84	7.61	7.29	6.99
	1.18	22.06	TC	26.62	24.34	22.32	27.85	25.61	23.54	28.66	26.43	24.38
			SHC	13.46	16.26	18.97	14.72	18.28	21.61	15.84	20.09	23.88
			kW	7.22	6.90	6.60	7.41	7.10	6.80	7.52	7.22	6.93
1.42	29.64	TC	26.76	24.44	22.40	28.02	25.74	23.65	28.84	26.57	24.49	
		SHC	13.52	16.30	19.02	14.78	18.36	21.68	15.91	20.15	23.93	
		kW	7.17	6.85	6.56	7.35	7.04	6.75	7.46	7.16	6.88	
1.67	42.75	TC	26.85	24.52	22.46	28.14	25.83	23.72	28.98	26.68	24.58	
		SHC	13.55	16.34	19.06	14.83	18.40	21.72	15.96	20.20	24.05	
		kW	7.12	6.81	6.53	7.30	7.00	6.71	7.42	7.12	6.85	
35	0.95	17.24	TC	25.54	23.28	21.34	26.67	24.42	22.43	27.39	25.18	23.23
			SHC	13.08	15.92	18.57	14.34	17.77	21.76	15.41	19.57	23.23
			kW	7.55	7.19	6.88	7.75	7.39	7.06	7.87	7.53	7.23
	1.18	22.06	TC	25.91	23.78	21.81	27.08	24.93	22.95	27.82	25.69	23.77
			SHC	13.16	16.00	18.71	14.42	17.96	21.26	15.53	19.74	23.76
			kW	7.49	7.17	6.85	7.68	7.36	7.05	7.80	7.49	7.20
1.42	29.64	TC	26.05	23.88	21.90	27.25	25.06	23.07	28.00	25.84	23.87	
		SHC	13.22	16.04	18.77	14.48	18.06	21.36	15.59	19.79	23.79	
		kW	7.43	7.12	6.81	7.62	7.30	7.00	7.74	7.43	7.14	
1.67	42.75	TC	26.15	23.96	21.95	27.37	25.16	23.14	28.13	25.94	23.96	
		SHC	13.26	16.08	18.79	14.53	18.10	21.40	15.64	19.84	23.96	
		kW	7.39	7.08	6.78	7.58	7.27	6.97	7.69	7.39	7.11	
38	1.18	22.06	TC	25.01	22.84	20.87	26.08	23.90	21.93	26.77	24.64	23.00
			SHC	13.11	16.18	19.07	14.40	18.22	21.92	15.54	20.08	23.00
			kW	7.76	7.40	7.05	7.95	7.59	7.26	8.07	7.73	7.46
	1.42	29.64	TC	25.16	22.94	20.95	26.26	24.02	22.03	26.96	24.79	23.10
			SHC	13.16	16.22	19.11	14.46	18.28	21.99	15.61	20.15	23.10
			kW	7.70	7.35	7.01	7.89	7.54	7.21	8.01	7.67	7.40
1.67	42.75	TC	25.26	23.02	21.00	26.38	24.12	22.19	27.09	24.89	23.17	
		SHC	13.20	16.26	19.13	14.51	18.32	21.66	15.66	20.20	23.17	
		kW	7.66	7.31	6.98	7.85	7.50	7.19	7.96	7.63	7.36	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA408
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF										
					1875/0.16			2500/0.21			3125/0.24				
		ft			psig		Evaporator Air Ewb (°F)								
							72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	89752	81233	74132	94888	86586	79138	98393	90012	82503		
				SHC	44304	52167	60251	48344	58843	68626	51940	64397	76011		
	kW	4.77	4.58	4.41	4.88	4.71	4.54	4.96	4.79	4.62					
	18.8	7.4	3.2	TC	90272	81742	74333	95554	87070	79653	99165	90736	83029		
				SHC	44539	52509	60308	48617	58917	69113	52206	64903	76160		
	kW	4.70	4.51	4.32	4.80	4.64	4.48	4.88	4.71	4.56					
22.5	10	4.3	TC	90650	81999	74699	95995	87392	79895	99697	91078	83364			
			SHC	44697	52548	60555	48789	59093	69508	52436	65576	76515			
kW	4.65	4.48	4.31	4.75	4.59	4.44	4.82	4.67	4.51						
75	15	5.8	2.5	TC	85503	77606	70952	90157	82510	75424	93212	85484	78276		
				SHC	42511	50452	58561	46437	56951	66881	49818	62462	73452		
	kW	5.26	5.03	4.83	5.38	5.18	4.97	5.47	5.26	5.06					
	18.8	7.4	3.2	TC	86058	78036	71246	90867	82580	75806	93997	86095	78826		
				SHC	42709	50716	58693	46725	57117	66931	50238	62726	73802		
	kW	5.18	4.97	4.78	5.31	5.04	4.91	5.39	5.19	5.00					
22.5	10	4.3	TC	86456	78301	71468	91254	82997	76089	94502	86517	79149			
			SHC	42928	50814	58786	46856	57268	67057	50423	62916	73998			
kW	5.13	4.93	4.74	5.26	5.04	4.88	5.34	5.15	4.97						
26.3	14.2	6.2	TC	86697	78504	71617	91605	83572	76291	94870	86777	79360			
			SHC	43020	50906	58863	47016	57375	67169	50560	63016	74100			
kW	5.10	4.91	4.72	5.22	5.03	4.85	5.30	5.12	4.94						
85	15	5.8	2.5	TC	81264	74051	67825	85366	78261	71830	87983	80967	74521		
				SHC	40688	48802	56729	44538	55019	64840	47910	60215	71070		
	kW	5.72	5.47	5.25	5.86	5.62	5.40	5.95	5.72	5.51					
	18.8	7.4	3.2	TC	81624	74384	68272	86102	78774	72231	88789	81601	74941		
				SHC	40845	48929	57030	44839	55235	65088	48229	60641	71332		
	kW	5.62	5.41	5.23	5.79	5.56	5.35	5.87	5.66	5.45					
22.5	10	4.3	TC	82154	74718	68318	86542	79116	72503	89262	81994	75260			
			SHC	41057	49147	57045	45004	55408	65204	48405	60834	71489			
kW	5.60	5.38	5.16	5.74	5.52	5.31	5.82	5.61	5.41						
26.3	14.2	6.2	TC	82363	74915	68493	86863	79364	72679	89612	82282	75451			
			SHC	41181	49218	57088	45124	55491	65292	48539	61009	71598			
kW	5.56	5.35	5.14	5.71	5.49	5.29	5.79	5.59	5.38						
95	18.8	7.4	3.2	TC	77629	70974	65001	81254	74721	68678	83605	77150	71347		
				SHC	39210	47386	55219	42959	53428	63081	46260	58503	69069		
	kW	6.11	5.86	5.62	6.25	6.01	5.78	6.34	6.12	5.89					
	22.5	10	4.3	TC	77985	71221	65189	81690	75052	68926	84083	77528	71619		
				SHC	39345	47492	55287	43114	53572	63232	46424	58758	69244		
	kW	6.07	5.82	5.59	6.21	5.97	5.75	6.30	6.07	5.86					
26.3	14.2	6.2	TC	78228	71405	65291	81999	75288	69108	84425	77796	71789			
			SHC	39446	47585	55475	43233	53679	63326	46558	58871	69317			
kW	6.04	5.80	5.56	6.18	5.95	5.72	6.27	6.05	5.83						

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA408
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF									
				3823/0.19			5098/0.24			6372/0.26			
				Evaporator Air Ewb (°C)									
				22	19	16	22	19	16	22	19	16	
24	0.95	17.24	TC	24.30	22.05	20.16	25.62	23.45	21.43	26.49	24.29	22.24	
			SHC	12.08	14.34	16.64	13.20	16.18	19.01	14.16	17.75	20.87	
				kW	5.26	5.03	4.83	5.38	5.18	4.97	5.47	5.26	5.06
	1.18	22.06	TC	24.46	22.18	20.25	25.82	23.47	21.54	26.71	24.47	22.40	
			SHC	12.14	14.41	16.68	13.28	16.23	19.02	14.28	17.83	20.97	
				kW	5.18	4.97	4.78	5.31	5.04	4.91	5.39	5.19	5.00
1.42	29.64	TC	24.57	22.25	20.31	25.93	23.59	21.62	26.86	24.59	22.49		
		SHC	12.20	14.44	16.71	13.32	16.27	19.06	14.33	17.88	21.03		
			kW	5.13	4.93	4.74	5.26	5.04	4.88	5.34	5.15	4.97	
29	0.95	17.24	TC	23.09	21.04	19.27	24.26	22.24	20.41	25.00	23.01	21.18	
			SHC	11.56	13.87	16.12	12.66	15.63	18.43	13.61	17.11	20.20	
				kW	5.72	5.47	5.25	5.86	5.62	5.40	5.95	5.72	5.51
	1.18	22.06	TC	23.20	21.14	19.40	24.47	22.39	20.53	25.23	23.19	21.30	
			SHC	11.61	13.90	16.21	12.74	15.70	18.50	13.71	17.23	20.27	
				kW	5.62	5.41	5.23	5.79	5.56	5.35	5.87	5.66	5.45
1.42	29.64	TC	23.35	21.23	19.41	24.59	22.48	20.60	25.37	23.30	21.39		
		SHC	11.67	13.97	16.21	12.79	15.75	18.53	13.76	17.29	20.32		
			kW	5.60	5.38	5.16	5.74	5.52	5.31	5.82	5.61	5.41	
32	0.95	17.24	TC	22.53	20.56	18.81	23.58	21.67	19.91	24.27	22.38	20.67	
			SHC	11.33	13.65	15.87	12.39	15.38	18.14	13.34	16.81	19.88	
				kW	5.97	5.70	5.45	6.10	5.85	5.62	6.19	5.96	5.73
	1.18	22.06	TC	22.63	20.65	18.94	23.78	21.81	20.02	24.49	22.56	20.79	
			SHC	11.37	13.69	15.95	12.48	15.44	18.21	13.43	16.93	19.95	
				kW	5.87	5.64	5.42	6.02	5.79	5.56	6.11	5.89	5.67
1.42	29.64	TC	22.75	20.74	18.97	23.90	21.91	20.10	24.63	22.67	20.87		
		SHC	11.42	13.73	15.96	12.52	15.48	18.25	13.47	16.99	20.00		
			kW	5.84	5.60	5.37	5.98	5.75	5.53	6.06	5.84	5.63	
1.67	42.75	TC	22.82	20.79	19.01	23.99	21.97	20.15	24.73	22.74	20.92		
		SHC	11.46	13.75	15.99	12.55	15.51	18.27	13.51	17.03	20.02		
			kW	5.80	5.57	5.35	5.95	5.72	5.50	6.03	5.82	5.61	
35	0.95	17.24	TC	21.94	20.09	18.44	22.97	21.14	19.44	23.63	21.82	20.19	
			SHC	11.09	13.42	15.68	12.16	15.14	17.89	13.10	16.56	19.58	
				kW	6.15	5.90	5.67	6.30	6.05	5.82	6.39	6.16	5.93
	1.18	22.06	TC	22.06	20.17	18.47	23.09	21.23	19.52	23.76	21.92	20.27	
			SHC	11.14	13.47	15.69	12.21	15.18	17.93	13.15	16.63	19.63	
				kW	6.11	5.86	5.62	6.25	6.01	5.78	6.34	6.12	5.89
1.42	29.64	TC	22.16	20.24	18.53	23.21	21.33	19.59	23.89	22.03	20.35		
		SHC	11.18	13.50	15.71	12.25	15.22	17.97	13.19	16.70	19.68		
			kW	6.07	5.82	5.59	6.21	5.97	5.75	6.30	6.07	5.86	
1.67	42.75	TC	22.23	20.29	18.55	23.30	21.39	19.64	23.99	22.11	20.40		
		SHC	11.21	13.52	15.76	12.29	15.25	18.00	13.23	16.73	19.70		
			kW	6.04	5.80	5.56	6.18	5.95	5.72	6.27	6.05	5.83	
38	1.18	22.06	TC	21.18	19.30	17.60	22.11	20.24	18.59	22.72	20.91	19.42	
			SHC	11.04	13.57	15.97	12.13	15.31	18.01	13.09	16.86	19.42	
				kW	6.39	6.10	5.82	6.53	6.25	6.00	6.63	6.37	6.14
	1.42	29.64	TC	21.27	19.37	17.65	22.23	20.33	18.66	22.85	21.01	19.49	
			SHC	11.07	13.60	15.99	12.17	15.35	18.06	13.14	16.93	19.49	
				kW	6.34	6.06	5.79	6.49	6.21	5.96	6.58	6.33	6.10
1.67	42.75	TC	21.38	19.44	17.70	22.35	20.42	18.73	23.00	21.11	19.56		
		SHC	11.11	13.64	16.01	12.22	15.40	18.12	13.20	16.97	19.56		
			kW	6.30	6.03	5.76	6.44	6.18	5.93	6.54	6.29	6.06	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA412
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					3000/0.14			4000/0.19			5000/0.22		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	131041	120542	110937	137524	127116	117537	141596	131470	121470
				SHC	66822	79692	91806	72766	89029	104111	77852	97236	113449
	kW	8.58	8.14	7.76	8.85	8.43	8.04	9.05	8.63	8.21			
	25	7.5	3.1	TC	131866	121261	111161	138532	127879	118127	142703	132436	122234
				SHC	67193	79907	91848	73182	89345	104434	78313	97734	114093
	kW	8.46	8.04	7.59	8.73	8.32	7.94	8.91	8.51	8.11			
30	10.5	4.4	TC	132408	121743	111680	139180	128435	118590	143466	133062	122756	
			SHC	67428	80150	92159	73447	89613	104705	78659	98010	114429	
kW	8.38	7.98	7.58	8.65	8.25	7.87	8.82	8.44	8.05				
75	20	4.9	2.1	TC	125237	115186	105974	131155	121129	112123	134815	124749	115974
				SHC	64362	76905	89237	70146	86060	101407	75154	93577	110156
	kW	9.25	8.78	8.34	9.54	9.08	8.66	9.73	9.26	8.85			
	25	7.3	3.1	TC	126139	115931	106522	132275	122048	112834	135909	125818	116703
				SHC	64732	77388	89392	70619	86662	101547	75552	94122	110468
	kW	9.13	8.68	8.25	9.42	8.98	8.56	9.60	9.16	8.76			
	30	10.3	4.4	TC	126710	116397	106965	132920	122616	113342	136750	126407	117252
				SHC	64966	77593	89667	70869	86912	101880	75929	94284	110879
	kW	9.06	8.62	8.20	9.34	8.91	8.50	9.52	9.09	8.69			
	35	13.6	5.7	TC	127144	116771	107167	133387	123037	113679	137255	126899	117592
				SHC	65158	77772	89719	71052	87080	101983	76119	94570	111061
	kW	9.02	8.58	8.16	9.29	8.87	8.46	9.46	9.04	8.64			
85	20	4.9	2.1	TC	119075	109495	100995	124464	114937	106178	127717	118313	110287
				SHC	61743	74321	86152	67405	83401	97563	72304	90738	106387
	kW	9.91	9.41	8.95	10.22	9.72	9.25	10.40	9.91	9.50			
	25	7.3	3.1	TC	120019	110308	101595	125620	115883	107026	128893	119277	111123
				SHC	62114	74731	86767	67870	83847	98166	72778	91112	106959
	kW	9.80	9.31	8.86	10.10	9.62	9.17	10.28	9.81	9.40			
	30	10.3	4.4	TC	120671	110820	101960	126298	116452	107550	129714	119967	111648
				SHC	62409	74954	86831	68139	84071	98567	73127	91458	107288
	kW	9.74	9.25	8.81	10.03	9.55	9.11	10.20	9.74	9.34			
	35	13.6	5.7	TC	121087	111178	102263	126814	116896	107940	130228	120397	112012
				SHC	62579	75112	87112	68355	84263	98791	73318	91621	107531
	kW	9.68	9.21	8.77	9.98	9.51	9.07	10.15	9.69	9.29			
95	25	7.3	3.1	TC	113636	104538	96306	118408	109284	101068	121331	112646	104882
				SHC	59461	71994	83970	64984	80304	94311	69815	88113	104882
	kW	10.46	9.94	9.46	10.76	10.24	9.76	10.93	10.46	10.01			
	30	10.3	4.4	TC	114264	105087	96738	119176	109908	101573	122185	113312	105395
				SHC	59704	72267	84191	65273	80693	94635	70156	88416	105395
	kW	10.39	9.89	9.41	10.69	10.17	9.71	10.87	10.39	9.95			
35	13.6	5.7	TC	114735	105443	97066	119714	110360	101901	122777	113776	105781	
			SHC	59912	72397	84343	65495	80875	94764	70389	88606	105781	
kW	10.35	9.84	9.37	10.64	10.13	9.67	10.82	10.34	9.91				

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA412
R-407C 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				5098/0.14			6797/0.19			8496/0.22		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	1.27	14.48	TC	36.69	33.75	31.05	38.42	35.49	32.85	39.50	36.55	33.98
			SHC	18.86	22.53	26.14	20.55	25.21	29.71	22.02	27.41	32.27
			kW	9.25	8.78	8.34	9.54	9.08	8.66	9.73	9.26	8.85
	1.58	21.37	TC	36.95	33.96	31.21	38.75	35.76	33.06	39.82	36.86	34.19
			SHC	18.96	22.67	26.19	20.69	25.39	29.75	22.13	27.57	32.36
			kW	9.13	8.68	8.25	9.42	8.98	8.56	9.60	9.16	8.76
1.90	30.34	TC	37.12	34.10	31.34	38.94	35.92	33.20	40.06	37.03	34.35	
		SHC	19.03	22.73	26.27	20.76	25.46	29.85	22.24	27.62	32.48	
		kW	9.06	8.62	8.20	9.34	8.91	8.50	9.52	9.09	8.69	
29	1.27	14.48	TC	34.88	32.08	29.59	36.46	33.67	31.11	37.42	34.66	32.31
			SHC	18.09	21.77	25.24	19.75	24.43	28.58	21.18	26.58	31.17
			kW	9.91	9.41	8.95	10.22	9.72	9.25	10.40	9.91	9.50
	1.58	21.37	TC	35.16	32.32	29.76	36.80	33.95	31.35	37.76	34.94	32.55
			SHC	18.20	21.89	25.42	19.88	24.56	28.76	21.32	26.69	31.33
			kW	9.80	9.31	8.86	10.10	9.62	9.17	10.28	9.81	9.40
1.90	30.34	TC	35.35	32.47	29.87	37.00	34.12	31.51	38.00	35.15	32.71	
		SHC	18.28	21.96	25.44	19.96	24.63	28.88	21.42	26.79	31.43	
		kW	9.74	9.25	8.81	10.03	9.55	9.11	10.20	9.74	9.34	
32	1.27	14.48	TC	33.85	31.05	28.55	35.30	32.60	30.04	36.21	33.49	31.22
			SHC	17.72	21.34	25.26	19.38	23.98	28.76	20.68	26.17	30.68
			kW	10.21	9.68	9.21	10.51	10.00	9.51	10.70	10.19	9.77
	1.58	21.37	TC	34.23	31.47	28.99	35.75	32.98	30.48	36.65	33.97	31.64
			SHC	17.81	21.49	25.01	19.46	24.05	28.19	20.89	26.25	31.03
			kW	10.13	9.63	9.16	10.43	9.93	9.46	10.61	10.13	9.71
1.90	30.34	TC	34.41	31.63	29.11	35.96	33.16	30.63	36.90	34.17	31.79	
		SHC	17.89	21.57	25.05	19.54	24.13	28.30	20.99	26.35	31.15	
		kW	10.06	9.57	9.11	10.36	9.86	9.41	10.54	10.06	9.64	
2.20	39.30	TC	34.54	31.73	29.20	36.11	33.29	30.74	37.06	34.30	31.90	
		SHC	17.94	21.61	25.11	19.61	24.19	28.35	21.05	26.40	31.25	
		kW	10.02	9.53	9.07	10.31	9.82	9.37	10.48	10.02	9.60	
35	1.27	14.48	TC	32.81	30.02	27.52	34.15	31.51	28.97	35.01	32.33	30.11
			SHC	17.35	21.04	25.27	18.98	23.45	28.94	20.38	25.77	30.11
			kW	10.52	9.95	9.47	10.81	10.29	9.77	11.00	10.47	10.03
	1.58	21.37	TC	33.29	30.63	28.21	34.69	32.02	29.61	35.55	33.00	30.73
			SHC	17.42	21.09	24.60	19.04	23.53	27.63	20.45	25.81	30.73
			kW	10.46	9.94	9.46	10.76	10.24	9.76	10.93	10.46	10.01
1.90	30.34	TC	33.48	30.79	28.34	34.91	32.20	29.76	35.80	33.20	30.88	
		SHC	17.49	21.17	24.66	19.12	23.64	27.72	20.55	25.90	30.88	
		kW	10.39	9.89	9.41	10.69	10.17	9.71	10.87	10.39	9.95	
2.20	39.30	TC	33.61	30.89	28.44	35.07	32.33	29.85	35.97	33.33	30.99	
		SHC	17.55	21.21	24.71	19.19	23.69	27.76	20.62	25.96	30.99	
		kW	10.35	9.84	9.37	10.64	10.13	9.67	10.82	10.34	9.91	
38	1.58	21.37	TC	32.04	29.32	26.83	33.33	30.63	28.30	34.10	31.55	29.61
			SHC	17.29	21.24	24.87	18.96	23.85	28.30	20.40	26.21	29.61
			kW	10.77	10.20	9.66	11.06	10.49	10.00	11.23	10.71	10.31
	1.90	30.34	TC	32.23	29.47	26.96	33.56	30.80	28.43	34.38	31.74	29.76
			SHC	17.36	21.34	24.96	19.05	23.92	28.43	20.52	26.28	29.76
			kW	10.70	10.14	9.61	10.99	10.43	9.95	11.17	10.65	10.25
2.20	39.30	TC	32.36	29.57	27.04	33.70	30.93	28.52	34.55	31.87	29.87	
		SHC	17.42	21.38	25.00	19.11	23.97	28.52	20.59	26.33	29.87	
		kW	10.66	10.10	9.57	10.95	10.39	9.91	11.13	10.60	10.21	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA412
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					2500/0.14			3300/0.17			4170/0.21		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	114708	105356	96625	120522	111103	102593	124532	115292	106408
				SHC	58270	69228	79527	63322	77177	90211	68040	84498	98846
	kW	6.89	6.56	6.24	7.09	6.77	6.47	7.24	6.93	6.62			
	25	7.5	3.1	TC	115322	105846	96998	121247	111929	103042	125370	115992	107008
				SHC	58550	69365	79608	63625	77466	90265	68402	84920	99354
	kW	6.80	6.48	6.19	7.00	6.70	6.40	7.14	6.84	6.54			
30	10.5	4.4	TC	115737	106196	97185	121761	112232	103363	125870	116465	107381	
			SHC	58745	69527	79770	63848	77538	90409	68580	85165	99576	
kW	6.74	6.44	6.11	6.94	6.64	6.36	7.08	6.79	6.50				
75	20	4.9	2.1	TC	109702	100723	92580	115089	106077	97933	118617	109633	101627
				SHC	56111	66924	77370	61123	74786	87507	65640	81794	95783
	kW	7.46	7.11	6.78	7.68	7.33	7.01	7.83	7.48	7.17			
	25	7.3	3.1	TC	110357	101291	92968	115913	106766	98469	119453	110391	102054
				SHC	56385	67180	77462	61413	75049	87813	65976	81859	95985
	kW	7.38	7.04	6.71	7.60	7.26	6.94	7.74	7.41	7.08			
	30	10.3	4.4	TC	110814	101645	93250	116426	107199	98807	120031	110806	102599
				SHC	56581	67322	77603	61617	75211	87926	66231	81971	96391
	kW	7.33	6.99	6.67	7.54	7.21	6.90	7.68	7.35	7.06			
	35	13.6	5.7	TC	111093	101902	93439	116758	107480	99033	120421	111141	102854
				SHC	56696	67464	77707	61740	75340	88081	66361	82255	96556
	kW	7.29	6.96	6.64	7.50	7.18	6.87	7.64	7.32	7.02			
85	20	4.9	2.1	TC	104537	95979	88238	109353	100609	93074	112476	104127	96798
				SHC	53910	64621	74687	58675	72099	84460	63235	78870	92803
	kW	8.04	7.66	7.30	8.27	7.88	7.54	8.42	8.06	7.73			
	25	7.3	3.1	TC	105100	96534	88705	110166	101438	93565	113425	104615	97437
				SHC	54132	64913	75170	59041	72624	85161	63592	79295	93152
	kW	7.96	7.59	7.24	8.18	7.81	7.47	8.33	7.93	7.66			
	30	10.3	4.4	TC	105639	96895	88988	110712	101872	93953	113970	105316	97842
				SHC	54381	65055	75344	59260	72768	85308	63773	79454	93427
	kW	7.91	7.54	7.20	8.13	7.77	7.43	8.27	7.92	7.62			
	35	13.6	5.7	TC	105947	97135	89196	111079	102163	94195	114384	105616	98059
				SHC	54496	65180	75410	59394	72917	85440	63953	79722	95117
	kW	7.87	7.51	7.17	8.10	7.73	7.40	8.23	7.89	7.58			
95	25	7.3	3.1	TC	99746	91544	84100	103972	95838	88372	106846	99103	92171
				SHC	51886	62560	72743	56546	69767	81703	61009	76845	90005
	kW	8.53	8.13	7.74	8.75	8.36	7.98	8.90	8.54	8.19			
	30	10.3	4.4	TC	100196	91935	84415	104524	96257	88735	107460	99567	92531
				SHC	52064	62716	72869	56753	69931	81951	61244	77020	90680
	kW	8.48	8.08	7.71	8.70	8.31	7.94	8.85	8.49	8.14			
35	13.6	5.7	TC	100536	92194	84619	104939	96583	88989	107887	99926	92871	
			SHC	52208	62849	72985	56934	70072	82097	61394	77181	91942	
kW	8.45	8.05	7.68	8.67	8.28	7.92	8.81	8.45	8.12				

