



Product Data

30GU Flotronic™ Air-Cooled Reciprocating Liquid Chillers 50/60 Hz

Nominal Capacity: 25 to 280 Tons
88 to 985 kW

Quality Assurance



Certificate No FM 21837

Approvals:

ISO 9002

EN 29002

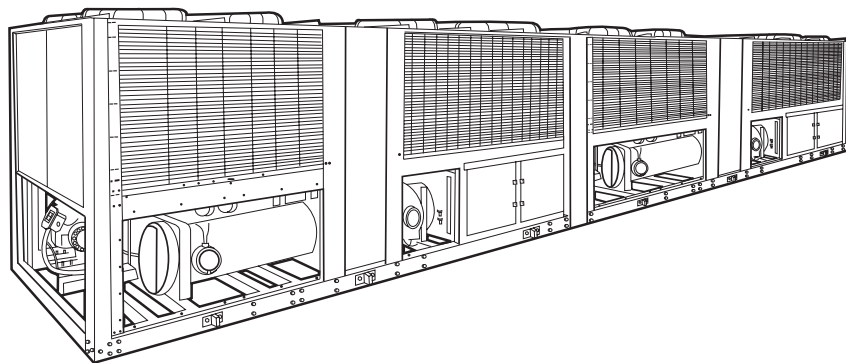
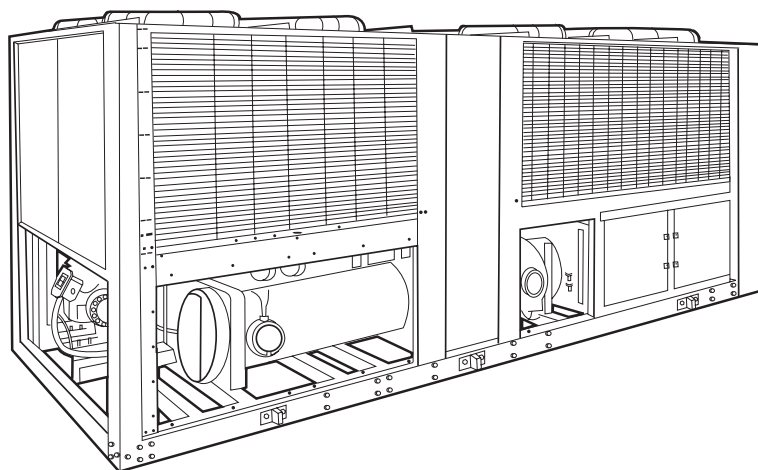
BS5750 PART 2

ANSI/ASQC Q92

Performance Assurance



Rated in accordance with
ARI Standard 590-92
(60 Hz only)



State of the Art Chillers with Advanced Microprocessor-Based Electronic Controls for Years of Reliability

- wide size range for every application need
- flexibility through multiple compressors and refrigerant circuits
- efficient, reliable 06E semi-hermetic compressors
- factory charged with R-134a — tested under load
- quality construction, and sturdy, protective shipping package
- Flotronic controls

Features/Benefits

Quality design and construction

Model 30GU Flotronic chillers are the result of extensive engineering development and testing. Every component has been tested to provide many years of superior performance in every climate. Units are UL (Underwriters' Laboratories) listed. Major components are qualified to 500-hour salt spray test according to the American Society for Testing and Materials (ASTM) B-117 Standard to assure longevity and reliability.

All export chillers are packaged with woodboard coil protection and hardwood top cap. A polyolefin bag with a rust inhibitor is shrink-wrapped around the units for increased protection against hazards of land and sea transportation, and ensures product delivery in original factory condition.

Advanced technology and serviceability

The powerful 30GU Flotronic chillers incorporate the latest in integrated microprocessor control and refrigeration cycle optimization devices. The electronic expansion valve (EXV) and the microprocessor controller let the chiller operate at low pressure differentials, and accurately control refrigerant superheat during start-up and load changes. The result is efficient energy usage and accurate leaving-fluid

temperature (LWT) (to ± 1.25 F [0.7 C] from the LWT set point) functions. The control advances the capabilities of user-programmed time schedules of the chiller operation (7-day), standard return-fluid temperature reset, and real-time display of operating temperatures and pressures.

The Carrier Flotronic chillers feature ease of service and maintenance that add to operating savings. Built-in self diagnostic capability quickly pinpoints the location of any system problem — no need to spend costly hours guessing.

Ground current sensing eliminates the need for refrigerant replacement by preventing compressor motor burnouts that add acids to the refrigerant.

Ease of installation

The 30GU Flotronic chillers are fully packaged systems. They arrive at the jobsite in with a full refrigerant charge and are completely ready for installation in minimal time. The conveniently located power supply and fluid inlet and outlet connections assure a short and cost-efficient job installation. The handy cabinet access panels permit fast, easy inspection of interior components, which helps keep installation costs down and reliability up.

Quality and reliability

To assure long-life quality performance, every standard unit is factory run-tested. The dependable direct-drive fan motors are built to NEMA (National Electrical Manufacturing Association, U.S.A.) standards. The units are equipped with famous 06E Carrier semi-hermetic compressors, built for performance excellence in Carrier equipment worldwide. Refrigerant

flow control provided by EXV precision keeps compressor motors cooler while operating at optimum efficiency.

The standard automatic lead/lag control manages an even distribution of starts and run hours between compressors and refrigerant circuits. The superior microprocessor control package requires fewer moving control circuit parts for long-life dependability. The microprocessor controls the full refrigeration cycle (compressors, fans, and expansion valve) to assure efficient synchronized operation.

A low-oil-pressure safety switch on the lead compressor in each refrigerant circuit protects the compressor from damage due to lack of proper lubrication.

High operating efficiency

The Flotronic chillers offer outstanding EERs (Energy Efficiency Ratios). Exceptional part load performance (chillers in general operate at part load 97% of the time) provides increased operating savings through use of multiple compressors in each refrigerant circuit, and suction cutoff unloading (unloaders are standard on sizes 040-170 and associated modular components).

A fully-integrated microprocessor control system (another Carrier exclusive) maintains efficient control over the compressors, EXV, and fans to optimize chiller efficiency.

The EXV allows operation at reduced condensing pressures (down to 15 psig [103 kPa] pressure differential) by letting the microprocessor operate the fans down to a lower outdoor temperature than a conventional chiller. The microprocessor senses the position of the valve and the actual condensing temperature. The EXV also increases evaporator pressure by

minimizing superheat in the evaporator. Therefore, a greater percentage of the cooler is used for evaporation than in a TXV system. In this situation, the superheat is the difference between the refrigerant temperature measured after the compressor motor and the saturated evaporating temperature.

The system-integrated subcooler provides an extra measure of unit efficiency. Additional increases in EER up to 15% may result with standard return-fluid temperature reset.

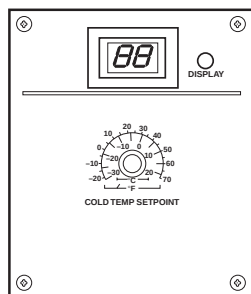
NOTE: Prove the operating savings for your building by using the Flotronic chiller operating cost analysis on your own microcomputer, available from your local Carrier representative.

Cost-saving features

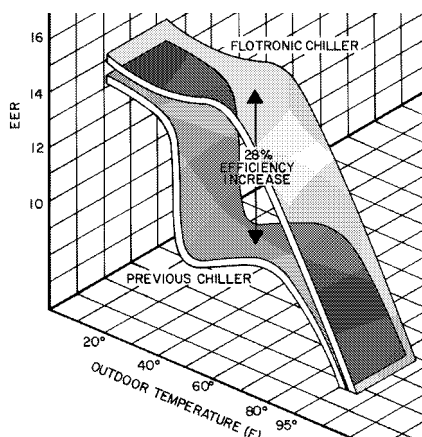
Model 30GU chillers reduce operating costs with:

- Precise multiple-step capacity control.
- Operating capability at outdoor temperatures to 125 F (52 C).
- Direct-drive fan motors inherently protected and shielded by PVC-coated steel wire fan guards for weather protection.
- Compressors mounted on spring-isolated steel rails to minimize vibration (no need for external isolation).
- Weather-protected controls and factory wiring.
- Hinged electrical component access panels.
- Compressor crankcase heaters.
- Multiple compressor operation.
- Dual, independent refrigerant circuits (per module).
- Oil level sight glasses.

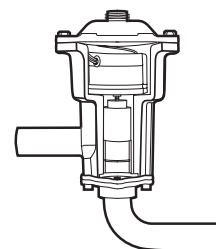
**STANDARD 30GU
2-DIGIT FLOTTRONIC DISPLAY**



PART-LOAD EFFICIENCY 28% GAIN



**ELECTRONIC
EXPANSION VALVE (EXV)**



06E COMPRESSOR

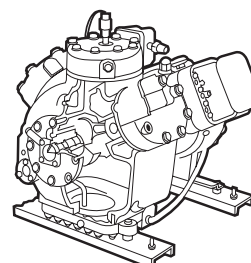


Table of contents



	Page		Page
Features/Benefits	1,2	Application Data	33-41
Model Number Nomenclature	3	Selection Procedure	42
Physical Data	4-19	Performance Data	43-63
Factory-Installed Options	20	Electrical Data	64-75
Field-Installed Accessories	21	Controls	76-78
Dimensions	22-32	Typical Piping and Wiring	79
		Guide Specifications	80-83

Model number nomenclature

30GU — Flotronic™ Controls	230	A	C	6	---	---	---
Air-Cooled Liquid Chillers 30GU — Flotronic™ Controls Compressor Start — — Across-The-Line Start P — Part-Wind Start Unit Sizes* 040 070 110 190 255 330 045 080 130 210 270 360 050 090 150 230 290 390 060 100 170 245 315 420 Module Designation (230-420 Units)* A B Sound Option — — None L — Low Noise Condenser Fans				Options -- — NOTE: For Brine and numerous other options, contact your Carrier representative. Packaging Not Used V-Ph-Hz 1 — 575-3-60 2 — 380-3-60† 3 — 346-3-50† 5 — 208/230-6-60 6 — 460-3-60 9 — 380/415-3-50† Condenser Material — — Copper Tube, Aluminum Fins C — Copper Tube, Copper Fins H — Copper Tube, Heresite Coated Aluminum Fins (post coated)** J — Copper Tube, Heresite Copper Fins (post coated)** K — Copper Tube, Pre-Coated Aluminum Fins**			

LEGEND

EXV — Electronic Expansion Valve

*Refer to Unit Sizes and Modular Combinations table below.

†Export only — not for U.S. domestic sale.

**Contact your local Carrier representative for more details.

UNIT SIZES AND MODULAR COMBINATIONS

UNIT MODEL 30GU	TOTAL UNIT		SECTION A UNIT 30GU	SECTION B UNIT 30GU
	Nominal Tons	kW		
040	25	88	—	—
045	28	98	—	—
050	34	120	—	—
060	40	141	—	—
070	48	169	—	—
080	55	193	—	—
090	60	211	—	—
100	70	246	—	—
110	75	264	—	—
130*	85	299	—	—
150*	100	352	—	—
170*	110	387	—	—
190*	120	422	—	—
210*	140	492	—	—
230*	155	545	150	080
245*	160	563	150	090
255*	170	598	150	100
270*	180	633	170	100
290*	195	686	190	110
315*	215	756	210	110
330*	220	774	170	170
360*	240/230†	844/809	190	190/170†
390*	260	914	210	190
420*	280	985	210	210

*Requires special order. Contact factory.

†60 Hz units/50 Hz units.



ENGLISH

30GU UNIT SIZE		040	045	050	060	070	080	090	100	110
SYSTEM MODULES		—	—	—	—	—	—	—	—	—
APPROX OPERATING WEIGHT — lb										
C-AL		3550	3681	3856	4740	5028	6630	7015	8610	8660
C-C		3838	3969	4289	5157	5656	7355	7740	9560	9610
REFRIGERANT CHARGE — lb										
R-134a		53/16	53/16	68/17	67/19	96/20	102/20	102/20	129/25	129/25
Ckt A Total/Over Clear Glass		60/15	60/15	79/16	76/21	96/20	102/20	102/20	129/25	129/25
Ckt B										
COMPRESSORS, Type...rpm										
06E* (Qty) Ckt A		(1) 150	(1) 150	(1) 165	(1) 175	(1) 199	Reciprocating, Semi-Hermetic...1750	(1) 165, (1) 150	(1) 165, (1) 175	(1) 165, (1) 199
(Qty) Ckt B		(1) 150	(1) 150	(1) 175	(1) 199	(1) 199	(1) 199	(2) 165	(1) 165, (1) 175	(1) 165, (1) 175
Oil Charge† — Compressor/pt							150/17, 165/19, 175/19, 199/19			
Capacity Control Steps (Standard Unit)										
% Cap. Ckt A		4	4	4	4	4	6	8	8	8
Ckt B		50	42	48	43	50	56	47	50	54
Minimum Step Capacity (%)		50	58	52	57	50	44	53	50	53
		25	21	32	29	33	22	18	15	14
CONDENSER FANS — Type										
Standard/Low Noise										
Fan Speed — rpm										
No. Blades...Diameter — in.										
No. Fans...Total kW										
Total Airflow — cfm										
High Static										
Fan Speed — rpm										
No. Blades...Diameter — in.										
No. Fans...Total kW										
Total Airflow...cfm**										
CONDENSER COILS — Type										
Tubes (Copper), OD — in.										
No. Rows — Ckt A or B										
Face Area sq ft — Ckt A and B Total										
Max Working Pressure Refrigerant — psig										
COOLER — No. ...Type										
Weight (empty) — lb										
No. Refrigerant Circuits										
Net Fluid Volume — Gal. (includes nozzles)										
Max Working Pressure										
Refrigerant Side/Fluid Side — psig										
FLUID CONNECTIONS — in.										
Inlet and Outlet		3	3	3	4	4	Cooler Inlet and Outlet; Victaulic Type	4	5	5
Drain (NPT)							¾			

- LEGEND
- C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 - C-C — Copper Tubing — Copper Fins Condenser Coil
 - Ckt — Circuit
 - ESP — External Static Pressure
 - OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.
†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.
**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

ENGLISH (cont)

30GU UNIT SIZE	130	150	170	190	210	230			245		
SYSTEM MODULES	—	—	—	—	—	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — lb											
C-AL	10,046	10,481	11,293	12,676	13,380	10,481	6630	17,111	10,481	7015	17,496
C-C	11,318	11,753	12,565	14,195	14,899	11,753	7355	19,108	11,753	7740	19,493
REFRIGERANT CHARGE — lb											
R-134a Ckt A Total/Over Clear Glass	162/33.5	162/39	162/46	190/32	190/40	162/39	102/20	—/—	162/39	102/20	—/—
Ckt B	162/33.5	162/39	162/46	190/32	190/40	162/39	102/20	—/—	162/39	102/20	—/—
COMPRESSORS, Type...rpm	Reciprocating, Semi-Hermetic...1750										
06E* (Qty) Ckt A	(1) 175, (1) 199	(3) 165	(3) 175	(1) 165, (1) 175, (1) 199	(3) 165, (1) 175	(3) 165	(1) 150, (1) 175	—	(3) 165	(1) 165, (1) 150	—
(Qty) Ckt B	(1) 175, (1) 199	(2) 199	(3) 175	(1) 165 (1) 175, (1) 199	(1) 175, (2) 199	(2) 199	(1) 199	—	(2) 199	(2) 165	—
Oil Charge† — Compressor/pt	150/17, 165/19, 175/19, 199/19										
Capacity Control Steps (Standard Unit)	8	10	12	6	7	10	6	—	10	8	—
% Cap. Ckt A	50	50	50	50	50	50	56	—	50	47	—
Ckt B	50	50	50	50	50	50	44	—	50	53	—
Minimum Step Capacity (%)	14	11	11	14	12	11	22	—	11	18	—
CONDENSER FANS — Type	Propeller, Direct Drive										
Standard/Low Noise											
Fan Speed — rpm	1140	1140	1140	1140	1740	1140	1140	—	1140	1140	—
No. Blades...Diameter — in.	4...30	4...30	4...30	4...30	4...30	4...30	4...30	—	4...30	4...30	—
No. Fans...Total kW	10...15.9	10...15.9	10...15.9	12...19.1	12...19.1	10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3
Total Airflow — cfm	100,000	100,000	100,000	120,000	120,000	100,000	57,000	157,000	100,000	57,000	157,000
High Static											
Fan Speed — rpm	1740	1740	1740	1740	1740	1740	1750	—	1740	1750	—
No. Blades...Diameter — in.	12...30	12...30	12...30	12...30	12...30	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW	10...37.0	10...37.0	10...37.0	12...44.4	12...44.4	10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2
Total Airflow...cfm**	100,000	100,000	100,000	120,000	120,000	100,000	60,000	160,000	100,000	60,000	160,000
CONDENSER COILS — Type	Vertical and Horizontal, Plate Fin, Enhanced Tubing										
Tubes (Copper), OD — in.	0.375	0.375	0.375	0.375	0.375	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B	3	3	3	3	3	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	225.1	225.1	225.1	268.9	268.9	225.1	128.3	353.4	225.1	128.3	353.4
Max Working Pressure Refrigerant — psig	450	450	450	450	450	450	450	—	450	450	—
COOLER — No. ...Type	One...Direct Expansion, Shell and Tube										
Weight (empty) — lb	1320	1320	1630	1630	1865	1320	745	2065	1320	745	2065
No. Refrigerant Circuits	2	2	2	2	2	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)	52.0	52.0	61.0	61.0	70.4	52.0	24.5	76.5	52.0	24.5	76.5
Max Working Pressure											
Refrigerant Side/Fluid Side — psig	278/300	278/300	278/300	278/300	278/300	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.	Victaulic Type										
Inlet and Outlet	6	6	6	6	6	6	4	—	6	4	—
Drain (NPT)				¾				—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



ENGLISH (cont)

30GU UNIT SIZE			255			270			290			315		
SYSTEM MODULES			A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — lb														
C-AL			10,481	8610	19,091	11,293	8610	19,903	12,676	8660	21,336	13,380	8660	22,040
C-C			11,753	9560	21,313	12,565	9560	22,125	14,195	9610	23,805	14,899	9610	24,509
REFRIGERANT CHARGE — lb														
R-134a			162/39	129/25	—/—	162/46	129/25	—/—	190/32	129/25	—/—	190/40	129/25	—/—
Ckt A Total/Over			162/39	129/25	—/—	162/46	129/25	—/—	190/32	129/25	—/—	190/40	129/25	—/—
Ckt B			162/39	129/25	—/—	162/46	129/25	—/—	190/32	129/25	—/—	190/40	129/25	—/—
COMPRESSORS, Type...rpm														
06E*	(Qty)	Ckt A	(3) 165	(1) 165, (1) 175	—	(3) 175	(1) 165, (1) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 199	—	(3) 165, (1) 175	(1) 165, (1) 199	—
	(Qty)	Ckt B	(2) 199	(1) 165, (1) 175	—	(3) 175	(1) 165, (1) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175	—	(1) 175, (2) 199	(1) 165, (1) 175	—
Oil Charge† — Compressor/pt														
Capacity Control Steps (Standard Unit)														
% Cap.			10	8	—	12	8	—	6	8	—	7	8	—
Ckt A			50	50	—	50	50	—	50	54	—	50	54	—
Ckt B			50	50	—	50	50	—	14	46	—	50	46	—
Minimum Step Capacity (%)			11	15	—	11	15	—	14	14	—	12	14	—
CONDENSER FANS — Type														
Standard/Low Noise														
Fan Speed — rpm			1140	1140	—	1140	1140	—	1140	1140	—	1740	1140	—
No. Blades...Diameter — in.			4...30	4...30	—	4...30	4...30	—	4...30	4...30	—	4...30	4...30	—
No. Fans...Total kW			10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8
Total Airflow — cfm			100,000	76,000	176,000	100,000	76,000	176,000	120,000	76,000	196,000	120,000	76,000	196,000
High Static														
Fan Speed — rpm			1740	1750	—	1740	1750	—	1740	1750	—	1740	1750	—
No. Blades...Diameter — in.			12...30	12...30	—	12...30	12...30	—	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW			10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0
Total Airflow...cfm**			100,000	80,000	180,000	100,000	80,000	180,000	120,000	80,000	200,000	120,000	80,000	200,000
CONDENSER COILS — Type														
Tubes (Copper) OD — in.			0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B			3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total			225.1	168	393.1	225.1	168	393.1	268.9	168	436.9	268.9	168.0	436.9
Max Working Pressure Refrigerant — psig			450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type														
Weight (empty) — lb			1320	860	2180	1630	860	2490	1630	860	2490	1865	860	2725
No. Refrigerant Circuits			2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)			52.0	30.3	82.3	61.0	30.3	91.3	61.0	30.3	91.3	70.4	30.3	100.7
Max Working Pressure														
Refrigerant Side/Fluid Side — psig			278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.														
Inlet and Outlet			6	5	—	6	5	—	6	5	—	6	5	—
Drain (NPT)			¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 Ckt — Circuit
 ESP — External Static Pressure
 OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

ENGLISH (cont)

30GU UNIT SIZE	330			360			390			420		
SYSTEM MODULES	A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — lb												
C-AL	11,293	11,293	22,586	12,676	12,676	25,352	13,380	12,676	26,056	13,380	13,380	26,760
C-C	12,565	12,565	25,130	14,195	14,195	28,390	14,899	14,195	29,094	14,899	14,899	29,798
REFRIGERANT CHARGE — lb												
R-134a Ckt A Total/Over Clear Glass	162/46	162/46	—/—	190/32	190/32	—/—	190/40	190/32	—/—	190/40	190/40	—/—
Ckt B	162/46	162/46	—/—	190/32	190/32	—/—	190/40	190/32	—/—	190/40	190/40	—/—
COMPRESSORS, Type...rpm												
06E* (Qty) Ckt A	(3) 175	(3) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175, (1) 199	—	(3) 165, (1) 175	(1) 165, (1) 175, (1) 199	—	(3) 165, (1) 175	(3) 165, (1) 175	—
(Qty) Ckt B	(3) 175	(3) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175, (1) 199	—	(1) 175, (2) 199	(1) 165, (1) 175, (1) 199	—	(1) 175, (2) 199	(1) 175, (2) 199	—
Oil Charge† — Compressor/pt												
							165/19, 175/19, 199/19					
Capacity Control Steps (Standard Unit)	12	12	—	6	6	—	7	6	—	7	7	—
% Cap. Ckt A	50	50	—	50	50	—	50	50	—	50	50	—
Ckt B	50	50	—	50	50	—	50	50	—	50	50	—
Minimum Step Capacity (%)	11	11	—	14	14	—	12	14	—	12	12	—
CONDENSER FANS — Type												
Standard/Low Noise							Propeller, Direct Drive					
Fan Speed — rpm	1140	1140	—	1140	1140	—	1740	1140	—	1740	1740	—
No. Blades...Diameter — in.	4...30	4...30	—	4...30	4...30	—	4...30	4...30	—	4...30	4...30	—
No. Fans...Total kW	10...15.9	10...15.9	20...31.8	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — cfm	100,000	100,000	200,000	120,000	120,000	240,000	120,000	120,000	240,000	120,000	120,000	240,000
High Static												
Fan Speed — rpm	1740	1740	—	1740	1740	—	1740	1740	—	1740	1740	—
No. Blades...Diameter — in.	12...30	12...30	—	12...30	12...30	—	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW	10...37.0	10...37.0	20...74	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow...cfm**	100,000	100,000	200,000	120,000	120,000	240,000	120,000	120,000	240,000	120,000	120,000	240,000
CONDENSER COILS — Type												
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	225.1	225.1	450.2	268.9	268.9	537.8	268.9	268.9	537.8	268.9	268.9	537.8
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type												
Weight (empty) — lb	1630	1630	3260	1630	1630	3260	1865	1630	3495	1865	1865	3730
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)	61.0	61.0	122	61.0	61.0	122	70.4	61.0	131.4	70.4	70.4	140.8
Max Working Pressure												
Refrigerant Side/Fluid Side — psig	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.												
Inlet and Outlet	6	6	—	6	6	—	6	6	—	6	6	—
Drain (NPT)	¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



SI

30GU UNIT SIZE		040	045	050	060	070	080	090	100	110
SYSTEM MODULES		—	—	—	—	—	—	—	—	—
APPROX OPERATING WEIGHT — kg										
C-AL		1610	1669	1749	2150	2280	3013	3189	3914	3935
C-C		1741	1800	1945	2339	2565	3343	3518	4346	4368
REFRIGERANT CHARGE — kg										
R-134a		24.0/7.2	24.0/7.2	30.8/7.7	30.4/8.6	43.5/9.0	46.3/9.0	46.3/9.0	58.5/11.5	58.5/11.5
Ckt A Total/Over Clear Glass		27.2/6.8	27.0/7.2	35.8/7.2	34.5/9.5	43.5/9.0	46.3/9.0	46.3/9.0	58.5/11.5	58.5/11.5
Ckt B										
COMPRESSORS, Type...r/s										
06E* (Qty) Ckt A		(1) 150	(1) 150	(1) 165	(1) 175	(1) 199	Reciprocating, Semi-Hermetic...29.2	(1) 150, (1) 175	(1) 165, (1) 175	(1) 165, (1) 199
(Qty) Ckt B		(1) 150	(1) 165	(1) 175	(1) 199	(1) 199	(1) 199	(2) 165	(1) 165, (1) 175	(1) 165, (1) 175
Oil Charge† — Compressor/L										
Capacity Control Steps (Standard Unit)										
% Cap.		4	4	4	4	4	6	8	8	8
Ckt A		50	42	48	43	50	56	47	50	54
Ckt B		50	58	52	57	50	44	53	50	46
Minimum Step Capacity (%)		25	21	32	29	33	22	18	15	14
CONDENSER FANS — Type										
Standard/Low Noise										
Fan Speed — r/s										
No. Blades...Diameter — mm										
No. Fans...Total kW										
Total Airflow — L/s										
High Static										
Fan Speed — r/s										
No. Blades...Diameter — mm										
No. Fans...Total kW										
Total Airflow...L/s**										
CONDENSER COILS — Type										
Tubes (Copper), OD — mm										
No. Rows — Ckt A or B										
Face Area m² — Ckt A and B Total										
Max Working Pressure Refrigerant — kPa										
COOLER — No. ...Type										
Weight (empty) — kg										
No. Refrigerant Circuits										
Net Fluid Volume — L (Includes nozzles)										
Max Working Pressure										
Refrigerant Side/Fluid Side — kPa										
FLUID CONNECTIONS — in.										
Inlet and Outlet										
Drain (NPT)										

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

SI (cont)

30GU UNIT SIZE	130	150	170	190	210	230			245		
SYSTEM MODULES	—	—	—	—	—	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg											
C-AL	4566	4754	5133	5761	6081	4754	3013	7747	4754	3189	7943
C-C	5144	5342	5711	6452	6772	5342	3343	8685	5342	3518	8860
REFRIGERANT CHARGE — kg											
R-134a Ckt A Total/Over Clear Glass	73.5/16.1	73.5/18.0	73.5/21.1	86.2/14.8	86.2/18.3	73.5/18.0	46.3/9.0	—/—	73.5/18.0	46.3/9.0	—/—
Ckt B	73.5/16.1	73.5/18.0	73.5/21.1	86.2/14.8	86.2/18.3	73.5/18.0	46.3/9.0	—/—	73.5/18.0	46.3/9.0	—/—
COMPRESSORS, Type...r/s						Reciprocating, Semi-Hermetic...29.2					
06E* (Qty) Ckt A	(1) 175, (1) 199	(3) 165	(3) 175	(1) 165, (1) 175, (1) 199	(3) 165, (1) 175	(3) 165	(1) 150, (1) 175	—	(3) 165	(1) 165, (1) 150	—
(Qty) Ckt B	(1) 175, (1) 199	(2) 199	(3) 175	(1) 165, (1) 175, (1) 199	(1) 175, (2) 199	(2) 199	(1) 199	—	(2) 199	(2) 165	—
Oil Charge† — Compressor/L	150/8.0, 165/9.0, 175/9.0, 199/9.0										
Capacity Control Steps (Standard Unit)	8	10	12	6	7	10	6	—	10	8	—
% Cap. Ckt A	50	50	50	50	50	50	56	—	50	47	—
Ckt B	50	50	50	50	50	50	44	—	50	53	—
Minimum Step Capacity (%)	14	11	11	14	12	11	22	—	11	18	—
CONDENSER FANS — Type						Propeller, Direct Drive					
Standard/Low Noise											
Fan Speed — r/s	19	19	19	19	19	19	19	—	19	19	—
No. Blades...Diameter — mm	4...762	4...762	4...762	4...762	4...762	4...762	4...762	—	4...762	4...762	—
No. Fans...Total kW	10...15.9	10...15.9	10...15.9	12...19.1	12...19.1	10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3
Total Airflow — L/s	47 190	47 190	47 190	56 630	56 630	47 190	26 898	74 088	47 190	26 898	74 088
High Static											
Fan Speed — r/s	29	29	29	29	29	29	29	—	29	29	—
No. Blades...Diameter — mm	12...762	12...762	12...762	12...762	12...762	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW	10...37.0	10...37.0	10...37.0	12...44.4	12...44.4	10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2
Total Airflow...L/s**	47 190	47 190	47 190	56 630	56 630	47 190	28 315	75 505	47 190	28 315	75 505
CONDENSER COILS — Type						Vertical and Horizontal, Plate Fin, Enhanced Tubing					
Tubes (Copper), OD — mm	9.53	9.53	9.53	9.53	9.53	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B	3	3	3	3	3	3	3	—	3	3	—
Face Area m² — Ckt A and B Total	20.92	20.92	20.92	20.92	20.92	20.92	11.92	32.84	20.92	11.92	32.84
Max Working Pressure Refrigerant — kPa	3103	3103	3103	3103	3103	3103	3103	—	3103	3103	—
COOLER — No. ...Type		One...Direct Expansion, Shell and Tube					One Per Module...Direct Expansion, Shell and Tube				
Weight (empty) — kg	600	600	741	741	848	600	338	938	600	338	938
No. Refrigerant Circuits	2	2	2	2	2	2	2	4	2	2	4
Net Fluid Volume — L (includes nozzles)	197	197	229	229	267	197.0	92.9	289.9	197.0	92.9	289.9
Max Working Pressure											
Refrigerant Side/Fluid Side — kPa	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.						Victaulic Type					
Inlet and Outlet	6	6	6	6	6	6	4	—	6	4	—
Drain (NPT)			¾			¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



SI (cont)

30GU UNIT SIZE	255			270			290			315		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — kg												
C-AL	4754	3914	8668	5133	3914	9 047	5761	3935	9 696	6081	3935	10 016
C-C	5342	4346	9688	5711	4346	10 057	6452	4368	10 820	6772	4368	11 140
REFRIGERANT CHARGE — kg												
R-134a	73.5/18.0	58.5/11.5	—/—	73.5/21.1	58.5/11.5	—/—	86.2/14.8	58.5/11.5	—/—	86.2/18.3	58.5/11.5	—/—
Ckt A Total/Over Clear Glass	73.5/18.0	58.5/11.5	—/—	73.5/21.1	58.5/11.5	—/—	86.2/14.8	58.5/11.5	—/—	86.2/18.3	58.5/11.5	—/—
Ckt B												
COMPRESSORS, Type...r/s												
06E* (Qty) Ckt A	(3) 165	(1) 165, (1) 175	—	(3) 175	(1) 165, (1) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 199	—	(3) 165, (1) 175	(1) 165, (1) 199	—
(Qty) Ckt B	(2) 199	(1) 165, (1) 175	—	(3) 175	(1) 165, (1) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175	—	(1) 175, (2) 199	(1) 165, (1) 175	—
Oil Charge† — Compressor/L												
Capacity Control Steps (Standard Unit)												
% Cap.	10	8	—	12	8	—	6	8	—	7	8	—
Ckt A	50	50	—	50	50	—	50	54	—	50	54	—
Ckt B	50	50	—	50	50	—	50	46	—	50	46	—
Minimum Step Capacity (%)	11	15	—	11	15	—	14	14	—	12	14	—
CONDENSER FANS — Type												
Standard/Low Noise												
Fan Speed — r/s	19	19	—	19	19	—	19	19	—	19	19	—
No. Blades...Diameter — mm	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—
No. Fans...Total kW	10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8
Total Airflow — L/s	47 190	35 864	85 054	47 190	35 864	83 054	56 630	35 864	92 494	56 630	35 864	92 494
High Static												
Fan Speed — r/s	29	29	—	29	29	—	29	29	—	29	29	—
No. Blades...Diameter — mm	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW	10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0
Total Airflow...L/s**	47 190	37 750	84 940	47 190	37 750	84 940	56 630	37 750	94 380	56 630	37 750	94 380
CONDENSER COILS — Type												
Tubes (Copper), OD — mm	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area m² — Ckt A and B Total	20.92	15.61	36.53	20.92	15.61	36.53	20.92	15.61	36.53	20.92	15.61	36.53
Max Working Pressure Refrigerant — kPa	3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
COOLER — No. ...Type												
Weight (empty) — kg	600	391	991	741	391	1132	741	391	1132	848	391	1239
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — L (includes nozzles)	197.0	114.6	311.6	229	114.6	343.6	229.0	114.6	343.6	267.0	114.6	381.6
Max Working Pressure												
Refrigerant Side/Fluid Side — kPa	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.												
Inlet and Outlet	6	5	—	6	5	—	6	5	—	6	5	—
Drain (NPT)	¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

SI (cont)

30GU UNIT SIZE	330			360			390			420		
SYSTEM MODULES	A	B	total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg												
C-AL	5133	5133	10 266	5761	5761	11 522	6081	5761	11 842	6081	6081	12 162
C-C	5711	5711	11 422	6452	6452	12 904	6772	6452	13 224	6772	6772	13 544
REFRIGERANT CHARGE — kg												
R-134a Ckt A Total/Over Clear Glass	73.5/21.1	73.5/21.1	—/—	86.2/14.8	86.2/14.8	—/—	86.2/18.3	86.2/14.8	—/—	86.2/18.3	86.2/18.3	—/—
Ckt B	73.5/21.1	73.5/21.1	—/—	86.2/14.8	86.2/14.8	—/—	86.2/18.3	86.2/14.8	—/—	86.2/18.3	86.2/18.3	—/—
COMPRESSORS, Type...r/s												
06E* (Qty) Ckt A	(3) 175	(3) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175, (1) 199	—	(3) 165, (1) 175	(1) 165, (1) 175, (1) 199	—	(3) 165, (1) 175	(3) 165, (1) 175	—
(Qty) Ckt B	(3) 175	(3) 175	—	(1) 165, (1) 175, (1) 199	(1) 165, (1) 175, (1) 199	—	(1) 175, (2) 199	(1) 165, (1) 175, (1) 199	—	(1) 175, (2) 199	(1) 175, (2) 199	—
Oil Charge† — Compressor/L												
							165/9.0, 175/9.0, 199/9.0					
Capacity Control Steps (Standard Unit)	12	12	—	6	6	—	7	6	—	7	7	—
% Cap. Ckt A	50	50	—	50	50	—	50	50	—	50	50	—
Ckt B	50	50	—	50	50	—	50	50	—	50	50	—
Minimum Step Capacity (%)	11	11	—	14	14	—	12	14	—	12	12	—
CONDENSER FANS — Type												
Standard/Low Noise							Propeller, Direct Drive					
Fan Speed — r/s	19	19	—	19	19	—	19	19	—	19	19	—
No. Blades...Diameter — mm	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—
No. Fans...Total kW	10...15.9	10...15.9	20...31.8	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — L/s	47 190	47 190	94 380	56 630	56 630	113 260	56 630	56 630	113 260	56 630	56 630	113 260
High Static												
Fan Speed — r/s	29	29	—	29	29	—	29	29	—	29	29	—
No. Blades...Diameter — mm	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW	10...37.0	10...37.0	20...74.0	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow...L/s**	47 190	47 190	94 380	56 630	56 630	113 260	56 630	56 630	113 260	56 630	56 360	113 260
CONDENSER COILS — Type												
Tubes (Copper), OD — mm	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area m ² — Ckt A and B Total	20.92	20.92	41.84	20.92	20.92	41.84	20.92	20.92	41.84	20.92	20.92	41.84
Max Working Pressure Refrigerant — kPa	3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
COOLER — No. ...Type												
Weight (empty) — kg	741	741	1482	741	741	1482	848	741	1589	848	848	1696
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — L (includes nozzles)	229	229	458	229	229	458	267.0	229.0	496	267.0	257.0	534
Max Working Pressure Refrigerant Side/Fluid Side — kPa	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.												
Inlet and Outlet	6	6	—	6	6	—	6	6	—	6	6	—
Drain (NPT)	¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



ENGLISH

30GU UNIT SIZE	040	045	050	060	070	080	090	100	110
SYSTEM MODULES	—	—	—	—	—	—	—	—	—
APPROX OPERATING WEIGHT — lb									
C-AL	3,550	3,736	3,916	4,780	5,453	6,720	7,135	8,710	8,840
C-C	3,878	4,024	4,349	5,197	6,081	7,445	7,860	9,660	9,790
REFRIGERANT CHARGE — lb									
R-134a Ckt A Total/Over Clear Glass Ckt B	53/16 60/15	53/16 60/16	68/17 79/16	67/19 76/21	96/20 96/21	102/20 102/20	102/20 102/20	129/25 129/25	129/25 129/25
COMPRESSORS, Type...rpm									
06E* (Qty) Ckt A	(1) 150	(1) 165	(1) 175	(1) 199	(2) 165	(1) 165, (1) 199	(1) 165, (1) 199	(1) 165, (1) 199	(2) 199
(Qty) Ckt B	(1) 165	(1) 175	(1) 199	(1) 199	(1) 199	(1) 199	(1) 165, (1) 175	(1) 165, (1) 199	(2) 199
Oil Charge† — Compressor/pt					150/17, 165/19, 175/19, 199/19				
Capacity Control Steps (Standard Unit)									
% Cap.	4	4	4	4	7	6	8	8	8
Ckt A	42	48	43	50	58	62	54	50	50
Ckt B	58	52	57	50	42	38	46	50	50
Minimum Step Capacity (%)	21	32	29	33	19	16	14	13	17
CONDENSER FANS — Type									
Standard/Low Noise									
Fan Speed — rpm									
No. Blades...Diameter — in.									
No. Fans...Total kW									
Total Airflow — cfm									
High Static									
Fan Speed — rpm									
No. Blades...Diameter — in.									
No. Fans...Total kW									
Total Airflow...cfm**									
CONDENSER COILS — Type									
Tubes (Copper), OD — in.									
No. Rows — Ckt A or B									
Face Area sq ft — Ckt A and B Total									
Max Working Pressure Refrigerant — psig									
COOLER — No. ...Type									
Weight (empty) — lb									
No. Refrigerant Circuits									
Net Fluid Volume — Gal. (includes nozzles)									
Max Working Pressure									
Refrigerant Side/Fluid Side — psig									
FLUID CONNECTIONS — in.									
Inlet and Outlet	3	3	3	4	4	4	4	5	5
Drain (NPT)						¾			

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

ENGLISH (cont)

30GU UNIT SIZE	130	150	170	190	210	230			245		
SYSTEM MODULES	—	—	—	—	—	A	B	total	A	B	Total
APPROX OPERATING WEIGHT — lb											
C-AL	10,511	10,676	11,443	12,906	13,545	10,676	6720	17,396	10,676	7135	17,811
C-C	11,783	11,948	12,715	14,425	15,064	11,948	7445	19,393	11,948	7860	19,808
REFRIGERANT CHARGE — lb											
R-134a Ckt A Total/Over Clear Glass	162/34	162/39	162/46	190/32	190/40	162/39	102/20	—/—	162/39	102/20	—/—
Ckt B	162/34	162/39	162/46	190/32	190/40	162/39	102/20	—/—	162/39	102/20	—/—
COMPRESSORS, Type...rpm						Reciprocating, Semi-Hermetic...1450					
06E* (Qty) Ckt A	(1) 165, (2) 175	(3) 199	(2) 175, (1) 199	(3) 199	(2) 165, (2) 199	(3) 199	(1) 165, (1) 199	—	(3) 199	(1) 165, (1) 199	—
(Qty) Ckt B	(2) 199	(2) 199	(1) 175, (2) 199	(3) 199	(3) 199	(2) 199	(1) 199	—	(2) 199	(1) 165, (1) 175	—
Oil Charge† — Compressor/pt	165/19, 175/19, 199/19										
Capacity Control Steps (Standard Unit)	10	10	12	6	7	10	6	—	10	8	—
% Cap. Ckt A	52	60	48	50	52	60	62	—	60	54	—
Ckt B	48	40	52	50	48	40	38	—	40	46	—
Minimum Step Capacity (%)	10	13	10	17	10	13	16	—	13	14	—
CONDENSER FANS — Type						Propeller, Direct Drive					
Standard/Low Noise											
Fan Speed — rpm	950	950	950	950	950	950	950	—	950	950	—
No. Blades...Diameter — in.	6...30	6...30	6...30	6...30	6...30	6...30	6...30	—	6...30	6...30	—
No. Fans...Total kW	10...15.9	10...15.9	10...15.9	12...19.1	12...19.1	10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3
Total Airflow — cfm	100,000	100,000	100,000	120,000	120,000	100,000	57,000	157,000	100,000	57,000	157,000
High Static											
Fan Speed — rpm	1445	1445	1445	1445	1445	1445	1445	—	1445	1445	—
No. Blades...Diameter — in.	6...30	6...30	6...30	12...30	12...30	6...30	12...30	—	6...30	12...30	—
No. Fans...Total kW	10...37.0	10...37.0	10...37.0	12...44.4	12...44.4	10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2
Total Airflow...cfm**	100,000	100,000	100,000	120,000	120,000	100,000	60,000	160,000	100,000	60,000	160,000
CONDENSER COILS — Type						Vertical and Horizontal, Plate Fin, Enhanced Tubing					
Tubes (Copper), OD — in.	0.375	0.375	0.375	0.375	0.375	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B	3	3	3	3	3	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	225.1	225.1	225.1	268.9	268.9	225.1	128.3	353.4	225.1	128.3	353.4
Max Working Pressure Refrigerant — psig	450	450	450	450	450	450	450	—	450	450	—
COOLER — No. ...Type		One...Direct Expansion, Shell and Tube					One Per Module...Direct Expansion, Shell and Tube				
Weight (empty) — lb	1320	1320	1630	1630	1865	1320	745	2065	1320	745	2065
No. Refrigerant Circuits	2	2	2	2	2	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)	52.0	52.0	61.0	61.0	70.4	52.0	24.5	76.5	52.0	24.5	76.5
Max Working Pressure											
Refrigerant Side/Fluid Side — psig	278/300	278/300	278/300	278/300	278/300	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.						Victaulic Type					
Inlet and Outlet	6	6	6	6	6	6	4	—	6	4	—
Drain (NPT)			¾			¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



ENGLISH (cont)

30GU UNIT SIZE		255			270			290			315		
SYSTEM MODULES		A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — lb													
C-AL		10,676	8710	19,386	11,443	8710	20,153	12,906	8840	21,746	13,545	8840	22,385
C-C		11,948	9660	21,608	12,715	9660	22,375	14,425	9790	24,215	15,064	9790	24,854
REFRIGERANT CHARGE — lb													
R-134a		162/39	129/25	—/—	162/46	129/25	—/—	190/32	129/25	—/—	190/40	129/25	—/—
	Ckt A Total/Over Clear Glass Ckt B	162/39	129/25	—/—	162/46	129/25	—/—	190/32	129/25	—/—	190/40	129/25	—/—
COMPRESSORS, Type...rpm													
06E*	(Qty) Ckt A	(3) 199	(1) 165, (1) 199	—	(2) 175, (1) 199	(1) 165, (1) 199	—	(3) 199	(2) 199	—	(2) 165, (2) 199	(2) 199	—
	(Qty) Ckt B	(2) 199	(1) 165, (1) 199	—	(1) 175, (2) 199	(1) 165, (1) 199	—	(3) 199	(2) 199	—	(3) 199	(2) 199	—
Oil Charge† — Compressor/pt													
Capacity Control Steps (Standard Unit)													
% Cap.	Ckt A	10	8	—	12	8	—	6	8	—	7	8	—
	Ckt B	60	50	—	48	50	—	50	50	—	52	50	—
	Ckt C	40	50	—	52	50	—	17	50	—	48	50	—
Minimum Step Capacity (%)		13	13	—	10	13	—	17	17	—	10	17	—
CONDENSER FANS — Type													
Standard/Low Noise													
Fan Speed — rpm		950	950	—	950	950	—	950	950	—	950	950	—
No. Blades...Diameter — in.		6...30	6...30	—	6...30	6...30	—	6...30	6...30	—	6...30	6...30	—
No. Fans...Total kW		10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8
Total Airflow — cfm		100,000	76,000	176,000	100,000	76,000	176,000	120,000	76,000	196,000	120,000	76,000	196,000
High Static													
Fan Speed — rpm		1445	1445	—	1445	1750	—	1445	1445	—	1445	1445	—
No. Blades...Diameter — in.		6...30	12...30	—	6...30	12...30	—	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW		10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0
Total Airflow...cfm**		100,000	80,000	180,000	100,000	80,000	180,000	120,000	80,000	200,000	120,000	80,000	200,000
CONDENSER COILS — Type													
Tubes (Copper), OD — in.		0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B		3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total		225.1	168.0	393.1	225.1	168.0	393.1	268.9	168.0	436.9	268.9	168.0	436.9
Max Working Pressure Refrigerant — psig		450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type													
Weight (empty) — lb		1320	860	2180	1630	860	2490	1630	860	2490	1865	860	2725
No. Refrigerant Circuits		2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)		52.0	30.3	82.3	61.0	30.3	91.3	61.0	30.3	91.3	70.4	30.3	100.7
Max Working Pressure		278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
Refrigerant Side/Fluid Side — psig		278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.													
Inlet and Outlet		6	5	—	6	5	—	6	5	—	6	5	—
Drain (NPT)		3/4	3/4	—	3/4	3/4	—	3/4	3/4	—	3/4	3/4	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 Ckt — Circuit
 ESP — External Static Pressure
 OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

ENGLISH (cont)

30GU UNIT SIZE	330			360			390			420		
SYSTEM MODULES	A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — lb												
C-AL	11,443	11,443	22,886	12,906	11,443	24,349	13,545	12,906	26,451	13,545	13,545	27,090
C-C	12,715	12,715	25,430	14,425	12,715	38,140	15,064	14,425	29,489	15,064	15,064	30,128
REFRIGERANT CHARGE — lb												
R-134a Ckt A Total/Over Clear Glass	162/46	162/46	—/—	190/32	162/46	—/—	190/40	190/32	—/—	190/40	190/40	—/—
Ckt B	162/46	162/46	—/—	190/32	162/46	—/—	190/40	190/32	—/—	190/40	190/40	—/—
COMPRESSORS, Type...rpm	Reciprocating, Semi-Hermetic...1450											
06E* (Qty) Ckt A	(1) 175, (1) 199	(2) 175, (1) 199	—	(3) 199	(2) 175, (1) 199	—	(2) 165, (2) 199	(3) 199	—	(2) 165, (2) 199	(2) 165, (2) 199	—
(Qty) Ckt B	(1) 175, (2) 199	(1) 175, (2) 199	—	(3) 199	(1) 175, (2) 199	—	(3) 199	(3) 199	—	(3) 199	(3) 199	—
Oil Charge† — Compressor/pt	165/19, 175/19, 199/19											
Capacity Control Steps (Standard Unit)	12	12	—	6	12	—	7	6	—	7	7	—
% Cap. Ckt A	48	48	—	50	48	—	52	50	—	52	52	—
Ckt B	52	52	—	50	52	—	48	50	—	48	48	—
Minimum Step Capacity (%)	10	10	—	17	10	—	10	17	—	10	10	—
CONDENSER FANS — Type	Propeller, Direct Drive											
Standard/Low Noise												
Fan Speed — rpm	950	950	—	950	950	—	950	950	—	950	950	—
No. Blades...Diameter — in.	6...30	6...30	—	6...30	6...30	—	6...30	6...30	—	6...30	6...30	—
No. Fans...Total kW	10...15.9	10...15.9	20...15.9	12...19.1	10...15.9	22...35	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — cfm	100,000	100,000	200,000	120,000	100,000	220,000	120,000	120,000	240,000	120,000	120,000	240,000
High Static												
Fan Speed — rpm	1445	1445	—	1445	1445	—	1445	1445	—	1445	1445	—
No. Blades...Diameter — in.	6...30	6...30	—	12...30	6...30	—	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW	10...37.0	10...37.0	20...74.0	12...44.4	10...37	22...81.4	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow...cfm**	100,000	100,000	200,000	120,000	100,000	220,000	120,000	120,000	240,000	120,000	120,000	240,000
CONDENSER COILS — Type	Vertical and Horizontal, Plate Fin, Enhanced Tubing											
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	225.1	225.1	450.2	268.9	225.1	494	268.9	268.9	537.8	268.9	268.9	537.8
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type	One Per Module...Direct Expansion, Shell and Tube											
Weight (empty) — lb	1630	1630	3260	1630	1630	3260	1865	1630	3495	1865	1865	3730
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)	61.0	61.0	122.0	61.0	61.0	122	70.4	61.0	131.4	70.4	70.4	140.8
Max Working Pressure												
Refrigerant Side/Fluid Side — psig	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.	Victaulic Type											
Inlet and Outlet	6	6	—	6	6	—	6	6	—	6	6	—
Drain (NPT)	¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 0.4 in. wg or 1.0 in. wg as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



