



Product Data

30GN,GT Flotronic™ and Flotronic II Air-Cooled Reciprocating Liquid Chillers 50/60 Hz

Nominal Capacity: 220 to 400 Tons
770 to 1400 kW

Quality Assurance



Certificate No FM 21837

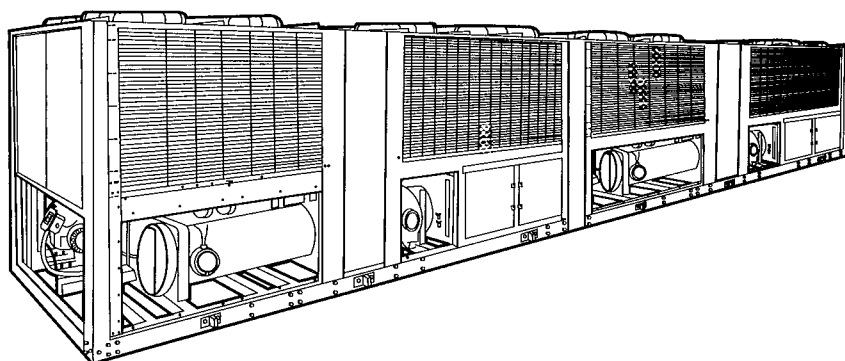
Approvals:

ISO 9002

EN 29002

BS5750 PART 2

ANSI/ASQC Q92



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
- optimized design, strict component qualification, and diagnostics for dependability
- efficient, reliable 06E semi-hermetic compressors
- factory charged with R-22 — tested under load
- quality construction, and sturdy, protective shipping package
- Flotronic or Flotronic II controls

Features/Benefits

Quality design and construction

Model 30GN Flotronic II and 30GT 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 30GN Flotronic II and 30GT 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 30GN Flotronic™ II chillers include data communication capability to the Carrier Comfort Network (CCN) and an 8-digit alpha-numeric display that is part of the chiller special interface panel.

Each of the Carrier Flotronic or Flotronic II chillers features ease of service and maintenance that add to operating savings. Built-in self diagnostics capability quickly pinpoints the location of any system problem — no need to spend costly hours guessing. The Flotronic II control maintains a valuable record of the machine's history, complete with starts and run data, for periodic service or maintenance reference.

Service technicians find this electronic record system invaluable for the efficiency of chiller diagnosis and long-term equipment management. Ground current sensing eliminates the need for refrigerant replacement by preventing compressor motor burnouts that add acids to the refrigerant

Ease of installation

The 30GN (Flotronic II) and GT (Flotronic) 230-420 chillers are fully packaged systems. They arrive at the jobsite in 2 modules 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 and Flotronic II 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 080-110 and 150,170 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

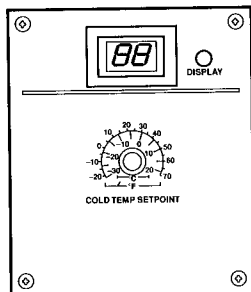
NOTE: Prove the operating savings for your building by using the Flotronic chiller operating cost analysis on your own microcomputer, available from your local Carrier representative

Cost-saving features

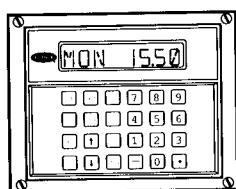
Model 30GN,GT chillers reduce operating costs with:

- 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

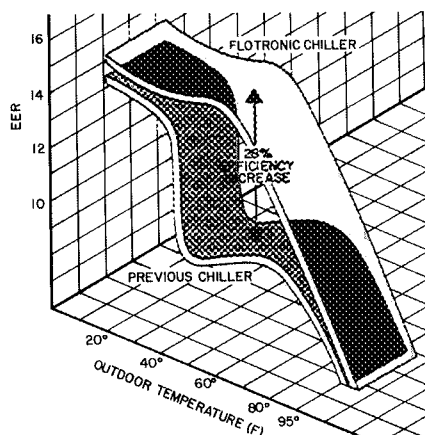
STANDARD 30GT 2-DIGIT FLOTTRONIC DISPLAY



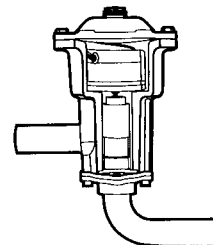
STANDARD 30GN 8-CHARACTER FLOTTRONIC II DISPLAY



PART-LOAD EFFICIENCY 28% GAIN



ELECTRONIC EXPANSION VALVE (EXV)



06E COMPRESSOR

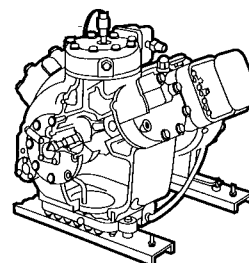
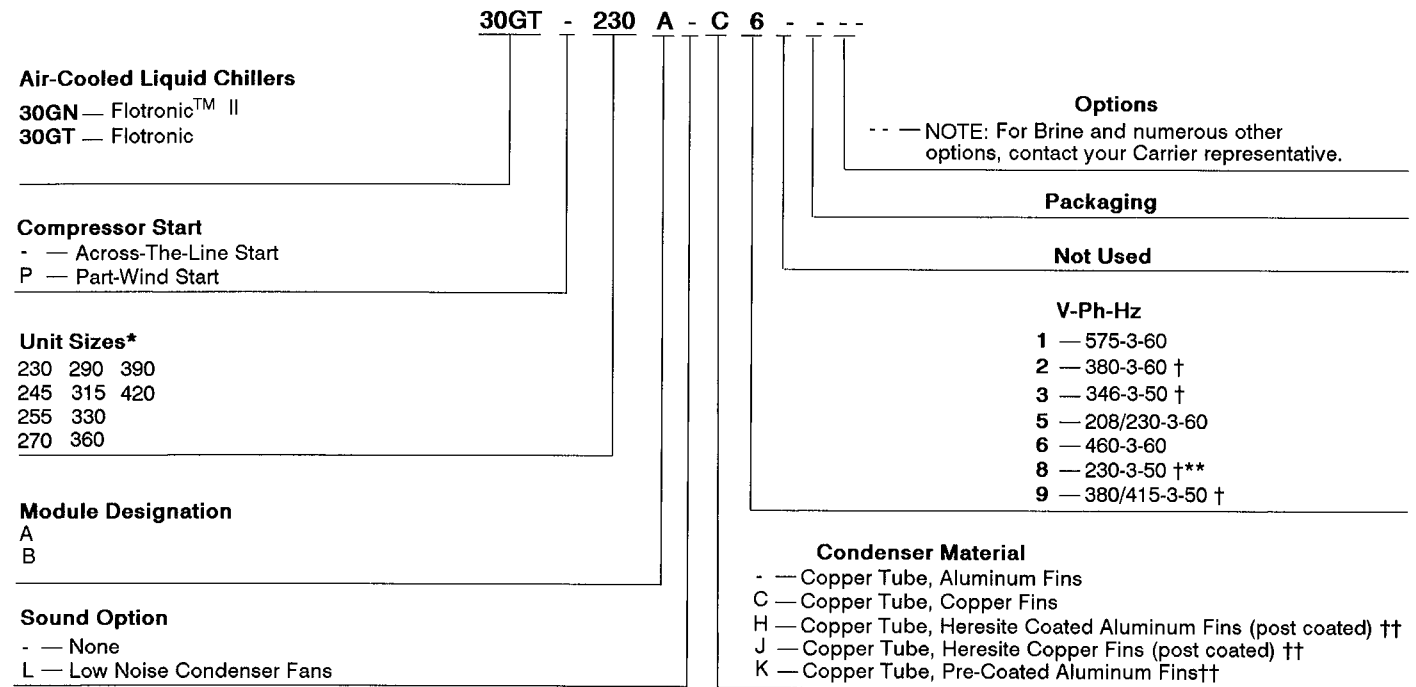


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Model number nomenclature



LEGEND

EXV — Electronic Expansion Valve

*Refer to Unit Sizes and Modular Combinations table below.

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

**30GN,GT330-420 units only

††Contact your local Carrier representative for more details.

UNIT SIZES AND MODULAR COMBINATIONS

UNIT MODEL 30GN,GT	SECTION A UNIT 30GN,GT	SECTION B UNIT 30GN,GT
230	150	080
245	150	090
255	150	100
270	170	100
290	190	110
315	210	110
330	170	170
360	190	190/170*
390	210	190
420	210	210

*60 Hz units/50 Hz units.

ENGLISH

UNIT SIZE	230			245			255			270		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — lb												
C-AL	10,481	6630	17,111	10,481	7015	17,496	10,481	8610	19,091	11,293	8610	19,903
C-C	11,753	7355	19,108	11,753	7740	19,493	11,753	9560	21,313	12,565	9560	22,125
REFRIGERANT CHARGE — lb												
R-22	143/35	78/15	—/—	143/35	78/15	—/—	143/35	98/20	—/—	153/45	98/20	—/—
Ckt A Clear Glass	144/35	78/15	—/—	144/35	78/15	—/—	144/35	105/20	—/—	162/45	105/20	—/—
COMPRESSORS, Type...rpm												
06E [†]	(3) 265 (2) 299	(1) 250, (1) 275 (1) 299	—/—	(3) 265 (3) 299	(1) 265, (1) 250 (2) 265	—/—	(3) 265 (3) 299	(1) 265, (1) 275 (1) 265, (1) 275	—/—	(3) 275 (3) 275	(1) 265, (1) 275 (1) 265, (1) 275	—/—
Oil Charge — Compressor/pt	265/19.0, 299/19.0	250/14.0, 275/19.0, 299/19.0	—	265/19.0, 299/19.0	250/14.0, 265/19.0	—	265/19.0, 299/19.0	265/19.0, 275/19.0	—	275/19.0, 275/19.0	265/19.0, 275/19.0	—
Capacity Control Stepst												
% Cap. Ckt A	14/10	7/6	—	14/10	11/8	—	14/10	11/8	—	17/12	11/8	—
Ckt B	50	55	—	50	47	—	50	50	—	50	50	—
Minimum Step Capacity (%)*	11/11	22/22	—	11/11	18/18	—	11/11	15/16	—	11/11	15/16	—
CONDENSER FANS — Type												
Standard/Low Noise	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—
Fan Speed — rpm	1140	1140	—	1140	1140	—	1140	1140	—	1140	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	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3	10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6
Total Airflow — cfm	100,000	57,000	157,000	100,000	57,000	157,000	100,000	76,000	176,000	100,000	76,000	176,000
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	6...22.2	16...59.2	10...37	6...22.2	16...59.2	10...37	8...29.6	18...66.6	10...37	8...29.6	18...66.6
Total Airflow — cfm	100,000	60,000	160,000	100,000	60,000	160,000	100,000	80,000	180,000	100,000	80,000	180,000
CONDENSER COILS — Type												
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
Fins (in. Standard/Hersite)	17/15	17/—	—	17/15	17/—	—	17/15	17/—	—	17/15	17/—	—
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	128.3	353.4	225.1	128.3	353.4	225.1	168	393.1	225.1	168	393.1
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type	1...10HB160	1...10HB090	—	1...10HB160	1...10HB090	—	1...10HB160	1...10HB110	—	1...10HB200	1...10HB110	—
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Ga. (includes nozzles)	52.0	24.5	76.5	52.0	24.5	76.5	52.0	30.3	82.3	61.0	30.3	91.3
Max Working Pressure	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
Refrigerant Side/Fluid Side — psig												
FLUID CONNECTIONS — in.												
Inlet and Outlet	Victaulic Type 6	Victaulic Type 4	—	Victaulic Type 6	Victaulic Type 4	—	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 5	—
Drain	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

ENGLISH (cont)

UNIT SIZE	290			315			330			360		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — lb												
C-AL	12,676	8660	21,336	13,380	8660	22,040	11,293	11,293	22,586	12,676	12,676	25,352
C-C	14,195	9610	23,805	14,899	9610	24,509	12,565	12,565	25,130	14,195	14,195	28,390
REFRIGERANT CHARGE — lb												
R-22	178/30	98/20	—/—	190/40	98/20	—/—	153/45	153/45	—/—	178/30	178/30	—/—
Ckt A Total/Over	173/30	105/20	—/—	185/40	105/20	—/—	162/45	162/45	—/—	173/30	173/30	—/—
Ckt B Clear Glass												
COMPRESSORS, Type...rpm												
06E*	(1) 265, (1) 275, (1) 299	(1) 265, (1) 299	—	(3) 265, (1) 275	(1) 265, (1) 299	—	(3) 275	(3) 275	—	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275, (1) 299	—
(Qty) Ckt A	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275	—	(1) 275, (2) 239	(1) 265, (1) 275	—	(3) 275	(3) 275	—	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275, (1) 299	—
(Qty) Ckt B	265/19.0, 275/19.0, 299/19.0	265/19.0, 275/19.0, 299/19.0	—	265/19.0, 275/19.0, 299/19.0	265/19.0, 275/19.0, 299/19.0	—	275/19.0	275/19.0	—	265/19.0, 275/19.0, 299/19.0	265/19.0, 275/19.0, 299/19.0	—
Oil Charge — Compressor/pt												
Capacity Control Step†	6/6	11/8	—	7/7	11/8	—	17/12	17/12	—	6/6	6/6	—
% Cap.	50	54	—	50	54	—	50	50	—	50	50	—
Ckt A	50	46	—	50	46	—	50	50	—	50	50	—
Ckt B	13/14	14/14	—	11/12	14/14	—	11/11	11/11	—	13/14	13/14	—
Minimum Step Capacity (%)/t												
CONDENSER FANS — Type												
Standard/Low Noise	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller	—	Propeller	Propeller	—
Fan Speed — rpm	1140	1140	—	1740	1140	—	1140	1140	—	1140	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	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8	10...15.9	10...15.9	20...31.8	12...19.1	12...19.1	24...38.2
Total Airflow — cfm	120,000	76,000	196,000	120,000	76,000	196,000	100,000	100,000	200,000	120,000	120,000	240,000
High Static												
Fan Speed — rpm	1740	1750	—	1740	1750	—	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	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0	10...37	10...37	20...74	12...44.4	12...44.4	24...88.8
Total Airflow — cfm	120,000	80,000	200,000	120,000	80,000	200,000	100,000	100,000	200,000	120,000	120,000	240,000
CONDENSER COIL S — Type												
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
Fins in. Standard/Heresite	17/15	17/—	—	17/15	17/—	—	17/15	17/15	—	17/15	17/15	—
No. Rows Ckt A	3	3	—	3	3	—	3	3	—	3	3	—
No. Rows Ckt B	268.9	168.0	436.9	268.9	168.0	436.9	225.1	225.1	450.2	268.9	268.9	537.8
Face Area sq ft — Ckt A and B Total	450	450	—	450	450	—	450	450	—	450	450	—
Max Working Pressure Refrigerant — psig												
COOLER — No. ...Type	1...10HB200	1...10HB110	—	1...10HB210	1...10HB110	—	1...10HB200	1...10HB200	—	1...10HB200	1...10HB200	—
No. Refrigerant Circuits	2	2	4	2	2	4	2	2	4	2	2	4
Net Fluid Volume — Gal. (includes nozzles)	61.0	30.3	91.3	70.4	30.3	100.7	61.0	61.0	122	61.0	61.0	122
Max Working Pressure	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—	278/300	278/300	—/—
Refrigerant Side/Fluid Side — psig												
FLUID CONNECTIONS — in.												
Inlet and Outlet	Vitaulic Type 6 6 3/4 NPT	Vitaulic Type 5 5 3/4 NPT	—	Vitaulic Type 6 6 3/4 NPT	Vitaulic Type 5 5 3/4 NPT	—	Vitaulic Type 6 6 3/4 NPT	Vitaulic Type 6 6 3/4 NPT	—	Vitaulic Type 6 6 3/4 NPT	Vitaulic Type 6 6 3/4 NPT	—
Drain												

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

Physical data — 60 Hz (cont)



ENGLISH (cont)

UNIT SIZE	390			420		
	A	B	Total	A	B	Total
SYSTEM MODULES						
APPROX OPERATING WEIGHT — lb						
C-AL	13,380	12,676	26,056	13,380	13,380	26,760
C-C	14,899	14,195	29,094	14,899	14,899	29,798
REFRIGERANT CHARGE — lb						
R-22	190/40	178/30	—/—	190/40	190/40	—/—
Ckt A Total/Over	185/40	173/30	—/—	185/40	185/40	—/—
Ckt B Clear Glass						
COMPRESSORS, Type, rpm						
08E*	(3) 265, (1) 275 (1) 275, (2) 299	(1) 265, (1) 275, (1) 299 (1) 265, (1) 275, (1) 299	Reciprocating, Semi-Hermetic... 1750	(3) 265, (1) 275 (1) 275, (2) 299	(3) 265, (1) 275 (1) 275, (2) 299	—
Oil Charge — Compressor/pt	265/19.0, 275/19.0, 299/19.0	265/19.0, 275/19.0, 299/19.0	—	265/19.0, 275/19.0, 299/19.0	265/19.0, 275/19.0, 299/19.0	—
Capacity Control Steps†						
% Cap.	7/7	6/6	—	7/7	7/7	—
Ckt A	50	50	—	50	50	—
Ckt B	50	50	—	50	50	—
Minimum Step Capacity (%)/†	11/12	13/14	—	11/12	11/12	—
CONDENSER FANS — Type						
Standard/Low Noise	Propeller	Propeller	—	Propeller	Propeller	—
Fan Speed — rpm	1740	1140	—	1740	1740	—
No. Blades... Diameter — in.	4...30	4...30	—	4...30	4...30	—
No. Fans... Total kW	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — cfm	120,000	120,000	240,000	120,000	120,000	240,000
High Static						
Fan Speed — rpm	1740	1740	—	1740	1740	—
No. Blades... Diameter — in.	12...30	12...30	—	12...30	12...30	—
No. Fans... Total kW	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow — cfm	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	—
Fins/in, Standard/Heresite	17/15	17/15	—	17/15	17/15	—
No. Rows — Ckt A or B	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	268.9	268.9	537.8	268.9	268.9	537.8
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—
COOLER — No. ...Type						
No. Refrigerant Circuits	1...10HB210	1...10HB200	—	1...10HB210	1...10HB210	—
Net Fluid Volume — Gal. (includes nozzles)	2	2	4	2	2	4
Max Working Pressure	70.4	61.0	131.4	70.4	70.4	140.8
Refrigerant Side/Fluid Side — psig	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.						
Inlet and Outlet	Victaulic Type 6	Victaulic Type 6	—	Victaulic Type 6	Victaulic Type 6	—
Drain	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