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA412
R-407C 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF									
				5098/0.14			6797/0.19			8496/0.22			
				Evaporator Air Ewb (°C)									
				22	19	16	22	19	16	22	19	16	
24	1.27	14.48	TC	31.17	28.62	26.31	32.71	30.14	27.83	33.71	31.15	28.88	
			SHC	15.95	19.02	21.99	17.37	21.25	24.87	18.65	23.24	27.22	
				kW	7.46	7.11	6.78	7.68	7.33	7.01	7.83	7.48	7.17
	1.58	21.37	TC	31.36	28.78	26.42	32.94	30.34	27.98	33.95	31.37	29.00	
			SHC	16.02	19.09	22.01	17.45	21.33	24.95	18.75	23.26	27.28	
				kW	7.38	7.04	6.71	7.60	7.26	6.94	7.74	7.41	7.08
1.90	30.34	TC	31.49	28.88	26.50	33.09	30.46	28.08	34.11	31.49	29.16		
		SHC	16.08	19.13	22.05	17.51	21.37	24.99	18.82	23.29	27.39		
			kW	7.33	6.99	6.67	7.54	7.21	6.90	7.68	7.35	7.06	
29	1.27	14.48	TC	29.71	27.27	25.07	31.08	28.59	26.45	31.96	29.59	27.51	
			SHC	15.32	18.36	21.22	16.67	20.49	24.00	17.97	22.41	26.37	
				kW	8.04	7.66	7.30	8.27	7.88	7.54	8.42	8.06	7.73
	1.58	21.37	TC	29.87	27.43	25.21	31.31	28.83	26.59	32.23	29.73	27.69	
			SHC	15.38	18.45	21.36	16.78	20.64	24.20	18.07	22.53	26.47	
				kW	7.96	7.59	7.24	8.18	7.81	7.47	8.33	7.93	7.66
1.90	30.34	TC	30.02	27.53	25.29	31.46	28.95	26.70	32.39	29.93	27.80		
		SHC	15.45	18.49	21.41	16.84	20.68	24.24	18.12	22.58	26.55		
			kW	7.91	7.54	7.20	8.13	7.77	7.43	8.27	7.92	7.62	
32	1.27	14.48	TC	28.57	26.13	23.94	30.12	27.67	25.57	30.96	28.60	26.61	
			SHC	14.86	17.89	20.72	16.39	19.89	23.94	17.65	22.03	26.05	
				kW	8.36	7.89	7.53	8.53	8.12	7.77	8.68	8.30	7.96
	1.58	21.37	TC	29.11	26.72	24.55	30.43	28.03	25.85	31.30	28.95	26.94	
			SHC	15.06	18.11	21.02	16.42	20.23	23.71	17.70	22.19	26.02	
				kW	8.25	7.86	7.49	8.47	8.09	7.73	8.62	8.23	7.93
1.90	30.34	TC	29.25	26.83	24.64	30.58	28.15	25.96	31.46	29.11	27.05		
		SHC	15.12	18.15	21.06	16.48	20.28	23.77	17.76	22.23	26.16		
			kW	8.20	7.81	7.45	8.42	8.04	7.69	8.56	8.21	7.88	
2.20	39.30	TC	29.34	26.90	24.70	30.69	28.24	26.03	31.58	29.20	27.13		
		SHC	15.16	18.19	21.08	16.53	20.32	23.80	17.81	22.29	26.58		
			kW	8.16	7.78	7.43	8.38	8.01	7.66	8.52	8.17	7.85	
35	1.27	14.48	TC	27.43	24.98	22.81	29.17	26.75	24.69	29.96	27.61	25.72	
			SHC	14.41	17.41	20.21	16.05	19.74	23.88	17.27	21.63	25.72	
				kW	8.67	8.16	7.81	8.80	8.37	7.99	8.95	8.54	8.20
	1.58	21.37	TC	28.35	26.01	23.90	29.55	27.23	25.11	30.36	28.16	26.19	
			SHC	14.74	17.78	20.67	16.07	19.83	23.22	17.34	21.84	25.58	
				kW	8.53	8.13	7.74	8.75	8.36	7.98	8.90	8.54	8.19
1.90	30.34	TC	28.47	26.13	23.99	29.70	27.35	25.22	30.54	28.29	26.29		
		SHC	14.80	17.82	20.71	16.13	19.87	23.29	17.40	21.89	25.77		
			kW	8.48	8.08	7.71	8.70	8.31	7.94	8.85	8.49	8.14	
2.20	39.30	TC	28.57	26.20	24.05	29.82	27.45	25.29	30.66	28.40	26.39		
		SHC	14.84	17.86	20.74	16.18	19.91	23.33	17.45	21.93	26.13		
			kW	8.45	8.05	7.68	8.67	8.28	7.92	8.81	8.45	8.12	
38	1.58	21.37	TC	26.78	24.41	22.27	28.43	26.08	24.08	29.14	26.93	25.14	
			SHC	14.15	17.15	19.98	16.05	20.06	24.01	17.27	22.14	25.14	
				kW	8.70	8.25	7.83	9.02	8.59	8.21	9.16	8.77	8.43
	1.90	30.34	TC	26.91	24.51	22.35	28.60	26.21	24.18	29.32	27.06	25.25	
			SHC	14.20	17.19	20.02	16.11	20.18	23.73	17.34	22.19	25.25	
				kW	8.65	8.21	7.79	8.98	8.55	8.17	9.11	8.72	8.39
2.20	39.30	TC	26.99	24.57	22.41	28.70	26.30	24.26	29.44	27.16	25.31		
		SHC	14.23	17.22	20.05	16.15	20.20	23.70	17.39	22.24	25.31		
			kW	8.62	8.18	7.77	8.94	8.52	8.15	9.08	8.69	8.36	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb (°C)
- kW — Compressor Motor Power Input (Kilowatts)
- SHC — Sensible Heat Capacity (Kilowatts)
- TC — Total Capacity (Kilowatts), Gross
- Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA308
R-134a 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					1800/0.16			2250/0.19			3000/0.23		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	75585	68517	61921	78778	71560	64955	82250	74852	6905
				SHC	37856	46424	54641	41062	51435	60931	45787	59002	68781
	18.8	7.4	3.2	TC	75973	68837	62192	79220	71925	65257	82740	75275	69375
				SHC	38006	46567	54782	41213	51589	61104	45946	59160	69044
	22.5	10	4.3	TC	76222	69049	62372	79502	72162	65450	83057	75516	69583
				SHC	38103	46660	54875	41319	51690	61211	46059	59295	69212
75	15	5.8	2.5	TC	72470	65600	59236	75457	68436	62144	78677	71504	66231
				SHC	36664	45185	53275	39832	50157	59357	44528	57644	66244
	18.8	7.4	3.2	TC	72856	65900	59526	75888	68805	62418	79154	71876	66586
				SHC	36811	45312	53415	39988	50303	59514	44694	57812	66596
	22.5	10	4.3	TC	73102	66110	59701	76163	69030	62643	79472	72185	66784
				SHC	36906	45404	53505	40087	50409	59636	44795	57919	66788
26.3	14.2	6.2	TC	73285	66260	59805	76365	69197	62790	79691	72365	66935	
			SHC	36977	45469	53574	40167	50478	59716	44877	57969	66931	
85	15	5.8	2.5	TC	69207	62536	56487	71970	65184	59259	74940	67961	63546
				SHC	35431	43894	51843	38567	48835	57616	43229	56206	63546
	18.8	7.4	3.2	TC	69580	62853	56753	72394	65526	59535	75404	68363	63838
				SHC	35573	44032	51981	38716	48987	57792	43392	56405	63838
	22.5	10	4.3	TC	69823	63056	56923	72659	65755	59747	75719	68650	64019
				SHC	35666	44117	52072	38817	49082	57904	43489	56484	64019
26.3	14.2	6.2	TC	70004	63218	57048	72857	65926	59885	75939	68838	64149	
			SHC	35734	44181	52137	38891	49152	57989	43557	56569	64149	
95	18.8	7.4	3.2	TC	66160	59768	53984	68736	62137	56713	71518	64718	61113
				SHC	34299	42742	50517	37408	47633	55948	42034	54886	61113
	22.5	10	4.3	TC	66406	59973	54149	69000	62357	56890	71817	65003	61291
				SHC	34388	42826	50611	37506	47721	56070	42130	54982	61291
	26.3	14.2	6.2	TC	66583	60122	54266	69196	62514	57021	72029	65179	61426
				SHC	34454	42888	50678	37577	47784	56160	42205	55070	61426

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA308
R-134a 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				3060/0.16			3820/0.19			5098/0.23		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.95	17.24	TC	21.05	18.89	16.97	21.92	19.72	17.91	22.86	20.6	19.39
			SHC	17.85	10.94	13.63	16.07	11.91	15.17	17.76	13.35	17.46
			kW	3.86	3.86	4.15	4.04	3.92	4.18	4.08	3.98	4.22
	1.18	22.06	TC	21.16	18.98	17.04	22.04	19.82	17.98	23.00	20.71	19.47
			SHC	17.85	10.98	13.66	16.12	11.95	15.21	17.81	13.40	17.51
			kW	3.86	3.86	4.05	3.96	3.86	4.08	4.00	3.91	4.11
1.42	29.64	TC	21.23	19.04	17.10	22.12	19.88	18.04	23.09	20.79	18.04	
		SHC	17.85	11.01	13.69	16.14	11.98	15.24	17.85	13.42	17.54	
		kW	3.86	3.86	3.99	3.91	3.82	4.01	3.94	3.86	4.04	
29	0.95	17.24	TC	20.19	18.09	16.27	21.00	18.87	17.20	21.88	19.70	18.68
			SHC	10.61	13.28	15.66	11.57	14.82	17.18	13.00	17.06	18.68
			kW	4.55	4.40	4.26	4.60	4.46	4.33	4.65	4.51	4.44
	1.18	22.06	TC	20.30	18.18	16.34	21.12	18.96	17.27	22.01	19.81	18.76
			SHC	10.65	13.32	15.70	11.61	14.86	17.25	13.05	17.11	18.76
			kW	4.46	4.33	4.20	4.50	4.38	4.27	4.55	4.43	4.37
1.42	29.64	TC	20.37	18.24	16.39	21.20	19.03	17.32	22.10	19.88	17.32	
		SHC	10.68	13.35	15.73	11.64	14.89	17.29	13.08	17.14	17.29	
		kW	4.40	4.28	4.16	4.44	4.33	4.22	4.48	4.37	4.22	
32	0.95	17.24	TC	19.66	17.61	15.86	20.44	18.34	16.79	21.28	19.14	18.25
			SHC	10.41	13.08	15.41	11.37	14.60	16.79	12.78	16.81	18.25
			kW	4.78	4.62	4.46	4.84	4.68	4.54	4.90	4.74	4.67
	1.18	22.06	TC	19.77	17.70	15.93	20.56	18.44	16.86	21.40	19.25	18.33
			SHC	10.45	13.12	15.45	11.41	14.65	16.87	12.84	16.86	18.33
			kW	4.70	4.55	4.40	4.75	4.60	4.48	4.80	4.66	4.59
1.42	29.64	TC	19.84	17.76	15.97	20.63	18.50	16.91	21.49	19.32	18.38	
		SHC	10.48	13.14	15.48	11.44	14.67	16.91	12.87	16.90	18.38	
		kW	4.64	4.50	4.36	4.69	4.55	4.44	4.73	4.61	4.54	
1.67	42.75	TC	19.89	17.80	16.01	20.69	18.55	16.94	21.55	19.37	18.42	
		SHC	10.50	13.16	15.51	11.46	14.70	16.95	12.89	16.92	18.42	
		kW	4.60	4.46	4.33	4.64	4.51	4.40	4.68	4.56	4.50	
35	0.95	17.24	TC	19.12	17.13	15.44	19.86	17.81	16.40	20.66	18.57	17.82
			SHC	10.21	12.88	15.14	11.16	14.39	16.40	12.57	16.56	17.82
			kW	5.01	4.83	4.65	5.08	4.89	4.75	5.14	4.96	4.89
	1.18	22.06	TC	19.23	17.22	15.51	19.98	17.91	16.47	20.78	18.68	17.90
			SHC	10.25	12.92	15.19	11.20	14.43	16.47	12.62	16.61	17.90
			kW	4.93	4.76	4.59	4.99	4.82	4.69	5.05	4.89	4.82
1.42	29.64	TC	19.29	17.28	15.55	20.05	17.97	16.51	20.87	18.75	17.95	
		SHC	10.27	12.94	15.22	11.23	14.45	16.51	12.65	16.65	17.95	
		kW	4.88	4.72	4.56	4.93	4.77	4.65	4.98	4.83	4.77	
1.67	42.75	TC	19.35	17.32	15.59	20.11	18.02	16.54	20.94	18.80	18.00	
		SHC	10.29	12.96	15.24	11.25	14.47	16.54	12.67	16.67	18.00	
		kW	4.83	4.68	4.53	4.89	4.74	4.62	4.94	4.79	4.73	
38	1.18	22.06	TC	18.68	16.73	15.08	19.39	17.38	16.08	20.16	18.12	17.46
			SHC	10.04	12.71	14.90	10.99	14.21	16.08	12.39	16.35	17.46
			kW	5.16	4.97	4.79	5.22	5.04	4.90	5.29	5.11	5.04
	1.42	29.64	TC	18.75	16.79	15.12	19.46	17.44	16.12	20.24	18.19	17.51
			SHC	10.07	12.73	14.93	11.01	14.23	16.12	12.43	16.38	17.51
			kW	5.11	4.93	4.75	5.17	4.99	4.86	5.23	5.06	5.00
1.67	42.75	TC	18.80	16.83	15.16	19.52	17.49	16.15	20.30	18.24	17.56	
		SHC	10.09	12.75	14.95	11.04	14.25	16.15	12.45	16.41	17.56	
		kW	5.07	4.90	4.73	5.13	4.95	4.83	5.18	5.02	4.96	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA308
R-134a 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					1500/0.16			1875/0.18			2500/0.20		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	65525	59326	53604	68387	62025	56246	71486	64980	59869
				SHC	32679	39967	46980	35462	44325	52482	39578	50946	59529
				kW	2.93	2.90	2.87	2.94	2.92	2.88	2.94	2.93	2.91
	18.8	7.4	3.2	TC	65784	59552	53795	68697	62308	56462	71838	65280	60100
				SHC	32779	40068	47081	35578	44444	52600	39705	51068	59711
				kW	2.85	2.84	2.81	2.85	2.84	2.82	2.85	2.85	2.84
22.5	10	4.3	TC	65961	59714	53930	68900	62478	56609	72069	65496	60254	
			SHC	32848	40136	47147	35655	44517	52678	39787	51121	59828	
			kW	2.80	2.79	2.77	2.80	2.80	2.78	2.79	2.80	2.79	
75	15	5.8	2.5	TC	62821	56820	51285	65507	59324	53837	68388	62055	57412
				SHC	31637	38894	45809	34399	43223	51139	38482	49785	57420
				kW	3.33	3.27	3.21	3.35	3.30	3.24	3.37	3.32	3.28
	18.8	7.4	3.2	TC	63099	57062	51484	65813	59579	54050	68738	62385	57642
				SHC	31745	38993	45910	34516	43332	51260	38610	49876	57637
				kW	3.26	3.21	3.15	3.27	3.23	3.18	3.29	3.25	3.22
22.5	10	4.3	TC	63274	57219	51610	66013	59749	54172	68961	62577	57811	
			SHC	31812	39058	45974	34591	43403	51343	38688	49958	57797	
			kW	3.21	3.17	3.12	3.22	3.19	3.14	3.23	3.20	3.17	
26.3	14.2	6.2	TC	63407	57310	51681	66161	59875	54274	69126	62723	57920	
			SHC	31863	39110	46023	34646	43454	51402	38748	50013	57898	
			kW	3.17	3.14	3.09	3.18	3.15	3.12	3.19	3.17	3.14	
85	15	5.8	2.5	TC	60005	54209	48886	62490	56498	51339	65139	59053	55073
				SHC	30569	37786	44579	33302	42082	49680	37369	48518	55073
				kW	3.72	3.63	3.53	3.76	3.67	3.58	3.79	3.71	3.65
	18.8	7.4	3.2	TC	60275	54436	49078	62789	56752	51555	65490	59335	55282
				SHC	30672	37883	44679	33415	42186	49806	37468	48643	55282
				kW	3.65	3.58	3.49	3.68	3.61	3.53	3.71	3.64	3.59
22.5	10	4.3	TC	60455	54565	49189	62987	56922	51659	65710	59521	55413	
			SHC	30740	37949	44746	33488	42255	49891	37552	48717	55413	
			kW	3.61	3.54	3.46	3.63	3.57	3.50	3.66	3.60	3.55	
26.3	14.2	6.2	TC	60583	54679	49291	63135	57045	51755	65866	59666	55511	
			SHC	30790	37994	44789	33542	42305	49951	37623	48777	55511	
			kW	3.57	3.51	3.43	3.60	3.54	3.47	3.62	3.56	3.52	
95	18.8	7.4	3.2	TC	57327	51732	46679	59610	53841	49063	62110	56194	52909
				SHC	29570	36761	43425	32275	41004	48245	36302	47338	52909
				kW	4.04	3.93	3.81	4.08	3.97	3.87	4.12	4.02	3.95
	22.5	10	4.3	TC	57497	51872	46788	59803	54001	49193	62325	56369	53038
				SHC	29634	36819	43494	32345	41065	48331	36380	47416	53038
				kW	4.00	3.89	3.78	4.04	3.93	3.84	4.07	3.98	3.92
26.3	14.2	6.2	TC	57627	51984	46881	59944	54110	49277	62488	56500	53135	
			SHC	29683	36865	43542	32395	41129	48402	36431	47474	53135	
			kW	3.97	3.87	3.76	4.00	3.91	3.81	4.04	3.95	3.89	