SI

30GU UNIT SIZE	040	045	050	060	070	080	090	100	110
SYSTEM MODULES									
APPROX OPERATING WEIGHT — kg									
C-AL	1628	1694	1776	2168	2473	3055	3243	3960	4018
C-C	1759	1825	1972	2357	2758	3384	3573	4390	4450
REFRIGERANT CHARGE — kg									
R-134a Ckt A Total/Over Clear Glass Ckt B	24.0/7.2 27.2/6.8	24.0/7.2 27.0/7.2	30.8/7.7 35.8/7.2	30.4/8.6 34.5/9.5	43.5/9.0 43.5/9.0	46.3/9.0 46.3/9.0	46.3/9.0 46.3/9.0	58.5/11.5 58.5/11.5	58.5/11.5 58.5/11.5
COMPRESSORS, Type...r/s									
06E* (Qty) Ckt A	(1) 150	(1) 165	(1) 175	(1) 199	(2) 165	(1) 165, (1) 199	(1) 165, (1) 199	(1) 165, (1) 199	(2) 199
(Qty) Ckt B	(1) 165	(1) 175	(1) 199	(1) 199	(1) 199	(1) 199	(1) 165, (1) 175	(1) 165, (1) 199	(2) 199
Oil Charge† — Compressor/L									
Capacity Control Steps (Standard Unit)									
% Cap.	4	4	4	4	7	6	8	8	8
Ckt A	42	48	43	50	58	62	54	50	50
Ckt B	58	52	57	50	42	38	46	50	50
Minimum Step Capacity (%)	21	32	29	33	19	16	14	13	17
CONDENSER FANS — Type									
Standard/Low Noise									
Fan Speed — r/s									
No. Blades...Diameter — mm									
No. Fans...Total kW									
Total Airflow — L/s	4...6.2 16 517	4...6.2 16 517	4...6.2 16 045	6...9.3 24 540	6...9.3 24 068	6...9.4 26 898	6...9.4 26 898	8...12.7 35 864	8...12.7 35 864
High Static									
Fan Speed — r/s									
No. Blades...Diameter — mm									
No. Fans...Total kW	4...14.8 18 876	4...14.8 18 876	4...14.8 18 876	6...22.2 28 314	6...22.2 28 314	6...22.2 28 315	6...22.2 28 315	8...29.6 37 750	8...29.6 37 750
Total Airflow...L/s**									
CONDENSER COILS — Type									
Tubes (Copper), OD — mm									
No. Rows — Ckt A or B	2	2	3	2	3	3	3	3	3
Face Area m ² — Ckt A and B Total	7.48	7.48	7.48	10.84	10.84	11.92	11.92	15.61	15.61
Max Working Pressure Refrigerant — kPa									
COOLER — No. ...Type									
Weight (empty) — kg									
No. Refrigerant Circuits	220	247	247	281	281	338	338	391	391
Net Fluid Volume — L (includes nozzles)	2	2	2	2	2	2	2	2	2
Max Working Pressure	41.3	51.2	51.2	68.3	68.3	92.9	92.9	114.6	114.6
Refrigerant Side/Fluid Side — kPa									
FLUID CONNECTIONS — in.									
Inlet and Outlet	3	3	3	4	4	4	4	5	5
Drain (NPT)									

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

SI (cont)

30GU UNIT SIZE	130	150	170	190	210	230			245		
SYSTEM MODULES	—	—	—	—	—	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg											
C-AL	4778	4852	5201	5866	6156	4852	3055	7907	4852	3243	8095
C-C	5335	5430	5779	6556	6847	5430	3384	8814	5430	4390	9003
REFRIGERANT CHARGE — kg											
R-134a Ckt A Total/Over Clear Glass	73.5/16.1	73.5/18.0	73.5/21.1	86.2/14.8	86.2/18.3	73.5/18.0	46.3/9.0	—/—	73.5/18.0	46.3/9.0	—/—
Ckt B	73.5/16.1	73.5/18.0	73.5/21.1	86.2/14.8	86.2/18.3	73.5/18.0	46.3/9.0	—/—	73.5/18.0	46.3/9.0	—/—
COMPRESSORS, Type...r/s						Reciprocating, Semi-Hermetic...24.2					
06E* (Qty) Ckt A	(1) 165, (2) 175	(3) 199	(2) 175, (1) 199	(3) 199	(2) 165, (2) 199	(3) 199	(1) 165, (1) 199	—	(3) 199	(1) 165, (1) 199	—
(Qty) Ckt B	(2) 199	(2) 199	(1) 175, (2) 199	(3) 199	(3) 199	(2) 199	(1) 199	—	(2) 199	(1) 165, (1) 175	—
Oil Charge† — Compressor/L	165/9.0, 175/9.0, 199/9.0										
Capacity Control Steps (Standard Unit)	10	10	12	6	7	10	6	—	10	8	—
% Cap. Ckt A	52	60	48	50	52	60	62	—	60	54	—
Ckt B	48	40	52	50	48	40	38	—	40	46	—
Minimum Step Capacity (%)	10	13	10	17	10	13	16	—	13	14	—
CONDENSER FANS — Type						Propeller, Direct Drive					
Standard/Low Noise											
Fan Speed — r/s	15.8	15.8	15.8	15.8	15.8	15.8	15.8	—	15.8	15.8	—
No. Blades...Diameter — mm	6...762	6...762	6...762	6...762	6...762	6...762	6...762	—	6...762	6...762	—
No. Fans...Total kW	10...15.9	10...15.9	10...15.9	12...19.1	12...19.1	10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3
Total Airflow — L/s	47 190	47 190	47 190	56 630	56 630	47 190	26 898	74 088	47 190	26 898	74 088
High Static											
Fan Speed — r/s	24.1	24.1	24.1	24.1	24.1	24.1	29	—	24.1	29	—
No. Blades...Diameter — mm	12...762	12...762	12...762	12...762	12...762	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW	10...37.0	10...37.0	10...37.0	12...44.4	12...44.4	10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2
Total Airflow...L/s**	47 190	47 190	47 190	56 630	56 630	47 190	28 315	75 505	47 190	28 315	75 505
CONDENSER COILS — Type						Vertical and Horizontal, Plate Fin, Enhanced Tubing					
Tubes (Copper), OD — mm	9.53	9.53	9.53	9.53	9.53	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B	3	3	3	3	3	3	3	—	3	3	—
Face Area m ² — Ckt A and B Total	20.92	20.92	20.92	24.98	24.98	20.92	11.92	32.84	20.92	11.92	32.84
Max Working Pressure Refrigerant — kPa	3103	3103	3103	3103	3103	3103	3103	—	3103	3103	—
COOLER — No. ...Type											
Weight (empty) — kg	600	One...Direct Expansion, Shell and Tube				848	One Per Module...Direct Expansion, Shell and Tube				938
No. Refrigerant Circuits	2	600	741	741	2	2	338	938	600	338	2
Net Fluid Volume — L (includes nozzles)	197	2	2	2	2	2	2	4	2	2	4
Max Working Pressure	197	197	229	229	267	197.0	92.9	289.9	197.0	92.9	289.9
Refrigerant Side/Fluid Side — kPa	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.						Victaulic Type					
Inlet and Outlet	6	6	6	6	6	6	4	—	6	4	—
Drain (NPT)			¾			¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



Physical data (cont) — 50 Hz (cont)



SI (cont)

30GU UNIT SIZE		255			270			290			315		
SYSTEM MODULES		A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg													
C-AL		4852	3960	8812	5201	3960	9161	5866	4018	9884	6156	4018	10174
C-C		5430	4390	9820	5779	4390	10169	6556	4450	11006	6847	4450	11297
REFRIGERANT CHARGE — kg													
R-134a		73.5/18.0	58.5/11.5	—/—	73.5/21.1	58.5/11.5	—/—	86.2/14.8	58.5/11.5	—/—	86.2/18.3	58.5/11.5	—/—
	Ckt A Total/Over Clear Glass Ckt B	73.5/18.0	58.5/11.5	—/—	73.5/21.1	58.5/11.5	—/—	86.2/14.8	58.5/11.5	—/—	86.2/18.3	58.5/11.5	—/—
COMPRESSORS, Type...r/s													
06E*	(Qty) Ckt A	(3) 199	(1) 165, (1) 199	—	(2) 175, (1) 199	(1) 165, (1) 199	—	(3) 199	(2) 199	—	(2) 165, (2) 199	(2) 199	—
	(Qty) Ckt B	(2) 199	(1) 165, (1) 199	—	(1) 175, (2) 199	(1) 165, (1) 199	—	(3) 199	(2) 199	—	(3) 199	(2) 199	—
Oil Charge† — Compressor/L													
Capacity Control Steps (Standard Unit)													
% Cap.	Ckt A	10	8	—	12	8	—	6	8	—	7	8	—
	Ckt B	60	50	—	48	50	—	50	50	—	52	50	—
Minimum Step Capacity (%)	Ckt B	40	50	—	52	50	—	50	50	—	48	50	—
	Ckt B	13	13	—	10	13	—	17	17	—	10	17	—
CONDENSER FANS — Type													
Standard/Low Noise													
Fan Speed — r/s													
No. Blades...Diameter — mm		15.8	15.8	—	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—
No. Fans...Total kW		6...762	6...762	—	6...762	6...762	—	6...762	6...762	—	6...762	6...762	—
Total Airflow — L/s		10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8
High Static		47190	35864	83054	47190	35864	83054	56630	35864	92494	56630	35864	92494
Fan Speed — r/s		24.1	29	—	24.1	29	—	24.1	29	—	24.1	29	—
No. Blades...Diameter — mm		12...762	12...762	—	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW		10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0
Total Airflow...L/s**		47190	37750	84940	47190	37750	84940	56630	37750	94380	56630	37750	94380
CONDENSER COILS — Type													
Tubes (Copper), OD — mm		9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B		3	3	—	3	3	—	3	3	—	3	3	—
Face Area m² — Ckt A and B Total		20.92	15.61	36.53	20.92	15.61	36.53	24.98	15.61	40.59	24.98	15.61	40.59
Max Working Pressure Refrigerant — kPa		3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
COOLER — No. ...Type													
Weight (empty) — kg		600	391	991	741	391	1132	741	391	1132	848	391	1239
No. Refrigerant Circuits		2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — L (includes nozzles)		197.0	114.6	311.6	229	114.6	343.6	229.0	114.6	343.6	267.0	114.6	381.6
Max Working Pressure		1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
Refrigerant Side/Fluid Side — kPa		1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.													
Inlet and Outlet		6	5	—	6	5	—	6	5	—	6	5	—
Drain (NPT)		3/4	3/4	—	3/4	3/4	—	3/4	3/4	—	3/4	3/4	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.

SI (cont)

30GU UNIT SIZE	330			360			390			420		
SYSTEM MODULES	A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg												
C-AL	5201	5201	10 402	5866	5201	11 067	6156	5866	12 022	6156	6156	12 312
C-C	5779	5779	11 558	6556	5779	12 235	6847	6556	13 403	6847	6847	13 694
REFRIGERANT CHARGE — kg												
R-134a Ckt A Total/Over Clear Glass	73.5/21.1	73.5/21.1	—/—	86.2/14.8	73.5/21.1	—/—	86.2/18.3	86.2/14.8	—/—	86.2/18.3	86.2/18.3	—/—
Ckt B	73.5/21.1	73.5/21.1	—/—	86.2/14.8	73.5/21.1	—/—	86.2/18.3	86.2/14.8	—/—	86.2/18.3	86.2/18.3	—/—
COMPRESSORS, Type...r/s	Reciprocating, Semi-Hermetic...24.2											
06E* (Qty) Ckt A	(2) 175, (1) 199	(2) 175, (1) 199	—	(3) 199	(2) 175, (1) 199	—	(2) 165, (2) 199	(3) 199	—	(2) 165, (2) 199	(2) 165, (2) 199	—
(Qty) Ckt B	(1) 175, (2) 199	(1) 175, (2) 199	—	(3) 199	(1) 175, (2) 199	—	(3) 199	(3) 199	—	(3) 199	(3) 199	—
Oil Charge† — Compressor/L	165/9.0, 175/9.0, 199/9.0											
Capacity Control Steps (Standard Unit)	12	12	—	6	12	—	7	6	—	7	7	—
% Cap. Ckt A	48	48	—	50	48	—	52	50	—	52	52	—
Ckt B	52	52	—	50	52	—	48	50	—	48	48	—
Minimum Step Capacity (%)	10	10	—	17	10	—	10	17	—	10	10	—
CONDENSER FANS — Type	Propeller, Direct Drive											
Standard/Low Noise												
Fan Speed — r/s	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—
No. Blades...Diameter — mm	6...762	6...762	—	6...762	6...762	—	6...762	6...762	—	6...762	6...762	—
No. Fans...Total kW	10...15.9	10...15.9	20...31.8	12...19.1	10...15.9	22...35	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — L/s	47 190	47 190	94 380	56 630	47 190	103 820	56 630	56 630	113 260	56 630	56 630	113 260
High Static												
Fan Speed — r/s	24.1	24.1	—	24.1	24.1	—	24.1	24.1	—	24.1	24.1	—
No. Blades...Diameter — mm	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—
No. Fans...Total kW	10...37.0	10...37.0	20...74	12...44.4	10...37.0	22...81.4	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow...L/s**	47 190	47 190	94 380	56 630	47 190	103 820	56 630	56 630	113 260	56 630	56 630	113 260
CONDENSER COILS — Type	Vertical and Horizontal, Plate Fin, Enhanced Tubing											
Tubes (Copper), OD — mm	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area m ² — Ckt A and B Total	20.92	20.92	41.84	24.98	20.92	45.9	24.98	24.98	49.96	24.98	24.98	49.96
Max Working Pressure Refrigerant — kPa	3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
COOLER — No. ...Type	One Per Module...Direct Expansion, Shell and Tube											
Weight (empty) — kg	741	741	1482	741	741	1482	848	741	1589	848	848	1696
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — L (includes nozzles)	229	229	458	229	229	458	267	229	496	267	267	534
Max Working Pressure												
Refrigerant Side/Fluid Side — kPa	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
FLUID CONNECTIONS — in.	Victaulic Type											
Inlet and Outlet	6	6	—	6	6	—	6	6	—	6	6	—
Drain (NPT)	¾	¾	—	¾	¾	—	¾	¾	—	¾	¾	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
Ckt — Circuit
ESP — External Static Pressure
OD — Outside Diameter

*06E150 compressors have 4 cylinders; all others have 6.

†Recommended oil is an ISO (International Standards Organization) viscosity grade 68, inhibited polyolester-based (POE), synthetic compressor oil.

**Based on rated ESP of 100 Pa or 250 Pa as appropriate.

NOTE: When facing the compressors, Circuit A is on the right and Circuit B is on the left.



Factory-installed options



Hot gas bypass (30GU040-070) — Hot gas bypass option allows additional capacity reduction for unit operation below the minimum step of unloading. It is available on 30GU040-070 units.

NOTE: Accessory unloaders (where available) eliminate the need for hot gas bypass and provide a more efficient solution.

Part-wind (PW) start — Generally, PW start is not required where multiple 06E compressors are installed. The starting current is generally lower than a larger compressor using PW start. However, a part-wind start option is available (denoted by a **P** in the fifth position of the unit model number).

Motormaster® III low ambient control — The Motormaster III head pressure control device is available from the factory. This control permits operation of 30GU units to –20 F (–29 C) ambient temperature. The control is pre-wired at the factory. This control is also available as a field-installed accessory.

Brine — The Brine option permits supply liquid temperatures to be set to a minimum of 15 F (–9.4 C). Refrigeration circuit components, such as the expansion device, are modified to correct for the lower refrigeration flow rates.

Cooler heater — Cooler heaters may be factory installed. The package includes tape heaters and controls to energize the heater at 35 F (2 C) and below (down to –20 F [–29 C]).

High-static fans — The high-static fans allow the 30GU units to be used in applications with an external static pressure of up to 1 in. wg (external to the chiller) at nominal condenser airflow. Two options are available: 0.4 in. wg (100 kPa) and 1 in. wg (250 kPa).

Non-fused disconnect — A non-fused electrical disconnect is available factory installed.

Sound reduction package kit — This kit consists of a specially designed system of condenser fans and acoustic enclosures to reduce system sound levels without compromising unit performance. This is also available as a field-installed accessory.

Condenser coil options — Several options are available to match coil construction to site conditions for the best corrosion durability. Precoated coils provide improved protection in mild coastal environments. All copper coils are best suited for moderate coastal applications, while post-coated coils provide superior protection in severe coastal and industrial applications.

CONDENSER COIL PROTECTION APPLICATIONS

DESCRIPTION (Enviro-Shield™ Option)	ENVIRONMENT *					
	Standard, Non-Corrosive	Mild Coastal	Moderate Coastal	Severe Coastal	Industrial	Combined Coastal & Industrial
Standard, Al/Cu	X					
Pre-Coated Al/Cu		X				
Cu/Cu			X			
Post-Coated Al/Cu					X	
Post-Coated Cu/Cu				X		X

LEGEND

- Al/Cu — Aluminum Fin with Copper Tube Coil
- Cu/Cu — Copper Fin with Copper Tube Coil
- Enviro-Shield — Family of Coil Protection Options
- Post-Coated — Organic Coating Applied to Entire Coil Assembly
- Pre-Coated — Epoxy Coating Applied to Fin Stock Material

*See "Selection Guide: Environmental Corrosion Protection" Catalog No. 811-839 for more information.

Field-installed accessories



Hot gas bypass package — Accessory package includes control solenoid valves and the hot gas bypass valve. Piping and electrical connections are made easy by factory-provided piping stubs and electrical terminal blocks. This accessory is available for sizes 080-420.

Gage panel — This accessory package includes one suction gage and one discharge gage mounted on the same panel, with a shutoff valve for each gage. Two gage panels are required for each unit (one per circuit).

Motormaster® III control — This device permits unit operation down to -20 F (-29 C). The package includes sensor, control, and installation hardware. Factory-installed fan motors compatible with the Motormaster III require no field motor changes. A Motormaster III control is required for **each** circuit. In 575-v applications, 4 transformers must be field supplied. This is also available as a factory-installed option.

Chilled fluid flow switch — Although low fluid flow detection is provided by the unit internal control devices, this accessory is available for field installation.

Temperature reset — This accessory provides leaving-fluid temperature reset. The accessory lets the unit reset the leaving-fluid temperature to a higher value during low-load conditions. Temperature reset can be initiated from return-fluid temperature, space temperature, or outdoor-air temperature.

NOTE: An accessory thermistor is required for outdoor-air and space temperature reset.

Demand limit control module — This prewired accessory board has a 2-point adjustment (0 to 49% and 50 to 100%). Demand limiting is activated by a remote signal, either 115 v or 230 v.

NOTE: If application requires reset to be determined based on space or outdoor-air temperature, an additional field-installed sensor (T10) is required.

Control transformer — The transformer is sized to supply the needs of the control circuit, sourcing power from the main unit power connection.

Sound reduction kit — Kit consists of a specially designed fan system of fans and acoustic enclosures for reducing unit sound levels without compromising performance. No fan motor change is required, and the fan system is compatible with the Motormaster III control. Accessory is packaged in sets of 2 per package. Accessory is also available as a factory-installed option.

Security grilles for condenser coils and/or compressor section — These accessory grilles mount to the condenser coil shelf and to the base rail.

Condenser coil hail guard package — The package includes louvered condenser coil hail guards, and installation hardware.

Unloaders (size 040-070, 290B, 360A [50 Hz], 360A/B [60 Hz] and 390B units) — Unloaders operate more efficiently than (and eliminate the need for) hot gas bypass. One unloader may be added to the lead compressor of each circuit, if desired.

Convenience outlet — This accessory kit provides a 115-v GFI (Ground Fault Interrupter) female receptacle. The outlet is field mounted in the control box and is powered by the unit control circuit.

Trim kit (size 230-420 units) — An accessory trim kit is available for field installation between the 2 unit modules. The kit contains sheet metal pieces and all necessary mounting hardware.

Remote cooler mounting — This accessory kit permits indoor relocation of the cooler up to 75 ft (22 m) away from base unit.

Multi-chiller control — The control panel sequences up to 4 chillers and circulating pumps by sensing mixed leaving-water temperature.

The control features include:

- lead/lag control for reliable compressor operation
- 7-day programmable timeclock for scheduling flexibility and energy savings
- daylight savings time changeover for accurate scheduling
- a.m./p.m. time display
- battery back-up of programmed events for reliable operation

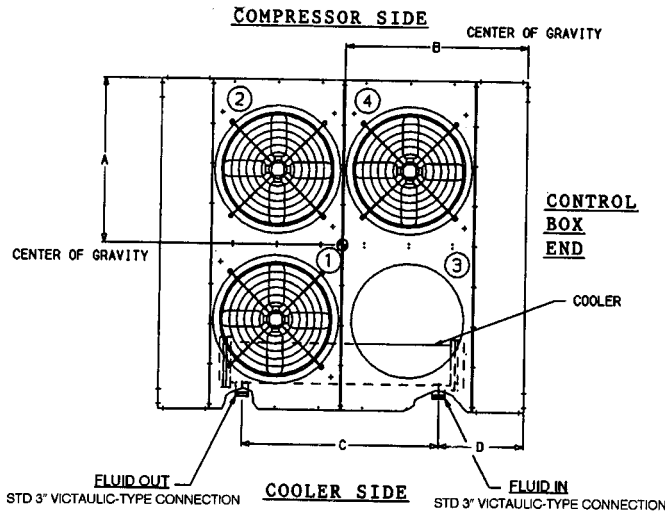
Unit control display access door — This door provides easy access to the unit control module through a see-through door without having to open or remove control box panels.

High-ambient kit (30GU130-210) — This kit may be required in areas where the outdoor ambient temperatures are expected to be above 115 F (46.1 C) and return fluid temperatures are expected to be above 60 F (15.5 C).

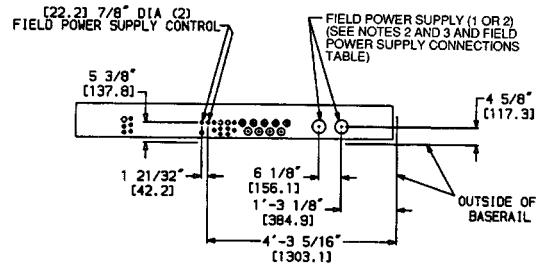
Ground current protection (size 040-060 and 070 60 Hz units) — The kit includes an electronic sensor that monitors all phases of the 3-phase power supply to the compressor. At the first sign of a short to the ground, the sensor shuts down the compressor to prevent contamination of the refrigerant system. This protection is an accessory for 040-060 and 070 (60 Hz) sizes only (standard on 070 [50 Hz] and 080-420 sizes).

Oil pressure switch package (size 040-070 units) — The package includes 2 oil pressure switches for unit. The switch mounts on lead compressor in each refrigerant circuit. This is an accessory for 040-070 sizes (standard on 080-420 sizes).

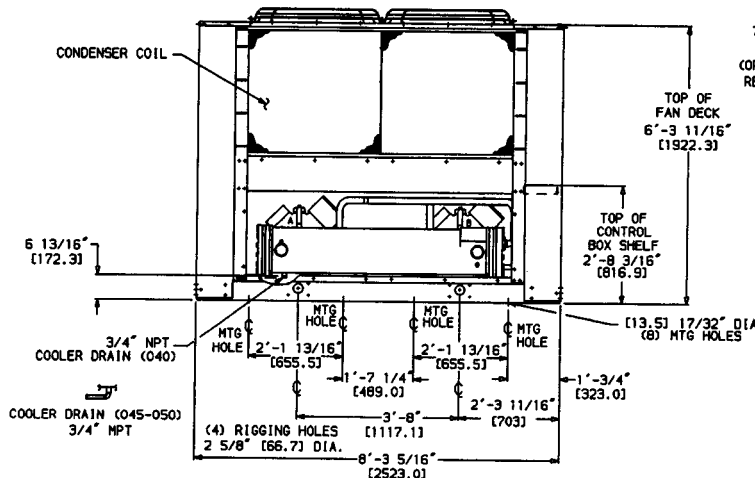
Dimensions — 30GU040-050



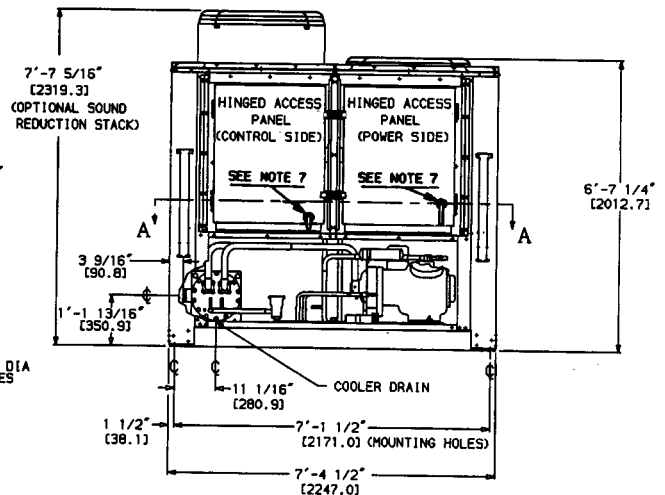
TOP VIEW



VIEW A-A
TOP VIEW OF CONTROL BOX SHELF
WITH FIELD POWER SUPPLY CONNECTIONS.



SIDE VIEW



END VIEW

LEGEND

C — Copper Fins, Copper Tubing
Mtg — Mounting

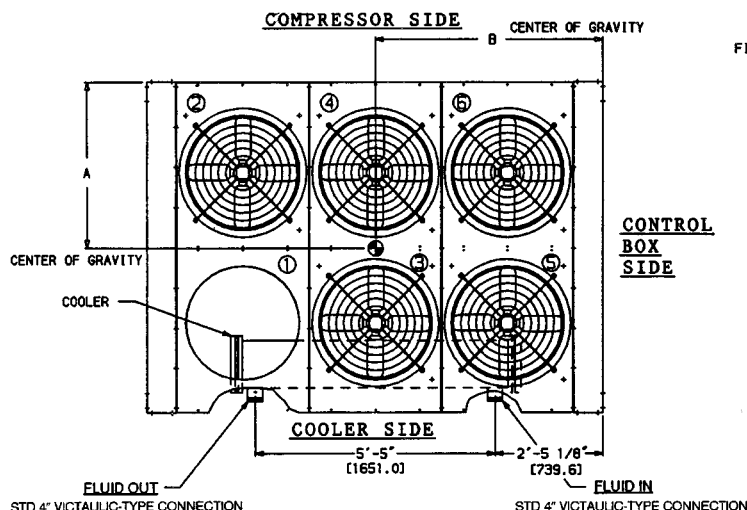
NOTES:

- Unit must have clearances for airflow as follows:
TOP — Do not restrict in any way.
ENDS — [1524] 5 ft
SIDES — [1829] 6 ft
- 2.00" dia holes are recommended for parallel conductors on 040 and 045 (208/230 V) units.
- 3/8" dia hole is recommended for single entry power on 050 (208/230 V) units.
- Mounting holes may be used to mount unit to concrete pad. They are not recommended for spring isolator location.
- If spring isolators are used, a perimeter support channel between the unit and the isolators is recommended.
- Dimensions in [] are millimeters.
- Thru-the-door handles for non-fused disconnect option on 380/415 v and 460 v units only. When unit has non-fused disconnect option, power-side door opens from right side, NOT left side as shown for standard units.

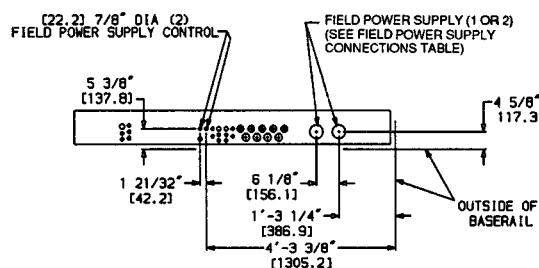
UNIT 30GU	FIELD POWER SUPPLY CONNECTIONS			
	Voltage	Hz	Diameter	Quantity
040,045	208/230	60	3/8" [92]	1
	460	60	2 1/2" [64]	1
	575	60	2 1/2" [64]	1
	380	60	2 1/2" [64]	1
	346	50	2 1/2" [64]	1
	380/415	50	2 1/2" [64]	1
050	208/230	60	2 1/2" [64]	2
	460	60	2 1/2" [64]	1
	575	60	2 1/2" [64]	1
	380	60	2 1/2" [64]	1
	346	50	3/8" [92]	1
	380/415	50	3/8" [92]	1

UNIT 30GU	DIMENSIONS			
	"A"	"B"	"C"	"D"
040	3'-5 11/16" [1059]	3'-10 3/16" [1189]	4'-5 1/2" [1359]	1'-11 1/8" [587.5]
040C	3'-5 7/8" [1064]	3'-11" [1194]	4'-5 1/2" [1359]	1'-11 1/8" [587.5]
045	3'-6 1/16" [1069]	3'-10 3/16" [1189]	5'-5 1/2" [1663]	1'- 5 3/16" [436.6]
045C	3'-6 3/16" [1072]	3'-11" [1194]	5'-5 1/2" [1663]	1'- 5 3/16" [436.6]
050	3'-5 7/8" [1064]	3'-11" [1194]	5'-5 1/2" [1663]	1'- 5 3/16" [436.6]
050C	3'-6" [1067]	3'-11 3/16" [1199]	5'-5 1/2" [1663]	1'- 5 3/16" [436.6]

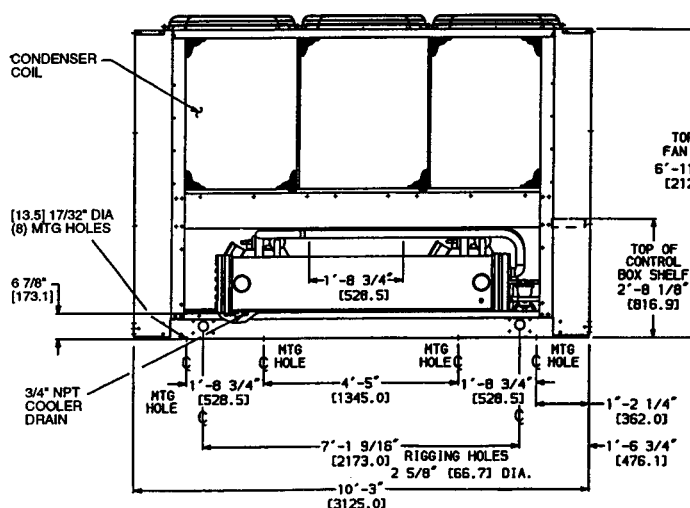
Dimensions — 30GU060,070



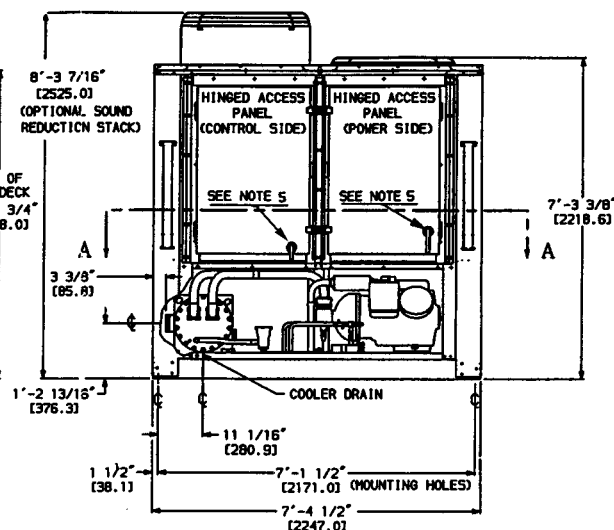
TOP VIEW



VIEW A-A
TOP VIEW OF CONTROL BOX SHELF
WITH FIELD POWER SUPPLY CONNECTIONS.



SIDE VIEW



END VIEW

LEGEND

- C** — Copper Fins, Copper Tubing
Mtg — Mounting

NOTES:

- Dimensions in [] are millimeters.
- Unit must have clearances for airflow as follows:
TOP — Do not restrict in any way.
ENDS — [1524] 5 ft
SIDES — [1829] 6 ft
- Mounting holes may be used to mount unit to concrete pad. They are not recommended for spring isolator location.
- If spring isolators are used, a perimeter support channel between the unit and the isolators is recommended.
- Thru-the-door handles for non-fused disconnect option on 380/415 v and 460 v units only. When unit has non-fused disconnect option, power-side door opens from right side, NOT left side as shown for standard units.

UNIT 30GU	FIELD POWER SUPPLY CONNECTIONS			
	Voltage	Hz	Diameter	Quantity
060	208/230	60	2½" [64]	2
	460	60	2½" [64]	1
	575	60	2½" [64]	1
	380	60	3⅝" [92]	1
	346	50	3⅝" [92]	1
	380/415	50	3⅝" [92]	1
070	208/230	60	3⅝" [92]	2
	460	60	3⅝" [92]	1
	575	60	3⅝" [92]	1
	380	60	3⅝" [92]	1
	346	50	3⅝" [92]	1
	380/415	50	3⅝" [92]	1

UNIT 30GU	DIMENSIONS	
	"A"	"B"
060	3'-6⅞" [1090]	4'-10⅝" [1481]
060C	3'-7" [1092]	4'-10⅝" [1488]
070	3'-6" [1067]	4'-10½" [1486]
070C	3'-6⅜" [1072]	4'-10⅞" [1496]

Dimensions — 30GU080,090, 230B,245B

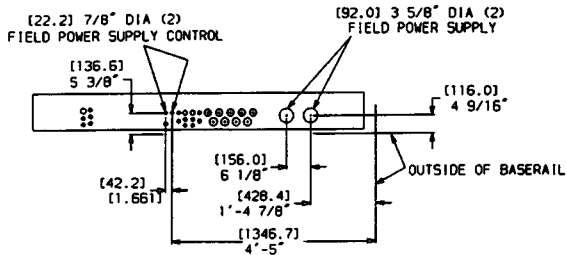


NOTES:

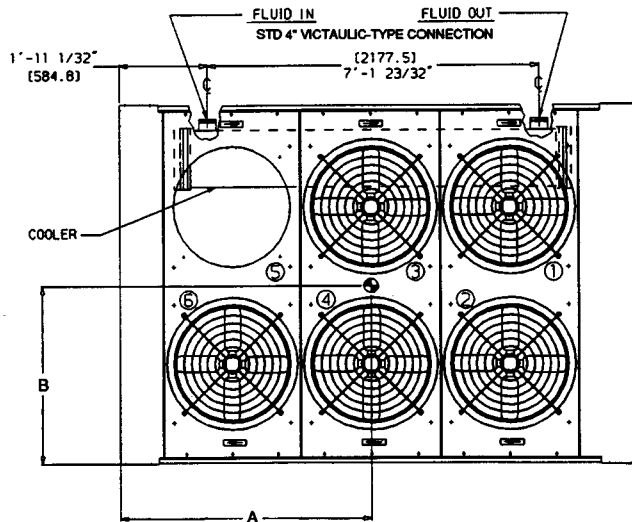
- Unit must have clearances for airflow (from solid surfaces) as follows:
Top — Do not restrict in any way
Ends — 5 ft [1524 mm]
Sides — 6 ft [1829 mm]
- Mounting holes may be used to mount unit to concrete pad. They are not recommended for spring isolator location.
- If spring isolators are used, a perimeter support channel between the unit and the isolators is recommended.
- Dimensions in [] are in millimeters.
- Thru-the-door handles for non-fused disconnect option on 380/415 v and 460 v units only. When unit has non-fused disconnect option, power-side door opens from right side, NOT left side as shown for standard units.

CENTER OF GRAVITY
(ft.-in.)

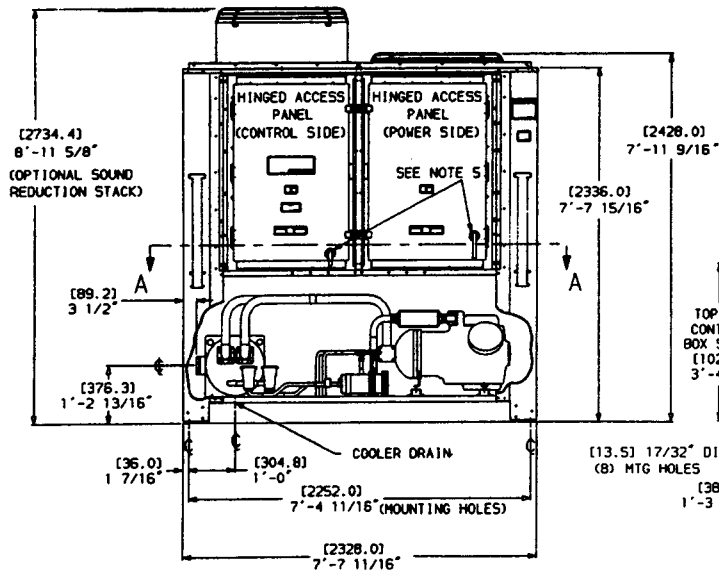
30GU UNIT SIZE	A	B
080,230B	5-9 $\frac{5}{8}$ [1769]	3-6 [1067]
090,245B	5-7 $\frac{9}{16}$ [1710]	3-2 $\frac{3}{4}$ [984]



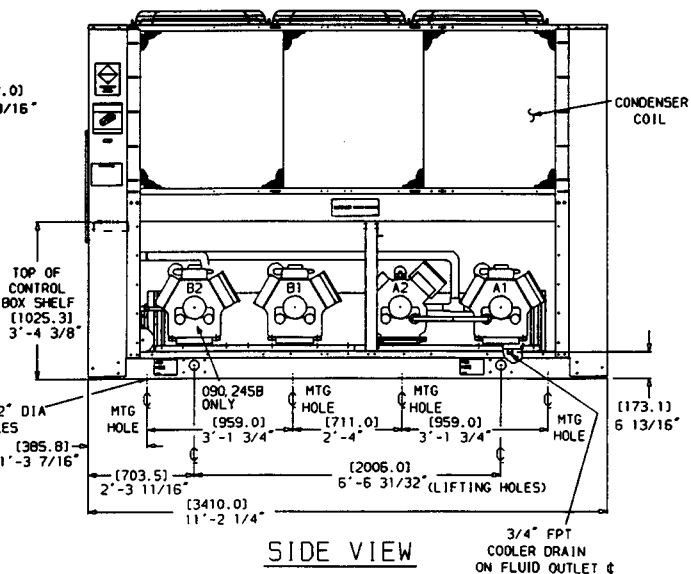
VIEW A-A
TOP VIEW OF CONTROL BOX SHELF
WITH FIELD POWER SUPPLY CONNECTIONS



TOP VIEW



END VIEW



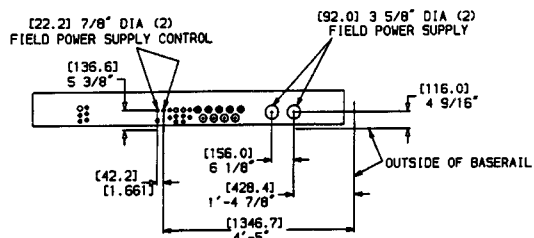
SIDE VIEW

Dimensions — 30GU100,110, 255B-315B

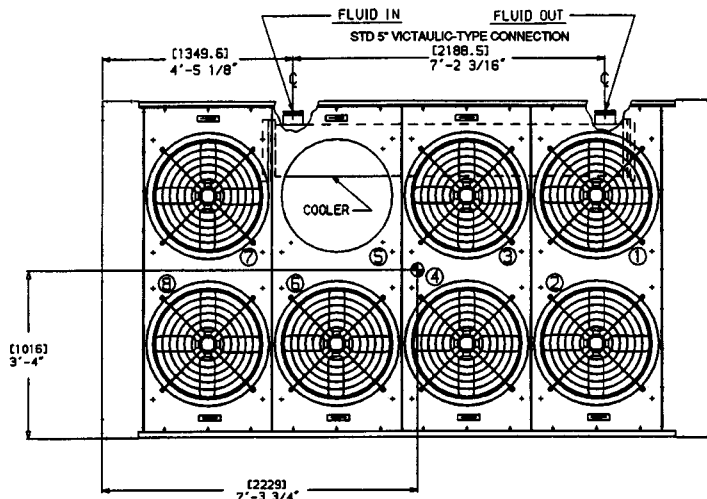


NOTES:

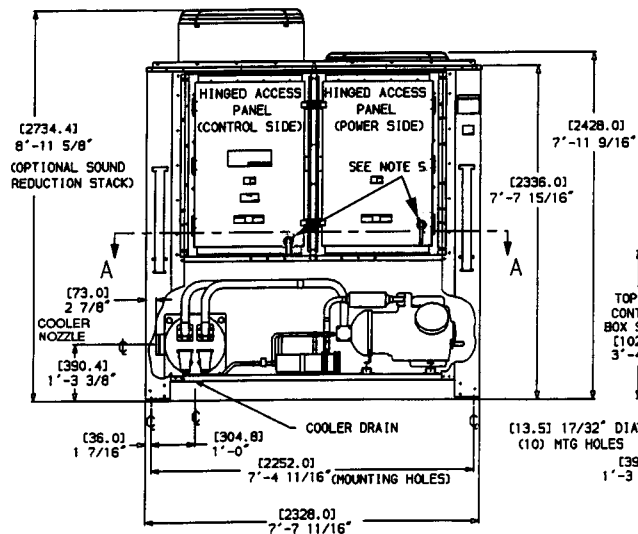
- Unit must have clearances for airflow (from solid surfaces) as follows:
Top — Do not restrict in any way
Ends — 5 ft [1524 mm]
Sides — 6 ft [1829 mm]
- Mounting holes may be used to mount unit to concrete pad. They are not recommended for spring isolator location.
- If spring isolators are used, a perimeter support channel between the unit and the isolators is recommended.
- Dimensions in [] are in millimeters.
- Thru-the-door handles for non-fused disconnect option on 380/415 v and 460 v units only. When unit has non-fused disconnect option, power-side door opens from right side, NOT left side as shown for standard units.



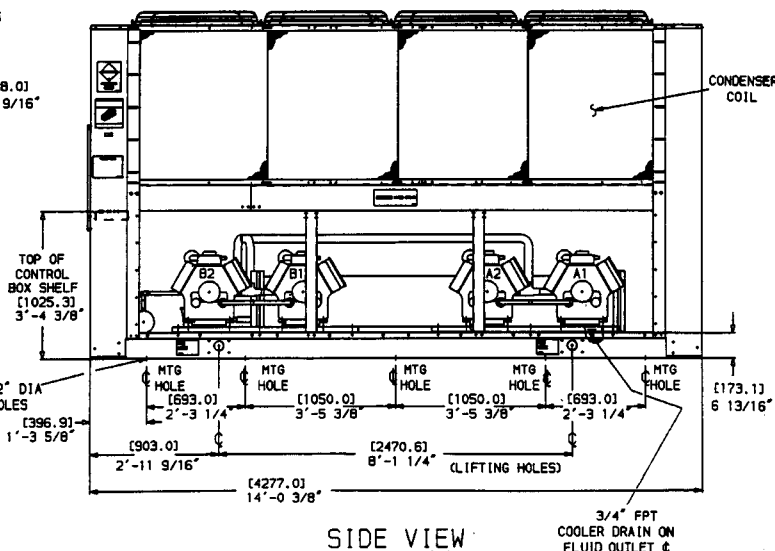
VIEW A-A
TOP VIEW OF CONTROL BOX SHELF
WITH FIELD POWER SUPPLY CONNECTIONS



TOP VIEW

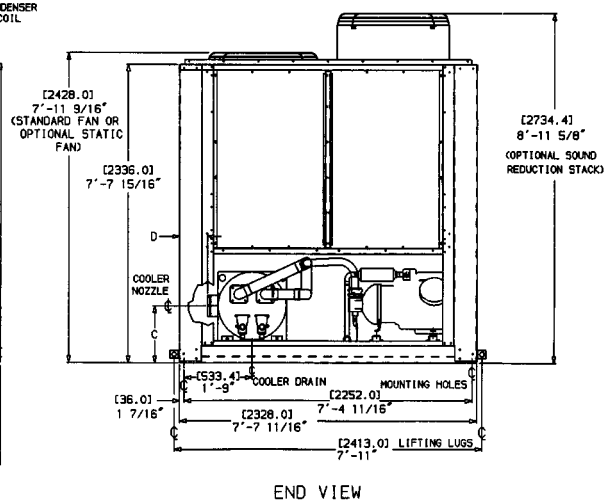
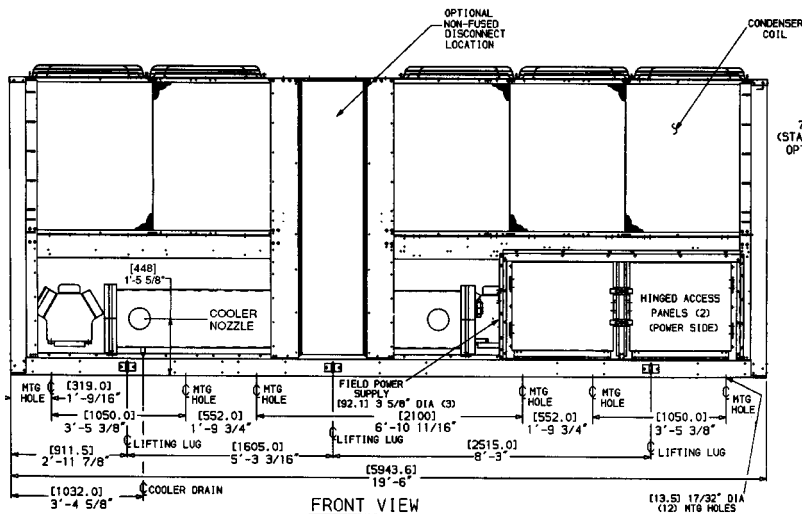


END VIEW

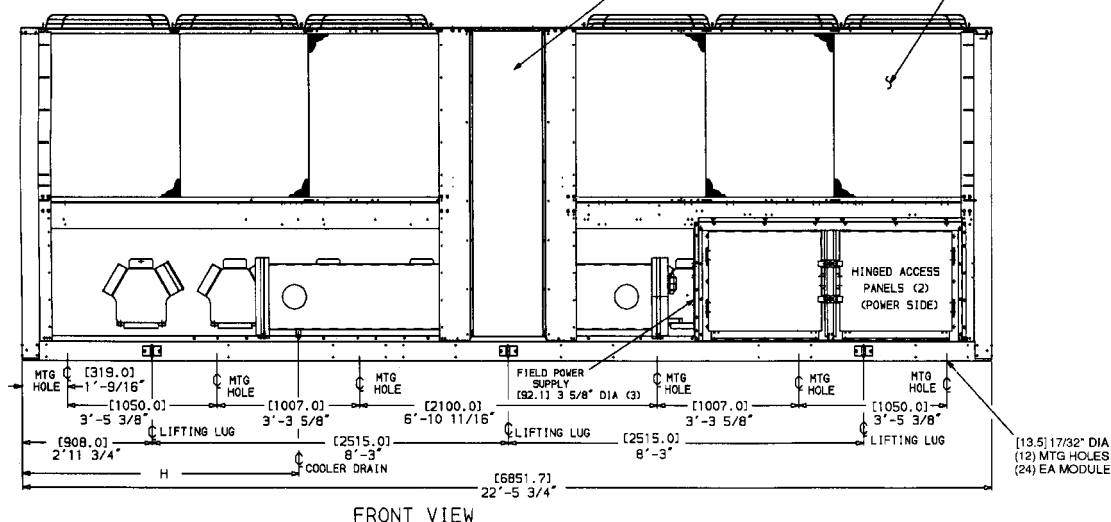
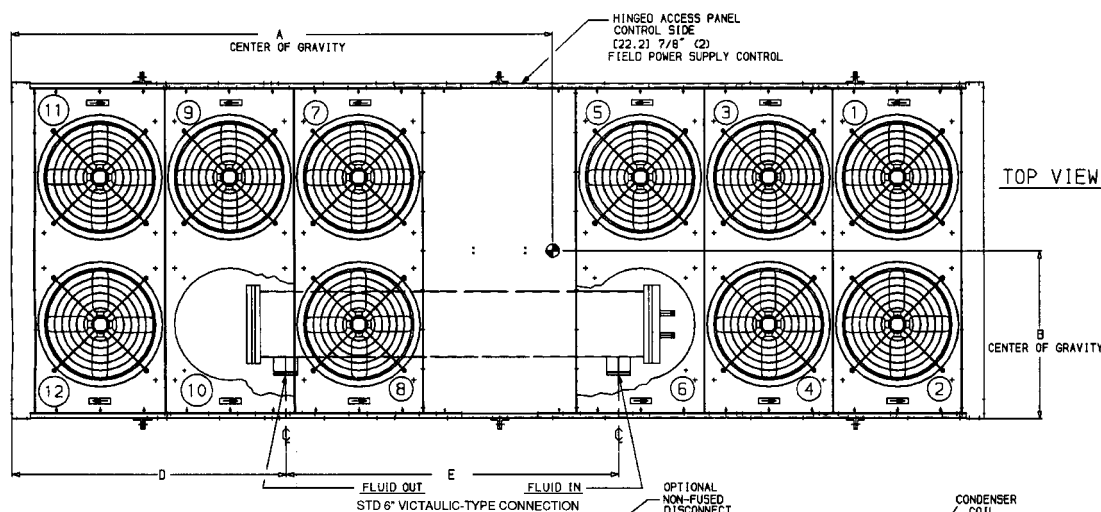


SIDE VIEW

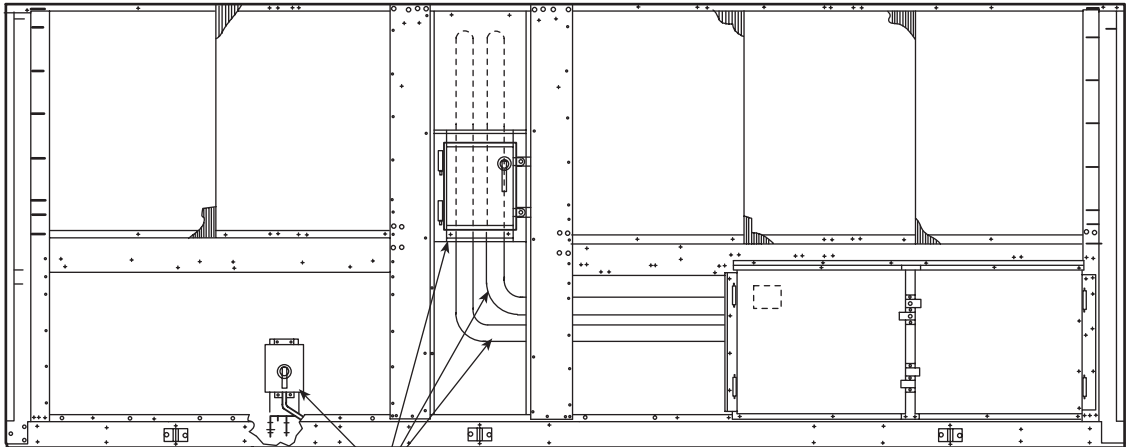
30GU UNIT SIZE	A	B	C	D
130	9-4½ [2858]	4-1⅞ [1267]	1-4¾ [425]	0-9½ [242]
150, 230A-255A	9-4⅞ [2849]	4-2½ [1283]	1-4¾ [425]	0-9½ [242]
170, 270A, 330A/B, 360B (50 Hz)	9-4⅞ [2865]	4-2½ [1283]	1-5⅞ [448]	0-8⅝ [219]



1. Unit must have clearances for airflow (from solid surfaces) as follows:
 Top — Do not restrict in any way
 Ends — 5 ft [1524 mm]
 Sides — 6 ft [1829 mm]
2. Mounting holes may be used to mount unit to concrete pad. They are not recommended for spring isolator location.
3. If spring isolators are used, a perimeter support channel between the unit and the isolators is recommended.
4. Dimensions in [] are in millimeters.