SI

UNIT SIZE		230			245			255			270		
SYSTEM MODULES		A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg													
C-AL		4754	3013	7747	4754	3189	7943	4754	3914	8668	5133	3914	9047
C-C		5342	3343	8685	5342	3518	8860	5342	4346	9688	5711	4346	10,057
REFRIGERANT CHARGE — kg													
R-22		60.5/15.9	35.4/6.8	—	65.0/15.9	35.4/6.8	—	65.0/15.9	44.5/9.1	—	69.5/20.5	44.5/9.1	—
Ckt A Total/Over		65.0/15.9	35.4/6.8	—	65.0/15.9	35.4/6.8	—	65.0/15.9	44.5/9.1	—	73.6/20.5	47.7/9.1	—
Ckt B Clear Glass		—	—	—	—	—	—	—	—	—	—	—	—
COMPRESSORS, Type...r/s													
06E*	(Qty) Ckt A	(3) 265	(1) 250, (1) 275	—	(3) 265	(1) 265, (1) 250	—	(3) 265	(1) 265, (1) 275	—	(3) 275	(1) 265, (1) 275	—
	(Qty) Ckt B	(2) 299	(1) 299	—	(2) 299	(2) 265	—	(2) 299	(2) 299	—	(3) 275	(1) 265, (1) 275	—
Oil Charge — Compressor/L		265/9.0, 299/9.0	250/6.6, 275/9.0, 299/9.0	—	265/9.0, 299/9.0	250/6.6, 265/9.0	—	265/9.0, 299/9.0	265/9.0, 275/9.0	—	275/9.0	265/9.0, 275/9.0	—
Capacity Control Stepst		14/10	7/6	—	14/10	11/8	—	14/10	11/8	—	17/12	11/8	—
% Cap.	Ckt A	50	56	—	50	47	—	50	50	—	50	50	—
	Ckt B	50	44	—	50	53	—	50	50	—	50	50	—
Minimum Step Capacity (%)†		11/11	22/22	—	11/11	18/18	—	11/11	15/16	—	11/11	15/16	—
CONDENSER FANS — Type		Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—
Standard/Low Noise		19	19	—	19	19	—	19	19	—	19	19	—
Fan Speed — r/s		4...762	4...762	—	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—
No. Blades...Diameter — mm		10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3	10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6
No. Fans...Total kW		47 190	26 898	74 088	47 190	26 898	74 088	47 190	35 864	85 054	47 190	35 864	83 054
Total Airflow — L/s		—	—	—	—	—	—	—	—	—	—	—	—
High Static		—	—	—	—	—	—	—	—	—	—	—	—
Fan Speed — r/s		29	29	—	29	29	—	29	29	—	29	29	—
No. Blades...Diameter — mm		12...762	12...762	16...59.2	12...762	12...762	16...59.2	12...762	12...762	18...66.6	12...762	12...762	18...66.6
No. Fans...Total kW		10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2	10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6
Total Airflow — L/s		47 190	28 315	75 505	47 190	28 315	75 505	47 190	37 750	84 940	47 190	37 750	84 940
CONDENSER COILS — Type		9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
Tubes (Copper), OD — mm		669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/590.6	—
Fins/in. Standard/Heresite		3	3	—	3	3	—	3	3	—	3	3	—
No. Rows — Ckt A or B		20.92	11.92	32.84	20.92	11.92	32.84	20.92	15.61	36.53	20.92	15.61	36.53
Face Area sq m — Ckt A and B Total		3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
Max Working Pressure Refrigerant — kPa		1...10HB160	1...10HB090	—	1...10HB160	1...10HB090	—	1...10HB160	1...10HB110	—	1...10HB200	1...10HB110	—
COOLER — No. ...Type		2	2	4	2	2	4	2	2	4	2	2	4
No. Refrigerant Circuits		1916/2068	1916/2068	—	1916/2068	1916/2068	—	1916/2068	1916/2068	—	1916/2068	1916/2068	—
Net Fluid Volume — L (includes nozzles)		—	—	—	—	—	—	—	—	—	—	—	—
Max Working Pressure Refrigerant Side/Fluid Side — kPa		—	—	—	—	—	—	—	—	—	—	—	—
FLUID CONNECTIONS — mm		—	—	—	—	—	—	—	—	—	—	—	—
Inlet and Outlet		—	—	—	—	—	—	—	—	—	—	—	—
Drain		—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

* All compressors have 6 cylinders.
†GN/GT.

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

Physical data — 60 Hz (cont)



SI (cont)

UNIT SIZE		290			315			330			360		
SYSTEM MODULES		A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg													
C-AL		5761	3935	9 696	6081	3935	10 016	5133	5133	10 266	5761	5761	11 522
C-C		6452	4368	10 820	6772	4368	11 140	5711	5711	11 422	6452	6452	12 904
REFRIGERANT CHARGE — kg													
R-22		80.9/13.6	44.5/9.1	—	86.4/18.2	44.5/9.1	—	69.5/20.5	69.5/20.5	—	80.9/13.6	80.9/13.6	—
Ckt A Total/Over		78.6/13.6	47.7/9.1	—	84.1/18.2	47.7/9.1	—	73.6/20.5	73.6/20.5	—	78.6/13.6	78.6/13.6	—
COMPRESSORS, Type, r/s													
06E*		(1) 265, (1) 275, (1) 299	(1) 265, (1) 299	—	(3) 265, (1) 275	(1) 265, (1) 299	—	(3) 275	(3) 275	—	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275, (1) 299	—
(Qty) Ckt A		(1) 265, (1) 275, (1) 299	(1) 265, (1) 275	—	(1) 275, (2) 299	(1) 265, (1) 275	—	(3) 275	(3) 275	—	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275, (1) 299	—
(Qty) Ckt B		(1) 265, (1) 275, (1) 299	(1) 265, (1) 275	—	(1) 275, (2) 299	(1) 265, (1) 275	—	(3) 275	(3) 275	—	(1) 265, (1) 275, (1) 299	(1) 265, (1) 275, (1) 299	—
Oil Charge — Compressor/L													
		265/9.0, 275/9.0, 299/9.0	265/9.0, 275/9.0, 299/9.0	—	265/9.0, 275/9.0, 299/9.0	265/9.0, 275/9.0, 299/9.0	—	275/9.0	275/9.0	—	265/9.0, 275/9.0, 299/9.0	265/9.0, 275/9.0, 299/9.0	—
Capacity Control Steps†													
% Cap.		6/6	11/8	—	7/7	11/8	—	17/12	17/12	—	6/6	6/6	—
Ckt A		50	54	—	50	54	—	50	50	—	50	50	—
Ckt B		50	46	—	50	46	—	50	50	—	50	50	—
Minimum Step Capacity (%†)		13/14	14/14	—	11/12	14/14	—	11/11	11/11	—	13/14	13/14	—
CONDENSER FANS — Type													
Standard/Low Noise		Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller	—	Propeller	Propeller	—
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		12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8	10...15.9	10...15.9	20...31.8	12...19.1	12...19.1	24...38.2
Total Airflow — L/s		56 630	35 864	92 494	56 630	35 864	92 494	47 190	47 190	94 380	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		12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0	10...37.0	10...37.0	20...74.0	12...44.4	12...44.4	24...88.8
Total Airflow — L/s		56 630	37 750	94 380	56 630	37 750	94 380	47 190	47 190	94 380	56 630	56 630	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	—
Fins (Standard/Heresite)		669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/590.6	—	669.3/590.6	669.3/590.6	—
No. Rows — Ckt A or B		3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq m — Ckt A and B Total		20.92	15.61	36.53	20.92	15.61	36.53	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													
No. Refrigerant Circuits		1...10HB200	1...10HB110	—	10...10HB210	1...10HB110	—	1...10HB200	1...10HB200	—	1...10HB200	1...10HB200	—
Net Fluid Volume — L (includes nozzles)		2	2	4	2	2	4	2	2	4	2	2	4
Max Working Pressure		229	114.6	343.6	267.0	114.6	381.6	229	229	458	229	229	458
Refrigerant Side/Fluid Side — kPa		1916/2068	1916/2068	—	1916/2068	1916/2068	—	1916/2068	1916/2068	—	1916/2068	1916/2068	—
FLUID CONNECTIONS — mm													
Inlet and Outlet		Victaulic Type 6 3/4 NPT	Victaulic Type 5 3/4 NPT	—	Victaulic Type 6 3/4 NPT	Victaulic Type 5 3/4 NPT	—	Victaulic Type 6 3/4 NPT	Victaulic Type 6 3/4 NPT	—	Victaulic Type 6 3/4 NPT	Victaulic Type 6 3/4 NPT	—
Drain		—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 OD — Outside Diameter

*All compressors have 6 cylinders.

†G/N/G†

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

SI (cont)

+GN/GT.

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

Physical data — 50 Hz



ENGLISH

UNIT SIZE	230			245			255			270		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — lb												
C-C	10,676	6720	17,396	10,676	7135	17,811	10,676	8710	19,386	11,443	8710	20,153
C-C	11,948	7445	19,393	11,948	7860	19,808	11,948	9660	21,608	12,715	9660	22,375
REFRIGERANT CHARGE — lb												
R-22	143/35	78/15	—	143/35	78/15	—	143/35	98/20	—	153/45	98/20	—
Ckt A Total/Over	143/35	78/15	—	143/35	78/15	—	143/35	105/20	—	162/45	105/20	—
Ckt B Clear Glass	143/35	78/15	—	143/35	78/15	—	143/35	105/20	—	162/45	105/20	—
COMPRESSORS, Type...rpm												
06E*	(3) 299	(1) 265, (1) 299	—	(3) 299	(1) 265, (1) 299	—	(3) 299	(1) 265, (1) 299	—	(2) 275	(1) 265, (1) 299	—
(Qty) Ckt A	(2) 299	(1) 299	—	(2) 299	(1) 299	—	(2) 299	(1) 299	—	(2) 299	(1) 299	—
(Qty) Ckt B	299/19.0	265/19.0, 299/19.0	—	299/19.0	265/19.0, 275, 19.0,	—	299/19.0	265/19.0, 299/19.0	—	275/19.0,	265/19.0, 299/19.0	—
Oil Charge — Compressor/pt												
Capacity Control Step†	10/14	6/8	—	10/14	8/11	—	10/14	8/11	—	12/17	8/11	—
% Cap.	60	62	—	60	54	—	60	50	—	48	50	—
Ckt A	40	38	—	40	46	—	40	50	—	52	50	—
Ckt B	13/13	16/17	—	13/13	14/14	—	13/13	13/13	—	10/9	13/13	—
Minimum Step Capacity (%)†												
CONDENSER FANS — Type												
Standard/Low Noise	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—
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	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3	10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6
Total Airflow — cfm	100,000	57,000	157,000	100,000	57,000	157,000	100,000	76,000	176,000	100,000	76,000	176,000
High Static	1445	1445	—	1445	1445	—	1445	1445	—	1445	1445	—
Fan Speed — rpm	12...30	12...30	—	12...30	12...30	—	12...30	12...30	—	12...30	12...30	—
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...37	6...22.2	16...59.2	10...37	6...22.2	16...59.2	10...37	8...29.6	18...66.6	10...37	8...29.6	18...66.6
Total Airflow — cfm	100,000	60,000	160,000	100,000	60,000	160,000	100,000	80,000	180,000	100,000	80,000	180,000
CONDENSER COILS — Type												
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
Fins/in. Standard/Heretite	17/15	17/—	—	17/15	17/—	—	17/15	17/—	—	17/15	17/15	—
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	128.3	353.4	225.1	128.3	353.4	225.1	168.0	393.1	225.1	168.0	393.1
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type	1...10HB160	1...10HB090	—	1...10HB160	1...10HB090	—	1...10HB160	1...10HB110	—	1...10HB110	1...10HB110	—
No. Refrigerant Circuits	2	2	—	2	2	—	2	2	—	2	2	—
Net Fluid Volume — Gal. (includes nozzles)	52.0	24.5	76.5	52.0	24.5	76.5	52.0	30.3	82.3	61.0	30.3	91.3
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	Victaulic Type 6	Victaulic Type 4	—	Victaulic Type 6	Victaulic Type 4	—	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 5	—
Drain	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

ENGLISH (cont)

UNIT SIZE	290			315			330			360		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — lb												
C-AL	12,906	8840	21,746	13,545	8840	22,385	11,443	11,443	22,886	12,906	11,443	24,349
C-C	14,425	9790	24,215	15,064	9790	24,854	12,715	12,715	25,430	14,425	12,715	27,140
REFRIGERANT CHARGE — lb												
R-22	178/30	98/20	—/—	190/40	98/20	—/—	153/45	153/45	—/—	178/30	153/45	—/—
Ckt A Clear Glass	178/30	105/20	—/—	185/40	105/20	—/—	162/45	162/45	—/—	178/30	162/45	—/—
COMPRESSORS, Type...rpm												
06E* (Qty) Ckt A	(3) 299	(2) 299	—	(2) 265, (2) 299	(2) 299	—	(2) 275, (1) 299	(2) 275, (1) 299	—	(3) 299	(2) 275, (1) 299	—
(Qty) Ckt B	(3) 299	(2) 299	—	(3) 299	(2) 299	—	(1) 275, (2) 299	(1) 275, (2) 299	—	(3) 299	(1) 275, (2) 299	—
Oil Charge — Compressor/pt	299/19.0	299/19.0	—	265/19.0, 299/19.0	299/19.0	—	275/19.0, 299/19.0	275/19.0, 299/19.0	—	299/19.0	275/19.0, 299/19.0	—
Capacity Control Step†	6/6	8/11	—	7/7	8/11	—	12/17	12/17	—	6/6	12/17	—
% Cap.	50	50	—	52	50	—	48	48	—	50	48	—
Minimum Step Capacity (%)*	17/17	17/17	—	10/9	17/17	—	10/9	10/9	—	17/17	10/9	—
CONDENSER FANS — Type												
Standard/Low Noise	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller	—	Propeller	Propeller	—
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	—	4...30	4...30	—
No. Fans...Total kW	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8	10...15.9	10...15.9	20...15.9	12...19.1	10...15.9	22...35
Total Airflow — cfm	120,000	76,000	196,000	120,000	76,000	196,000	100,000	100,000	200,000	120,000	100,000	220,000
High Static												
Fan Speed — rpm	1445	1445	—	1445	1445	—	1445	1445	—	1445	1445	—
No. Blades...Diameter — in.	6...30	12...30	—	6...30	12...30	—	6...30	6...30	—	12...30	12...30	—
No. Fans...Total kW	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0	10...37	10...37	20...74.0	12...44.4	10...37	22...81.4
Total Airflow — cfm	120,000	80,000	200,000	120,000	80,000	200,000	100,000	100,000	200,000	120,000	100,000	220,000
CONDENSER COILS — Type												
Tubes (Copper), OD — in.	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—	0.375	0.375	—
Fin...Standard/Heresite	17/15	17/—	—	17/15	17/—	—	17/15	17/15	—	17/15	17/15	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	268.9	168.0	436.9	268.9	168.0	436.9	225.1	225.1	450.2	268.9	225.1	494
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—	450	450	—	450	450	—
COOLER — No. ...Type												
No. Refrigerant Circuits	1...10HB200	1...10HB110	4	1...10HB210	1...10HB110	4	1...10HB200	1...10HB200	4	1...10HB200	1...10HB200	4
Net Fluid Volume — Gal. (includes nozzles)	61.0	30.3	91.3	70.4	30.3	100.7	61.0	61.0	122.0	61.0	61.0	122
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	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 6	—	Victaulic Type 6	Victaulic Type 6	—
Drain	¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

* All compressors have 6 cylinders.
† G/N/GT.

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

Physical data — 50 Hz (cont)



ENGLISH (cont)

UNIT SIZE	390			420		
	A	B	Total	A	B	Total
SYSTEM MODULES						
APPROX OPERATING WEIGHT — lb						
C-AL	13,545	12,906	26,451	13,545	13,545	27,090
C-C	15,064	14,423	29,489	15,064	15,064	30,128
REFRIGERANT CHARGE — lb						
R-22	190/40	178/30	—/—	190/40	190/40	—/—
Ckt A Total/Over	185/40	173/30	—/—	185/40	185/40	—/—
COMPRESSORS, Type...rpm						
06E*	(Qty) Ckt A	(3) 299	Reciprocating, Semi-Hermetic, 1450	(2) 265, (2) 299	(2) 265, (2) 299	—
	(Qty) Ckt B	(3) 299		(3) 299	(3) 299	—
Oil Charge — Compressor/pt	265/19.0, 299/19.0	299/19.0	—	265/19.0, 299/19.0	265/19.0, 299/19.0	—
Capacity Control Step†	7/7	6/6	—	7/7	7/7	—
% Cap.	52	50	—	52	52	—
Ckt A	48	50	—	48	48	—
Ckt B	10/9	17/17	—	10/9	10/9	—
Minimum Step Capacity (%†)						
CONDENSER FANS — Type	Propeller	Propeller	Propeller	Propeller	Propeller	Propeller
Standard/Low Noise						
Fan Speed — rpm	950	950	—	950	950	—
No. Blades...Diameter — in.	4...30	4...30	—	4...30	4...30	—
No. Fans...Total kW	12...19.1	12...19.1	24...38.2	12...19.1	12...19.1	24...38.2
Total Airflow — cfm	120,000	120,000	240,000	120,000	120,000	240,000
High Static						
Fan Speed — rpm	1445	1445	—	1445	1445	—
No. Blades...Diameter — in.	12...30	12...30	—	12...30	12...30	—
No. Fans...Total kW	12...44.4	12...44.4	24...88.8	12...44.4	12...44.4	24...88.8
Total Airflow — cfm	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	—
Fin/in. Standard/Herestite	17/15	17/15	—	17/15	17/15	—
No. Rows — Ckt A or B	3	3	—	3	3	—
Face Area sq ft — Ckt A and B Total	268.9	268.9	537.8	268.9	268.9	537.8
Max Working Pressure Refrigerant — psig	450	450	—	450	450	—
COOLER — No. ... Type						
No. Refrigerant Circuits	1...10HB210	1...10HB200	—	1...10HB210	1...10HB210	—
Net Fluid Volume — Gal. (includes nozzles)	2	2	4	2	2	4
Max Working Pressure	70.4	61.0	131.4	70.4	70.4	140.8
Refrigerant Side/Fluid Side — psig	278/300	278/300	—/—	278/300	278/300	—/—
FLUID CONNECTIONS — in.						
Inlet and Outlet	Victaulic Type 6	Victaulic Type 6	—	Victaulic Type 6	Victaulic Type 6	—
Drain	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