LEGEND

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- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA308
R-134a 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				2549/0.16			3186/0.18			4248/0.20		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	0.95	17.24	TC	18.25	16.36	14.68	19.03	17.09	15.50	19.87	17.89	16.80
			SHC	16.90	9.44	11.73	13.83	10.28	13.07	15.33	11.53	15.06
			kW	3.18	3.18	3.33	3.27	3.19	3.36	3.30	3.23	3.38
	1.18	22.06	TC	18.32	16.43	14.74	19.12	17.16	15.55	19.97	17.97	16.86
			SHC	16.90	9.47	11.75	13.86	10.31	13.10	15.37	11.57	15.10
			kW	3.18	3.18	3.26	3.21	3.15	3.28	3.23	3.18	3.29
1.42	29.64	TC	18.38	16.48	14.77	19.17	17.21	15.59	20.03	18.03	16.90	
		SHC	16.90	9.49	11.77	13.88	10.34	13.12	15.39	11.59	15.13	
		kW	3.18	3.18	3.21	3.17	3.11	3.23	3.19	3.14	3.24	
29	0.95	17.24	TC	17.51	15.68	14.07	18.23	16.35	14.88	19.01	17.10	16.19
			SHC	9.15	11.43	13.48	9.99	12.76	14.85	11.24	14.73	16.19
			kW	3.69	3.59	3.49	3.72	3.63	3.54	3.75	3.67	3.62
	1.18	22.06	TC	17.58	15.75	14.12	18.32	16.42	14.93	19.11	17.18	16.25
			SHC	9.18	11.46	13.51	10.02	12.79	14.90	11.27	14.76	16.25
			kW	3.62	3.54	3.44	3.65	3.57	3.49	3.67	3.60	3.56
1.42	29.64	TC	17.63	15.78	14.16	18.38	16.47	14.97	19.18	17.23	16.29	
		SHC	9.20	11.48	13.53	10.04	12.82	14.93	11.29	14.79	16.29	
		kW	3.57	3.50	3.41	3.60	3.53	3.46	3.62	3.56	3.52	
32	0.95	42.75	TC	17.05	15.26	13.71	17.74	15.89	14.52	18.49	16.62	15.81
			SHC	8.98	11.25	13.26	9.81	12.58	14.53	11.06	14.51	15.81
			kW	3.89	3.78	3.66	3.93	3.82	3.72	3.97	3.86	3.81
	1.18	17.24	TC	17.12	15.32	13.76	17.82	15.96	14.57	18.59	16.69	15.87
			SHC	9.01	11.28	13.29	9.84	12.61	14.57	11.08	14.55	15.87
			kW	3.83	3.72	3.62	3.86	3.76	3.67	3.90	3.80	3.76
1.42	22.06	TC	17.17	15.36	13.80	17.89	16.01	14.60	18.65	16.74	15.91	
		SHC	9.03	11.30	13.31	9.86	12.63	14.61	11.11	14.58	15.91	
		kW	3.79	3.69	3.59	3.82	3.73	3.64	3.85	3.76	3.72	
1.67	29.64	TC	17.21	15.39	13.82	17.93	16.05	14.63	18.70	16.79	15.94	
		SHC	9.04	11.31	13.33	9.88	12.64	14.63	11.13	14.59	15.94	
		kW	3.75	3.66	3.57	3.78	3.70	3.62	3.81	3.73	3.69	
35	0.95	42.75	TC	16.58	14.84	13.35	17.24	15.44	14.18	17.96	16.13	15.44
			SHC	8.80	11.08	13.04	9.63	12.39	14.18	10.86	14.30	15.44
			kW	4.09	3.96	3.83	4.14	4.01	3.90	4.18	4.06	4.01
	1.18	22.06	TC	16.66	14.91	13.40	17.32	15.51	14.22	18.05	16.21	15.50
			SHC	8.83	11.10	13.07	9.66	12.42	14.22	10.90	14.33	15.50
			kW	4.03	3.91	3.79	4.07	3.96	3.86	4.12	4.00	3.95
1.42	29.64	TC	16.71	14.94	13.43	17.38	15.56	14.26	18.11	16.26	15.54	
		SHC	8.85	11.12	13.09	9.68	12.44	14.26	10.92	14.35	15.54	
		kW	3.99	3.88	3.76	4.03	3.92	3.83	4.07	3.96	3.92	
1.67	42.75	TC	16.74	14.98	13.46	17.42	15.59	14.28	18.16	16.29	15.57	
		SHC	8.87	11.14	13.11	9.70	12.45	14.28	10.94	14.38	15.57	
		kW	3.96	3.85	3.74	4.00	3.89	3.80	4.03	3.93	3.89	
38	1.18	22.06	TC	16.18	14.48	13.03	16.81	15.06	13.89	17.51	15.72	15.12
			SHC	8.65	10.93	12.83	9.48	12.23	13.89	10.71	14.11	15.12
			kW	4.23	4.09	3.96	4.28	4.14	4.04	4.33	4.20	4.15
	1.42	29.64	TC	16.23	14.52	13.06	16.87	15.10	13.92	17.57	15.77	15.16
			SHC	8.67	10.94	12.85	9.50	12.25	13.92	10.73	14.13	15.16
			kW	4.20	4.06	3.93	4.24	4.11	4.01	4.28	4.16	4.11
1.67	42.75	TC	16.27	14.55	13.08	16.91	15.14	13.94	17.61	15.81	15.19	
		SHC	8.69	10.96	12.87	9.51	12.26	13.94	10.75	14.15	15.19	
		kW	4.17	4.04	3.91	4.21	4.08	3.99	4.25	4.13	4.09	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA312
R-134a 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					2000/0.10			3000/0.16			4000/0.19		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	96776	87514	78988	104653	94960	86611	109076	99167	92425
				SHC	47531	57584	67302	55218	69657	82569	61911	80237	92438
	25	7.5	3.1	TC	97431	88033	79387	105436	95618	87137	109954	99919	92983
				SHC	47790	57812	67508	55498	69961	82867	62207	80530	92991
	30	10.5	4.4	TC	97829	88389	79686	105961	96049	87491	110540	100410	93352
				SHC	47949	57971	67655	55687	70141	83075	62415	80711	93346
75	20	4.9	2.1	TC	92508	83555	75326	99760	90401	82618	103818	94299	88655
				SHC	45854	55852	65467	53451	67858	80205	60081	78239	88655
	25	7.3	3.1	TC	93130	84041	75735	100503	91047	83120	104668	95001	89157
				SHC	46097	56068	65675	53718	68106	80505	60380	78531	89157
	30	10.3	4.4	TC	93533	84391	76023	101014	91473	83453	105242	95470	89500
				SHC	46254	56220	65822	53893	68269	80703	60600	78735	89500
35	13.6	5.7	TC	93814	84660	76233	101373	91772	83685	105662	95818	89767	
			SHC	46366	56337	65924	54023	68413	80866	60744	78883	89767	
85	20	4.9	2.1	TC	88092	79486	71639	94743	85756	78626	98456	89349	84790
				SHC	44148	54106	63605	51659	65985	77597	58247	76174	84790
	25	7.3	3.1	TC	88675	79985	72035	95449	86352	79055	99237	89988	85278
				SHC	44371	54317	63801	51908	66228	77909	58515	76459	85278
	30	10.3	4.4	TC	89088	80293	72283	95934	86731	79368	99778	90435	85630
				SHC	44532	54457	63940	52079	66407	78119	58728	76650	85630
35	13.6	5.7	TC	89368	80525	72462	96279	87030	79592	100178	90773	85859	
			SHC	44640	54557	64032	52216	66521	78275	58854	76800	85859	
95	25	7.3	3.1	TC	84115	75772	68208	90272	81540	75064	93689	84958	81294
				SHC	42639	52547	61875	50093	64307	74905	56622	74287	81294
	30	10.3	4.4	TC	84504	76083	68451	90735	81920	75366	94204	85352	81627
				SHC	42787	52673	62001	50241	64467	75157	56830	74510	81627
	35	13.6	5.7	TC	84772	76297	68635	91059	82190	75568	94575	85643	81848
				SHC	42888	52764	62091	50360	64565	75318	56950	74635	81848
				KW	6.77	6.55	6.33	6.91	6.70	6.53	6.99	6.79	6.69

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- KW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA312
R-134a 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF								
				3398/0.10			5098/0.16			6797/0.19		
				Evaporator Air Ewb (°C)								
				22	19	16	22	19	16	22	19	16
24	1.27	14.48	TC	26.87	24.06	21.55	28.98	26.04	23.88	30.16	27.21	25.96
			SHC	26.21	13.66	16.82	19.78	16.00	20.53	23.87	18.03	23.69
			kW	5.56	5.56	5.81	5.62	5.43	5.93	5.75	5.61	6.00
	1.58	21.37	TC	27.04	24.20	21.66	29.20	26.22	24.02	30.40	27.40	26.11
			SHC	26.21	13.73	16.88	19.84	16.07	20.60	23.99	18.11	23.77
			kW	5.56	5.56	5.69	5.52	5.35	5.80	5.64	5.51	5.86
1.90	30.34	TC	27.16	24.31	21.74	29.34	26.34	24.10	30.57	27.54	26.21	
		SHC	26.21	13.78	16.93	19.89	16.13	20.65	24.06	18.18	23.83	
		kW	5.56	5.56	5.61	5.46	5.30	5.71	5.57	5.44	5.76	
29	1.27	14.48	TC	25.70	23.00	20.60	27.66	24.82	22.94	28.75	25.92	24.94
			SHC	13.21	16.35	19.26	15.52	20.02	22.94	17.54	23.11	24.94
			kW	6.34	6.12	5.89	6.49	6.27	6.11	6.57	6.36	6.28
	1.58	21.37	TC	25.88	23.13	20.71	27.86	24.99	23.06	28.98	26.11	25.08
			SHC	13.28	16.41	19.33	15.59	20.10	23.06	17.62	23.20	25.08
			kW	6.23	6.02	5.82	6.37	6.17	6.02	6.44	6.25	6.17
1.90	30.34	TC	25.99	23.22	20.79	28.00	25.10	23.13	29.14	26.23	25.18	
		SHC	13.32	16.45	19.37	15.64	20.14	23.13	17.68	23.26	25.18	
		kW	6.16	5.96	5.76	6.28	6.09	5.95	6.35	6.17	6.10	
32	1.27	14.48	TC	25.00	22.35	20.02	26.86	24.09	22.39	27.89	25.16	24.31
			SHC	12.94	16.08	18.94	15.23	19.71	22.39	17.24	22.76	24.31
			kW	6.66	6.41	6.17	6.82	6.58	6.41	6.91	6.67	6.60
	1.58	21.37	TC	25.16	22.49	20.13	27.05	24.25	22.50	28.11	25.33	24.45
			SHC	13.00	16.13	19.01	15.30	19.78	22.50	17.32	22.85	24.45
			kW	6.55	6.32	6.09	6.70	6.48	6.32	6.78	6.57	6.49
1.90	30.34	TC	25.27	22.57	20.20	27.19	24.36	22.58	28.27	25.44	24.55	
		SHC	13.04	16.17	19.04	15.35	19.83	22.58	17.37	22.90	24.55	
		kW	6.48	6.26	6.04	6.62	6.41	6.26	6.69	6.49	6.42	
2.20	39.3	TC	25.35	22.63	20.25	27.28	24.43	22.63	28.37	25.53	24.61	
		SHC	13.08	16.20	19.07	15.38	19.86	22.63	17.41	22.94	24.61	
		kW	6.43	6.22	6.01	6.56	6.36	6.22	6.63	6.44	6.37	
35	1.27	14.48	TC	24.28	21.70	19.45	26.05	23.35	21.83	27.02	24.38	23.68
			SHC	12.67	15.80	18.62	14.94	19.40	21.83	16.95	22.39	23.68
			kW	6.98	6.70	6.44	7.15	6.88	6.72	7.24	6.99	6.92
	1.58	21.37	TC	24.45	21.82	19.55	26.24	23.51	21.94	27.24	24.55	23.82
			SHC	12.73	15.85	18.68	15.01	19.46	21.94	17.03	22.47	23.82
			kW	6.88	6.62	6.37	7.04	6.78	6.63	7.12	6.88	6.81
1.90	30.34	TC	24.55	21.91	19.62	26.37	23.60	22.02	27.38	24.66	23.91	
		SHC	12.77	15.89	18.72	15.06	19.52	22.02	17.08	22.54	23.91	
		kW	6.80	6.56	6.32	6.95	6.72	6.57	7.04	6.81	6.75	
2.20	39.3	TC	24.63	21.97	19.67	26.46	23.68	22.07	27.48	24.74	23.98	
		SHC	12.80	15.91	18.74	15.09	19.55	22.07	17.11	22.57	23.98	
		kW	6.75	6.52	6.29	6.90	6.67	6.52	6.98	6.76	6.70	
38	1.58	21.37	TC	23.72	21.15	18.97	25.41	22.75	21.37	26.36	23.77	23.17
			SHC	12.45	15.57	18.33	14.72	19.15	21.37	16.73	22.09	23.17
			kW	7.19	6.91	6.64	7.37	7.09	6.93	7.46	7.20	7.14
	1.90	30.34	TC	23.82	21.24	19.04	25.54	22.85	21.45	26.50	23.87	23.27
			SHC	12.49	15.60	18.37	14.76	19.20	21.45	16.77	22.15	23.27
			kW	7.13	6.85	6.59	7.29	7.03	6.88	7.38	7.13	7.07
2.20	39.3	TC	23.89	21.30	19.08	25.63	22.92	21.49	26.59	23.95	23.33	
		SHC	12.52	15.63	18.40	14.79	19.22	21.49	16.81	22.19	23.33	
		kW	7.08	6.81	6.56	7.24	6.98	6.83	7.32	7.08	7.02	

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA312
R-134a 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					1670/0.11			2500/0.14			3330/0.17		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	83729	75585	68124	90747	82223	74848	94712	85980	79952
				SHC	40967	49458	57682	47605	59917	70980	53428	69083	79956
				kW	4.16	4.08	3.99	4.22	4.15	4.07	4.25	4.18	4.13
	25	7.5	3.1	TC	84189	75994	68444	91323	82710	75239	95353	86539	80367
				SHC	41150	49637	57841	47814	60105	71181	53634	69298	80345
				kW	4.07	4.00	3.92	4.12	4.06	4.00	4.14	4.08	4.04
30	10.5	4.4	TC	84496	76255	68664	91718	83037	75498	95793	86899	80639	
			SHC	41273	49745	57947	47980	60243	71331	53777	69454	80590	
			kW	4.01	3.95	3.88	4.05	4.00	3.94	4.07	4.02	3.98	
75	20	4.9	2.1	TC	80023	72186	64984	86471	78269	71376	90125	81710	76642
				SHC	39502	47963	56110	46046	58298	68957	51840	67331	76642
				kW	4.68	4.56	4.44	4.76	4.65	4.55	4.80	4.70	4.63
	25	7.3	3.1	TC	80465	72532	65268	87038	78725	71724	90739	82252	77016
				SHC	39675	48122	56253	46291	58490	69186	52032	67541	77016
				kW	4.59	4.48	4.38	4.66	4.57	4.47	4.69	4.61	4.54
	30	10.3	4.4	TC	80762	72790	65495	87410	79046	71978	91164	82598	77265
				SHC	39791	48230	56360	46395	58611	69327	52167	67696	77265
				kW	4.53	4.43	4.33	4.59	4.51	4.42	4.62	4.54	4.49
	35	13.6	5.7	TC	80977	72975	65645	87688	79282	72168	91466	82867	77447
				SHC	39877	48308	56431	46519	58698	69428	52267	67795	77447
				kW	4.48	4.40	4.30	4.54	4.46	4.39	4.57	4.50	4.45
85	20	4.9	2.1	TC	76198	68650	61764	82110	74207	67879	85427	77413	73309
				SHC	38015	46446	54498	44499	56696	66777	50202	65563	73309
				kW	5.19	5.04	4.88	5.30	5.15	5.02	5.35	5.21	5.13
	25	7.3	3.1	TC	76613	69006	62045	82640	74644	68224	86006	77892	73657
				SHC	38177	46591	54639	44707	56854	66998	50419	65755	73657
				kW	5.10	4.97	4.82	5.20	5.07	4.95	5.25	5.12	5.05
	30	10.3	4.4	TC	76905	69245	62249	82993	74937	68439	86407	78231	73894
				SHC	38289	46691	54736	44827	56982	67147	50552	65882	73894
				kW	5.05	4.92	4.78	5.13	5.02	4.90	5.18	5.07	5.00
	35	13.6	5.7	TC	77118	69422	62386	83250	75160	68609	86702	78470	74069
				SHC	38369	46765	54802	44916	57066	67248	50654	65968	74069
				kW	5.00	4.88	4.75	5.09	4.98	4.87	5.13	5.02	4.96
95	25	7.3	3.1	TC	72680	65360	58756	78122	70491	64722	81186	73515	70212
				SHC	36671	45047	52979	43122	55186	64486	48778	63875	70212
				kW	5.62	5.45	5.27	5.74	5.57	5.43	5.80	5.64	5.57
	30	10.3	4.4	TC	72948	65589	58934	78471	70749	64936	81563	73831	70437
				SHC	36774	45143	53070	43235	55298	64653	48896	63980	70437
				kW	5.57	5.40	5.23	5.68	5.52	5.38	5.74	5.58	5.51
35	13.6	5.7	TC	73150	65737	59054	78722	70970	65083	81840	74037	70598	
			SHC	36850	45203	53129	43321	55358	64766	48989	64108	70598	
			kW	5.53	5.37	5.20	5.63	5.48	5.35	5.69	5.54	5.47	

LEGEND

- BF — Bypass Factor
- Ewb — Entering Wet Bulb (°F)
- kW — Compressor Motor Power Input (Kilowatts)
- SHC — Sensible Heat Capacity (Btuh)
- TC — Total Capacity (Btuh), Gross
- Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA312
R-134a 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	Flowrate L/s	Pressure Drop kPa		Evaporator Airflow -m3/hr/BF									
				2837/0.11			4248/0.14			5616/0.17			
				Evaporator Air Ewb (°C)									
				22	19	16	22	19	16	22	19	16	
24	1.27	14.48	TC	23.24	20.78	18.58	25.12	22.53	20.61	26.15	23.54	22.38	
			SHC	22.56	11.77	14.44	16.95	13.78	17.63	20.58	15.49	20.29	
				kW	4.49	4.49	4.68	4.55	4.42	4.76	4.64	4.54	4.80
	1.58	21.37	TC	23.36	20.88	18.66	25.28	22.67	20.71	26.33	23.69	22.49	
			SHC	22.56	11.82	14.48	17.00	13.84	17.69	20.65	15.54	20.35	
				kW	4.49	4.49	4.59	4.47	4.36	4.66	4.56	4.47	4.70
1.90	30.34	TC	23.45	20.95	18.72	25.39	22.76	20.77	26.45	23.79	22.56		
		SHC	22.56	11.85	14.51	17.03	13.88	17.73	20.71	15.59	20.39		
			kW	4.49	4.49	4.53	4.43	4.32	4.59	4.50	4.42	4.62	
29	1.27	14.48	TC	22.23	19.86	17.76	23.97	21.48	19.78	24.92	22.43	21.50	
			SHC	11.37	14.03	16.51	13.36	17.20	19.78	15.06	19.80	21.50	
				kW	5.14	4.98	4.81	5.24	5.09	4.97	5.30	5.15	5.09
	1.58	21.37	TC	22.35	19.96	17.84	24.12	21.60	19.86	25.08	22.56	21.60	
			SHC	11.42	14.08	16.55	13.42	17.25	19.86	15.12	19.86	21.60	
				kW	5.05	4.91	4.76	5.15	5.01	4.90	5.20	5.06	5.01
1.90	30.34	TC	22.44	20.02	17.89	24.22	21.68	19.92	25.20	22.66	21.67		
		SHC	11.45	14.10	16.58	13.46	17.28	19.92	15.15	19.89	21.67		
			kW	5.00	4.86	4.72	5.08	4.96	4.85	5.13	5.01	4.95	
32	1.27	14.48	TC	21.62	19.30	17.26	23.28	20.84	19.30	24.17	21.75	20.97	
			SHC	11.14	13.79	16.24	13.12	16.93	19.30	14.79	19.50	20.97	
				kW	5.41	5.23	5.05	5.53	5.35	5.23	5.59	5.42	5.36
	1.58	21.37	TC	21.74	19.39	17.34	23.42	20.96	19.38	24.32	21.89	21.07	
			SHC	11.18	13.83	16.28	13.17	16.98	19.38	14.86	19.56	21.07	
				kW	5.33	5.16	4.99	5.44	5.28	5.16	5.49	5.34	5.29
1.90	30.34	TC	21.82	19.46	17.39	23.52	21.04	19.44	24.44	21.97	21.13		
		SHC	11.21	13.86	16.31	13.20	17.01	19.44	14.89	19.60	21.13		
			kW	5.28	5.12	4.96	5.38	5.23	5.12	5.43	5.29	5.23	
2.20	39.3	TC	21.88	19.50	17.42	23.59	21.10	19.48	24.52	22.04	21.18		
		SHC	11.23	13.88	16.33	13.23	17.03	19.48	14.92	19.62	21.18		
			kW	5.24	5.09	4.93	5.33	5.19	5.08	5.38	5.25	5.20	
35	1.27	14.48	TC	21.00	18.73	16.76	22.56	20.19	18.82	23.41	21.08	20.42	
			SHC	10.90	13.55	15.96	12.87	16.66	18.82	14.54	19.19	20.42	
				kW	5.69	5.48	5.28	5.81	5.62	5.49	5.88	5.69	5.64
	1.58	21.37	TC	21.12	18.82	16.83	22.71	20.31	18.90	23.57	21.21	20.52	
			SHC	10.94	13.59	16.00	12.92	16.70	18.90	14.60	19.24	20.52	
				kW	5.61	5.42	5.23	5.73	5.55	5.42	5.79	5.62	5.56
1.90	30.34	TC	21.19	18.88	16.88	22.80	20.39	18.95	23.68	21.29	20.58		
		SHC	10.97	13.61	16.03	12.95	16.73	18.95	14.62	19.28	20.58		
			kW	5.56	5.37	5.19	5.67	5.49	5.38	5.72	5.56	5.51	
2.20	39.3	TC	21.25	18.92	16.92	22.87	20.44	18.99	23.76	21.35	20.63		
		SHC	10.99	13.63	16.05	12.97	16.75	18.99	14.65	19.31	20.63		
			kW	5.52	5.34	5.17	5.62	5.46	5.35	5.68	5.52	5.47	
38	1.58	21.37	TC	20.48	18.24	16.32	21.99	19.65	18.41	22.81	20.53	19.96	
			SHC	10.70	13.34	15.71	12.65	16.43	18.41	14.34	18.91	19.96	
				kW	5.89	5.67	5.47	6.01	5.81	5.69	6.08	5.89	5.84
	1.90	30.34	TC	20.56	18.30	16.37	22.08	19.74	18.46	22.91	20.61	20.03	
			SHC	10.73	13.36	15.74	12.70	16.46	18.46	14.37	18.96	20.03	
				kW	5.83	5.63	5.43	5.96	5.76	5.64	6.02	5.84	5.79
2.20	39.3	TC	20.61	18.34	16.41	22.15	19.78	18.50	22.98	20.66	20.07		
		SHC	10.75	13.38	15.75	12.72	16.48	18.50	14.39	18.98	20.07		
			kW	5.80	5.60	5.41	5.92	5.73	5.61	5.98	5.80	5.75	