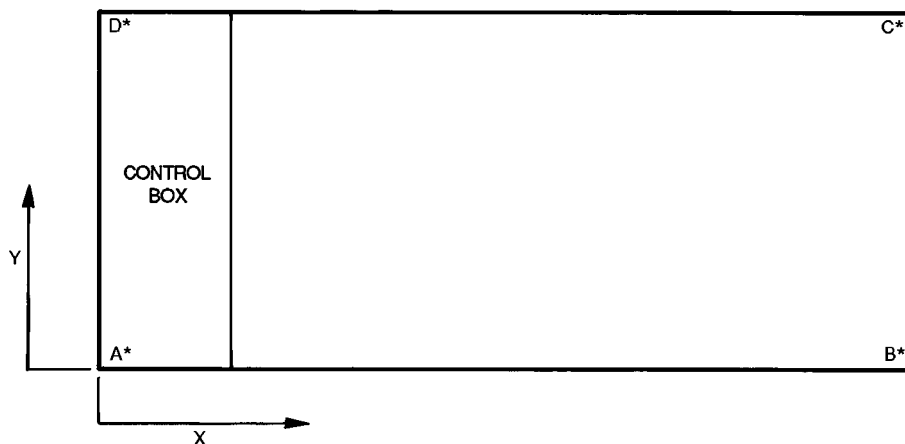


**LOCATION OF OPTIONAL NON-FUSED DISCONNECT; 130-210 AND 230A-315A, 330A/B-420A/B UNITS
(130-170, 230A-270A, 330A/B, 360B 50 Hz Shown)**



NON-FUSED DISCONNECT OPTION

MOUNTING WEIGHTS; 040-070



60 Hz

30GU UNIT SIZE	CONDENSER COIL	LB				KG			
		A	B	C	D	A	B	C	D
040	C-AL	972	876	807	895	441	397	366	406
	C-C	1044	948	879	968	473	430	399	439
045	C-AL	999	895	845	943	453	406	383	428
	C-C	1071	967	917	1015	486	438	416	460
050	C-AL	1047	948	884	976	475	430	401	443
	C-C	1155	1057	992	1085	524	479	450	492
060	C-AL	1258	1130	1130	1113	570	512	505	562
	C-C	1362	1234	1217	1344	618	560	552	609
070	C-AL	1332	1212	1184	1301	604	550	537	590
	C-C	1489	1369	1340	1458	675	621	608	661

50 Hz

30GU UNIT SIZE	CONDENSER COIL	LB				KG			
		A	B	C	D	A	B	C	D
040	C-AL	992	886	808	904	450	402	366	410
	C-C	1064	959	880	976	482	435	399	443
045	C-AL	1065	934	812	925	483	424	368	420
	C-C	1137	1007	883	998	515	457	401	452
050	C-AL	1074	968	889	986	487	439	403	447
	C-C	1182	1076	997	1095	536	488	452	496
060	C-AL	1269	1151	1123	1238	575	522	509	561
	C-C	1373	1255	1227	1342	623	569	556	609
070	C-AL	1508	1369	1226	1350	684	621	556	612
	C-C	1664	1526	1383	1508	755	692	627	684

LEGEND

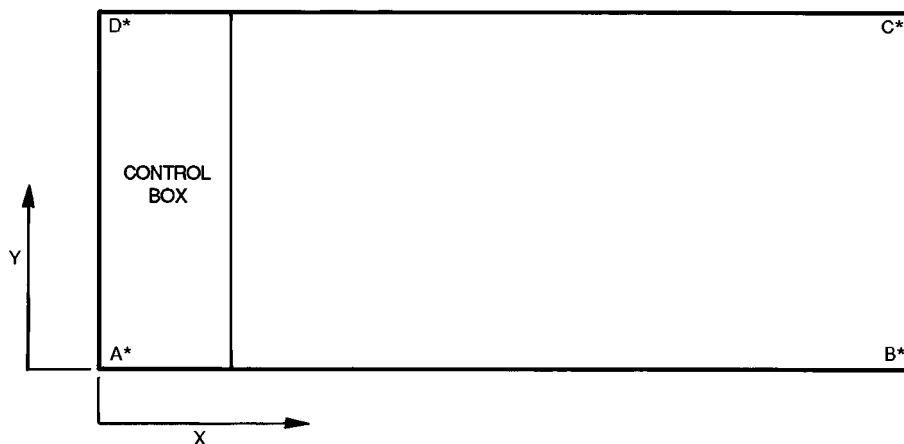
C-AL — Copper Tubing — Aluminum Fins
C-C — Copper Tubing — Copper Fins

*Points A-D are in the corners of the unit.

RIGGING CENTER OF GRAVITY

30GU UNIT SIZE	040		045		050		060		070	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
X Dimension	46.8	1189	46.8	1189	47.0	1194	58.3	1481	58.5	1486
Y Dimension	41.7	1059	42.1	1069	41.9	1064	42.9	1090	42.0	1067

MOUNTING WEIGHTS; 080-110 AND 230B-315B



60 Hz

30GU UNIT SIZE	CONDENSER COIL	LB				KG			
		A	B	C	D	A	B	C	D
080,230B	C-AL	1624	1690	1666	1650	738	768	757	750
	C-C	1797	1880	1847	1831	817	854	840	832
090,245B	C-AL	1817	1793	1720	1685	826	815	782	766
	C-C	1997	1970	1893	1880	908	895	860	855
100,255B,270B	C-AL	2185	2185	2120	2120	993	993	964	964
	C-C	2420	2420	2360	2360	1100	1100	1073	1073
110,290B,315B	C-AL	2191	2217	2136	2116	996	1007	970	962
	C-C	2428	2454	2374	2354	1104	1115	1079	1070

50 Hz

30GU UNIT SIZE	CONDENSER COIL	LB				KG			
		A	B	C	D	A	B	C	D
080,230B	C-AL	1650	1730	1680	1660	750	786	764	755
	C-C	1830	1910	1863	1842	832	868	847	837
090,245B	C-AL	1833	1864	1724	1714	833	847	784	779
	C-C	2014	2040	1907	1899	915	927	867	863
100,255B,270B	C-AL	2222	2222	2133	2133	1010	1010	970	970
	C-C	2460	2460	2370	2370	1118	1118	1077	1077
110,290B,315B	C-AL	2271	2271	2149	2149	1032	1032	976	976
	C-C	2508	2508	2387	2387	1140	1140	1085	1085

LEGEND

C-AL — Copper Tubing — Aluminum Fins

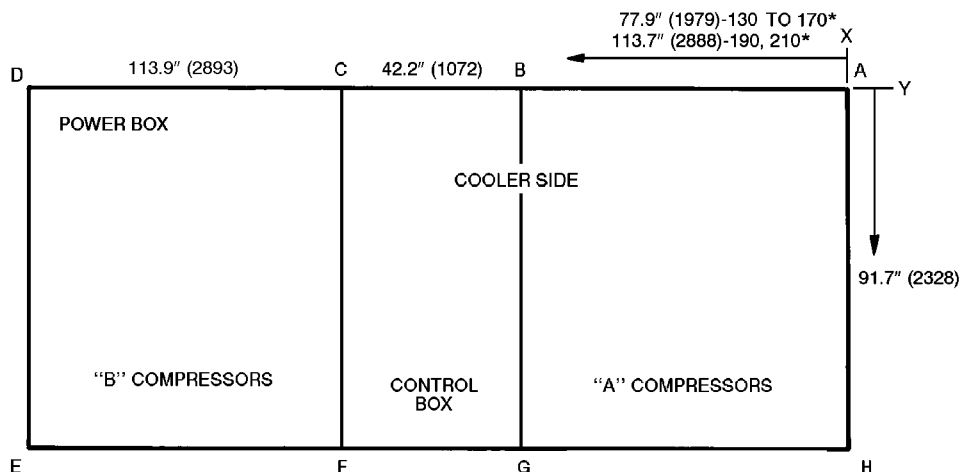
C-C — Copper Tubing — Copper Fins

*Points A-D are in the corners of the unit.

RIGGING CENTER OF GRAVITY

30GU UNIT SIZE	080,230B		090,245B		100,110,255B-315B	
	in.	mm	in.	mm	in.	mm
X Dimension	69.6	1768	67.3	1710	87.8	2229
Y Dimension	42.0	1067	38.8	984	40.0	1016

MOUNTING WEIGHTS (Approximate); 30GU130-210, 230A-315A, 330A/B-420A/B (60 Hz)



60 Hz

30GU UNIT SIZE	CONDENSER COIL	LB							
		A	B	C	D	E	F	G	H
130	C-AL	923	1466	1156	825	1411	1365	1469	1439
	C-C	1051	1593	1283	952	1601	1556	1659	1622
150,230A-255A	C-AL	926	1563	1160	834	1438	1375	1747	1438
	C-C	1053	1690	1287	961	1628	1566	1938	1629
170,270A,330A/B	C-AL	962	1732	1333	862	1497	1629	1816	1462
	C-C	1089	1860	1460	990	1688	1819	2007	1653
190,290A,360A/B,390B	C-AL	1346	1942	1793	1111	1385	1799	1733	1567
	C-C	1536	2132	1983	1301	1575	1989	1923	1757
210,315A,390A,420A/B	C-AL	1376	2128	1871	1120	1407	1846	2037	1595
	C-C	1566	2318	2061	1310	1597	2036	2227	1784

60 Hz

30GU UNIT SIZE	CONDENSER COIL	KG							
		A	B	C	D	E	F	G	H
130	C-AL	419	666	525	375	641	620	668	650
	C-C	478	723	583	433	728	707	754	737
150,230A-255A	C-AL	420	710	527	379	653	625	794	653
	C-C	478	768	585	436	285	711	880	740
170,270A,330A/B	C-AL	437	787	605	392	680	740	825	664
	C-C	495	845	663	450	767	826	912	751
190,290A,360A/B,390B	C-AL	611	882	815	505	629	817	787	712
	C-C	698	969	901	591	715	904	874	798
210,315A,390A,420A/B	C-AL	625	967	850	509	639	384	925	725
	C-C	711	1053	937	595	725	925	1012	810

LEGEND

C-AL — Copper Tubing — Aluminum Fins
C-C — Copper Tubing — Copper Fins

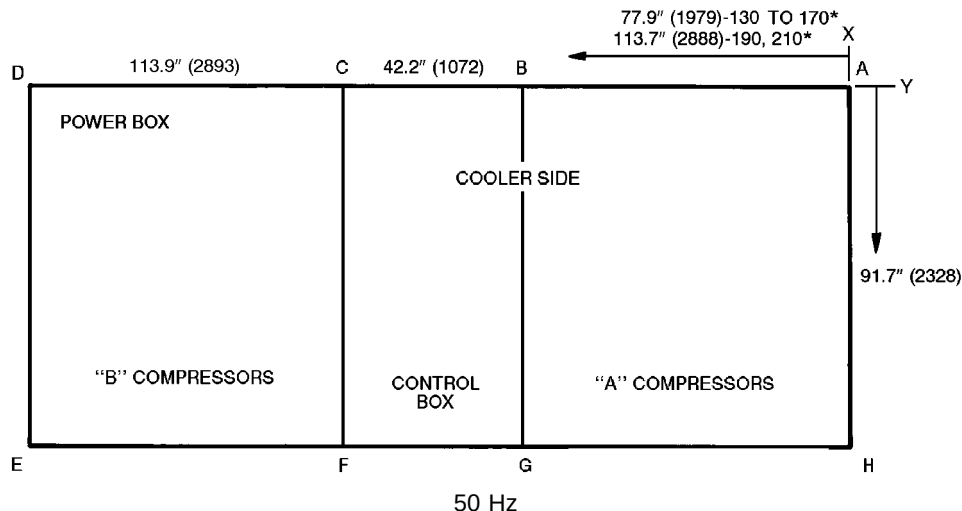
*And associated modules.

NOTE: Dimensions in () are in millimeters.

RIGGING CENTER OF GRAVITY

30GU UNIT SIZE	130		150,230A-255A		170,270A,330A/B		190,290A,360A/B,390B		210,315A,390A,420A/B	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
X Dimension	112.5	2858	112.1	2849	112.8	2865	136.0	3454	135.6	3444
Y Dimension	49.9	1267	50.5	1283	50.5	1283	50.5	1283	50.6	1285

MOUNTING WEIGHTS (Approximate); 30GU130-210, 230A-315A, 330A/B-420A/B (50 Hz)



30GU UNIT SIZE	CONDENSER COIL	LB							
		A	B	C	D	E	F	G	H
130	C-AL	928	1569	1160	834	1438	1375	1764	1444
	C-C	1056	1696	1287	961	1628	1566	1954	1635
150,230A-255A	C-AL	948	1591	1160	834	1438	1375	1829	1502
	C-C	1075	1719	1287	961	1628	1566	2020	1692
170,270A,330A/B,360B	C-AL	963	1744	1348	873	1527	1673	1849	1466
	C-C	1090	1871	1475	1000	1718	1864	2040	1657
190,290A,360A,390B	C-AL	1365	1953	1807	1127	1430	1839	1765	1621
	C-C	1555	2143	1997	1316	1620	2029	1955	1811
210,315A,390A,420A/B	C-AL	1383	2151	1876	1128	1430	1860	2102	1615
	C-C	1573	2341	2066	1318	1620	2050	2292	1805

50 Hz

30GU UNIT SIZE	CONDENSER COIL	KG							
		A	B	C	D	E	F	G	H
130	C-AL	422	714	527	379	654	625	802	656
	C-C	480	770	585	436	740	711	888	743
150,230A-255A	C-AL	430	723	527	379	653	625	831	682
	C-C	486	781	585	437	740	711	918	769
170,270A,330A/B,360B	C-AL	437	792	612	397	694	760	840	666
	C-C	495	850	670	454	780	847	927	753
190,290A,360A,390B	C-AL	620	887	821	512	650	835	802	736
	C-C	707	974	907	598	736	922	977	823
210,315A,390A,420A/B	C-AL	628	977	852	512	650	845	955	734
	C-C	715	1064	940	599	736	931	1042	820

LEGEND

C-AL — Copper Tubing — Aluminum Fins
C-C — Copper Tubing — Copper Fins

*And associated modules.

NOTE: Dimensions in () are in millimeters.

RIGGING CENTER OF GRAVITY

30GU UNIT SIZE	130		150,230A-255A		170,270A, 330A/B,360B		190,290A, 360A,390B		210,315A,390A, 420A/B	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
X Dimension	112.5	2858	112.1	2849	112.8	2865	136.0	3454	135.6	3444
Y Dimension	49.9	1267	50.5	1283	50.5	1283	50.5	1283	50.6	1285

Leveling unit

Unit must be level when installed to ensure proper oil return to the compressors.

While most outdoor locations are suitable for 30GU units, the roof is a common site that presents a problem if roof has been pitched to aid in water removal. To assure proper oil return, be sure that unit is level, particularly in its major lengthwise dimension, as compressor oil return piping runs in that direction. *Determine prior to installation if any special treatment is required to ensure a level installation.*

Cooler and condenser fluids

Only properly inhibited heat transfer fluids or solutions at recommended concentrations should be used in this equipment. Acceptable fluids referred to throughout this literature include fresh water, inhibited ethylene or propylene glycol solutions, and sodium chloride brine. If fluids other than these are specified, contact your local Carrier representative for recommendations.

Cooler fluid temperature

1. *Maximum* leaving chilled fluid temperature (LCWT) for unit is 70 F (21 C). Unit can start and pull down with up to 95 F (35 C) entering fluid temperature due to MOP (maximum operating pressure) feature of the expansion valve. For sustained operation, it is recommended that entering fluid temperature not exceed 85 F (29.4 C).
2. *Minimum* LCWT for standard unit is 40 F (4.5 C). It is permissible to use a standard microprocessor-controlled Flotronic™ chiller with leaving fluid temperatures in the range of 34 F to 39.9° F (1° C to 4.4 C) only if a protective brine solution (20% antifreeze solution, or greater) is used and microprocessor dip (dual in-line package) switch (Flotronic units only) is properly set. (See Controls and Troubleshooting literature for further information.)

Medium temperature brine application

Application of chiller for brine duty within the 39.9 F to 34 F (4.4 C to 1° C) range is possible with proper field change of control configuration. Application in the range of 34 F to 15 F (1° C to 9.4 C) requires unit with factory modification. For ratings below 40 F (4.5 C) LCWT, contact your local Carrier representative.

Leaving fluid temperature reset

This feature (required accessory on Flotronic units) provides reset of LCWT in constant fluid flow systems. Reset reduces compressor power usage at part load when design LCWT is not necessary. Humidity control should be considered since higher coil temperatures resulting from reset will reduce latent heat capacity.

Three reset options are offered, based on the following:

Return fluid temperature — Fluid temperature increases LCWT temperature set point as return (or entering) fluid temperature decreases (indicating load decrease). Option may

be used in any application where return fluid provides accurate load indication. Limitation of return fluid reset is: LCWT may only be reset to value of design return fluid temperature.

Outdoor-air temperature — Air temperature increases LCWT as outdoor ambient temperature decreases (indicating load decrease). This reset should be applied only where outdoor ambient is an accurate indication of load. An accessory thermistor is required.

Space temperature — Space temperature increases LCWT as space temperature decreases (indicating load decrease). This reset should be applied only where space temperature is an accurate indication of load. An accessory thermistor is required.

For details on applying a reset option, refer to Controls and Troubleshooting literature. Obtain ordering part numbers for reset option from current price pages or contact your local Carrier representative.

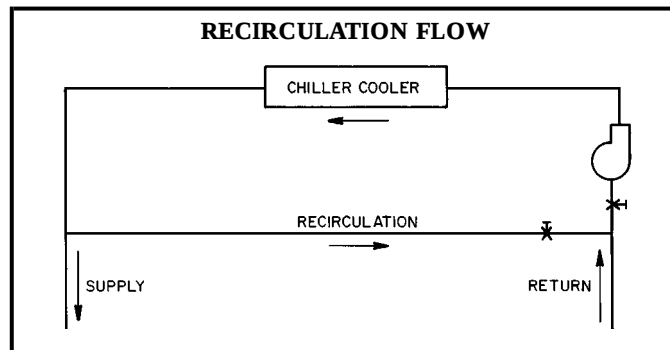
Cooler flow range

Ratings and performance data in this publication are based on a 10° F (6° C) rise, and are suitable for a range from 5 F to 15 F (2.8 C to 8.3 C) temperature rise without adjustment. Flotronic chillers may be operated at a different temperature range provided flow limits are not exceeded. For minimum flow rates, see Minimum Cooler Fluid Flow Rates and Minimum Loop Volumes table. High flow rate is limited by pressure drop that can be tolerated. If another temperature range is used, apply LCWT correction as given in Selection Procedure on page 42.

Minimum cooler flow (maximum cooler temperature rise) — The minimum cooler flow for standard units is shown in Minimum Cooler Flow Rates and Minimum Loop Volumes table. When gpm (L/s) required is lower (or rise higher), follow recommendations below:

- a. Multiple smaller chillers may be applied in series, each providing a portion of the design temperature rise.
- b. Cooler fluid may be recirculated to raise flow rate. However, mixed temperature entering cooler must be maintained a minimum of at least 5° F (2.8° C) above the LCWT.
- c. Special cooler baffling is required to allow minimum flow rate to be reduced.

NOTE: Recirculation flow is shown below.



MINIMUM COOLER FLOW RATES AND MINIMUM LOOP VOLUMES

30GU UNIT SIZE	MINIMUM FLOW RATE		MINIMUM LOOP VOLUME	
	Gpm	L/s	Gal	L
040	37	2.3	108	408
045	38	2.4	125	472
050	38	2.4	151	572
060	48	3.0	190	719
070	48	3.0	218	823
080	60	3.8	246	930
090	60	3.8	262	992
100	73	4.6	299	1131
110	73	4.6	323	1222
130	101	6.4	375	1419
150	101	6.4	429	1624
170	135	8.5	486	1840
190	135	8.5	528	1998
210	219	13.8	603	2232

30GU UNIT SIZE	MINIMUM FLOW RATE				MINIMUM LOOP VOLUME	
	Module A		Module B		Gal	L
	Gpm	L/s	Gpm	L/s		
230	101	6.4	60	3.8	675	2550
245	101	6.4	60	3.8	690	2615
255	101	6.4	73	4.6	725	2750
270	120	7.5	73	4.6	780	2972
290	120	7.5	73	4.6	840	3179
315	148	9.3	73	4.6	900	3407
330	120	7.5	120	7.5	975	3715
360	120	7.5	120	7.5	1050	4001
390	148	9.3	120	7.5	1140	4343
420	148	9.3	148	9.3	1200	4572

LEGEND

ARI — Air Conditioning & Refrigeration Institute
N — Liters Per kW of Nominal Cooling Capacity
V — Gallons Per Ton of Nominal Cooling Capacity

NOTES: 1. Minimum flow based on 1.0 fps (0.30 m/s) velocity in cooler without special cooler baffling.
 2. Minimum Loop Volumes — determined by equations below (based on Normal Air Conditioning)
 Liters = $N \times \text{ARI Cap. (kW)}$
 Gallons = $V \times \text{ARI Cap. (tons)}$

APPLICATION	V	N
Normal Air Conditioning	3	3.25
Process Type Cooling	6 to 10	6.5 to 10.8
Low Ambient Unit Operation	6 to 10	6.5 to 10.8

Low ambient temperature operation

With certain field provisions as described below, units will start and operate down to —

0° F (–18 C)

If operation is intended below 0° F (–18 C), the Carrier accessory Motormaster® III condenser head pressure control and its associated components must be added. The Motormaster III control allows operation down to –20 F (–29 C). Consult your Carrier representative for details.

Wind baffles (field fabricated and installed) — Wind baffles must be added to all units for operation below 32 F (0° C) if wind velocity is anticipated to be greater than 5 mph (8 km/h).

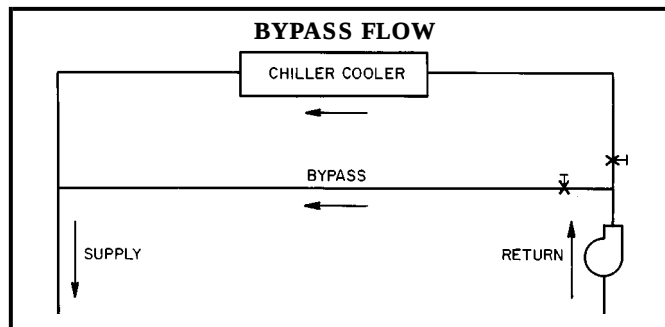
Antifreeze solution — Inhibited ethylene glycol or other suitable corrosion-inhibited anti-freeze solution must be field-supplied and -installed in all units for unit installation below 32 F (0° C). Solution must be added to fluid loop to protect loop down to 15 F (8 C) below minimum operating ambient temperature.

Provide sufficient volume in the chilled fluid loop — At least 6 gal per ton (6.5 L per kW) of refrigeration is the recommended minimum for a moderate system load.

Maximum cooler flow — The maximum cooler flow (>5 gpm/ton or <5° F rise [>0.09 L/s · kW or <2.7° C rise]) results in practical maximum pressure drop through cooler.

1. Return fluid may bypass the cooler to keep pressure drop through cooler within acceptable limits. This permits a higher ΔT with lower fluid flow through cooler and mixing after the cooler.
2. Special cooler baffling to permit a cooler flow rate increase of 10% is available by special order.

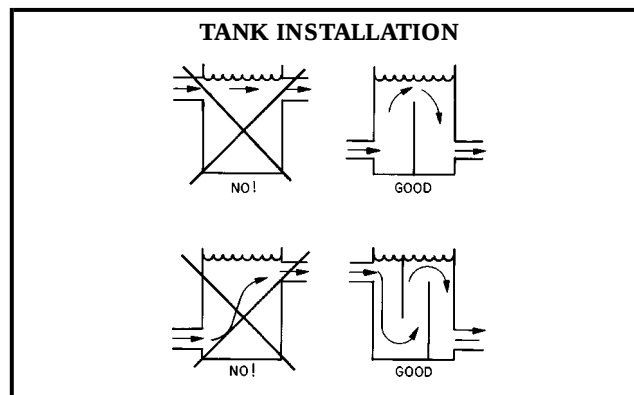
NOTE: Bypass flow is shown below.



Variable cooler flow rates — Variable rates may be applied to standard chiller. Unit will, however, attempt to maintain a constant leaving chilled fluid temperature. In such cases, minimum flow must be in excess of minimum flow given in Minimum Cooler Fluid Flow Rates and Minimum Loop Volumes Table, and flow rate must change in steps of less than 10% per minute. Apply 6 gal per ton (6.5 L per kW) fluid loop volume minimum if flow rate changes more rapidly.

Fluid loop volume — The volume in circulation must equal or exceed 3 gal per nominal ton (3.25 L per kW) of cooling for temperature stability and accuracy in normal air conditioning applications. For example, a 30GU420, 50 Hz unit would require 1200 gal (4572 L). In jobs where accuracy is vital or for operation at ambient below 32 F (0° C) with low loading conditions, there should be from 6 to 10 gal per ton (6.5 to 10.8 L per kW). To achieve this volume, it is often necessary to install a tank in the loop. Tank should be baffled to ensure there is no stratification and that water (or brine) entering tank is adequately mixed with liquid in the tank.

NOTE: Tank installation is shown below.



Cooler fouling factor — The factor used to calculate tabulated ratings was .00025 ft² · hr · °F/Btu (.000044 m² · °C/W). As fouling factor is increased, unit capacity decreases and compressor power increases. Standard ratings should be corrected using following multipliers:

FOULING FACTOR		CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
English (ft ² · hr · °F/Btu)	SI (m ² · °C/W)		
.00025	.000044	1.00	1.00
.00075	.000132	0.97	0.98
.00175	.000308	0.91	0.91

Cooler protection — When operating in areas that experience temperatures below 32 F (0° C), cooler protection in form of inhibited ethylene glycol (or other suitable brine) is required to protect cooler from low ambient freeze-up.

Even though unit cooler is equipped with insulation and an electric heater that helps prevent freeze-up, it does not protect fluid piping external to unit. Use only anti-freeze solutions approved for heat exchanger duty. Use of automotive-type antifreezes is not recommended because of the fouling that can occur once their relatively short-lived inhibitor breaks down.

Draining cooler and outdoor piping is recommended if system will not be used during freezing weather conditions. See Low Ambient Temperature Operation section on page 34 for low ambient temperature operation.

Condenser

Altitude correction factors — Correction factors must be applied to standard ratings at altitudes above 2000 ft (610 m) using following multipliers:

ALTITUDE		CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
ft	m		
0	0	1.00	1.00
2000	610	0.99	1.01
4000	1220	0.98	1.02
6000	1830	0.97	1.03
8000	2440	0.96	1.04
10000	3050	0.95	1.05

Condenser airflow — Airflow restrictions on units with standard fans will affect the unit capacity, condenser head pressure, and compressor power input. Correction factors to be applied for external static restrictions up to 0.2 in. wg (50 Pa) are shown below.

EXTERNAL STATIC		CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
in. wg	Pa		
0.0	0.0	1.00	1.00
0.1	25	0.986	1.01
0.2	50	0.968	1.03

Condenser coil protection

Precoated aluminum-fin coils have a durable epoxy-phenolic coating applied to the fin prior to the fin stamping process to provide protection in mildly corrosive coastal and industrial environments. Precoated coils have a inert barrier between the aluminum fin and copper tube. This barrier electrically disconnects the dissimilar metals to minimize the potential for galvanic corrosion. This economical option provides substantial corrosion protection beyond the standard uncoated coil construction.

Copper-fin coils provide increased corrosion resistance in moderate coastal environments where industrial air pollution is not present. All copper coils eliminate bi-metallic construction to eliminate the potential for galvanic corrosion. Application in industrial environments is not recommended due to potential attack from sulfur, sulfur oxide, nitrogen oxides, carbon and several other industrial airborne contaminants. In moderate seacoast environments, copper-fin coils have extended life compared to standard or precoated aluminum-fin coils.

Postcoated aluminum-fin coils have a durable organic coating uniformly applied over all coil surfaces. Postcoated coils provide superior protection since all coil surfaces are completely encapsulated from atmospheric contamination. Specify postcoated aluminum-fin coils for industrial environments with high levels of air pollution. This option also provides better protection than standard or precoated aluminum-fin coils in industrial environments.

Postcoated copper-fin coils have a durable organic coating uniformly applied over all coil surfaces. This option combines the natural salt and corrosion resistance of all-copper construction with the highest level of corrosion protection. Specify postcoated copper-fin coils in the harshest combination of coastal and industrial environments.

Medium and high static fan options

These should be used to prevent a reduction in airflow to the conditioned space whenever an application requires external ductwork which will raise the job static requirements.

Capacity correction (antifreeze)

Corrosion-inhibited ethylene glycol (or other suitable brine) should be used in installations where subfreezing temperatures are expected. Unit performance data must be corrected for the addition of corrosion-inhibited ethylene glycol as shown in following example. Correction factors may be derived from following curves in the Inhibited Ethylene Glycol Performance chart on page 36.

Example: English — Where a 5 F outdoor temperature is anticipated, determine concentration of inhibited ethylene glycol to protect system to -10 F ambient temperature at zero flow.

Enter the solution crystallization point curve (page 36) at -10 F; read that 40% concentration of inhibited ethylene glycol is required to prevent crystals from forming in solution.

Consider the 30GU330 unit from the Selection Procedure example on page 42 (refer to correction curves at 40% solution).

Correct unit capacity — On capacity correction curve in chart on page 36, read 0.95.

Corrected capacity = correction factor x determined capacity
 = 0.95 x 221.4 tons
 = 210.3 tons.

Correct cooler water flow — On the cooler flow correction factor curve (page 36), read 1.15.

Application data (cont)



Cooler water flow (at corrected capacity)

$$= \frac{24 \times \text{corrected cap. in tons}}{\text{temperature rise } F} = \text{U.S. gpm}$$

$$= \frac{24 \times 210.3}{14^{\circ}} = 360.6 \text{ U.S. gpm}$$

$$\text{Cooler water flow (40\% solution)} = 360.6 \times 1.15$$

$$= 414.7 \text{ U.S. gpm}$$

Correct cooler pressure drop — On cooler pressure drop correction curve on this page, read 1.33.

On Cooler Fluid Pressure Drop curve (page 41), for 207.4 ($\frac{1}{2} \times 414.7$) gpm, read pressure drop = 3.5 ft water gage (per module). The pressure drop for 40% solution = $3.5 \times 1.33 = 4.7$ ft water per module.

Correct compressor power input (kW) — On power correction curve on this page, read 0.97 correction factor at 40% ethylene glycol concentration.

$$\text{Power input from Selection Procedure example} = 220.7 \text{ kW}$$

$$\text{Corrected power input} = 220.7 \times 0.97 = 214.1 \text{ kW}$$

Example: SI — Determine concentration of ethylene glycol to protect the system to -23°C ambient temperature at zero flow.

Enter the solution crystallization point curve on this page, at -23°C , read 40% concentration inhibited ethylene glycol is required to prevent crystals from forming in solution.

Consider 30GU330 unit from the Selection Procedure example (refer to correction curves at 40% solution).

Correct unit capacity — On capacity correction curve on this page, read 0.95.

$$\text{Corrected capacity} = \text{correction factor} \times \text{determined capacity}$$

$$= 0.95 \times 745.4$$

$$= 708.1 \text{ kW}$$

Correct cooler water flow — On cooler flow correction curve (below), read 1.15 correction factor.

Cooler water flow (at corrected capacity)

$$= \frac{0.239 \times \text{corr cap. in kW}}{\text{temperature rise } C} = \text{L/s}$$

$$= \frac{0.239 \times 708.1}{7.8^{\circ}} = 21.7 \text{ L/s}$$

$$\text{Cooler water flow (40\% solution)} = 21.7 \times 1.15$$

$$= 25 \text{ L/s}$$

Correct cooler pressure drop — On Cooler Fluid Pressure Drop correction curve (below), read 1.33.

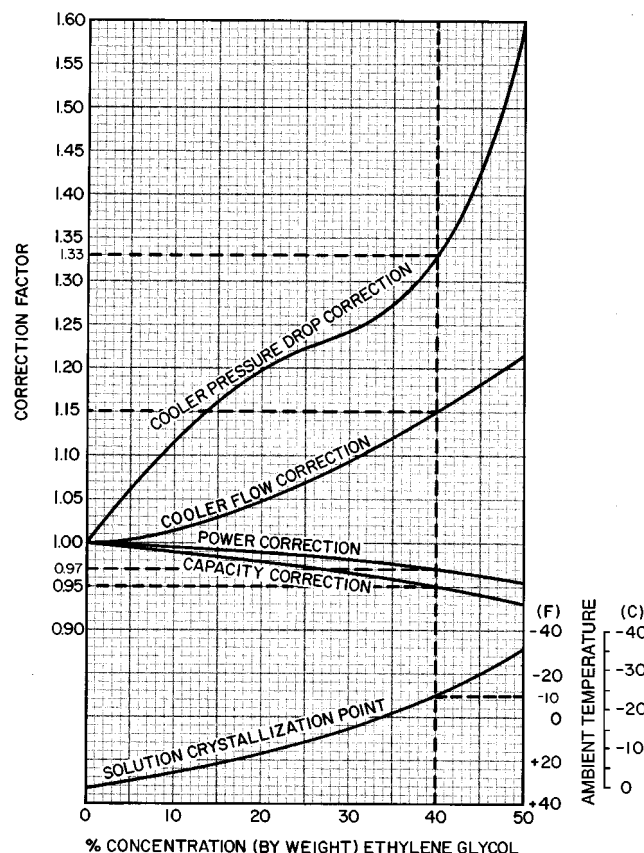
On Cooler Pressure Drop Curve (page 41), for 12.5 ($\frac{1}{2} \times 25$) L/s, read pressure drop of 8 kPa per module. The pressure drop for 40% solution = $8 \times 1.33 = 10.6$ kPa per module.

Correct compressor power input (kW) — On the power correction curve (below), read 0.97 correction factor at 40% ethylene glycol concentration.

$$\text{Power input from Selection Procedure example} = 215.8 \text{ kW}$$

$$\text{Corrected power input} = 215.8 \times 0.97 = 209.3 \text{ kW}$$

INHIBITED ETHYLENE GLYCOL PERFORMANCE CORRECTION FACTORS AND SOLUTION CRYSTALLIZATION POINTS



Oversizing chillers

Oversizing chillers by more than 15% at design conditions must be avoided as the system operating efficiency is adversely affected (resulting in greater or excessive electrical demand). When future expansion of equipment is anticipated, install a single chiller to meet present load requirements and add a second chiller to meet the additional load demand.

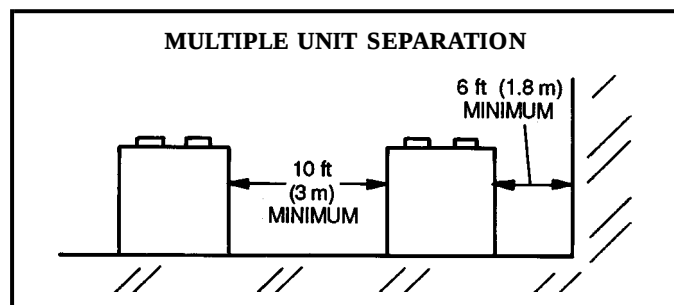
It is also recommended that 2 smaller chillers be installed where operation at minimum load is critical. The operation of a smaller chiller loaded to a greater percentage over minimum is preferred to operating a single chiller at or near its minimum recommended value.

Hot gas bypass should not be used as a means to allow oversizing chillers. Hot gas bypass should be given consideration where substantial operating time is anticipated below the minimum unloading step.

Multiple chillers

Where chiller capacities greater than 280 tons (985 kW) are required, or where stand-by capability is desired, chillers may be installed in *parallel*. Units should be of equal size to ensure balanced fluid flows. Where a large temperature drop ($>25^{\circ}\text{F}$ [13.9°C]) is desired, chillers may be installed in *series*. Fluid temperature sensors need not be

moved for multiple chiller operation. A 10 ft (3 m) separation is required between units for airflow, and a 6 ft (1.8 m) distance is required from units to obstructions. See Multiple Unit Separation figure below. See Dimensions on pages 22-32 for service clearances.



Strainer

It is recommended that a strainer with a minimum of 20 mesh be installed in the cooler fluid inlet line, just ahead of and as close as possible to the cooler.

Electrical/utility interests

Energy management — See Controls and Troubleshooting literature and accessory installation instructions for details.

Demand limiting (also called load shedding) — When a utility's demand for electricity exceeds a certain level, loads are shed to keep electricity demand below a prescribed maximum level. Typically, this happens on hot days when air conditioning is most needed.

Demand may be limited on unit by resetting fluid temperature, or by using a demand limit accessory that unloads the chiller to a given predetermined percent of the load. Both features require a signal from an intelligent central control. Do not cycle demand limiter for less than 10 minutes on and 5 minutes off.

Duty cycling cycles electrical loads at regular intervals regardless of need. This reduces electrical operating costs of building by "fooling" demand indicating devices. Duty cycling of compressors or fans is *not* recommended since motor winding and bearing life suffer from constant cycling.

Remote on-off control

Remote on-off control may be applied by hard-wired connection (see Controls and Troubleshooting literature).

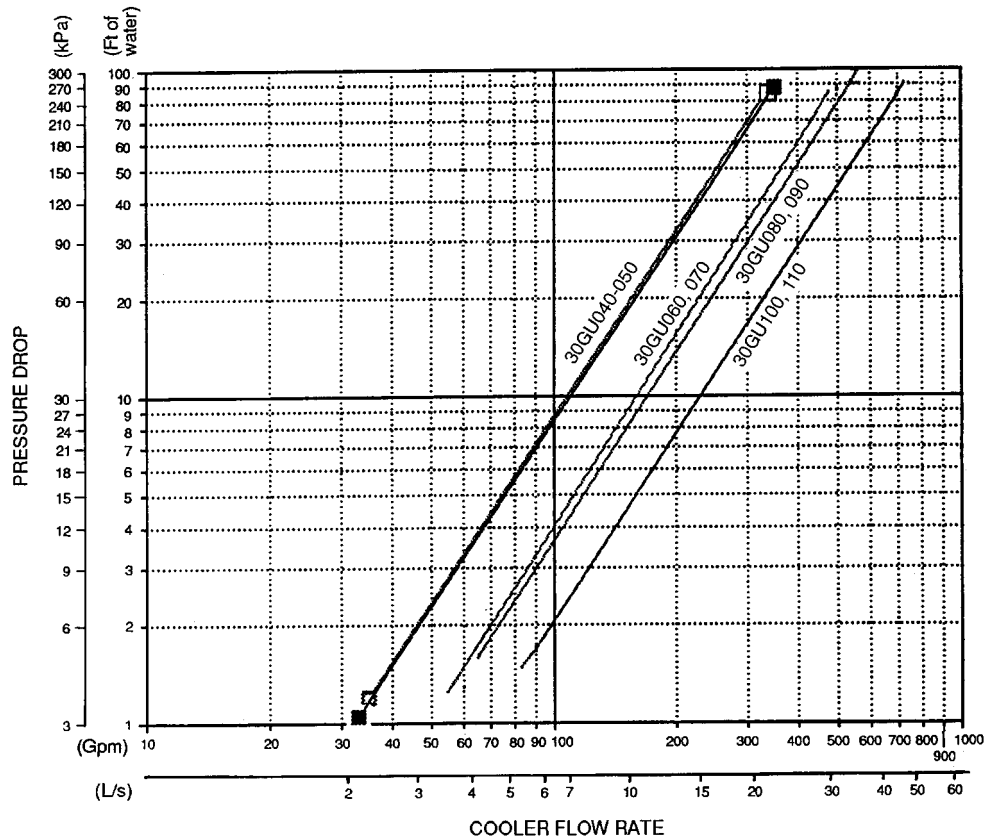
Part-wind start

Part-wind start generally is not required on 30GU chillers due to use of multiple compressors allowing smaller electrical load increments, but is available if required. Maximum instantaneous current flow (see ICF in Electrical Data table on pages 64-66) should be used in determining need.

Additionally, no soft starters or autotransformers are required, as the instantaneous current flow resulting from the start of the 06E compressor is very small, and the duration of the start is very short (0.8 seconds).

COOLER FLUID PRESSURE DROP CURVES — 30GU040-110

ENGLISH AND SI



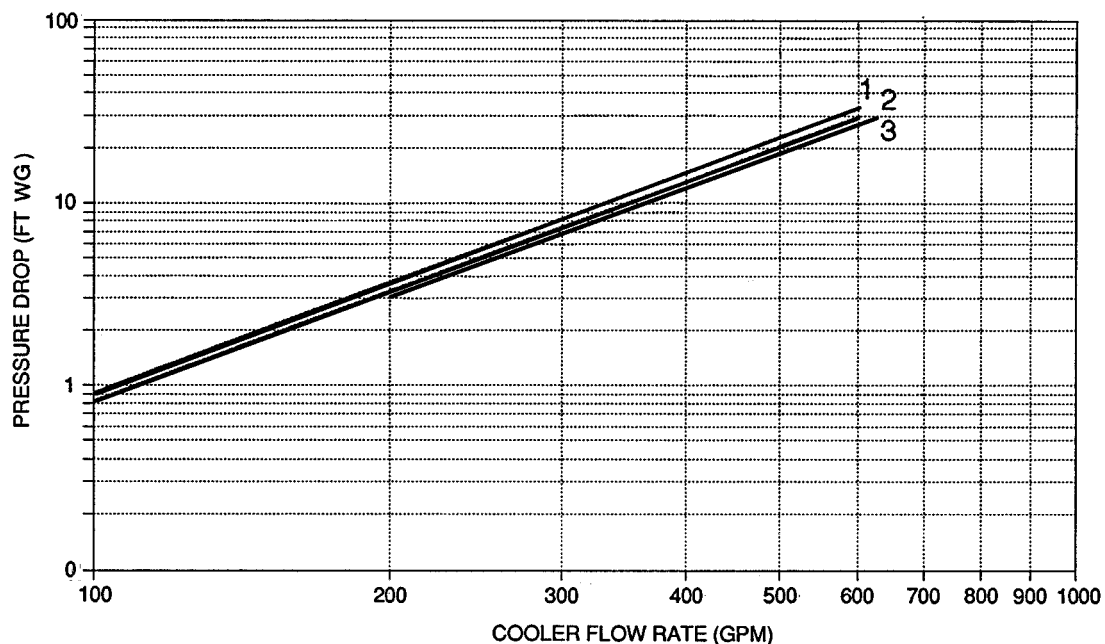
LEGEND

- — 040
- — 045,050

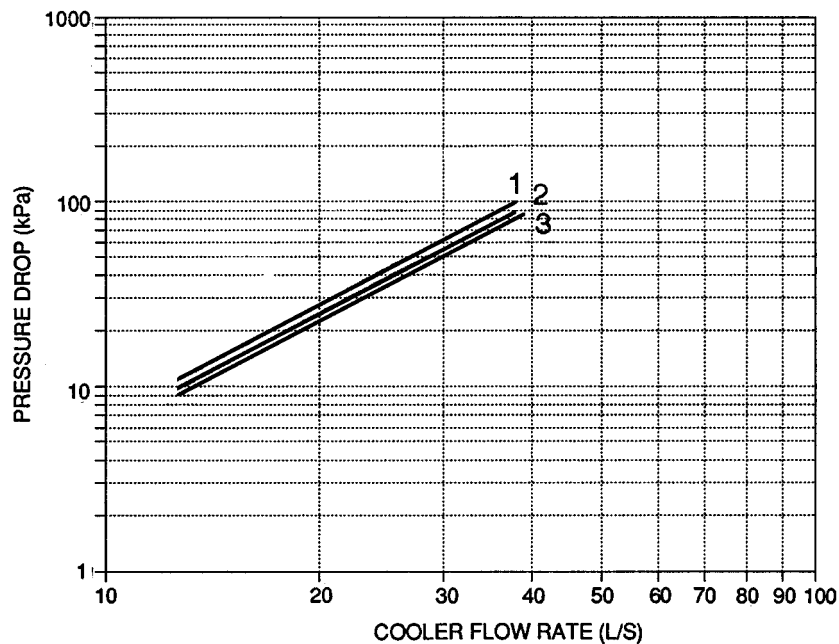
NOTE: Ft of water = 2.31 x change in psig.

COOLER FLUID PRESSURE DROP CURVES — 30GU130-210

ENGLISH



SI



COOLER PRESSURE DROP KEY

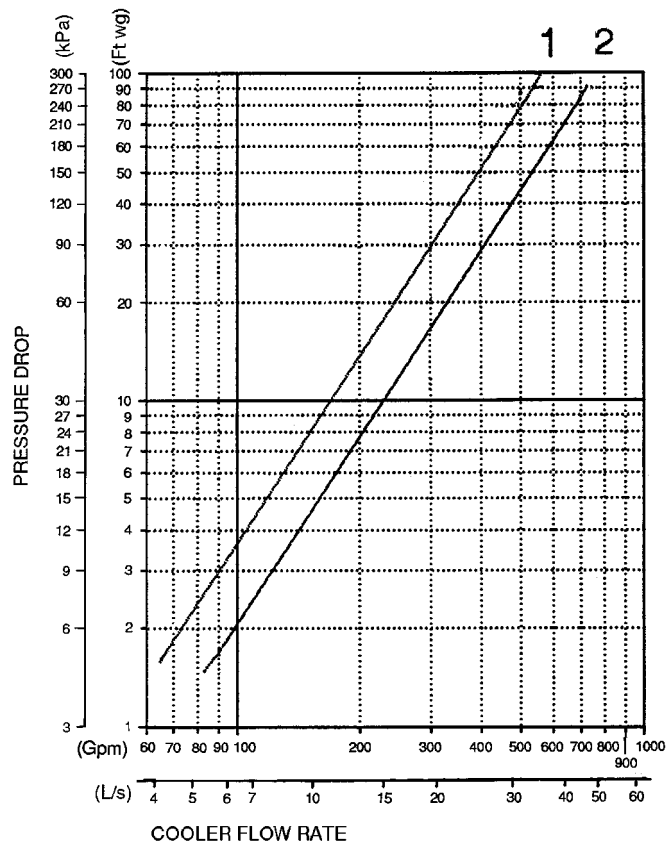
- 1 — 30GU130,150
- 2 — 30GU170,190
- 3 — 30GU210

NOTE: Ft of water = 2.31 x change in psig.