SI

UNIT SIZE		230			245			255			270		
SYSTEM MODULES		A	B	Total	A	B	Total	A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg													
C-AL		4852	3055	7907	4852	3243	8095	4852	3960	8812	5201	3960	9161
C-C		5430	3384	8814	5430	4390	9820	5430	4390	9820	5779	4390	10169
REFRIGERANT CHARGE — kg													
R-22		65.0/15.9	35.4/6.8	—/—	65.0/15.9	35.4/6.8	—/—	65.0/15.9	44.5/9.1	—/—	69.5/20.5	44.5/9.1	—/—
Ckt A Total/Over		65.0/15.9	35.4/6.8	—/—	65.0/15.9	35.4/6.8	—/—	65.0/15.9	44.5/9.1	—/—	73.6/20.5	47.7/9.1	—/—
Ckt B Clear Glass		65.0/15.9	35.4/6.8	—/—	65.0/15.9	35.4/6.8	—/—	65.0/15.9	44.5/9.1	—/—	73.6/20.5	47.7/9.1	—/—
COMPRESSORS, Type.../s													
06E*	(Qty) Ckt A	(3) 299	(1) 265, (1) 299	—	(3) 299	(1) 265, (1) 299	—	(3) 299	(1) 265, (1) 299	—	(2) 275, (1) 299	(1) 265, (1) 299	—
	(Qty) Ckt B	(2) 299	(1) 299	—	(2) 299	(1) 275	—	(2) 299	(1) 265, (1) 299	—	(1) 275, (2) 299	(1) 265, (1) 299	—
Oil Charge — Compressor/L		299/9.0	265/9.0, 299/9.0	—	299/9.0	265/9.0, 275/9.0, 299/9.0	—	299/9.0	265/9.0, 299/9.0	—	275/9.0, 299/9.0	265/9.0, 299/9.0	—
Capacity Control Steps†		10/14	6/8	—	10/14	8/11	—	10/14	8/11	—	12/17	8/11	—
% Cap.	Ckt A	60	62	—	60	54	—	60	50	—	48	50	—
	Ckt B	40	38	—	40	46	—	40	50	—	52	50	—
Minimum Step Capacity (%)†		13/13	16/17	—	13/13	14/14	—	13/13	13/13	—	10/9	13/13	—
CONDENSER FANS — Type		Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—
Standard/Low Noise		15.8	15.8	—	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—
Fan Speed — r/s		4...762	4...762	—	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—
No. Blades...Diameter — mm		10...15.9	6...9.4	16...25.3	10...15.9	6...9.4	16...25.3	10...15.9	8...12.7	18...28.6	10...15.9	8...12.7	18...28.6
Total Airflow — L/s		47190	26898	74088	47190	26898	74088	47190	35864	83054	47190	35864	83054
High Static		24.1	29	—	24.1	29	—	24.1	29	—	24.1	29	—
Fan Speed — r/s		12...762	12...762	—	12...762	12...762	—	12...762	12...762	—	12...762	12...762	—
No. Blades...Diameter — mm		10...37.0	6...22.2	16...59.2	10...37.0	6...22.2	16...59.2	10...37.0	8...29.6	18...66.6	10...37.0	8...29.6	18...66.6
Total Airflow — L/s		47190	28315	75505	47190	28315	75505	47190	37750	84940	47190	37750	84940
CONDENSER COILS — Type		9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
Tubes (Copper) OD — mm		669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—
Fin...mm Standard/Heresite		3	3	—	3	3	—	3	3	—	3	3	—
No. Rows Ckt A		2092	1192	32.84	2092	1192	32.84	2092	15.61	36.53	2092	15.61	36.53
Face Area sq m — Ckt A and B Total		3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
Max Working Pressure Refrigerant — kPa		1...10HB160	1...10HB090	—	1...10HB160	1...10HB090	—	1...10HB160	1...10HB110	—	1...10HB200	1...10HB110	—
COOLER — No. ...Type		2	2	4	2	2	4	2	2	4	2	2	4
No. Refrigerant Circuits		197.0	92.9	289.9	197.0	92.9	289.9	197.0	114.6	311.6	229	114.6	343.6
Net Fluid Volume — L (includes nozzles)		1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
Max Working Pressure Refrigerant Side/Fluid Side — kPa		—	—	—	—	—	—	—	—	—	—	—	—
FLUID CONNECTIONS — mm		Victaulic	Victaulic	—	Victaulic	Victaulic	—	Victaulic	Victaulic	—	Victaulic	Victaulic	—
Inlet and Outlet		Type 6	Type 4	—	Type 6	Type 4	—	Type 6	Type 4	—	Type 6	Type 4	—
Drain		¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—	¾ NPT	¾ NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

Physical data — 50 Hz (cont)



SI (cont)

UNIT SIZE	290			315			330			360		
	A	B	Total	A	B	Total	A	B	Total	A	B	Total
SYSTEM MODULES												
APPROX OPERATING WEIGHT — kg												
C-AL	5866	4018	9 884	6156	4018	10 174	5201	5201	10 402	5866	5201	11 067
C-C	6556	4450	11 006	6847	4450	11 297	5779	5779	11 558	6556	5779	12 335
REFRIGERANT CHARGE — kg												
R-22	80.9/13.6	44.5/9.1	—/—	86.4/18.2	44.5/9.1	—/—	69.5/20.5	69.5/20.5	—/—	80.9/13.6	69.5/20.5	—/—
Ckt A Total/Over	78.6/13.6	47.7/9.1	—/—	84.1/18.2	47.7/9.1	—/—	73.6/20.5	73.6/20.5	—/—	78.6/13.6	73.6/20.5	—/—
COMPRESSORS, Type...r/s												
06E*	(3) 299	(2) 299	—	(2) 265, (2) 299	(2) 299	—	(2) 275, (1) 299	(2) 265, (1) 299	—	(3) 299	(2) 275, (1) 299	—
(Qty) Ckt A	(3) 299	(2) 299	—	(3) 299	(2) 299	—	(1) 275, (2) 299	(1) 275, (2) 299	—	(3) 299	(1) 275, (2) 299	—
(Qty) Ckt B	—	—	—	—	—	—	—	—	—	—	—	—
Oil Charge — Compressor/L	299/9.0	299/9.0	—	265/9.0, 299/9.0	299/9.0	—	275/9.0, 299/9.0	275/9.0, 299/9.0	—	299/9.0	275/9.0, 299/9.0	—
Capacity Control Step†												
% Cap.	6/6	8/11	—	7/7	8/11	—	12/17	12/17	—	6/6	12/17	—
Ckt A	50	50	—	52	50	—	48	48	—	50	52	—
Ckt B	17/17	17/17	—	10/9	17/17	—	10/9	10/9	—	17/17	10/9	—
Minimum Step Capacity (%)†	17/17	17/17	—	10/9	17/17	—	10/9	10/9	—	17/17	10/9	—
CONDENSER FANS — Type												
Standard/Low Noise	Propeller	Propeller, Direct Drive	—	Propeller	Propeller, Direct Drive	—	Propeller	Propeller	—	Propeller	Propeller	—
Fan Speed — r/s	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—	15.8	15.8	—
No. Blades...Diameter — mm	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—	4...762	4...762	—
No. Fans...Total kW	12...19.1	8...12.7	20...31.8	12...19.1	8...12.7	20...31.8	10...15.9	10...15.9	20...31.8	12...19.1	10...15.9	22...35
Total Airflow — L/s	56 630	35 864	92 494	56 630	35 864	92 494	47 190	47 190	94 380	56 630	47 190	103 820
High Static												
Fan Speed — r/s	24.1	29	—	24.1	29	—	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	12...44.4	8...29.6	20...74.0	12...44.4	8...29.6	20...74.0	10...37.0	10...37.0	20...74.0	12...44.4	10...37.0	22...81.4
Total Airflow — L/s	56 630	37 750	94 380	56 630	37 750	94 380	47 190	47 190	94 380	56 630	47 190	103 820
CONDENSER COILS — Type												
Tubes (Copper), OD — mm	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—	9.53	9.53	—
Fins/in. Standard/Heresite	669.3/590.6	669.3/—	—	669.3/590.6	669.3/—	—	669.3/590.6	669.3/590.6	—	669.3/590.6	669.3/590.6	—
No. Rows — Ckt A or B	3	3	—	3	3	—	3	3	—	3	3	—
Face Area sq m — Ckt A and B Total	24.98	15.61	40.59	24.98	15.61	40.59	20.92	20.92	41.84	24.98	20.92	45.9
Max Working Pressure Refrigerant — kPa	3103	3103	—	3103	3103	—	3103	3103	—	3103	3103	—
COOLER — No. ...Type												
No. Refrigerant Circuits	1...10HB200	1...10HB110	—	1...10HB210	1...10HB110	—	1...10HB200	1...10HB200	—	1...10HB200	1...10HB200	—
Net Fluid Volume — L (includes nozzles)	229.0	114.6	343.6	267.0	114.6	381.6	2	2	4	2	2	4
Max Working Pressure	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
Refrigerant Side/Fluid Side — kPa												
FLUID CONNECTIONS — mm												
Inlet and Outlet	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 5	—	Victaulic Type 6	Victaulic Type 6	—	Victaulic Type 6	Victaulic Type 6	—
Drain	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—	3/4 NPT	3/4 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
 C-C — Copper Tubing — Copper Fins Condenser Coil
 OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

SI (cont)

UNIT SIZE		390			420		
SYSTEM MODULES		A	B	Total	A	B	Total
APPROX OPERATING WEIGHT — kg							
C-AL		6156	5866	12 022	6156	6156	12 312
C-C		6847	6556	13 403	6847	6847	13 694
REFRIGERANT CHARGE — kg							
R-22		86.4/18.2	80.9/13.6	—/—	86.4/18.2	86.4/18.2	—/—
Ckt A Total/Over		84.1/18.2	78.6/13.6	—/—	84.1/18.2	84.1/18.2	—/—
Ckt B Clear Glass							
COMPRESSORS, Type...r/s							
06E*		(2) 265, (1) 299	(3) 299	—	(2) 265, (1) 299	(2) 265, (1) 299	—
(Qty) Ckt A		(3) 299	(3) 299	—	(3) 299	(3) 299	—
(Qty) Ckt B		265/9.0, 299/9.0	299/9.0	—	265/9.0, 299/9.0	265/9.0, 299/9.0	—
Oil Charge — Compressor/L							
Capacity Control Step†		7/7	6/6	—	7/7	7/7	—
% Cap.		46	50	—	46	52	—
Ckt A		10/9	17/17	—	10/9	10/9	—
Ckt B							
Minimum Step Capacity (%)†							
CONDENSER FANS — Type		Propeller	Propeller	—	Propeller	Propeller	—
Standard/Low Noise							
Fan Speed — r/s		15.8	15.8	—	15.8	15.8	—
No. Blades...Diameter — mm		4, 762	4, 762	—	4, 762	4, 762	—
No. Fans...Total kW		12, 19.1	12, 19.1	24, 38.2	12, 19.1	12, 19.1	24, 38.2
Total Airflow — L/s		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	—
No. Blades...Diameter — mm		12, 762	12, 762	—	12, 762	12, 762	—
No. Fans...Total kW		12, 44.4	12, 44.4	24, 88.8	12, 44.4	12, 44.4	24, 88.8
Total Airflow — L/s		56 630	56 630	113 260	56 630	56 630	113 260
CONDENSER COILS — Type							
Tubes (Copper), OD — mm		9.53	9.53	—	9.53	9.53	—
Fins/in. Standard/Heresite		669.3/590.6	669.3/590.6	—	669.3/590.6	669.3/590.6	—
No. Rows — Ckt A or B		3	3	—	3	3	—
Face Area sq m — Ckt A and B Total		24.98	24.98	49.96	24.98	24.98	49.96
Max Working Pressure Refrigerant — kPa		3103	3103	—	3103	3103	—
COOLER — No. ...Type							
No. Refrigerant Circuits		1...10HB210	1...10HB200	—	1...10HB210	1...10HB210	—
Net Fluid Volume — L (includes nozzles)		267	229	4	267	267	4
Max Working Pressure		1916/2068	1916/2068	—/—	1916/2068	1916/2068	—/—
Refrigerant Side/Fluid Side — kPa							
FLUID CONNECTIONS — mm							
Inlet and Outlet		Victaulic	Victaulic	—	Victaulic	Victaulic	—
Drain		6 NPT	6 NPT	—	6 NPT	6 NPT	—

LEGEND

C-AL — Copper Tubing — Aluminum Fins Condenser Coil
C-C — Copper Tubing — Copper Fins Condenser Coil
OD — Outside Diameter

*All compressors have 6 cylinders.

†GN/GT.

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

Factory-installed options



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 30GN,GT units to -20 F (-29 C) ambient temperature. The control is pre-wired at the factory. This 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.

Unloaders (30GN Only) — The unloader option provides increased cost savings for exceptional part-load performance and eliminates the need for hot gas bypass. Unloaders are also available as a field-installed accessory on all 30GN units and some 30GT units.

Cooler heater — A cooler heater may be factory installed. The package includes controls to energize the heater at 35 F (2 C) and below (down to -20 F [-29 C]), and 8 cooler tape heaters, 210 w each.

High-static fans — The high-static fans allow the 30GN,GT 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 orifices to reduce system sound levels without compromising unit performance. This is also available as a field-installed accessory.

Copper tube/copper fin, copper tube/aluminum heresite fin, copper tube/copper heresite fin, or copper-tube/pre-coated fin condensers — Optional condenser coil materials prolong condenser coil life in seacoast applications.

Field-installed accessories

Hot-gas bypass — The package includes control solenoid valves and the hot gas bypass valve along with installation instructions. Piping and electrical connections are made easy by factory-provided piping stubs and electrical terminal blocks.

Gage panel — (For 30GT Only.) 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** circuit. For 30GN, all system pressures are monitored through the 8-character display.

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 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 is for Flotronic™ (30GT) units only, and 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 (30GT only) — The accessory has a 2-point adjustment (0-49% and 50-100%), activated by a remote signal, either 115 v or 230 v. This accessory module is a pre-wired board. This control module is standard on 30GN units.

NOTE: If application requires reset to be determined based on space or outdoor-air temperature, an additional field-installed sensor (T10) will be 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 orifices for reducing system noise without compromising unit performance. No fan motor change is required, and the fan system is compatible with Motormaster III control. Accessory is packaged in sets of 2 per package. This 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.

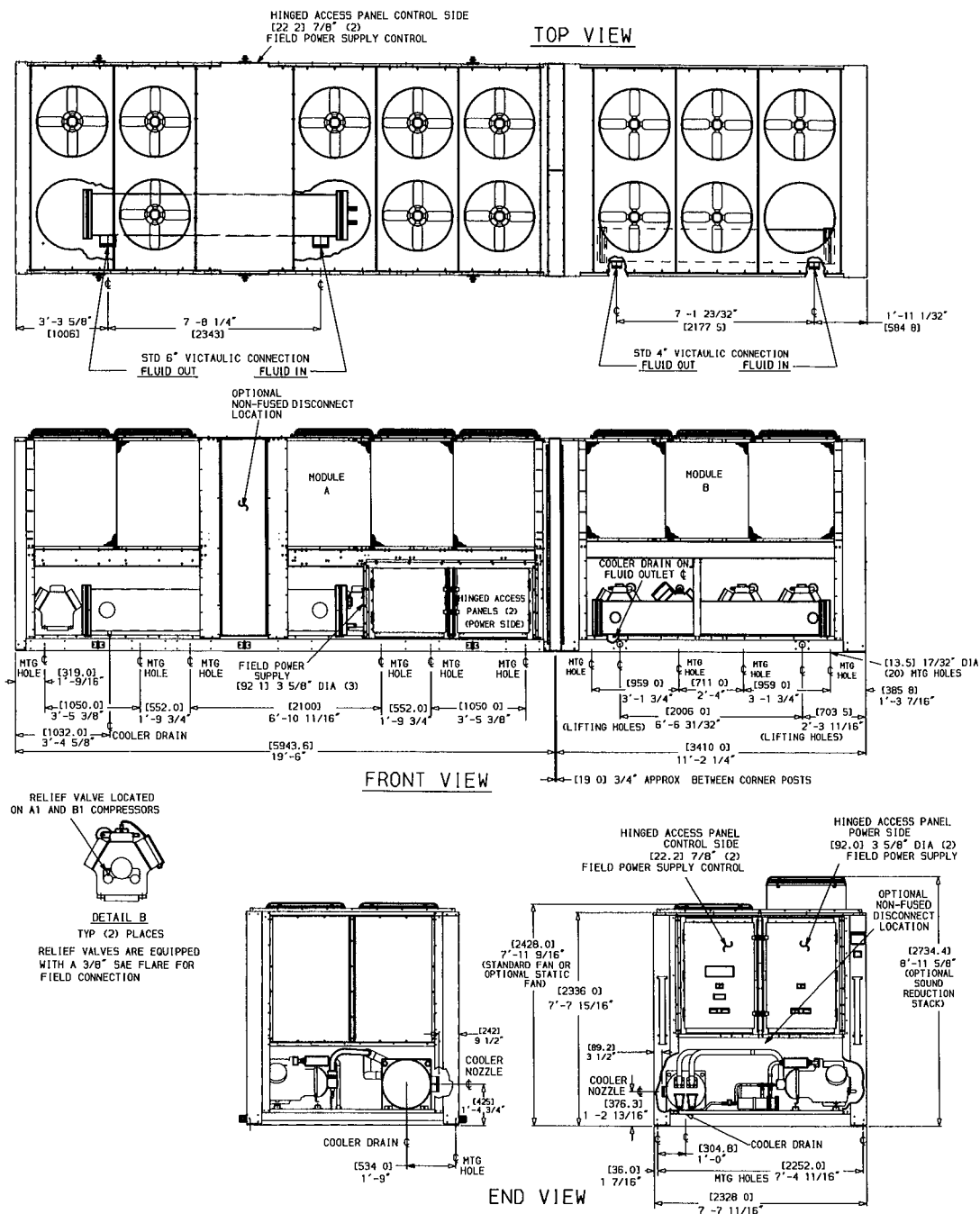
Unloaders (All 30GN units and 30GT290B,360A [50 Hz], 360A/B [60 Hz] and 390B units) — Unloaders operate more efficiently than and eliminate the need for hot gas bypass. One additional unloader may be added to the lead compressor of each circuit, if desired. This package requires the control options board (included). Unloaders are also available as a factory-installed option on 30GN units.

Coastal filter — Filter accessory protects unit from corrosion damage in coastal applications and in areas with high sulfur emissions.