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA504
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					750/0.15			1000/0.18			1250/0.23		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	6	10.9	4.7	TC	35361	32199	29439	37203	33720	30823	38313	34828	31909
				SHC	17303	21869	26238	19177	23916	28640	20788	26505	30148
				kW	2.55	2.45	2.34	2.62	2.50	2.40	2.65	2.54	2.43
	7.5	16.4	7.1	TC	35522	32370	29556	37403	33901	30978	38533	35033	32049
				SHC	17348	21923	27225	19230	23986	28769	20839	26584	30447
				kW	2.52	2.42	2.32	2.59	2.47	2.37	2.62	2.51	2.40
	9	23.5	10.15	TC	35642	32468	29640	37526	34013	31047	38665	35145	32051
				SHC	17396	21961	27259	19271	24024	28835	20882	26612	30751
				kW	2.51	2.40	2.30	2.58	2.46	2.35	2.61	2.49	2.39
75	6	10.9	4.7	TC	33451	30391	27759	35068	31704	28988	36042	32692	30123
				SHC	16549	21041	26031	18421	23138	28131	20053	25764	29837
				kW	2.82	2.70	2.62	2.88	2.75	2.67	2.91	2.79	2.71
	7.5	16.4	7.1	TC	33633	30646	27982	35275	31973	29229	36268	32981	30361
				SHC	16620	21158	26992	18506	23274	28308	20148	25952	30057
				kW	2.79	2.68	2.60	2.85	2.73	2.65	2.88	2.76	2.69
	9	23.5	10.15	TC	33743	30735	28056	35390	32081	29286	36389	33075	30421
				SHC	16657	21188	26224	18534	23314	28411	20178	25923	30117
				kW	2.77	2.66	2.60	2.84	2.71	2.65	2.86	2.74	2.69
	10.5	32	13.7	TC	33809	30811	28121	35488	32168	29355	36475	33191	30504
				SHC	16679	21221	26269	18566	23336	29359	20195	25978	30227
				kW	2.76	2.65	2.58	2.82	2.70	2.63	2.85	2.73	2.67
85	6	10.9	4.7	TC	31242	28596	25872	32620	29677	26922	33398	30536	28237
				SHC	15933	20262	25017	17844	22420	26856	19535	24983	28210
				kW	3.12	2.97	2.90	3.17	3.01	2.94	3.20	3.05	2.99
	7.5	16.4	7.1	TC	31449	28771	26102	32858	29891	27132	33651	30758	28499
				SHC	16026	20320	25142	17950	22507	27098	19629	25060	28417
				kW	3.12	2.95	2.86	3.18	2.97	2.91	3.20	3.02	2.96
	9	23.5	10.15	TC	31582	28879	26186	33018	30026	27221	33831	30906	28594
				SHC	16052	20375	25134	17973	22561	27133	19647	25131	28456
				kW	3.09	2.93	2.86	3.15	2.97	2.90	3.17	3.00	2.95
	10.5	32	13.7	TC	31673	28956	26265	33129	30115	27300	33941	31004	28675
				SHC	16095	20409	24936	18021	22593	26947	20310	25166	28251
				kW	3.08	2.92	2.85	3.14	2.96	2.90	3.16	2.99	2.94
95	7.5	16.4	7.1	TC	29060	26702	24084	30171	27587	25101	30855	28317	26410
				SHC	15201	20016	24088	17102	22211	25375	18795	24752	26697
				kW	3.40	3.27	3.16	3.44	3.30	3.20	3.46	3.33	3.25
	9	23.5	10.15	TC	29208	26823	24185	30340	27729	25192	31036	28470	26524
				SHC	15339	20826	24073	17250	22311	25405	19113	25713	26731
				kW	3.41	3.29	3.13	3.46	3.32	3.17	3.47	3.35	3.22
	10.5	32	13.7	TC	29305	26907	24268	30454	27824	25268	31155	28572	26613
				SHC	15248	20991	24018	17154	22370	25372	18993	25814	26706
				kW	3.37	3.26	3.15	3.42	3.29	3.18	3.44	3.32	3.23

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°F)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA504
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					1530/0.16			2038/0.21			2549/0.26		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.38	3.32	32.41	TC	10.36	9.44	8.63	10.90	9.88	9.03	11.23	10.21	9.35
				SHC	5.07	6.41	7.69	5.62	7.01	8.39	6.09	7.77	8.84
				kW	2.55	2.45	2.34	2.62	2.50	2.40	2.65	2.54	2.43
	0.47	5.00	48.95	TC	10.41	9.49	8.66	10.96	9.94	9.08	11.29	10.27	9.39
				SHC	5.08	6.43	7.98	5.64	7.03	8.43	6.11	7.79	8.92
				kW	2.52	2.42	2.32	2.59	2.47	2.37	2.62	2.51	2.40
	0.57	7.16	69.98	TC	10.45	9.52	8.69	11.00	9.97	9.10	11.33	10.30	9.39
				SHC	5.10	6.44	7.99	5.65	7.04	8.45	6.12	7.80	9.01
				kW	2.51	2.40	2.30	2.58	2.46	2.35	2.61	2.49	2.39
23.9	0.38	3.32	32.41	TC	9.80	8.91	8.14	10.28	9.29	8.50	10.56	9.58	8.83
				SHC	4.85	6.17	7.63	5.40	6.78	8.24	5.88	7.55	8.74
				kW	2.82	2.70	2.62	2.88	2.75	2.67	2.91	2.79	2.71
	0.47	5.00	48.95	TC	9.86	8.98	8.20	10.34	9.37	8.57	10.63	9.67	8.90
				SHC	4.87	6.20	7.91	5.42	6.82	8.30	5.90	7.61	8.81
				kW	2.79	2.68	2.60	2.85	2.73	2.65	2.88	2.76	2.69
	0.57	7.16	69.98	TC	9.89	9.01	8.22	10.37	9.40	8.58	10.66	9.69	8.92
				SHC	4.88	6.21	7.69	5.43	6.83	8.33	5.91	7.60	8.83
				kW	2.77	2.66	2.60	2.84	2.71	2.65	2.86	2.74	2.69
	0.66	9.75	94.46	TC	9.91	9.03	8.24	10.40	9.43	8.60	10.69	9.73	8.94
				SHC	4.89	6.22	7.70	5.44	6.84	8.60	5.92	7.61	8.86
				kW	2.76	2.65	2.58	2.82	2.70	2.63	2.85	2.73	2.67
29.4	0.38	3.32	32.41	TC	9.16	8.38	7.58	9.56	8.70	7.89	9.79	8.95	8.28
				SHC	4.67	5.94	7.33	5.23	6.57	7.87	5.73	7.32	8.27
				kW	3.12	2.97	2.90	3.17	3.01	2.94	3.20	3.05	2.99
	0.47	5.00	48.95	TC	9.22	8.43	7.65	9.63	8.76	7.95	9.86	9.01	8.35
				SHC	4.70	5.96	7.37	5.26	6.60	7.94	5.75	7.34	8.33
				kW	3.12	2.95	2.86	3.18	2.97	2.91	3.20	3.02	2.96
	0.57	7.16	69.98	TC	9.26	8.46	7.67	9.68	8.80	7.98	9.91	9.06	8.38
				SHC	4.70	5.97	7.37	5.27	6.61	7.95	5.76	7.37	8.34
				kW	3.09	2.93	2.86	3.15	2.97	2.90	3.17	3.00	2.95
	0.66	9.75	94.46	TC	9.28	8.49	7.70	9.71	8.83	8.00	9.95	9.09	8.40
				SHC	4.72	5.98	7.31	5.28	6.62	7.90	5.95	7.38	8.28
				kW	3.08	2.92	2.85	3.14	2.96	2.90	3.16	2.99	2.94
35	0.47	5.00	48.95	TC	8.52	7.83	7.06	8.84	8.08	7.36	9.04	8.30	7.74
				SHC	4.45	5.87	7.06	5.01	6.51	7.44	5.51	7.25	7.82
				kW	3.40	3.27	3.16	3.44	3.30	3.20	3.46	3.33	3.25
	0.57	7.16	69.98	TC	8.56	7.86	7.09	8.89	8.13	7.38	9.10	8.34	7.77
				SHC	4.50	6.10	7.06	5.06	6.54	7.45	5.60	7.54	7.83
				kW	3.41	3.29	3.13	3.46	3.32	3.17	3.47	3.35	3.22
	0.66	9.75	94.46	TC	8.59	7.89	7.11	8.93	8.15	7.41	9.13	8.37	7.80
				SHC	4.47	6.15	7.04	5.03	6.56	7.44	5.57	7.57	7.83
				kW	3.37	3.26	3.15	3.42	3.29	3.18	3.44	3.32	3.23

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA504
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					900/0.16			1200/0.21			1500/0.26		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	6	10.9	4.7	TC	42280	38362	34915	44356	40293	36852	45758	41597	38435
				SHC	20710	25264	29757	22903	28613	34209	24829	31632	36457
				kW	3.33	3.18	3.04	3.42	3.26	3.12	3.48	3.31	3.18
	7.5	16.4	7.1	TC	42529	38600	35075	44640	40541	37056	46071	41884	38608
				SHC	20789	25348	29897	22977	28699	34363	24908	31735	36832
				kW	3.29	3.14	3.01	3.38	3.22	3.08	3.44	3.27	3.13
	9	23.5	10.15	TC	42702	38738	35184	44821	40697	37154	46267	42051	38627
				SHC	20860	25405	29944	23043	28756	34467	24981	31790	37241
				kW	3.26	3.12	2.99	3.36	3.19	3.06	3.41	3.24	3.11
75	6	10.9	4.7	TC	39909	36111	32866	41761	37825	34644	42904	38921	36209
				SHC	19778	24257	29577	21978	27639	33736	23901	30660	36016
				kW	3.65	3.49	3.39	3.73	3.56	3.46	3.79	3.61	3.52
	7.5	16.4	7.1	TC	40175	36449	33147	42060	38175	34954	43235	39318	36520
				SHC	19884	24417	29756	22102	27806	33945	24032	30886	36273
				kW	3.60	3.45	3.37	3.68	3.52	3.42	3.74	3.57	3.49
	9	23.5	10.15	TC	40334	36580	33248	42226	38322	35028	43413	39467	36623
				SHC	19944	24466	29823	22149	27858	34071	24078	30918	36396
				kW	3.58	3.43	3.36	3.67	3.49	3.42	3.71	3.54	3.48
10.5	32	13.7	TC	40449	36688	33337	42362	38452	35130	43569	39612	36728	
			SHC	19989	24511	29878	22195	27907	34164	24130	30970	36480	
			kW	3.56	3.41	3.34	3.65	3.48	3.40	3.69	3.52	3.46	
85	6	10.9	4.7	TC	37216	33868	30565	38760	35309	32172	39680	36263	34008
				SHC	19026	23331	28489	21258	26716	32401	23226	29714	34022
				kW	4.01	3.81	3.73	4.09	3.87	3.79	4.13	3.92	3.88
	7.5	16.4	7.1	TC	37507	34150	30861	39104	35603	32436	40044	36575	34349
				SHC	19155	23454	28637	21402	26850	32688	23377	29833	34281
				kW	4.00	3.77	3.69	4.09	3.83	3.74	4.12	3.87	3.82
	9	23.5	10.15	TC	37696	34302	30974	39332	35790	32554	40294	36780	34477
				SHC	19201	23509	28627	21450	26929	32752	23419	29933	34353
				kW	3.96	3.75	3.68	4.05	3.80	3.73	4.08	3.84	3.81
10.5	32	13.7	TC	37823	34406	31073	39476	35915	32656	40465	36918	34585	
			SHC	19260	23552	28400	21509	26975	32538	23489	29991	34130	
			kW	3.95	3.73	3.67	4.03	3.78	3.72	4.06	3.82	3.80	
95	7.5	16.4	7.1	TC	34533	31592	28420	35832	32787	29976	36593	33609	31822
				SHC	18119	23015	27498	20368	26474	30631	22372	29440	32611
				kW	4.33	4.17	4.06	4.40	4.21	4.11	4.42	4.25	4.20
	9	23.5	10.15	TC	34740	31756	28551	36065	32977	30094	36843	33812	31969
				SHC	18236	23130	27498	20489	26588	30684	22501	29570	32704
				kW	4.35	4.19	4.03	4.42	4.23	4.08	4.43	4.26	4.16
	10.5	32	13.7	TC	34874	31874	28658	36222	33109	30193	37019	33948	32082
				SHC	18195	23205	27435	20450	26675	30659	22440	29658	32690
				kW	4.30	4.15	4.04	4.37	4.19	4.09	4.39	4.23	4.17

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA —SI
90MA504
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					1530/0.16			2038 /0.21			2549/0.26		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.38	3.32	32.41	TC	12.39	11.24	10.23	13.00	11.81	10.80	13.41	12.19	11.26
				SHC	6.07	7.40	8.72	6.71	8.39	10.03	7.28	9.27	10.68
				kW	3.33	3.18	3.04	3.42	3.26	3.12	3.48	3.31	3.18
	0.47	5.00	48.95	TC	12.46	11.31	10.28	13.08	11.88	10.86	13.50	12.28	11.31
				SHC	6.09	7.43	8.76	6.73	8.41	10.07	7.30	9.30	10.79
				kW	3.29	3.14	3.01	3.38	3.22	3.08	3.44	3.27	3.13
	0.57	7.16	69.98	TC	12.51	11.35	10.31	13.14	11.93	10.89	13.56	12.32	11.32
				SHC	6.11	7.45	8.78	6.75	8.43	10.10	7.32	9.32	10.91
				kW	3.26	3.12	2.99	3.36	3.19	3.06	3.41	3.24	3.11
23.9	0.38	3.32	32.41	TC	11.70	10.58	9.63	12.24	11.09	10.15	12.57	11.41	10.61
				SHC	5.80	7.11	8.67	6.44	8.10	9.89	7.00	8.99	10.56
				kW	3.65	3.49	3.39	3.73	3.56	3.46	3.79	3.61	3.52
	0.47	5.00	48.95	TC	11.77	10.68	9.71	12.33	11.19	10.24	12.67	11.52	10.70
				SHC	5.83	7.16	8.72	6.48	8.15	9.95	7.04	9.05	10.63
				kW	3.60	3.45	3.37	3.68	3.52	3.42	3.74	3.57	3.49
	0.57	7.16	69.98	TC	11.82	10.72	9.74	12.38	11.23	10.27	12.72	11.57	10.73
				SHC	5.85	7.17	8.74	6.49	8.16	9.99	7.06	9.06	10.67
				kW	3.58	3.43	3.36	3.67	3.49	3.42	3.71	3.54	3.48
0.66	9.75	94.46	TC	11.85	10.75	9.77	12.42	11.27	10.30	12.77	11.61	10.76	
			SHC	5.86	7.18	8.76	6.50	8.18	10.01	7.07	9.08	10.69	
			kW	3.56	3.41	3.34	3.65	3.48	3.40	3.69	3.52	3.46	
29.4	0.38	3.32	32.41	TC	10.91	9.93	8.96	11.36	10.35	9.43	11.63	10.63	9.97
				SHC	5.58	6.84	8.35	6.23	7.83	9.50	6.81	8.71	9.97
				kW	4.01	3.81	3.73	4.09	3.87	3.79	4.13	3.92	3.88
	0.47	5.00	48.95	TC	10.99	10.01	9.04	11.46	10.43	9.51	11.74	10.72	10.07
				SHC	5.61	6.87	8.39	6.27	7.87	9.58	6.85	8.74	10.05
				kW	4.00	3.77	3.69	4.09	3.83	3.74	4.12	3.87	3.82
	0.57	7.16	69.98	TC	11.05	10.05	9.08	11.53	10.49	9.54	11.81	10.78	10.10
				SHC	5.63	6.89	8.39	6.29	7.89	9.60	6.86	8.77	10.07
				kW	3.96	3.75	3.68	4.05	3.80	3.73	4.08	3.84	3.81
0.66	9.75	94.46	TC	11.08	10.08	9.11	11.57	10.53	9.57	11.86	10.82	10.14	
			SHC	5.64	6.90	8.32	6.30	7.91	9.54	6.88	8.79	10.00	
			kW	3.95	3.73	3.67	4.03	3.78	3.72	4.06	3.82	3.80	
35	0.47	5.00	48.95	TC	10.12	9.26	8.33	10.50	9.61	8.78	10.72	9.85	9.33
				SHC	5.31	6.74	8.06	5.97	7.76	8.98	6.56	8.63	9.56
				kW	4.33	4.17	4.06	4.40	4.21	4.11	4.42	4.25	4.20
	0.57	7.16	69.98	TC	10.18	9.31	8.37	10.57	9.66	8.82	10.80	9.91	9.37
				SHC	5.34	6.78	8.06	6.00	7.79	8.99	6.59	8.67	9.58
				kW	4.35	4.19	4.03	4.42	4.23	4.08	4.43	4.26	4.16
	0.66	9.75	94.46	TC	10.22	9.34	8.40	10.62	9.70	8.85	10.85	9.95	9.40
				SHC	5.33	6.80	8.04	5.99	7.82	8.99	6.58	8.69	9.58
				kW	4.30	4.15	4.04	4.37	4.19	4.09	4.39	4.23	4.17

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA506
R-404A 50Hz



GROSS COOLING CAPACITIES

EWT (F)	GPM	PRESSURE DROP			EVAPORATOR AIRFLOW - CFM/BF								
		FT	psig		1250/0.09			1670/0.14			2080/0.15		
					EVAPORATOR AIR EWB (F)								
		72	67		62	72	67	62	72	67	62		
65	10	10	4.3	TC	63575	57602	52297	67111	60885	55327	69328	62960	57247
				SHC	30862	37724	44618	34602	43523	52254	37995	48816	57247
				KW	3.19	3.09	3.01	3.25	3.15	3.06	3.30	3.19	3.09
	12.5	15.7	6.7	TC	63985	57942	52583	67563	61282	55658	69838	63383	57542
				SHC	31010	37869	44752	34763	43669	52408	38151	48972	57542
				KW	3.16	3.06	2.98	3.22	3.12	3.03	3.26	3.15	3.06
	15	21.9	9.5	TC	64223	58160	52753	67836	61519	55857	70140	63638	57697
				SHC	31102	37968	44834	34861	43764	52506	38253	49070	57697
				KW	3.13	3.04	2.96	3.19	3.09	3.01	3.24	3.13	3.04
75	10	10	4.3	TC	60266	54547	49500	63478	57559	52234	65516	59413	54542
				SHC	29582	36404	43273	33277	42153	50629	36636	47426	54542
				KW	3.50	3.40	3.31	3.57	3.46	3.36	3.61	3.49	3.41
	12.5	15.7	6.7	TC	60654	54882	49783	63920	57937	52578	66001	59829	54849
				SHC	29735	36550	43411	33447	42316	50832	36819	47590	54849
				KW	3.46	3.37	3.28	3.53	3.42	3.33	3.57	3.46	3.37
	15	21.9	9.5	TC	60897	55089	49956	64197	58173	52782	66302	60091	55028
				SHC	29830	36639	43495	33548	42413	50939	36923	47692	55028
				KW	3.44	3.34	3.26	3.50	3.40	3.31	3.54	3.43	3.35
	17.5	29.9	12.9	TC	61059	55225	50071	64382	58329	52916	66502	60261	55148
				SHC	29892	36698	43551	33614	42477	51010	36991	47760	55148
				KW	3.43	3.33	3.25	3.49	3.38	3.30	3.52	3.42	3.33
85	10	10	4.3	TC	56718	51301	46509	59633	54005	48808	61458	55679	51699
				SHC	28250	35034	41845	31911	40753	48289	35251	45989	51699
				KW	3.84	3.74	3.65	3.91	3.80	3.70	3.95	3.83	3.75
	12.5	15.7	6.7	TC	57124	51648	46809	60085	54401	49165	61945	56094	52017
				SHC	28405	35181	41999	32081	40911	48574	35433	46163	52017
				KW	3.80	3.70	3.61	3.86	3.76	3.66	3.90	3.79	3.72
	15	21.9	9.5	TC	57373	51857	46986	60365	54642	49389	62248	56353	52205
				SHC	28498	35270	42083	32182	41008	48722	35537	46268	52205
				KW	3.78	3.68	3.59	3.84	3.73	3.64	3.88	3.77	3.69
	17.5	29.9	12.9	TC	57539	51997	47104	60553	54802	49543	62450	56527	52327
				SHC	28561	35329	42139	32249	41071	48845	35606	46335	52327
				KW	3.76	3.66	3.58	3.82	3.72	3.63	3.86	3.75	3.68
95	12.5	15.9	6.7	TC	53404	48227	43645	56031	50669	46014	57674	52162	48993
				SHC	27018	33756	40354	30654	39441	46014	33986	44575	48993
				KW	4.18	4.07	3.98	4.23	4.12	4.03	4.27	4.16	4.09
	15	21.9	9.5	TC	53653	48439	43823	56309	50907	46189	57966	52417	49191
				SHC	27111	33845	40449	30756	39537	46189	34075	44694	49191
				KW	4.15	4.05	3.96	4.21	4.10	4.01	4.25	4.13	4.07
	17.5	29.9	12.9	TC	53819	48579	43939	56496	51066	46305	58167	52590	49318
				SHC	27173	33903	40515	30822	39601	46305	34146	44769	49318
				KW	4.13	4.03	3.95	4.19	4.08	3.99	4.23	4.12	4.05