COOLER FLUID PRESSURE DROP CURVES — 36GU230-315B

ENGLISH AND SI



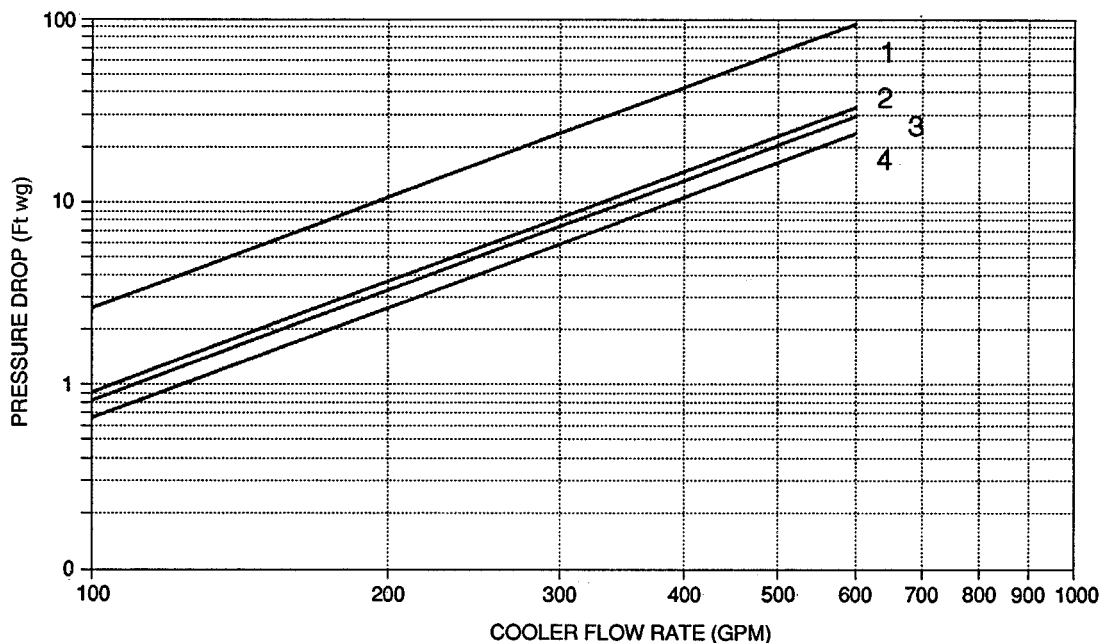
COOLER PRESSURE DROP KEY

- 1 Module B — 30GU230,245
- 2 Module B — 30GU255,290,315

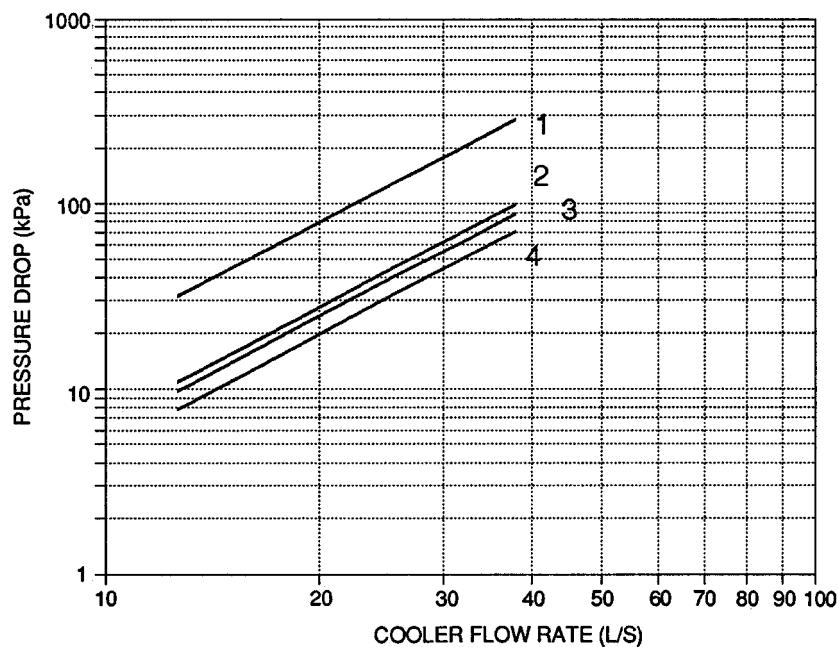
NOTE: Ft of water = 2.31 x change in psig.

COOLER FLUID PRESSURE DROP CURVES — 30GU230-255B, 270-420A/B

ENGLISH



SI



COOLER PRESSURE DROP KEY

- 1 Module B — 30GU270
- 2 Module A — 30GU230-255
- 3 Module A — 30GU270,330
Module B — 30GU330,360 (50 Hz)
- 4 Module A — 30GU290,315,360 (50 or 60 Hz), 390, and 420
Module B — 30GU360 (60 Hz), 390, and 420

Selection procedure — English (60 Hz)



Carrier electronic catalog provides quick, easy computer selection of Carrier chillers. The catalog is available from your local Carrier representative.

I Determine unit size and operating conditions required to provide specified capacity at given conditions:

Capacity required 220 tons
Leaving chilled water temperature (LCWT) ... 45 F
Cooler water temperature rise 14 F
Condenser entering-air temperature (CEAT) .. 95 F
Loop volume 1000 gal
Electrical Power 460-3-60

Ratings are based on 10° F rise and are suitable for a temperature rise range from 5 F to 15 F without adjustment. In this case, however, greater accuracy is desired.

II Correct LCWT for 14° F cooler water temperature rise.

Enter LCWT correction curve (page 53) at 14° F and read a correction of 0.3° F. Corrected LCWT is, therefore, 45 + 0.3 = 45.3° F.

III Determine capacity, unit size, and power input.

Enter Cooling Capacities table at given CEAT and LCWT — respectively, 95 F and 45 F. In this case, for a 30GU330 the capacity is 220.2 tons, and power input is 220 kW. Interpolate between 45 F and 46 F

to find determined capacity and power input at a corrected LCWT (45.3 F).

Values are:

Capacity 221.4 tons
Power input 220.7 kW

IV Calculate corrected cooler water flow.

$$\begin{aligned}\text{Water flow} &= \frac{24 \times \text{corr cap. in tons}}{\text{temperature rise } ^\circ\text{F}} = \text{U.S. gpm} \\ &= \frac{24 \times 221.4}{14} = 379.5 \text{ U.S. gpm}\end{aligned}$$

V Calculate the cooler pressure drop.

Enter Cooler Fluid Pressure Drop curve (page 41) at corrected flow rate proportional to the capacity of each of the 2 modules. In this selection, with two equal size modules, enter at ½ the corrected flow rate (½ x 379.5 = 190 gpm) and read, for 30GU330, a pressure drop of 3 ft (per module) of water.

VI Check loop volume and cooler water flow rate.

Minimum loop volume, from application data, is 975 gal for 30GU330. Therefore, given volume of 1000 gal is satisfactory. Minimum water flow rate, from application data, is 120 gpm (per module) for 30GU330. Flow rate of 190 gpm (per module) is well above minimum required.

Selection procedure — SI (60 Hz)

Carrier electronic catalog provides quick, easy computer selection of Carrier chillers. The catalog is available from your local Carrier representative.

I Determine unit size and operating conditions required to provide specified capacity at given conditions:

Capacity required 775 kW
Leaving chilled water temperature (LCWT) ... 6° C
Cooler water temperature rise 7.8° C
Condenser entering-air temperature (CEAT) .. 35 C
Loop volume 3785 L
Electrical Power 460-3-60

Ratings are based on 6° C rise and are suitable for a temperature rise range from 2.8° C to 8.3° C without adjustment. In this case, however, greater accuracy is desired.

II Correct LCWT for 7.8° C cooler water temperature rise.

Enter LCWT correction curve (page 63) at 7.8 C and read a correction of 0.14° C. Corrected LCWT is, therefore, 6 + 0.14 = 6.14 C.

III Determine capacity, unit size, and power input.

Enter Cooling Capacities table at given CEAT and LCWT — respectively, 35 C and 6 C. In this case, 742.6 kW is delivered by a 30GU330. Interpolate

between 6 C and 7 C to find the determined capacity and power input at corrected LCWT (6.14° C).

Values are:

Capacity 745.4 kW
Power input 215.8 kW

IV Calculate corrected cooler water flow.

$$\begin{aligned}\text{Water flow} &= \frac{0.239 \times \text{corr cap. in kW}}{\text{temperature rise } ^\circ\text{C}} = \text{L/s} \\ &= \frac{0.239 \times 745.4}{7.8} = 22.8 \text{ L/s}\end{aligned}$$

V Calculate cooler pressure drop.

Enter Cooler Fluid Pressure Drop curve (page 41) at corrected flow rate proportional to the capacity of each of the 2 modules. In this selection, with 2 equal sized modules, enter at ½ the corrected flow rate (½ x 22.8 = 11.45 L/s) and read, for 30GU330, a pressure drop of 8 kPa (per module).

VI Check loop volume and cooler water flow rate.

Minimum loop volume, from application data, is 3715 L for 30GU330. Therefore, given volume of 3785 L is satisfactory. Minimum water flow rate, from application data, is 7.5 L/s (per module) for 30GU330. Flow rate of 11.45 L/s (per module) is well above minimum required.

Performance data — English and SI



60 Hz — STANDARD RATINGS* — REFRIGERANT 134a

30GU UNIT SIZE	OUTPUT (CAPACITY)			INPUT POWER (kW)		EFFICIENCY	
	kW	Tons	Btuh	Compressor	Fan	EER	COP
40	84.0	23.9	286,800	23.5	6.2	9.6	2.83
45	94.2	26.8	321,600	27.4	6.2	9.6	2.80
50	117.8	33.5	402,000	33.6	6.2	10.1	2.96
60	150.4	42.8	513,600	43.9	9.3	9.7	2.83
70	173.6	49.4	592,800	51.9	9.3	9.7	2.84
80	196.1	55.8	669,600	57.5	9.4	10.0	2.93
90	203.9	58.0	696,000	58.5	9.4	10.3	3.00
100	233.7	66.5	798,000	65.0	12.7	10.3	3.01
110	252.7	71.9	862,800	74.4	12.7	9.9	2.90
130	290.0	82.5	990,000	85.2	15.5	9.8	2.88
150	333.9	95.0	1,140,000	99.0	15.5	10.0	2.92
170	379.3	107.9	1,294,800	108.9	15.5	10.4	3.05
190	414.8	118.0	1,416,000	118.8	18.5	10.3	3.02
210	479.4	136.4	1,636,800	141.4	18.6	10.2	3.00
230	530.1	150.8	1,809,600	156.5	24.9	10.0	2.92
245	537.8	153.0	1,836,000	157.5	24.9	10.1	2.95
255	567.7	161.5	1,938,000	164.0	28.2	10.1	2.95
270	613.4	174.5	2,094,000	173.9	28.1	10.4	3.04
290	667.5	189.9	2,278,800	193.2	31.2	10.2	2.97
315	732.5	208.4	2,500,800	215.8	31.3	10.1	2.96
330	758.5	215.8	2,589,600	217.7	30.9	10.4	3.05
360	829.5	236.0	2,832,000	237.6	31.1	10.3	3.09
390	894.2	254.4	3,052,800	260.2	37.1	10.3	3.01
420	958.9	272.8	3,273,600	282.8	37.1	10.2	3.00

LEGEND

ARI — Air Conditioning and Refrigeration Institute

COP — Coefficient of Performance

EER — Energy Efficiency Ratio

*Per ARI Standard 590-92.

NOTE: 95 F (35 C) condenser entering air temperature;
54 F (12.2 C) entering/44 F (6.7 C) leaving cooler water;
.00025 ft² • hr • °F/Btu (.000044 m² • °C/W) cooler fouling allowance.

$$\text{EER} = \frac{\text{Capacity (Btuh)}}{\text{Unit Input Power (W)}}$$

$$\text{COP} = \frac{\text{Capacity (kW)}}{\text{Unit Input Power (kW)}}$$

Performance data — English and SI (cont)



50 Hz — STANDARD RATINGS* — REFRIGERANT 134a

30GU UNIT SIZE	OUTPUT (CAPACITY)			INPUT POWER (kW)		EFFICIENCY	
	kW	Tons	Btuh	Compressor	Fan	EER	COP
40	81.9	23.3	279,600	22.9	6.2	9.6	2.81
45	98.1	27.9	334,800	28.4	6.2	9.7	2.83
50	121.6	34.6	415,200	36.5	6.2	9.7	2.85
60	144.1	41.0	492,000	43.3	9.3	9.4	2.74
70	164.5	46.8	561,600	47.5	9.3	9.9	2.90
80	194.0	55.2	662,400	56.5	9.4	10.1	2.94
90	216.9	61.7	740,400	64.1	9.4	10.1	2.95
100	237.3	67.5	810,000	69.3	12.7	9.9	2.89
110	265.4	75.5	906,000	83.1	12.7	9.5	2.77
130	294.6	83.8	1,005,600	86.6	15.5	9.8	2.88
150	348.7	99.2	1,190,400	109.2	15.5	9.5	2.80
170	382.8	108.9	1,306,800	114.5	15.5	10.1	2.94
190	433.0	123.2	1,478,400	132.5	18.5	9.8	2.87
210	481.5	137.0	1,644,000	145.5	18.5	10.0	2.94
230	542.4	154.3	1,851,600	165.7	24.9	9.7	2.85
245	565.6	160.9	1,930,800	173.3	24.9	9.7	2.85
255	585.6	166.6	1,999,200	178.5	28.2	9.7	2.83
270	619.7	176.3	2,115,600	183.8	28.1	10.0	2.92
290	698.4	198.7	2,384,400	215.5	31.3	9.7	2.83
315	746.9	212.5	2,550,000	228.5	31.3	9.8	2.87
330	765.6	217.8	2,613,600	229.0	30.9	10.1	2.95
360	815.8	232.1	2,785,200	232.1	34.0	10.5	3.07
390	914.6	260.2	3,122,400	277.9	37.1	9.9	2.90
420	963.4	274.1	3,289,200	290.9	37.1	10.0	2.94

LEGEND

ARI — Air Conditioning and Refrigeration Institute

COP — Coefficient of Performance

EER — Energy Efficiency Ratio

*Per ARI Standard 590.

NOTE: 95 F (35 C) condenser entering air temperature;
54 F (12.2 C) entering/44 F (6.7 C) leaving cooler water;
.00025 ft² • hr • °F/Btu (.000044 m² • °C/W) cooler fouling allowance.

$$\text{EER} = \frac{\text{Capacity (Btuh)}}{\text{Unit Input Power (W)}} \quad \text{COP} = \frac{\text{Capacity (kW)}}{\text{Unit Input Power (kW)}}$$

Performance data — English



COOLING CAPACITIES — 60 Hz

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
40.0	040	23.6	21.4	56.4	22.3	22.8	53.5	21.1	24.1	50.4	19.8	25.2	47.3	18.5	26.2	44.2
	045	26.4	24.9	63.2	24.1	26.0	57.7	21.9	26.8	52.4	19.7	27.3	47.1	17.5	27.5	42.0
	050	33.0	30.4	79.1	30.9	32.3	73.9	28.7	33.8	68.6	26.5	35.2	63.3	24.2	36.2	57.9
	060	42.1	39.8	100.7	39.5	42.1	94.5	36.8	44.2	88.2	34.2	45.9	81.8	31.5	47.4	75.4
	070	48.6	47.4	116.3	45.6	49.8	109.2	42.6	52.0	102.0	39.6	53.9	94.9	36.6	55.6	87.7
	080	54.8	52.2	131.1	51.3	55.0	122.7	47.7	57.5	114.3	44.2	59.6	105.8	40.6	61.4	97.2
	090	57.3	53.1	137.1	53.2	55.9	127.3	49.1	58.1	117.5	44.9	59.9	107.6	40.8	61.2	97.7
	100	65.2	58.6	156.0	60.8	62.1	145.5	56.3	65.1	134.8	51.8	67.5	123.9	47.2	69.4	112.9
	110	70.5	67.5	168.8	65.8	71.0	157.4	61.0	73.9	146.0	56.1	76.3	134.4	51.3	78.2	122.7
	130	80.8	77.3	193.4	76.4	81.9	182.8	71.8	86.1	171.9	67.2	89.9	160.9	62.5	93.3	149.6
	150	93.5	90.0	223.9	88.2	95.1	211.1	82.8	99.7	198.3	77.3	103.8	185.2	71.8	107.3	171.8
	170	105.3	98.0	252.1	99.6	104.3	238.4	93.7	110.1	224.3	87.5	115.2	209.6	81.3	119.7	194.7
	190	115.4	107.7	276.3	108.9	113.8	260.7	102.3	119.3	244.8	95.5	124.1	228.7	88.6	128.4	212.2
	210	134.0	128.4	320.9	125.1	134.6	299.5	115.8	139.6	277.1	106.6	143.8	255.1	97.2	146.9	232.6
	230	148.3	142.2	355.0	139.5	150.1	333.9	130.6	157.2	312.6	121.5	163.4	290.9	112.4	168.7	269.0
	245	150.8	143.1	360.9	141.4	151.0	338.5	131.9	157.8	315.7	122.3	163.7	292.7	112.6	168.5	269.5
	255	158.7	148.6	379.9	149.0	157.2	356.6	139.1	164.8	333.0	129.1	171.3	309.1	118.9	176.6	284.6
	270	170.5	156.6	408.1	160.4	166.5	384.0	150.0	175.2	359.2	139.3	182.7	333.4	128.5	189.0	307.5
	290	185.9	175.1	445.1	174.7	184.7	418.1	163.2	193.2	390.8	151.7	200.5	363.1	139.9	206.6	334.9
	315	204.6	195.9	489.7	190.9	205.6	456.9	176.7	213.6	423.1	162.7	220.2	389.5	148.4	225.1	355.4
	330	210.6	195.9	504.1	199.1	208.6	476.7	187.3	220.1	448.4	175.1	230.4	419.0	162.6	239.3	389.2
	360	230.8	215.3	552.6	217.8	227.5	521.4	204.5	238.5	489.6	191.0	248.3	457.3	177.2	256.7	424.3
	390	249.4	236.1	597.1	234.0	248.4	560.2	218.0	258.9	521.9	202.1	268.0	483.9	185.8	275.3	444.7
	420	268.0	256.8	641.5	249.9	269.0	598.3	231.5	279.2	554.1	213.1	287.6	510.1	194.4	293.8	465.3
42.0	040	24.4	21.8	58.4	23.1	23.2	55.4	21.8	24.5	52.3	20.5	25.7	49.1	19.1	26.8	45.9
	045	27.8	25.6	66.5	25.4	26.7	60.9	23.1	27.6	55.4	20.8	28.2	49.9	18.6	28.5	44.6
	050	34.4	31.0	82.4	32.2	33.0	77.1	29.9	34.6	71.7	27.7	36.1	66.3	25.4	37.2	60.7
	060	43.8	40.6	104.9	41.1	43.0	98.5	38.4	45.2	92.1	35.7	47.1	85.5	32.9	48.7	78.9
	070	50.6	48.3	121.3	47.5	50.9	113.8	44.4	53.2	106.4	41.3	55.2	99.0	38.3	57.0	91.7
	080	57.1	53.3	136.8	53.5	56.3	128.2	49.9	58.9	119.5	46.2	61.2	110.7	42.5	63.1	101.9
	090	59.7	54.3	143.1	55.6	57.2	133.1	51.4	59.6	123.0	47.1	61.6	112.9	42.9	63.0	102.7
	100	68.1	59.8	163.2	63.6	63.6	152.4	59.0	66.8	141.5	54.4	69.4	130.2	49.6	71.5	118.9
	110	73.7	69.0	176.5	68.8	72.7	164.9	63.9	75.9	153.1	58.9	78.5	141.2	53.9	80.6	129.2
	130	83.9	78.8	201.0	79.4	83.6	190.2	74.7	88.0	179.0	70.0	92.0	167.7	65.2	95.6	156.2
	150	96.9	91.7	232.2	91.6	97.1	219.5	86.1	101.9	206.2	80.5	106.2	192.9	74.8	110.0	179.2
	170	109.6	100.0	262.6	103.7	106.6	248.3	97.6	112.7	233.9	91.4	118.1	219.0	84.9	122.9	203.5
	190	120.0	109.9	287.6	113.4	116.3	271.7	106.6	122.1	255.4	99.7	127.3	238.9	92.7	131.9	222.0
	210	140.0	131.5	335.3	130.7	138.0	313.1	121.2	143.4	290.3	111.7	148.0	267.7	102.2	151.5	244.7
	230	154.0	145.0	369.0	145.1	153.3	347.7	136.0	160.7	325.7	126.7	167.4	303.6	117.3	173.1	281.1
	245	156.7	146.0	375.3	147.2	154.2	352.6	137.4	161.5	329.2	127.6	167.8	305.8	117.7	173.0	282.0
	255	165.1	151.6	395.4	155.2	160.6	371.9	145.1	168.6	347.6	134.9	175.6	323.2	124.4	181.4	298.1
	270	177.8	159.8	425.9	167.3	170.1	400.8	156.7	179.4	375.4	145.8	187.5	349.2	134.6	194.4	322.4
	290	193.7	178.8	464.1	182.2	188.9	436.6	170.5	198.0	408.5	158.7	205.8	380.1	146.6	212.5	351.2
	315	213.6	200.5	511.8	199.5	210.7	478.0	185.1	219.3	443.3	170.7	226.5	408.9	156.1	232.1	373.9
	330	219.2	199.9	525.0	207.3	213.1	496.7	195.2	225.3	467.7	182.8	236.2	437.9	169.9	245.8	406.9
	360	240.1	219.8	575.1	226.9	232.6	543.5	213.2	244.2	510.9	199.4	254.6	477.8	185.3	263.7	443.9
	390	260.0	241.4	622.9	244.1	254.2	584.7	227.8	265.5	545.7	211.5	275.3	506.6	194.8	283.3	466.7
	420	279.9	263.0	670.5	261.2	275.9	625.8	242.3	286.8	580.4	223.4	295.9	535.2	204.3	303.0	489.5

Performance data — English (cont)



COOLING CAPACITIES — 60 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
44.0	040	25.2	22.1	60.3	23.9	23.5	57.3	22.6	24.9	54.1	21.2	26.1	50.9	19.8	27.3	47.6
	045	29.2	26.2	70.0	26.8	27.4	64.2	24.4	28.4	58.5	22.0	29.1	52.8	19.7	29.5	47.3
	050	35.8	31.6	85.5	33.5	33.6	80.4	31.2	35.4	74.8	28.9	37.0	69.3	26.5	38.2	63.6
	060	45.6	41.4	109.3	42.8	43.9	102.7	40.1	46.2	96.1	37.3	48.2	89.3	34.4	49.9	82.5
	070	52.6	49.2	126.1	49.4	51.9	118.5	46.3	54.3	110.9	43.1	56.5	103.3	39.9	58.4	95.7
	080	59.5	54.4	142.6	55.8	57.5	133.8	52.1	60.3	124.8	48.3	62.7	115.8	44.5	64.8	106.7
	090	62.2	55.4	149.2	58.0	58.5	139.0	53.7	61.1	128.7	49.4	63.3	118.3	45.0	64.9	107.9
	100	71.2	61.1	170.6	66.5	65.0	159.5	61.8	68.4	148.2	57.1	71.3	136.8	52.2	73.6	125.2
	110	76.9	70.5	184.4	71.9	74.4	172.5	66.9	77.8	160.4	61.8	80.7	148.1	56.7	83.0	135.8
	130	87.0	80.2	208.6	82.5	85.2	197.7	77.7	89.9	186.4	72.9	94.1	174.7	67.9	97.9	162.9
	150	100.4	93.4	240.8	95.0	99.0	227.8	89.4	104.1	214.4	83.7	108.6	200.6	77.8	112.6	186.6
	170	113.9	101.9	273.0	107.9	108.9	258.7	101.7	115.2	243.8	95.3	121.0	228.5	88.7	126.1	212.6
	190	124.9	112.2	299.3	118.0	118.8	282.9	111.1	125.0	266.4	104.0	130.4	249.3	96.8	135.4	232.1
	210	145.9	134.6	349.8	136.4	141.4	327.1	126.8	147.2	303.9	117.0	152.1	280.5	107.2	156.0	257.0
	230	159.9	147.8	383.4	150.8	156.5	361.5	141.5	164.3	339.2	132.0	171.3	316.4	122.3	177.4	293.3
	245	162.7	148.8	390.0	153.0	157.5	366.8	143.1	165.2	343.1	133.0	171.9	318.9	122.8	177.5	294.4
	255	171.6	154.5	411.3	161.5	164.0	387.2	151.3	172.5	362.6	140.7	179.9	337.4	130.0	186.2	311.7
	270	185.0	163.0	443.6	174.5	173.9	418.3	163.5	183.6	392.0	152.3	192.3	365.2	140.9	199.7	337.8
	290	201.8	182.6	483.7	189.9	193.2	455.3	178.0	202.8	426.8	165.8	211.1	397.4	153.5	218.3	367.9
	315	222.8	205.0	534.2	208.4	215.8	499.5	193.7	225.1	464.3	178.8	232.8	428.6	163.9	239.0	392.8
	330	227.7	203.8	545.8	215.8	217.7	517.3	203.4	230.4	487.5	190.6	242.0	456.9	177.4	252.2	425.2
	360	249.6	224.3	598.3	236.0	237.6	565.8	222.2	249.9	532.7	208.0	260.9	498.6	193.6	270.7	464.0
	390	270.7	246.7	649.0	254.4	260.2	609.9	237.8	272.2	570.2	221.0	282.6	529.8	204.0	291.4	489.0
	420	291.8	269.2	699.6	272.8	282.8	654.0	253.5	294.4	607.6	234.0	304.3	560.9	214.4	312.1	514.0
45.0	040	25.6	22.2	61.3	24.3	23.7	58.2	23.0	25.1	55.0	21.6	26.4	51.8	20.2	27.6	48.5
	045	30.0	26.5	71.8	27.5	27.8	65.9	25.0	28.8	60.1	22.6	29.5	54.3	20.3	29.9	48.6
	050	36.5	31.9	87.5	34.2	34.0	82.1	31.9	35.8	76.5	29.6	37.4	70.9	27.1	38.7	65.0
	060	46.5	41.7	111.5	43.7	44.3	104.8	40.9	46.7	98.1	38.1	48.7	91.3	35.2	50.5	84.3
	070	53.6	49.7	128.6	50.5	52.5	121.1	47.2	54.9	113.2	44.0	57.2	105.5	40.8	59.2	97.7
	080	60.7	54.9	145.6	57.0	58.1	136.6	53.2	61.0	127.6	49.4	63.5	118.4	45.5	65.6	109.1
	090	63.5	56.0	152.3	59.2	59.2	142.0	54.9	61.9	131.6	50.5	64.1	121.1	46.1	65.8	110.5
	100	72.7	61.7	174.3	68.0	65.7	163.1	63.3	69.2	151.7	58.4	72.2	140.1	53.5	74.7	128.3
	110	78.6	71.2	188.4	73.5	75.3	176.3	68.4	78.8	164.1	63.3	81.8	151.7	58.0	84.2	139.2
	130	88.6	80.9	212.5	84.0	86.0	201.5	79.2	90.8	190.0	74.3	95.1	178.2	69.3	99.0	166.2
	150	102.2	94.3	245.1	96.7	100.0	231.9	91.1	105.2	218.5	85.4	109.9	204.7	79.4	114.0	190.5
	170	116.1	102.9	278.3	110.1	110.0	264.0	103.7	116.5	248.7	97.3	122.5	233.3	90.7	127.8	217.4
	190	127.3	113.3	305.3	120.3	120.1	288.5	113.4	126.4	271.9	106.2	132.0	254.6	98.9	137.1	237.1
	210	149.0	136.1	357.2	139.4	143.1	334.2	129.6	149.2	310.7	119.7	154.2	287.0	109.8	158.4	263.4
	230	162.9	149.2	390.7	153.7	158.1	368.5	144.3	166.2	346.1	134.7	173.3	323.1	124.9	179.6	299.6
	245	165.8	150.3	397.5	155.9	159.1	373.9	146.0	167.1	350.1	135.8	174.0	325.8	125.5	179.8	301.0
	255	174.9	155.9	419.4	164.7	165.7	395.0	154.4	174.4	370.2	143.8	182.1	344.7	132.9	188.6	318.7
	270	188.8	164.5	452.7	178.1	175.7	427.1	166.9	185.7	400.3	155.7	194.7	373.3	144.2	202.4	345.7
	290	205.9	184.5	493.7	193.8	195.4	464.8	181.8	205.2	436.0	169.4	213.8	406.3	156.9	221.3	376.3
	315	227.5	207.3	545.6	212.9	218.4	510.5	198.0	227.9	474.8	182.9	236.0	438.7	167.9	242.6	402.6
	330	232.1	205.7	556.4	220.2	220.0	527.9	207.4	233.0	497.3	194.5	244.9	466.5	181.2	255.5	434.6
	360	254.4	226.6	610.0	240.6	240.2	576.9	226.7	252.7	543.6	212.3	264.0	509.1	197.7	274.2	474.2
	390	276.2	249.4	662.4	259.6	263.2	622.6	242.9	275.5	582.5	225.9	286.3	541.7	208.7	295.5	500.4
	420	297.9	272.2	714.3	278.7	286.2	668.3	259.1	298.3	621.3	239.4	308.5	574.0	219.6	316.7	526.6

COOLING CAPACITIES — 60 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
46.0	040	26.0	22.4	62.3	24.7	23.9	59.2	23.3	25.3	56.0	22.0	26.6	52.7	20.6	27.8	49.3
	045	30.7	26.8	73.7	28.2	28.2	67.6	25.7	29.2	61.7	23.3	30.0	55.8	20.9	30.4	50.0
	050	37.2	32.2	89.3	34.9	34.3	83.8	32.6	36.2	78.1	30.2	37.9	72.4	27.7	39.2	66.5
	060	47.4	42.1	113.7	44.6	44.8	107.0	41.8	47.2	100.2	38.9	49.3	93.2	35.9	51.1	86.2
	070	54.6	50.2	131.1	51.5	53.0	123.5	48.2	55.5	115.5	44.9	57.8	107.7	41.6	59.9	99.8
	080	61.9	55.5	148.6	58.1	58.7	139.5	54.3	61.7	130.3	50.4	64.2	121.0	46.5	66.5	111.6
	090	64.8	56.6	155.5	60.5	59.8	145.1	56.1	62.6	134.5	51.6	65.0	123.9	47.2	66.8	113.2
	100	74.2	62.3	178.0	69.5	66.4	166.7	64.7	70.1	155.2	59.8	73.2	143.4	54.8	75.7	131.5
	110	80.3	72.0	192.5	75.1	76.1	180.2	70.0	79.8	167.8	64.7	82.9	155.3	59.5	85.4	142.6
	130	90.2	81.6	216.5	85.6	86.8	205.2	80.8	91.7	193.7	75.8	96.1	181.8	70.7	100.2	169.7
	150	104.1	95.2	249.7	98.4	100.9	236.1	92.8	106.3	222.6	87.0	111.1	208.6	81.0	115.4	194.4
	170	118.2	103.9	283.6	112.2	111.1	269.1	105.9	117.8	253.9	99.3	123.9	238.2	92.6	129.4	222.0
	190	129.7	114.4	311.1	122.7	121.4	294.4	115.6	127.7	277.2	108.4	133.6	259.9	101.0	138.9	242.2
	210	152.2	137.8	365.0	142.3	144.9	341.4	132.4	151.1	317.6	122.5	156.4	293.8	112.4	160.7	269.5
	230	166.0	150.7	398.2	156.6	159.7	375.6	147.1	167.9	352.8	137.4	175.3	329.5	127.6	181.8	306.0
	245	168.9	151.7	405.2	158.9	160.8	381.2	148.9	168.9	357.1	138.6	176.0	332.4	128.2	182.1	307.5
	255	178.3	157.4	427.7	167.9	167.4	402.8	157.5	176.3	377.7	146.7	184.2	352.0	135.8	191.1	325.8
	270	192.5	166.1	461.8	181.7	177.6	435.9	170.5	187.9	409.0	159.1	197.1	381.6	147.4	205.1	353.5
	290	210.0	186.4	503.6	197.9	197.5	474.6	185.5	207.5	445.0	173.1	216.5	415.2	160.4	224.2	384.8
	315	232.4	209.8	557.5	217.5	221.0	521.6	202.4	230.8	485.4	187.2	239.3	449.1	171.8	246.0	412.1
	330	236.5	207.7	567.2	224.3	222.2	538.0	211.7	235.6	507.7	198.6	247.8	476.3	185.1	258.8	444.0
	360	259.2	228.8	621.7	245.5	242.8	588.8	231.2	255.5	554.5	216.7	267.2	519.8	201.9	277.7	484.4
	390	281.9	252.2	676.2	265.0	266.3	635.8	248.0	278.8	594.8	230.9	290.0	553.8	213.4	299.5	511.8
	420	304.4	275.5	730.1	284.6	289.7	682.7	264.8	302.1	635.1	244.9	312.7	587.4	224.7	321.3	539.0
48.0	040	26.8	22.7	64.3	25.5	24.2	61.1	24.1	25.7	57.9	22.7	27.1	54.5	21.3	28.3	51.1
	045	32.3	27.5	77.4	29.7	28.9	71.2	27.1	30.0	65.0	24.5	30.9	58.9	22.1	31.4	52.9
	050	38.7	32.8	92.8	36.3	35.0	87.2	33.9	37.0	81.4	31.5	38.7	75.6	29.0	40.2	69.6
	060	49.3	42.9	118.3	46.4	45.7	111.4	43.5	48.2	104.3	40.5	50.4	97.2	37.5	52.4	90.0
	070	56.7	51.1	136.2	53.5	54.1	128.3	50.2	56.8	120.4	46.8	59.1	112.2	43.4	61.3	104.1
	080	64.4	56.6	154.6	60.5	60.0	145.3	56.6	63.1	135.9	52.6	65.8	126.3	48.6	68.2	116.6
	090	67.5	57.7	161.9	63.0	61.2	151.2	58.5	64.2	140.4	54.0	66.6	129.5	49.4	68.6	118.6
	100	77.4	63.5	185.7	72.5	67.9	174.1	67.6	71.7	162.3	62.6	75.0	150.3	57.5	77.8	138.0
	110	83.7	73.5	200.8	78.4	77.9	188.2	73.1	81.7	175.5	67.7	85.0	162.6	62.3	87.8	149.6
	130	93.5	83.1	224.5	88.7	88.5	213.0	83.8	93.6	201.2	78.8	98.2	189.1	73.6	102.5	176.6
	150	107.7	96.9	258.4	102.0	102.9	244.8	96.2	108.4	230.8	90.3	113.5	216.8	84.2	118.1	202.1
	170	122.7	105.8	294.4	116.4	113.4	279.4	110.0	120.4	264.0	103.4	126.8	248.1	96.5	132.6	231.5
	190	134.5	116.6	322.7	127.6	124.0	306.1	120.2	130.6	288.5	112.9	136.8	270.9	105.3	142.4	252.6
	210	158.5	140.9	380.4	148.3	148.3	356.0	138.2	154.9	331.6	128.0	160.6	307.2	117.6	165.3	282.3
	230	172.1	153.5	413.0	162.5	162.9	390.1	152.8	171.5	366.7	142.9	179.3	343.0	132.8	186.2	318.8
	245	175.1	154.6	420.3	165.0	164.1	396.0	154.7	172.6	371.2	144.3	180.2	346.3	133.6	186.7	320.7
	255	185.1	160.3	444.1	174.5	170.8	418.9	163.8	180.2	393.1	152.9	188.6	367.0	141.7	195.9	340.1
	270	200.1	169.3	480.3	189.0	181.2	453.5	177.6	192.1	426.2	165.9	201.8	398.2	153.9	210.4	369.4
	290	218.1	190.2	523.5	206.0	201.9	494.4	193.3	212.4	464.0	180.6	221.9	433.5	167.6	230.2	402.2
	315	242.2	214.5	581.2	226.8	226.2	544.2	211.3	236.6	507.1	195.7	245.6	469.8	180.0	253.1	431.9
	330	245.4	211.6	589.0	232.9	226.7	558.9	220.0	240.7	528.0	206.7	253.6	496.0	192.9	265.2	462.8
	360	268.9	233.2	645.4	255.0	247.9	611.9	240.5	261.3	577.1	225.7	273.6	541.6	210.5	284.7	505.2
	390	293.1	257.6	703.3	275.9	272.3	662.1	258.4	285.5	620.1	240.9	297.4	578.1	222.9	307.7	534.9
	420	317.0	281.9	760.8	296.7	296.7	712.1	276.4	309.9	663.3	256.0	321.2	614.3	235.3	330.5	564.6

Performance data — English (cont)



COOLING CAPACITIES — 60 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
50.0	040	27.6	23.0	66.3	26.3	24.6	63.1	24.9	26.1	59.8	23.5	27.6	56.4	22.0	28.9	52.9
	045	33.9	28.1	81.3	31.2	29.6	74.8	28.5	30.9	68.4	25.9	31.8	62.1	23.3	32.5	55.9
	050	40.2	33.3	96.4	37.8	35.7	90.6	35.3	37.8	84.8	32.8	39.6	78.8	30.3	41.2	72.7
	060	51.2	43.7	122.9	48.2	46.5	115.8	45.2	49.2	108.6	42.2	51.5	101.3	39.1	53.6	93.9
	070	58.9	52.1	141.4	55.5	55.2	133.3	52.1	57.9	125.1	48.7	60.5	116.9	45.2	62.8	108.4
	080	67.0	57.7	160.9	63.0	61.3	151.3	59.0	64.5	141.5	54.9	67.4	131.7	50.7	69.9	121.8
	090	70.1	58.9	168.4	65.6	62.5	157.5	61.0	65.7	146.5	56.4	68.3	135.3	51.7	70.5	124.1
	100	80.6	64.7	193.6	75.7	69.3	181.7	70.6	73.4	169.5	65.5	76.9	157.2	60.3	79.9	144.7
	110	87.1	75.0	209.2	81.8	79.6	196.3	76.3	83.7	183.3	70.8	87.3	170.1	65.3	90.2	156.7
	130	96.9	84.5	232.7	92.0	90.1	220.8	86.9	95.4	208.8	81.8	100.3	196.5	76.5	104.8	183.8
	150	111.3	98.6	267.3	105.6	104.8	253.5	99.6	110.6	239.3	93.7	116.0	224.9	87.5	120.8	210.1
	170	127.3	107.8	305.7	120.9	115.7	290.3	114.3	122.9	274.4	107.5	129.7	258.0	100.4	135.9	241.1
	190	139.4	118.9	334.6	132.3	126.5	317.5	125.0	133.6	300.2	117.3	139.9	281.7	109.7	145.9	263.4
	210	165.0	144.1	396.1	154.7	152.0	371.3	144.2	158.9	346.2	133.6	164.8	320.8	123.1	170.0	295.6
	230	178.3	156.3	428.2	168.6	166.1	404.7	158.6	175.1	380.8	148.5	183.3	356.6	138.2	190.7	331.9
	245	181.5	157.4	435.8	171.2	167.3	411.0	160.7	176.3	385.7	150.0	184.3	360.2	139.2	191.3	334.2
	255	192.0	163.3	460.9	181.3	174.1	435.2	170.3	184.0	408.8	159.1	192.9	382.1	147.7	200.7	354.7
	270	208.0	172.5	499.4	196.6	184.9	472.0	184.9	196.3	443.9	172.9	206.6	415.2	160.7	215.8	385.7
	290	226.5	193.9	543.8	214.0	206.1	513.9	201.4	217.3	483.5	188.2	227.2	451.8	174.9	236.2	420.1
	315	252.1	219.1	605.3	236.4	231.6	567.7	220.5	242.6	529.5	204.5	252.1	490.9	188.4	260.2	452.3
	330	254.6	215.6	611.3	241.8	231.3	580.6	228.6	245.9	548.8	214.9	259.4	516.0	200.8	271.7	482.1
	360	278.8	237.8	669.4	264.5	252.9	635.0	250.0	267.1	600.2	234.7	280.0	563.5	219.3	291.8	526.6
	390	304.4	263.0	731.0	287.1	278.6	689.3	269.3	292.5	646.6	250.9	304.8	602.5	232.7	315.9	558.8
	420	329.9	288.2	792.2	309.3	303.9	742.6	288.4	317.8	692.4	267.3	329.7	641.7	246.1	339.9	591.0
60.0	040	32.0	24.5	76.9	30.5	26.3	73.4	28.3	27.8	68.2	25.9	28.9	62.3	23.5	29.8	56.6
	045	38.8	30.0	93.3	35.8	31.8	86.1	32.8	33.3	79.0	29.9	34.4	72.0	27.1	35.3	65.1
	050	47.7	36.1	114.8	44.3	38.6	106.5	40.8	40.7	98.1	37.3	42.4	89.7	33.9	43.8	81.5
	060	59.8	47.0	143.9	55.6	49.9	133.7	51.4	52.5	123.6	47.2	54.7	113.6	43.1	56.6	103.6
	070	68.9	56.2	165.7	63.9	59.2	153.7	59.0	61.8	141.9	54.2	64.0	130.3	49.4	65.9	118.9
	080	76.1	61.5	183.1	70.7	65.0	170.0	65.2	68.1	156.9	59.9	70.8	144.1	54.6	72.9	131.3
	090	81.5	63.5	196.0	75.2	67.2	180.8	68.9	70.2	165.7	62.7	72.6	150.8	56.6	74.3	136.0
	100	95.4	69.8	229.4	88.4	74.7	212.7	81.4	78.9	195.8	74.5	82.4	179.1	67.6	85.2	162.5
	110	105.0	82.5	252.5	97.8	87.4	235.2	90.0	91.5	216.6	82.3	94.9	198.1	74.7	97.5	179.8
	130	114.4	91.7	275.2	109.0	98.4	262.2	103.4	104.7	248.8	96.1	109.7	231.3	87.8	113.4	211.2
	150	130.5	107.1	314.0	124.3	114.6	298.9	117.0	121.0	281.4	107.0	125.1	257.4	97.1	128.4	233.6
	170	149.0	116.9	358.4	138.8	124.5	334.0	128.5	131.2	309.2	118.2	137.0	284.3	107.9	141.7	259.5
	190	165.6	130.3	398.3	157.0	139.0	377.6	145.7	145.6	350.6	133.6	150.9	321.5	121.6	155.1	292.6
	210	191.8	157.0	461.4	177.9	164.7	427.8	163.8	171.2	394.1	150.1	176.7	361.1	136.5	181.0	328.4
	230	206.6	168.7	497.1	194.9	179.6	468.9	182.2	189.1	438.3	166.9	195.9	401.4	151.7	201.4	364.9
	245	212.0	170.6	510.0	199.4	181.8	479.7	185.9	191.1	447.1	169.7	197.7	408.1	153.7	202.7	369.7
	255	225.9	176.9	543.4	212.7	189.3	511.6	198.4	199.8	477.2	181.4	207.5	436.5	164.7	213.6	396.2
	270	244.3	186.7	587.7	227.2	199.2	546.7	209.9	210.1	504.9	192.7	219.4	463.5	175.5	227.0	422.1
	290	270.6	212.8	650.9	254.8	226.4	612.9	235.8	237.1	567.2	216.0	245.8	519.5	196.4	252.7	472.4
	315	296.8	239.5	714.0	275.6	252.1	663.1	253.9	262.7	610.7	232.4	271.6	559.1	211.2	278.6	508.2
	330	297.9	233.7	716.7	277.7	249.0	668.0	257.0	262.4	618.3	236.4	273.9	568.7	215.8	283.5	519.1
	360	331.1	260.7	796.6	314.0	278.0	755.3	291.5	291.2	701.2	267.3	301.8	642.9	243.3	310.3	585.3
	390	357.5	287.4	859.9	334.8	303.7	805.5	309.6	316.8	744.7	283.7	327.6	682.5	258.2	336.2	621.0
	420	383.6	313.9	922.8	355.7	329.4	855.7	327.6	342.4	788.2	300.2	353.4	722.1	273.0	362.1	656.8

COOLING CAPACITIES — 50 Hz

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
40.0	040	23.0	20.8	55.1	21.8	22.2	52.1	20.5	23.4	49.0	19.1	24.5	45.7	17.8	25.4	42.5
	045	27.5	25.7	65.9	25.6	27.2	61.4	23.8	28.4	56.9	21.8	29.4	52.3	19.9	30.2	47.7
	050	34.0	33.2	81.3	31.9	35.0	76.3	29.8	36.6	71.3	27.6	37.9	66.2	25.5	39.1	61.0
	060	40.3	39.5	96.4	37.7	41.4	90.3	35.1	43.2	84.1	32.6	44.7	78.1	30.1	46.0	71.9
	070	46.2	43.2	110.5	43.1	45.5	103.1	39.9	47.4	95.6	36.8	49.0	88.1	33.7	50.3	80.6
	080	54.3	51.4	129.9	50.7	53.9	121.3	47.1	56.1	112.8	43.5	57.9	104.1	39.9	59.4	95.4
	090	60.8	58.2	145.6	56.8	61.2	136.0	52.7	63.8	126.2	48.6	65.9	116.4	44.4	67.6	106.4
	100	66.1	63.0	158.2	61.6	66.0	147.5	57.1	68.6	136.7	52.6	70.8	126.0	48.1	72.4	115.0
	110	73.8	75.8	176.7	69.1	79.1	165.5	64.5	82.1	154.3	59.8	84.7	143.2	55.1	86.8	131.9
	130	82.2	78.6	196.8	77.6	83.2	185.7	72.9	87.3	174.4	68.1	91.0	163.0	63.2	94.2	151.3
	150	97.3	99.8	233.0	92.2	105.0	220.8	87.1	109.8	208.4	81.8	114.2	195.8	76.5	118.2	183.0
	170	106.4	103.7	254.6	100.5	109.6	240.6	94.5	114.9	226.3	88.4	119.7	211.7	82.1	123.8	196.6
	190	120.4	120.7	288.1	113.7	126.7	272.2	107.2	132.3	256.7	100.5	137.3	240.5	93.7	142.0	224.4
	210	134.5	132.6	322.0	125.5	138.3	300.5	116.6	143.2	279.0	107.6	147.3	257.5	98.6	150.6	235.9
	230	151.6	151.2	362.9	142.9	158.9	342.2	134.2	165.9	321.2	125.3	172.1	299.9	116.3	177.6	278.4
	245	158.2	158.0	378.6	149.1	166.2	356.8	139.8	173.5	334.6	130.4	180.1	312.1	120.9	185.8	289.4
	255	163.4	162.8	391.2	153.8	171.0	368.3	144.2	178.4	345.1	134.4	184.9	321.6	124.5	190.6	298.0
	270	172.4	166.7	412.8	162.1	175.6	388.1	151.6	183.5	363.0	141.0	190.4	337.5	130.1	196.2	311.5
	290	194.2	196.5	464.8	182.9	205.8	437.8	171.7	214.4	411.1	160.3	222.0	383.7	148.9	228.8	356.4
	315	208.3	208.4	498.7	194.7	217.4	466.1	181.0	225.3	433.4	167.4	232.0	400.6	153.7	237.4	367.8
	330	212.7	207.5	509.3	201.0	219.1	481.3	189.1	229.7	452.6	176.9	239.3	423.4	164.3	247.7	393.2
	360	226.7	224.5	542.8	214.2	236.2	512.9	201.8	247.2	483.0	188.9	257.0	452.3	175.9	265.9	421.1
	390	254.8	253.3	610.0	239.3	265.0	572.8	223.7	275.5	535.5	208.0	284.7	498.0	192.2	292.5	460.2
	420	269.0	265.2	644.0	251.1	276.6	601.1	233.1	286.4	558.0	215.1	294.7	515.0	197.1	301.2	471.8
42.0	040	23.8	21.2	57.0	22.5	22.6	53.9	21.2	23.8	50.8	19.8	24.9	47.5	18.4	25.9	44.2
	045	28.7	26.2	68.7	26.8	27.8	64.2	24.8	29.1	59.5	22.9	30.2	54.8	20.9	31.0	50.0
	050	35.4	33.8	84.7	33.2	35.7	79.6	31.1	37.4	74.4	28.9	38.9	69.1	26.7	40.1	63.8
	060	42.0	40.3	100.5	39.3	42.4	94.2	36.7	44.2	87.9	34.1	45.8	81.6	31.4	47.2	75.3
	070	48.1	44.1	115.2	44.9	46.5	107.7	41.7	48.6	100.0	38.5	50.3	92.2	35.3	51.7	84.5
	080	56.6	52.6	135.6	52.9	55.2	126.7	49.2	57.5	117.8	45.5	59.5	109.0	41.8	61.1	100.1
	090	63.4	59.5	151.8	59.2	62.6	141.9	55.1	65.4	131.9	50.8	67.7	121.7	46.6	69.5	111.6
	100	69.1	64.4	165.5	64.5	67.7	154.5	59.9	70.4	143.4	55.2	72.8	132.3	50.6	74.6	121.2
	110	77.0	77.5	184.6	72.3	81.1	173.2	67.5	84.2	161.6	62.7	87.0	150.1	57.8	89.4	138.4
	130	85.4	80.1	204.5	80.7	84.9	193.3	75.8	89.2	181.7	70.9	93.1	169.9	65.9	96.6	158.0
	150	100.9	101.7	241.7	95.7	107.1	229.2	90.4	112.1	216.5	85.0	116.7	203.5	79.5	121.0	190.5
	170	110.7	105.9	265.1	104.7	112.0	250.7	98.5	117.6	236.1	92.3	122.7	221.1	85.8	127.2	205.5
	190	125.1	123.3	299.8	118.3	129.5	283.4	111.7	135.4	267.5	104.8	140.8	251.0	97.8	145.7	234.3
	210	140.4	135.9	336.5	131.2	141.9	314.4	122.0	147.1	292.2	112.7	151.5	270.0	103.4	155.2	247.8
	230	157.5	154.3	377.3	148.6	162.3	356.0	139.6	169.6	334.4	130.5	176.2	312.6	121.3	182.1	290.5
	245	164.3	161.2	393.5	154.9	169.7	371.1	145.4	177.5	348.3	135.8	184.4	325.2	126.1	190.6	302.1
	255	170.0	166.1	407.2	160.2	174.7	383.7	150.2	182.5	359.9	140.2	189.5	335.8	130.0	195.7	311.5
	270	179.7	170.3	430.6	169.1	179.7	405.2	158.4	188.0	379.4	147.5	195.5	353.3	136.3	201.8	326.6
	290	202.2	200.9	484.4	190.6	210.6	456.6	179.1	219.6	429.1	167.4	227.8	401.0	155.6	235.1	372.8
	315	217.5	213.4	521.1	203.5	223.0	487.5	189.4	231.3	453.8	175.3	238.5	420.0	161.2	244.5	386.3
	330	221.3	211.9	530.2	209.3	224.1	501.5	197.1	235.2	472.1	184.6	245.4	442.1	171.7	254.4	411.3
	360	235.8	229.3	564.9	223.0	241.6	534.2	210.2	253.0	503.6	197.0	263.5	472.0	183.6	272.9	439.8
	390	265.6	259.2	636.2	249.6	271.4	597.9	233.6	282.5	559.6	217.5	292.3	520.9	201.2	300.8	482.1
	420	280.9	271.7	672.9	262.4	283.7	628.7	243.9	294.2	584.4	225.4	303.1	540.0	206.9	310.3	495.6