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

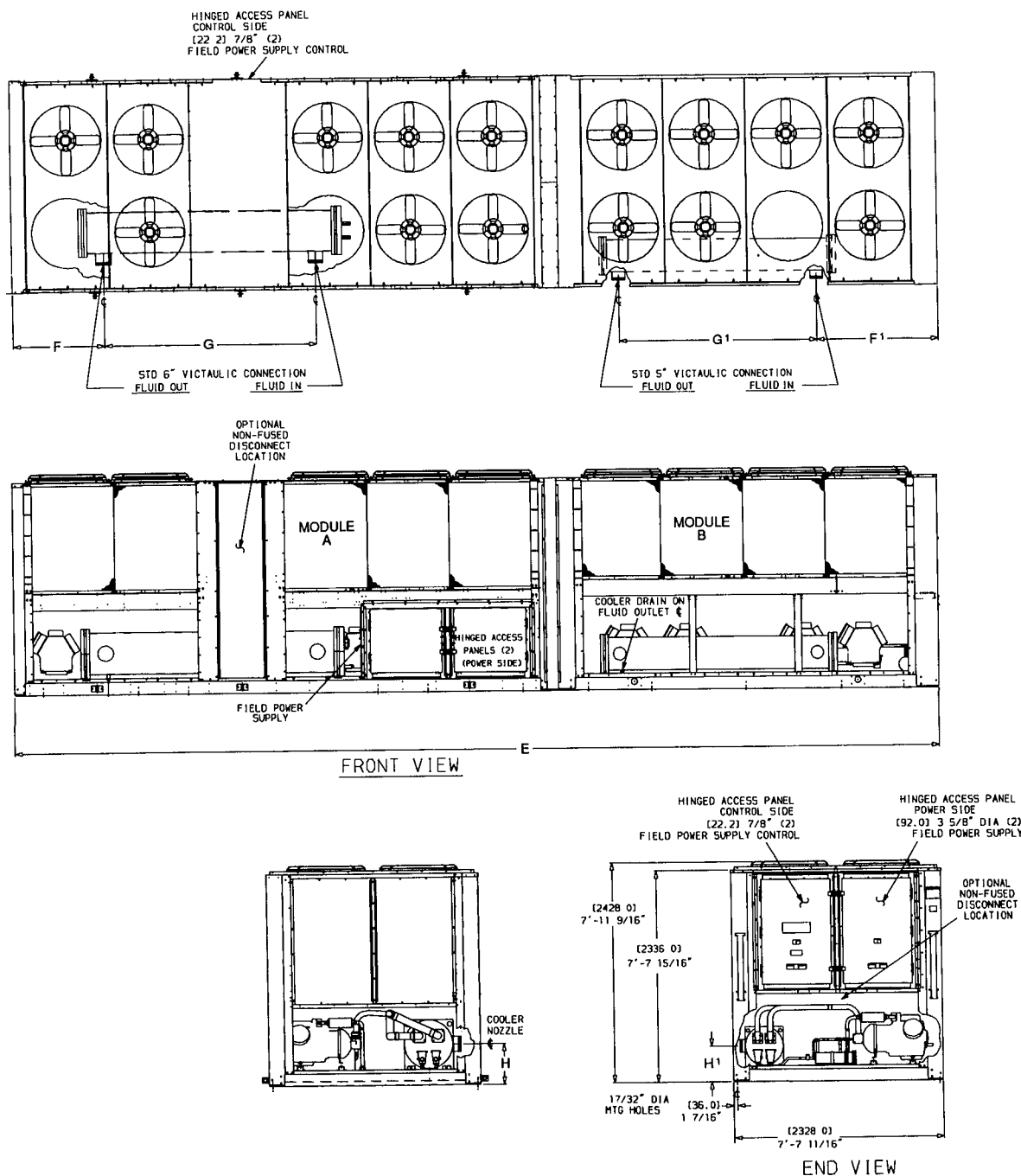
Trim kit — An accessory trim kit is available for field installation between the 2 unit modules. The kit contains sheet metal pieces and all necessary mounting hardware.

Base unit dimensions — 30GN,GT230,245



Base unit dimensions — 30GN,GT255,270

Carrier®



LEGEND

MTG — Mounting

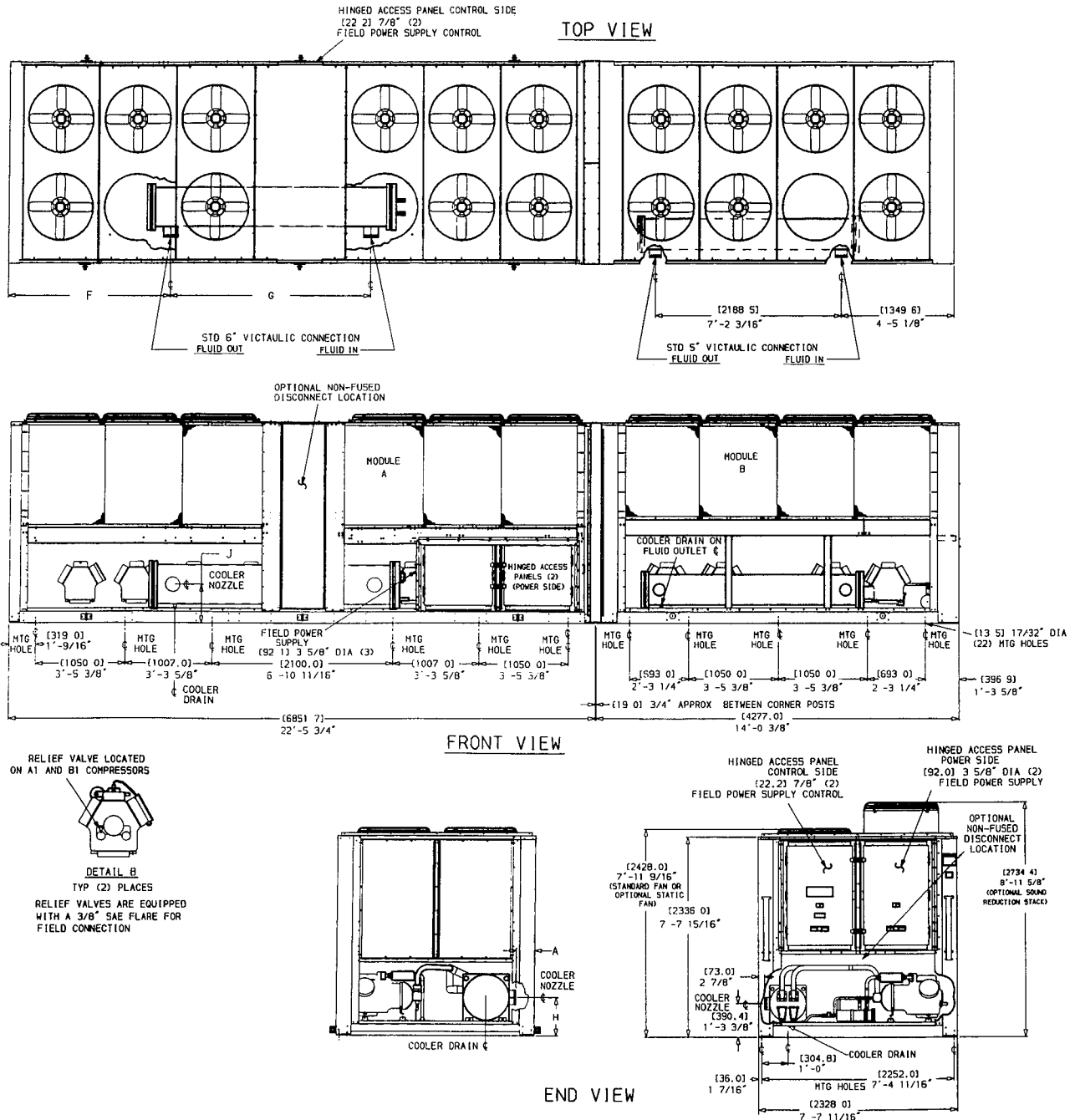
NOTES.

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

DIMENSIONS — ft-in. (mm)

30GN,GT	255	270
E — OVERALL LENGTH	39-0 (11 887)	33-7 1/8 (10 221)
F — LEFT END TO COOLER OUTLET — 'A'	3-3 3/8 (1006)	3-6 3/8 (1032)
F' — RIGHT END TO COOLER INLET — 'B'	4-5 1/8 (1350)	
G — COOLER INLET TO OUTLET — 'A'	7-8 1/4 (2343)	
G' — COOLER INLET TO OUTLET — 'B'	7-2 3/16 (2189)	
H — COOLER NOZZLE HEIGHT — 'A'	1-4 5/8 (423)	1-5 5/8 (448)
H' — COOLER NOZZLE HEIGHT — 'B'	1-3 3/8 (390)	

Base unit dimensions — 30GN,GT290,315



LEGEND

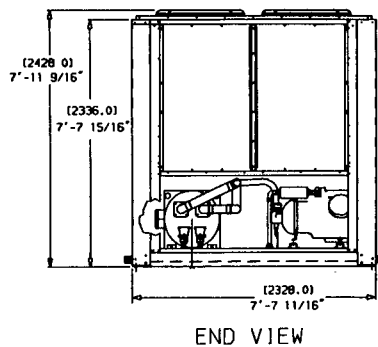
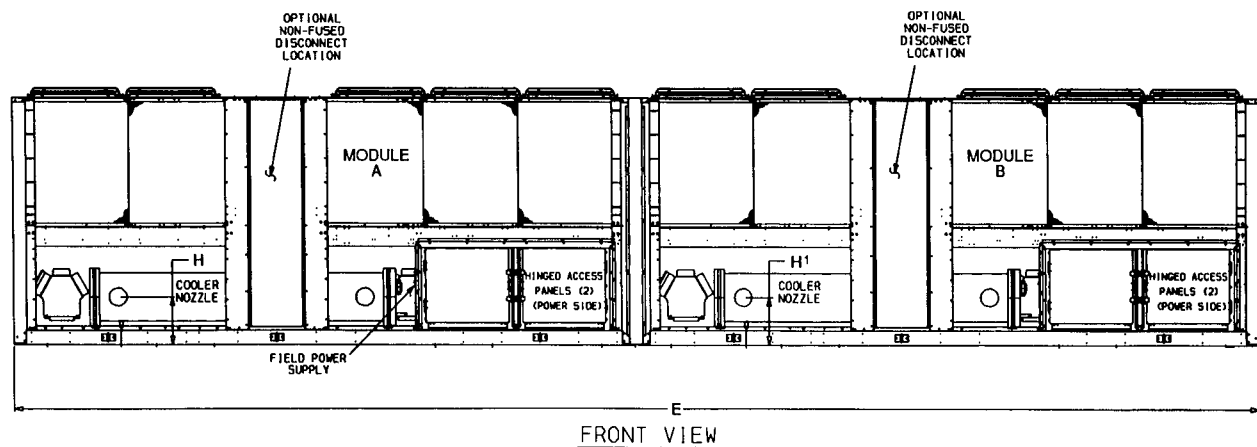
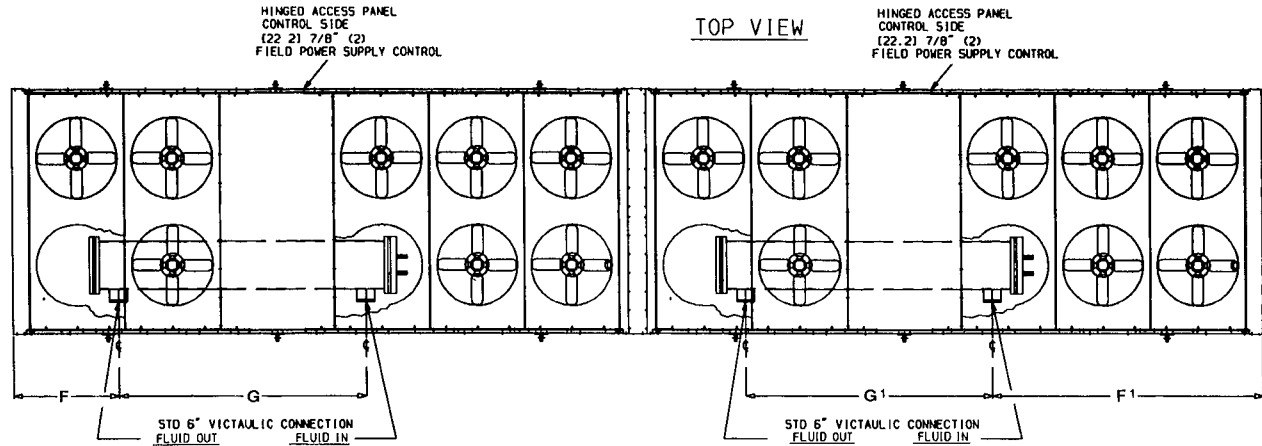
MTG — Mounting
SAE — Society of Automotive Engineers (U.S.A.)
NOTES

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

DIMENSIONS — ft-in. (mm)

30GN,GT	290	315
F — LEFT END TO COOLER OUTLET — 'A'	6-3 7/16 (1916)	5-11 1/2 (1816)
G — COOLER INLET TO OUTLET — 'A'	7-8 1/4 (2343)	8-2 9/16 (2504)
H — COOLER NOZZLE HEIGHT — 'A'	1-5 5/8 (448)	1-6 7/16 (468)

Base unit dimensions — 30GN,GT330-420



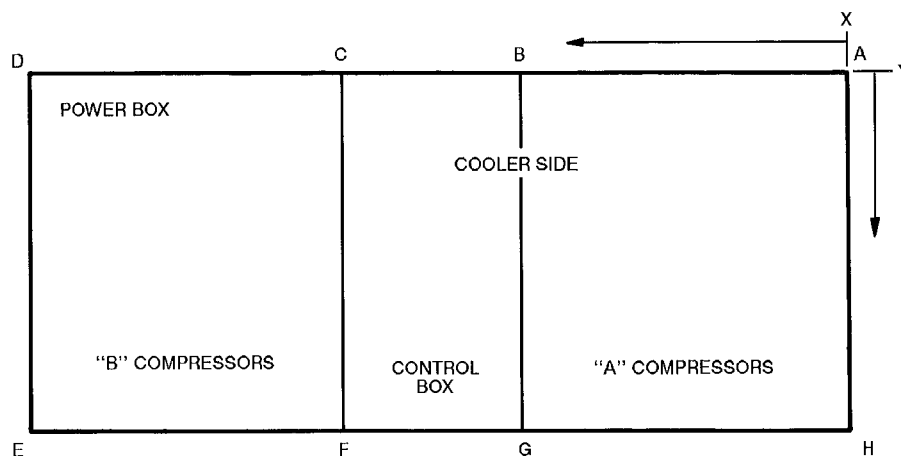
NOTES.

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

DIMENSIONS — ft-in. (mm)

30GN,GT	330	360 (50 HZ)	360 (60 HZ)	390	420
E — OVERALL LENGTH	39-¾ (11 906)	42-½ (12 815)	45-¼ (13 722)		
F — LEFT END TO COOLER OUTLET — 'A'	3-3⅝ (1032)	1-5⅝ (448)	6-37⁄16 (1916)	5-11½ (1816)	
F' — RIGHT END TO COOLER INLET — 'B'	8-61⁄16 (2593)				8-311⁄16 (2332)
G — COOLER INLET TO OUTLET — 'A'	7-8¼ (2343)			8-2⅝ (2504)	
G' — COOLER INLET TO OUTLET — 'B'	7-8¼ (2343)			8-2⅝ (2504)	
H — COOLER NOZZLE HEIGHT — 'A'	1-4¾ (425)	1-5⅝ (448)		1-67⁄16 (468)	
H' — COOLER NOZZLE HEIGHT — 'B'	1-5⅝ (448)				1-67⁄16 (468)

Base unit dimensions — mounting weights (approximate)



60 HZ

UNIT SIZE	CONDENSER COIL	lb							
		A	B	C	D	E	F	G	H
230A,245A,255A	C-AL	926	1563	1160	834	1438	1375	1747	1438
	C-C	1053	1690	1287	961	1628	1566	1938	1629
230B	C-AL	1666	—	—	1650	1624	—	—	1690
	C-C	1847	—	—	1831	1797	—	—	1880
245B	C-AL	1720	—	—	1685	1817	—	—	1793
	C-C	1893	—	—	1880	1997	—	—	1970
255B, 270B	C-AL	2120	—	—	2120	2185	—	—	2185
	C-C	2360	—	—	2360	2420	—	—	2420
270A,330A/B	C-AL	962	1732	1333	862	1497	1629	1816	1462
	C-C	1089	1860	1460	990	1688	1819	2007	1653
290A,360A/B,390B	C-AL	1346	1942	1793	1111	1385	1799	1733	1567
	C-C	1536	2132	1983	1301	1575	1989	1923	1757
315A,390A,420A/B	C-AL	1376	2128	1871	1120	1407	1846	2037	1595
	C-C	1566	2318	2061	1310	1597	2036	2227	1784
290B,315B	C-AL	2136	—	—	2116	2191	—	—	2217
	C-C	2374	—	—	2354	2428	—	—	2454

60 HZ

UNIT SIZE	CONDENSER COIL	kg							
		A	B	C	D	E	F	G	H
230A,245A,255A	C-AL	420	710	527	379	653	625	794	653
	C-C	478	768	585	436	285	711	880	740
230B	C-AL	757	—	—	750	738	—	—	768
	C-C	840	—	—	832	817	—	—	854
245B	C-AL	782	—	—	766	826	—	—	815
	C-C	860	—	—	855	908	—	—	895
255B, 270B	C-AL	964	—	—	964	993	—	—	993
	C-C	1073	—	—	1073	1100	—	—	1100
270A,330A/B	C-AL	437	787	605	392	680	740	825	664
	C-C	495	845	663	450	767	826	912	751
290A,360A/B,390B	C-AL	611	882	815	505	629	817	787	712
	C-C	698	969	901	591	715	904	874	798
315A,390A,420A/B	C-AL	625	967	850	509	639	384	925	725
	C-C	711	1053	937	595	725	925	1012	810
290B, 315B	C-AL	970	—	—	962	996	—	—	1007
	C-C	1079	—	—	1070	1104	—	—	1115

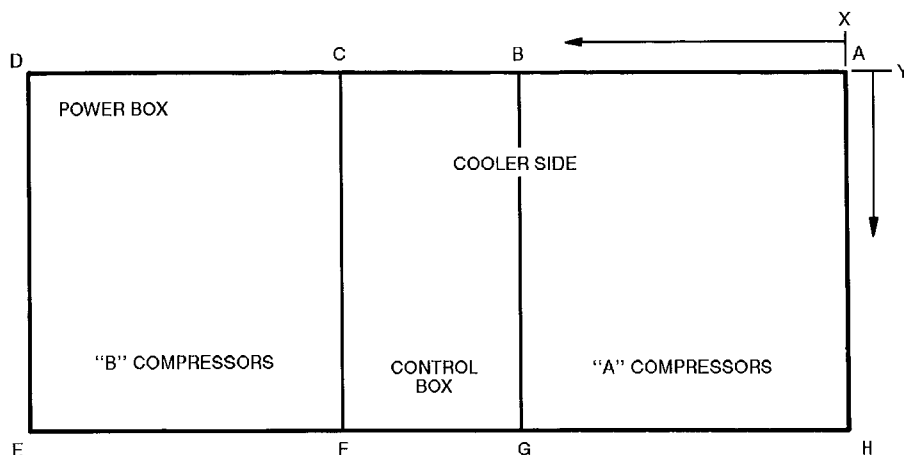
LEGEND

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

RIGGING CENTER OF GRAVITY

UNIT SIZE	230A,245A, 255A		230B		245B		255B,270B		270A,330A/B		290A,360A/B, 390B		290B,315B		315A,390A, 420A/B	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
X Dimension	112 ¹ / ₈	2849	64 ⁵ / ₈	1642	66 ¹ / ₈	1700	81 ¹ / ₈	2059	112 ³ / ₈	2865	136	3454	80 ⁵ / ₈	2048	135 ⁵ / ₈	3444
Y Dimension	50 ¹ / ₂	1283	49 ¹ / ₈	1261	52 ¹ / ₈	1344	51 ¹ / ₈	1312	50 ¹ / ₂	1283	50 ¹ / ₂	1283	52 ³ / ₈	1326	50 ⁵ / ₈	1285