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°F)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA506
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					2594/0.12			3402/0.15			4248/0.18		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.63	3.05	29.65	TC	18.63	16.88	15.33	19.67	17.84	16.21	20.32	18.45	16.78
				SHC	9.04	11.06	13.08	10.14	12.76	15.31	11.14	14.31	16.78
				KW	3.19	3.09	3.01	3.25	3.15	3.06	3.30	3.19	3.09
	0.79	4.79	46.19	TC	18.75	16.98	15.41	19.80	17.96	16.31	20.47	18.58	16.86
				SHC	9.09	11.10	13.12	10.19	12.80	15.36	11.18	14.35	16.86
				KW	3.16	3.06	2.98	3.22	3.12	3.03	3.26	3.15	3.06
	0.95	6.68	65.50	TC	18.82	17.04	15.46	19.88	18.03	16.37	20.56	18.65	16.91
				SHC	9.11	11.13	13.14	10.22	12.83	15.39	11.21	14.38	16.91
				KW	3.13	3.04	2.96	3.19	3.09	3.01	3.24	3.13	3.04
23.9	0.63	3.05	29.65	TC	17.66	15.99	14.51	18.60	16.87	15.31	19.20	17.41	15.98
				SHC	8.67	10.67	12.68	9.75	12.35	14.84	10.74	13.90	15.98
				KW	3.50	3.40	3.31	3.57	3.46	3.36	3.61	3.49	3.41
	0.79	4.79	46.19	TC	17.78	16.08	14.59	18.73	16.98	15.41	19.34	17.53	16.07
				SHC	8.71	10.71	12.72	9.80	12.40	14.90	10.79	13.95	16.07
				KW	3.46	3.37	3.28	3.53	3.42	3.33	3.57	3.46	3.37
	0.95	6.68	65.50	TC	17.85	16.14	14.64	18.81	17.05	15.47	19.43	17.61	16.13
				SHC	8.74	10.74	12.75	9.83	12.43	14.93	10.82	13.98	16.13
				KW	3.44	3.34	3.26	3.50	3.40	3.31	3.54	3.43	3.35
	1.10	9.11	88.94	TC	17.89	16.18	14.67	18.87	17.09	15.51	19.49	17.66	16.16
				SHC	8.76	10.75	12.76	9.85	12.45	14.95	10.84	14.00	16.16
				KW	3.43	3.33	3.25	3.49	3.38	3.30	3.52	3.42	3.33
29.4	0.63	3.05	29.65	TC	16.62	15.03	13.63	17.48	15.83	14.30	18.01	16.32	15.15
				SHC	8.28	10.27	12.26	9.35	11.94	14.15	10.33	13.48	15.15
				KW	3.84	3.74	3.65	3.91	3.80	3.70	3.95	3.83	3.75
	0.79	4.79	46.19	TC	16.74	15.14	13.72	17.61	15.94	14.41	18.15	16.44	15.24
				SHC	8.32	10.31	12.31	9.40	11.99	14.24	10.38	13.53	15.24
				KW	3.80	3.70	3.61	3.86	3.76	3.66	3.90	3.79	3.72
	0.95	6.68	65.50	TC	16.81	15.20	13.77	17.69	16.01	14.47	18.24	16.52	15.30
				SHC	8.35	10.34	12.33	9.43	12.02	14.28	10.41	13.56	15.30
				KW	3.78	3.68	3.59	3.84	3.73	3.64	3.88	3.77	3.69
	1.10	9.11	88.94	TC	16.86	15.24	13.80	17.75	16.06	14.52	18.30	16.57	15.34
				SHC	8.37	10.35	12.35	9.45	12.04	14.32	10.44	13.58	15.34
				KW	3.76	3.66	3.58	3.82	3.72	3.63	3.86	3.75	3.68
35	0.79	4.85	46.19	TC	15.65	14.13	12.79	16.42	14.85	13.49	16.90	15.29	14.36
				SHC	7.92	9.89	11.83	8.98	11.56	13.49	9.96	13.06	14.36
				KW	4.18	4.07	3.98	4.23	4.12	4.03	4.27	4.16	4.09
	0.95	6.68	65.50	TC	15.72	14.20	12.84	16.50	14.92	13.54	16.99	15.36	14.42
				SHC	7.95	9.92	11.85	9.01	11.59	13.54	9.99	13.10	14.42
				KW	4.15	4.05	3.96	4.21	4.10	4.01	4.25	4.13	4.07
	1.10	9.11	88.94	TC	15.77	14.24	12.88	16.56	14.97	13.57	17.05	15.41	14.45
				SHC	7.96	9.94	11.87	9.03	11.61	13.57	10.01	13.12	14.45
				KW	4.13	4.03	3.95	4.19	4.08	3.99	4.23	4.12	4.05

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- KW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA506
R-404A 60Hz



GROSS COOLING CAPACITIES

EWT (F)	GPM	PRESSURE DROP			EVAPORATOR AIRFLOW - CFM/BF								
		FT	psig		1500/0.12			2000.0.15			2500/0.18		
					EVAPORATOR AIR EWB (F)								
		72	67		62	72	67	62	72	67	62		
65	10	10	4.3	TC	72090	65401	59419	75773	68813	62562	78134	71014	65402
				SHC	35518	43734	51881	39845	50400	60310	43813	56622	64220
				KW	4.78	4.60	4.45	4.89	4.70	4.53	4.96	4.76	4.61
	12.5	15.7	6.7	TC	72651	65893	59797	76425	69360	63030	78836	71604	65816
				SHC	35729	43931	52063	40062	50609	60606	44029	56838	64871
				KW	4.72	4.54	4.39	4.82	4.64	4.48	4.89	4.70	4.55
	15	21.9	9.5	TC	72993	66189	60039	76818	69695	63315	79256	71965	65907
				SHC	35855	44055	52181	40199	50742	60766	44167	56977	65646
				KW	4.68	4.51	4.36	4.78	4.60	4.44	4.85	4.66	4.51
75	10	10	4.3	TC	68124	61733	56032	71483	64844	58971	73614	66815	61886
				SHC	34030	42152	50244	38302	48817	57789	42246	54998	61886
				KW	5.25	5.06	4.91	5.35	5.16	4.99	5.42	5.22	5.08
	12.5	15.7	6.7	TC	68680	62214	56447	72110	65384	59432	74294	67391	62323
				SHC	34242	42372	50465	38531	49036	58134	42484	55227	62323
				KW	5.18	5.00	4.85	5.28	5.09	4.93	5.35	5.16	5.01
	15	21.9	9.5	TC	69029	62517	56707	72502	65721	59717	74716	67752	62584
				SHC	34373	42495	50598	38671	49171	58332	42628	55373	62584
				KW	5.14	4.96	4.81	5.24	5.05	4.89	5.31	5.11	4.97
	17.5	29.9	12.9	TC	69265	62717	56881	72767	65949	59902	74999	67997	62761
				SHC	34460	42579	50685	38764	49262	58475	42725	55468	62761
				KW	5.11	4.94	4.79	5.21	5.03	4.87	5.28	5.09	4.95
85	10	10	4.3	TC	63899	57837	52479	66917	60635	55196	68822	62382	58486
				SHC	32474	40543	48335	36716	47132	55196	40648	53083	58486
				KW	5.76	5.57	5.40	5.86	5.66	5.49	5.93	5.72	5.60
	12.5	15.7	6.7	TC	64473	58329	52900	67563	61196	55619	69514	62975	58953
				SHC	32687	40750	48569	36946	47390	55619	40886	53367	58953
				KW	5.68	5.50	5.34	5.79	5.59	5.43	5.86	5.65	5.53
	15	21.9	9.5	TC	64831	58636	53163	67963	61546	55882	69944	63346	59228
				SHC	32820	40880	48710	37087	47537	55882	41033	53548	59228
				KW	5.64	5.46	5.30	5.74	5.55	5.39	5.81	5.61	5.49
	17.5	29.9	12.9	TC	65072	58843	53344	68234	61778	56062	70234	63596	59412
				SHC	32909	40965	48816	37182	47626	56062	41129	53658	59412
				KW	5.61	5.43	5.28	5.71	5.52	5.36	5.78	5.58	5.46
95	12.5	15.9	6.7	TC	60055	54283	49238	62780	56822	52080	64496	58389	55349
				SHC	31078	38988	46525	35297	45431	52080	39217	51176	55349
				KW	6.24	6.04	5.88	6.34	6.14	5.98	6.40	6.20	6.09
	15	21.9	9.5	TC	60415	54589	49511	63176	57168	52330	64916	58754	55648
				SHC	31210	39130	46683	35437	45581	52330	39366	51351	55648
				KW	6.19	6.00	5.84	6.29	6.09	5.94	6.35	6.15	6.05
	17.5	29.9	12.9	TC	60661	54802	49695	63448	57398	52495	65205	58995	55837
				SHC	31300	39228	46783	35533	45690	52495	39467	51479	55837
				KW	6.16	5.97	5.82	6.26	6.06	5.91	6.32	6.12	6.02

LEGEND
BF — Bypass Factor
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TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA506
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					2594/0.12			3402/0.15			4248/0.18		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.63	3.05	29.65	TC	21.13	19.17	17.41	22.21	20.17	18.34	22.90	20.81	19.17
				SHC	10.41	12.82	15.20	11.68	14.77	17.68	12.84	16.59	18.82
				KW	4.78	4.60	4.45	4.89	4.70	4.53	4.96	4.76	4.61
	0.79	4.79	46.19	TC	21.29	19.31	17.52	22.40	20.33	18.47	23.10	20.99	19.29
				SHC	10.47	12.88	15.26	11.74	14.83	17.76	12.90	16.66	19.01
				KW	4.72	4.54	4.39	4.82	4.64	4.48	4.89	4.70	4.55
	0.95	6.68	65.50	TC	21.39	19.40	17.60	22.51	20.43	18.56	23.23	21.09	19.32
				SHC	10.51	12.91	15.29	11.78	14.87	17.81	12.94	16.70	19.24
				KW	4.68	4.51	4.36	4.78	4.60	4.44	4.85	4.66	4.51
23.9	0.63	3.05	29.65	TC	19.97	18.09	16.42	20.95	19.00	17.28	21.57	19.58	18.14
				SHC	9.97	12.35	14.72	11.23	14.31	16.94	12.38	16.12	18.14
				KW	5.25	5.06	4.91	5.35	5.16	4.99	5.42	5.22	5.08
	0.79	4.79	46.19	TC	20.13	18.23	16.54	21.13	19.16	17.42	21.77	19.75	18.27
				SHC	10.04	12.42	14.79	11.29	14.37	17.04	12.45	16.19	18.27
				KW	5.18	5.00	4.85	5.28	5.09	4.93	5.35	5.16	5.01
	0.95	6.68	65.50	TC	20.23	18.32	16.62	21.25	19.26	17.50	21.90	19.86	18.34
				SHC	10.07	12.45	14.83	11.33	14.41	17.10	12.49	16.23	18.34
				KW	5.14	4.96	4.81	5.24	5.05	4.89	5.31	5.11	4.97
1.10	9.11	88.94	TC	20.30	18.38	16.67	21.33	19.33	17.56	21.98	19.93	18.39	
			SHC	10.10	12.48	14.85	11.36	14.44	17.14	12.52	16.26	18.39	
			KW	5.11	4.94	4.79	5.21	5.03	4.87	5.28	5.09	4.95	
29.4	0.63	3.05	29.65	TC	18.73	16.95	15.38	19.61	17.77	16.18	20.17	18.28	17.14
				SHC	9.52	11.88	14.17	10.76	13.81	16.18	11.91	15.56	17.14
				KW	5.76	5.57	5.40	5.86	5.66	5.49	5.93	5.72	5.60
	0.79	4.79	46.19	TC	18.90	17.09	15.50	19.80	17.93	16.30	20.37	18.46	17.28
				SHC	9.58	11.94	14.23	10.83	13.89	16.30	11.98	15.64	17.28
				KW	5.68	5.50	5.34	5.79	5.59	5.43	5.86	5.65	5.53
	0.95	6.68	65.50	TC	19.00	17.18	15.58	19.92	18.04	16.38	20.50	18.56	17.36
				SHC	9.62	11.98	14.28	10.87	13.93	16.38	12.03	15.69	17.36
				KW	5.64	5.46	5.30	5.74	5.55	5.39	5.81	5.61	5.49
1.10	9.11	88.94	TC	19.07	17.25	15.63	20.00	18.11	16.43	20.58	18.64	17.41	
			SHC	9.64	12.01	14.31	10.90	13.96	16.43	12.05	15.73	17.41	
			KW	5.61	5.43	5.28	5.71	5.52	5.36	5.78	5.58	5.46	
35	0.79	4.85	46.19	TC	17.60	15.91	14.43	18.40	16.65	15.26	18.90	17.11	16.22
				SHC	9.11	11.43	13.64	10.34	13.31	15.26	11.49	15.00	16.22
				KW	6.24	6.04	5.88	6.34	6.14	5.98	6.40	6.20	6.09
	0.95	6.68	65.50	TC	17.71	16.00	14.51	18.52	16.75	15.34	19.02	17.22	16.31
				SHC	9.15	11.47	13.68	10.39	13.36	15.34	11.54	15.05	16.31
				KW	6.19	6.00	5.84	6.29	6.09	5.94	6.35	6.15	6.05
	1.10	9.11	88.94	TC	17.78	16.06	14.56	18.59	16.82	15.38	19.11	17.29	16.36
				SHC	9.17	11.50	13.71	10.41	13.39	15.38	11.57	15.09	16.36
				KW	6.16	5.97	5.82	6.26	6.06	5.91	6.32	6.12	6.02

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- KW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA508
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					1875/0.16			2500/0.21			3125/0.24		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	88939	79843	72284	94479	81281	76292	97838	88142	79233
				SHC	43115	53621	63846	48121	57619	69833	52509	66232	73775
				kW	5.90	5.61	5.34	6.07	5.78	5.51	6.16	5.90	5.63
	18.8	7.4	3.2	TC	89721	80604	72787	95491	85380	76990	98955	89046	80014
				SHC	43393	53951	66219	48465	59522	70479	52848	66637	74824
				kW	5.86	5.58	5.30	6.03	5.73	5.48	6.11	5.85	5.59
	22.5	10	4.3	TC	90272	81022	73134	96152	85868	77309	99683	89639	80260
				SHC	43606	54094	66412	48715	59730	70654	53106	66869	75633
				kW	5.83	5.56	5.28	6.02	5.72	5.46	6.09	5.83	5.57
75	15	5.8	2.5	TC	83284	74592	67526	87946	78673	71056	90936	81812	73798
				SHC	40920	51203	62885	45754	56841	68311	50239	64086	72300
				kW	6.27	5.94	5.69	6.43	6.11	5.89	6.54	6.24	5.99
	18.8	7.4	3.2	TC	84111	75539	68251	88902	79653	71871	92025	82919	74670
				SHC	41245	51691	65270	46169	57400	68789	50681	64665	73095
				kW	6.24	5.92	5.68	6.40	6.08	5.88	6.49	6.21	5.98
	22.5	10	4.3	TC	84604	75906	68570	89461	80142	72186	92653	83372	74983
				SHC	41403	51820	63519	46346	57629	69118	50880	64689	73300
				kW	6.22	5.90	5.69	6.39	6.06	5.89	6.47	6.19	5.99
	26.3	14.2	6.2	TC	84941	76226	68826	89915	80482	72438	93095	83854	75320
				SHC	41535	51970	63641	46501	57690	71426	50995	64914	73731
				kW	6.20	5.90	5.68	6.38	6.05	5.87	6.45	6.17	5.97
85	15	5.8	2.5	TC	77196	69953	62726	81028	73179	65500	83440	75704	68610
				SHC	39142	49234	60293	44041	55040	64606	48655	61528	67873
				kW	6.68	6.28	6.02	6.82	6.44	6.21	6.93	6.56	6.33
	18.8	7.4	3.2	TC	78024	70529	63451	82006	74030	66232	84531	76613	69445
				SHC	39523	49417	60579	44486	55340	65320	49055	62155	68651
				kW	6.72	6.26	5.99	6.89	6.39	6.18	6.98	6.55	6.31
	22.5	10	4.3	TC	78568	70907	63725	82651	74532	66563	85267	77197	69843
				SHC	39670	49628	60616	44624	55530	65430	49204	62443	68777
				kW	6.70	6.25	6.00	6.87	6.41	6.19	6.95	6.53	6.31
	26.3	14.2	6.2	TC	78916	71209	64008	83102	74903	66837	85738	77600	70161
				SHC	39815	49760	60226	44818	55661	65041	50936	62586	68376
				kW	6.69	6.24	6.01	6.86	6.40	6.19	6.95	6.52	6.32
95	18.8	7.4	3.2	TC	71650	65384	58432	74819	67938	61022	76878	70011	64129
				SHC	37245	48648	57942	42212	54246	60860	46728	61010	64791
				kW	7.04	6.69	6.33	7.21	6.83	6.51	7.28	6.95	6.65
	22.5	10	4.3	TC	72187	65779	58775	75468	68462	61418	77596	70592	64526
				SHC	37643	50672	57978	42663	54741	61115	47618	63474	64795
				kW	7.09	6.74	6.31	7.26	6.88	6.49	7.34	7.00	6.63
	26.3	14.2	6.2	TC	72562	66088	59040	75926	68815	61702	78068	70990	64876
				SHC	37483	51107	57871	42482	54923	61037	47397	63801	65103
				kW	7.04	6.71	6.35	7.21	6.85	6.53	7.28	6.96	6.67

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA508
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow -M3/Hr / BF								
					3186/0.16			4248/0.21			5310/0.24		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.95	1.77	17.24	TC	26.07	23.40	21.18	27.69	23.82	22.36	28.67	25.83	23.22
				SHC	12.64	15.71	18.71	14.10	16.89	20.47	15.39	19.41	21.62
				kW	5.90	5.61	5.34	6.07	5.78	5.51	6.16	5.90	5.63
	1.19	2.26	22.06	TC	26.29	23.62	21.33	27.99	25.02	22.56	29.00	26.10	23.45
				SHC	12.72	15.81	19.41	14.20	17.44	20.66	15.49	19.53	21.93
				kW	5.86	5.58	5.30	6.03	5.73	5.48	6.11	5.85	5.59
	1.42	3.05	29.65	TC	26.46	23.75	21.43	28.18	25.17	22.66	29.21	26.27	23.52
				SHC	12.78	15.85	19.46	14.28	17.51	20.71	15.56	19.60	22.17
				kW	5.83	5.56	5.28	6.02	5.72	5.46	6.09	5.83	5.57
23.9	0.95	1.77	17.24	TC	24.41	21.86	19.79	25.77	23.06	20.82	26.65	23.98	21.63
				SHC	11.99	15.01	18.43	13.41	16.66	20.02	14.72	18.78	21.19
				kW	6.27	5.94	5.69	6.43	6.11	5.89	6.54	6.24	5.99
	1.19	2.26	22.06	TC	24.65	22.14	20.00	26.05	23.34	21.06	26.97	24.30	21.88
				SHC	12.09	15.15	19.13	13.53	16.82	20.16	14.85	18.95	21.42
				kW	6.24	5.92	5.68	6.40	6.08	5.88	6.49	6.21	5.98
	1.42	3.05	29.65	TC	24.79	22.25	20.10	26.22	23.49	21.16	27.15	24.43	21.98
				SHC	12.13	15.19	18.62	13.58	16.89	20.26	14.91	18.96	21.48
				kW	6.22	5.90	5.69	6.39	6.06	5.89	6.47	6.19	5.99
1.66	4.33	42.75	TC	24.89	22.34	20.17	26.35	23.59	21.23	27.28	24.58	22.07	
			SHC	12.17	15.23	18.65	13.63	16.91	20.93	14.95	19.02	21.61	
			kW	6.20	5.90	5.68	6.38	6.05	5.87	6.45	6.17	5.97	
29.4	0.95	1.77	17.24	TC	22.62	20.50	18.38	23.75	21.45	19.20	24.45	22.19	20.11
				SHC	11.47	14.43	17.67	12.91	16.13	18.93	14.26	18.03	19.89
				kW	6.68	6.28	6.02	6.82	6.44	6.21	6.93	6.56	6.33
	1.19	2.26	22.06	TC	22.87	20.67	18.60	24.03	21.70	19.41	24.77	22.45	20.35
				SHC	11.58	14.48	17.75	13.04	16.22	19.14	14.38	18.22	20.12
				kW	6.72	6.26	5.99	6.89	6.39	6.18	6.98	6.55	6.31
	1.42	3.05	29.65	TC	23.03	20.78	18.68	24.22	21.84	19.51	24.99	22.62	20.47
				SHC	11.63	14.54	17.76	13.08	16.27	19.18	14.42	18.30	20.16
				kW	6.70	6.25	6.00	6.87	6.41	6.19	6.95	6.53	6.31
1.66	4.33	42.75	TC	23.13	20.87	18.76	24.35	21.95	19.59	25.13	22.74	20.56	
			SHC	11.67	14.58	17.65	13.13	16.31	19.06	14.93	18.34	20.04	
			kW	6.69	6.24	6.01	6.86	6.40	6.19	6.95	6.52	6.32	
35	1.19	2.26	22.06	TC	21.00	19.16	17.12	21.93	19.91	17.88	22.53	20.52	18.79
				SHC	10.92	14.26	16.98	12.37	15.90	17.84	13.69	17.88	18.99
				kW	7.04	6.69	6.33	7.21	6.83	6.51	7.28	6.95	6.65
	1.42	3.05	29.65	TC	21.16	19.28	17.23	22.12	20.06	18.00	22.74	20.69	18.91
				SHC	11.03	14.85	16.99	12.50	16.04	17.91	13.96	18.60	18.99
				kW	7.09	6.74	6.31	7.26	6.88	6.49	7.34	7.00	6.63
	1.66	4.33	42.75	TC	21.27	19.37	17.30	22.25	20.17	18.08	22.88	20.81	19.01
				SHC	10.99	14.98	16.96	12.45	16.10	17.89	13.89	18.70	19.08
				kW	7.04	6.71	6.35	7.21	6.85	6.53	7.28	6.96	6.67