Performance data — English (cont)



COOLING CAPACITIES — 50 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
44.0	040	24.6	21.5	59.0	23.3	22.9	55.8	21.9	24.3	52.6	20.6	25.4	49.3	19.1	26.5	45.9
	045	29.9	26.8	71.6	27.9	28.4	67.0	25.9	29.8	62.2	23.9	31.0	57.4	21.9	31.9	52.5
	050	36.8	34.5	88.2	34.6	36.5	82.9	32.4	38.3	77.6	30.1	39.8	72.2	27.8	41.2	66.7
	060	43.7	41.1	104.7	41.0	43.3	98.3	38.3	45.2	91.7	35.6	46.9	85.3	32.9	48.4	78.8
	070	50.1	45.0	120.0	46.8	47.5	112.3	43.6	49.7	104.5	40.3	51.6	96.5	36.9	53.1	88.6
	080	59.0	53.7	141.4	55.2	56.5	132.3	51.4	58.9	123.2	47.5	61.0	114.0	43.7	62.8	104.9
	090	65.9	60.7	158.1	61.7	64.1	147.9	57.4	67.0	137.7	53.1	69.5	127.3	48.8	71.5	116.9
	100	72.2	65.9	173.1	67.5	69.3	161.8	62.7	72.3	150.3	57.9	74.8	138.8	53.1	76.9	127.4
	110	80.4	79.3	192.8	75.5	83.1	180.9	70.5	86.4	169.0	65.5	89.3	157.1	60.6	91.9	145.2
	130	88.6	81.5	212.3	83.8	86.6	200.9	78.9	91.2	189.2	73.9	95.3	177.1	68.7	99.0	164.8
	150	104.5	103.6	250.4	99.2	109.2	237.7	93.7	114.5	224.7	88.2	119.3	211.5	82.6	123.9	198.0
	170	114.9	108.1	275.6	108.9	114.5	261.0	102.6	120.4	246.0	96.2	125.7	230.6	89.7	130.6	214.9
	190	130.0	125.9	311.6	123.2	132.5	295.3	116.1	138.5	278.4	109.1	144.3	261.6	102.0	149.5	244.5
	210	146.6	139.2	351.5	137.0	145.5	328.5	127.5	151.0	305.7	118.0	155.8	282.8	108.4	159.7	259.9
	230	163.4	157.3	391.8	154.3	165.7	370.0	145.1	173.4	347.9	135.8	180.4	325.5	126.4	186.7	302.9
	245	170.4	164.3	408.5	160.9	173.3	385.7	151.2	181.4	362.4	141.3	188.8	338.8	131.4	195.4	314.9
	255	176.6	169.5	423.4	166.6	178.5	399.3	156.4	186.7	375.0	146.1	194.1	350.3	135.7	200.7	325.3
	270	187.1	174.0	448.5	176.3	183.8	422.7	165.3	192.6	396.2	154.1	200.5	369.4	142.7	207.4	342.2
	290	210.4	205.3	504.3	198.7	215.5	476.2	186.7	224.9	447.5	174.7	233.6	418.8	162.5	241.4	389.6
	315	227.1	218.5	544.3	212.5	228.5	509.5	198.0	237.4	474.7	183.5	245.1	439.9	169.0	251.6	405.1
	330	229.9	216.2	551.1	217.8	229.0	522.1	205.2	240.8	492.0	192.4	251.5	461.2	179.3	261.2	429.8
	360	244.9	234.1	587.1	232.1	247.0	556.3	218.8	258.9	524.4	205.3	270.0	492.3	191.6	280.1	459.4
	390	276.6	265.1	663.1	260.2	277.9	623.8	243.6	289.5	584.0	227.1	300.0	544.4	210.4	309.2	504.4
	420	293.3	278.4	703.0	274.1	290.9	657.0	255.0	302.0	611.3	235.9	311.5	565.6	216.8	319.4	519.8
45.0	040	25.0	21.6	59.9	23.7	23.1	56.8	22.3	24.5	53.5	20.9	25.7	50.2	19.5	26.8	46.8
	045	30.5	27.0	73.1	28.5	28.7	68.4	26.5	30.2	63.6	24.5	31.4	58.7	22.4	32.3	53.7
	050	37.5	34.8	89.9	35.3	36.9	84.6	33.0	38.7	79.2	30.8	40.3	73.8	28.4	41.7	68.2
	060	44.6	41.5	106.9	41.8	43.7	100.3	39.1	45.7	93.7	36.3	47.5	87.1	33.6	49.0	80.5
	070	51.1	45.4	122.5	47.8	48.0	114.6	44.5	50.3	106.7	41.2	52.2	98.7	37.8	53.8	90.6
	080	60.2	54.3	144.4	56.4	57.1	135.1	52.5	59.6	125.9	48.6	61.8	116.5	44.8	63.7	107.3
	090	67.3	61.4	161.4	63.0	64.8	151.0	58.7	67.8	140.6	54.3	70.4	130.2	49.9	72.5	119.6
	100	73.7	66.6	176.8	69.0	70.1	165.4	64.1	73.2	153.8	59.3	75.8	142.2	54.4	78.0	130.5
	110	82.1	80.2	196.9	77.1	84.1	184.9	72.1	87.5	172.9	67.0	90.5	160.7	62.0	93.2	148.6
	130	90.2	82.3	216.3	85.4	87.4	204.8	80.5	92.1	192.9	75.3	96.3	180.7	70.2	100.2	168.3
	150	106.3	104.6	254.8	100.9	110.3	242.0	95.4	115.6	228.9	89.9	120.6	215.5	84.2	125.3	201.9
	170	117.2	109.2	280.9	111.0	115.7	266.3	104.7	121.8	251.0	98.2	127.3	235.5	91.6	132.3	219.5
	190	132.3	127.2	317.3	125.5	133.9	300.9	118.5	140.1	284.1	111.4	146.0	267.0	104.2	151.4	249.8
	210	149.7	140.8	359.0	140.1	147.3	335.9	130.3	153.0	312.5	120.7	157.9	289.3	111.0	162.0	266.1
	230	166.5	158.8	399.2	157.3	167.4	377.1	147.9	175.3	354.7	138.5	182.4	332.0	128.9	188.9	309.2
	245	173.6	166.0	416.2	163.9	175.1	393.1	154.1	183.5	369.6	144.1	191.0	345.6	134.0	197.8	321.4
	255	180.0	171.2	431.6	169.8	180.4	407.3	159.6	188.8	382.6	149.1	196.4	357.6	138.6	203.2	332.3
	270	190.9	175.8	457.7	180.0	185.9	431.6	168.8	194.9	404.8	157.5	203.1	377.6	146.0	210.2	350.0
	290	214.4	207.4	514.1	202.6	217.9	485.8	190.5	227.6	456.9	178.4	236.5	427.7	166.1	244.6	398.4
	315	231.8	221.1	555.9	217.2	231.4	520.9	202.4	240.5	485.4	187.7	248.4	450.0	172.9	255.2	414.6
	330	234.3	218.4	561.9	222.1	231.5	532.5	209.4	243.5	502.1	196.4	254.6	470.9	183.1	264.6	439.1
	360	249.5	236.4	598.2	236.5	249.6	567.1	223.2	261.9	535.1	209.5	273.3	502.5	195.7	283.7	469.3
	390	282.1	268.1	676.5	265.6	281.2	637.0	248.8	293.1	596.6	232.0	303.9	556.3	215.1	313.4	515.7
	420	299.5	281.7	718.1	280.2	294.7	671.9	260.7	306.0	625.1	241.3	315.8	578.6	221.9	324.0	532.2

COOLING CAPACITIES — 50 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
46.0	040	25.4	21.8	60.9	24.1	23.3	57.7	22.7	24.7	54.4	21.3	25.9	51.1	19.9	27.0	47.6
	045	31.1	27.3	74.6	29.1	29.0	69.8	27.1	30.5	64.9	25.0	31.8	60.0	22.9	32.8	55.0
	050	38.2	35.2	91.7	36.0	37.2	86.3	33.7	39.1	80.9	31.4	40.8	75.4	29.1	42.2	69.7
	060	45.4	42.0	109.0	42.7	44.2	102.4	39.9	46.2	95.7	37.1	48.1	89.0	34.3	49.7	82.3
	070	52.1	45.9	124.9	48.8	48.5	117.0	45.4	50.9	109.0	42.1	52.9	100.9	38.7	54.5	92.7
	080	61.4	54.8	147.3	57.5	57.8	138.0	53.6	60.3	128.6	49.7	62.6	119.1	45.7	64.5	109.7
	090	68.7	62.0	164.7	64.3	65.5	154.2	59.9	68.6	143.7	55.4	71.3	133.0	51.0	73.5	122.3
	100	75.3	67.3	180.7	70.5	71.0	169.0	65.6	74.1	157.3	60.7	76.8	145.5	55.8	79.1	133.7
	110	83.8	81.1	201.0	78.8	85.1	188.9	73.6	88.6	176.6	68.5	91.7	164.3	63.4	94.5	152.0
	130	91.8	83.0	220.3	87.0	88.3	208.6	82.0	93.1	196.7	76.8	97.4	184.3	71.6	101.3	171.8
	150	108.1	105.5	259.3	102.7	111.4	246.3	97.2	116.8	233.0	91.5	121.9	219.5	85.8	126.7	205.7
	170	119.4	110.3	286.4	113.2	117.0	271.5	106.8	123.2	256.1	100.2	128.8	240.3	93.5	134.0	224.2
	190	134.8	128.5	323.2	127.9	135.4	306.9	120.7	141.7	289.6	113.6	147.7	272.5	106.3	153.3	255.0
	210	152.9	142.5	366.7	143.1	149.2	343.2	133.2	155.0	319.5	123.4	160.1	295.9	113.5	164.3	272.3
	230	169.5	160.4	406.6	160.2	169.1	384.3	150.8	177.2	361.6	141.2	184.5	338.7	131.5	191.2	315.4
	245	176.7	167.6	424.0	167.0	176.9	400.6	157.1	185.5	376.8	147.0	193.2	352.5	136.8	200.2	328.1
	255	183.4	172.8	439.9	173.1	182.3	415.3	162.7	190.9	390.3	152.2	198.8	365.0	141.5	205.8	339.4
	270	194.7	177.6	467.0	183.7	187.9	440.5	172.3	197.3	413.4	160.9	205.6	385.8	149.2	213.0	357.9
	290	218.6	209.6	524.3	206.7	220.4	495.7	194.4	230.3	466.2	182.1	239.5	436.8	169.7	247.8	407.0
	315	236.7	223.6	567.7	221.9	234.2	532.2	206.9	243.6	496.2	191.9	251.8	460.3	176.9	258.8	424.3
	330	238.8	220.7	572.8	226.4	234.0	543.0	213.5	246.3	512.2	200.4	257.6	480.7	187.0	268.0	448.4
	360	254.2	238.8	609.6	241.1	252.4	578.4	227.5	264.9	545.7	213.8	276.5	512.8	199.8	287.3	479.2
	390	287.7	271.0	690.2	271.1	284.6	650.2	254.0	296.7	609.2	236.9	307.8	568.3	219.8	317.6	527.2
	420	305.7	285.0	733.3	286.2	298.3	686.5	266.4	310.0	639.0	246.7	320.1	591.8	227.1	328.7	544.6
48.0	040	26.2	22.1	62.9	24.9	23.7	59.7	23.5	25.1	56.3	22.0	26.4	52.9	20.6	27.6	49.4
	045	32.4	27.8	77.6	30.3	29.6	72.7	28.2	31.2	67.8	26.1	32.6	62.7	24.0	33.7	57.6
	050	39.7	35.8	95.3	37.4	38.0	89.8	35.1	40.0	84.2	32.7	41.7	78.5	30.3	43.3	72.8
	060	47.3	42.8	113.5	44.4	45.1	106.6	41.6	47.3	99.7	38.7	49.2	92.8	35.8	50.9	85.9
	070	54.1	46.8	129.9	50.8	49.6	121.9	47.4	52.0	113.7	43.9	54.2	105.4	40.4	55.9	97.0
	080	63.9	56.0	153.5	59.9	59.1	143.8	55.9	61.8	134.2	51.9	64.2	124.4	47.8	66.2	114.7
	090	71.4	63.3	171.3	66.9	67.0	160.7	62.4	70.3	149.8	57.9	73.1	138.9	53.3	75.5	127.9
	100	78.5	68.8	188.5	73.6	72.6	176.6	68.6	76.0	164.6	63.5	78.9	152.4	58.4	81.3	140.2
	110	87.2	83.0	209.4	82.1	87.1	197.0	76.9	90.8	184.5	71.6	94.1	171.7	66.3	97.1	159.0
	130	95.2	84.5	228.4	90.2	90.0	216.5	85.1	95.0	204.3	79.9	99.6	191.8	74.5	103.7	178.8
	150	111.8	107.5	268.3	106.3	113.5	255.0	100.6	119.2	241.5	94.9	124.5	227.7	89.0	129.6	213.6
	170	123.9	112.6	297.4	117.6	119.5	282.2	111.0	125.9	266.4	104.3	131.9	250.2	97.4	137.4	233.7
	190	139.7	131.1	335.3	132.8	138.3	318.6	125.6	145.0	301.4	118.1	151.2	283.4	110.6	157.1	265.4
	210	159.2	145.9	382.2	149.2	152.8	358.1	139.1	159.0	333.9	128.9	164.4	309.4	118.8	169.0	285.0
	230	175.7	163.5	421.7	166.2	172.6	398.9	156.5	181.0	375.7	146.7	188.7	352.1	136.8	195.8	328.2
	245	183.2	170.8	439.6	173.2	180.5	415.7	163.1	189.5	391.3	152.7	197.6	366.5	142.3	205.0	341.5
	255	190.3	176.2	456.7	179.8	186.1	431.6	169.2	195.2	406.0	158.4	203.4	380.1	147.4	210.9	353.7
	270	202.4	181.3	485.9	191.1	192.1	458.7	179.6	201.9	430.9	167.8	210.8	402.6	155.8	218.7	373.9
	290	226.9	214.0	544.6	214.9	225.4	515.6	202.4	235.8	485.8	189.6	245.3	455.1	176.9	254.2	424.4
	315	246.5	228.9	591.7	231.3	239.9	555.1	216.0	249.9	518.3	200.5	258.5	481.1	185.0	266.1	444.0
	330	247.9	225.1	594.8	235.2	239.0	564.4	222.0	251.9	532.8	208.5	263.8	500.5	194.8	274.7	467.4
	360	263.6	243.6	632.7	250.3	257.8	600.8	236.6	270.9	567.8	222.4	283.1	533.6	208.0	294.5	499.1
	390	299.1	277.0	717.8	282.1	291.2	677.0	264.7	304.0	635.3	247.0	315.5	592.7	229.4	326.1	550.4
	420	318.5	291.7	764.3	298.4	305.7	716.2	278.2	318.1	667.7	257.8	328.8	618.7	237.5	338.0	570.0

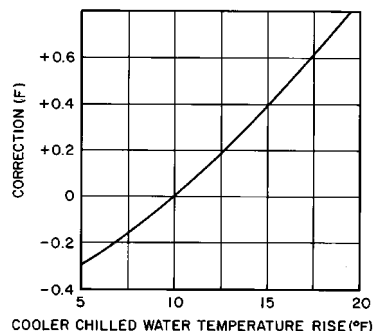
Performance data — English (cont)



COOLING CAPACITIES — 50 Hz (cont)

LCWT (F)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (F)														
		85			95			105			115			125		
		Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)	Cap. (Tons)	Input kW	Cooler Flow Rate (Gpm)
50.0	040	27.0	22.4	64.9	25.7	24.0	61.6	24.3	25.5	58.2	22.8	26.9	54.8	21.3	28.2	51.2
	045	33.6	28.4	80.7	31.5	30.3	75.7	29.4	31.9	70.6	27.2	33.3	65.4	25.1	34.6	60.2
	050	41.2	36.5	98.9	38.9	38.8	93.3	36.5	40.8	87.6	34.0	42.7	81.7	31.6	44.3	75.8
	060	49.1	43.6	118.0	46.2	46.1	111.0	43.2	48.3	103.8	40.3	50.3	96.7	37.3	52.2	89.7
	070	56.3	47.7	135.1	52.8	50.6	126.8	49.3	53.2	118.4	45.8	55.4	109.9	42.2	57.4	101.4
	080	66.5	57.2	159.7	62.4	60.4	149.8	58.2	63.2	139.8	54.1	65.8	129.9	49.9	67.9	119.8
	090	74.2	64.6	178.1	69.6	68.5	167.2	65.0	71.9	156.1	60.3	74.9	144.9	55.6	77.5	133.6
	100	81.9	70.3	196.6	76.7	74.3	184.3	71.6	77.8	171.9	66.4	81.0	159.5	61.2	83.6	146.9
	110	90.8	84.8	218.0	85.5	89.1	205.2	80.1	93.0	192.3	74.7	96.6	179.4	69.2	99.7	166.2
	130	98.6	86.0	236.8	93.5	91.6	224.5	88.3	96.9	212.0	83.0	101.7	199.3	77.5	106.1	186.0
	150	115.5	109.4	277.4	109.9	115.7	263.9	104.1	121.6	250.1	98.3	127.2	236.0	92.3	132.4	221.5
	170	128.5	114.8	308.6	122.0	122.0	293.0	115.3	128.7	276.9	108.4	135.0	260.3	101.3	140.8	243.3
	190	144.9	133.7	347.9	137.6	141.1	330.3	130.3	148.1	313.0	122.8	154.7	294.7	115.0	160.9	276.2
	210	165.8	149.3	398.0	155.5	156.6	373.3	145.1	163.1	348.4	134.7	168.8	323.3	124.1	173.7	298.0
	230	182.0	166.6	437.1	172.3	176.0	413.7	162.4	184.8	389.9	152.4	192.9	365.8	142.2	200.4	341.3
	245	189.7	174.0	455.4	179.5	184.1	431.0	169.2	193.5	406.2	158.6	202.1	380.8	147.9	209.9	355.1
	255	197.3	179.6	473.8	186.6	189.9	448.1	175.7	199.4	422.0	164.7	208.1	395.4	153.4	216.0	368.4
	270	210.4	185.1	505.1	198.8	196.3	477.3	186.9	206.6	448.8	174.8	215.9	419.7	162.5	224.3	390.2
	290	235.8	218.5	566.1	223.1	230.3	535.6	210.5	241.2	505.3	197.4	251.3	474.0	184.2	260.7	442.4
	315	256.6	234.1	616.2	241.0	245.7	578.6	225.2	256.2	540.8	209.4	265.4	502.7	193.3	273.5	464.2
	330	257.1	229.6	617.2	244.1	244.0	586.1	230.6	257.5	553.8	216.8	270.0	520.6	202.7	281.6	486.7
	360	273.4	248.5	656.5	259.6	263.2	623.3	245.7	276.9	589.9	231.2	289.7	555.1	216.4	301.7	519.5
	390	310.7	283.1	746.1	293.2	297.9	704.0	275.5	311.4	661.4	257.4	323.6	618.0	239.1	334.6	574.2
	420	331.5	298.6	796.0	310.9	313.2	746.5	290.2	326.2	696.7	269.3	337.7	646.7	248.2	347.5	596.1
60.0	040	31.3	23.9	75.3	29.8	25.8	71.8	27.9	27.4	67.2	25.5	28.5	61.3	23.0	29.3	55.4
	045	39.4	30.7	94.9	36.6	32.6	88.0	33.7	34.3	81.1	30.8	35.7	74.1	28.0	36.8	67.2
	050	49.1	39.9	118.2	45.8	42.2	110.3	42.4	44.3	102.0	39.0	46.0	93.7	35.5	47.4	85.5
	060	57.3	47.1	137.9	53.2	49.5	127.9	49.1	51.7	118.1	45.1	53.5	108.4	41.1	55.0	99.0
	070	66.6	51.8	160.3	62.4	55.0	150.1	57.4	57.6	138.0	52.4	59.6	126.0	47.5	61.3	114.3
	080	76.0	61.5	182.9	70.4	64.6	169.4	64.8	67.2	156.0	59.4	69.4	142.8	54.0	71.2	129.9
	090	85.7	69.6	206.1	79.3	73.4	190.8	73.0	76.7	175.6	66.7	79.3	160.5	60.5	81.3	145.6
	100	97.6	76.9	234.7	90.3	80.9	217.3	83.1	84.4	200.0	76.1	87.3	183.0	69.1	89.6	166.1
	110	110.0	94.4	264.5	102.8	99.1	247.2	94.9	102.7	228.2	87.1	105.9	209.5	79.4	108.5	191.1
	130	116.3	93.3	279.9	110.8	100.2	266.5	105.0	106.5	252.6	97.7	111.5	235.0	89.5	115.4	215.3
	150	134.8	119.0	324.2	127.0	125.7	305.6	119.2	131.8	286.8	111.4	137.4	268.1	103.6	142.6	249.3
	170	150.5	125.2	362.0	141.0	132.4	339.3	130.4	138.3	313.7	119.8	143.3	288.3	109.4	147.5	263.1
	190	171.6	147.3	412.9	163.6	156.2	393.6	154.1	163.8	370.8	141.9	168.9	341.5	129.6	173.1	311.8
	210	192.8	163.0	463.8	178.8	170.0	430.1	165.0	176.1	396.8	151.3	181.2	364.0	137.9	185.3	331.6
	230	210.8	180.5	507.1	197.4	190.2	475.0	184.1	199.0	442.8	170.8	206.9	410.9	157.6	213.9	379.2
	245	220.4	188.7	530.2	206.3	199.1	496.4	192.2	208.4	462.4	178.2	216.7	428.6	164.1	224.0	394.8
	255	232.3	195.9	558.9	217.4	206.6	522.9	202.4	216.2	486.9	187.5	224.7	451.0	172.7	232.2	415.4
	270	248.1	202.0	596.7	231.4	213.4	556.5	213.5	222.7	513.7	195.9	230.6	471.2	178.5	237.0	429.3
	290	281.6	241.8	677.4	266.4	255.2	640.8	249.0	266.5	599.0	229.0	274.7	550.9	209.1	281.6	502.9
	315	302.8	257.4	728.3	281.6	269.1	677.4	259.8	278.8	625.0	238.4	287.0	573.5	217.3	293.8	522.7
	330	300.9	250.4	723.9	282.0	264.8	678.3	260.8	276.5	627.3	239.7	286.6	576.6	218.8	294.9	526.3
	360	322.1	272.5	774.9	304.6	288.6	732.8	284.5	302.1	684.4	261.8	312.1	629.7	239.0	320.6	574.9
	390	364.5	310.3	876.8	342.4	326.2	823.8	319.1	339.9	767.5	293.3	350.0	705.5	267.5	358.4	643.4
	420	385.6	325.9	927.7	357.6	340.0	860.3	329.9	352.2	793.7	302.7	362.4	728.1	275.7	370.6	663.3

LCWT CORRECTION (ENGLISH)



Above 10 F, ADD correction to design LCWT.
Below 10 F, SUBTRACT.

LEGEND

Cap. — Cooling Capacities kW of Refrigeration
kW — Compressor Power Input
LCWT — Leaving Chilled Water Temperature (F)

NOTES:

- All ratings are based on:
 - A cooler water temperature rise of 10° F. When greater accuracy is desired, correct design LCWT, before entering rating tables, by reference to the LCWT correction curve.
 - A fouling factor of 0.00025 in the cooler.
 - Refrigerant 134a.
- When a corrected LCWT is used, cooler pressure drop must also be corrected for new LCWT:
 - Enter rating table for corrected LCWT. By interpolation, determine corrected capacity (tons) and power input (kW) to compressor at its rated voltage.
 - Calculate corrected flow rate through the cooler:

$$= \frac{24 \times \text{capacity in kW}}{\text{temperature rise } ^\circ\text{F}} = \text{U.S. gpm}$$
 - Enter cooler pressure drop curve at corrected flow rate and read pressure drop.
- When cooler water temperature rise is less than 5° F, high flow rate will normally be accompanied by an excessive pressure drop. In such cases, contact your Carrier representative for special selection of a cooler with wider baffle spacing.

COOLING CAPACITIES — 60 Hz

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
4.0	040	81.5	21.5	3.2	77.6	22.7	3.1	73.6	23.8	2.9	69.6	24.8	2.8	65.4	25.7	2.6
	045	90.3	24.8	3.6	83.2	25.7	3.3	76.2	26.4	3.0	69.4	26.9	2.8	62.6	27.1	2.5
	050	113.8	30.4	4.5	107.0	32.0	4.3	100.0	33.4	4.0	93.2	34.6	3.7	86.0	35.6	3.4
	060	144.8	39.8	5.8	136.7	41.8	5.4	128.5	43.6	5.1	120.1	45.2	4.8	111.7	46.6	4.4
	070	167.4	47.3	6.7	158.1	49.4	6.3	148.7	51.4	5.9	139.4	53.1	5.5	130.0	54.7	5.2
	080	188.8	52.2	7.5	177.8	54.6	7.1	166.8	56.8	6.6	155.7	58.8	6.2	144.5	60.4	5.7
	090	197.2	53.0	7.8	184.4	55.4	7.3	171.5	57.5	6.8	158.6	59.1	6.3	145.6	60.3	5.8
	100	224.5	58.6	8.9	210.7	61.7	8.4	196.7	64.3	7.8	182.4	66.5	7.3	168.0	68.2	6.7
	110	242.8	67.3	9.7	228.0	70.4	9.1	212.9	73.0	8.5	197.8	75.2	7.9	182.5	77.0	7.3
	130	278.5	77.3	11.1	264.5	81.3	10.5	250.3	85.0	10.0	235.9	88.4	9.4	221.2	91.5	8.8
	150	322.5	89.9	12.8	305.7	94.4	12.2	288.6	98.4	11.5	271.7	102.1	10.8	254.2	105.3	10.1
	170	363.2	97.9	14.4	345.3	103.6	13.7	326.9	108.7	13.0	307.6	113.3	12.2	288.2	117.4	11.5
	190	398.1	107.5	15.8	377.6	112.9	15.0	356.8	117.8	14.2	335.7	122.2	13.3	314.2	126.0	12.5
	210	462.5	128.2	18.4	433.9	133.6	17.3	404.9	138.1	16.1	376.1	141.9	15.0	346.6	144.8	13.8
	230	511.3	142.1	20.3	483.5	149.0	19.2	455.4	155.2	18.1	427.3	160.8	17.0	398.7	165.7	15.9
	245	519.8	142.9	20.7	490.1	149.8	19.5	460.2	155.8	18.3	430.2	161.1	17.1	399.9	165.6	15.9
	255	547.0	148.5	21.7	516.3	156.0	20.5	485.2	162.7	19.3	454.1	168.6	18.1	422.1	173.5	16.8
	270	587.7	156.5	23.4	556.1	165.2	22.1	523.6	173.0	20.8	490.1	179.8	19.5	456.2	185.6	18.1
	290	641.0	174.8	25.5	605.6	183.3	24.1	569.7	190.8	22.7	533.5	197.4	21.2	496.7	203.0	19.7
	315	705.3	195.5	28.0	661.9	204.0	26.3	617.8	211.1	24.6	573.9	217.2	22.8	529.1	221.8	21.0
	330	726.5	195.9	28.9	690.5	207.1	27.5	653.5	217.3	26.0	615.1	226.5	24.5	576.2	234.7	22.9
	360	796.2	215.0	31.7	755.2	225.8	30.0	713.6	235.5	28.4	671.3	244.3	26.7	628.2	252.0	25.0
	390	860.3	235.7	34.2	811.5	246.5	32.3	761.7	255.9	30.3	711.7	264.1	28.3	660.6	270.8	26.3
	420	924.5	256.4	36.8	867.3	267.0	34.5	809.4	276.1	32.2	752.0	283.8	29.9	693.2	289.6	27.6
5.0	040	84.0	21.8	3.3	80.0	23.0	3.2	76.0	24.2	3.0	71.8	25.2	2.9	67.6	26.2	2.7
	045	94.6	25.4	3.8	87.3	26.4	3.5	80.1	27.1	3.2	73.0	27.7	2.9	66.0	28.0	2.6
	050	118.1	30.9	4.7	111.2	32.6	4.4	104.0	34.1	4.1	97.0	35.4	3.9	89.7	36.4	3.6
	060	150.3	40.5	6.0	142.0	42.6	5.6	133.5	44.5	5.3	125.0	46.2	5.0	116.4	47.7	4.6
	070	173.6	48.1	6.9	164.0	50.4	6.5	154.4	52.4	6.1	144.8	54.3	5.8	135.2	55.9	5.4
	080	196.0	53.1	7.8	184.9	55.7	7.4	173.5	58.1	6.9	162.1	60.1	6.4	150.6	61.9	6.0
	090	205.0	54.1	8.2	191.9	56.6	7.6	178.7	58.8	7.1	165.5	60.5	6.6	152.2	61.9	6.1
	100	233.7	59.7	9.3	219.6	63.0	8.7	205.3	65.8	8.2	190.6	68.2	7.6	175.9	70.1	7.0
	110	252.7	68.7	10.1	237.5	72.0	9.4	222.1	74.8	8.8	206.6	77.1	8.2	191.0	79.1	7.6
	130	288.2	78.6	11.5	274.1	82.8	10.9	259.5	86.7	10.3	244.8	90.2	9.7	229.8	93.5	9.1
	150	333.3	91.5	13.3	316.4	96.1	12.6	299.1	100.4	11.9	281.7	104.2	11.2	263.9	107.6	10.5
	170	376.6	99.7	15.0	358.3	105.6	14.3	339.3	111.0	13.5	319.9	115.9	12.7	299.7	120.2	11.9
	190	412.6	109.5	16.4	391.8	115.2	15.6	370.5	120.3	14.7	349.0	124.9	13.9	327.0	129.1	13.0
	210	480.8	131.0	19.1	452.0	136.7	18.0	421.9	141.5	16.8	392.5	145.6	15.6	362.5	148.8	14.4
	230	529.3	144.6	21.1	501.3	151.9	19.9	472.6	158.4	18.8	443.8	164.3	17.7	414.5	169.5	16.5
	245	538.3	145.5	21.4	508.3	152.8	20.2	477.8	159.2	19.0	447.2	164.8	17.8	416.1	169.5	16.6
	255	567.0	151.2	22.6	536.0	159.1	21.3	504.3	166.2	20.1	472.3	172.4	18.8	439.8	177.7	17.5
	270	610.3	159.5	24.3	577.9	168.6	23.0	544.6	176.7	21.7	510.5	184.0	20.3	475.6	190.2	18.9
	290	665.3	178.2	26.5	629.3	187.1	25.0	592.7	195.1	23.6	555.6	202.1	22.1	518.0	208.1	20.6
	315	733.5	199.7	29.2	689.5	208.6	27.4	644.1	216.2	25.6	599.1	222.7	23.8	553.5	227.9	22.0
	330	753.1	199.5	30.0	716.4	211.2	28.5	678.4	221.9	27.0	639.6	231.6	25.4	599.4	240.3	23.8
	360	825.2	219.1	32.8	783.5	230.3	31.2	741.0	240.6	29.5	697.9	249.8	27.8	653.9	258.1	26.0
	390	893.3	240.5	35.5	843.8	251.8	33.6	792.5	261.7	31.5	741.3	270.5	29.5	689.4	277.9	27.4
	420	961.2	261.9	38.2	903.2	273.2	35.9	843.7	282.9	33.6	784.7	291.1	31.2	725.0	297.6	28.8

COOLING CAPACITIES — 60 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
6.0	040	86.5	22.0	3.4	82.5	23.3	3.3	78.4	24.5	3.1	74.2	25.6	3.0	69.9	26.7	2.8
	045	99.1	26.0	3.9	91.6	27.0	3.6	84.1	27.9	3.3	76.8	28.5	3.1	69.5	28.8	2.8
	050	122.4	31.5	4.9	115.4	33.3	4.6	108.1	34.8	4.3	101.0	36.2	4.0	93.5	37.3	3.7
	060	155.9	41.2	6.2	147.3	43.4	5.9	138.7	45.4	5.5	129.9	47.2	5.2	121.1	48.7	4.8
	070	180.1	49.0	7.2	170.1	51.3	6.8	160.2	53.5	6.4	150.3	55.4	6.0	140.5	57.1	5.6
	080	203.6	54.1	8.1	191.9	56.8	7.6	180.4	59.3	7.2	168.7	61.5	6.7	156.9	63.3	6.2
	090	212.8	55.1	8.5	199.5	57.8	7.9	186.0	60.1	7.4	172.5	62.0	6.9	158.9	63.5	6.3
	100	243.1	60.8	9.7	228.6	64.3	9.1	214.0	67.3	8.5	199.2	69.8	7.9	184.1	71.9	7.3
	110	262.9	70.1	10.5	247.3	73.5	9.8	231.6	76.5	9.2	215.7	79.1	8.6	199.6	81.2	7.9
	130	298.1	79.9	11.9	283.7	84.3	11.3	269.0	88.3	10.7	253.8	92.1	10.1	238.5	95.5	9.5
	150	344.2	93.0	13.7	327.1	97.9	13.0	309.8	102.3	12.3	291.9	106.4	11.6	273.7	110.0	10.9
	170	390.3	101.6	15.5	371.3	107.6	14.8	352.1	113.3	14.0	332.3	118.4	13.2	311.7	123.0	12.4
	190	427.5	111.6	17.0	406.0	117.4	16.2	384.5	122.8	15.3	362.4	127.7	14.4	340.1	132.1	13.5
	210	499.7	133.8	19.9	469.9	139.7	18.7	439.6	144.9	17.5	409.1	149.2	16.3	378.7	152.9	15.1
	230	547.8	147.2	21.8	519.1	154.7	20.7	490.2	161.6	19.5	460.6	167.8	18.3	430.6	173.3	17.1
	245	557.0	148.1	22.2	526.6	155.7	21.0	495.8	162.5	19.7	464.4	168.4	18.5	432.6	173.5	17.2
	255	587.3	153.8	23.4	555.8	162.1	22.1	523.7	169.6	20.8	491.0	176.2	19.5	457.7	181.9	18.2
	270	633.5	162.4	25.2	600.0	171.9	23.9	566.2	180.5	22.5	531.3	188.2	21.2	495.6	194.9	19.7
	290	690.4	181.7	27.5	653.3	190.9	26.0	616.1	199.3	24.5	578.1	206.8	23.0	539.7	213.3	21.5
	315	762.6	203.9	30.4	717.3	213.3	28.6	671.2	221.4	26.7	624.7	228.3	24.9	578.4	234.0	23.0
	330	780.4	203.1	31.1	742.6	215.2	29.6	704.0	226.4	28.0	664.3	236.7	26.4	623.2	245.9	24.8
	360	855.0	223.2	34.0	812.2	234.9	32.3	769.0	245.6	30.6	724.9	255.4	28.9	680.0	264.2	27.1
	390	927.1	245.4	36.9	876.0	257.1	34.9	824.2	267.7	32.8	771.5	276.9	30.7	718.8	285.0	28.6
	420	999.4	267.6	39.8	939.5	279.4	37.4	878.9	289.7	35.0	818.1	298.4	32.6	757.2	305.6	30.1
7.0	040	89.0	22.3	3.5	85.0	23.7	3.4	80.8	24.9	3.2	76.5	26.1	3.0	72.1	27.1	2.9
	045	103.7	26.6	4.1	95.9	27.7	3.8	88.2	28.6	3.5	80.6	29.3	3.2	73.2	29.7	2.9
	050	126.8	32.0	5.1	119.7	33.9	4.8	112.3	35.5	4.5	104.9	37.0	4.2	97.4	38.2	3.9
	060	161.5	41.9	6.4	152.8	44.2	6.1	143.9	46.3	5.7	135.0	48.2	5.4	125.9	49.8	5.0
	070	186.3	49.9	7.4	176.5	52.3	7.0	166.2	54.5	6.6	156.0	56.5	6.2	145.8	58.4	5.8
	080	211.2	55.1	8.4	199.4	58.0	7.9	187.4	60.5	7.5	175.4	62.8	7.0	163.3	64.8	6.5
	090	220.9	56.2	8.8	207.3	59.0	8.3	193.5	61.5	7.7	179.7	63.5	7.2	165.8	65.2	6.6
	100	252.7	61.9	10.1	237.9	65.5	9.5	223.0	68.7	8.9	207.8	71.5	8.3	192.3	73.7	7.7
	110	273.2	71.5	10.9	257.3	75.1	10.2	241.2	78.2	9.6	224.9	81.0	9.0	208.5	83.3	8.3
	130	308.0	81.2	12.3	293.5	85.7	11.7	278.5	90.0	11.1	263.0	93.9	10.5	247.3	97.5	9.9
	150	355.3	94.6	14.2	337.9	99.6	13.5	320.2	104.3	12.8	302.0	108.5	12.0	283.7	112.4	11.3
	170	403.7	103.3	16.1	384.8	109.7	15.3	364.8	115.5	14.5	344.7	120.9	13.7	324.0	125.8	12.9
	190	442.5	113.7	17.6	420.8	119.7	16.8	399.0	125.4	15.9	376.2	130.5	15.0	353.3	135.2	14.1
	210	518.7	136.6	20.7	488.3	142.8	19.4	457.3	148.2	18.2	426.2	152.9	17.0	395.1	156.8	15.7
	230	566.5	149.7	22.6	537.3	157.6	21.4	507.7	164.8	20.2	477.4	171.3	19.0	447.0	177.2	17.8
	245	576.2	150.8	23.0	545.1	158.6	21.7	513.8	165.7	20.5	481.7	172.0	19.2	449.5	177.5	17.9
	255	608.1	156.5	24.2	575.8	165.2	22.9	543.2	173.0	21.6	509.7	180.0	20.3	476.0	186.1	19.0
	270	656.6	165.3	26.2	622.9	175.2	24.8	587.7	184.2	23.4	552.4	192.4	22.0	516.2	199.6	20.6
	290	715.7	185.1	28.5	678.1	194.8	27.0	640.2	203.6	25.5	601.1	211.5	23.9	561.8	218.4	22.4
	315	791.9	208.1	31.5	745.6	217.9	29.7	698.5	226.5	27.8	651.1	233.9	25.9	603.5	240.1	24.0
	330	807.4	206.6	32.2	769.6	219.3	30.7	729.7	231.0	29.1	689.3	241.8	27.5	647.7	251.6	25.8
	360	884.6	227.3	35.2	841.6	239.4	33.5	797.7	250.7	31.8	752.4	261.0	30.0	706.5	270.3	28.1
	390	961.5	250.3	38.3	909.1	262.5	36.2	856.2	273.6	34.1	802.4	283.4	32.0	748.3	292.0	29.8
	420	1037.3	273.2	41.3	976.4	285.6	38.9	914.5	296.5	36.4	852.3	305.8	33.9	789.9	313.6	31.5

Performance data — SI (cont)



COOLING CAPACITIES — 60 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
8.0	040	91.6	22.6	3.7	87.5	24.0	3.5	83.2	25.3	3.3	78.9	26.5	3.1	74.4	27.6	3.0
	045	108.4	27.1	4.3	100.4	28.3	4.0	92.5	29.3	3.7	84.7	30.1	3.4	76.9	30.6	3.1
	050	131.4	32.6	5.2	124.0	34.5	4.9	116.6	36.2	4.6	109.0	37.8	4.3	101.3	39.1	4.0
	060	167.3	42.6	6.7	158.4	45.0	6.3	149.3	47.2	6.0	140.1	49.2	5.6	130.8	50.9	5.2
	070	192.8	50.7	7.7	182.6	53.3	7.3	172.2	55.6	6.9	161.8	57.7	6.4	151.4	59.6	6.0
	080	219.0	56.2	8.7	206.9	59.1	8.2	194.6	61.8	7.8	182.3	64.2	7.3	169.8	66.3	6.8
	090	229.1	57.2	9.1	215.2	60.2	8.6	201.2	62.8	8.0	187.1	65.0	7.5	172.9	66.8	6.9
	100	262.7	63.1	10.5	247.4	66.8	9.9	232.1	70.2	9.2	216.6	73.1	8.6	200.8	75.6	8.0
	110	283.8	72.9	11.3	267.5	76.6	10.7	251.0	80.0	10.0	234.4	82.9	9.3	217.6	85.4	8.7
	130	318.3	82.5	12.7	303.3	87.2	12.1	288.1	91.6	11.5	272.5	95.7	10.9	256.4	99.5	10.2
	150	366.9	96.1	14.6	348.9	101.4	13.9	331.0	106.2	13.2	312.6	110.7	12.5	293.9	114.7	11.7
	170	417.7	105.1	16.6	398.3	111.7	15.9	378.3	117.8	15.1	357.6	123.5	14.2	336.2	128.6	13.4
	190	457.9	115.7	18.2	435.9	122.0	17.4	413.1	127.9	16.5	390.5	133.3	15.6	366.8	138.2	14.6
	210	538.5	139.4	21.5	507.0	145.9	20.2	475.5	151.6	18.9	443.8	156.7	17.7	411.6	160.9	16.4
	230	585.8	152.3	23.3	555.8	160.5	22.1	525.6	168.0	20.9	494.9	174.9	19.7	463.7	181.0	18.5
	245	595.9	153.4	23.7	564.1	161.6	22.5	532.1	169.0	21.2	499.7	175.7	19.9	466.8	181.5	18.6
	255	629.5	159.2	25.1	596.4	168.2	23.8	563.1	176.4	22.4	529.2	183.8	21.1	494.7	190.3	19.7
	270	680.4	168.2	27.1	645.9	178.6	25.7	610.4	188.0	24.3	574.0	196.6	22.9	536.9	204.2	21.4
	290	741.7	188.6	29.6	703.4	198.7	28.0	664.1	207.8	26.5	624.9	216.2	24.9	584.4	223.6	23.3
	315	822.3	212.3	32.8	774.5	222.6	30.9	726.5	231.6	29.0	678.2	239.6	27.0	629.2	246.2	25.1
	330	835.3	210.2	33.3	796.4	223.4	31.7	756.4	235.6	30.1	714.9	246.9	28.5	672.3	257.2	26.8
	360	915.3	231.4	36.5	871.7	244.1	34.7	826.3	255.8	32.9	780.7	266.6	31.1	733.6	276.4	29.2
	390	996.7	255.2	39.7	943.3	268.0	37.6	888.5	279.5	35.4	834.1	290.0	33.2	778.5	299.1	31.0
	420	1076.9	278.9	42.9	1014.1	291.9	40.4	950.9	303.3	37.9	887.4	313.3	35.4	823.2	321.7	32.8
9.0	040	94.2	22.9	3.8	90.0	24.3	3.6	85.7	25.6	3.4	81.3	26.9	3.2	76.8	28.1	3.1
	045	113.3	27.7	4.5	105.1	29.0	4.2	96.9	30.1	3.9	88.8	30.9	3.5	80.8	31.5	3.2
	050	136.0	33.1	5.4	128.5	35.1	5.1	120.9	36.9	4.8	113.1	38.6	4.5	105.3	39.9	4.2
	060	173.2	43.3	6.9	164.1	45.8	6.5	154.8	48.1	6.2	145.4	50.1	5.8	135.9	52.0	5.4
	070	199.6	51.6	8.0	189.0	54.2	7.5	178.6	56.7	7.1	167.7	58.9	6.7	157.0	60.9	6.3
	080	226.9	57.2	9.0	214.5	60.2	8.6	202.0	63.0	8.1	189.3	65.6	7.5	176.5	67.8	7.0
	090	237.4	58.3	9.5	223.3	61.4	8.9	209.0	64.2	8.3	194.6	66.5	7.8	180.1	68.4	7.2
	100	272.6	64.2	10.9	257.1	68.1	10.3	241.5	71.7	9.6	225.6	74.8	9.0	209.5	77.4	8.4
	110	294.6	74.3	11.7	278.0	78.2	11.1	261.1	81.7	10.4	244.0	84.8	9.7	226.8	87.5	9.0
	130	328.6	83.8	13.1	313.4	88.7	12.5	297.9	93.3	11.9	282.0	97.6	11.2	265.5	101.5	10.6
	150	378.2	97.7	15.1	360.3	103.1	14.4	341.7	108.2	13.6	323.2	112.8	12.9	304.2	117.1	12.1
	170	431.8	106.9	17.2	411.9	113.7	16.4	391.4	120.1	15.6	370.5	126.0	14.8	348.8	131.5	13.9
	190	473.4	117.8	18.9	451.2	124.4	18.0	427.9	130.4	17.1	404.5	136.1	16.1	380.6	141.3	15.2
	210	558.5	142.3	22.3	526.6	149.2	21.0	493.8	155.1	19.7	461.5	160.4	18.4	428.9	165.0	17.1
	230	605.0	154.9	24.1	574.8	163.4	22.9	543.7	171.2	21.7	512.5	178.4	20.4	480.7	184.9	19.2
	245	615.6	156.0	24.5	583.6	164.6	23.3	550.7	172.3	22.0	517.7	179.3	20.6	484.2	185.5	19.3
	255	650.7	161.9	25.9	617.5	171.3	24.6	583.2	179.8	23.3	548.7	187.6	21.9	513.6	194.5	20.5
	270	704.5	171.1	28.1	669.0	181.8	26.7	632.8	191.7	25.2	596.0	200.8	23.8	558.2	208.9	22.3
	290	768.0	192.1	30.6	729.2	202.6	29.1	689.1	212.2	27.5	648.6	220.9	25.9	607.4	228.8	24.2
	315	853.1	216.6	34.0	804.6	227.4	32.1	755.0	236.8	30.1	705.5	245.2	28.1	655.8	252.5	26.1
	330	863.7	213.8	34.4	823.8	227.4	32.8	782.9	240.2	31.2	740.8	252.0	29.5	697.4	262.8	27.8
	360	946.8	235.6	37.7	901.9	248.7	36.0	855.9	260.9	34.1	809.0	272.2	32.3	761.2	282.6	30.3
	390	1032.0	260.1	41.1	977.9	273.5	39.0	921.7	285.5	36.7	866.0	296.5	34.5	809.6	306.3	32.3
	420	1117.0	284.7	44.5	1053.2	298.3	42.0	987.9	310.3	39.4	923.0	320.8	36.8	857.6	329.9	34.2