Base unit dimensions — mounting weights (approximate) (cont)



50 HZ

UNIT SIZE	CONDENSER COIL	lb							
		A	B	C	D	E	F	G	H
230A,245A,255A	C-AL	948	1591	1160	834	1438	1375	1829	1502
	C-C	1075	1719	1287	961	1628	1566	2020	1692
230B	C-AL	1680	—	—	1660	1650	—	—	1730
	C-C	1842	—	—	1842	1830	—	—	1910
245B	C-AL	1724	—	—	1714	1833	—	—	1864
	C-C	1907	—	—	1899	2014	—	—	2040
255B,270B	C-AL	2133	—	—	2133	2222	—	—	2222
	C-C	2370	—	—	2370	2460	—	—	2460
270A,330A/B 360B	C-AL	963	1744	1348	873	1527	1673	1849	1466
	C-C	1090	1871	1475	1000	1718	1864	2040	1657
290A,360A,390B	C-AL	1365	1953	1807	1127	1430	1839	1765	1621
	C-C	1555	2143	1997	1316	1620	2029	1955	1811
315A,390A,420A/B	C-AL	1383	2151	1876	1128	1430	1860	2102	1615
	C-C	1573	2341	2066	1318	1620	2050	2292	1805
290B,315B	C-AL	2149	—	—	2149	2271	—	—	2271
	C-C	2387	—	—	2387	2508	—	—	2508

50 HZ

UNIT SIZE	CONDENSER COIL	kg							
		A	B	C	D	E	F	G	H
230A,245A,255A	C-AL	430	723	527	379	653	625	831	682
	C-C	486	781	585	437	740	711	918	769
230B	C-AL	764	—	—	755	750	—	—	786
	C-C	847	—	—	837	832	—	—	868
245B	C-AL	784	—	—	779	833	—	—	847
	C-C	867	—	—	863	915	—	—	927
255B,270B	C-AL	970	—	—	970	1010	—	—	1010
	C-C	1077	—	—	1077	1118	—	—	1118
270A,330A/B 360B	C-AL	437	792	612	397	694	760	840	666
	C-C	495	850	670	454	780	847	927	753
290A,360A,390B	C-AL	620	887	821	512	650	835	802	736
	C-C	707	974	907	598	736	922	977	823
315A,390A,420A/B	C-AL	628	977	852	512	650	845	955	734
	C-C	715	1064	940	599	736	931	1042	820
290B,315B	C-AL	976	—	—	976	1032	—	—	1032
	C-C	1085	—	—	1085	1140	—	—	1140

LEGEND

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

RIGGING CENTER OF GRAVITY

UNIT SIZE	230A,245A, 255A		230B		245B		255B,270B		270A,330A/B		290A,360A/B, 390B		290B,315B		315A,390A, 420A/B	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
X Dimension	112½	2849	64⅞	1642	66⅛	1700	81⅛	2059	112⅞	2865	136	3454	80⅞	2048	135⅞	3444
Y Dimension	50½	1283	49⅞	1261	52⅛	1344	51⅞	1312	50½	1283	50½	1283	52⅞	1326	50⅞	1285

Leveling unit

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

While most outdoor locations are suitable for 30GN,GT 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™ or Flotronic II 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 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; standard on Flotronic II 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:

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. Both Flotronic and Flotronic II 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 29.

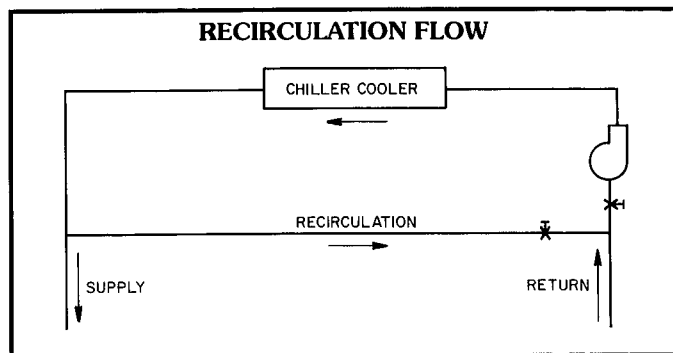
Minimum cooler flow (maximum cooler temperature rise) — The minimum cooler flow for standard units is shown in Minimum Cooler Flow Rates table. When gpm (L/s) required is lower (or rise higher), follow recommendations below:

- 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.

Application data (cont)



NOTE: Recirculation flow is shown below.



MINIMUM COOLER FLOW RATES AND MINIMUM LOOP VOLUMES

UNIT SIZE	MINIMUM COOLER FLOW RATE				MINIMUM LOOP VOLUME	
	Module A		Module B		Gallons	Liters
	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).

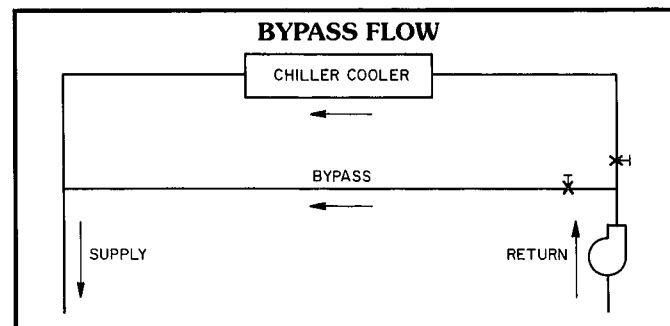
Antifreeze solution — Inhibited ethylene glycol or other suitable corrosion-inhibited anti-freeze solution must be field-supplied and -installed in all units for unit installation below 32 F (0° C). Solution must be added to fluid loop to protect loop down to 15 F (8 C) below minimum operating ambient 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 is available by special order, to permit a cooler flow rate increase of 10%.

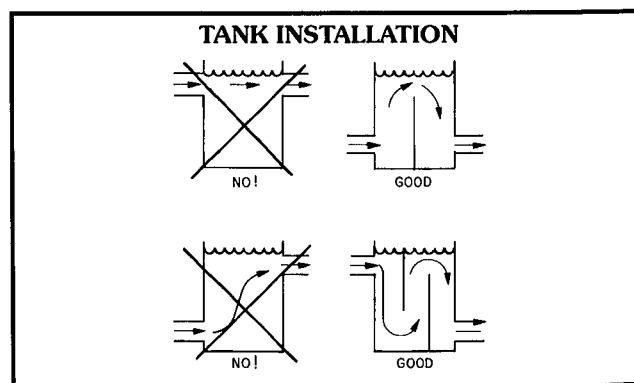
NOTE: Bypass flow is shown below.



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 30GT420, 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 is not to be used during freezing weather conditions. See Low Ambient Temperature Operation section on page 24 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

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 26.

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 26) at -10 F; read that 40% concentration of inhibited ethylene glycol is required to prevent crystals from forming in solution.

Consider the 30GT420 unit from the Selection Procedure example on page 29 (refer to correction curves at 40% solution).

Correct unit capacity — On capacity correction curve in chart on page 26, read 0.95.

$$\begin{aligned}\text{Corrected capacity} &= 0.95 \times \text{determined capacity} \\ &= 0.95 \times 412.1 \\ &= 391.5 \text{ tons.}\end{aligned}$$

Correct cooler water flow — On the cooler flow correction factor curve (page 26), read 1.15.

Cooler water flow (at corrected capacity)

$$\begin{aligned}&= \frac{24 \times \text{corrected cap. in tons}}{\text{temperature rise } F} = \text{U.S. gpm} \\ &= \frac{24 \times 391.5}{14} = 671.1 \text{ U.S. gpm}\end{aligned}$$

$$\begin{aligned}\text{Cooler water flow (40\% solution)} &= 1.15 \times 671.1 \\ &= 771.8 \text{ U.S. gpm}\end{aligned}$$

Correct cooler pressure drop — On cooler pressure drop correction curve on page 26, read 1.33.

On Cooler Fluid Pressure Drop curve (page 28), for 385.9 (½ x 771.8) gpm, read pressure drop = 9.6 ft water gage (per module). The pressure drop for 40% solution = 1.33 x 9.6 = 12.8 ft water per module.

Correct compressor power input (kW) — On power correction curve on page 26, read 0.97 correction factor at 40% ethylene glycol concentration.

Power input from Selection Procedure example = 478.0 kW.

$$\text{Corrected power input} = 0.97 \times 478.0 = 463.7 \text{ kW}$$

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 page 26, at -23 C, read 40% concentration inhibited ethylene glycol is required to prevent crystals from forming in solution.

Consider 30GT420 unit from the Selection Procedure example (refer to correction curves at 40% solution).

Correct unit capacity — On capacity correction curve on page 26, read 0.95.

$$\begin{aligned}\text{Corrected capacity} &= 0.95 \times \text{determined capacity} \\ &= 0.95 \times 1391.9 \\ &= 1322.3 \text{ kW}\end{aligned}$$

Application data (cont)



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

Cooler water flow (at corrected capacity)

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

$$= \frac{0.239 \times 1322.3}{7.8^\circ} = 40.5 \text{ L/s}$$

$$\text{Cooler water flow (40\% solution)} = 1.15 \times 40.5 = 46.6 \text{ L/s}$$

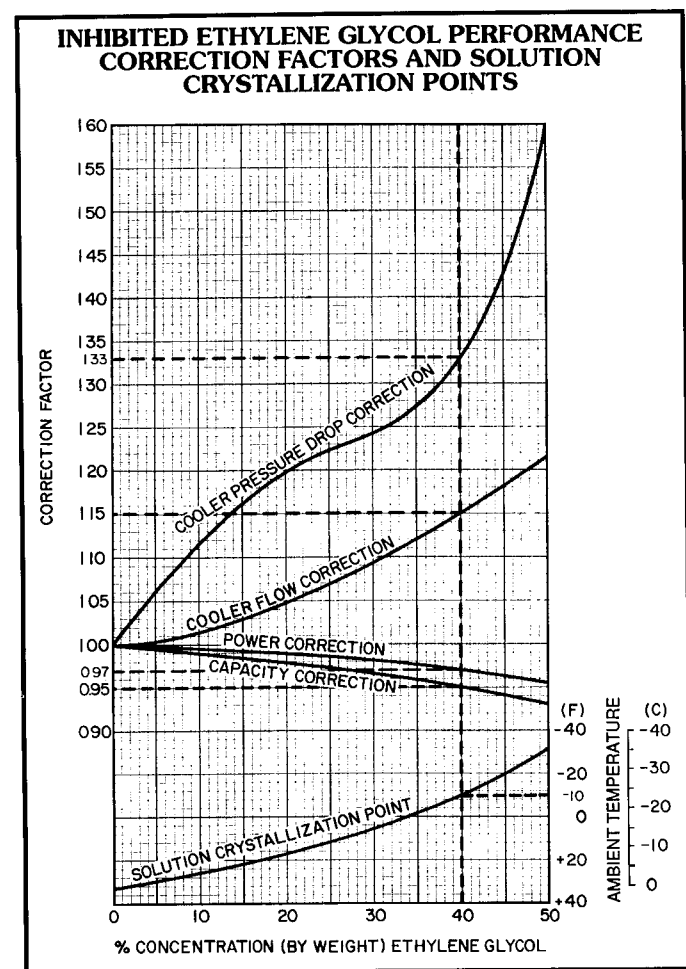
Correct cooler pressure drop — On Cooler Fluid Pressure Drop correction curve (below), read 1.33.

On Cooler Pressure Drop Curve (page 28), for 23.3 (½ x 46.6) L/s, read pressure drop of 26.6 kPa per module. The pressure drop for 40% solution = 1.33 x 26.6 = 35.4 kPa per module.

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

Power input from Selection Procedure example = 471.5 kW.

Corrected power input = 0.97 x 471.5 = 457.3 kW.



Oversizing chillers

Oversizing chillers by more than 15% at design conditions must be avoided as the system operating efficiency would

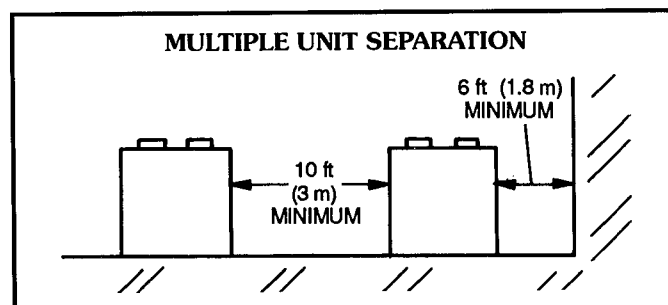
be adversely affected (resulting in greater or excessive electrical demand). When future expansion of equipment is anticipated, install a single chiller to meet present load requirements and add a second chiller added to meet the additional load demand.

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 percent of 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 400 tons (1400 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° 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 Base Unit Dimensions on pages 17-22 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) or by CCN (Carrier Comfort Network) with Flotronic™ II option.

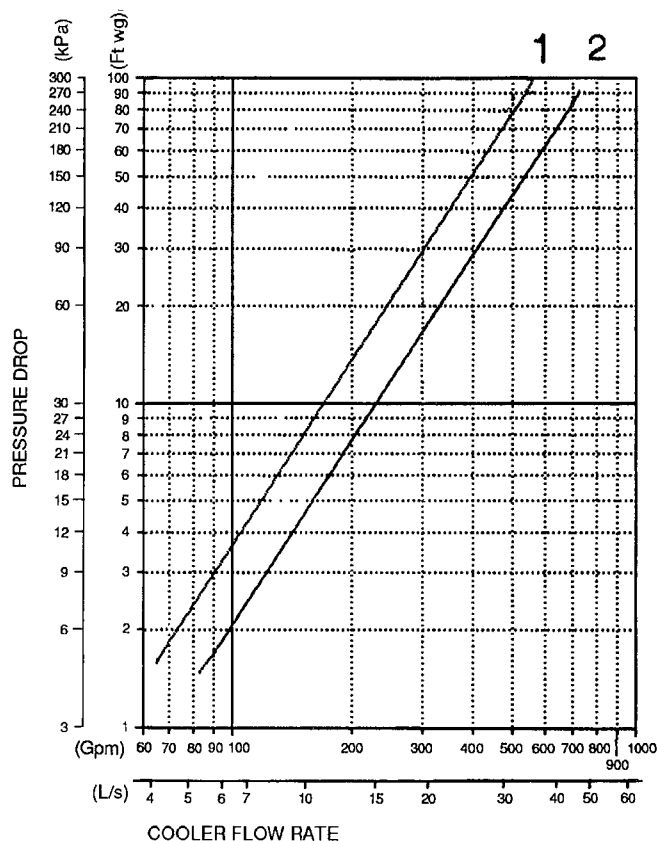
Part-wind start

Part-wind start generally is not required on 30GN,GT 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 page 39) 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

ENGLISH AND SI



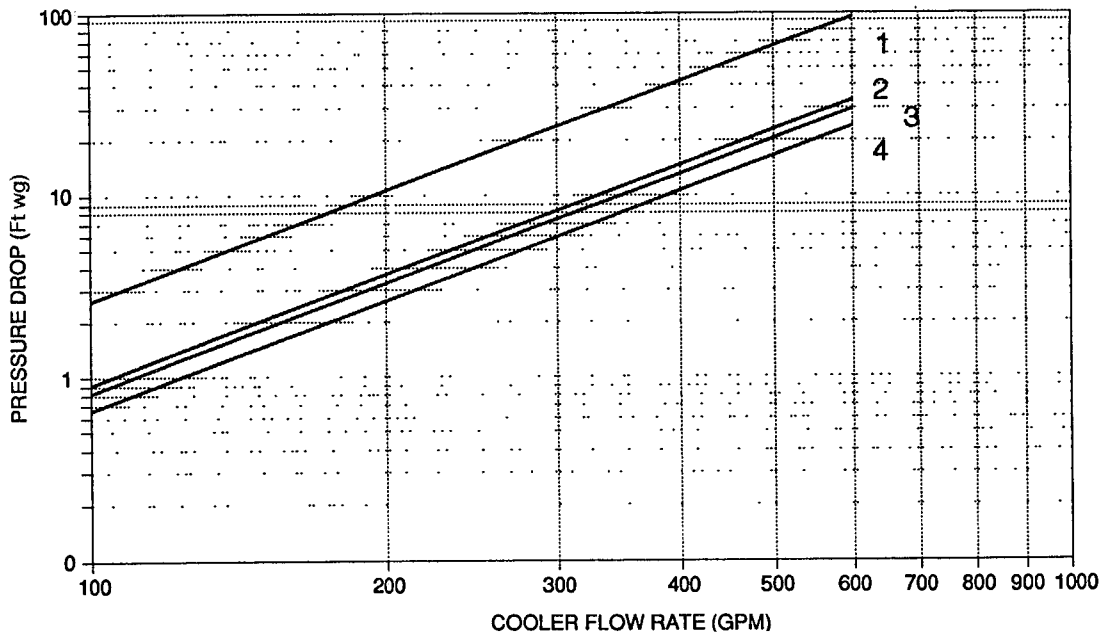
COOLER PRESSURE DROP KEY

- 1 Module B — 30GN,GT230,245
- 2 Module B — 30GN,GT255,290,315

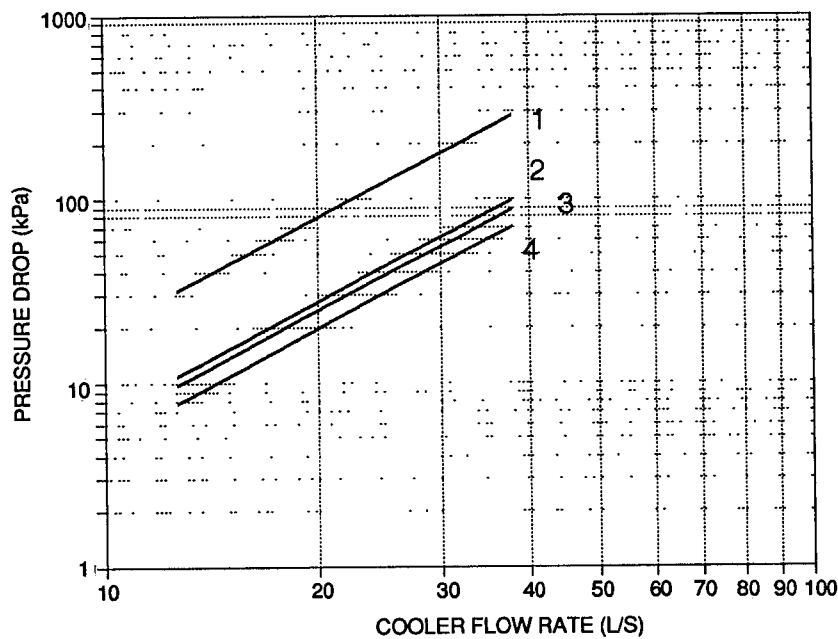
NOTE: Ft of water = 2.31 x change in psig

COOLER FLUID PRESSURE DROP CURVES (cont)

ENGLISH



SI



COOLER PRESSURE DROP KEY

- 1 Module B — 30GN,GT270
- 2 Module A — 30GN,GT230-255
- 3 Module A — 30GN,GT270,330
Module B — 30GN,GT330,360 (50 Hz)
- 4 Module A — 30GN,GT290,315,360 (50 or 60 Hz), 390, and 420
Module B — 30GN,GT360 (60 Hz), 390, and 420

Selection procedure — English (60 Hz) (with 30GT example)



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 405 tons
Leaving chilled water temperature (LCWT) ... 45 F
Cooler water temperature rise 14 F
Condenser entering-air temperature (CEAT) .. 95 F
Loop volume 1300 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 32) 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 30GT420 the capacity is 409.8 tons, and power

input is 476.3 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 412.1 tons
Power input 478.0 kW

IV Calculate corrected cooler water flow.

$$\text{Water flow} = \frac{24 \times \text{corr cap. in tons}}{\text{temperature rise } ^\circ\text{F}} = \text{U.S. gpm}$$

$$= \frac{24 \times 412.1}{14} = 706.4 \text{ U.S. gpm}$$

V Calculate the cooler pressure drop.