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA508
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					2250/0.19			3000/0.24			3750/0.26		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	15	5.8	2.5	TC	106343	95126	85730	112644	97127	91215	116848	105276	95438
				SHC	51604	61946	72408	57471	68936	83411	62715	79043	89215
				kW	7.71	7.30	6.94	7.94	7.53	7.17	8.10	7.70	7.35
	18.8	7.4	3.2	TC	107419	96117	86377	113968	102101	92094	118313	106459	96392
				SHC	52000	62379	72716	57910	71217	84184	63166	79549	90515
				kW	7.64	7.24	6.89	7.86	7.45	7.12	8.02	7.63	7.29
	22.5	10	4.3	TC	108153	96670	86814	114843	102741	92517	119282	107253	96725
				SHC	52291	62579	72955	58252	71495	84453	63530	79880	91595
				kW	7.59	7.21	6.87	7.84	7.42	7.08	7.96	7.59	7.25
75	15	5.8	2.5	TC	99363	88630	79948	104731	93862	84919	108249	97400	88708
				SHC	48904	59030	71452	54588	67897	81924	59880	76267	87273
				kW	8.12	7.68	7.37	8.35	7.91	7.61	8.50	8.07	7.79
	18.8	7.4	3.2	TC	100474	89844	80852	106000	95105	85947	109704	98851	89815
				SHC	49346	59652	71954	55142	68577	82488	60450	76960	88213
				kW	8.06	7.63	7.35	8.28	7.85	7.59	8.43	8.02	7.76
	22.5	10	4.3	TC	101129	90341	81261	106744	95733	86339	110539	99486	90269
				SHC	49574	59839	72236	55385	68863	82888	60716	77155	88579
				kW	8.03	7.60	7.37	8.26	7.82	7.61	8.39	7.98	7.77
26.3	14.2	6.2	TC	101624	90767	81591	107332	96202	86688	111200	100078	90690	
			SHC	49778	60028	72383	55592	68990	83117	60931	77387	88984	
			kW	8.00	7.59	7.35	8.23	7.80	7.58	8.35	7.96	7.74	
85	15	5.8	2.5	TC	91959	82851	74103	96281	87065	78275	99136	89903	82633
				SHC	46741	56690	68663	52466	65588	77944	57847	73181	81855
				kW	8.59	8.05	7.76	8.81	8.27	8.00	8.96	8.43	8.21
	18.8	7.4	3.2	TC	93054	83713	75020	97592	88176	79181	100592	91102	83700
				SHC	47240	57037	69000	53039	66020	78794	58420	73995	82816
				kW	8.62	8.01	7.72	8.86	8.24	7.95	8.98	8.38	8.16
	22.5	10	4.3	TC	93780	84223	75378	98456	88839	79604	101556	91869	84211
				SHC	47453	57262	69040	53257	66280	78979	58649	74374	83029
				kW	8.58	7.99	7.73	8.81	8.21	7.95	8.93	8.36	8.16
26.3	14.2	6.2	TC	94240	84612	75727	99025	89328	79951	102218	92400	84619	
			SHC	47646	57423	68593	53494	66457	78536	58909	74585	82604	
			kW	8.56	7.97	7.74	8.80	8.19	7.95	8.91	8.34	8.16	
95	18.8	7.4	3.2	TC	85143	77358	68952	88856	80744	72872	91173	83093	77270
				SHC	44394	55937	66146	50273	64659	73466	55619	72564	79144
				kW	8.99	8.52	8.13	9.22	8.71	8.37	9.32	8.86	8.60
	22.5	10	4.3	TC	85860	77877	69385	89709	81420	73370	92114	83837	77772
				SHC	44751	56279	66227	50675	65235	73814	56060	72994	79272
				kW	9.04	8.58	8.11	9.28	8.77	8.34	9.37	8.92	8.55
	26.3	14.2	6.2	TC	86352	78286	69721	90305	81887	73726	92760	84348	78209
				SHC	44725	56497	66106	50644	65493	73753	56000	73302	79692
				kW	8.97	8.54	8.16	9.20	8.72	8.38	9.30	8.87	8.60

LEGEND

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- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA508
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					3823/0.19			5098/0.24			6372/0.26		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	0.95	1.77	17.24	TC	31.17	27.88	25.12	33.01	28.47	26.73	34.24	30.85	27.97
				SHC	15.12	18.15	21.22	16.84	20.20	24.45	18.38	23.17	26.15
				kW	7.71	7.30	6.94	7.94	7.53	7.17	8.10	7.70	7.35
	1.19	2.26	22.06	TC	31.48	28.17	25.31	33.40	29.92	26.99	34.67	31.20	28.25
				SHC	15.24	18.28	21.31	16.97	20.87	24.67	18.51	23.31	26.53
				kW	7.64	7.24	6.89	7.86	7.45	7.12	8.02	7.63	7.29
	1.42	3.05	29.65	TC	31.70	28.33	25.44	33.66	30.11	27.11	34.96	31.43	28.35
				SHC	15.32	18.34	21.38	17.07	20.95	24.75	18.62	23.41	26.84
				kW	7.59	7.21	6.87	7.84	7.42	7.08	7.96	7.59	7.25
23.9	0.95	1.77	17.24	TC	29.12	25.97	23.43	30.69	27.51	24.89	31.72	28.55	26.00
				SHC	14.33	17.30	20.94	16.00	19.90	24.01	17.55	22.35	25.58
				kW	8.12	7.68	7.37	8.35	7.91	7.61	8.50	8.07	7.79
	1.19	2.26	22.06	TC	29.45	26.33	23.70	31.07	27.87	25.19	32.15	28.97	26.32
				SHC	14.46	17.48	21.09	16.16	20.10	24.17	17.72	22.55	25.85
				kW	8.06	7.63	7.35	8.28	7.85	7.59	8.43	8.02	7.76
	1.42	3.05	29.65	TC	29.64	26.48	23.82	31.28	28.06	25.30	32.40	29.16	26.46
				SHC	14.53	17.54	21.17	16.23	20.18	24.29	17.79	22.61	25.96
				kW	8.03	7.60	7.37	8.26	7.82	7.61	8.39	7.98	7.77
1.66	4.33	42.75	TC	29.78	26.60	23.91	31.46	28.19	25.41	32.59	29.33	26.58	
			SHC	14.59	17.59	21.21	16.29	20.22	24.36	17.86	22.68	26.08	
			kW	8.00	7.59	7.35	8.23	7.80	7.58	8.35	7.96	7.74	
29.4	0.95	1.77	17.24	TC	26.95	24.28	21.72	28.22	25.52	22.94	29.05	26.35	24.22
				SHC	13.70	16.61	20.12	15.38	19.22	22.84	16.95	21.45	23.99
				kW	8.59	8.05	7.76	8.81	8.27	8.00	8.96	8.43	8.21
	1.19	2.26	22.06	TC	27.27	24.53	21.99	28.60	25.84	23.21	29.48	26.70	24.53
				SHC	13.84	16.72	20.22	15.54	19.35	23.09	17.12	21.69	24.27
				kW	8.62	8.01	7.72	8.86	8.24	7.95	8.98	8.38	8.16
	1.42	3.05	29.65	TC	27.48	24.68	22.09	28.85	26.04	23.33	29.76	26.92	24.68
				SHC	13.91	16.78	20.23	15.61	19.42	23.15	17.19	21.80	24.33
				kW	8.58	7.99	7.73	8.81	8.21	7.95	8.93	8.36	8.16
1.66	4.33	42.75	TC	27.62	24.80	22.19	29.02	26.18	23.43	29.96	27.08	24.80	
			SHC	13.96	16.83	20.10	15.68	19.48	23.02	17.26	21.86	24.21	
			kW	8.56	7.97	7.74	8.80	8.19	7.95	8.91	8.34	8.16	
35	1.19	2.26	22.06	TC	24.95	22.67	20.21	26.04	23.66	21.36	26.72	24.35	22.65
				SHC	13.01	16.39	19.39	14.73	18.95	21.53	16.30	21.27	23.19
				kW	8.99	8.52	8.13	9.22	8.71	8.37	9.32	8.86	8.60
	1.42	3.05	29.65	TC	25.16	22.82	20.33	26.29	23.86	21.50	27.00	24.57	22.79
				SHC	13.12	16.49	19.41	14.85	19.12	21.63	16.43	21.39	23.23
				kW	9.04	8.58	8.11	9.28	8.77	8.34	9.37	8.92	8.55
	1.66	4.33	42.75	TC	25.31	22.94	20.43	26.47	24.00	21.61	27.19	24.72	22.92
				SHC	13.11	16.56	19.37	14.84	19.19	21.61	16.41	21.48	23.36
				kW	8.97	8.54	8.16	9.20	8.72	8.38	9.30	8.87	8.60

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA512
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					2500/0.14			3300/0.17			4170/0.21		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	114434	104062	94790	121057	109621	99791	124823	113803	102940
				SHC	57035	71385	84432	63567	78409	92395	69143	87409	96171
	kW	8.50	8.03	7.61	8.78	8.32	7.89	8.96	8.52	8.06			
	25	7.5	3.1	TC	115353	105004	95173	122221	110584	100561	126090	114956	103803
				SHC	57377	71634	87524	63978	78812	92978	69565	87956	97491
	kW	8.46	8.00	7.49	8.75	8.28	7.85	8.91	8.48	8.02			
30	10.5	4.4	TC	115991	105573	95763	122942	111234	101010	126901	115640	104094	
			SHC	57629	71880	87839	64227	79070	93284	69872	88188	98589	
kW	8.44	7.99	7.52	8.76	8.27	7.83	8.89	8.46	8.00				
75	20	4.9	2.1	TC	107331	97287	88418	112998	101911	92793	116414	105364	96331
				SHC	54225	68043	83260	60658	75199	90139	66345	83795	94612
	kW	8.92	8.41	8.00	9.18	8.68	8.32	9.36	8.87	8.50			
	25	7.3	3.1	TC	108301	98443	89358	114175	103223	93869	117575	106781	97383
				SHC	54603	68678	86304	61130	75989	90642	66778	84571	95388
	kW	8.89	8.40	8.00	9.16	8.66	8.33	9.32	8.85	8.50			
30	10.3	4.4	TC	108915	98935	89819	114831	103832	94299	118396	107352	97831	
			SHC	54809	68856	84010	61330	76220	91143	67094	84553	95785	
kW	8.87	8.39	8.03	9.18	8.65	8.36	9.31	8.83	8.53				
35	13.6	5.7	TC	109330	99371	90097	115361	104323	94677	118890	107977	98225	
			SHC	54966	69055	84131	61509	76365	94184	67213	84901	96268	
kW	8.86	8.38	8.02	9.16	8.65	8.34	9.29	8.83	8.51				
85	20	4.9	2.1	TC	99346	90683	81760	104194	94517	84979	106962	97481	89286
				SHC	51835	65213	79274	58387	72659	84483	64254	80847	88679
	kW	9.39	8.79	8.39	9.64	9.04	8.68	9.81	9.23	8.90			
	25	7.3	3.1	TC	100403	91510	82720	105418	95599	86044	108219	98568	90461
				SHC	52266	65479	80076	58888	73056	85560	64710	81199	89612
	kW	9.48	8.79	8.36	9.76	8.99	8.65	9.89	9.23	8.88			
30	10.3	4.4	TC	101122	92079	83125	106193	96263	86567	109160	99350	90989	
			SHC	52485	65785	80004	59059	73308	85865	64943	81593	89831	
kW	9.45	8.78	8.38	9.74	9.03	8.68	9.87	9.22	8.90				
35	13.6	5.7	TC	101586	92485	83513	106793	96750	87007	109706	99843	91402	
			SHC	52690	65962	79559	59327	73489	85364	67192	81750	89260	
kW	9.45	8.78	8.41	9.74	9.03	8.70	9.88	9.21	8.92				
95	25	7.3	3.1	TC	92060	84196	75592	95844	87242	78734	98242	89924	82888
				SHC	49289	64131	76168	55718	71069	79100	61553	79787	83789
	kW	9.83	9.28	8.73	10.09	9.50	9.01	10.21	9.70	9.25			
	30	10.3	4.4	TC	92761	84807	76076	96695	87956	79225	99186	90692	83451
				SHC	49819	66875	76203	56327	71650	79313	62760	83070	84104
	kW	9.92	9.37	8.72	10.18	9.59	8.99	10.31	9.78	9.23			
35	13.6	5.7	TC	93276	85210	76475	97289	88445	79593	99806	91214	83897	
			SHC	49629	67428	76086	56099	71885	79201	62496	83471	84191	
kW	9.85	9.33	8.78	10.11	9.55	9.05	10.24	9.74	9.30				

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°F)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Btuh)
TC — Total Capacity (Btuh), Gross
Ewt — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA512
R-404A 50Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					3823/0.14			5659/0.17			7078/0.21		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	1.26	1.52	14.48	TC	33.54	30.50	27.78	35.48	32.13	29.25	36.58	33.35	30.17
				SHC	16.72	20.92	24.74	18.63	22.98	27.08	20.26	25.62	28.18
				kW	8.50	8.03	7.61	8.78	8.32	7.89	8.96	8.52	8.06
	1.58	2.29	21.37	TC	33.81	30.77	27.89	35.82	32.41	29.47	36.95	33.69	30.42
				SHC	16.82	20.99	25.65	18.75	23.10	27.25	20.39	25.78	28.57
				kW	8.46	8.00	7.49	8.75	8.28	7.85	8.91	8.48	8.02
	1.89	3.20	30.34	TC	33.99	30.94	28.07	36.03	32.60	29.60	37.19	33.89	30.51
				SHC	16.89	21.07	25.74	18.82	23.17	27.34	20.48	25.85	28.89
				kW	8.44	7.99	7.52	8.76	8.27	7.83	8.89	8.46	8.00
23.9	1.26	1.49	14.48	TC	31.46	28.51	25.91	33.12	29.87	27.20	34.12	30.88	28.23
				SHC	15.89	19.94	24.40	17.78	22.04	26.42	19.44	24.56	27.73
				kW	8.92	8.41	8.00	9.18	8.68	8.32	9.36	8.87	8.50
	1.58	2.23	21.37	TC	31.74	28.85	26.19	33.46	30.25	27.51	34.46	31.29	28.54
				SHC	16.00	20.13	25.29	17.92	22.27	26.56	19.57	24.79	27.96
				kW	8.89	8.40	8.00	9.16	8.66	8.33	9.32	8.85	8.50
	1.89	3.14	30.34	TC	31.92	28.99	26.32	33.65	30.43	27.64	34.70	31.46	28.67
				SHC	16.06	20.18	24.62	17.97	22.34	26.71	19.66	24.78	28.07
				kW	8.87	8.39	8.03	9.18	8.65	8.36	9.31	8.83	8.53
2.21	4.15	39.30	TC	32.04	29.12	26.40	33.81	30.57	27.75	34.84	31.64	28.79	
			SHC	16.11	20.24	24.66	18.03	22.38	27.60	19.70	24.88	28.21	
			kW	8.86	8.38	8.02	9.16	8.65	8.34	9.29	8.83	8.51	
29.4	1.26	1.49	14.48	TC	29.12	26.58	23.96	30.54	27.70	24.90	31.35	28.57	26.17
				SHC	15.19	19.11	23.23	17.11	21.29	24.76	18.83	23.69	25.99
				kW	9.39	8.79	8.39	9.64	9.04	8.68	9.81	9.23	8.90
	1.58	2.23	21.37	TC	29.43	26.82	24.24	30.89	28.02	25.22	31.72	28.89	26.51
				SHC	15.32	19.19	23.47	17.26	21.41	25.08	18.96	23.80	26.26
				kW	9.48	8.79	8.36	9.76	8.99	8.65	9.89	9.23	8.88
	1.89	3.14	30.34	TC	29.64	26.99	24.36	31.12	28.21	25.37	31.99	29.12	26.67
				SHC	15.38	19.28	23.45	17.31	21.48	25.16	19.03	23.91	26.33
				kW	9.45	8.78	8.38	9.74	9.03	8.68	9.87	9.22	8.90
2.21	4.15	39.30	TC	29.77	27.10	24.48	31.30	28.35	25.50	32.15	29.26	26.79	
			SHC	15.44	19.33	23.32	17.39	21.54	25.02	19.69	23.96	26.16	
			kW	9.45	8.78	8.41	9.74	9.03	8.70	9.88	9.21	8.92	
35	1.58	2.23	21.37	TC	26.98	24.68	22.15	28.09	25.57	23.07	28.79	26.35	24.29
				SHC	14.45	18.79	22.32	16.33	20.83	23.18	18.04	23.38	24.56
				kW	9.83	9.28	8.73	10.09	9.50	9.01	10.21	9.70	9.25
	1.89	3.14	30.34	TC	27.19	24.85	22.30	28.34	25.78	23.22	29.07	26.58	24.46
				SHC	14.60	19.60	22.33	16.51	21.00	23.24	18.39	24.35	24.65
				kW	9.92	9.37	8.72	10.18	9.59	8.99	10.31	9.78	9.23
	2.21	4.15	39.30	TC	27.34	24.97	22.41	28.51	25.92	23.33	29.25	26.73	24.59
				SHC	14.54	19.76	22.30	16.44	21.07	23.21	18.32	24.46	24.67
				kW	9.85	9.33	8.78	10.11	9.55	9.05	10.24	9.74	9.30

LEGEND
BF — Bypass Factor
Ewb — Entering Wet Bulb (°C)
kW — Compressor Motor Power Input (Kilowatts)
SHC — Sensible Heat Capacity (Kilowatts)
TC — Total Capacity (Kilowatts), Gross
Ewt — Entering Water Temperature (°C)

PERFORMANCE DATA — ENGLISH
90MA512
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°F)	GPM	Pressure Drop			Evaporator Airflow - CFM/BF								
					3000/0.14			4000/0.19			5000/0.22		
		ft	psig		Evaporator Air Ewb (°F)								
					72	67	62	72	67	62	72	67	62
65	20	5	2.1	TC	136826	123982	112423	144332	130991	119311	149077	135924	123995
				SHC	68265	82467	95755	75918	93808	110359	82582	104316	116297
				kW	11.10	10.45	9.89	11.48	10.83	10.26	11.77	11.13	10.52
	25	7.5	3.1	TC	138106	125213	112944	145870	132241	120290	150756	137435	125049
				SHC	68758	82824	96110	76446	94297	111059	83146	104998	117935
				kW	11.03	10.40	9.73	11.42	10.77	10.20	11.68	11.06	10.46
	30	10.5	4.4	TC	138966	125962	113677	146842	133091	120880	151851	138363	125449
				SHC	69106	83155	96493	76800	94644	111504	83587	105348	119396
				kW	10.98	10.37	9.77	11.41	10.73	10.17	11.64	11.02	10.42
75	20	4.9	2.1	TC	128053	115597	104684	134563	121587	110897	138577	125438	115794
				SHC	64805	78443	94602	72371	89825	108101	79077	99721	114207
				kW	11.54	10.87	10.37	11.92	11.23	10.76	12.17	11.47	11.05
	25	7.3	3.1	TC	129370	117085	105855	136133	123248	112253	140162	127297	117135
				SHC	65328	79256	95143	73011	90785	108695	79650	100650	115116
				kW	11.49	10.83	10.36	11.86	11.19	10.75	12.10	11.44	11.04
	30	10.3	4.4	TC	130188	117750	106443	137015	124031	112788	141251	128101	117774
				SHC	65626	79510	95538	73292	91079	109301	80064	100847	115753
				kW	11.45	10.80	10.39	11.86	11.16	10.78	12.06	11.40	11.07
35	13.6	5.7	TC	130804	118327	106808	137707	124699	113302	142011	128868	118269	
			SHC	65875	79762	95688	73533	91322	109600	80309	101214	116184	
			kW	11.43	10.79	10.36	11.83	11.14	10.76	12.03	11.38	11.03	
85	20	4.9	2.1	TC	118345	107403	96590	123808	112452	101553	127083	115764	107534
				SHC	61898	75089	90279	69556	86583	101924	76393	96158	106947
				kW	12.08	11.28	10.82	12.45	11.62	11.17	12.67	11.86	11.54
	25	7.3	3.1	TC	119743	108617	97802	125455	113867	102866	128781	117209	109032
				SHC	62471	75576	91207	70210	87155	103209	77064	96666	108103
				kW	12.15	11.25	10.77	12.56	11.59	11.13	12.74	11.82	11.49
	30	10.3	4.4	TC	120700	109371	98326	126501	114742	103527	130013	118232	109707
				SHC	62781	75905	91123	70485	87500	103647	77410	97184	108447
				kW	12.10	11.23	10.79	12.50	11.56	11.15	12.68	11.80	11.50
35	13.6	5.7	TC	121312	109892	98803	127255	115382	104078	130793	118885	110238	
			SHC	63053	76119	90612	70811	87744	103076	77710	97424	107835	
			kW	12.10	11.21	10.82	12.50	11.55	11.17	12.67	11.78	11.51	
95	25	7.3	3.1	TC	109397	99616	89201	113826	103687	94024	116511	106727	99873
				SHC	58750	73740	86953	66359	84711	95484	73266	94898	102350
				kW	12.55	11.82	11.23	12.91	12.12	11.59	13.07	12.37	11.96
	30	10.3	4.4	TC	110330	100405	89810	114942	104603	94642	117743	107709	100582
				SHC	59227	74276	87044	66905	85385	95793	73886	95530	102895
				kW	12.64	11.92	11.21	13.01	12.22	11.56	13.17	12.47	11.92
	35	13.6	5.7	TC	111003	100938	90310	115714	105245	95104	118590	108377	101140
				SHC	59218	74539	86912	66877	85718	95702	73840	95901	103058
				kW	12.55	11.87	11.28	12.92	12.16	11.63	13.08	12.41	11.99

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°F)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Btuh)
- TC** — Total Capacity (Btuh), Gross
- Ewt** — Entering Water Temperature (°F)

PERFORMANCE DATA — SI
90MA512
R-404A 60Hz



GROSS COOLING CAPACITIES

Ewt (°C)	L/s	Pressure Drop			Evaporator Airflow - M3/Hr / BF								
					5098/0.14			6797/0.19			8496/0.22		
		m	KPa		Evaporator Air Ewb (°C)								
					22.2	19.4	16.7	22.2	19.4	16.7	22.2	19.4	16.7
18.3	1.26	1.52	14.48	TC	40.10	36.34	32.95	42.30	38.39	34.97	43.69	39.84	36.34
				SHC	20.01	24.17	28.06	22.25	27.49	32.34	24.20	30.57	34.08
				kW	11.10	10.45	9.89	11.48	10.83	10.26	11.77	11.13	10.52
	1.58	2.29	21.37	TC	40.47	36.70	33.10	42.75	38.76	35.25	44.18	40.28	36.65
				SHC	20.15	24.27	28.17	22.40	27.64	32.55	24.37	30.77	34.56
				kW	11.03	10.40	9.73	11.42	10.77	10.20	11.68	11.06	10.46
	1.89	3.20	30.34	TC	40.73	36.92	33.32	43.04	39.01	35.43	44.50	40.55	36.77
				SHC	20.25	24.37	28.28	22.51	27.74	32.68	24.50	30.87	34.99
				kW	10.98	10.37	9.77	11.41	10.73	10.17	11.64	11.02	10.42
23.9	1.26	1.49	14.48	TC	37.53	33.88	30.68	39.44	35.63	32.50	40.61	36.76	33.94
				SHC	18.99	22.99	27.73	21.21	26.33	31.68	23.18	29.23	33.47
				kW	11.54	10.87	10.37	11.92	11.23	10.76	12.17	11.47	11.05
	1.58	2.23	21.37	TC	37.91	34.31	31.02	39.90	36.12	32.90	41.08	37.31	34.33
				SHC	19.15	23.23	27.88	21.40	26.61	31.86	23.34	29.50	33.74
				kW	11.49	10.83	10.36	11.86	11.19	10.75	12.10	11.44	11.04
	1.89	3.14	30.34	TC	38.15	34.51	31.20	40.16	36.35	33.05	41.40	37.54	34.52
				SHC	19.23	23.30	28.00	21.48	26.69	32.03	23.46	29.56	33.92
				kW	11.45	10.80	10.39	11.86	11.16	10.78	12.06	11.40	11.07
	2.21	4.15	39.30	TC	38.33	34.68	31.30	40.36	36.55	33.21	41.62	37.77	34.66
				SHC	19.31	23.38	28.04	21.55	26.76	32.12	23.54	29.66	34.05
				kW	11.43	10.79	10.36	11.83	11.14	10.76	12.03	11.38	11.03
29.4	1.26	1.49	14.48	TC	34.68	31.48	28.31	36.28	32.96	29.76	37.24	33.93	31.52
				SHC	18.14	22.01	26.46	20.38	25.37	29.87	22.39	28.18	31.34
				kW	12.08	11.28	10.82	12.45	11.62	11.17	12.67	11.86	11.54
	1.58	2.23	21.37	TC	35.09	31.83	28.66	36.77	33.37	30.15	37.74	34.35	31.95
				SHC	18.31	22.15	26.73	20.58	25.54	30.25	22.59	28.33	31.68
				kW	12.15	11.25	10.77	12.56	11.59	11.13	12.74	11.82	11.49
	1.89	3.14	30.34	TC	35.37	32.05	28.82	37.07	33.63	30.34	38.10	34.65	32.15
				SHC	18.40	22.25	26.71	20.66	25.64	30.38	22.69	28.48	31.78
				kW	12.10	11.23	10.79	12.50	11.56	11.15	12.68	11.80	11.50
	2.21	4.15	39.30	TC	35.55	32.21	28.96	37.29	33.82	30.50	38.33	34.84	32.31
				SHC	18.48	22.31	26.56	20.75	25.72	30.21	22.77	28.55	31.60
				kW	12.10	11.21	10.82	12.50	11.55	11.17	12.67	11.78	11.51
35	1.58	2.23	21.37	TC	32.06	29.19	26.14	33.36	30.39	27.56	34.15	31.28	29.27
				SHC	17.22	21.61	25.48	19.45	24.83	27.98	21.47	27.81	30.00
				kW	12.55	11.82	11.23	12.91	12.12	11.59	13.07	12.37	11.96
	1.89	3.14	30.34	TC	32.33	29.43	26.32	33.69	30.66	27.74	34.51	31.57	29.48
				SHC	17.36	21.77	25.51	19.61	25.02	28.07	21.65	28.00	30.16
				kW	12.64	11.92	11.21	13.01	12.22	11.56	13.17	12.47	11.92
	2.21	4.15	39.30	TC	32.53	29.58	26.47	33.91	30.84	27.87	34.76	31.76	29.64
				SHC	17.35	21.85	25.47	19.60	25.12	28.05	21.64	28.11	30.20
				kW	12.55	11.87	11.28	12.92	12.16	11.63	13.08	12.41	11.99

LEGEND

- BF** — Bypass Factor
- Ewb** — Entering Wet Bulb (°C)
- kW** — Compressor Motor Power Input (Kilowatts)
- SHC** — Sensible Heat Capacity (Kilowatts)
- TC** — Total Capacity (Kilowatts), Gross
- Ewt** — Entering Water Temperature (°C)

SHC Correction Table — ENGLISH Units

SHC is based on 80°F db temperature of air entering the coil.
 Below 80°F db, subtract (corr. factor/1000) x m³/h airflow from SHC.
 Above 80°F db, add (corr. x cfm) to SHC.