COOLING CAPACITIES — 60 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
10.0	040	96.8	23.2	3.9	92.6	24.6	3.7	88.2	26.0	3.5	83.7	27.3	3.3	79.1	28.5	3.2
	045	118.4	28.3	4.7	109.8	29.7	4.4	101.4	30.8	4.0	93.0	31.7	3.7	84.8	32.3	3.4
	050	140.7	33.6	5.6	133.0	35.7	5.3	125.3	37.6	5.0	117.3	39.3	4.7	109.4	40.8	4.4
	060	179.3	44.0	7.2	169.9	46.6	6.8	160.4	49.0	6.4	150.8	51.1	6.0	141.0	53.1	5.6
	070	206.3	52.5	8.2	195.6	55.2	7.8	184.8	57.7	7.4	174.0	60.1	6.9	162.8	62.2	6.5
	080	235.0	58.2	9.4	222.3	61.4	8.9	209.4	64.3	8.4	196.5	66.9	7.8	183.4	69.3	7.3
	090	245.9	59.4	9.8	231.5	62.6	9.2	216.9	65.5	8.7	202.2	68.0	8.1	187.4	70.1	7.5
	100	282.8	65.3	11.3	267.1	69.4	10.7	251.0	73.1	10.0	234.7	76.4	9.4	218.3	79.3	8.7
	110	305.5	75.7	12.2	288.6	79.8	11.5	271.4	83.5	10.8	254.0	86.8	10.1	236.3	89.6	9.4
	130	339.2	85.1	13.5	323.7	90.2	12.9	307.8	94.9	12.3	291.6	99.4	11.6	275.0	103.6	11.0
	150	389.8	99.3	15.5	371.5	104.9	14.8	352.8	110.1	14.1	333.9	115.0	13.3	314.6	119.5	12.5
	170	446.4	108.7	17.8	426.1	115.8	17.0	405.0	122.4	16.2	383.5	128.6	15.3	361.7	134.3	14.4
	190	488.6	119.8	19.5	466.2	126.6	18.6	443.5	133.1	17.7	418.9	138.9	16.7	394.8	144.4	15.7
	210	579.2	145.3	23.1	546.4	152.4	21.8	513.1	158.7	20.5	479.5	164.2	19.1	446.2	169.0	17.8
	230	624.8	157.4	24.9	593.8	166.3	23.7	562.2	174.4	22.4	530.4	181.9	21.2	498.0	188.8	19.9
	245	635.7	158.6	25.4	603.0	167.5	24.1	569.7	175.6	22.7	536.2	183.0	21.4	502.0	189.5	20.0
	255	672.6	164.5	26.8	638.6	174.3	25.5	603.8	183.2	24.1	568.7	191.4	22.7	532.9	198.7	21.3
	270	729.4	174.0	29.1	693.2	185.2	27.6	656.0	195.5	26.2	618.3	205.0	24.7	579.9	213.6	23.1
	290	794.2	195.4	31.7	754.7	206.4	30.1	714.9	216.6	28.5	672.9	225.7	26.8	631.1	234.0	25.2
	315	884.7	220.9	35.3	834.9	232.1	33.3	784.5	242.1	31.3	733.5	250.9	29.3	682.5	258.6	27.2
	330	892.8	217.5	35.6	852.1	231.6	34.0	809.9	244.8	32.3	767.2	257.1	30.6	723.1	268.5	28.8
	360	977.5	239.6	39.0	932.1	253.2	37.2	887.0	266.2	35.4	838.0	277.8	33.4	789.4	288.8	31.5
	390	1068.2	265.1	42.6	1013.1	279.1	40.4	956.6	291.7	38.2	898.4	303.1	35.8	841.0	313.5	33.5
	420	1158.2	290.6	46.2	1092.7	304.7	43.6	1026.2	317.3	40.9	959.3	328.4	38.3	892.3	338.1	35.6
13.0	040	105.0	24.0	4.2	100.5	25.6	4.0	95.9	27.1	3.8	91.3	28.5	3.6	85.0	29.6	3.4
	045	134.2	30.1	5.4	124.9	31.7	5.0	115.6	33.0	4.6	106.5	34.1	4.3	97.4	35.0	3.9
	050	155.2	35.2	6.2	147.2	37.6	5.9	139.0	39.7	5.5	130.6	41.7	5.2	122.1	43.4	4.9
	060	198.0	46.1	7.9	188.0	49.0	7.5	178.0	51.7	7.1	166.6	54.0	6.7	155.5	56.0	6.2
	070	227.5	55.1	9.1	216.2	58.2	8.6	204.6	61.0	8.2	192.7	63.6	7.7	178.4	65.4	7.1
	080	260.1	61.3	10.4	246.1	64.8	9.8	230.7	67.8	9.2	213.8	70.2	8.5	197.1	72.3	7.9
	090	272.3	62.6	10.9	256.3	66.1	10.2	239.3	69.2	9.6	222.2	71.8	8.9	204.9	73.8	8.2
	100	314.8	68.6	12.6	298.0	73.3	11.9	280.9	77.5	11.2	263.6	81.4	10.5	244.4	84.5	9.8
	110	339.7	79.9	13.6	321.6	84.5	12.8	303.3	88.8	12.1	284.8	92.6	11.4	265.9	96.0	10.6
	130	371.8	89.0	14.8	355.4	94.6	14.2	338.8	99.9	13.5	321.4	104.9	12.8	303.7	109.6	12.1
	150	425.4	103.9	17.0	406.5	110.2	16.2	387.0	116.0	15.5	366.9	121.4	14.7	346.8	126.6	13.8
	170	490.8	114.2	19.6	469.3	122.0	18.7	447.2	129.3	17.9	421.7	135.8	16.8	389.6	140.4	15.6
	190	537.5	126.0	21.5	513.3	133.6	20.5	489.1	140.8	19.5	463.8	147.4	18.5	438.1	153.7	17.5
	210	643.2	154.3	25.7	608.3	162.3	24.3	572.0	169.3	22.8	534.8	175.4	21.4	493.4	179.8	19.7
	230	685.5	165.2	27.4	652.6	174.9	26.1	617.7	183.8	24.7	580.8	191.7	23.2	543.8	198.9	21.7
	245	697.8	166.5	27.9	662.8	176.3	26.5	626.3	185.2	25.0	589.2	193.2	23.5	551.7	200.4	22.0
	255	740.2	172.5	29.6	704.5	183.4	28.1	667.9	193.5	26.7	630.5	202.8	25.2	591.1	211.0	23.6
	270	805.5	182.8	32.2	767.3	195.2	30.6	728.1	206.9	29.1	685.2	217.1	27.4	634.1	224.9	25.3
	290	877.1	205.9	35.0	834.9	218.1	33.3	792.4	229.5	31.6	748.6	240.0	29.9	704.0	249.7	28.1
	315	982.9	234.2	39.2	929.9	246.8	37.1	875.3	258.1	35.0	819.6	268.0	32.7	759.4	275.8	30.3
	330	981.4	228.4	39.2	938.5	244.0	37.5	894.2	258.7	35.7	843.4	271.6	33.7	779.3	280.7	31.1
	360	1075.0	252.0	42.9	1026.9	267.2	41.0	978.1	281.5	39.1	927.5	294.8	37.0	876.2	307.4	35.0
	390	1181.0	280.4	47.2	1122.1	295.9	44.8	1061.1	310.1	42.4	998.8	322.9	39.9	931.5	333.5	37.2
	420	1286.3	308.7	51.4	1216.4	324.6	48.6	1144.6	338.8	45.7	1069.6	350.8	42.7	986.9	359.6	39.4

Performance data — SI (cont)



COOLING CAPACITIES — 60 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
16.0	040	113.4	24.8	4.5	108.0	26.4	4.3	100.6	27.6	4.0	92.9	28.7	3.7	85.3	29.6	3.4
	045	135.4	30.2	5.4	126.0	31.8	5.0	116.6	33.1	4.7	107.4	34.2	4.3	98.3	35.1	3.9
	050	166.8	36.4	6.7	155.8	38.6	6.2	144.8	40.5	5.8	133.8	42.1	5.3	122.8	43.5	4.9
	060	209.1	47.3	8.4	195.7	49.9	7.8	182.4	52.2	7.3	169.1	54.3	6.8	156.0	56.0	6.2
	070	240.7	56.6	9.6	225.0	59.2	9.0	209.4	61.6	8.4	194.1	63.6	7.8	179.0	65.4	7.2
	080	266.0	61.9	10.6	248.7	65.1	9.9	231.6	67.8	9.3	214.6	70.3	8.6	197.7	72.3	7.9
	090	284.6	63.9	11.4	264.6	67.2	10.6	244.7	69.9	9.8	225.0	72.1	9.0	205.5	73.8	8.2
	100	333.3	70.3	13.3	311.3	74.7	12.4	288.9	78.5	11.5	267.0	81.8	10.7	245.1	84.5	9.8
	110	368.9	83.2	14.7	344.2	87.4	13.8	319.6	91.2	12.8	295.2	94.3	11.8	271.0	96.8	10.8
	130	405.8	93.0	16.2	388.7	99.1	15.5	369.6	104.6	14.8	344.4	108.9	13.8	317.9	112.4	12.7
	150	462.5	108.6	18.5	442.8	115.4	17.7	415.3	120.5	16.6	383.6	124.4	15.3	352.2	127.5	14.1
	170	521.1	117.7	20.8	488.7	124.5	19.5	456.0	130.6	18.2	423.3	135.9	16.9	390.6	140.4	15.6
	190	587.8	132.2	23.5	556.0	139.4	22.2	517.3	145.1	20.7	478.9	149.9	19.1	440.8	154.0	17.6
	210	670.3	157.8	26.8	625.4	164.6	25.0	581.5	170.6	23.2	537.9	175.7	21.5	494.8	179.9	19.8
	230	728.5	170.5	29.1	691.5	180.5	27.6	646.9	188.3	25.9	598.2	194.6	23.9	550.0	199.9	22.0
	245	747.1	172.5	29.9	707.4	182.6	28.3	660.0	190.4	26.4	608.6	196.5	24.3	557.7	201.4	22.3
	255	795.8	178.9	31.8	754.1	190.1	30.1	704.3	199.0	28.1	650.6	206.2	26.0	597.3	212.0	23.9
	270	854.4	188.0	34.1	799.9	199.2	32.0	745.0	209.1	29.8	690.3	217.7	27.6	635.7	224.9	25.4
	290	956.8	215.4	38.2	900.2	226.8	36.0	837.0	236.2	33.4	774.1	244.2	30.9	711.8	250.8	28.4
	315	1039.2	241.0	41.5	969.6	252.0	38.8	901.2	261.8	36.0	833.2	270.0	33.3	765.8	276.7	30.6
	330	1042.3	235.4	41.7	977.3	249.0	39.1	912.1	261.2	36.5	846.7	271.8	33.8	781.3	280.9	31.2
	360	1175.7	264.4	47.0	1111.9	278.8	44.4	1034.6	290.1	41.3	957.8	299.9	38.3	881.5	308.0	35.2
	390	1258.1	290.0	50.3	1181.4	304.0	47.2	1098.8	315.7	43.9	1016.8	325.6	40.6	935.5	333.9	37.4
	420	1340.5	315.6	53.6	1250.8	329.2	50.0	1163.0	341.2	46.5	1075.9	351.4	43.0	989.5	359.7	39.5

COOLING CAPACITIES — 50 Hz

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
4.0	040	79.6	20.9	3.2	75.6	22.0	3.0	71.5	23.1	2.8	67.3	24.1	2.7	63.0	24.9	2.5
	045	94.7	25.7	3.8	88.8	26.9	3.5	83.0	28.1	3.3	76.9	29.0	3.1	70.9	29.7	2.8
	050	117.0	33.1	4.7	110.5	34.7	4.4	103.9	36.1	4.1	97.2	37.4	3.9	90.5	38.4	3.6
	060	138.6	39.4	5.5	130.7	41.1	5.2	122.6	42.6	4.9	114.7	44.0	4.6	106.7	45.2	4.2
	070	158.9	43.2	6.3	149.2	45.2	5.9	139.3	46.9	5.5	129.5	48.3	5.1	119.7	49.5	4.8
	080	187.0	51.3	7.4	175.8	53.5	7.0	164.6	55.5	6.5	153.2	57.1	6.1	141.8	58.5	5.6
	090	209.7	58.1	8.3	197.1	60.8	7.8	184.3	63.0	7.3	171.3	65.0	6.8	158.3	66.5	6.3
	100	227.6	62.8	9.0	213.6	65.5	8.5	199.5	67.8	7.9	185.3	69.8	7.4	171.1	71.3	6.8
	110	254.4	75.5	10.1	239.8	78.5	9.5	225.1	81.1	9.0	210.6	83.5	8.4	195.8	85.4	7.8
	130	283.4	78.5	11.3	268.8	82.5	10.7	254.0	86.2	10.1	239.0	89.5	9.5	223.8	92.4	8.9
	150	335.9	99.6	13.4	319.9	104.2	12.7	303.6	108.4	12.1	287.3	112.4	11.4	270.5	116.0	10.8
	170	367.0	103.6	14.6	348.6	108.7	13.9	329.8	113.4	13.1	310.7	117.7	12.4	291.0	121.5	11.6
	190	414.8	120.4	16.5	394.4	125.7	15.7	373.9	130.7	14.9	353.0	135.2	14.0	331.8	139.4	13.2
	210	464.0	132.3	18.4	435.9	137.3	17.3	407.6	141.7	16.2	379.4	145.4	15.1	351.2	148.4	14.0
	230	522.9	150.9	20.8	495.7	157.7	19.7	468.2	163.9	18.6	440.5	169.5	17.5	412.3	174.5	16.4
	245	545.7	157.7	21.7	516.9	164.9	20.5	487.8	171.4	19.4	458.5	177.3	18.2	428.8	182.5	17.0
	255	563.4	162.4	22.4	533.4	169.7	21.2	503.0	176.2	20.0	472.5	182.1	18.8	441.5	187.3	17.6
	270	594.5	166.4	23.6	562.1	174.2	22.3	529.2	181.2	21.0	495.9	187.5	19.7	462.0	192.8	18.4
	290	669.1	195.9	26.6	634.2	204.2	25.2	599.1	211.8	23.8	563.5	218.6	22.4	527.6	224.8	21.0
	315	718.5	207.8	28.6	675.7	215.8	26.9	632.8	222.8	25.2	589.9	228.8	23.5	547.0	233.9	21.7
	330	733.9	207.2	29.2	697.1	217.4	27.7	659.6	226.9	26.2	621.5	235.4	24.7	582.0	243.0	23.1
	360	781.7	224.0	31.1	743.0	234.4	29.5	703.7	244.1	28.0	663.7	252.9	26.4	622.8	260.9	24.8
	390	879.0	252.7	34.9	830.4	263.0	33.0	781.5	272.3	31.1	732.4	280.6	29.1	682.9	287.8	27.2
	420	928.0	264.6	36.9	871.7	274.6	34.7	815.3	283.3	32.4	758.9	290.8	30.2	702.3	296.9	27.9
5.0	040	82.0	21.2	3.3	77.9	22.4	3.1	73.8	23.5	2.9	69.5	24.5	2.8	65.2	25.4	2.6
	045	98.4	26.2	3.9	92.4	27.5	3.7	86.3	28.7	3.4	80.2	29.7	3.2	73.9	30.4	2.9
	050	121.4	33.7	4.8	114.7	35.4	4.6	107.9	36.9	4.3	101.1	38.2	4.0	94.2	39.3	3.7
	060	143.9	40.1	5.7	135.7	41.9	5.4	127.5	43.6	5.1	119.3	45.0	4.7	111.1	46.3	4.4
	070	164.9	44.0	6.6	155.0	46.1	6.2	145.1	47.9	5.8	134.9	49.4	5.4	124.8	50.7	5.0
	080	194.3	52.4	7.7	182.7	54.7	7.3	171.2	56.7	6.8	159.6	58.5	6.4	148.0	60.0	5.9
	090	217.7	59.3	8.7	204.7	62.0	8.1	191.7	64.5	7.6	178.3	66.5	7.1	165.1	68.2	6.6
	100	237.1	64.2	9.4	222.6	67.0	8.9	208.1	69.4	8.3	193.6	71.5	7.7	179.1	73.2	7.1
	110	264.5	77.2	10.5	249.6	80.3	9.9	234.5	83.0	9.3	219.5	85.5	8.7	204.3	87.7	8.1
	130	293.3	79.9	11.7	278.6	84.1	11.1	263.4	87.9	10.5	248.1	91.4	9.9	232.5	94.5	9.3
	150	347.0	101.3	13.8	330.7	106.1	13.2	314.0	110.5	12.5	297.2	114.6	11.8	280.1	118.5	11.1
	170	380.4	105.6	15.1	361.6	110.9	14.4	342.4	115.9	13.6	322.9	120.4	12.8	302.7	124.4	12.0
	190	430.2	122.8	17.1	409.0	128.3	16.3	388.1	133.5	15.4	366.5	138.2	14.6	344.8	142.6	13.7
	210	482.6	135.2	19.2	453.7	140.5	18.0	424.7	145.1	16.9	395.7	149.1	15.7	366.8	152.4	14.6
	230	541.3	153.7	21.5	513.5	160.7	20.4	485.2	167.2	19.3	456.8	173.1	18.2	428.1	178.4	17.0
	245	564.7	160.6	22.5	535.3	168.1	21.3	505.6	175.0	20.1	475.4	181.1	18.9	445.2	186.7	17.7
	255	583.9	165.5	23.2	553.2	173.0	22.0	522.1	179.9	20.8	490.7	186.1	19.5	459.0	191.7	18.3
	270	617.3	169.7	24.6	584.1	177.9	23.2	550.5	185.3	21.9	516.4	191.9	20.5	481.6	197.6	19.2
	290	694.7	199.9	27.6	658.5	208.5	26.2	622.7	216.5	24.8	586.0	223.7	23.3	549.2	230.3	21.8
	315	747.2	212.4	29.7	703.3	220.7	28.0	659.3	228.2	26.2	615.2	234.6	24.5	571.1	240.1	22.7
	330	760.8	211.2	30.3	723.2	221.9	28.8	684.9	231.8	27.2	645.8	240.8	25.7	605.4	248.9	24.1
	360	810.6	228.4	32.2	770.6	239.2	30.7	730.6	249.4	29.1	689.4	258.6	27.4	647.5	267.1	25.8
	390	912.8	258.0	36.3	862.7	268.7	34.3	812.6	278.5	32.3	762.2	287.3	30.3	711.6	295.1	28.3
	420	965.1	270.4	38.4	907.3	281.0	36.1	849.4	290.2	33.8	791.4	298.2	31.5	733.5	304.9	29.2

Performance data — SI (cont)



COOLING CAPACITIES — 50 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
6.0	040	84.5	21.4	3.4	80.4	22.7	3.2	76.1	23.9	3.0	71.8	24.9	2.9	67.4	25.9	2.7
	045	102.1	26.7	4.1	96.0	28.1	3.8	89.8	29.3	3.6	83.6	30.3	3.3	77.2	31.2	3.1
	050	125.8	34.3	5.0	119.0	36.1	4.7	112.1	37.6	4.5	105.0	39.0	4.2	98.0	40.2	3.9
	060	149.3	40.9	5.9	140.9	42.8	5.6	132.5	44.5	5.3	124.1	46.0	4.9	115.6	47.3	4.6
	070	171.1	44.8	6.8	161.0	47.0	6.4	150.8	48.9	6.0	140.4	50.5	5.6	130.1	51.9	5.2
	080	201.8	53.4	8.0	189.9	55.8	7.6	178.0	58.0	7.1	166.1	59.8	6.6	154.2	61.4	6.1
	090	225.7	60.4	9.0	212.6	63.3	8.5	199.1	65.9	7.9	185.6	68.1	7.4	172.0	69.9	6.8
	100	246.6	65.5	9.8	231.8	68.4	9.2	217.0	71.1	8.6	202.1	73.3	8.0	187.2	75.2	7.5
	110	275.1	78.8	10.9	259.5	82.0	10.3	244.1	85.0	9.7	228.6	87.6	9.1	213.2	89.9	8.5
	130	303.3	81.2	12.1	288.4	85.6	11.5	272.9	89.6	10.9	257.3	93.3	10.2	241.4	96.6	9.6
	150	358.2	103.1	14.3	341.6	108.0	13.6	324.7	112.6	12.9	307.5	116.9	12.2	290.0	120.9	11.5
	170	394.0	107.6	15.7	374.8	113.2	14.9	355.3	118.3	14.1	335.3	123.1	13.3	315.0	127.4	12.5
	190	445.5	125.2	17.7	423.7	130.9	16.9	402.0	136.2	16.0	380.5	141.3	15.1	358.1	145.9	14.3
	210	501.9	138.2	20.0	471.9	143.7	18.8	442.1	148.6	17.6	412.4	152.8	16.4	382.6	156.4	15.2
	230	560.0	156.5	22.3	531.5	163.8	21.2	502.7	170.6	20.0	473.6	176.7	18.9	444.3	182.4	17.7
	245	583.9	163.5	23.2	554.3	171.3	22.1	523.7	178.5	20.8	493.0	185.0	19.6	462.0	190.9	18.4
	255	604.7	168.5	24.1	573.4	176.4	22.8	541.6	183.6	21.6	509.5	190.2	20.3	477.1	196.1	19.0
	270	640.5	173.0	25.5	606.6	181.6	24.1	572.2	189.4	22.8	537.3	196.4	21.4	502.0	202.6	20.0
	290	720.4	203.9	28.7	683.3	212.9	27.2	646.2	221.2	25.7	609.2	228.9	24.3	571.2	235.8	22.7
	315	776.9	217.0	30.9	731.5	225.7	29.1	686.3	233.6	27.3	641.0	240.4	25.5	595.7	246.3	23.7
	330	788.1	215.2	31.4	749.7	226.3	29.8	710.5	236.7	28.3	670.6	246.2	26.7	629.9	254.9	25.1
	360	839.5	232.8	33.4	798.5	244.0	31.8	757.3	254.5	30.1	715.8	264.4	28.5	673.0	273.4	26.8
	390	947.3	263.4	37.7	895.8	274.6	35.7	844.3	284.8	33.6	792.7	294.1	31.6	740.7	302.4	29.5
	420	1003.7	276.4	40.0	943.7	287.4	37.6	884.3	297.2	35.2	824.8	305.7	32.8	765.2	312.9	30.5
7.0	040	87.0	21.7	3.5	82.8	23.1	3.3	78.6	24.3	3.1	74.2	25.4	3.0	69.7	26.4	2.8
	045	105.9	27.1	4.2	99.7	28.6	4.0	93.3	29.9	3.7	87.0	31.0	3.5	80.4	32.0	3.2
	050	130.4	34.9	5.2	123.4	36.7	4.9	116.3	38.4	4.6	109.1	39.9	4.3	101.8	41.1	4.1
	060	154.8	41.6	6.2	146.2	43.6	5.8	137.5	45.4	5.5	128.9	47.0	5.1	120.2	48.4	4.8
	070	177.4	45.6	7.1	167.1	47.9	6.7	156.7	49.9	6.2	146.2	51.7	5.8	135.5	53.1	5.4
	080	209.4	54.4	8.3	197.2	57.0	7.9	185.0	59.2	7.4	172.8	61.2	6.9	160.6	62.9	6.4
	090	234.2	61.6	9.3	220.5	64.6	8.8	206.8	67.3	8.2	193.1	69.7	7.7	179.1	71.7	7.1
	100	256.4	66.8	10.2	241.4	69.9	9.6	226.0	72.7	9.0	210.8	75.1	8.4	195.5	77.1	7.8
	110	285.6	80.4	11.4	269.9	83.8	10.8	253.9	86.9	10.1	238.0	89.7	9.5	222.0	92.1	8.8
	130	313.5	82.5	12.5	298.3	87.1	11.9	282.7	91.3	11.3	266.7	95.2	10.6	250.5	98.6	10.0
	150	369.6	104.8	14.7	352.7	109.9	14.0	335.4	114.7	13.4	317.9	119.2	12.7	300.1	123.4	12.0
	170	407.9	109.6	16.2	388.3	115.4	15.5	368.3	120.8	14.7	347.9	125.8	13.9	327.1	130.4	13.0
	190	460.8	127.5	18.4	439.2	133.5	17.5	416.8	139.1	16.6	394.4	144.4	15.7	371.8	149.3	14.8
	210	521.3	141.2	20.8	490.8	147.0	19.6	460.0	152.1	18.3	429.4	156.6	17.1	398.8	160.5	15.9
	230	578.9	159.2	23.1	549.9	166.9	21.9	520.4	173.9	20.7	490.7	180.4	19.5	460.7	186.4	18.4
	245	603.6	166.4	24.0	573.3	174.5	22.8	542.2	182.0	21.6	510.8	188.9	20.3	479.2	195.1	19.1
	255	625.9	171.6	24.9	593.9	179.8	23.7	561.4	187.4	22.4	528.6	194.3	21.1	495.4	200.5	19.7
	270	664.2	176.4	26.5	629.5	185.3	25.1	594.3	193.5	23.7	558.6	200.9	22.3	522.5	207.5	20.8
	290	746.3	208.0	29.7	709.0	217.3	28.2	670.7	226.0	26.7	632.4	234.0	25.2	593.9	241.4	23.7
	315	807.0	221.7	32.1	760.7	230.8	30.3	714.0	239.0	28.4	667.5	246.3	26.6	620.9	252.6	24.7
	330	815.8	219.2	32.5	776.7	230.8	30.9	736.6	241.6	29.3	695.8	251.6	27.7	654.2	260.7	26.1
	360	868.7	237.1	34.6	827.5	248.9	33.0	785.1	259.9	31.3	742.3	270.2	29.6	698.9	279.7	27.8
	390	982.2	268.8	39.1	930.1	280.5	37.0	876.7	291.2	34.9	823.8	301.0	32.8	770.4	309.7	30.7
	420	1042.5	282.4	41.5	981.7	294.0	39.1	920.0	304.2	36.6	858.8	313.2	34.2	797.7	320.9	31.8

COOLING CAPACITIES — 50 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
8.0	040	89.6	22.0	3.6	85.3	23.4	3.4	81.0	24.7	3.2	76.6	25.8	3.1	72.0	26.9	2.9
	045	109.8	27.6	4.4	103.4	29.2	4.1	96.9	30.5	3.9	90.4	31.7	3.6	83.8	32.7	3.3
	050	134.9	35.5	5.4	127.8	37.4	5.1	120.6	39.1	4.8	113.3	40.7	4.5	105.8	42.1	4.2
	060	160.4	42.4	6.4	151.6	44.4	6.0	142.7	46.3	5.7	133.8	48.0	5.3	124.9	49.5	5.0
	070	183.8	46.4	7.3	173.3	48.8	6.9	162.6	50.9	6.5	151.9	52.8	6.1	141.0	54.4	5.6
	080	217.1	55.5	8.7	204.7	58.1	8.2	192.2	60.5	7.7	179.6	62.6	7.2	167.0	64.4	6.7
	090	242.6	62.8	9.7	228.8	66.0	9.1	214.7	68.8	8.6	200.7	71.3	8.0	186.4	73.4	7.4
	100	266.4	68.1	10.6	250.9	71.4	10.0	235.5	74.4	9.4	219.7	76.9	8.8	203.9	79.1	8.1
	110	296.3	82.1	11.8	280.3	85.6	11.2	264.0	88.9	10.5	247.6	91.8	9.9	231.2	94.4	9.2
	130	323.8	83.9	12.9	308.3	88.6	12.3	292.6	93.0	11.7	276.2	97.0	11.0	259.7	100.7	10.3
	150	381.1	106.6	15.2	363.9	111.8	14.5	346.3	116.8	13.8	328.5	121.5	13.1	310.2	125.9	12.4
	170	421.8	111.6	16.8	402.0	117.6	16.0	381.6	123.3	15.2	360.7	128.5	14.4	339.4	133.3	13.5
	190	475.9	129.9	19.0	454.2	136.1	18.1	431.9	142.0	17.2	408.5	147.4	16.3	385.4	152.6	15.4
	210	541.1	144.3	21.6	509.9	150.3	20.3	478.6	155.7	19.1	446.9	160.4	17.8	415.4	164.6	16.6
	230	598.2	162.0	23.8	568.6	170.0	22.7	538.5	177.3	21.5	508.1	184.1	20.2	477.3	190.3	19.0
	245	623.7	169.3	24.9	592.6	177.8	23.6	561.1	185.6	22.4	529.0	192.8	21.1	496.7	199.3	19.8
	255	647.4	174.7	25.8	614.7	183.2	24.5	581.6	191.1	23.2	548.1	198.4	21.8	514.1	205.0	20.5
	270	688.1	179.7	27.4	652.9	189.0	26.0	616.9	197.6	24.6	580.4	205.4	23.1	543.3	212.4	21.7
	290	772.2	211.9	30.8	734.5	221.8	29.3	695.9	230.9	27.7	656.1	239.2	26.1	616.6	247.0	24.6
	315	837.4	226.3	33.4	790.3	236.0	31.5	742.6	244.6	29.6	694.5	252.2	27.7	646.6	259.0	25.8
	330	843.5	223.2	33.6	804.1	235.3	32.0	763.2	246.5	30.4	721.5	257.0	28.8	678.9	266.7	27.1
	360	897.7	241.4	35.8	856.3	253.8	34.1	813.6	265.3	32.4	769.2	275.9	30.7	724.9	285.9	28.9
	390	1017.2	274.2	40.5	964.3	286.4	38.4	910.2	297.6	36.3	855.5	307.9	34.1	800.8	317.1	31.9
	420	1082.1	288.5	43.1	1019.8	300.6	40.6	957.1	311.4	38.1	893.7	320.9	35.6	830.9	329.1	33.1
9.0	040	92.1	22.3	3.7	87.8	23.7	3.5	83.4	25.0	3.3	79.0	26.2	3.1	74.3	27.3	3.0
	045	113.7	28.1	4.5	107.2	29.7	4.3	100.6	31.2	4.0	93.9	32.4	3.7	87.2	33.5	3.5
	050	139.6	36.2	5.6	132.3	38.1	5.3	124.9	39.9	5.0	117.4	41.5	4.7	109.9	43.0	4.4
	060	166.1	43.2	6.6	157.1	45.3	6.3	148.0	47.2	5.9	138.8	49.0	5.5	129.7	50.6	5.2
	070	190.3	47.2	7.6	179.6	49.7	7.2	168.7	52.0	6.7	157.8	53.9	6.3	146.8	55.6	5.9
	080	225.1	56.5	9.0	212.3	59.3	8.5	199.5	61.8	8.0	186.6	64.0	7.4	173.7	65.9	6.9
	090	251.3	63.9	10.0	237.1	67.3	9.5	222.8	70.3	8.9	208.4	72.9	8.3	193.8	75.2	7.7
	100	276.6	69.5	11.0	260.8	72.9	10.4	244.9	76.0	9.8	228.8	78.7	9.1	212.7	81.0	8.5
	110	307.3	83.7	12.3	290.9	87.4	11.6	274.3	90.9	10.9	257.4	93.9	10.3	240.5	96.7	9.6
	130	334.4	85.2	13.3	318.6	90.2	12.7	302.6	94.7	12.1	286.1	99.0	11.4	269.0	102.8	10.7
	150	392.8	108.3	15.7	375.2	113.8	15.0	357.4	118.9	14.2	339.2	123.8	13.5	320.6	128.4	12.8
	170	436.1	113.6	17.4	416.0	119.9	16.6	395.1	125.8	15.8	373.8	131.2	14.9	352.0	136.3	14.0
	190	491.6	132.2	19.6	469.6	138.7	18.7	446.7	144.8	17.8	423.1	150.5	16.9	399.4	156.0	15.9
	210	561.3	147.3	22.4	529.3	153.6	21.1	497.2	159.3	19.8	464.7	164.3	18.5	432.4	168.7	17.2
	230	617.9	164.8	24.6	587.5	173.1	23.4	556.9	180.7	22.2	525.8	187.8	21.0	494.3	194.4	19.7
	245	644.0	172.3	25.7	612.4	181.0	24.4	580.2	189.2	23.1	547.5	196.7	21.8	514.4	203.6	20.5
	255	669.3	177.8	26.7	636.0	186.7	25.4	602.2	194.9	24.0	567.9	202.5	22.6	533.2	209.4	21.3
	270	712.6	183.1	28.4	676.7	192.8	27.0	639.9	201.7	25.5	602.5	209.9	24.0	564.6	217.3	22.5
	290	799.0	216.0	31.9	760.5	226.2	30.3	721.0	235.7	28.7	680.5	244.5	27.1	640.0	252.7	25.5
	315	868.7	231.1	34.6	820.2	241.1	32.7	771.5	250.2	30.8	722.1	258.2	28.8	673.0	265.4	26.8
	330	872.2	227.3	34.8	831.9	239.8	33.2	790.2	251.5	31.5	747.6	262.4	29.8	704.0	272.6	28.1
	360	927.7	245.8	37.0	885.5	258.6	35.3	841.8	270.6	33.6	796.9	281.7	31.8	751.4	292.3	30.0
	390	1053.4	279.6	42.0	999.4	292.5	39.8	944.3	304.2	37.6	887.8	314.8	35.4	831.7	324.6	33.2
	420	1122.6	294.7	44.8	1058.7	307.3	42.2	994.4	318.6	39.6	929.3	328.6	37.1	864.8	337.4	34.5

Performance data — SI (cont)



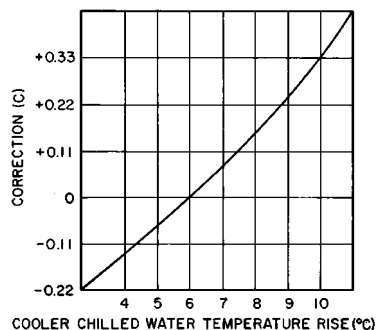
COOLING CAPACITIES — 50 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
10.0	040	94.7	22.6	3.8	90.4	24.1	3.6	85.9	25.4	3.4	81.4	26.7	3.2	76.7	27.8	3.1
	045	117.8	28.6	4.7	111.1	30.3	4.4	104.4	31.8	4.2	97.6	33.1	3.9	90.6	34.3	3.6
	050	144.4	36.8	5.8	136.9	38.8	5.5	129.4	40.7	5.2	121.7	42.4	4.9	113.9	43.9	4.5
	060	172.1	43.9	6.9	162.8	46.1	6.5	153.4	48.2	6.1	144.0	50.0	5.7	134.6	51.7	5.4
	070	197.0	48.0	7.9	186.0	50.6	7.4	175.0	53.0	7.0	163.8	55.1	6.5	152.5	56.9	6.1
	080	233.2	57.6	9.3	220.1	60.5	8.8	207.0	63.1	8.3	193.8	65.4	7.7	180.5	67.5	7.2
	090	260.0	65.1	10.4	245.6	68.6	9.8	231.0	71.7	9.2	216.3	74.5	8.6	201.3	76.9	8.0
	100	287.1	70.8	11.5	270.8	74.4	10.8	254.6	77.7	10.2	238.2	80.5	9.5	221.5	83.0	8.8
	110	318.4	85.4	12.7	301.6	89.3	12.0	284.6	92.8	11.4	267.5	96.1	10.7	250.1	99.0	10.0
	130	345.3	86.6	13.8	329.0	91.7	13.1	312.6	96.4	12.5	295.9	100.8	11.8	278.7	104.9	11.1
	150	404.6	110.1	16.1	386.8	115.7	15.4	368.6	121.1	14.7	350.0	126.1	14.0	331.1	130.9	13.2
	170	450.7	115.7	18.0	430.1	122.2	17.2	408.8	128.3	16.3	387.0	134.0	15.4	364.8	139.3	14.5
	190	508.1	134.6	20.3	485.0	141.4	19.3	461.9	147.6	18.4	438.0	153.7	17.5	413.6	159.3	16.5
	210	581.9	150.4	23.2	549.2	157.0	21.9	516.3	162.9	20.6	483.2	168.2	19.3	449.7	172.8	17.9
	230	637.8	167.7	25.4	606.9	176.2	24.2	575.5	184.1	23.0	543.8	191.5	21.7	511.6	198.4	20.4
	245	664.6	175.2	26.5	632.4	184.3	25.2	599.6	192.8	23.9	566.1	200.6	22.6	532.5	207.8	21.2
	255	691.5	180.9	27.6	657.6	190.1	26.2	623.1	198.7	24.9	588.1	206.6	23.5	552.6	213.9	22.0
	270	737.6	186.5	29.4	700.9	196.6	28.0	663.3	205.9	26.5	625.1	214.5	24.9	586.3	222.3	23.4
	290	826.8	220.1	33.0	786.9	230.7	31.4	746.5	240.5	29.8	705.4	249.7	28.1	663.7	258.3	26.5
	315	900.7	235.9	35.9	850.9	246.3	33.9	801.0	255.8	32.0	750.7	264.4	29.9	699.8	271.9	27.9
	330	901.3	231.3	36.0	860.2	244.3	34.3	817.6	256.5	32.6	774.1	267.9	30.9	729.5	278.6	29.1
	360	958.7	250.3	38.2	915.2	263.5	36.5	870.7	275.9	34.7	825.0	287.6	32.9	778.4	298.6	31.0
	390	1090.2	285.1	43.5	1034.4	298.4	41.3	978.5	310.7	39.0	921.2	321.9	36.7	863.3	332.2	34.4
	420	1163.8	300.9	46.4	1098.4	314.0	43.8	1032.5	325.9	41.2	966.4	336.5	38.5	899.4	345.7	35.9
13.0	040	102.7	23.4	4.1	98.2	25.0	3.9	93.6	26.5	3.7	88.8	27.9	3.5	83.4	29.1	3.3
	045	130.3	30.1	5.2	123.3	32.0	4.9	116.1	33.7	4.6	108.9	35.2	4.3	101.1	36.5	4.0
	050	159.3	38.7	6.4	151.3	40.9	6.0	143.2	43.0	5.7	135.0	44.9	5.4	126.7	46.7	5.1
	060	190.2	46.2	7.6	180.3	48.7	7.2	170.4	51.0	6.8	160.3	53.1	6.4	148.5	54.6	5.9
	070	217.5	50.4	8.7	206.1	53.4	8.2	194.4	56.1	7.8	182.5	58.5	7.3	169.8	60.4	6.8
	080	256.0	60.5	10.2	240.9	63.6	9.6	225.5	66.3	9.0	210.2	68.7	8.4	195.1	70.7	7.8
	090	287.4	68.7	11.5	272.0	72.6	10.9	257.0	76.2	10.3	238.5	78.8	9.5	218.9	80.8	8.7
	100	319.4	74.9	12.8	302.3	79.0	12.1	285.0	82.7	11.4	267.2	86.0	10.7	248.7	88.8	9.9
	110	353.7	90.6	14.1	335.4	94.9	13.4	317.0	98.9	12.7	298.4	102.6	11.9	279.7	106.1	11.2
	130	378.2	90.6	15.1	361.3	96.3	14.4	344.0	101.6	13.7	326.2	106.5	13.0	308.0	111.2	12.3
	150	441.3	115.4	17.6	422.6	121.6	16.9	403.4	127.5	16.1	381.8	132.8	15.2	357.7	137.4	14.3
	170	495.3	121.8	19.8	473.6	129.0	18.9	451.3	135.8	18.0	425.7	141.8	17.0	395.0	146.3	15.8
	190	558.1	142.0	22.3	533.7	149.4	21.3	508.7	156.4	20.3	483.6	163.2	19.3	457.3	169.5	18.3
	210	645.8	160.0	25.8	610.8	167.3	24.4	575.4	174.1	23.0	539.7	180.0	21.6	498.1	184.1	19.9
	230	697.4	176.0	27.8	663.4	185.2	26.5	629.0	193.8	25.1	592.1	201.5	23.6	552.8	208.1	22.1
	245	728.8	184.2	29.1	694.6	194.2	27.7	660.4	203.7	26.4	620.3	211.6	24.8	576.6	218.1	23.0
	255	760.9	190.3	30.4	724.9	200.6	28.9	688.2	210.2	27.5	649.0	218.8	25.9	606.4	226.2	24.2
	270	815.1	196.7	32.5	776.1	208.0	31.0	736.1	218.5	29.4	692.9	227.8	27.7	643.7	235.1	25.7
	290	911.8	232.6	36.4	869.3	244.3	34.7	825.7	255.4	33.0	782.3	265.9	31.2	737.2	275.6	29.4
	315	999.8	250.7	39.9	946.4	262.3	37.8	892.6	273.0	35.6	838.3	282.7	33.5	778.0	290.2	31.1
	330	991.1	243.7	39.6	947.2	258.1	37.8	902.5	271.7	36.0	851.3	283.6	34.0	790.1	292.6	31.5
	360	1053.5	263.8	42.1	1007.3	278.4	40.2	959.9	292.3	38.3	909.3	305.0	36.3	852.3	315.8	34.0
	390	1204.1	302.1	48.1	1144.7	316.8	45.7	1084.4	330.5	43.3	1023.7	343.3	40.9	955.8	353.7	38.2
	420	1291.7	320.0	51.6	1221.5	334.7	48.8	1150.8	348.1	45.9	1079.5	360.1	43.1	996.1	368.3	39.8

COOLING CAPACITIES — 50 Hz (cont)

LCWT (C)	UNIT SIZE 30GU	CONDENSER ENTERING-AIR TEMPERATURE (C)														
		30			35			40			45			50		
		Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)	Cap. (kW)	Input kW	Cooler Flow Rate (L/s)
16.0	040	111.0	24.3	4.4	105.6	25.9	4.2	99.2	27.3	4.0	91.4	28.3	3.7	83.6	29.1	3.3
	045	137.9	30.9	5.5	128.8	32.6	5.1	119.6	34.1	4.8	110.5	35.4	4.4	101.4	36.5	4.1
	050	172.4	40.2	6.9	161.4	42.2	6.4	150.4	44.1	6.0	139.5	45.7	5.6	128.7	47.0	5.1
	060	200.3	47.4	8.0	187.2	49.5	7.5	174.2	51.5	7.0	161.5	53.2	6.5	148.9	54.6	6.0
	070	235.7	52.4	9.4	219.6	55.0	8.8	203.7	57.3	8.1	187.9	59.3	7.5	172.3	60.8	6.9
	080	265.7	61.8	10.6	247.8	64.6	9.9	230.2	67.0	9.2	212.8	69.0	8.5	195.7	70.8	7.8
	090	299.4	70.1	12.0	279.2	73.4	11.2	259.1	76.4	10.4	239.2	78.8	9.6	219.5	80.8	8.8
	100	341.0	77.3	13.6	318.0	80.9	12.7	295.2	84.1	11.8	272.7	86.8	10.9	250.5	89.0	10.0
	110	387.2	95.3	15.5	361.7	99.1	14.5	336.7	102.4	13.5	311.9	105.3	12.5	287.6	107.7	11.5
	130	412.6	94.7	16.5	395.0	100.8	15.8	374.5	106.3	15.0	351.8	111.0	14.1	324.2	114.4	13.0
	150	474.5	120.2	19.0	449.6	126.2	18.0	425.1	131.8	17.0	400.4	137.0	16.0	375.3	141.8	15.0
	170	530.4	126.5	21.2	496.4	132.5	19.8	462.7	137.7	18.5	429.2	142.4	17.2	396.0	146.3	15.8
	190	610.1	149.5	24.4	582.7	157.2	23.3	548.1	163.3	21.9	508.4	167.9	20.3	469.1	171.9	18.7
	210	673.7	163.7	26.9	629.3	170.0	25.2	585.4	175.5	23.4	542.1	180.3	21.7	499.3	184.2	20.0
	230	740.1	182.0	29.6	697.5	190.7	27.9	655.3	198.7	26.2	613.2	206.0	24.5	571.1	212.5	22.8
	245	773.8	190.3	30.9	728.8	199.6	29.1	684.2	208.1	27.3	639.6	215.8	25.6	594.8	222.6	23.8
	255	815.4	197.5	32.6	767.6	207.1	30.7	720.3	215.9	28.8	673.0	223.8	26.9	625.8	230.7	25.0
	270	871.3	203.8	34.8	814.4	213.4	32.5	757.9	221.8	30.3	701.9	229.1	28.1	646.4	235.3	25.8
	290	997.3	244.8	39.9	944.5	256.3	37.7	884.8	265.7	35.4	820.3	273.2	32.8	756.7	279.7	30.2
	315	1060.9	259.0	42.4	991.1	269.1	39.6	922.1	277.9	36.9	854.1	285.5	34.1	786.9	291.9	31.4
	330	1060.7	253.0	42.4	992.9	264.9	39.7	925.4	275.5	37.0	858.4	284.7	34.3	792.0	292.6	31.7
	360	1140.5	276.1	45.6	1079.1	289.7	43.1	1010.8	301.0	40.4	937.6	310.3	37.5	865.1	318.2	34.6
	390	1283.6	313.2	51.3	1212.3	327.3	48.4	1133.5	338.8	45.3	1050.5	348.2	42.0	968.5	356.1	38.7
	420	1347.6	327.5	53.9	1258.8	340.0	50.3	1171.0	351.0	46.8	1084.3	360.5	43.3	998.7	368.4	39.9

LCWT CORRECTION (SI)



Above 6 C, ADD correction to design LCWT.
Below 6 C, SUBTRACT.

LEGEND

Cap. — Cooling Capacities kW of Refrigeration
kW — Compressor Power Input
LCWT — Leaving Chilled Water Temperature (C)

NOTES:

- All ratings are based on:
 - A cooler water temperature rise of 6° C. When greater accuracy is desired, correct design LCWT, before entering rating tables, by reference to the LCWT correction curve.
 - A fouling factor of 0.000044 in the cooler.
 - Refrigerant 134a.
- When a corrected LCWT is used, cooler pressure drop must also be corrected for new LCWT:
 - Enter rating table for corrected LCWT. By interpolation, determine corrected capacity (kW) and power input (kW) to compressor at its rated voltage.
 - Calculate corrected flow rate through the cooler:

$$= \frac{0.239 \times \text{capacity in kW}}{\text{temperature rise } ^\circ\text{C}} = \text{L/s}$$
 - Enter cooler pressure drop curve at corrected flow rate and read pressure drop.
- When cooler water temperature rise is less than 3° C, high flow rate will normally be accompanied by an excessive pressure drop. In such cases, contact your Carrier representative for special selection of a cooler with wider baffle spacing.

UNIT

UNIT SIZE 30GU	VOLTAGE			STANDARD CONDENSER FAN						HIGH STATIC CONDENSER FAN					
				MCA		MOCP		ICF		MCA		MOCP		ICF	
	Nameplate V-Hz (3 Phase)	Supplied*		XL	PW	XL	PW	XL	PW	XL	PW	XL	PW	XL	PW
040	208/230-60	187	253	148.7	148.7	200	200	361.2	248.2	185.3	185.3	225	225	397.8	284.8
	380-60	342	418	80.6	76.1	100	100	201.5	136.5	94.6	90.1	110	110	215.5	150.5
	460-60	414	506	76.0	71.5	100	90	181.9	122.9	90.2	85.7	110	110	196.1	137.1
	575-60	518	633	66.9	†	90	†	135.3	†	74.1	†	90	†	142.5	†
	346-50	325	380	101.9	101.9	125	125	304.8	200.8	119.1	119.1	150	150	322.0	218.0
	380/415-50	342	440	84.2	80.5	110	110	213.9	142.9	101.4	97.7	125	125	231.1	160.1
045	208/230-60	187	253	163.1	163.1	225	225	423.2	285.2	199.7	199.7	250	250	459.8	321.8
	380-60	342	418	87.8	84.1	110	110	235.5	157.5	101.8	98.1	125	125	249.5	171.5
	460-60	414	506	83.2	79.5	110	110	212.9	141.9	97.4	93.8	125	125	227.1	156.1
	575-60	518	633	73.3	†	100	†	157.3	†	80.5	†	100	†	164.5	†
	346-50	325	380	118.6	118.6	150	150	321.5	217.5	135.8	135.8	175	175	338.7	234.7
	380/415-50	342	440	101.1	101.4	125	125	269.9	179.3	118.3	118.6	150	150	286.8	196.5
050	208/230-60	187	253	200.3	200.3	250	250	535.7	357.7	236.9	236.9	300	300	572.3	394.3
	380-60	342	418	107.1	105.0	150	125	297.2	196.9	121.1	119.0	150	150	311.2	210.9
	460-60	414	506	100.1	100.4	125	125	268.6	178.3	114.3	114.6	150	150	282.8	192.5
	575-60	518	633	88.0	83.4	110	110	206.4	139.8	95.2	90.6	125	125	213.6	147.0
	346-50	325	380	161.9	161.9	225	225	462.5	302.5	179.1	179.1	250	250	479.7	319.7
	380/415-50	342	440	131.7	127.4	175	175	360.6	239.9	148.9	144.6	200	200	377.8	257.1
060	208/230-60	187	253	265.4	265.4	350	350	731.1	487.1	320.4	320.4	400	400	786.1	542.1
	380-60	342	418	167.4	167.6	225	225	450.9	298.3	188.4	188.6	250	250	471.9	319.3
	460-60	414	506	136.1	131.8	175	175	365.0	244.3	157.5	157.5	200	200	386.4	265.7
	575-60	518	633	115.4	109.8	150	150	300.9	199.7	126.2	120.6	150	150	311.7	210.5
	346-50	325	380	205.3	205.3	250	250	505.9	345.9	231.1	231.1	300	300	531.7	371.7
	380/415-50	342	440	155.0	144.9	200	200	383.9	257.4	180.8	170.7	225	225	409.7	283.2
070	208/230-60	187	253	292.3	292.3	400	400	758.0	514.0	347.3	347.3	450	450	813.0	569.0
	380-60	342	418	200.7	202.1	250	250	484.2	332.8	221.7	223.1	300	300	505.2	353.8
	460-60	414	506	153.4	143.3	200	175	382.3	255.8	174.8	164.7	200	200	403.7	277.2
	575-60	518	633	125.7	121.4	150	150	311.2	211.3	136.5	132.2	175	175	322.0	222.1
	346-50	325	380	215.6	215.6	250	250	516.2	356.2	241.4	241.4	300	300	542.0	382.0
	380/415-50	342	440	163.3	155.1	200	200	392.2	267.6	189.1	180.9	225	225	418.0	293.4

LEGEND

FLA	— Full Load Amps (Fan Motors)
ICF	— Maximum Instantaneous Current Flow during starting (the point in the starting sequence where the sum of the LRA for the starting compressor, plus the total RLA for all running compressors, plus the total FLA for all running fan motors is maximum)
kw	— Total condenser fan motor power input
LRA	— Locked Rotor Amps
MCA	— Minimum Circuit Amps (for wire sizing) — complies with NEC Section 430-24
MOCP	— Maximum Overcurrent Protective Device Amps
NEC	— National Electrical Code, U.S.A.
PW	— Part Wind
RLA	— Rated Load Amps (Compressors)
XL	— Across-the-Line



*Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps, 10%.