Enter Cooler Fluid Pressure Drop curve (page 28) at corrected flow rate proportional to 2 modules. In this selection, enter at ½ the corrected flow rate (½ x 706.4 = 303.2 gpm) and read, for 30GT420, a pressure drop of 6.2 (per module) of water.

VI Check loop volume and cooler water flow rate.

Minimum loop volume, from application data, is 1200 gal for 30GT420. Therefore, given volume of 1300 gal is satisfactory. Minimum water flow rate, from application data, is 148 gpm (per module) for 30GT420. Flow rate of 303.2 gpm (per module) is well above minimum required.

Selection procedure — SI (60 Hz) (with 30GT example)

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 1380 kW
Leaving chilled water temperature (LCWT) 6 C
Cooler water temperature rise 7.8° C
Condenser entering-air temperature (CEAT) .. 35 C
Loop volume 4800 L
Electrical Power 400-3-50

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 36) 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, 1383.7 kW is delivered by a 30GT420. Interpolate

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

Values are:

Capacity 1391.9 kW
Power input 471.5 kW

IV Calculate corrected cooler water flow.

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

$$= \frac{0.239 \times 1391.9}{7.8} = 42.7 \text{ L/s}$$

V Calculate cooler pressure drop.

Enter Cooler Fluid Pressure Drop curve (page 28) at corrected flow rate proportional to 2 modules. In this selection, enter at ½ the corrected flow rate (½ x 42.7 = 21.4 L/s) and read, for 30GT420, a pressure drop of 22.6 (per module) kPa.

VI Check loop volume and cooler water flow rate.

Minimum loop volume, from application data, is 4572 L for 30GT420. Therefore, given volume of 4800 L is satisfactory. Minimum water flow rate, from application data, is 9.3 L/s (per module) for 30GT420. Flow rate of 22.6 L/s (per module) is well above minimum required.

Performance data — English and SI



60 Hz — STANDARD RATINGS* — REFRIGERANT 22

UNIT SIZE	OUTPUT (CAPACITY)			INPUT POWER (kW)		EFFICIENCY	
	kW	Tons	Btuh	Compressor	Fan	EER	COP
230	781.1	222.1	2,665,113	255.3	24.9	9.5	2.8
245	800.6	227.6	2,731,306	260.1	24.9	9.6	2.8
255	843.9	240.0	2,924,084	269.6	28.2	9.7	2.8
270	903.5	256.9	3,082,800	289.0	28.1	9.7	2.8
290	988.9	281.2	3,374,127	318.1	31.2	9.7	2.8
315	1085.6	308.7	3,704,408	358.4	31.2	9.5	2.8
330	1105.4	314.3	3,771,600	362.0	31.0	9.6	2.8
360	1212.7	344.8	4,137,600	398.5	37.1	9.5	2.8
390	1314.7	373.8	4,485,600	434.9	37.1	9.5	2.8
420	1414.5	402.2	4,826,400	470.8	37.1	9.5	2.8

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

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

50 Hz — STANDARD RATINGS* — REFRIGERANT 22

UNIT SIZE	OUTPUT (CAPACITY)			INPUT POWER (kW)		EFFICIENCY	
	kW	Tons	Btuh	Compressor	Fan	EER	COP
230	793.4	225.6	880,978	258.2	24.9	9.6	2.8
245	827.1	235.2	958,431	280.9	24.9	9.2	2.7
255	861.2	244.9	983,338	288.2	28.1	9.3	2.7
270	909.5	258.6	3,103,200	299.5	28.2	9.5	2.8
290	1022.1	290.6	1,184,988	347.3	31.2	9.2	2.7
315	1097.4	312.0	1,269,946	372.2	31.3	9.3	2.7
330	1113.5	316.6	3,799,200	373.3	31.0	9.4	2.8
360	1188.4	337.9	4,054,800	399.8	34.0	9.3	2.7
390	1339.3	380.8	4,569,600	451.5	37.1	9.4	2.7
420	1413.8	402.0	4,824,000	476.2	37.1	9.4	2.8

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.

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

Performance data — English



COOLING CAPACITIES — 60 HZ

CONDENSER ENTERING-AIR TEMPERATURE (F)																
LCWT (F)	Unit Size	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	230	218.7	232.0	523.6	207.5	245.7	496.7	196.0	258.5	469.1	184.5	270.5	441.8	172.9	281.5	413.8
	245	224.4	235.9	537.2	212.5	250.2	508.7	200.4	263.7	479.8	188.4	276.3	451.1	176.3	288.0	422.0
	255	236.1	244.5	565.1	223.6	259.5	535.3	210.9	273.5	505.0	198.3	286.5	474.7	185.5	298.5	444.0
	270	254.9	263.4	610.2	240.4	278.6	575.6	225.9	292.5	540.7	211.1	304.9	505.4	196.1	315.7	469.4
	290	275.9	288.5	660.4	261.3	305.0	625.4	246.7	320.4	590.5	232.0	334.7	555.3	217.2	347.8	519.8
	315	303.5	325.6	726.6	286.0	342.5	684.7	268.4	357.9	642.6	250.9	372.0	600.7	233.3	384.4	558.4
	330	313.7	331.5	751.0	296.5	350.0	709.8	279.0	366.8	668.0	261.3	381.7	625.4	243.1	394.6	581.9
	360	343.7	364.9	822.8	325.9	385.7	780.2	307.7	404.8	736.5	289.1	422.4	692.0	270.4	438.5	647.4
	390	369.9	396.7	885.5	349.3	417.6	836.2	328.7	436.8	786.9	308.1	454.5	737.6	287.3	470.3	687.8
	420	395.9	428.2	947.7	372.8	449.3	892.4	349.7	468.5	837.2	327.0	486.3	782.9	304.0	501.8	727.7
42	230	226.2	236.3	541.9	214.8	250.5	514.5	203.1	263.9	486.5	191.3	276.3	458.2	179.4	287.8	429.9
	245	232.1	240.3	556.1	220.1	255.2	527.2	207.8	269.2	497.7	195.4	282.3	468.1	183.0	294.5	438.4
	255	244.4	249.0	585.6	231.7	264.5	555.2	218.9	279.2	524.3	205.8	292.7	493.1	192.8	305.3	461.8
	270	263.3	267.9	630.8	248.6	283.8	595.7	233.7	298.2	559.8	218.6	311.2	523.7	203.4	322.6	487.2
	290	286.0	294.4	685.2	271.1	311.5	649.5	256.3	327.6	613.9	241.1	342.5	577.6	226.0	356.2	541.3
	315	315.2	332.8	755.0	297.2	350.4	712.1	279.3	366.5	669.0	261.2	381.2	625.8	243.1	394.4	582.4
	330	322.8	336.9	773.3	305.4	356.0	731.6	287.6	373.4	688.9	269.4	388.9	645.5	251.0	402.5	601.3
	360	353.6	370.8	847.1	335.1	392.0	802.8	316.9	411.9	759.2	298.0	430.2	713.9	279.0	446.9	668.4
	390	382.4	404.5	916.1	361.5	426.2	866.1	340.3	446.1	815.2	319.1	464.4	764.5	297.8	480.9	713.4
	420	410.9	438.0	984.3	387.5	460.1	928.2	363.8	480.1	871.4	340.1	498.3	814.8	316.4	514.7	758.0
44	230	233.9	240.7	560.7	222.1	255.3	532.4	210.2	269.2	503.9	198.2	282.1	475.2	186.1	294.2	446.1
	245	240.2	244.8	575.7	227.6	260.1	545.7	215.1	274.7	515.6	202.6	288.3	485.6	189.8	301.0	455.0
	255	253.1	253.6	606.6	240.0	269.6	575.2	226.8	284.8	543.7	213.6	299.0	512.0	200.2	312.2	479.9
	270	271.8	272.5	651.6	256.9	289.0	615.9	241.8	304.0	579.5	226.3	317.5	542.5	210.7	329.5	505.1
	290	296.5	300.3	710.8	281.2	318.1	674.1	265.9	334.8	637.5	250.6	350.4	600.7	234.9	364.7	563.2
	315	327.2	340.1	784.3	308.7	358.4	740.0	290.3	375.2	695.8	271.7	390.5	651.4	—	—	—
	330	332.0	342.3	795.8	314.3	362.0	753.5	296.3	380.1	710.2	277.8	396.2	665.9	259.0	410.4	620.9
	360	363.7	376.9	871.9	344.8	398.5	826.7	326.2	419.1	781.9	307.2	438.1	736.5	287.6	455.4	689.5
	390	395.1	412.4	947.1	373.8	434.9	896.2	352.3	455.6	844.6	330.4	474.5	792.1	—	—	—
	420	426.4	447.9	1022.1	402.2	470.8	964.2	378.2	491.9	906.6	353.8	510.9	848.2	—	—	—
45	230	237.8	242.9	570.1	225.8	257.8	541.5	213.8	271.9	512.7	201.7	285.1	483.8	189.4	297.4	454.2
	245	244.2	247.0	585.5	231.5	262.6	555.1	218.8	277.4	524.7	206.2	291.3	494.3	193.2	304.3	463.3
	255	257.4	255.9	617.2	244.1	272.2	585.4	230.8	287.7	553.5	217.5	302.1	521.5	203.9	315.6	488.9
	270	276.2	274.9	662.2	261.1	291.6	626.1	245.8	306.9	589.4	230.3	320.7	552.2	214.4	333.0	514.2
	290	301.6	303.3	723.2	286.4	321.4	686.7	270.8	338.3	649.4	255.3	354.4	612.3	239.6	369.1	574.5
	315	333.2	343.8	798.9	314.6	362.4	754.4	295.9	379.6	709.5	277.1	395.2	664.5	—	—	—
	330	336.6	345.0	807.2	318.8	365.1	764.5	300.7	383.4	720.9	282.1	399.9	676.4	263.1	414.4	630.8
	360	368.7	379.8	884.2	349.8	401.9	838.7	330.8	422.7	793.3	311.8	442.0	747.7	292.1	459.7	700.5
	390	401.5	416.4	962.7	380.0	439.2	911.1	358.3	460.3	859.1	336.2	479.6	806.2	—	—	—
	420	434.1	453.0	1041.0	409.8	476.3	982.8	385.3	497.6	923.8	360.7	517.1	865.0	—	—	—
46	230	241.7	245.1	579.6	229.7	260.2	550.9	217.5	274.6	521.7	205.3	288.0	492.4	192.9	300.6	462.6
	245	248.2	249.3	595.3	235.5	265.1	564.8	222.6	280.1	533.9	209.7	294.3	503.1	196.8	307.6	472.0
	255	261.7	258.2	627.8	248.5	274.8	596.0	234.9	290.5	563.5	221.4	305.3	531.2	207.8	319.1	498.4
	270	280.5	277.2	672.7	265.3	294.2	636.4	249.9	309.8	599.4	234.2	323.9	561.8	218.2	336.5	523.5
	290	306.9	306.3	736.1	291.6	324.7	699.5	275.8	342.0	661.6	260.1	358.3	623.9	244.2	373.4	585.8
	315	339.3	347.5	813.8	320.5	366.5	768.8	301.6	384.0	723.3	282.5	400.0	677.6	—	—	—
	330	341.2	347.7	818.5	323.4	368.1	775.6	305.0	386.7	731.7	286.3	403.6	686.8	267.2	418.4	640.8
	360	373.9	382.9	896.9	354.9	405.3	851.3	335.5	426.2	804.7	316.3	445.9	758.7	296.6	464.0	711.4
	390	408.0	420.4	978.5	386.2	443.5	926.3	364.2	465.0	873.6	342.1	484.9	820.6	—	—	—
	420	442.0	458.1	1060.2	417.4	481.8	1001.2	392.7	503.7	942.0	368.0	523.7	882.6	—	—	—

See Legend and Notes on page 32

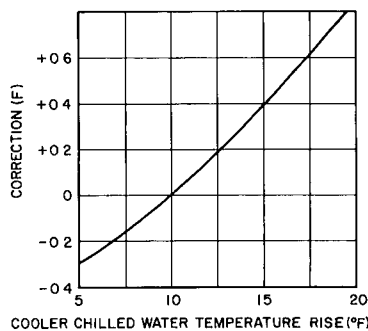
Performance data — English (cont)



COOLING CAPACITIES — 60 HZ (cont)

CONDENSER ENTERING-AIR TEMPERATURE (F)																	
LCWT (F)	Unit Size	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)	
48	230	249 5	249 5	598 8	237.3	265 1	569 6	224 9	280.0	539.8	212.4	294 0	509 7	199 8	307.1	479.4	
	245	256 3	253 8	615.1	243.4	270 1	584 1	230.3	285 7	552.6	217 0	300 3	520.9	203 9	314.2	489 3	
	255	270.6	262 8	649.4	257.0	280.0	616 8	243.3	296.3	583 9	229 4	311 6	550 5	215.5	326 0	517.2	
	270	289 3	281 8	694.2	273.9	299.4	657 3	258 1	315.6	619.5	242.2	330.3	581 2	226 0	343.6	542 3	
	290	317.6	312 3	762.3	302 0	331 5	724 8	285 9	349 3	686 2	269 9	366.2	647 6	253.6	382 1	608 6	
	315	351 5	355 1	843.7	332.4	374 7	797 7	313 0	392.8	751.2	293.6	409 6	704 5	—	—	—	
	330	350.7	353.2	841.6	332 5	374 2	798 1	313 9	393.4	753.4	294 9	410 9	707.8	275 5	426.5	661 3	
	360	384.2	388 9	922.0	364.8	412.0	875.6	345 1	433.4	828.3	325 6	453.9	781.5	305.6	472 5	733 4	
	390	421.1	428.6	1010 5	398.9	452 4	957.3	376 6	474 7	903 8	353.9	495.3	849 4	—	—	—	
	420	458.0	468 3	1099 1	432 8	492.9	1038 7	407 6	515 6	978.2	382 2	536.5	917 2	—	—	—	
50	230	257.6	253 9	618 5	245.1	270 1	588.5	232 5	285.5	558.2	219.7	300 0	527 6	206 7	313.5	496.4	
	245	264.6	258 4	635.3	251 3	275.2	603 5	238.0	291.3	571 5	224.6	306.5	539.3	211 0	320 8	506 7	
	255	279.5	267 4	671 2	265.7	285.2	638 1	251 7	302 1	604.4	237.6	318 0	570.5	223 3	332.9	536 1	
	270	298.2	286 6	716 1	282 5	304 7	678.3	266 5	321 4	640 0	250.3	336.8	600.9	233 8	350 6	561.3	
	290	328.6	318.3	788 9	312.5	338.1	750.3	296 3	356 8	711 5	279 8	374.3	671.9	—	—	—	
	315	364 1	362.7	874 3	344 5	383.0	827 1	324.7	401.8	779 6	304.9	419 3	732 1	—	—	—	
	330	360.3	358 7	865.0	341 8	380.3	820.6	323.0	400.2	775 4	303 7	418.3	729.1	283.9	434 6	681.8	
	360	394 7	395.0	947 7	374 9	418 7	900.2	354 9	440 7	852 2	334.9	461.7	804.2	314.8	481 2	755.8	
	390	434.5	436.9	1043.3	411 8	461 4	988 7	389 0	484 4	934 0	366.0	505.8	878 8	—	—	—	
	420	474 2	478 8	1138 6	448 5	504.1	1077.0	422.7	527.7	1015 0	396 8	549.5	952.6	—	—	—	
60	230	294 0	274.0	707.2	279 4	291 6	672.1	263.9	307.6	634 7	—	—	—	—	—	—	
	245	304 7	280.2	733 1	288.8	298 4	694.8	272.1	315.1	654.5	253 0	328 8	608.7	—	—	—	
	255	324 2	290.1	779.8	307.4	309 6	739 4	289.7	327 5	696 9	269 7	342 2	648 9	—	—	—	
	270	342 7	309 5	824 4	324 0	329 4	779.5	304.3	347.1	732 0	282 5	361 6	679.6	—	—	—	
	290	385 6	349 5	927 5	365 6	370 8	879 4	342 6	388 8	824.1	318.8	404 6	766.8	—	—	—	
	315	419 7	395.1	1009.6	394.5	415 6	948.9	368 6	433.9	886.6	—	—	—	—	—	—	
	330	410.0	387.2	986 2	390.2	411.8	938 6	368.4	433.3	886 2	342 2	450 1	823.2	—	—	—	
	360	449.0	426 4	1080.0	427.8	453 2	1029 0	406 3	478.7	977.3	384.5	502 7	924 9	—	—	—	
	390	494 1	473.0	1188.7	466 9	498.7	1123.3	439.7	522.7	1057 7	—	—	—	—	—	—	
	420	538.9	519 3	1296 4	505.8	544 0	1216 7	472 9	566 5	1137 6	—	—	—	—	—	—	

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 22.
- 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 — 50 HZ