ENTERING AIR DRY BULB TEMPERATURE (°F)						
BYPASS	79	78	77	76	75	under 75
FACTOR	81	82	83	84	85	over 85
(BF)	Correction Factor					
0.05	1.05	2.09	3.14	4.18	5.23	use
0.10	0.99	1.98	2.97	3.96	4.95	formula
0.20	0.88	1.76	2.64	3.52	4.40	shown
0.30	0.77	1.54	2.31	3.08	3.85	below
0.35	0.72	1.43	2.15	2.86	3.58	

LEGEND

SHC — SENSIBLE HEAT CAPACITY

Correction Factor = 0.33 x (1-BF) x (db - 80).

The following formulas may be used:

ldb = edb - sensible capacity (Btuh) / 1.10 x cfm

lwb = wet bulb temperature corresponding to enthalpy of air leaving evaporator coil (h lwb)

h lwb = h ewb - (total capacity (Btuh) / 4.5 x cfm)

h ewb = enthalpy of air entering evaporator coil

PLENUM AIR DISTRIBUTION — ENGLISH

UNIT SIZE	NOM CFM	OUTLET		Vertical Vane Setting	Length Blow (ft)*	Minimum Ceiling Ht. (ft)**
		CFM (each)	Location			
04	1200	1200	Front Only	Straight	45	10
				22.5 deg.	40	9
				45 deg.	35	9
06	2000	2000	Front Only	Straight	50	14
				22.5 deg.	44	13
				45 deg.	40	12
08	3000	3000	Front Only	Straight	80	17
				22.5 deg.	67	15
				45 deg.	49	14
12	4000	4000	Front Only	Straight	93	20
				22.5 deg.	78	17
				45 deg.	57	16

* Two side outlet grilles may be installed in plenum to reduce length of blow if excessive.

** Supply air duct must be used when ceiling height is less than values given.

SHC Correction Table — SI Units

SHC is based on 26.7°C db temperature of air entering the coil.
 Below 26.7°C db, subtract (corr. factor/1000) x m³/h airflow from SHC.
 Above 26.7°C db, add (corr. factor/1000) x m³/h airflow to SHC.

ENTERING AIR DRY BULB TEMPERATURE (°C)						
BYPASS	26.1	25.6	25.0	24.4	23.9	under 23.9
FACTOR	27.2	27.8	28.3	28.9	29.4	over 29.4
(BF)	Correction Factor					
0.05	0.1568	0.3449	0.5016	0.6897	0.8465	use
0.10	0.1485	0.3267	0.4752	0.6534	0.8019	formula
0.20	0.1320	0.2904	0.4224	0.5808	0.7128	shown
0.30	0.1155	0.2541	0.3696	0.5082	0.6237	below
0.35	0.1073	0.2360	0.3432	0.4719	0.5792	

LEGEND

SHC — SENSIBLE HEAT CAPACITY

$$\text{Correction Factor} = 0.33 \times (1 - \text{BF}) \times (\text{db} - 26.7)$$

The following formulas may be used:

$$\text{ldb} = \text{edb} - \text{sensible capacity (kW)} / 0.00033 \times \text{m}^3/\text{h}$$

$$\text{lwb} = \text{wet bulb temperature corresponding to enthalpy of air leaving evaporator coil (h lwb)}$$

$$\text{h lwb} = \text{h ewb} - (\text{total capacity (kW)} / 0.00033 \times \text{m}^3/\text{h})$$

$$\text{h ewb} = \text{enthalpy of air entering evaporator coil}$$

PLENUM AIR DISTRIBUTION — SI

UNIT SIZE	NOM m ³ /h	OUTLET		Vertical Vane Setting	Length Blow (m)*	Minimum Ceiling Ht. (m)**
		m ³ /h (each)	Location			
04	2040	2040	Front Only	Straight	13.7	3
				22.5 deg.	12.2	2.7
				45 deg.	22.9	2.7
06	3400	3400	Front Only	Straight	15.2	4.3
				22.5 deg.	13.4	4
				45 deg.	12.2	3.7
08	5100	5100	Front Only	Straight	24.4	5.2
				22.5 deg.	20.4	4.6
				45 deg.	14.9	4.3
12	6800	6800	Front Only	Straight	28.3	6.1
				22.5 deg.	23.8	5.2
				45 deg.	17.4	4.9

* Two side outlet grilles may be installed in plenum to reduce length of blow if excessive.

** Supply air duct must be used when ceiling height is less than values given.



EVAPORATOR FAN PERFORMANCE — ENGLISH

UNIT SIZE	CFM	EXTERNAL STATIC PRESSURE (in. wg)																	
		0.0		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
004	900	<u>352</u>	0.04	<u>575</u>	0.09	721	0.15	800	0.16	<u>960</u>	0.25	<u>1030</u>	0.29						
	1200	<u>482</u>	0.11	<u>622</u>	0.16	757	0.23	930	0.32	<u>1030</u>	<u>0.39</u>								
	1500	<u>596</u>	0.21	705	0.27	<u>821</u>	<u>0.35</u>	<u>927</u>	<u>0.43</u>										
006	1500	<u>326</u>	0.09	<u>467</u>	0.15	<u>600</u>	0.23	700	0.28	800	0.37	900	.49	1000	.58	<u>1090</u>	.65	<u>1150</u>	.76
	2000	<u>446</u>	0.22	<u>554</u>	0.3	654	0.39	744	.48	830	.54	890	.58	<u>920</u>	<u>.77</u>				
	2500	<u>552</u>	.42	<u>637</u>	.51	725	.62	804	.74										
008	1800	<u>233</u>	.07	<u>366</u>	.14	<u>475</u>	.21	575	.31	650	.43	610	.52	680	.7	<u>710</u>	.76	<u>760</u>	.9
	2250	<u>318</u>	.16	<u>426</u>	.25	515	.34	600	.45	685	.58	<u>750</u>	.7	<u>805</u>	.83	<u>880</u>	.93	<u>920</u>	1.2
	3000	<u>354</u>	.29	<u>444</u>	.39	527	.51	599	.64	665	.77	<u>715</u>	.88	<u>795</u>	1.05	<u>845</u>	1.25	<u>900</u>	1.4
	3750	<u>438</u>	.56	509	.68	581	.82	647	.97	<u>706</u>	1.12	<u>762</u>	1.28	<u>816</u>	1.45	<u>1079</u>	1.72	<u>920</u>	1.9
012	2000	<u>243</u>	.09	<u>370</u>	.17	<u>471</u>	.25	<u>503</u>	.36	647	.47	710	.58	795	.73	<u>855</u>	.8	<u>905</u>	.95
	3000	<u>354</u>	.29	<u>444</u>	.39	<u>527</u>	.51	599	.64	665	.77	715	.88	795	1.05	<u>845</u>	1.25	<u>900</u>	1.4
	4000	<u>455</u>	.65	<u>519</u>	.78	588	.92	652	1.08	711	1.24	766	1.4	818	1.57	<u>868</u>	1.75	<u>917</u>	1.93
	5000	<u>542</u>	1.2	595	1.3	640	1.5	698	1.7	750	1.8	<u>800</u>	2.05						

LEGEND

Bhp — Brake Horsepower

NOTES:

1. Shaded values indicate field-supplied alternate fan motor is required for cooling. Do not exceed nominal horsepower when heating coil is applied.
2. Underlined values indicate other than standard drive is required.
3. Fan performance is based on wet coil, clean filters, and deducted casing losses.
4. Maximum fan speed is 1250 rpm.
5. Fan motor Bhp is based on minimum voltages and 70°F air across motor.

AVERAGE EFFICIENCIES AT FULL LOAD

kW = (Bhp x .746)/Motor Efficiency

- 1 Hp = 80%
- 1/3 Hp = 60%
- 3/4 Hp = 60%
- 1 1/2 Hp = 83%
- 2 Hp = 81%
- 3 Hp = 82%

STANDARD FAN MOTORS AND DRIVES

UNIT SIZE	Hp	Fan Motor			Fan	
		NEMA Frame Size	RPM	PDR (in.)	PPD (in.)	FSR (RPM)
04	1/3	48*	1725	2.4-3.4	6.4	647-915
06	3/4	56	1725	2.4-3.4	6.4	647-915
08	1	56	1725	2.4-3.4	8.5	487-690
12	2	56**	1725	2.4-3.4	7	591-838

LEGEND

FSR — Fans Speed Range

NEMA — National Electrical Manufacturing Association

PDR — Pitch Diameter Range (in.) of adjustable motor pulley

PPD — Pulley Pitch Diameter Range (in.)

* Motor mounting brackets are not interchangeable. When replacing 48-frame motor with 56-frame motor, use 56-frame motor mounting bracket. Alternate fan motors and drives are field-supplied.

** Special 56-frame motor interchangeable with 145T.

EVAPORATOR FAN PERFORMANCE — SI

UNIT SIZE	m ³ /h	EXTERNAL STATIC PRESSURE (Pa)																	
		0.0		50.0		100.0		149.1		199.1		249.1		299.1		251.0		398.1	
		Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW	Rpm	kW
004	1530	<u>352</u>	.03	575	.067	721	.112	800	.119	960	.187	1030	.216						
	2038	<u>482</u>	.08	<u>622</u>	.119	757	.172	930	.239	<u>1030</u>	.291								
	2549	<u>596</u>	.157	705	.201	<u>821</u>	.261	<u>927</u>	.321										
006	2549	<u>326</u>	.067	<u>467</u>	.112	600	.172	700	.209	800	.276	900	.366	1000	.433	1090	.485	<u>1150</u>	.567
	3402	<u>446</u>	.164	<u>554</u>	.224	654	.291	744	.358	830	.401	890	.433	<u>920</u>	.574				
	4248	<u>552</u>	.313	<u>637</u>	.38	725	.463	804	.552										
008	3060	<u>233</u>	.052	<u>366</u>	.104	<u>475</u>	.157	575	.231	650	.321	610	.388	680	.522	710	.567	<u>760</u>	.671
	3823	<u>318</u>	.119	<u>426</u>	.187	515	.254	600	.336	685	.433	<u>750</u>	.522	<u>805</u>	.619	<u>880</u>	.694	<u>920</u>	.895
	5098	<u>354</u>	.216	<u>444</u>	.291	527	.380	599	.477	665	.574	715	.656	<u>795</u>	.783	<u>845</u>	.933	900	1.044
	6372	<u>438</u>	.418	509	.507	581	.612	647	.724	<u>706</u>	.836	<u>762</u>	.955	<u>816</u>	1.082	1079	1.283	<u>920</u>	1.417
012	3398	<u>243</u>	.076	<u>370</u>	.127	<u>471</u>	.187	<u>503</u>	.269	647	.351	710	.433	795	.545	<u>855</u>	.597	<u>905</u>	.709
	5098	<u>354</u>	.216	<u>444</u>	.291	<u>527</u>	.380	599	.477	665	.574	715	.656	795	.783	<u>845</u>	.933	<u>900</u>	1.044
	6797	<u>455</u>	.485	<u>519</u>	.582	588	.686	652	.806	711	.925	766	1.044	818	1.171	<u>868</u>	1.306	<u>917</u>	1.440
	8496	<u>542</u>	.895	595	.970	640	1.119	698	1.268	750	1.343	800	1.529						

LEGEND
kW — Fan Motor Power

NOTES:

- Shaded values indicate field-supplied alternate fan motor is required for cooling. Do not exceed kW when heating coil is applied.
- Underlined values indicate other than standard drive is required (table is for 60HZ power, refer to FSR for 50HZ to determine if a special drive is required).
- Fan performance is based on wet coil, clean filters, and deducted casing losses.
- Maximum fan speed is 1250 rpm.
- Fan motor power is based on minimum voltages and 21°C air across motor.

AVERAGE EFFICIENCIES AT FULL LOAD

kW = kW/Motor Efficiency
.75 kW = 80%

- .25 kW = 60%
- .56 kW = 60%
- 1.1 kW = 83%
- 1.5 kW = 81%
- 2.25 kW = 82%

STANDARD FAN MOTORS AND DRIVES

UNIT SIZE	kW	Fan Motor			Fan	
		NEMA Frame Size	RPM (60/50HZ)	PDR (mm)	PPD (mm)	FSR (RPM) 60/50HZ
04	.187	48*	1725/1425	61-86	163	647-915 / 428-757
06	.418	56	1725/1425	61-86	163	647-915 / 428-757
08	.560	56	1725/1425	61-86	216	487-690 / 402-570
12	1.12	56**	1725/1425	61-86	178	591-838 / 488-692

LEGEND
FSR — Fans Speed Range
NEMA — National Electrical Manufacturing Association
PDR — Pitch Diameter Range (in.) of adjustable motor pulley
PPD — Pulley Pitch Diameter Range (in.)

* Motor mounting brackets are not interchangeable. When replacing 48-frame motor with 56-frame motor, use 56-frame motor mounting bracket.
Alternate fan motors and drives are field-supplied.
** Special 56-frame motor interchangeable with 145T.

90MA/MU ELECTRICAL DATA – ENGLISH

SIZE	V--Ph --Hz	Voltage Range		Compressor		Indoor Fan Motor		Power Supply	
		Min	Max	RLA	LRA	HP	FLA	Min Ckt Amps**	MOCP Amps**
04	208/230--3--60	187	253	10.7	77.0	1/3	0.8	14.2	20
	460--3--60	414	528	5.4	35.0	1/3	0.8	7.6	10.0
	400--3--50	342	418	5.4	35	1/3	0.8	7.6	10.0
06	208/230--3--60	187	253	19.05	137.0	3/4	2.8	27.2	50
	460--3--60	414	528	10.0	62.0	3/4	1.4	13.9	25.0
	400--3--50	342	418	10.0	62.0	3/4	1.4	13.9	25.0
08	208/230--3--60	187	253	31.4	160.0	1	3.2	42.5	70.0*
	400--3--60	414	528	15.0	80.0	1	1.6	20.4	35.0
	380--3--50	342	418	15.0	80.0	1	1.6	20.4	35.0
12	208/230--3--60	187	253	31.4	160.0	2	6.2	45.5	70.0*
	460--3--60	414	528	15.7	80.0	2	3.1	22.7	35.0
	400--3--50	342	418	15.7	80.0	2	3.1	22.7	35.0

LEGEND

- FLA** — Full Load Amps
- LRA** — Locked Rotor Amps
- MOCP** — Maximum Overcurrent Protective Device (see Note 1)
- NEC** — National Electrical Code
- RLA** — Rated Load Amps

* The overcurrent protective device for the unit shall be fuse only (see Note 1) **
 Min Ckt Amps and MOCP Amps values are per NEC (see Note 1)

NOTES:

1. In compliance with NEC requirements for multi-motor and combination load equipment (NEC articles 430 and 440), the overcurrent protective device for the unit shall be either circuit breaker (where available) or fuse except those units marked (*), which shall be fuse only.
2. Wire sizing amps are a sum of 125% of the compressor RLA plus 100% of the indoor fan motor FLA.
3. Motors are internally protected against primary single-phasing condition.
4. Three-phase voltage imbalance must not exceed 2%.

ELECTRIC HEATER DATA

Unit	Voltage	Capacity (Kw)		Total (Kw)	FLA	MCA	MOCP
90MA, MU 004, 006	460-3-60	5.25		5.25	11.4	14.3	15
	400-3-50	4.03		4.03	10.1	12.6	15
90MA, MU 08, 12	460-3-60	Stage 1	Stage 2	17.5	38	47.5	50
		8.75	8.75				
	400-3-50	6.7	6.7	13.4	33.5	41.9	50

LEGEND

- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection
- RLA** — Rated Load Amps

NOTE:

The over current protection for the heaters shall be fuse only.



90MA/MU ELECTRICAL DATA – SI

SIZE	V--Ph --Hz	Voltage Range		Compressor		Indoor Fan Motor		Power Supply	
		Min	Max	RLA	LRA	kW	FLA	Min Ckt Amps**	MOCP Amps**
04	208/230--3--60	187	253	10.7	77.0	0.25	0.8	14.2	20
	460--3--60	414	528	5.4	35.0	0.25	0.8	7.6	10.0
	400--3--50	342	418	5.4	35	0.25	0.8	7.6	10.0
06	208/230--3--60	187	253	19.05	137.0	0.56	5.3	29.4	45.0
	460--3--60	414	528	10.0	62.0	0.56	5.3	17.8	25.0
	400--3--50	342	418	10.0	62.0	0.56	5.3	17.8	25.0
08	208/230--3--60	187	253	31.4	160.0	0.75	3.2	42.5	70.0*
	460--3--60	414	528	15.0	80.0	0.75	1.6	20.4	35.0
	400--3--50	342	418	15.0	80.0	0.75	1.6	20.4	35.0
12	208/230--3--60	187	253	31.4	160.0	1.50	6.2	45.5	70.0*
	460--3--60	414	528	15.7	80.0	1.50	3.1	22.7	35.0
	400--3--50	342	418	15.7	80.0	1.50	3.1	22.7	35.0

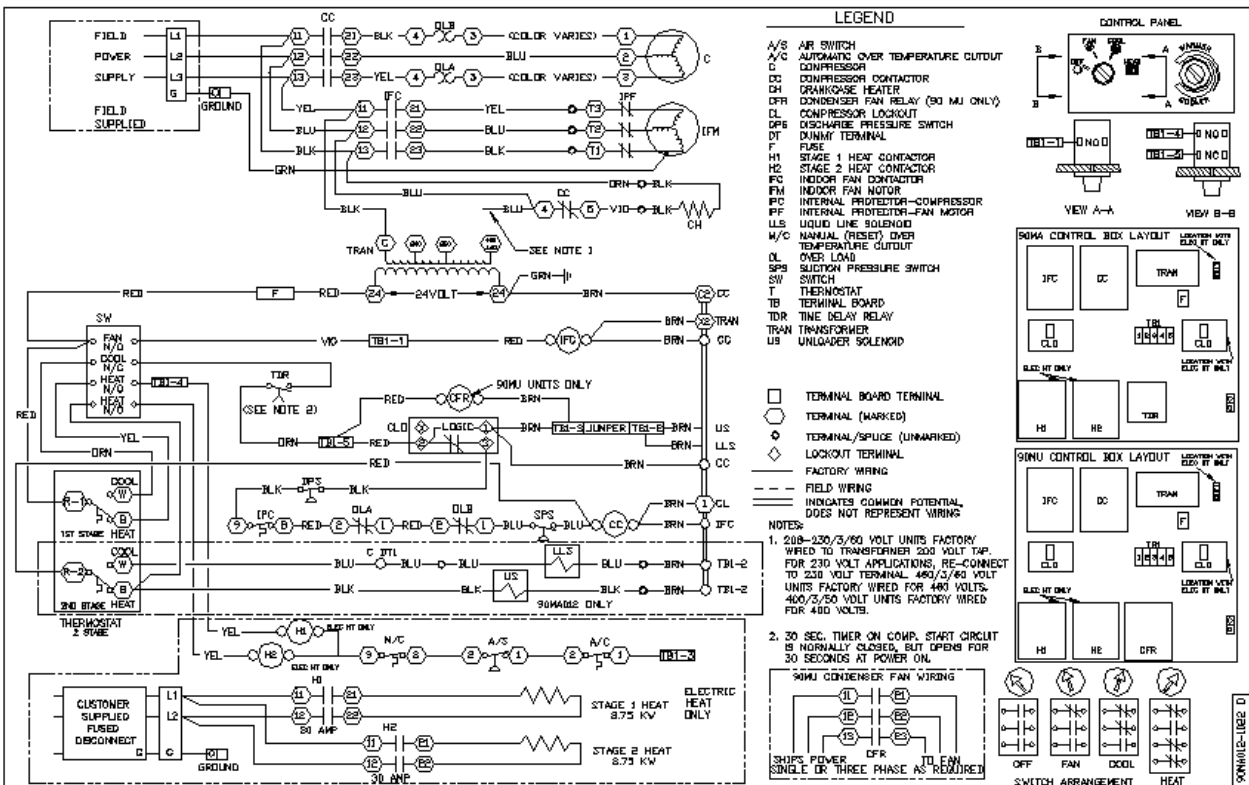
LEGEND

- FLA** — Full Load Amps
- LRA** — Locked Rotor Amps
- MOCP** — Maximum Overcurrent Protective Device (see Note 1)
- NEC** — National Electrical Code
- RLA** — Rated Load Amps