†Contact your local representative for 575-v part-wind details.

NOTES:

1. All modules have single point primary power connection. (Each module requires its own power supply.) Main power must be supplied from a field-supplied disconnect.
2. The unit control circuit power (115 v, single-phase for 208/230-, 460-, and 575-v units; 230 v, single-phase for all other voltages) must be supplied from a separate source through a field-supplied disconnect. The control circuit transformer accessory may be applied to power from primary unit power.

3. Crankcase and cooler heaters are wired into the control circuit so they are always operable as long as the control circuit power supply disconnect is on, even if any safety device is open, and the unit ON/OFF switch is in the OFF position.
4. Units have the following power wiring terminal blocks and parallel conductors:

UNIT SIZE	VOLTAGE	TERMINAL BLOCKS	PARALLEL CONDUCTORS
040 to 110, 230B to 315B	208/230	1	3 (040,045), 6 (all others)
	460	1	3
	575	1	3
	380	1	3
	346	1	3
	380/415	1	3
130 to 210, 230A to 315A, 330A/B to 420A/B	208/230	3	9
	460	2	6
	575	2	6
	380	2	6
	346	2	6
	380/415	2	6

5. Maximum incoming wire size for each terminal block is 500 kcmil.
6. Power draw of control circuits includes both crankcase heaters and cooler heaters (where used). Each compressor has a crankcase heater which draws 180 w of power.

UNIT (cont)

UNIT SIZE 30GU	VOLTAGE			STANDARD CONDENSER FAN						HIGH STATIC CONDENSER FAN					
				MCA		MOC P		ICF		MCA		MOC P		ICF	
	Nameplate V-Hz (3 Phase)	Supplied*		XL	PW	XL	PW	XL	PW	XL	PW	XL	PW	XL	PW
		Min	Max												
080	208/230-60	187	253	321.8	321.8	400	400	787.5	543.5	376.8	376.8	450	450	842.5	598.5
	380-60	342	418	196.3	194.5	250	250	479.8	325.2	217.3	215.5	250	250	500.8	346.2
	460-60	414	506	165.0	158.7	225	200	393.9	271.2	186.4	180.1	225	225	415.3	292.6
	575-60	518	633	139.1	†	175	†	324.6	†	149.9	†	175	†	335.4	†
	346-50	325	380	250.2	250.2	300	300	550.8	390.8	276.0	276.0	350	350	576.6	416.6
	380/415-50	342	440	189.6	178.2	250	225	418.5	290.7	215.4	204.0	250	250	444.3	316.5
090	208/230-60	187	253	309.7	309.7	350	350	569.8	431.8	364.7	364.7	400	400	624.8	486.8
	380-60	342	418	164.8	158.5	175	175	312.5	231.9	185.8	179.5	200	200	333.5	252.9
	460-60	414	506	157.8	151.5	175	175	287.5	213.9	179.2	172.9	200	200	308.9	235.3
	575-60	518	633	137.7	†	150	†	221.7	†	148.5	†	175	†	232.5	†
	346-50	325	380	260.5	260.5	300	300	561.1	401.1	286.3	286.3	350	350	586.9	426.9
	380/415-50	342	440	206.9	200.0	250	250	435.8	312.5	232.7	225.8	250	250	461.6	338.3
100	208/230-60	187	253	378.3	378.3	450	450	713.7	535.7	451.7	451.7	500	500	787.1	609.1
	380-60	342	418	202.8	198.8	225	225	392.9	290.7	230.8	226.8	250	250	420.9	318.7
	460-60	414	506	189.1	189.4	225	225	357.6	267.3	217.7	218.0	250	250	386.2	295.9
	575-60	518	633	166.9	158.5	200	175	285.3	214.9	181.3	172.9	200	200	299.7	229.3
	346-50	325	380	303.9	303.9	350	350	604.5	444.5	338.3	338.3	400	400	638.9	478.9
	380/415-50	342	440	230.2	217.5	250	250	459.1	330.0	264.6	251.9	300	300	493.5	364.4
110	208/230-60	187	253	412.0	412.0	500	500	877.7	633.7	485.4	485.4	600	600	951.1	707.1
	380-60	342	418	244.4	242.0	300	300	527.9	372.7	272.4	270.0	350	300	555.9	400.7
	460-60	414	506	210.7	203.8	250	250	439.6	316.3	239.3	232.4	300	250	468.2	344.9
	575-60	518	633	179.8	173.0	225	200	365.3	262.9	194.2	187.4	225	225	379.7	277.3
	346-50	325	380	373.1	373.1	450	450	673.7	513.7	407.5	407.5	450	450	708.1	548.1
	380/415-50	342	440	282.8	263.7	300	300	511.7	376.2	317.2	298.1	350	350	546.1	410.6
130	208/230-60	187	253	491.1	491.1	600	600	956.8	712.8	582.7	582.7	600	600	1048.4	804.4
	380-60	342	418	307.3	307.5	350	350	590.8	438.2	342.3	342.5	400	400	625.8	473.2
	460-60	414	506	251.6	244.1	300	300	480.5	356.6	287.2	279.7	300	300	516.1	392.2
	575-60	518	633	212.3	201.6	250	225	397.8	291.5	230.2	219.6	250	250	415.8	309.5
	346-50	325	380	357.6	357.6	400	400	658.2	498.2	400.6	400.6	450	450	701.2	541.2
	380/415-50	342	440	288.8	280.0	300	300	517.7	392.5	331.8	323.0	350	350	560.7	435.5
150	208/230-60	187	253	517.8	517.8	600	600	983.5	739.5	609.4	609.4	700	700	1075.1	831.1
	380-60	342	418	320.1	317.6	350	350	603.6	448.3	355.1	352.6	400	400	638.6	483.3
	460-60	414	506	268.2	254.2	300	300	497.1	366.7	303.8	289.8	350	300	532.7	402.3
	575-60	518	633	225.7	219.6	250	250	411.2	309.5	243.7	237.6	250	250	429.2	327.5
	346-50	325	380	461.4	461.4	500	500	762.0	602.0	504.4	504.4	600	600	805.0	645.0
	380/415-50	342	440	349.7	326.1	400	350	578.6	438.6	392.7	369.1	450	400	621.6	481.6
170	208/230-60	187	253	607.5	607.5	700	700	942.9	764.9	699.1	699.1	700	700	1034.5	856.5
	380-60	342	418	323.4	319.6	350	350	513.5	411.5	358.4	354.6	400	400	548.5	446.5
	460-60	414	506	299.9	308.0	300	350	468.4	385.9	335.5	343.6	350	350	504.0	421.5
	575-60	518	633	262.1	242.1	300	250	380.5	298.5	280.1	260.1	300	300	398.5	316.5
	346-50	325	380	437.1	437.1	500	500	737.7	577.7	480.1	480.1	500	500	780.7	620.7
	380/415-50	342	440	358.7	348.0	400	400	587.6	460.5	401.7	391.0	450	400	630.6	503.5
190	208/230-60	187	253	637.7	637.7	700	700	1104.4	859.4	747.7	747.7	800	800	1213.4	969.4
	380-60	342	418	384.3	381.9	450	450	667.8	512.6	426.3	423.9	500	500	709.8	554.6
	460-60	414	506	326.2	316.1	350	350	555.1	428.6	369.0	358.9	400	400	597.9	471.4
	575-60	518	633	276.7	264.8	300	300	462.2	354.7	298.3	286.4	300	300	483.8	376.3
	346-50	325	380	549.7	549.7	600	600	850.3	690.3	601.3	601.3	700	700	901.9	741.9
	380/415-50	342	440	416.6	388.5	450	400	645.5	501.0	468.2	440.1	500	450	697.1	552.6
210	208/230-60	187	253	705.6	705.6	800	800	1171.3	927.3	815.6	815.6	1000	1000	1281.3	1037.3
	380-60	342	418	418.9	415.2	450	450	702.4	545.9	460.9	457.2	500	500	744.4	587.9
	460-60	414	506	360.8	349.4	400	400	589.7	461.9	403.6	392.2	450	400	632.5	504.7
	575-60	518	633	305.5	293.0	350	300	491.0	382.9	327.1	314.6	350	350	512.6	404.5
	346-50	325	380	560.0	560.0	600	600	860.6	700.6	611.6	611.6	700	700	912.2	752.2
	380/415-50	342	440	424.9	398.7	450	450	653.8	511.2	476.5	450.3	500	500	705.4	562.8

(See Legend and Notes, page 64.)

Electrical data (cont)



UNIT (cont)

UNIT SIZE 30GU	VOLTAGE			MODULE A											
				Standard Condenser Fan						High Static Condenser Fan					
				MCA		MOCP		ICF		MCA		MOCP		ICF	
	Nameplate V-Hz (3 Phase)	Min	Max	XL	PW	XL	PW	XL	PW	XL	PW	XL	PW	XL	PW
230A	208/230-60	187	253	517.8	517.8	600	600	983.5	739.5	609.4	609.4	700	700	1075.1	831.1
	380-60	342	418	320.1	317.6	350	350	603.6	448.3	355.1	352.6	400	400	638.6	483.3
	460-60	414	506	268.2	254.2	300	300	497.1	366.7	303.8	289.8	350	300	532.7	402.3
	575-60	518	633	225.7	219.6	250	250	411.2	309.5	243.7	237.6	250	250	429.2	327.5
	346-50	325	380	461.4	461.4	500	500	762.0	602.0	504.4	504.4	600	600	805.0	645.0
	380/415-50	342	440	349.7	326.1	400	350	578.6	438.6	392.7	369.1	450	400	621.6	481.6
245A	208/230-60	187	253	517.8	517.8	600	600	983.5	739.5	609.4	609.4	700	700	1075.1	831.1
	380-60	342	418	320.1	317.6	350	350	603.6	448.3	355.1	352.6	400	400	638.6	483.3
	460-60	414	506	268.2	254.2	300	300	497.1	366.7	303.8	289.8	350	300	532.7	402.3
	575-60	518	633	225.7	219.6	250	250	411.2	309.5	243.7	237.6	250	250	429.2	327.5
	346-50	325	380	461.4	461.4	500	500	762.0	602.0	504.4	504.4	600	600	805.0	645.0
	380/415-50	342	440	349.7	326.1	400	350	578.6	438.6	392.7	369.1	450	400	621.6	481.6
255A	208/230-60	187	253	517.8	517.8	600	600	983.5	739.5	609.4	609.4	700	700	1075.1	831.1
	380-60	342	418	320.1	317.6	350	350	603.6	448.3	355.1	352.6	400	400	638.6	483.3
	460-60	414	506	268.2	254.2	300	300	497.1	366.7	303.8	289.8	350	300	532.7	402.3
	575-60	518	633	225.7	219.6	250	250	411.2	309.5	243.7	237.6	250	250	429.2	327.5
	346-50	325	380	461.4	461.4	500	500	762.0	602.0	504.4	504.4	600	600	805.0	645.0
	380/415-50	342	440	349.7	326.1	400	350	578.6	438.6	392.7	369.1	450	400	621.6	481.6
270A	208/230-60	187	253	607.5	607.5	700	700	942.9	764.9	699.1	699.1	700	700	1034.5	856.5
	380-60	342	418	323.4	319.6	350	350	513.5	411.5	358.4	354.6	400	400	548.5	446.5
	460-60	414	506	299.9	308.0	300	350	468.4	385.9	335.5	343.6	350	350	504.0	421.5
	575-60	518	633	262.1	242.1	300	250	380.5	298.5	280.1	260.1	300	300	398.5	316.5
	346-50	325	380	437.1	437.1	500	500	737.7	577.7	480.1	480.1	500	500	780.7	620.7
	380/415-50	342	440	358.7	348.0	400	400	587.6	460.5	401.7	391.0	450	400	630.6	503.5
290A	208/230-60	187	253	637.7	637.7	700	700	1104.4	859.4	747.7	747.7	800	800	1213.4	969.4
	380-60	342	418	384.3	381.9	450	450	667.8	512.6	426.3	423.9	500	500	709.8	554.6
	460-60	414	506	326.2	316.1	350	350	555.1	428.6	369.0	358.9	400	400	597.9	471.4
	575-60	518	633	276.7	264.8	300	300	462.2	354.7	298.3	286.4	300	300	483.8	376.3
	346-50	325	380	549.7	549.7	600	600	850.3	690.3	601.3	601.3	700	700	901.9	741.9
	380/415-50	342	440	416.6	388.5	450	400	645.5	501.0	468.2	440.1	500	450	697.1	552.6
315A	208/230-60	187	253	705.6	705.6	800	800	1171.3	927.3	815.6	815.6	1000	1000	1281.3	1037.3
	380-60	342	418	418.9	415.2	450	450	702.4	545.9	460.9	457.2	500	500	744.4	587.9
	460-60	414	506	360.8	349.4	400	400	589.7	461.9	403.6	392.2	450	400	632.5	504.7
	575-60	518	633	305.5	293.0	350	300	491.0	382.9	327.1	314.6	350	350	512.6	404.5
	346-50	325	380	560.0	560.0	600	600	860.6	700.6	611.6	611.6	700	700	912.2	752.2
	380/415-50	342	440	424.9	398.7	450	450	653.8	511.2	476.5	450.3	500	500	705.4	562.8
330A	208/230-60	187	253	607.5	607.5	700	700	942.9	764.9	699.1	699.1	700	700	1034.5	856.5
	380-60	342	418	323.4	319.6	350	350	513.5	411.5	358.4	354.6	400	400	548.5	446.5
	460-60	414	506	299.9	308.0	300	350	468.4	385.9	335.5	343.6	350	350	504.0	421.5
	575-60	518	633	262.1	242.1	300	250	380.5	298.5	280.1	260.1	300	300	398.5	316.5
	346-50	325	380	437.1	437.1	500	500	737.7	577.7	480.1	480.1	500	500	780.7	620.7
	380/415-50	342	440	358.7	348.0	400	400	587.6	460.5	401.7	391.0	450	400	630.6	503.5
360A	208/230-60	187	253	637.7	637.7	700	700	1104.4	859.4	747.7	747.7	800	800	1213.4	969.4
	380-60	342	418	384.3	381.9	450	450	667.8	512.6	426.3	423.9	500	500	709.8	554.6
	460-60	414	506	326.2	316.1	350	350	555.1	428.6	369.0	358.9	400	400	597.9	471.4
	575-60	518	633	276.7	264.8	300	300	462.2	354.7	298.3	286.4	300	300	483.8	376.3
	346-50	325	380	549.7	549.7	600	600	850.3	690.3	601.3	601.3	700	700	901.9	741.9
	380/415-50	342	440	416.6	388.5	450	400	645.5	501.0	468.2	440.1	500	450	697.1	552.6
390A	208/230-60	187	253	705.6	705.6	800	800	1171.3	927.3	815.6	815.6	1000	1000	1281.3	1037.3
	380-60	342	418	418.9	415.2	450	450	702.4	545.9	460.9	457.2	500	500	744.4	587.9
	460-60	414	506	360.8	349.4	400	400	589.7	461.9	403.6	392.2	450	400	632.5	504.7
	575-60	518	633	305.5	293.0	350	300	491.0	382.9	327.1	314.6	350	350	512.6	404.5
	346-50	325	380	560.0	560.0	600	600	860.6	700.6	611.6	611.6	700	700	912.2	752.2
	380/415-50	342	440	424.9	398.7	450	450	653.8	511.2	476.5	450.3	500	500	705.4	562.8
420A	208/230-60	187	253	705.6	705.6	800	800	1171.3	927.3	815.6	815.6	1000	1000	1281.3	1037.3
	380-60	342	418	418.9	415.2	450	450	702.4	545.9	460.9	457.2	500	500	744.4	587.9
	460-60	414	506	360.8	349.4	400	400	589.7	461.9	403.6	392.2	450	400	632.5	504.7
	575-60	518	633	305.5	293.0	350	300	491.0	382.9	327.1	314.6	350	350	512.6	404.5
	346-50	325	380	560.0	560.0	600	600	860.6	700.6	611.6	611.6	700	700	912.2	752.2
	380/415-50	342	440	424.9	398.7	450	450	653.8	511.2	476.5	450.3	500	500	705.4	562.8

(See Legend and Notes, page 64.)

UNIT (cont)

UNIT SIZE 30GU	VOLTAGE			MODULE B											
				Standard Condenser Fan						High Static Condenser Fan					
				MCA		MOCP		ICF		MCA		MOCP		ICF	
	Nameplate V-Hz (3 Phase)	Supplied*		XL	PW	XL	PW	XL	PW	XL	PW	XL	PW	XL	PW
		Min	Max												
230B	208/230-60	187	253	321.8	321.8	400	400	787.5	543.5	376.8	376.8	450	450	842.5	598.5
	380-60	342	418	196.3	194.5	250	250	479.8	325.2	217.3	215.5	250	250	500.8	346.2
	460-60	414	506	165.0	158.7	225	200	393.9	271.2	186.4	180.1	225	225	415.3	292.6
	575-60	518	633	139.1	†	175	†	324.6	†	149.9	†	175	†	335.4	†
	346-50	325	380	250.2	250.2	300	300	550.8	390.8	276.0	276.0	350	350	576.6	416.6
	380/415-50	342	440	189.6	178.2	250	225	418.5	290.7	215.4	204.0	250	250	444.3	316.5
245B	208/230-60	187	253	309.7	309.7	350	350	569.8	431.8	364.7	364.7	400	400	624.8	486.8
	380-60	342	418	164.8	158.5	175	175	312.5	231.9	185.8	179.5	200	200	333.5	252.9
	460-60	414	506	157.8	151.5	175	175	287.5	213.9	179.2	172.9	200	200	308.9	235.3
	575-60	518	633	137.7	†	150	†	221.7	†	148.5	†	175	†	232.5	†
	346-50	325	380	260.5	260.5	300	300	561.1	401.1	286.3	286.3	350	350	586.9	426.9
	380/415-50	342	440	206.9	200.0	250	250	435.8	312.5	232.7	225.8	250	250	461.6	338.3
255B	208/230-60	187	253	378.3	378.3	450	450	713.7	535.7	451.7	451.7	500	500	787.1	609.1
	380-60	342	418	202.8	198.8	225	225	392.9	290.7	230.8	226.8	250	250	420.9	318.7
	460-60	414	506	189.1	189.4	225	225	357.6	267.3	217.7	218.0	250	250	386.2	295.9
	575-60	518	633	166.9	158.5	200	175	285.3	214.9	181.3	172.9	200	200	299.7	229.3
	346-50	325	380	303.9	303.9	350	350	604.5	444.5	338.3	338.3	400	400	638.9	478.9
	380/415-50	342	440	230.2	217.5	250	250	459.1	330.0	264.6	251.9	300	300	493.5	364.4
270B	208/230-60	187	253	378.3	378.3	450	450	713.7	535.7	451.7	451.7	500	500	787.1	609.1
	380-60	342	418	202.8	198.8	225	225	392.9	290.7	230.8	226.8	250	250	420.9	318.7
	460-60	414	506	189.1	189.4	225	225	357.6	267.3	217.7	218.0	250	250	386.2	295.9
	575-60	518	633	166.9	158.5	200	175	285.3	214.9	181.3	172.9	200	200	299.7	229.3
	346-50	325	380	303.9	303.9	350	350	604.5	444.5	338.3	338.3	400	400	638.9	478.9
	380/415-50	342	440	230.2	217.5	250	250	459.1	330.0	264.6	251.9	300	300	493.5	364.4
290B	208/230-60	187	253	412.0	412.0	500	500	877.7	633.7	485.4	485.4	600	600	951.1	707.1
	380-60	342	418	244.4	242.0	300	300	527.9	372.7	272.4	270.0	350	350	555.9	400.7
	460-60	414	506	210.7	203.8	250	250	439.6	316.3	239.3	232.4	300	250	468.2	344.9
	575-60	518	633	179.8	173.0	225	200	365.3	262.9	194.2	187.4	225	225	379.7	277.3
	346-50	325	380	373.1	373.1	450	450	673.7	513.7	407.5	407.5	450	450	708.1	548.1
	380/415-50	342	440	282.8	263.7	300	300	511.7	376.2	317.2	298.1	350	350	546.1	410.6
315B	208/230-60	187	253	412.0	412.0	500	500	877.7	633.7	485.4	485.4	600	600	951.1	707.1
	380-60	342	418	244.4	242.0	300	300	527.9	372.7	272.4	270.0	350	350	555.9	400.7
	460-60	414	506	210.7	203.8	250	250	439.6	316.3	239.3	232.4	300	250	468.2	344.9
	575-60	518	633	179.8	173.0	225	200	365.3	262.9	194.2	187.4	225	225	379.7	277.3
	346-50	325	380	373.1	373.1	450	450	673.7	513.7	407.5	407.5	450	450	708.1	548.1
	380/415-50	342	440	282.8	263.7	300	300	511.7	376.2	317.2	298.1	350	350	546.1	410.6
330B	208/230-60	187	253	607.5	607.5	700	700	942.9	764.9	699.1	699.1	700	700	1034.5	856.5
	380-60	342	418	323.4	319.6	350	350	513.5	411.5	358.4	354.6	400	400	548.5	446.5
	460-60	414	506	299.9	308.0	300	350	468.4	385.9	335.5	343.6	350	350	504.0	421.5
	575-60	518	633	262.1	242.1	300	250	380.5	298.5	280.1	260.1	300	300	398.5	316.5
	346-50	325	380	437.1	437.1	500	500	737.7	577.7	480.1	480.1	500	500	780.7	620.7
	380/415-50	342	440	358.7	348.0	400	400	587.6	460.5	401.7	391.0	450	400	630.6	503.5
360B	208/230-60	187	253	637.7	637.7	700	700	1104.4	859.4	747.7	747.7	800	800	1213.4	969.4
	380-60	342	418	384.3	381.9	450	450	667.8	512.6	426.3	423.9	500	500	709.8	554.6
	460-60	414	506	326.2	316.1	350	350	555.1	428.6	369.0	358.9	400	400	597.9	471.4
	575-60	518	633	276.7	264.8	300	300	462.2	354.7	298.3	286.4	300	300	483.8	376.3
	346-50	325	380	437.1	437.1	500	500	737.7	577.7	480.1	480.1	500	500	780.7	620.7
	380/415-50	342	440	358.7	348.0	400	400	587.6	460.5	401.7	391.0	450	400	630.6	503.5
390B	208/230-60	187	253	637.7	637.7	700	700	1104.4	859.4	747.7	747.7	800	800	1213.4	969.4
	380-60	342	418	384.3	381.9	450	450	667.8	512.6	426.3	423.9	500	500	709.8	554.6
	460-60	414	506	326.2	316.1	350	350	555.1	428.6	369.0	358.9	400	400	597.9	471.4
	575-60	518	633	276.7	264.8	300	300	462.2	354.7	298.3	286.4	300	300	483.8	376.3
	346-50	325	380	549.7	549.7	600	600	850.3	690.3	601.3	601.3	700	700	901.9	741.9
	380/415-50	342	440	416.6	388.5	450	400	645.5	501.0	468.2	440.1	500	450	697.1	552.6
420B	208/230-60	187	253	705.6	705.6	800	800	1171.3	927.3	815.6	815.6	1000	1000	1281.3	1037.3
	380-60	342	418	418.9	415.2	450	450	702.4	545.9	460.9	457.2	500	500	744.4	587.9
	460-60	414	506	360.8	349.4	400	400	589.7	461.9	403.6	392.2	450	400	632.5	504.7
	575-60	518	633	305.5	293.0	350	300	491.0	382.9	327.1	314.6	350	350	512.6	404.5
	346-50	325	380	560.0	560.0	600	600	860.6	700.6	611.6	611.6	700	700	912.2	752.2
	380/415-50	342	440	424.9	398.7	450	450	653.8	511.2	476.5	450.3	500	500	705.4	562.8

(See Legend and Notes, page 64.)

CONTROL CIRCUIT

UNIT POWER SUPPLY (V-Ph-Hz)	CONTROL POWER			AMPS			
	V-Ph-Hz	Min	Max	30GU040-110 and 230B-315B Units		30GU130-210,230A-315A, and 330A/B-420A/B Units	
				With Cooler Heater	Without Cooler Heater	With Cooler Heater	Without Cooler Heater
203/230-3-60	115-1-60	104	127	30	30	30	30
460-3-60	115-1-60	104	127	30	30	30	30
575-3-60	115-1-60	104	127	30	30	30	30
380-3-60	230-1-60	207	254	15	5	15	10
346-3-50	230-1-50	198	254	15	5	15	10
380/415-3-50	230-1-50	198	254	15	5	15	10

See Legend and Notes, page 64.

COMPRESSOR

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	COMPRESSOR NUMBERS													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
040-XL	208/230-60	56.4	283	—	—	—	—	—	—	56.4	283	—	—	—	—
	380-60	28.9	157	—	—	—	—	—	—	28.9	157	—	—	—	—
	460-60	28.9	142	—	—	—	—	—	—	28.9	142	—	—	—	—
	575-60	23.7	98	—	—	—	—	—	—	23.7	98	—	—	—	—
	346-50	28.2	164	—	—	—	—	—	—	44.9	259	—	—	—	—
	380/415-50	28.9	142	—	—	—	—	—	—	34.6	173	—	—	—	—
040-PW	208/230-60	56.4	170	—	—	—	—	—	—	56.4	170	—	—	—	—
	380-60	26.9	94	—	—	—	—	—	—	26.9	94	—	—	—	—
	460-60	26.9	85	—	—	—	—	—	—	26.9	85	—	—	—	—
	575-60	53.2	59	—	—	—	—	—	—	53.2	59	—	—	—	—
	346-50	28.2	98	—	—	—	—	—	—	44.9	155	—	—	—	—
	380/415-50	26.9	85	—	—	—	—	—	—	33.3	104	—	—	—	—
045-XL	208/230-60	56.4	283	—	—	—	—	—	—	67.9	345	—	—	—	—
	380-60	28.9	157	—	—	—	—	—	—	34.6	191	—	—	—	—
	460-60	28.9	142	—	—	—	—	—	—	34.6	173	—	—	—	—
	575-60	23.7	98	—	—	—	—	—	—	28.8	120	—	—	—	—
	346-50	44.9	259	—	—	—	—	—	—	44.9	259	—	—	—	—
	380/415-50	34.6	173	—	—	—	—	—	—	43.6	223	—	—	—	—
045-PW	208/230-60	56.4	170	—	—	—	—	—	—	67.9	207	—	—	—	—
	380-60	26.9	94	—	—	—	—	—	—	33.3	115	—	—	—	—
	460-60	26.9	85	—	—	—	—	—	—	33.3	104	—	—	—	—
	575-60	53.2	59	—	—	—	—	—	—	28.2	72	—	—	—	—
	346-50	44.9	155	—	—	—	—	—	—	44.9	155	—	—	—	—
	380/415-50	33.3	104	—	—	—	—	—	—	44.9	134	—	—	—	—
050-XL	208/230-60	67.9	345	—	—	—	—	—	—	88.5	446	—	—	—	—
	380-60	34.6	191	—	—	—	—	—	—	45.5	247	—	—	—	—
	460-60	34.6	173	—	—	—	—	—	—	43.6	223	—	—	—	—
	575-60	28.8	120	—	—	—	—	—	—	36.5	164	—	—	—	—
	346-50	44.9	259	—	—	—	—	—	—	79.5	400	—	—	—	—
	380/415-50	43.6	223	—	—	—	—	—	—	60.9	305	—	—	—	—
050-PW	208/230-60	67.9	207	—	—	—	—	—	—	88.5	268	—	—	—	—
	380-60	33.3	115	—	—	—	—	—	—	44.9	148	—	—	—	—
	460-60	33.3	104	—	—	—	—	—	—	44.9	134	—	—	—	—
	575-60	28.2	72	—	—	—	—	—	—	33.3	98	—	—	—	—
	346-50	44.9	155	—	—	—	—	—	—	79.5	240	—	—	—	—
	380/415-50	44.9	134	—	—	—	—	—	—	56.4	183	—	—	—	—
060-XL	208/230-60	88.5	446	—	—	—	—	—	—	115.4	610	—	—	—	—
	380-60	45.5	247	—	—	—	—	—	—	78.8	382	—	—	—	—
	460-60	43.6	223	—	—	—	—	—	—	60.9	305	—	—	—	—
	575-60	36.5	164	—	—	—	—	—	—	46.8	244	—	—	—	—
	346-50	79.5	400	—	—	—	—	—	—	79.5	400	—	—	—	—
	380/415-50	60.9	305	—	—	—	—	—	—	60.9	305	—	—	—	—
060-PW	208/230-60	88.5	268	—	—	—	—	—	—	115.4	366	—	—	—	—
	380-60	44.9	148	—	—	—	—	—	—	79.4	230	—	—	—	—
	460-60	44.9	134	—	—	—	—	—	—	56.4	183	—	—	—	—
	575-60	33.3	98	—	—	—	—	—	—	44.9	146	—	—	—	—
	346-50	79.5	240	—	—	—	—	—	—	79.5	240	—	—	—	—
	380/415-50	56.4	183	—	—	—	—	—	—	56.4	183	—	—	—	—
070-XL	208/230-60	115.4	610	—	—	—	—	—	—	115.4	610	—	—	—	—
	380-60	78.8	382	—	—	—	—	—	—	78.8	382	—	—	—	—
	460-60	60.9	305	—	—	—	—	—	—	60.9	305	—	—	—	—
	575-60	46.8	244	—	—	—	—	—	—	46.8	244	—	—	—	—
	346-50	44.9	259	44.9	259	—	—	—	—	79.5	400	—	—	—	—
	380/415-50	34.6	173	34.6	173	—	—	—	—	60.9	305	—	—	—	—

(See Legend and Notes, page 64.)

COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	COMPRESSOR NUMBERS													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
070-PW	208/230-60	115.4	366	—	—	—	—	—	—	115.4	366	—	—	—	—
	380-60	79.4	230	—	—	—	—	—	—	79.4	230	—	—	—	—
	460-60	56.4	183	—	—	—	—	—	—	56.4	183	—	—	—	—
	575-60	44.9	146	—	—	—	—	—	—	44.9	146	—	—	—	—
	346-50	44.9	155	44.9	155	—	—	—	—	79.5	240	—	—	—	—
	380/415-50	33.3	104	33.3	104	—	—	—	—	56.4	183	—	—	—	—
080-XL	208/230-60	88.5	446	56.4	283	—	—	—	—	115.4	610	—	—	—	—
	380-60	45.5	247	28.9	157	—	—	—	—	78.8	382	—	—	—	—
	460-60	43.6	223	28.9	142	—	—	—	—	60.9	305	—	—	—	—
	575-60	36.5	164	23.7	98	—	—	—	—	46.8	244	—	—	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	79.5	400	—	—	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	60.9	305	—	—	—	—
080-PW	208/230-60	88.5	268	56.4	170	—	—	—	—	115.4	366	—	—	—	—
	380-60	44.9	148	26.9	94	—	—	—	—	79.4	230	—	—	—	—
	460-60	44.9	134	26.9	85	—	—	—	—	56.4	183	—	—	—	—
	575-60	33.3	98	53.2	59	—	—	—	—	44.9	146	—	—	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	79.5	240	—	—	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	56.4	183	—	—	—	—
090-XL	208/230-60	67.9	345	56.4	283	—	—	—	—	67.9	345	67.9	345	—	—
	380-60	34.6	191	28.9	157	—	—	—	—	34.6	191	34.6	191	—	—
	460-60	34.6	173	28.9	142	—	—	—	—	34.6	173	34.6	173	—	—
	575-60	28.8	120	23.7	98	—	—	—	—	28.8	120	28.8	120	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	44.9	259	44.9	259	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	34.6	173	43.6	223	—	—
090-PW	208/230-60	67.9	207	56.4	170	—	—	—	—	67.9	207	67.9	207	—	—
	380-60	33.3	115	26.9	94	—	—	—	—	33.3	115	33.3	115	—	—
	460-60	33.3	104	26.9	85	—	—	—	—	33.3	104	33.3	104	—	—
	575-60	28.2	72	53.2	59	—	—	—	—	28.2	72	28.2	72	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	44.9	155	44.9	155	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	33.3	104	44.9	134	—	—
100-XL	208/230-60	67.9	345	88.5	446	—	—	—	—	67.9	345	88.5	268	—	—
	380-60	34.6	191	45.5	247	—	—	—	—	34.6	191	44.9	148	—	—
	460-60	34.6	173	43.6	223	—	—	—	—	34.6	173	44.9	134	—	—
	575-60	28.8	120	36.5	164	—	—	—	—	28.8	120	33.3	98	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	44.9	259	79.5	240	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	34.6	173	56.4	183	—	—
100-PW	208/230-60	67.9	207	88.5	268	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	44.9	148	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	44.9	134	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	33.3	98	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	44.9	155	79.5	240	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	33.3	104	56.4	183	—	—
110-XL	208/230-60	67.9	345	115.4	610	—	—	—	—	67.9	345	88.5	446	—	—
	380-60	34.6	191	78.8	382	—	—	—	—	34.6	191	45.5	247	—	—
	460-60	34.6	173	60.9	305	—	—	—	—	34.6	173	43.6	223	—	—
	575-60	28.8	120	46.8	244	—	—	—	—	28.8	120	36.5	164	—	—
	346-50	79.5	400	79.5	400	—	—	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	—	—	—	—	60.9	305	60.9	305	—	—
110-PW	208/230-60	67.9	207	115.4	366	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	79.4	230	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	56.4	183	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	44.9	146	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	79.5	240	79.5	240	—	—	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	—	—	—	—	56.4	183	56.4	183	—	—
130-XL	208/230-60	88.5	446	115.4	610	—	—	—	—	88.5	446	115.4	610	—	—
	380-60	45.5	247	78.8	382	—	—	—	—	45.5	247	78.8	382	—	—
	460-60	43.6	223	60.9	305	—	—	—	—	43.6	223	60.9	305	—	—
	575-60	36.5	164	46.8	244	—	—	—	—	36.5	164	46.8	244	—	—
	346-50	44.9	259	44.9	259	44.9	259	—	—	79.5	400	79.5	400	—	—
	380/415-50	34.6	173	43.6	223	43.6	223	—	—	60.9	305	60.9	305	—	—
130-PW	208/230-60	88.5	268	115.4	366	—	—	—	—	88.5	268	115.4	366	—	—
	380-60	44.9	148	79.4	230	—	—	—	—	44.9	148	79.4	230	—	—
	460-60	44.9	134	56.4	183	—	—	—	—	44.9	134	56.4	183	—	—
	575-60	33.3	98	44.9	146	—	—	—	—	33.3	98	44.9	146	—	—
	346-50	44.9	155	44.9	155	44.9	155	—	—	79.5	240	79.5	240	—	—
	380/415-50	33.3	104	44.9	134	44.9	134	—	—	56.4	183	56.4	183	—	—
150-XL	208/230-60	67.9	345	67.9	345	67.9	345	—	—	115.4	610	115.4	610	—	—
	380-60	34.6	191	34.6	191	34.6	191	—	—	78.8	382	78.8	382	—	—
	460-60	34.6	173	34.6	173	34.6	173	—	—	60.9	305	60.9	305	—	—
	575-60	28.8	120	28.8	120	28.8	120	—	—	46.8	244	46.8	244	—	—
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	—	—

(See Legend and Notes, page 64.)

Electrical data (cont)



COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	COMPRESSOR NUMBERS													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
150-PW	208/230-60	67.9	207	67.9	207	67.9	207	—	—	115.4	366	115.4	366	—	—
	380-60	33.3	115	33.3	115	33.3	115	—	—	79.4	230	79.4	230	—	—
	460-60	33.3	104	33.3	104	33.3	104	—	—	56.4	183	56.4	183	—	—
	575-60	28.2	72	28.2	72	28.2	72	—	—	44.9	146	44.9	146	—	—
	346-50	79.5	240	79.5	240	79.5	240	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	56.4	183	—	—	56.4	183	56.4	183	—	—
170-XL	208/230-60	88.5	446	88.5	446	88.5	446	—	—	88.5	446	88.5	446	88.5	446
	380-60	45.5	247	45.5	247	45.5	247	—	—	45.5	247	45.5	247	45.5	247
	460-60	43.6	223	43.6	223	43.6	223	—	—	43.6	223	43.6	223	43.6	223
	575-60	36.5	164	36.5	164	36.5	164	—	—	36.5	164	36.5	164	36.5	164
	346-50	44.9	259	44.9	259	79.5	400	—	—	44.9	259	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	—	—	43.6	223	60.9	305	60.9	305
170-PW	208/230-60	88.5	268	88.5	268	88.5	268	—	—	88.5	268	88.5	268	88.5	268
	380-60	44.9	148	44.9	148	44.9	148	—	—	44.9	148	44.9	148	44.9	148
	460-60	44.9	134	44.9	134	44.9	134	—	—	44.9	134	44.9	134	44.9	134
	575-60	33.3	98	33.3	98	33.3	98	—	—	33.3	98	33.3	98	33.3	98
	346-50	44.9	155	44.9	155	79.5	240	—	—	44.9	155	79.5	240	79.5	240
	380/415-50	44.9	134	44.9	134	56.4	183	—	—	44.9	134	56.4	183	56.4	183
190-XL	208/230-60	67.9	345	88.5	446	115.4	610	—	—	67.9	345	88.5	446	115.4	610
	380-60	34.6	191	45.5	247	78.8	382	—	—	34.6	191	45.5	247	78.8	382
	460-60	34.6	173	43.6	223	60.9	305	—	—	34.6	173	43.6	223	60.9	305
	575-60	28.8	120	36.5	164	46.8	244	—	—	28.8	120	36.5	164	46.8	244
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	79.5	400
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	60.9	305
190-PW	208/230-60	67.9	207	88.5	268	115.4	366	—	—	67.9	207	88.5	268	115.4	366
	380-60	33.3	115	44.9	148	79.4	230	—	—	33.3	115	44.9	148	79.4	230
	460-60	33.3	104	44.9	134	56.4	183	—	—	33.3	104	44.9	134	56.4	183
	575-60	28.2	72	33.3	98	44.9	146	—	—	28.2	72	33.3	98	44.9	146
	346-50	79.5	240	44.9	155	79.5	240	—	—	79.5	240	79.5	240	79.5	240
	380/415-50	56.4	183	44.9	134	56.4	183	—	—	56.4	183	56.4	183	56.4	183
210-XL	208/230-60	67.9	345	67.9	345	67.9	345	67.9	345	88.5	446	115.4	610	115.4	610
	380-60	34.6	191	34.6	191	34.6	191	34.6	191	45.5	247	78.8	382	78.8	382
	460-60	34.6	173	34.6	173	34.6	173	34.6	173	43.6	223	60.9	305	60.9	305
	575-60	28.8	120	28.8	120	28.8	120	28.8	120	36.5	164	46.8	244	46.8	244
	346-50	44.9	259	44.9	259	79.5	400	79.5	400	79.5	400	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	60.9	305	60.9	305	60.9	305	60.9	305
210-PW	208/230-60	67.9	207	67.9	207	67.9	207	88.5	268	88.5	268	115.4	366	115.4	366
	380-60	33.3	115	33.3	115	33.3	115	44.9	148	44.9	148	79.4	230	79.4	230
	460-60	33.3	104	33.3	104	33.3	104	44.9	134	44.9	134	56.4	183	56.4	183
	575-60	28.2	72	28.2	72	28.2	72	33.3	98	33.3	98	44.9	146	44.9	146
	346-50	44.9	155	44.9	155	79.5	240	79.5	240	79.5	240	79.5	240	79.5	240
	380/415-50	33.3	104	33.3	104	56.4	183	56.4	183	56.4	183	56.4	183	56.4	183

(See Legend and Notes, page 64.)

COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	MODULE A													
		Compressor Numbers													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
230A-XL	208/230-60	67.9	345	67.9	345	67.9	345	—	—	115.4	610	115.4	610	—	—
	380-60	34.6	191	34.6	191	34.6	191	—	—	78.8	382	78.8	382	—	—
	460-60	34.6	173	34.6	173	34.6	173	—	—	60.9	305	60.9	305	—	—
	575-60	28.8	120	28.8	120	28.8	120	—	—	46.8	244	46.8	244	—	—
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	—	—
230A-PW	208/230-60	67.9	207	67.9	207	67.9	207	—	—	115.4	366	115.4	366	—	—
	380-60	33.3	115	33.3	115	33.3	115	—	—	79.4	230	79.4	230	—	—
	460-60	33.3	104	33.3	104	33.3	104	—	—	56.4	183	56.4	183	—	—
	575-60	28.2	72	28.2	72	28.2	72	—	—	44.9	146	44.9	146	—	—
	346-50	79.5	240	79.5	240	79.5	240	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	56.4	183	—	—	56.4	183	56.4	183	—	—
245A-XL	208/230-60	67.9	345	67.9	345	67.9	345	—	—	115.4	610	115.4	610	—	—
	380-60	34.6	191	34.6	191	34.6	191	—	—	78.8	382	78.8	382	—	—
	460-60	34.6	173	34.6	173	34.6	173	—	—	60.9	305	60.9	305	—	—
	575-60	28.8	120	28.8	120	28.8	120	—	—	46.8	244	46.8	244	—	—
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	—	—
245A-PW	208/230-60	67.9	207	67.9	207	67.9	207	—	—	115.4	366	115.4	366	—	—
	380-60	33.3	115	33.3	115	33.3	115	—	—	79.4	230	79.4	230	—	—
	460-60	33.3	104	33.3	104	33.3	104	—	—	56.4	183	56.4	183	—	—
	575-60	28.2	72	28.2	72	28.2	72	—	—	44.9	146	44.9	146	—	—
	346-50	79.5	240	79.5	240	79.5	240	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	56.4	183	—	—	56.4	183	56.4	183	—	—
255A-XL	208/230-60	67.9	345	67.9	345	67.9	345	—	—	115.4	610	115.4	610	—	—
	380-60	34.6	191	34.6	191	34.6	191	—	—	78.8	382	78.8	382	—	—
	460-60	34.6	173	34.6	173	34.6	173	—	—	60.9	305	60.9	305	—	—
	575-60	28.8	120	28.8	120	28.8	120	—	—	46.8	244	46.8	244	—	—
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	—	—
255A-PW	208/230-60	67.9	207	67.9	207	67.9	207	—	—	115.4	366	115.4	366	—	—
	380-60	33.3	115	33.3	115	33.3	115	—	—	79.4	230	79.4	230	—	—
	460-60	33.3	104	33.3	104	33.3	104	—	—	56.4	183	56.4	183	—	—
	575-60	28.2	72	28.2	72	28.2	72	—	—	44.9	146	44.9	146	—	—
	346-50	79.5	240	79.5	240	79.5	240	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	56.4	183	—	—	56.4	183	56.4	183	—	—
270A-XL	208/230-60	88.5	446	88.5	446	88.5	446	—	—	88.5	446	88.5	446	88.5	446
	380-60	45.5	247	45.5	247	45.5	247	—	—	45.5	247	45.5	247	45.5	247
	460-60	43.6	223	43.6	223	43.6	223	—	—	43.6	223	43.6	223	43.6	223
	575-60	36.5	164	36.5	164	36.5	164	—	—	36.5	164	36.5	164	36.5	164
	346-50	44.9	259	44.9	259	79.5	400	—	—	44.9	259	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	—	—	43.6	223	60.9	305	60.9	305
270A-PW	208/230-60	88.5	268	88.5	268	88.5	268	—	—	88.5	268	88.5	268	88.5	268
	380-60	44.9	148	44.9	148	44.9	148	—	—	44.9	148	44.9	148	44.9	148
	460-60	44.9	134	44.9	134	44.9	134	—	—	44.9	134	44.9	134	44.9	134
	575-60	33.3	98	33.3	98	33.3	98	—	—	33.3	98	33.3	98	33.3	98
	346-50	44.9	155	44.9	155	79.5	240	—	—	44.9	155	79.5	240	79.5	240
	380/415-50	44.9	134	44.9	134	56.4	183	—	—	44.9	134	56.4	183	56.4	183
290A-XL	208/230-60	67.9	345	88.5	446	115.4	610	—	—	67.9	345	88.5	446	115.4	610
	380-60	34.6	191	45.5	247	78.8	382	—	—	34.6	191	45.5	247	78.8	382
	460-60	34.6	173	43.6	223	60.9	305	—	—	34.6	173	43.6	223	60.9	305
	575-60	28.8	120	36.5	164	46.8	244	—	—	28.8	120	36.5	164	46.8	244
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	79.5	400
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	60.9	305
290A-PW	208/230-60	67.9	207	88.5	268	115.4	366	—	—	67.9	207	88.5	268	115.4	366
	380-60	33.3	115	44.9	148	79.4	230	—	—	33.3	115	44.9	148	79.4	230
	460-60	33.3	104	44.9	134	56.4	183	—	—	33.3	104	44.9	134	56.4	183
	575-60	28.2	72	33.3	98	44.9	146	—	—	28.2	72	33.3	98	44.9	146
	346-50	79.5	240	44.9	155	79.5	240	—	—	79.5	240	79.5	240	79.5	240
	380/415-50	56.4	183	44.9	134	56.4	183	—	—	56.4	183	56.4	183	56.4	183

(See Legend and Notes, page 64.)

Electrical data (cont)



COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	MODULE B													
		Compressor Numbers													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
230B-XL	208/230-60	88.5	446	56.4	283	—	—	—	—	115.4	610	—	—	—	—
	380-60	45.5	247	28.9	157	—	—	—	—	78.8	382	—	—	—	—
	460-60	43.6	223	28.9	142	—	—	—	—	60.9	305	—	—	—	—
	575-60	36.5	164	23.7	98	—	—	—	—	46.8	244	—	—	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	79.5	400	—	—	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	60.9	305	—	—	—	—
230B-PW	208/230-60	88.5	268	56.4	170	—	—	—	—	115.4	366	—	—	—	—
	380-60	44.9	148	26.9	94	—	—	—	—	79.4	230	—	—	—	—
	460-60	44.9	134	26.9	85	—	—	—	—	56.4	183	—	—	—	—
	575-60	33.3	98	53.2	59	—	—	—	—	44.9	146	—	—	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	79.5	240	—	—	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	56.4	183	—	—	—	—
245B-XL	208/230-60	67.9	345	56.4	283	—	—	—	—	67.9	345	67.9	345	—	—
	380-60	34.6	191	28.9	157	—	—	—	—	34.6	191	34.6	191	—	—
	460-60	34.6	173	28.9	142	—	—	—	—	34.6	173	34.6	173	—	—
	575-60	28.8	120	23.7	98	—	—	—	—	28.8	120	28.8	120	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	44.9	259	44.9	259	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	34.6	173	43.6	223	—	—
245B-PW	208/230-60	67.9	207	56.4	170	—	—	—	—	67.9	207	67.9	207	—	—
	380-60	33.3	115	26.9	94	—	—	—	—	33.3	115	33.3	115	—	—
	460-60	33.3	104	26.9	85	—	—	—	—	33.3	104	33.3	104	—	—
	575-60	28.2	72	53.2	59	—	—	—	—	28.2	72	28.2	72	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	44.9	155	44.9	155	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	33.3	104	44.9	134	—	—
255B-XL	208/230-60	67.9	345	88.5	446	—	—	—	—	67.9	345	88.5	268	—	—
	380-60	34.6	191	45.5	247	—	—	—	—	34.6	191	44.9	148	—	—
	460-60	34.6	173	43.6	223	—	—	—	—	34.6	173	44.9	134	—	—
	575-60	28.8	120	36.5	164	—	—	—	—	28.8	120	33.3	98	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	44.9	259	79.5	240	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	34.6	173	56.4	183	—	—
255B-PW	208/230-60	67.9	207	88.5	268	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	44.9	148	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	44.9	134	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	33.3	98	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	44.9	155	79.5	240	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	33.3	104	56.4	183	—	—
270B-XL	208/230-60	67.9	345	88.5	446	—	—	—	—	67.9	345	88.5	268	—	—
	380-60	34.6	191	45.5	247	—	—	—	—	34.6	191	44.9	148	—	—
	460-60	34.6	173	43.6	223	—	—	—	—	34.6	173	44.9	134	—	—
	575-60	28.8	120	36.5	164	—	—	—	—	28.8	120	33.3	98	—	—
	346-50	44.9	259	79.5	400	—	—	—	—	44.9	259	79.5	240	—	—
	380/415-50	34.6	173	60.9	305	—	—	—	—	34.6	173	56.4	183	—	—
270B-PW	208/230-60	67.9	207	88.5	268	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	44.9	148	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	44.9	134	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	33.3	98	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	44.9	155	79.5	240	—	—	—	—	44.9	155	79.5	240	—	—
	380/415-50	33.3	104	56.4	183	—	—	—	—	33.3	104	56.4	183	—	—
290B-XL	208/230-60	67.9	345	115.4	610	—	—	—	—	67.9	345	88.5	446	—	—
	380-60	34.6	191	78.8	382	—	—	—	—	34.6	191	45.5	247	—	—
	460-60	34.6	173	60.9	305	—	—	—	—	34.6	173	43.6	223	—	—
	575-60	28.8	120	46.8	244	—	—	—	—	28.8	120	36.5	164	—	—
	346-50	79.5	400	79.5	400	—	—	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	—	—	—	—	60.9	305	60.9	305	—	—
290B-PW	208/230-60	67.9	207	115.4	366	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	79.4	230	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	56.4	183	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	44.9	146	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	79.5	240	79.5	240	—	—	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	—	—	—	—	56.4	183	56.4	183	—	—

(See Legend and Notes, page 64.)

COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	MODULE A													
		Compressor Numbers													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
315A-XL	208/230-60	67.9	345	67.9	345	67.9	345	67.9	345	88.5	446	115.4	610	115.4	610
	380-60	34.6	191	34.6	191	34.6	191	34.6	191	45.5	247	78.8	382	78.8	382
	460-60	34.6	173	34.6	173	34.6	173	34.6	173	43.6	223	60.9	305	60.9	305
	575-60	28.8	120	28.8	120	28.8	120	28.8	120	36.5	164	46.8	244	46.8	244
	346-50	44.9	259	44.9	259	79.5	400	79.5	400	79.5	400	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	60.9	305	60.9	305	60.9	305	60.9	305
315A-PW	208/230-60	67.9	207	67.9	207	67.9	207	88.5	268	88.5	268	115.4	366	115.4	366
	380-60	33.3	115	33.3	115	33.3	115	44.9	148	44.9	148	79.4	230	79.4	230
	460-60	33.3	104	33.3	104	33.3	104	44.9	134	44.9	134	56.4	183	56.4	183
	575-60	28.2	72	28.2	72	28.2	72	33.3	98	33.3	98	44.9	146	44.9	146
	346-50	44.9	155	44.9	155	79.5	240	79.5	240	79.5	240	79.5	240	79.5	240
	380/415-50	33.3	104	33.3	104	56.4	183	56.4	183	56.4	183	56.4	183	56.4	183
330A-XL	208/230-60	88.5	446	88.5	446	88.5	446	—	—	88.5	446	88.5	446	88.5	446
	380-60	45.5	247	45.5	247	45.5	247	—	—	45.5	247	45.5	247	45.5	247
	460-60	43.6	223	43.6	223	43.6	223	—	—	43.6	223	43.6	223	43.6	223
	575-60	36.5	164	36.5	164	36.5	164	—	—	36.5	164	36.5	164	36.5	164
	346-50	44.9	259	44.9	259	79.5	400	—	—	44.9	259	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	—	—	43.6	223	60.9	305	60.9	305
330A-PW	208/230-60	88.5	268	88.5	268	88.5	268	—	—	88.5	268	88.5	268	88.5	268
	380-60	44.9	148	44.9	148	44.9	148	—	—	44.9	148	44.9	148	44.9	148
	460-60	44.9	134	44.9	134	44.9	134	—	—	44.9	134	44.9	134	44.9	134
	575-60	33.3	98	33.3	98	33.3	98	—	—	33.3	98	33.3	98	33.3	98
	346-50	44.9	155	44.9	155	79.5	240	—	—	44.9	155	79.5	240	79.5	240
	380/415-50	44.9	134	44.9	134	56.4	183	—	—	44.9	134	56.4	183	56.4	183
360A-XL	208/230-60	67.9	345	88.5	446	115.4	610	—	—	67.9	345	88.5	446	115.4	610
	380-60	34.6	191	45.5	247	78.8	382	—	—	34.6	191	45.5	247	78.8	382
	460-60	34.6	173	43.6	223	60.9	305	—	—	34.6	173	43.6	223	60.9	305
	575-60	28.8	120	36.5	164	46.8	244	—	—	28.8	120	36.5	164	46.8	244
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	79.5	400
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	60.9	305
360A-PW	208/230-60	67.9	207	88.5	268	115.4	366	—	—	67.9	207	88.5	268	115.4	366
	380-60	33.3	115	44.9	148	79.4	230	—	—	33.3	115	44.9	148	79.4	230
	460-60	33.3	104	44.9	134	56.4	183	—	—	33.3	104	44.9	134	56.4	183
	575-60	28.2	72	33.3	98	44.9	146	—	—	28.2	72	33.3	98	44.9	146
	346-50	79.5	240	44.9	155	79.5	240	—	—	79.5	240	79.5	240	79.5	240
	380/415-50	56.4	183	44.9	134	56.4	183	—	—	56.4	183	56.4	183	56.4	183
390A-XL	208/230-60	67.9	345	67.9	345	67.9	345	67.9	345	88.5	446	115.4	610	115.4	610
	380-60	34.6	191	34.6	191	34.6	191	34.6	191	45.5	247	78.8	382	78.8	382
	460-60	34.6	173	34.6	173	34.6	173	34.6	173	43.6	223	60.9	305	60.9	305
	575-60	28.8	120	28.8	120	28.8	120	28.8	120	36.5	164	46.8	244	46.8	244
	346-50	44.9	259	44.9	259	79.5	400	79.5	400	79.5	400	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	60.9	305	60.9	305	60.9	305	60.9	305
390A-PW	208/230-60	67.9	207	67.9	207	67.9	207	88.5	268	88.5	268	115.4	366	115.4	366
	380-60	33.3	115	33.3	115	33.3	115	44.9	148	44.9	148	79.4	230	79.4	230
	460-60	33.3	104	33.3	104	33.3	104	44.9	134	44.9	134	56.4	183	56.4	183
	575-60	28.2	72	28.2	72	28.2	72	33.3	98	33.3	98	44.9	146	44.9	146
	346-50	44.9	155	44.9	155	79.5	240	79.5	240	79.5	240	79.5	240	79.5	240
	380/415-50	33.3	104	33.3	104	56.4	183	56.4	183	56.4	183	56.4	183	56.4	183
420A-XL	208/230-60	67.9	345	67.9	345	67.9	345	67.9	345	88.5	446	115.4	610	115.4	610
	380-60	34.6	191	34.6	191	34.6	191	34.6	191	45.5	247	78.8	382	78.8	382
	460-60	34.6	173	34.6	173	34.6	173	34.6	173	43.6	223	60.9	305	60.9	305
	575-60	28.8	120	28.8	120	28.8	120	28.8	120	36.5	164	46.8	244	46.8	244
	346-50	44.9	259	44.9	259	79.5	400	79.5	400	79.5	400	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	60.9	305	60.9	305	60.9	305	60.9	305
420A-PW	208/230-60	67.9	207	67.9	207	67.9	207	88.5	268	88.5	268	115.4	366	115.4	366
	380-60	33.3	115	33.3	115	33.3	115	44.9	148	44.9	148	79.4	230	79.4	230
	460-60	33.3	104	33.3	104	33.3	104	44.9	134	44.9	134	56.4	183	56.4	183
	575-60	28.2	72	28.2	72	28.2	72	33.3	98	33.3	98	44.9	146	44.9	146
	346-50	44.9	155	44.9	155	79.5	240	79.5	240	79.5	240	79.5	240	79.5	240
	380/415-50	33.3	104	33.3	104	56.4	183	56.4	183	56.4	183	56.4	183	56.4	183

(See Legend and Notes, page 64.)

Electrical data (cont)



COMPRESSOR (cont)

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (3 Phase)	MODULE B													
		Compressor Numbers													
		A1		A2		A3		A4		B1		B2		B3	
		RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA	RLA	LRA
315B-XL	208/230-60	67.9	345	115.4	610	—	—	—	—	67.9	345	88.5	446	—	—
	380-60	34.6	191	78.8	382	—	—	—	—	34.6	191	45.5	247	—	—
	460-60	34.6	173	60.9	305	—	—	—	—	34.6	173	43.6	223	—	—
	575-60	28.8	120	46.8	244	—	—	—	—	28.8	120	36.5	164	—	—
	346-50	79.5	400	79.5	400	—	—	—	—	79.5	400	79.5	400	—	—
	380/415-50	60.9	305	60.9	305	—	—	—	—	60.9	305	60.9	305	—	—
315B-PW	208/230-60	67.9	207	115.4	366	—	—	—	—	67.9	207	88.5	268	—	—
	380-60	33.3	115	79.4	230	—	—	—	—	33.3	115	44.9	148	—	—
	460-60	33.3	104	56.4	183	—	—	—	—	33.3	104	44.9	134	—	—
	575-60	28.2	72	44.9	146	—	—	—	—	28.2	72	33.3	98	—	—
	346-50	79.5	240	79.5	240	—	—	—	—	79.5	240	79.5	240	—	—
	380/415-50	56.4	183	56.4	183	—	—	—	—	56.4	183	56.4	183	—	—
330B-XL	208/230-60	88.5	446	88.5	446	88.5	446	—	—	88.5	446	88.5	446	88.5	446
	380-60	45.5	247	45.5	247	45.5	247	—	—	45.5	247	45.5	247	45.5	247
	460-60	43.6	223	43.6	223	43.6	223	—	—	43.6	223	43.6	223	43.6	223
	575-60	36.5	164	36.5	164	36.5	164	—	—	36.5	164	36.5	164	36.5	164
	346-50	44.9	259	44.9	259	79.5	400	—	—	44.9	259	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	—	—	43.6	223	60.9	305	60.9	305
330B-PW	208/230-60	88.5	268	88.5	268	88.5	268	—	—	88.5	268	88.5	268	88.5	268
	380-60	44.9	148	44.9	148	44.9	148	—	—	44.9	148	44.9	148	44.9	148
	460-60	44.9	134	44.9	134	44.9	134	—	—	44.9	134	44.9	134	44.9	134
	575-60	33.3	98	33.3	98	33.3	98	—	—	33.3	98	33.3	98	33.3	98
	346-50	44.9	155	44.9	155	79.5	240	—	—	44.9	155	79.5	240	79.5	240
	380/415-50	44.9	134	44.9	134	56.4	183	—	—	44.9	134	56.4	183	56.4	183
360B-XL	208/230-60	67.9	345	88.5	446	115.4	610	—	—	67.9	345	88.5	446	115.4	610
	380-60	34.6	191	45.5	247	78.8	382	—	—	34.6	191	45.5	247	78.8	382
	460-60	34.6	173	43.6	223	60.9	305	—	—	34.6	173	43.6	223	60.9	305
	575-60	28.8	120	36.5	164	46.8	244	—	—	28.8	120	36.5	164	46.8	244
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	79.5	400
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	60.9	305
360B-PW	208/230-60	67.9	207	88.5	268	115.4	366	—	—	67.9	207	88.5	268	115.4	366
	380-60	33.3	115	44.9	148	79.4	230	—	—	33.3	115	44.9	148	79.4	230
	460-60	33.3	104	44.9	134	56.4	183	—	—	33.3	104	44.9	134	56.4	183
	575-60	28.2	72	33.3	98	44.9	146	—	—	28.2	72	33.3	98	44.9	146
	346-50	79.5	240	44.9	155	79.5	240	—	—	79.5	240	79.5	240	79.5	240
	380/415-50	56.4	183	44.9	134	56.4	183	—	—	56.4	183	56.4	183	56.4	183
390B-XL	208/230-60	67.9	345	88.5	446	115.4	610	—	—	67.9	345	88.5	446	115.4	610
	380-60	34.6	191	45.5	247	78.8	382	—	—	34.6	191	45.5	247	78.8	382
	460-60	34.6	173	43.6	223	60.9	305	—	—	34.6	173	43.6	223	60.9	305
	575-60	28.8	120	36.5	164	46.8	244	—	—	28.8	120	36.5	164	46.8	244
	346-50	79.5	400	79.5	400	79.5	400	—	—	79.5	400	79.5	400	79.5	400
	380/415-50	60.9	305	60.9	305	60.9	305	—	—	60.9	305	60.9	305	60.9	305
390B-PW	208/230-60	67.9	207	88.5	268	115.4	366	—	—	67.9	207	88.5	268	115.4	366
	380-60	33.3	115	44.9	148	79.4	230	—	—	33.3	115	44.9	148	79.4	230
	460-60	33.3	104	44.9	134	56.4	183	—	—	33.3	104	44.9	134	56.4	183
	575-60	28.2	72	33.3	98	44.9	146	—	—	28.2	72	33.3	98	44.9	146
	346-50	79.5	240	44.9	155	79.5	240	—	—	79.5	240	79.5	240	79.5	240
	380/415-50	56.4	183	44.9	134	56.4	183	—	—	56.4	183	56.4	183	56.4	183
420B-XL	208/230-60	67.9	345	67.9	345	67.9	345	67.9	345	88.5	446	115.4	610	115.4	610
	380-60	34.6	191	34.6	191	34.6	191	34.6	191	45.5	247	78.8	382	78.8	382
	460-60	34.6	173	34.6	173	34.6	173	34.6	173	43.6	223	60.9	305	60.9	305
	575-60	28.8	120	28.8	120	28.8	120	28.8	120	36.5	164	46.8	244	46.8	244
	346-50	44.9	259	44.9	259	79.5	400	79.5	400	79.5	400	79.5	400	79.5	400
	380/415-50	34.6	173	34.6	173	60.9	305	60.9	305	60.9	305	60.9	305	60.9	305
420B-PW	208/230-60	67.9	207	67.9	207	67.9	207	88.5	268	88.5	268	115.4	366	115.4	366
	380-60	33.3	115	33.3	115	33.3	115	44.9	148	44.9	148	79.4	230	79.4	230
	460-60	33.3	104	33.3	104	33.3	104	44.9	134	44.9	134	56.4	183	56.4	183
	575-60	28.2	72	28.2	72	28.2	72	33.3	98	33.3	98	44.9	146	44.9	146
	346-50	44.9	155	44.9	155	79.5	240	79.5	240	79.5	240	79.5	240	79.5	240
	380/415-50	33.3	104	33.3	104	56.4	183	56.4	183	56.4	183	56.4	183	56.4	183

(See Legend and Notes, page 64.)

CONDENSER FAN

UNIT SIZE 30GU	NAMEPLATE VOLTAGE (V-Ph-Hz)	STANDARD/LOW NOISE CONDENSER FANS					HIGH STATIC CONDENSER FANS				
		Total Quantity	Hp	kW	(Quantity) FLA (ea)	(Quantity) LRA (ea)	Total Quantity	Hp	kW	(Quantity) FLA (ea)	(Quantity) LRA (ea)
040	208/230-60	4	1	0.746	(2) 6.6, (2) 5.5	(2) 31.6, (2) 30.0	4	5	3.73	(4) 14.6	(4) 41.6
	460-60				(2) 3.3, (2) 2.8	(2) 31.6, (2) 30.0				(4) 6.3	(4) 41.6
	575-60				(4) 3.4	(4) 30.0				(4) 5.2	(4) 42.0
	380-60				(4) 3.9	(4) 20.9				(4) 7.4	(4) 54.0
	346-50				(4) 4.4	(4) 20.9				(4) 8.7	(4) 53.0
	380/415-50				(4) 3.4	(4) 30.0				(4) 7.3	(4) 41.0
045	208/230-60	4	1	0.746	(2) 6.6, (2) 5.5	(2) 31.6, (2) 30.0	4	5	3.73	(4) 14.6	(4) 41.6
	460-60				(2) 3.3, (2) 2.8	(2) 31.6, (2) 30.0				(4) 6.3	(4) 41.6
	575-60				(4) 3.4	(4) 30.0				(4) 5.2	(4) 42.0
	380-60				(4) 3.9	(4) 20.9				(4) 7.4	(4) 54.0
	346-50				(4) 4.4	(4) 20.9				(4) 8.7	(4) 53.0
	380/415-50				(4) 3.4	(4) 30.0				(4) 7.3	(4) 41.0
050	208/230-60	4	1	0.746	(2) 6.6, (2) 5.5	(2) 31.6, (2) 30.0	4	5	3.73	(4) 14.6	(4) 41.6
	460-60				(2) 3.3, (2) 2.8	(2) 31.6, (2) 30.0				(4) 6.3	(4) 41.6
	575-60				(4) 3.4	(4) 30.0				(4) 5.2	(4) 42.0
	380-60				(4) 3.9	(4) 20.9				(4) 7.4	(4) 54.0
	346-50				(4) 4.4	(4) 20.9				(4) 8.7	(4) 53.0
	380/415-50				(4) 3.4	(4) 30.0				(4) 7.3	(4) 41.0
060	208/230-60	6	1	0.746	(4) 6.6, (2) 5.5	(4) 31.6, (2) 30.0	6	5	3.73	(6) 14.6	(6) 41.6
	460-60				(4) 3.3, (2) 2.8	(4) 31.6, (2) 30.0				(6) 6.3	(6) 41.6
	575-60				(6) 3.4	(6) 30.0				(6) 5.2	(6) 42.0
	380-60				(6) 3.9	(6) 20.9				(6) 7.4	(6) 54.0
	346-50				(6) 4.4	(6) 20.9				(6) 8.7	(6) 53.0
	380/415-50				(6) 3.4	(6) 30.0				(6) 7.3	(6) 41.0
070	208/230-60	6	1	0.746	(4) 6.6, (2) 5.5	(4) 31.6, (2) 30.0	6	5	3.73	(6) 14.6	(6) 41.6
	460-60				(4) 3.3, (2) 2.8	(4) 31.6, (2) 30.0				(6) 6.3	(6) 41.6
	575-60				(6) 3.4	(6) 30.0				(6) 5.2	(6) 42.0
	380-60				(6) 3.9	(6) 20.9				(6) 7.4	(6) 54.0
	346-50				(6) 4.4	(6) 20.9				(6) 8.7	(6) 53.0
	380/415-50				(6) 3.4	(6) 30.0				(6) 7.3	(6) 41.0
080,090, 230B,245B	208/230-3-60	6	1	0.746	(4) 6.6, (2) 5.5	(4) 31.6, (2) 30.0	6	5	3.73	(6) 14.6	(6) 41.6
	460-3-60				(4) 3.3, (2) 2.8	(4) 31.6, (2) 30.0				(6) 6.3	(6) 41.6
	575-3-60				(6) 3.4	(6) 30.0				(6) 5.2	(6) 42.0
	380-3-60				(6) 3.9	(6) 20.9				(6) 7.4	(6) 54.0
	346-3-50				(6) 4.4	(6) 20.9				(6) 8.7	(6) 53.0
	380/415-3-50				(6) 3.4	(6) 30.0				(6) 7.3	(6) 41.0
100,110, 255B,270B, 290B,315B	208/230-3-60	8	1	0.746	(6) 6.6, (2) 5.5	(6) 31.6, (2) 30.0	8	5	3.73	(8) 14.6	(8) 41.6
	460-3-60				(6) 3.3, (2) 2.8	(6) 31.6, (2) 30.0				(8) 6.3	(8) 41.6
	575-3-60				(8) 3.4	(8) 30.0				(8) 5.2	(8) 42.0
	380-3-60				(8) 3.9	(8) 20.9				(8) 7.4	(8) 54.0
	346-3-50				(8) 4.4	(8) 20.9				(8) 8.7	(8) 53.0
	380/415-3-50				(8) 3.4	(8) 30.0				(8) 7.3	(8) 41.0
130-170 230A-270A, 330A/B,360B (50 Hz)	208/230-3-60	10	1	0.746	(6) 6.6, (4) 5.5	(6) 31.6, (4) 30.0	10	5	3.73	(10) 14.6	(10) 41.6
	460-3-60				(6) 3.3, (4) 2.8	(6) 31.6, (4) 30.0				(10) 6.3	(10) 41.6
	575-3-60				(10) 3.4	(10) 30.0				(10) 5.2	(10) 42.0
	380-3-60				(10) 3.9	(10) 20.9				(10) 7.4	(10) 54.0
	346-3-50				(10) 4.4	(10) 20.9				(10) 8.7	(10) 53.0
	380/415-3-50				(10) 3.4	(10) 30.0				(10) 7.3	(10) 41.0
190,210, 290A,315A, 360A, 360B (60 Hz), 390A/B,420A/B	208/230-3-60	12	1	0.746	(8) 6.6, (4) 5.5	(8) 31.6, (4) 30.0	12	5	3.73	(12) 14.6	(12) 41.6
	460-3-60				(8) 3.3, (4) 2.8	(8) 31.6, (4) 30.0				(12) 6.3	(12) 41.6
	575-3-60				(12) 3.4	(12) 30.0				(12) 5.2	(12) 42.0
	380-3-60				(12) 3.9	(12) 20.9				(12) 7.4	(12) 54.0
	346-3-50				(12) 4.4	(12) 20.9				(12) 8.7	(12) 53.0
	380/415-3-50				(12) 3.4	(12) 30.0				(12) 7.3	(12) 41.0

(See Legend and Notes, page 64.)

Microprocessor

A microprocessor controls overall unit operation. Its central executive routine controls a number of processes simultaneously. These include internal timers, reading inputs, analog to digital conversions, fan control, display control, diagnostic control, output relay control, demand limit, capacity control, head pressure control, and temperature reset. Some processes are updated almost continuously, others every 2 to 3 seconds, and some every 30 seconds.

The microprocessor routine is started by switching control circuit ON-OFF circuit breaker switch to ON position. (This switch is also used to reset microprocessor should any safety trip, and also functions as circuit breaker for electronic processor and relay boards.)

When the ON-OFF switch is closed, a 2-minute initialization routine is begun. During this time, inputs are checked, EXV and internal constants are initialized, and **20** appears on display. If display button is pushed during this period, control goes into a 42-step quick test routine normally used for either a readiness check during start-up or for service.

The microprocessor controls the capacity of the chiller by cycling compressors on and off at a rate to satisfy actual dynamic load conditions. The control maintains leaving fluid temperature set with dial on display board through intelligent cycling of compressors. Accuracy depends on loop volume, loop flow rate, load, outdoor-air temperature, number of stages, and particular stage being cycled off. No adjustment for cooling range or cooler flow rate is required, because the control automatically compensates for cooling range by measuring both return fluid temperature and leaving fluid temperature. This is referred to as *leaving-fluid temperature control with return-fluid temperature compensation*.

The basic logic for determining when to add or remove a stage is a time band integration of deviation from set point plus rate of change of leaving fluid temperature. When leaving fluid temperature is close to set point and slowly moving closer, logic prevents addition of another stage. If leaving fluid temperature is less than 35 F (1.7 C) for water, or 6° F (3.3° C) below the set point for brine units, the unit is shut off until the fluid temperature goes to 35 F (1.7 C) or to 6° F (3.3° C) above the set point to protect against freezing.

If 1° F/minute (0.6° C/minute) pulldown control has been selected (factory setting), no additional steps of capacity are added as long as difference between leaving fluid temperature and set point is greater than 4° F (2.2° C) and rate of change in leaving fluid temperature is less than 1° F/minute (0.6° C/minute).

If it has been less than 90 seconds since the last capacity change, compressors will continue to run unless a safety trips. This prevents rapid cycling and also helps return oil during short *on* periods.

Where available, 2 sequences are used to obtain circuit lead/lag operation and balance compressor operating hours. As unit starts, microprocessor functions as a random number generator and determines which circuit starts first. Later, when decreasing from maximum stage, control again randomly selects which circuit is to run the longest.

The control also performs other special functions when turning on or off. When a circuit is to be turned off, the EXV is closed first, and compressor is run until conditions are met to terminate pumpout to remove refrigerant that was in the cooler. At start-up, if a circuit has not run in the last 15 minutes, circuit is run to remove any refrigerant that has migrated to the cooler. The oil pressure safety is bypassed for 2 minutes during start-up and for 45 seconds during normal operation.

Thermistors

Eight thermistors are used for temperature-sensing inputs to the microprocessor. (An additional thermistor [T10] may be used as a remote temperature sensor for optional LCWT reset.)

- T1 Cooler leaving chilled fluid temperature
- T2 Cooler entering fluid (return temperature)
- T3 Saturated condensing temperature — Circuit A
- T4 Saturated condensing temperature — Circuit B
- T5 Cooler saturation temperature — Circuit A
- T6 Cooler saturation temperature — Circuit B
- T7 Return gas temperature entering compressor cylinder — Circuit A
- T8 Return gas temperature entering compressor cylinder — Circuit B
- T10 Remote temperature sensor (accessory used only when reset is determined based on space or outdoor-air temperature)

The microprocessor uses these temperatures to control capacity, fan cycling, and EXV operation.

Electronic expansion valve (EXV)

To control flow of refrigerant for different operating conditions, EXV piston moves up and down over slot orifices through which refrigerant flows to modulate size of opening. Piston is moved by a stepper motor through 1500 discrete steps. The piston is repositioned by microprocessor every 3 seconds as required.

The EXV is used to control superheat in compressor. Two thermistors in each circuit are used to determine superheat. All units have a thermistor (T7/T8) in compressor after motor in the gas passage entering the cylinders. In addition, the 30GU units have a thermistor (T5/T6) located in the cooler. The EXV is controlled to maintain superheat entering pistons at approximately 23° F (12.8° C), which results in slightly superheated refrigerant leaving cooler.

The electronic control provides for a prepurge and pumpout cycle each time the lead compressor in a circuit is started or stopped. These pumpout cycles minimize amount of excess refrigerant that can go to compressor on start-up and cause oil dilution (which would result in eventual bearing wear).

The microprocessor software is programmed so that EXV functions as an MOP (maximum operating pressure) valve, limiting the suction temperatures to 55 F (12.8 C). This makes it possible to start unit at high fluid temperatures, up to 95 F (35 C), without overloading compressor. Another feature that is factory set limits rate of pulldown to 1° F (0.6° C) per minute, thereby reducing the kW demand on start-up. This feature can be reconfigured in the field.

Accessory controls

Demand can be further limited by keeping a selected number of compressors from turning on through utilization of the demand limit control accessory. This accessory interfaces with microprocessor to control unit so that chiller's kW demand does not exceed its setting. It is activated from an external switch.

Microprocessor is programmed to accept various accessory temperature-reset (LCW reset) options, based on return fluid temperature, outdoor-air temperature, or space temperature. An accessory thermistor (T10) is required if outdoor temperature or space temperature reset is elected.

Ground current protection

The 30GU units have ground current protection that shuts off compressor(s) if a 2 to 3 amp ground current is sensed by a toroid around the compressor power leads.

Flotronic™ controls with 2-digit display/set point board

Display board, also connected to microprocessor by a ribbon cable, is used to communicate with operator. In addition to leaving-fluid set point potentiometer, board contains

a 2-digit LED (light-emitting diode) display. The LED display is normally off after initialization period. Pressing display button results in LED displaying the appropriate overload or status code.

If display button is pressed, display shows from one to 3 codes alternating every 2 seconds, as follows:

CODE	STATUS
0-12	Capacity Stage Number of Stages in Operation
20-26	Operating Mode
20	Initialization
21	Temperature Reset
22	Demand Limit
24	Pulldown Control
26	Remote ON-OFF
51-87	Overload Codes Alarm Light/Circuit Energized NOTE: These codes take priority.
51-58	Compressor Fault
59,60	Loss of Charge (Circuit A, Circuit B)
61	Low Fluid Flow
63,64	Low Oil Pressure (Circuit A, Circuit B)
65	Low Fluid Temperature
70	Illegal Configuration
71-80	Thermistor Failure
81-87	Reset/Set Point Limit Failure

These codes are summarized on a chart in each unit's control box, and are described in detail in the Controls and Troubleshooting literature.

Control Sequence

Off cycle — During unit off cycle, crankcase heater is energized. If ambient temperature is below 36 F (2 C), cooler and control box heaters are also energized (if so equipped). Electronic expansion valves are closed.

Start-up — After control circuit switches on, the microprocessor checks itself and waits for temperature to stabilize. First circuit to start may be A or B (automatic lead/lag feature). The controlled pulldown feature limits compressor loading on start-up to reduce demand on start-up and unnecessary compressor usage. The microprocessor limits supply fluid temperature decrease (start-up only) to 1° F (0.6° C) per minute.

Capacity control — On first call for cooling, microprocessor starts initial compressor and fan stage on lead circuit. The EXV remains closed, permitting a pumpout on start-up. After pumpout, the valves open and, if necessary, additional condenser fans are energized. Crankcase heaters are deenergized when a compressor is started. As additional cooling is required, lag circuit starts. If further cooling is needed, compressors are added, alternating between lead and lag circuits. Speed at which capacity is added or decreased is controlled by temperature deviation from set point and rate of temperature change of chilled water.

As less cooling is required, circuits shut down (or unload) in an order that evens out each circuit's compressor run time. When no further cooling is called for (in each compressor circuit), EXV closes, and compressor and fans continue to run while pumping out cooler.

Control features

Low-temperature override — This feature prevents LCWT from overshooting the set point and possibly causing a nuisance trip-out by the freeze protection.

High-temperature override — This feature allows chiller to add capacity quickly during rapid load variations.

Demand limit — If applied, unit step controls limit total power draw of unit to selected point by controlling number of operational compressors during periods of peak electrical demand. Consult Accessory Demand Limit Control Module Installation Instructions for further details.

Temperature reset accessory — If applied, microprocessor compares either return fluid, space, or outdoor temperature with the board settings, and adjusts LCWT appropriately.

Electronic expansion valve and condenser-fan control — The EXV opens and closes on signal from microprocessor to maintain an approximate 23° F (12.8° C) refrigerant superheat entering the compressor cylinders. (The compressor motor increases the refrigerant superheat from the approximate 5° F [3° C] leaving the cooler to that entering the cylinders.) Condenser fans (operated by microprocessor) run to as low an ambient as possible to maintain a minimum EXV pressure differential.

Abnormal conditions (alarm light)

All control safeties in chiller operate through compressor protection board or control relay and microprocessor. High-pressure switch directly shuts down compressor(s) through compressor protection board or control relay. For other safeties, microprocessor makes appropriate decision to shut down a compressor due to a safety trip or bad sensor reading and displays appropriate failure code on the display. Chiller holds in safety mode until reset. It then reverts to normal control when unit is reset.

Safeties

Oil pressure safety — Safety cuts out if pressure differential is below minimum. Safety is bypassed on start-up for 2 minutes. (This feature is an accessory on size 040-060 and 70 [60 Hz] units.)

Loss-of-charge safety — Safety cuts out if system pressure drops below minimum.

High-pressure cutout — Switch shuts down compressors if compressor discharge pressure increases to 280 psig (1930 kPa).

Ground current safety — Safety opens on sensing a current-to-ground in compressor windings in excess of 2.5 amps. (This feature is an accessory on size 040-070 [60 Hz] units.)

Compressor anti-cycling — This feature limits compressor cycling.

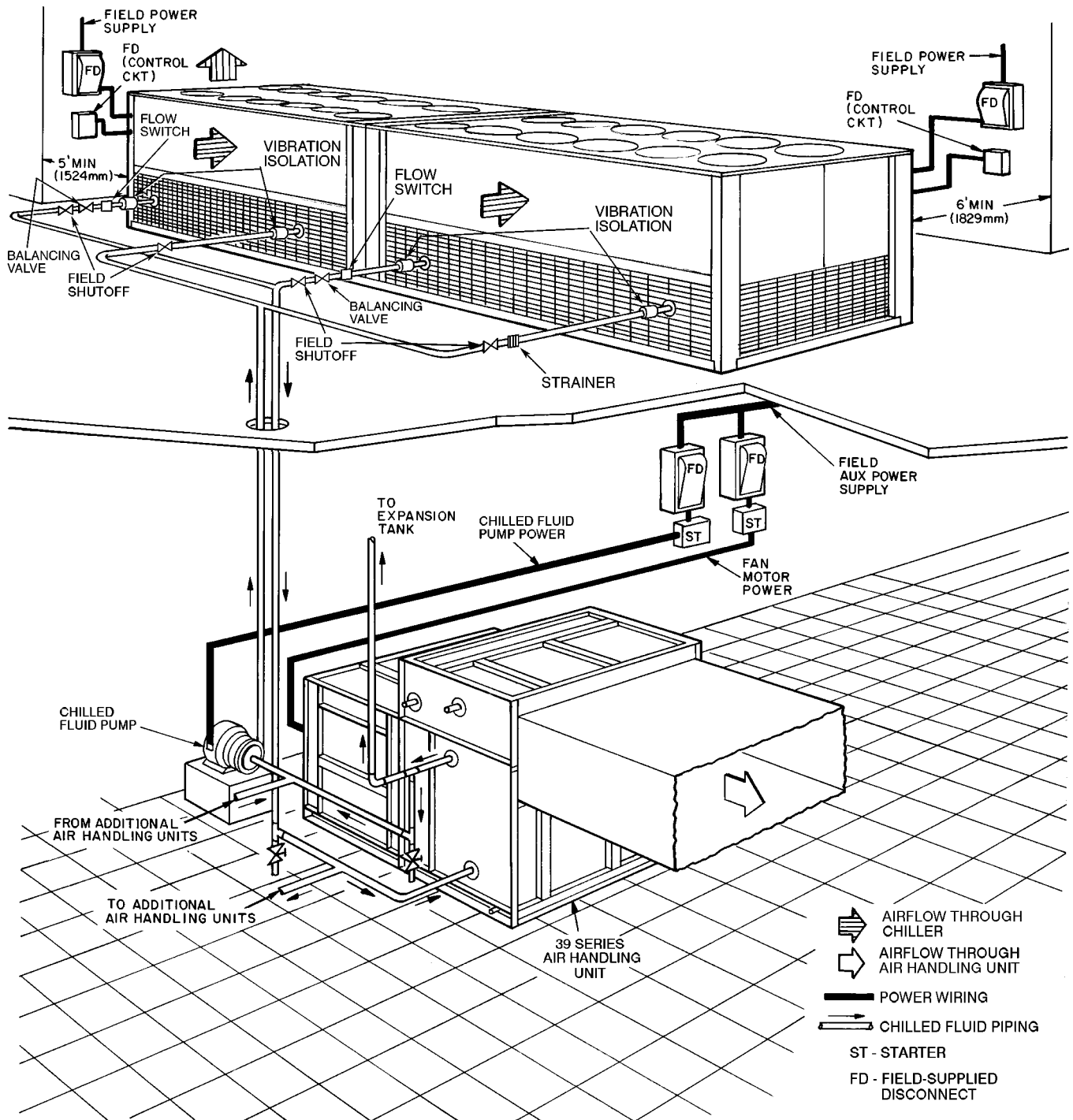
Loss of flow protection — Protection is provided by temperature differences between entering and leaving fluid temperature sensors if cooler temperature drops to 35 F (1.8 C).

Sensor failures — Failures are detected by the microprocessor.

Diagnostics

Microprocessor may be put through quick test (see Controls and Troubleshooting literature) without additional equipment or tools. Quick test confirms microprocessor is functional, informs observer through LED display the condition of each sensor and switch in chiller, and allows observer to check for proper operation of fans and compressor(s).

Typical piping and wiring



NOTES:

1. Chiller must be installed *levelly* to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) handbook for details.
5. See Application Data section on page 33 for minimum system fluid volume. This may require the addition of a holding tank to ensure adequate volume.

Air-Cooled Liquid Chiller with HFC-134a

HVAC Guide Specifications —

Size Range: **25 to 280 Tons; 88 to 985 kW**

Nominal

Carrier Model Number: **30GU**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Microprocessor controlled air-cooled liquid chiller utilizing reciprocating compressors and long-stroke electronic expansion valves.

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standard 590, latest edition (U.S.A.).
- B. Unit construction shall be designed to conform to ASHRAE 15 latest revision safety standard, NEC (U.S.A.) and ASME (U.S.A.) applicable codes.
- C. Unit shall have UL (U.S.A.) or CSA (Canada) approval (60 Hz).
- D. Unit shall be manufactured in a facility registered to ISO-9002/BS5750, Part 2, manufacturing quality schedule.
- E. Unit operation shall be fully tested at the factory.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit shall be stored and handled according to unit manufacturer's recommendations.
- B. Unit controls shall be capable of withstanding 150 F (66 C) storage temperature in the control compartment for an indefinite period of time.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, single-piece 2-module, air-cooled liquid chiller. Contained within the unit cabinets shall be all factory wiring, piping, controls, refrigerant charge (R-134a), and special features required prior to field start-up.

B. Unit Cabinets:

1. Frames shall be of heavy-gage galvanized steel members.
2. Galvanized steel casings, with a prepainted finish and hinged access panels for controls section.
3. Cabinets shall be capable of withstanding 500-hour salt spray test in accordance with the ASTM (U.S.A.) B-117 standard.

C. Fans:

Condenser fans shall be direct-driven propeller type discharging air vertically upward and shall be equipped with the following features:

1. Permanently lubricated bearings.
2. Steel wire safety guards coated with PVC.
3. Statically and dynamically balanced fan blades.

D. Compressors:

1. Reciprocating semi-hermetic type only.
2. Each equipped with an automatically-reversible oil pump, operating oil charge, suction and discharge shutoff valves, and an insert-type factory-sized crankcase heater to control oil dilution.
3. Each mounted on spring vibration isolators with an isolation efficiency of no less than 95%.
4. Speed shall not exceed 1750 rpm (29.2 r/s) for 60 Hz units or 1450 rpm (24.2 r/s) for 50 Hz units.
5. Cycles per hour per compressor shall not exceed 6.

E. Coolers:

1. Shell-and-tube type with removable heads.
2. Tubes shall be internally enhanced seamless-copper type rolled into tube sheets.
3. Shall be equipped with victaulic-type fluid connections.
4. Shell shall be insulated with 3/4-in. (19-mm) PVC foam (closed-cell) with a maximum K factor of 0.28.
5. Design shall incorporate 2 or 4 independent direct expansion refrigerant circuits.
6. Coolers shall be tested and stamped in accordance with ASME Code for a refrigerant working side pressure of 278 psig (1916 kPa). Cooler shall have a maximum fluid-side pressure of 300 psig (2068 kPa).

F. Condensers:

1. Coils shall be air-cooled with integral subcoolers, constructed of aluminum fins mechanically bonded to seamless copper tubes which are then cleaned, dehydrated, and sealed.
2. Air-cooled condenser coils shall be leak tested at 150 psig (1034 kPa) and pressure tested at 450 psig (3103 kPa).

G. Refrigeration Components:

Refrigerant circuit components shall include hot gas muffler, high side pressure switch, liquid line shutoff valves, suction and discharge shutoff valves, filter drier, moisture-indicating sight glass, stepper motor actuated EXV and complete operating charge of refrigerant R-134a and compressor oil.

H. Controls, Safeties, and Diagnostics:

1. Controls:

- a. Unit controls shall include the following minimum components:
 - 1) Microprocessor.
 - 2) Power and control circuit terminal blocks.
 - 3) ON/OFF control switch.
 - 4) Replaceable solid-state relay panel.
 - 5) Two-digit diagnostic display/set point panel.
 - 6) Thermistors and potentiometers.

- b. Unit controls shall be capable of performing the following functions:
 - 1) Automatic circuit lead/lag. Accessory unloader required on 30GU040-070 and standard for all other units.
 - 2) Pumpout at beginning and end of every circuit cycle.
 - 3) Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature.
 - 4) Limiting of the chilled fluid temperature pulldown rate at start-up to 1° F (0.6° C) per minute to prevent excessive demand spikes (charges) at start-up.

2. Safeties:

- a. Unit shall be equipped with thermistors and transducers or potentiometers and all necessary components in conjunction with the control system to provide the unit with the following protections:
 - 1) Loss of refrigerant charge protection.
 - 2) Low fluid flow protection.
 - 3) Low chilled fluid temperature protection.
 - 4) Low and high superheat protection.
 - 5) Low control voltage (to unit) protection.
 - 6) High-pressure switch.
 - 7) Low oil protection for each compressor circuit (size 080-420 units).
 - 8) To prevent the formation of acids, ground current protection for each compressor shall shut down compressor when no more than 2.5 supply amps are measured (sizes 080-420 and 070, 50 Hz).
- b. Compressors shall be equipped with the following manual-reset type protections:
 - 1) Pressure overload.
 - 2) Electrical overload through the use of definite-purpose contactors and calibrated, ambient-compensated, magnetic-trip circuit breakers. Circuit breakers shall open all 3 phases in the event of an overload in any one phase (single-phasing condition).
- c. Fan motors shall have inherent overcurrent protection.

3. Diagnostics:

- a. The display module shall be capable of indicating the tripping of protections through display of a 2-digit code, for which a legend shall be provided in control panel. Information included for display shall be:
 - 1) Compressor lockout.
 - 2) Loss of charge.
 - 3) Low fluid flow.
 - 4) Low oil pressure.
 - 5) Cooler freeze protection.
 - 6) High or low suction superheat.
 - 7) Thermistor or potentiometer malfunction.
 - 8) Entering and leaving fluid temperature.
- b. Display module, in conjunction with the microprocessor, must also be capable of

displaying the output (results) of a run test to verify operation of every switch, thermistor, potentiometer, fan, and compressor before chiller is started.

- c. Provide serial output port.

I. Operating Characteristics:

1. Unit shall be capable of starting and running fully loaded at outdoor ambient temperatures from 0° F to 125 F (–18 C to 52 C).
2. Unit shall be capable of starting up with 95 F (35 C) entering fluid temperature to the cooler.
3. Multi-step cooling capacity control shall be accomplished through the use of unloaders and compressor staging.
4. Two refrigerant circuits (sizes 040-210) or four refrigerant circuits (sizes 230-420) shall be provided in each unit to protect against loss of total capacity.
5. Unit shall operate without special controls down to an ambient temperature of 32 F (0° C).
6. Unit shall have automatic lead/lag feature to automatically alternate the lead circuit to ensure even compressor wear. Accessory unloader required on size 040-070 units, standard for all other units.

J. Motors:

1. Compressor motors shall be cooled by suction gas passing around motor windings.
2. Condenser-fan motors shall be 3-phase type with permanently lubricated bearings and Class B insulation.
3. Fan motors are totally enclosed, air-over (TEAO) type in accordance with IP-55 (50-Hz only).

K. Electrical Requirements:

1. Each unit (sizes 040-210) or module's (sizes 230-420) primary electrical power supply (3-phase) shall be connected to a single location.
2. Each unit (sizes 040-210) or module's (sizes 230-420) control power (single-phase) shall be connected to a separate entry point.
3. 60-Hz units (except 380 v) require 115-v control circuit power; 50-Hz and 380-v, 60-Hz units require 230-v control circuit power.

L. Special Features:

Certain standard features are not applicable when the features designated by * are specified. For assistance in amending the specifications, contact your local Carrier sales office.

* 1. Low Ambient Temperature Operation:

- a. Unit shall be capable of operating down to 0° F (–18 C) with the addition of antifreeze with suitable corrosion inhibitor in the evaporator circuit, and with the addition of field-fabricated and field-installed wind baffles. The wind baffles shall be installed when wind velocity greater than 5 mph (8 km/h) is anticipated, and ambient temperature is below 32 F (0° C).

- b. Unit shall be capable of operating down to -20 F (-29 C) with the addition of the field- or factory-installed solid-state Motormaster® III control with condenser coil temperature sensor. In addition, adequate field-supplied antifreeze with suitable corrosion inhibitor protection shall be field-installed in the evaporator circuit — and where wind velocity greater than 5 mph (8 km/h) is anticipated, field-fabricated and installed wind baffles shall be required.
2. Unloaders:

Electric suction cutoff unloaders shall be field-installed as required.
3. Demand Limit Control:

Unit shall be equipped with a 2-point demand limit control activated remotely by an electric signal.
- * 4. Optional Condenser Coil Materials:
 - a. Precoated aluminum-fin coils:

Shall have a durable expoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
 - b. Copper-fin coils:

Shall be constructed of copper fins mechanically bonded to copper tubes. All copper construction shall provide protection in moderate coastal applications.
 - c. Postcoated aluminum-fin coils:

Shall have a durable organic coating uniformly applied over all coil surfaces. Coating shall be deep brown color applied by a dip and bake process to ensure complete encapsulation of all coil surfaces. Coated coil shall withstand 1,000 hour salt spray in accordance with ASTM (U.S.A.) B117. Coil construction shall be aluminum fins mechanically bonded to copper tubes.
 - d. Postcoated copper-fin coils:

Shall have a durable organic coating uniformly applied over all coil surfaces. Coating shall be deep brown color applied by a dip and bake process to ensure complete encapsulation of all coil surfaces. Coated coil shall withstand 1,000 hour salt spray in accordance with ASTM (U.S.A.) B117. Coil construction shall be copper fins mechanically bonded to copper tubes.
5. Hail Guard:

Unit shall be equipped with louvered condenser coil hail guard protection and installation hardware.
- * 6. Part Wind Start:

Shall be factory installed to reduce compressor inrush current.
7. Pressure Gages:

Unit shall be field-equipped with suction and discharge pressure gages with manual shutoff valves mounted on the same panel.
- * 8. Brine Units:

Unit shall be factory-equipped to operate down to 15 F (-9 C) leaving chilled fluid temperature.
9. Temperature Reset Board:

Allows microprocessor control to compare either return or outdoor temperature with the accessory board settings and adjust leaving-fluid temperature accordingly. Shall include necessary sensor.
10. Flow Switch:

A chilled fluid flow switch shall be field-installed for low fluid flow detection.
11. Security Condenser Grilles:

A set of PVC-coated metal grilles complete with support retainers and fasteners shall be provided for the protection of the condensing coils, compressors, and cooler.
12. Hot Gas Bypass:

Shall be field installed to allow the unit to operate at lower capacity levels than standard.
13. Cooler Heater:

Optional factory-installed heater shall protect cooler to -20 F (-29 C). cooler tape heaters and controls to energize the heaters at 35 F (2 C) and below (down to -20 F [-29 C]).
14. High-Static Fans:

Two different factory-installed optional fans shall be available (0.4 in. wg [100 kPa] and 1.0 in. wg [250 kPa]) to permit operation of the unit at nominal airflows in high static applications.
15. Non-Fused Disconnect (380/415 v and 460 v Units):

Unit shall be equipped from the factory with a non-fused electrical disconnect.
16. Sound Reduction Package Kit:

This optional factory-installed option or field-installed accessory kit shall consist of a specially-designed fan system containing fans and orifices for reducing system noise without compromising unit performance. No fan motor change shall be required for accessory installation.
17. Control Transformer:

This field-installed accessory shall provide a transformer sized to supply the control circuit (115 v), and shall source the power from the main unit power connection.
- * 18. Unit Control Display Access Door:

Unit shall be provided with a transparent control box door that allows see-through viewing of control display without opening control box.

19. Convenience Outlet:
Kit provides a 115-v, GFI female receptacle to be field mounted in control box. Receptacle shall be powered by unit control circuit.
20. Trim Kit:
Field-installed kit shall include sheet metal pieces and all hardware required to join the 2 unit modules together (30GU230-420 units only).
21. Oil Pressure Switch:
Unit shall be equipped with an oil pressure safety switch to protect compressor against loss of lubrication (sizes 040-060, 070 [60 Hz]; standard on sizes 070 [50 Hz], 040-070 brine units, and 080-420).
22. Remote Cooler Mounting:
Kit shall provide valves and EXV cable to permit operation of cooler from a remote location (up to 75 ft [23 m] away from base unit).
23. Multi-Chiller Control:
The multi-chiller control shall be field installed, and shall sequence up to 4 circulating pumps and chillers in parallel (one pump and proof-of-flow switch per chiller). Both the leaving fluid temperature and proof-of-flow inputs shall be monitored by the control.
24. High-Ambient Kit:
Field-installed kit shall contain high-ambient capacity control pressure switches, unloader coils, and all necessary hardware for installation. Kit may be required in areas where outdoor ambient temperatures are expected to be above 115 F (46.1 C) and return fluid temperatures are expected to be above 60 F (15.5 C).
25. Demand Limit Control:
Unit shall be equipped with a 2-point demand limit control (0 to 49% and 50 to 100%) activated remotely by an electric signal.
26. Ground current compressor protection:
Protection shall be standard with sizes 080-210 and 070 (50 Hz), accessory with all other sizes.