CONDENSER ENTERING-AIR TEMPERATURE (F)																
LCWT (F)	Unit Size	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	230	221.8	235.4	531.0	211.0	248.4	505.0	200.2	260.6	479.2	189.3	272.2	453.1	178.3	283.0	426.7
	245	231.4	255.9	554.0	219.9	270.0	526.5	208.4	283.3	498.9	196.8	295.7	471.1	185.0	307.3	442.8
	255	240.5	262.4	575.7	228.6	276.9	547.1	216.7	290.6	518.6	204.6	303.4	489.8	192.5	315.4	460.7
	270	256.1	273.6	613.1	242.4	288.5	580.2	228.5	302.1	547.0	214.6	314.7	513.7	200.5	326.1	480.0
	290	284.5	316.3	681.0	270.6	332.5	647.8	256.8	347.9	614.7	242.7	362.2	581.0	228.6	375.8	547.2
	315	306.3	339.1	733.3	289.8	355.5	693.6	273.1	370.7	653.8	256.5	384.7	614.0	239.8	397.4	574.0
	330	315.5	342.4	755.3	299.1	360.7	715.9	282.4	377.5	676.0	265.5	392.9	635.6	248.4	406.8	594.6
	360	336.3	367.2	805.1	319.4	386.4	764.5	302.4	404.4	724.0	285.2	421.1	682.7	267.5	436.2	640.4
	390	376.4	413.1	901.0	356.7	433.5	853.8	337.1	452.7	807.0	317.3	470.4	759.6	297.3	486.6	711.8
	420	395.2	433.9	946.1	373.4	454.6	893.8	351.6	473.8	841.6	329.8	491.5	789.5	307.9	507.5	737.0
42	230	229.2	239.8	549.2	218.2	253.3	522.8	207.1	265.9	496.2	196.0	278.0	469.6	184.7	289.3	442.5
	245	239.2	260.8	573.1	227.5	275.4	544.9	215.6	289.2	516.6	203.8	302.1	488.2	191.8	314.2	459.4
	255	248.8	267.5	596.1	236.6	282.5	566.9	224.4	296.7	537.6	212.1	310.0	508.2	199.7	322.6	478.4
	270	264.5	278.6	633.5	250.4	294.0	599.9	236.3	308.2	566.0	222.0	321.2	531.9	207.7	333.1	497.5
	290	294.7	323.0	706.0	280.6	339.9	672.1	266.3	355.8	637.9	252.0	370.8	603.6	237.4	384.9	568.7
	315	317.7	346.8	761.2	300.9	363.9	720.8	283.8	379.6	679.9	266.7	394.2	639.0	—	—	—
	330	324.5	348.1	777.5	307.8	367.0	737.4	290.8	384.4	696.7	273.3	400.3	655.5	256.2	414.8	613.7
	360	345.9	373.4	828.6	328.6	393.1	787.2	311.2	411.6	745.6	293.7	428.9	703.7	275.7	444.6	660.4
	390	388.7	421.3	931.3	368.8	442.6	883.6	348.6	462.3	835.2	328.4	480.7	786.8	—	—	—
	420	409.8	443.8	981.8	387.7	465.4	928.7	365.3	485.3	875.1	342.9	503.8	821.5	—	—	—
44	230	236.8	244.3	567.6	225.6	258.2	540.8	214.3	271.4	513.7	202.8	283.8	486.2	191.3	295.6	458.6
	245	247.2	265.8	592.5	235.2	280.9	563.8	223.1	295.1	534.7	210.9	308.5	505.5	198.6	321.2	476.1
	255	257.3	272.6	616.8	244.9	288.2	587.0	232.4	302.8	557.0	219.8	316.7	526.8	207.1	329.8	496.4
	270	272.9	283.7	654.3	258.6	299.5	619.9	244.2	314.2	585.3	229.6	327.8	550.4	214.9	340.3	515.2
	290	305.1	329.8	731.4	290.6	347.3	696.7	276.0	363.8	661.6	261.4	379.5	626.6	246.5	394.2	590.9
	315	329.5	354.6	789.9	312.0	372.2	748.0	294.7	388.7	706.5	277.2	403.9	664.4	—	—	—
	330	333.7	353.9	799.9	316.6	373.3	759.1	299.4	391.2	717.7	281.9	407.8	675.7	264.1	422.9	633.1
	360	355.6	379.6	852.6	337.9	399.8	810.0	320.3	418.9	767.8	302.4	436.8	724.9	284.1	453.2	681.2
	390	401.4	429.7	962.2	380.8	451.5	912.9	360.4	472.0	863.9	339.8	491.1	814.5	—	—	—
	420	425.0	453.9	1018.8	402.0	476.2	963.8	379.3	497.0	909.3	356.4	516.2	854.3	—	—	—
45	230	240.7	246.6	577.1	229.3	260.7	549.9	217.9	274.1	522.5	206.3	286.7	494.6	—	—	—
	245	251.2	268.3	602.3	239.1	283.7	573.4	226.9	298.1	544.0	214.5	311.8	514.4	—	—	—
	255	261.6	275.2	627.4	249.1	291.0	597.4	236.4	306.0	566.9	223.6	320.1	536.3	—	—	—
	270	277.2	286.2	664.8	262.7	302.3	630.1	248.2	317.3	595.1	233.5	331.1	559.8	218.6	343.8	524.2
	290	310.3	333.2	744.1	295.9	351.1	709.5	280.9	367.8	673.6	266.1	383.8	638.1	251.1	398.9	602.1
	315	335.5	358.5	804.5	317.8	376.5	762.0	300.2	393.3	720.0	282.5	408.8	677.4	—	—	—
	330	338.3	356.8	811.2	321.1	376.4	770.0	303.7	394.7	728.3	286.0	411.5	685.9	268.1	426.9	642.9
	360	360.5	382.7	864.5	342.7	403.3	821.8	324.8	422.6	778.8	306.8	440.7	735.6	288.5	457.5	691.8
	390	407.8	433.9	977.8	387.0	456.1	928.0	366.3	476.9	878.5	345.6	496.4	828.7	—	—	—
	420	432.7	459.0	1037.6	409.5	481.7	981.8	386.4	503.0	926.6	363.2	522.5	870.9	—	—	—
46	230	244.5	248.8	586.6	233.0	263.2	558.9	221.6	276.8	531.5	209.8	289.7	503.3	—	—	—
	245	255.2	270.8	612.1	243.0	286.4	582.8	230.7	301.2	553.4	218.2	315.0	523.3	—	—	—
	255	266.0	277.8	638.0	253.3	293.9	607.5	240.5	309.1	577.0	227.6	323.5	545.9	—	—	—
	270	281.6	288.8	675.3	266.9	305.1	640.3	252.2	320.4	604.9	237.3	334.5	569.3	222.3	347.4	533.3
	290	315.6	336.7	757.0	300.9	354.8	721.7	286.0	371.9	686.0	270.8	388.0	649.7	255.7	403.5	613.3
	315	341.5	362.5	819.2	323.6	380.8	776.2	305.9	397.9	733.6	287.9	413.8	690.5	—	—	—
	330	342.9	359.7	822.6	325.6	379.6	781.0	308.1	398.2	738.9	290.2	415.3	696.2	272.2	431.0	652.8
	360	365.4	385.8	876.5	347.4	406.7	833.4	329.3	426.3	790.0	311.2	444.7	746.4	292.8	461.8	702.2
	390	414.3	438.2	993.6	393.3	460.7	943.3	372.4	481.8	893.2	351.4	501.7	842.8	—	—	—
	420	440.5	464.2	1056.5	416.9	487.3	1000.1	393.6	508.9	944.2	370.1	528.9	887.7	—	—	—

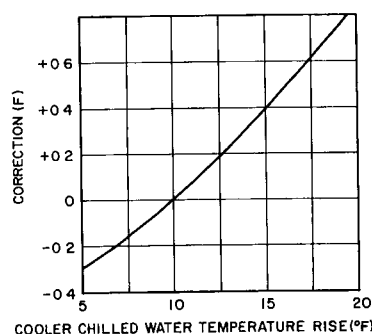
Performance data — English (cont)



COOLING CAPACITIES — 50 HZ (cont)

CONDENSER ENTERING-AIR TEMPERATURE (F)																
LCWT (F)	Unit Size	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)
48	230	252.4	253.4	605.7	240.7	268.2	577.6	228.8	282.2	549.2	217.0	295.7	520.8	—	—	—
	245	263.4	275.8	632.0	250.9	291.9	602.2	238.3	307.2	572.0	225.7	321.7	541.7	—	—	—
	255	274.8	283.0	659.4	261.8	299.6	628.3	248.7	315.4	596.9	235.6	330.3	565.4	—	—	—
	270	290.3	293.9	696.7	275.4	310.8	661.0	260.4	326.6	624.9	245.2	341.2	588.5	229.9	354.7	551.7
	290	326.4	343.6	783.4	311.4	362.4	747.4	296.2	380.2	711.0	280.7	396.9	673.7	—	—	—
	315	353.8	370.6	849.0	335.4	389.5	805.0	317.1	407.2	761.1	298.8	423.7	717.1	—	—	—
	330	352.3	365.5	845.6	334.7	386.1	803.3	316.9	405.2	760.5	298.7	422.9	717.0	280.3	439.2	672.8
	360	375.3	392.1	900.8	357.2	413.6	857.2	338.7	433.8	813.0	320.0	452.6	768.1	—	—	—
	390	427.4	446.8	1025.7	405.9	469.9	974.2	384.4	491.7	922.5	363.1	512.4	871.4	—	—	—
	420	456.2	474.7	1094.9	432.1	498.6	1037.1	408.0	520.9	979.3	384.1	541.7	921.9	—	—	—
50	230	260.3	258.0	625.0	248.4	273.3	596.4	236.4	287.8	567.5	224.1	301.6	538.2	—	—	—
	245	271.7	280.9	652.3	259.0	297.5	621.9	246.1	313.3	591.0	233.2	328.2	559.9	—	—	—
	255	283.7	288.3	681.2	270.5	305.4	649.4	257.1	321.7	617.4	243.7	337.2	585.1	—	—	—
	270	299.2	299.1	718.5	284.0	316.5	682.0	268.7	332.8	645.2	253.2	347.9	608.0	—	—	—
	290	337.4	350.6	810.1	321.9	370.0	772.9	306.4	388.5	735.8	290.8	405.9	698.2	—	—	—
	315	366.3	378.8	879.4	347.5	398.3	834.3	328.7	416.6	789.2	309.8	433.8	743.9	—	—	—
	330	361.9	371.4	868.8	344.0	392.5	825.9	325.8	412.2	782.3	307.4	430.5	738.0	—	—	—
	360	385.4	398.5	925.4	366.9	420.6	881.0	348.1	441.3	835.9	329.2	460.8	790.5	—	—	—
	390	440.7	455.6	1058.2	418.8	479.4	1005.7	396.8	501.8	952.8	374.7	522.9	899.7	—	—	—
	420	472.3	485.4	1134.1	447.7	510.0	1074.9	423.0	533.1	1015.6	398.2	554.6	956.2	—	—	—
60	230	295.7	278.7	711.4	280.2	294.5	674.0	264.5	309.1	636.2	249.0	322.8	598.9	—	—	—
	245	311.2	304.6	748.5	294.3	321.6	708.0	277.4	337.5	667.2	260.6	352.2	626.9	—	—	—
	255	327.5	313.5	787.8	309.8	331.2	745.3	292.1	347.7	702.7	274.6	363.2	660.6	—	—	—
	270	344.0	324.8	827.5	325.8	343.6	783.6	306.9	360.6	738.3	286.0	374.7	688.0	—	—	—
	290	395.0	387.2	950.3	377.3	409.0	907.6	356.6	427.6	857.8	333.1	442.7	801.3	—	—	—
	315	421.6	414.2	1014.1	397.4	433.7	955.9	372.5	451.2	896.1	—	—	—	—	—	—
	330	411.4	402.0	989.6	392.0	425.9	943.0	371.2	447.2	893.0	346.1	463.9	832.5	—	—	—
	360	437.7	431.3	1052.9	417.6	456.3	1004.5	396.8	479.4	954.5	373.6	499.6	898.8	—	—	—
	390	500.0	493.7	1202.7	473.7	518.6	1139.5	447.5	542.1	1076.5	—	—	—	—	—	—
	420	535.7	526.5	1288.7	503.9	550.4	1212.2	472.4	572.4	1136.4	—	—	—	—	—	—

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 22.
- 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.

Performance data — SI



COOLING CAPACITIES — 60 HZ

CONDENSER ENTERING-AIR TEMPERATURE (C)																
LCWT (C)	Unit Size	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)
5	230	779.6	235.8	31.0	743.6	248.3	29.6	707.0	260.2	28.1	670.1	271.3	26.7	633.0	281.6	25.2
	245	799.8	239.8	31.8	761.9	252.9	30.3	723.4	265.4	28.8	684.7	277.1	27.2	645.9	288.1	25.7
	255	841.9	248.5	33.5	802.1	262.2	31.9	761.7	275.2	30.3	721.0	287.3	28.7	680.1	298.7	27.1
	270	906.1	267.3	38.9	860.1	281.2	37.0	813.2	294.0	34.9	766.1	305.6	32.9	718.4	316.0	30.9
	290	985.0	293.5	39.2	938.5	308.7	37.3	891.9	323.0	35.5	844.5	336.3	33.6	797.1	348.6	31.7
	315	1085.8	331.7	43.2	1029.6	347.2	41.0	973.3	361.6	38.7	916.8	374.7	36.5	859.9	386.7	34.2
	330	1113.2	336.2	47.8	1058.5	353.0	45.5	1002.5	368.5	43.1	945.8	382.4	40.6	888.2	394.8	38.2
	360	1219.7	370.0	52.4	1162.7	388.9	49.9	1104.7	406.5	47.5	1045.6	422.9	44.9	986.0	437.9	42.4
	390	1316.2	402.8	56.5	1249.4	421.8	53.7	1184.0	439.6	50.9	1117.6	456.0	48.0	1050.7	470.9	45.1
	420	1410.9	435.4	60.6	1336.2	454.6	57.4	1262.9	472.5	54.3	1189.2	488.8	51.1	1115.0	503.5	47.9
6	230	803.3	239.7	32.0	766.6	252.6	30.5	729.5	264.9	29.0	692.0	276.4	27.5	654.1	287.2	26.0
	245	824.6	243.9	32.8	785.6	257.4	31.3	746.6	270.2	29.7	707.2	282.4	28.2	667.4	293.7	26.6
	255	868.6	252.7	34.6	827.8	266.8	33.0	786.9	280.3	31.3	745.4	292.9	29.7	703.6	304.6	28.0
	270	932.8	271.4	40.1	886.0	285.9	38.1	838.6	299.1	36.1	790.3	311.2	34.0	741.7	322.0	31.9
	290	1017.5	298.9	40.5	969.9	314.5	38.6	922.5	329.4	36.7	874.3	343.2	34.8	825.5	356.1	32.9
	315	1123.3	338.3	44.7	1065.5	354.4	42.4	1007.9	369.3	40.1	949.8	382.9	37.8	892.2	395.6	35.5
	330	1142.0	341.0	49.1	1086.6	358.4	46.7	1030.0	374.4	44.3	972.2	388.8	41.8	913.6	401.7	39.3
	360	1251.0	375.4	53.8	1191.8	394.6	51.2	1134.0	412.9	48.7	1074.7	429.8	46.2	1013.4	445.4	43.6
	390	1354.6	409.8	58.2	1288.4	429.5	55.4	1220.8	447.9	52.5	1153.3	464.9	49.6	1085.4	480.5	46.7
	420	1458.1	444.2	62.7	1382.8	464.2	59.4	1307.4	482.7	56.2	1232.4	499.8	53.0	1156.8	515.3	49.7
7	230	827.8	243.7	33.0	790.2	257.0	31.5	752.3	269.7	30.0	714.2	281.6	28.4	675.5	292.8	26.9
	245	849.9	248.0	33.9	810.0	261.8	32.3	770.0	275.1	30.7	730.0	287.7	29.1	689.5	299.5	27.5
	255	896.0	256.8	35.7	854.2	271.4	34.0	812.3	285.3	32.4	770.2	298.4	30.7	727.6	310.7	29.0
	270	959.9	275.6	41.3	912.3	290.5	39.2	864.1	304.3	37.2	815.3	316.8	35.1	765.5	328.1	32.9
	290	1051.1	304.4	41.9	1002.0	320.5	39.9	953.2	335.7	38.0	904.5	350.2	36.0	854.9	363.7	34.1
	315	1161.2	345.0	46.3	1102.4	361.6	43.9	1043.2	377.1	41.6	983.8	391.3	39.2	924.6	404.4	36.8
	330	1171.1	346.0	50.4	1114.9	363.8	48.0	1057.6	380.3	45.5	999.2	395.3	43.0	939.5	408.7	40.4
	360	1283.2	380.9	55.2	1223.2	400.6	52.6	1163.4	419.2	50.0	1103.6	436.7	47.5	1041.8	452.9	44.8
	390	1395.4	417.1	60.0	1327.1	437.4	57.1	1259.1	456.3	54.2	1189.6	473.8	51.2	1120.5	490.1	48.2
	420	1507.3	453.4	64.8	1430.3	474.0	61.5	1353.3	493.2	58.2	1276.0	510.9	54.9	1199.0	527.2	51.6
8	230	852.4	247.7	34.0	814.3	261.4	32.5	775.5	274.5	30.9	736.6	286.8	29.4	697.3	298.5	27.8
	245	875.3	252.0	34.9	834.9	266.3	33.3	793.9	280.0	31.6	752.9	293.0	30.0	711.9	305.3	28.4
	255	923.5	261.0	36.8	881.3	276.1	35.1	838.2	290.4	33.4	795.2	303.9	31.7	752.0	316.7	30.0
	270	987.4	279.9	42.5	939.1	295.2	40.4	890.1	309.4	38.3	840.1	322.4	36.2	789.7	334.2	34.0
	290	1083.9	309.8	43.2	1035.1	326.5	41.3	985.0	342.2	39.3	935.1	357.2	37.3	884.6	371.3	35.3
	315	1199.5	351.8	47.8	1139.6	368.9	45.4	1079.3	384.9	43.0	1019.1	399.8	40.6	958.0	413.4	38.2
	330	1200.6	350.9	51.7	1143.7	369.3	49.2	1085.6	386.3	46.7	1026.0	401.7	44.2	965.7	415.7	41.6
	360	1315.6	386.4	56.6	1255.1	406.6	54.0	1193.0	425.5	51.3	1132.7	443.6	48.7	1070.3	460.4	46.1
	390	1436.2	424.5	61.8	1366.9	445.3	58.8	1297.5	464.9	55.8	1227.7	483.2	52.8	1156.0	499.8	49.7
	420	1557.0	462.6	67.0	1478.7	484.0	63.6	1399.9	503.9	60.2	1321.5	522.3	56.9	1241.8	539.1	53.4
9	230	877.3	251.7	35.0	838.6	265.8	33.4	799.3	279.4	31.9	759.5	292.1	30.3	719.4	304.1	28.7
	245	901.0	256.2	35.9	860.0	270.9	34.3	818.3	285.0	32.6	776.4	298.3	31.0	734.5	311.1	29.3
	255	951.5	265.2	37.9	908.5	280.7	36.2	864.9	295.6	34.5	820.8	309.5	32.7	776.6	322.8	31.0
	270	1015.1	284.1	43.7	966.9	299.9	41.6	916.4	314.6	39.5	865.8	328.1	37.3	814.4	340.4	35.1
	290	1117.9	315.3	44.6	1068.3	332.6	42.6	1017.8	348.9	40.6	966.2	364.3	38.5	914.7	378.9	36.5
	315	1238.4	358.6	49.4	1177.5	376.3	46.9	1115.7	392.8	44.5	1054.0	408.2	42.0	—	—	—
	330	1230.3	355.9	53.0	1172.7	374.8	50.5	1113.8	392.3	48.0	1053.8	408.3	45.4	992.3	422.8	42.7
	360	1348.0	391.8	58.0	1286.6	412.6	55.4	1224.5	432.1	52.7	1163.0	450.8	50.1	1099.4	468.0	47.3
	390	1477.7	431.9	63.6	1407.3	453.3	60.6	1336.6	473.5	57.5	1264.9	492.3	54.5	—	—	—
	420	1607.5	471.9	69.2	1527.7	494.0	65.8	1447.6	514.6	62.3	1366.9	533.7	58.9	—	—	—