* The overcurrent protective device for the unit shall be fuse only (see Note 1) **
 Min Ckt Amps and MOCP Amps values are per NEC (see Note 1)

NOTES:

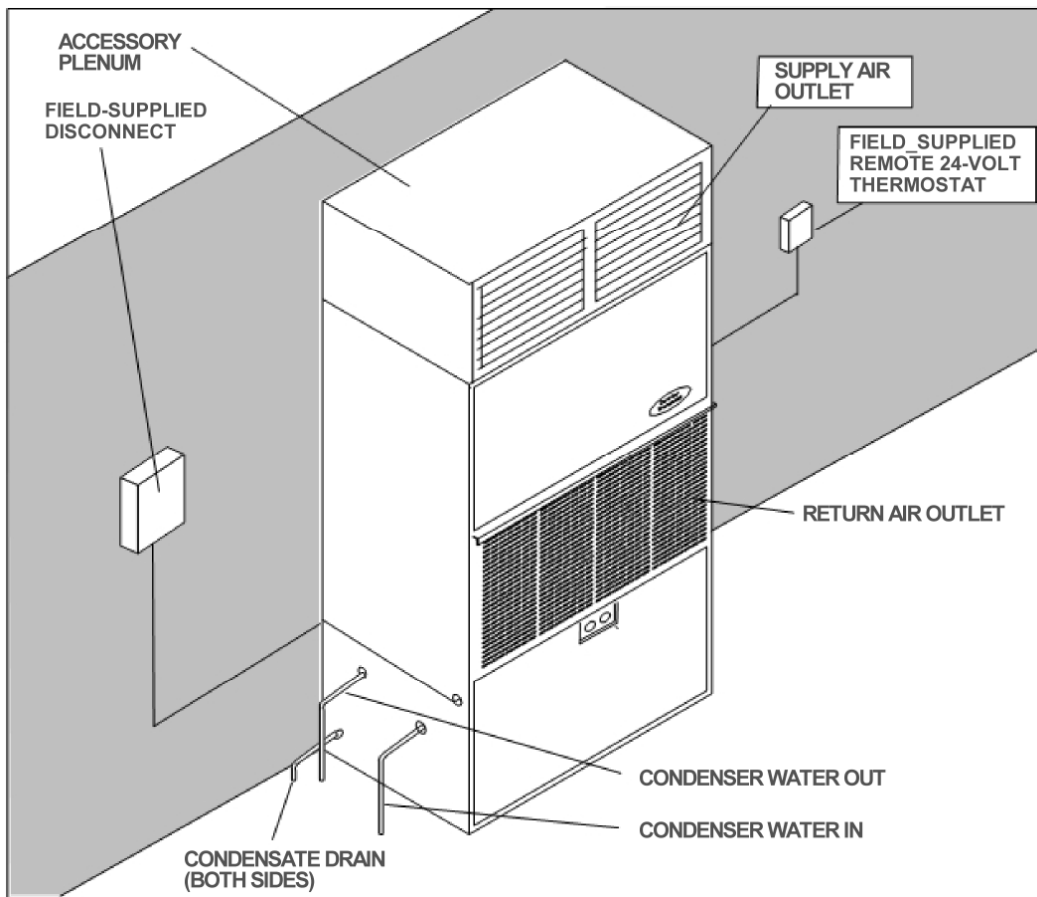
1. In compliance with NEC requirements for multi-motor and combination load equipment (NEC articles 430 and 440), the overcurrent protective device for the unit shall be either circuit breaker (where available) or fuse except those units marked (*), which shall be fuse only.
2. Wire sizing amps are a sum of 125% of the compressor RLA plus 100% of the indoor fan motor FLA.
3. Motors are internally protected against primary single-phasing condition.
4. Three-phase voltage imbalance must not exceed 2%.



Typical Wiring Diagram — 90MA

NOTES FOR WIRING DIAGRAM:

1. For specific unit wiring diagrams, see certified drawing.
2. Compressor and fan motor are thermally protected.
3. The CLO locks out the compressor to prevent short cycling on overload and safety devices. Before replacing CLO, check those devices.
4. Three-phase motors protected under primary single phasing conditions.
5. If original wire must be replaced, type 90°C or equivalent must be used.
6. 90MA*08, 90MA*12, have crankcase heaters.
7. Field-supplied disconnect switch per NEC required for all units.
8. For 208/230-3-60 units only, transformer is wired for 208 volts. If 230 volt power supply is used, the transformer must be reconnected. Remove wire from terminal 208 and connect it to terminal 230.



Typical Piping and Wiring

Operating sequence

All units — When unit main power is on, and selector switch is set at OFF, unit is completely deenergized (except crankcase heater, where applicable).

When selector switch is set at:

FAN — Indoor fan operates to provide ventilation.

COOL — Indoor fan operates continuously. When the thermostat closes (on demand for cooling), the compressor contactor is immediately energized. This starts the compressor and deenergizes crankcase heater (were used). The 012 size units are equipped with a two-stage thermostat. The compressor starts with two cylinders unloaded on first stage of thermostat cooling demand and loads to full load upon demand from second stage of thermostat.

When the thermostat is satisfied, the compressor shuts off and the fan continues to operate. The crankcase heater is then energized. The control circuit incorporates a current-sensing lockout relay (Cycle-LOC™) that locks off the compressor in the event any safety device is activated (low pressure switch, high pressure switch, or compressor overload).

If any compressor safety device opens, the compressor will shut off. The Cycle-LOC feature will not allow the compressor to restart following any safety interruption, unless the thermostat is satisfied without cooling in operation. To reset the Cycle-LOC control, turn the OFF/FAN/Cool switch to OFF, then back to COOL.

HEAT — Indoor fan operates continuously. When the thermostat closes (on demand for heat), the optional electric heater control circuit is energized to bring on the heaters.

GUIDE SPECIFICATIONS — ENGLISH

BASE UNIT

Unit shall be single-package vertical type and shall include a self-contained water-cooled condenser or be suitable for field connection to a remote condenser. Each unit shall contain a full refrigerant charge.

Total cooling capacity of the unit shall be ___ Btuh or greater at conditions of ___ cfm evaporator air entering unit at ___°F wet-bulb temperature. Total sensible capacity shall be ___ Btuh or greater with ___°F dry bulb temperature at the above conditions.

Water-cooled condenser shall operate with ___ gpm of ___°F water at a ___ water fouling factor.

Maximum water pressure drop for the condenser at these conditions shall be ___ psid.

R407C and R404A units of nominal 10 tons cooling capacity (**8 tons R-134a**) shall be provided with two steps of cooling capacity (100% and 66%).

Compressor shall be either serviceable hermetic type (12,08 size) or welded hermetic type (06,04 size) and equipped with suitable vibration isolators, crankcase heaters (08 and 12 size), and filter-drier, and shall be located in a sound-attenuated compartment within the cabinet. Power input to the compressor motor shall not exceed ___ kW at the conditions specified. Compressor shall be of same manufacture as the unit (12,08 size).

Cabinet shall be zinc surface alloyed steel that is bonderized and painted with a polyester enamel. Unit sections shall be insulated to prevent sweating and to muffle sound. Internal sheet metal shall be painted and drain pan shall be epoxy painted for enhanced corrosion resistance. The unit dimensions shall be ___ in. wide, ___ in. deep, and ___ in. high. A self-contained filter frame for use of standard cleanable filters of ___x___x___ in. shall be located inside of cabinet (filters shall be factory supplied).

Water-cooled condensers shall be constructed (tube-in-tube) in accordance with ASME safety codes. Seawater tubes (90MA) shall be seamless cupronickel with no interior joints. Threaded pipe connections shall be provided for water supply and return lines.

Evaporator coils shall be of nonferrous construction with aluminum plate fins mechanically bonded to seamless copper tubing and shall be fed by the thermostatic expansion valve.

Evaporator air fan shall be capable of delivering ___ cfm of air with an external static pressure of ___ in wg or greater. Evaporator air fans shall be centrifugal forward curved and belt driven by a motor of nominal ___ Hp or less when operating at ___ rpm.

Controls shall be factory wired to operate on 24-volt single-phase power supply. A factory-mounted multi position switch will control the unit for continuous fan heating and cooling operation. Unit shall have a 24-volt control circuit suitable for connection to a 24-volt control circuit suitable for connection to a 24-volt remote thermostat. Compressor protection shall include high- and low-pressure switched, current lockout, and inherent over-temperature protection (06,08,12).

ACCESSORIES

Supply air plenum shall match unit styling and shall include adjustable louvers and mounting hardware.

Evaporator defrost thermostat shall provide coil freeze-up protection under low ambient conditions.

Remote monitor relays shall be provided with either normally open or normally closed signaling capability.

GUIDE SPECIFICATIONS — SI

BASE UNIT

Unit shall be single-package vertical type and shall include a self-contained water-cooled condenser or be suitable for field connection to a remote condenser. Each unit shall contain a full refrigerant charge.

Total cooling capacity of the unit shall be ___ kW or greater at conditions of ___ m³/h evaporator air entering unit at ___°C wet-bulb temperature. Total sensible capacity shall be ___ kW or greater with ___°C dry bulb temperature at the above conditions.

Water-cooled condenser shall operate with ___ l/s of ___°C water at a ___ water fouling factor.

Maximum water pressure drop for the condenser at these conditions shall be ___ kPa.

R407C and R404A units of nominal 10 tons cooling capacity (**28.1 kW R-134a**) shall be provided with two steps of cooling capacity (100% and 66%).

Compressor shall be either serviceable hermetic type (08 and 12 size) or welded hermetic type (04, 06 size) and equipped with suitable vibration isolators, crankcase heaters (08 and 12 size), and filter-drier, and shall be located in a sound-attenuated compartment within the cabinet. Power input to the compressor motor shall not exceed ___ kW at the conditions specified. Compressor shall be of same manufacture as the unit (12,08 size).

Cabinet shall be zinc surface alloyed steel that is bonderized and painted with a polyester enamel. Unit sections shall be insulated to prevent sweating and to muffle sound. Internal sheet metal shall be painted and drain pan shall be epoxy painted for enhanced corrosion resistance. The unit dimensions shall be ___ in. wide, ___ in. deep, and ___ in. high. A self-contained filter frame for use of standard cleanable filters of ___x___x___ in. shall be located inside of cabinet (filters shall be factory supplied).

Water -cooled condensers shall be constructed (tube-in-tube) in accordance with ASME safety codes. Seawater tubes (90MA) shall be seamless cupronickel with no interior joints. Threaded pipe connections shall be provided for water supply and return lines.

Evaporator coils shall be of nonferrous construction with aluminum plate fins mechanically bonded to seamless copper tubing and shall be fed by the thermostatic expansion valve.

Evaporator air fan shall be capable of delivering ___ m³/h of air with an external static pressure of ___ in Pa or greater. Evaporator air fans shall be centrifugal forward curved and belt driven by a motor of nominal ___ kW or less when operating at ___ rpm.

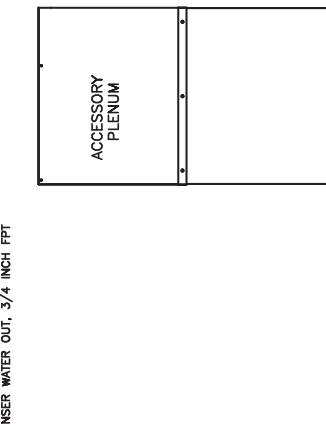
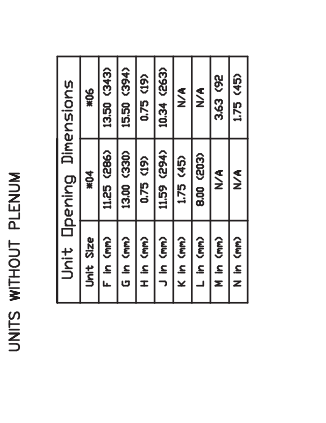
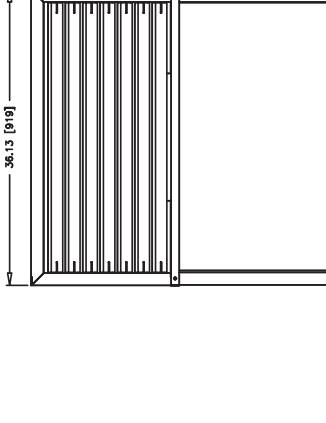
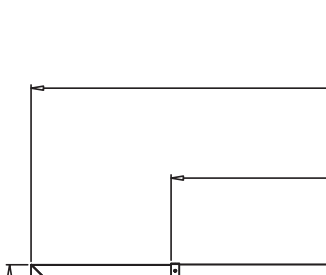
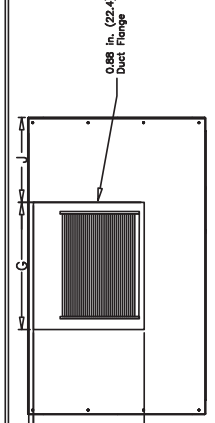
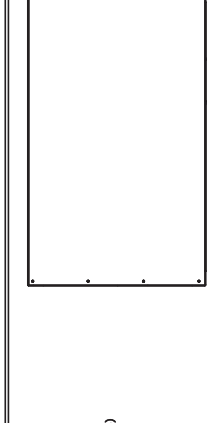
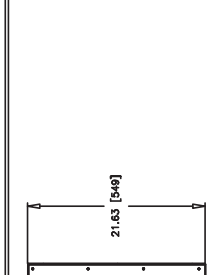
Controls shall be factory wired to operate on 24-volt single-phase power supply. A factory-mounted multi position switch will control the unit for continuous fan heating and cooling operation. Unit shall have a 24-volt control circuit suitable for connection to a 24-volt control circuit suitable for connection to a 24-volt remote thermostat. Compressor protection shall include high- and low-pressure switched, current lockout, and inherent over-temperature protection (06,08,12).

ACCESSORIES

Supply air plenum shall match unit styling and shall include adjustable louvers and mounting hardware.

Evaporator defrost thermostat shall provide coil freeze-up protection under low ambient conditions.

Remote monitor relays shall be provided with either normally open or normally closed signaling capability.



Unit Opening Dimensions	
Unit Size	inches
F in (emp)	11.25 (286)
G in (emp)	13.00 (330)
H in (emp)	0.75 (19)
J in (emp)	11.59 (294)
K in (emp)	1.75 (45)
L in (emp)	8.00 (203)
M in (emp)	N/A
N in (emp)	1.75 (45)

UNITS WITHOUT PLENUM

- NOTES:
1. DIMENSIONS IN INCHES (MILLIMETERS)
 2. APPROXIMATE NET WEIGHT OF 90MA004 - 390 LBS (177 KG)
90MA006 - 427 LBS (194 KG)
 3. OPERATIONAL AND SERVICE CLEARANCE REQUIRED:
FRONT AND LEFT SIDE - 24 INCHES (610)
RIGHT AND REAR - NO CLEARANCE REQUIRED
- CONNECTIONS:
- A - DRAIN 3/4 INCH
 - B - CONDENSER WATER IN, 3/4 INCH FPT
 - C - CONDENSER WATER OUT, 3/4 INCH FPT
 - D - CONDENSER WATER OUT, 3/4 INCH FPT

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UNITED TECHNOLOGIES CARRIER TRANSCOLD

90MA006-1022

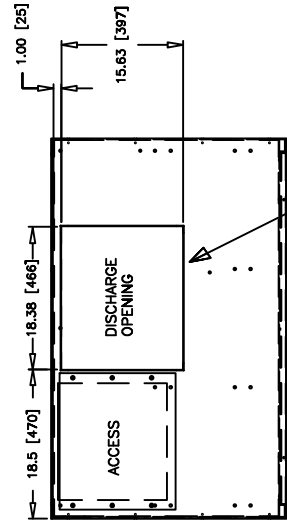
CERTIFIED DIMENSIONS

DRAWING NUMBER	90MA006-1022		
DRAWING NAME	CERTIFIED DIMENSIONS		
JOB#			
CUSTOMER	MARINE SYSTEMS		
PROJECT	P.O. BOX 4805		
DATE	1/8/2007	REVISION	D
			PAGE 1 of 2

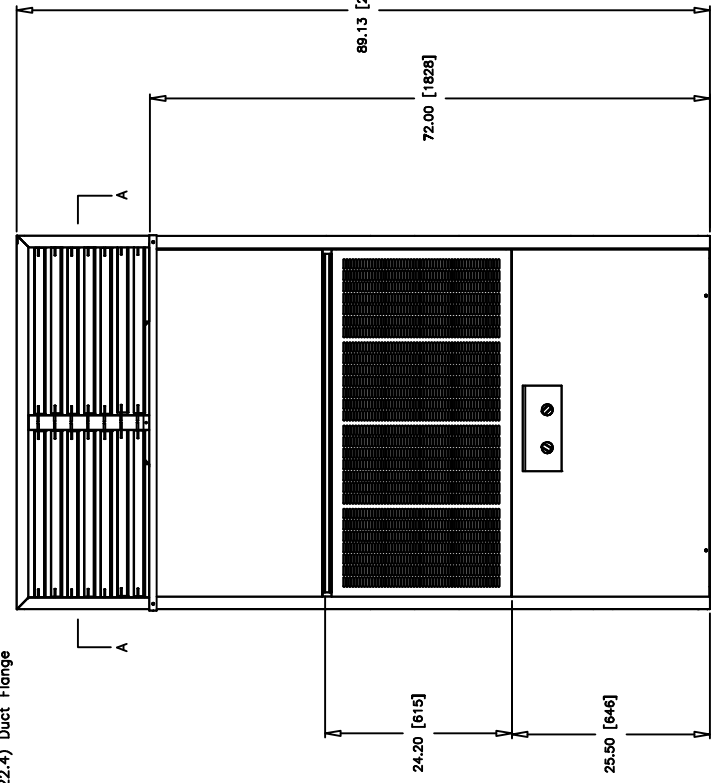
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REV#	REVISION	DATE	BY	CHK.	APPR.	AUTH#
D	CHANGED DRAWING NUMBER TO MATCH SHEET 2	1/9/2007	TD	RG	TD	TD
C	NOT RELEASED	1/19/2007	TD	RG	GD	GD
B	NOT RELEASED	1/19/2007	TD	RG	GD	GD
A	Combined plenum and no plenum, added dimension table	1/19/2007	TD	RG	GD	GD

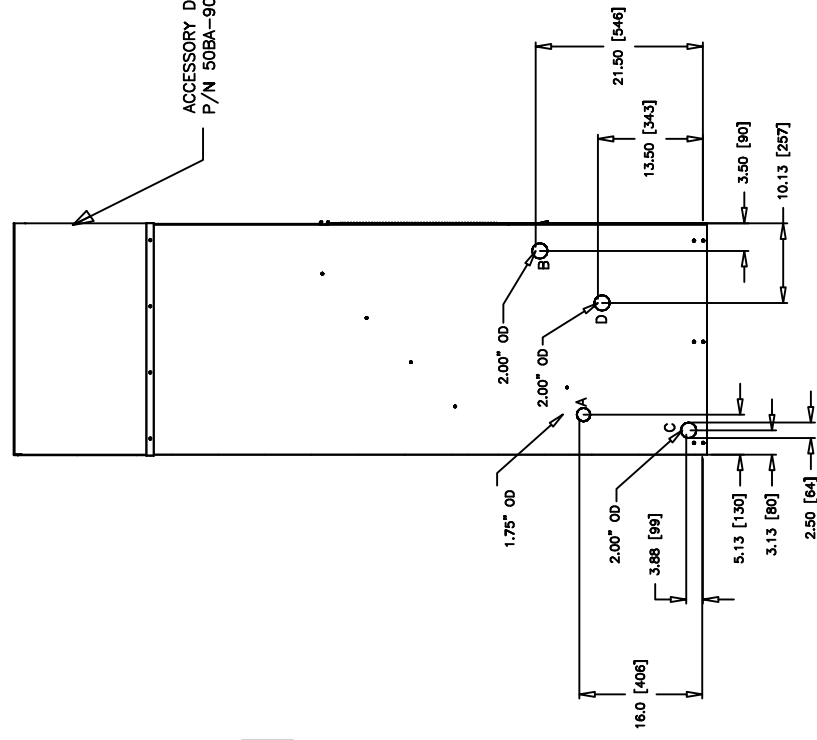
CAD FILE # 90MA006-1022s1revD.dwg



VIEW A-A



ACCESSORY DISCHARGE PLENUM,
P/N 50BA-900-171



NOTES:
 1. DIMENSIONS IN INCHES (MILLIMETERS).
 2. APPROXIMATE NET WEIGHT OF UNITS ARE:
 90MA008 - 895 LBS (406 KG)
 90MA012 - 950 LBS (431 KG)
 ACCESSORY DISCHARGE PLENUM - 50 LBS (22.7 KG)
 ACCESSORY 17.5 KW ELECTRIC HEATER - 10 LBS (4.5 KG).
 3. OPERATIONAL AND SERVICE CLEARANCE REQUIRED:
 FRONT AND LEFT SIDE - 24 INCHES (605)
 RIGHT AND REAR SIDE - 24 INCHES (605)
 NO REAR CLEARANCE REQUIRED.

- CONNECTIONS:
 A - DRAIN, 3/4 INCH FPT
 B - ELECTRICAL
 C - CONDENSER WATER IN, 1 INCH FPT
 D - CONDENSER WATER OUT, 1 INCH FPT



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REV.	D
90MA012-1022	SHEET 1 of 3
90MA/MU008-012 SERIES 3	CERTIFIED DIMENSIONS

CAD FILE # 90MA012-1022s1 rev D.dwg

D	REVISED SHEET 2	1/11/2008	TD	RG	TD
C	ADDED SERIES 3 DATA TO SHEET 1	2/1/2007	TD	RG	TD
	CREATED SHEET 3 FOR SERIES 1 DATA				
O-B	SEE SHEET 3				
REV#	REVISION	DATE	BY	CHK.	APPR.

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