See Legend and Notes on page 36

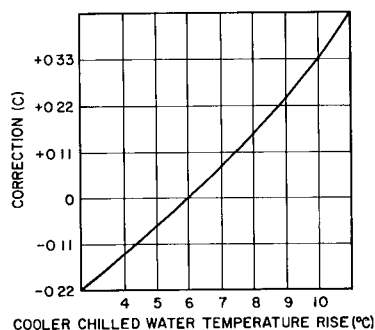
Performance data — SI (cont)



COOLING CAPACITIES — 60 HZ (cont)

CONDENSER ENTERING-AIR TEMPERATURE (C)																
LCWT (C)	Unit Size	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	230	902.8	255.8	36.0	863.2	270.3	34.4	823.2	284.2	32.8	782.9	297.4	31.2	741.9	309.8	29.6
	245	927.2	260.3	37.0	885.2	275.4	35.3	843.0	290.0	33.6	800.6	303.8	31.9	757.6	316.9	30.2
	255	979.8	269.5	39.1	936.1	285.4	37.3	891.8	300.7	35.6	847.1	315.2	33.8	801.7	328.8	32.0
	270	1043.4	288.4	44.9	993.5	304.7	42.8	943.1	319.8	40.6	891.7	333.8	38.4	839.7	346.6	36.2
	290	1152.5	320.8	46.0	1101.4	338.6	43.9	1050.4	355.5	41.9	998.1	371.4	39.8	945.3	386.6	37.7
	315	1278.2	365.6	51.0	1215.9	383.8	48.5	1153.0	400.9	46.0	1090.4	416.9	43.5	—	—	—
	330	1260.5	360.9	54.3	1202.0	380.3	51.8	1142.5	398.3	49.2	1081.6	414.8	46.6	1019.6	429.9	43.9
	360	1381.3	397.5	59.5	1318.5	418.7	56.8	1256.1	438.7	54.1	1193.0	457.8	51.4	1128.5	475.5	48.6
	390	1520.1	439.5	65.5	1448.2	461.4	62.4	1376.0	482.1	59.3	1303.5	501.6	56.1	—	—	—
	420	1658.6	481.4	71.4	1577.4	504.1	67.9	1495.7	525.4	64.4	1413.7	545.2	60.9	—	—	—
13	230	980.7	268.2	39.2	938.6	283.8	37.5	895.1	298.6	35.7	—	—	—	—	—	—
	245	1007.2	273.0	40.2	963.4	289.3	38.5	917.4	304.8	36.6	871.3	319.5	34.8	824.5	333.5	32.9
	255	1067.3	282.4	42.6	1021.3	299.7	40.8	974.6	316.3	38.9	927.6	332.2	37.0	880.0	347.4	35.1
	270	1130.5	301.5	48.7	1078.5	319.1	46.5	1025.4	335.6	44.2	971.6	351.1	41.9	916.7	365.4	39.5
	290	1258.9	337.7	50.3	1205.3	357.1	48.1	1150.9	375.6	46.0	1096.7	393.3	43.8	—	—	—
	315	1401.9	387.1	56.0	1335.7	407.0	53.3	1268.6	425.6	50.7	—	—	—	—	—	—
	330	1353.0	376.3	58.3	1292.4	397.1	55.7	1230.3	416.6	53.1	1166.9	434.7	50.3	1102.2	451.4	47.5
	360	1482.4	414.4	63.9	1417.5	437.2	61.1	1352.1	458.7	58.3	1285.5	479.3	55.4	1218.6	498.6	52.5
	390	1651.2	462.7	71.2	1575.0	486.5	67.9	1498.6	508.8	64.6	—	—	—	—	—	—
	420	1818.6	510.9	78.4	1731.7	535.6	74.7	1645.0	558.9	70.9	—	—	—	—	—	—
16	230	1036.9	277.0	41.4	990.4	292.8	39.6	937.1	306.5	37.5	—	—	—	—	—	—
	245	1074.2	283.3	42.9	1023.6	299.6	40.9	966.4	313.9	38.6	904.4	326.3	36.1	843.3	337.5	33.7
	255	1142.3	293.3	45.7	1089.0	310.8	43.5	1028.8	326.1	41.1	963.9	339.4	38.5	899.6	351.5	36.0
	270	1206.2	312.8	52.1	1144.6	330.3	49.4	1078.4	345.6	46.5	1009.4	358.9	43.6	—	—	—
	290	1360.8	353.3	54.4	1290.6	371.3	51.6	1214.4	387.1	48.5	1138.8	401.6	45.5	—	—	—
	315	1471.4	397.6	58.8	1388.6	415.6	55.5	1306.5	432.2	52.2	—	—	—	—	—	—
	330	1449.3	392.1	62.6	1382.1	413.4	59.6	1305.3	431.6	56.3	1222.4	446.9	52.8	—	—	—
	360	1587.7	431.8	68.5	1519.7	456.0	65.6	1451.4	479.2	62.6	1383.3	501.1	59.7	—	—	—
	390	1736.6	476.9	75.0	1650.0	500.1	71.2	1563.7	521.9	67.5	—	—	—	—	—	—
	420	1884.6	521.9	81.3	1779.7	544.0	76.8	1675.4	564.4	72.3	—	—	—	—	—	—

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 0.00044 in the cooler
 - Refrigerant 22.
- 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

COOLING CAPACITIES — 50 HZ

CONDENSER ENTERING-AIR TEMPERATURE (C)

LCWT (C)	Unit Size	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)
5	230	790.4	239.1	31.4	755.9	251.0	30.1	721.2	262.3	28.7	686.3	273.0	27.3	651.0	283.1	25.9
	245	824.6	260.1	32.8	787.9	273.0	31.3	751.0	285.2	29.9	713.7	296.7	28.4	676.1	307.6	26.9
	255	857.5	266.7	34.1	819.3	280.0	32.6	781.2	292.6	31.1	742.6	304.5	29.5	703.8	315.7	28.0
	270	910.5	277.7	39.1	866.5	291.2	37.2	822.2	303.8	35.3	777.6	315.5	33.4	732.7	326.2	31.5
	290	1015.9	321.8	40.4	971.5	336.6	38.6	927.0	350.8	36.9	882.1	364.2	35.1	836.5	376.9	33.3
	315	1095.7	345.5	43.6	1042.2	360.5	41.5	989.0	374.6	39.3	935.5	387.6	37.2	882.0	399.8	35.1
	330	1119.7	347.2	48.1	1067.1	363.8	45.8	1013.9	379.3	43.6	960.0	393.6	41.2	905.5	406.7	38.9
	360	1193.4	372.2	51.3	1139.5	389.8	49.0	1085.4	406.3	46.6	1030.3	421.7	44.3	974.2	436.0	41.9
	390	1338.4	419.4	57.5	1275.3	437.9	54.8	1212.7	455.6	52.1	1149.6	472.0	49.4	1086.1	487.4	46.7
	420	1408.1	441.0	60.5	1338.1	460.0	57.5	1268.2	477.7	54.5	1198.4	494.1	51.5	1128.6	509.3	48.5
6	230	814.1	243.2	32.4	779.0	255.4	31.0	743.6	267.1	29.6	707.9	278.1	28.2	671.9	288.6	26.7
	245	849.6	264.6	33.8	811.9	277.8	32.3	774.2	290.4	30.8	736.4	302.4	29.3	697.9	313.7	27.8
	255	884.1	271.3	35.2	845.2	285.0	33.6	806.0	298.0	32.1	766.9	310.4	30.5	727.2	322.1	28.9
	270	937.0	282.3	40.3	892.1	296.2	38.3	847.0	309.2	36.4	801.6	321.3	34.5	755.8	332.5	32.5
	290	1048.9	328.0	41.8	1003.3	343.3	39.9	957.4	357.9	38.1	911.8	371.9	36.3	865.4	385.0	34.5
	315	1132.0	352.4	45.1	1077.8	368.0	42.9	1023.3	382.6	40.7	968.5	396.2	38.6	913.7	408.8	36.4
	330	1148.3	352.4	49.4	1094.9	369.5	47.1	1040.8	385.4	44.7	986.1	400.2	42.4	930.7	413.7	40.0
	360	1223.8	377.9	52.6	1168.7	395.8	50.2	1113.2	412.7	47.9	1057.7	428.6	45.5	1001.1	443.5	43.0
	390	1377.6	426.8	59.2	1313.4	446.1	56.5	1249.7	464.2	53.7	1185.3	481.2	51.0	1120.5	497.2	48.2
	420	1454.6	450.1	62.5	1383.7	469.7	59.5	1312.2	488.0	56.4	1240.7	505.1	53.3	1169.2	520.9	50.3
7	230	838.2	247.3	33.4	802.6	259.9	32.0	766.3	271.9	30.5	729.9	283.3	29.1	693.0	294.2	27.6
	245	874.7	269.1	34.8	836.8	282.8	33.3	797.9	295.8	31.8	759.1	308.1	30.2	719.9	319.8	28.7
	255	911.1	276.0	36.3	871.7	290.2	34.7	831.5	303.5	33.1	791.3	316.3	31.5	750.8	328.4	29.9
	270	963.8	286.9	41.5	918.2	301.2	39.5	872.2	314.6	37.5	825.9	327.2	35.5	779.3	338.7	33.5
	290	1081.5	334.1	43.1	1035.8	350.1	41.3	988.8	365.1	39.4	941.8	379.5	37.5	894.6	393.2	35.6
	315	1169.5	359.6	46.6	1113.6	375.6	44.4	1058.3	390.8	42.2	1002.3	404.9	39.9	946.1	418.0	37.7
	330	1177.2	357.6	50.6	1123.0	375.2	48.3	1068.1	391.6	45.9	1012.5	406.8	43.6	956.2	420.9	41.1
	360	1254.8	383.6	54.0	1198.6	401.9	51.6	1142.0	419.3	49.1	1085.4	435.6	46.7	1028.0	451.0	44.2
	390	1417.8	434.5	61.0	1352.3	454.3	58.2	1287.2	472.9	55.4	1221.8	490.6	52.6	1155.5	507.0	49.7
	420	1502.7	459.3	64.6	1429.5	479.5	61.5	1357.1	498.6	58.4	1283.9	516.2	55.2	1210.6	532.7	52.1
8	230	862.6	251.4	34.4	826.0	264.4	32.9	789.6	276.8	31.5	752.5	288.6	30.0	714.6	299.8	28.5
	245	900.2	273.6	35.9	861.3	287.7	34.3	822.4	301.2	32.8	782.7	313.9	31.2	742.5	326.0	29.6
	255	938.5	280.7	37.4	898.1	295.3	35.8	857.7	309.1	34.2	816.6	322.3	32.5	775.1	334.8	30.9
	270	991.2	291.5	42.7	944.7	306.3	40.7	897.9	320.1	38.6	850.7	333.1	36.6	803.1	345.1	34.6
	290	1114.7	340.4	44.4	1068.0	356.8	42.6	1020.8	372.5	40.7	972.4	387.2	38.7	924.2	401.5	36.8
	315	1207.6	366.8	48.1	1150.5	383.4	45.9	1093.6	399.0	43.6	1036.6	413.7	41.3	—	—	—
	330	1206.6	362.9	51.9	1151.5	380.9	49.6	1095.8	397.8	47.2	1039.3	413.5	44.7	982.1	428.0	42.3
	360	1285.8	389.3	55.3	1228.6	408.1	52.9	1171.6	425.9	50.4	1113.8	442.7	47.9	1055.0	458.5	45.4
	390	1458.6	442.2	62.8	1391.9	462.5	59.9	1325.5	481.7	57.0	1258.7	499.9	54.2	—	—	—
	420	1551.7	468.7	66.8	1476.9	489.5	63.6	1402.5	509.2	60.4	1328.0	527.5	57.1	—	—	—
9	230	887.5	255.5	35.4	850.3	268.9	33.9	812.7	281.6	32.4	775.3	293.9	30.9	737.1	305.5	29.4
	245	926.0	278.2	36.9	886.5	292.7	35.3	846.6	306.6	33.8	806.6	319.8	32.2	765.7	332.3	30.5
	255	966.4	285.5	38.5	925.2	300.5	36.9	883.7	314.7	35.2	842.2	328.4	33.6	800.0	341.4	31.9
	270	1018.9	296.2	43.9	971.6	311.4	41.8	923.9	325.6	39.8	875.9	339.0	37.7	827.4	351.5	35.6
	290	1149.2	346.7	45.8	1101.2	363.7	43.9	1053.3	379.8	42.0	1004.2	395.1	40.0	954.4	409.8	38.1
	315	1246.4	374.2	49.7	1188.1	391.2	47.4	1130.0	407.4	45.1	1071.3	422.5	42.7	—	—	—
	330	1236.3	368.2	53.2	1180.4	386.7	50.8	1123.8	404.0	48.4	1066.5	420.2	45.9	1008.3	435.2	43.4
	360	1317.2	395.0	56.7	1259.5	414.3	54.2	1201.0	432.6	51.7	1141.7	449.7	49.2	1082.8	466.1	46.6
	390	1500.1	450.1	64.6	1432.1	470.9	61.7	1363.8	490.6	58.7	1296.3	509.4	55.8	—	—	—
	420	1601.6	478.2	69.0	1525.2	499.7	65.7	1448.8	519.9	62.4	1372.9	539.0	59.1	—	—	—

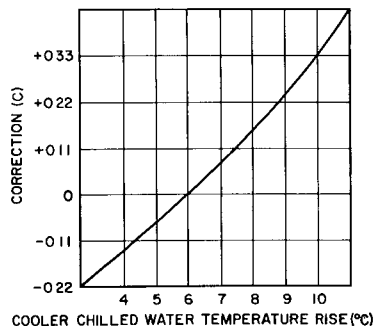
Performance data — SI (cont)



COOLING CAPACITIES — 50 HZ (cont)

CONDENSER ENTERING-AIR TEMPERATURE (C)																
LCWT (C)	Unit Size	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	230	912.5	259.7	36.4	874.8	273.5	34.9	836.7	286.6	33.4	798.0	299.1	31.8	—	—	—
	245	952.4	282.8	38.0	912.2	297.7	36.4	871.5	312.0	34.8	830.5	325.6	33.1	—	—	—
	255	994.7	290.3	39.7	952.7	305.7	38.0	910.5	320.4	36.3	867.9	334.4	34.6	—	—	—
	270	1047.0	300.9	45.1	998.9	316.5	43.0	950.4	331.2	40.9	901.5	345.0	38.8	852.1	357.9	36.7
	290	1183.8	353.1	47.2	1134.7	370.5	45.3	1085.7	387.2	43.3	1036.1	403.1	41.3	985.4	418.3	39.3
	315	1286.0	381.6	51.3	1226.4	399.2	48.9	1166.7	415.8	46.5	1107.0	431.5	44.2	—	—	—
	330	1266.3	373.6	54.5	1209.7	392.5	52.1	1152.2	410.3	49.6	1094.0	427.0	47.1	1034.9	442.5	44.6
	360	1348.9	400.7	58.1	1290.4	420.6	55.6	1230.9	439.3	53.0	1171.1	457.0	50.4	1110.5	473.7	47.8
	390	1542.2	458.0	66.4	1473.0	479.4	63.4	1403.4	499.7	60.5	1333.6	518.9	57.4	—	—	—
	420	1652.4	488.0	71.2	1574.4	510.0	67.8	1496.2	530.9	64.4	1418.0	550.5	61.1	—	—	—
13	230	986.9	272.1	39.4	945.9	286.7	37.8	904.7	300.8	36.1	862.1	313.9	34.4	—	—	—
	245	1033.1	296.9	41.3	991.0	313.1	39.6	948.2	328.6	37.9	904.2	343.3	36.1	—	—	—
	255	1082.1	305.0	43.2	1037.9	321.7	41.4	993.2	337.7	39.7	947.4	352.8	37.8	—	—	—
	270	1133.6	315.4	48.9	1083.0	332.2	46.7	1031.9	348.2	44.5	980.7	363.3	42.3	—	—	—
	290	1290.6	372.7	51.5	1239.1	391.7	49.5	1187.0	409.9	47.4	1134.3	427.4	45.3	—	—	—
	315	1408.8	404.8	56.3	1345.4	423.9	53.7	1281.7	442.0	51.2	1218.0	459.0	48.6	—	—	—
	330	1358.0	390.0	58.6	1298.8	410.3	56.0	1238.9	429.5	53.4	1178.6	447.6	50.8	—	—	—
	360	1445.8	418.3	62.3	1384.8	439.6	59.7	1323.2	459.8	57.1	1260.8	479.0	54.4	—	—	—
	390	1672.5	482.5	72.1	1599.5	505.6	69.0	1526.0	527.6	65.8	1451.8	548.2	62.6	—	—	—
	420	1810.2	518.1	78.1	1727.1	542.0	74.5	1643.9	564.8	70.9	1560.1	585.8	67.3	—	—	—
16	230	1039.2	281.2	41.5	989.0	295.2	39.5	939.9	308.6	37.6	890.6	321.2	35.6	—	—	—
	245	1093.0	307.2	43.7	1038.8	322.4	41.5	985.7	336.9	39.4	932.4	350.4	37.3	—	—	—
	255	1150.2	316.2	46.0	1093.5	332.0	43.7	1037.9	347.1	41.5	982.3	361.2	39.3	—	—	—
	270	1210.9	328.0	52.3	1152.5	344.7	49.7	1087.3	359.1	46.9	1021.3	372.1	44.1	—	—	—
	290	1398.8	392.0	55.9	1332.0	409.8	53.2	1262.1	425.7	50.4	1188.7	439.7	47.5	—	—	—
	315	1477.9	416.7	59.1	1398.7	433.8	55.9	1320.2	449.6	52.8	1242.0	464.2	49.6	—	—	—
	330	1454.3	406.9	62.8	1391.9	428.1	60.1	1315.0	445.5	56.8	1235.9	460.9	53.3	—	—	—
	360	1547.5	436.6	66.8	1483.0	458.9	64.0	1411.4	479.0	60.9	1338.2	497.6	57.8	—	—	—
	390	1757.4	497.7	75.8	1674.1	520.2	72.3	1590.9	541.5	68.7	1507.7	561.5	65.1	—	—	—
	420	1873.7	529.1	80.9	1773.0	550.5	76.5	1673.2	570.3	72.2	—	—	—	—	—	—

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 0.00044 in the cooler.
 - Refrigerant 22.
- 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	VOLTAGE				MODULE A								MODULE B							
					Standard Condenser Fan				High-Static Condenser Fan				Standard Condenser Fan				High-Static Condenser Fan			
	Nameplate V-Hz (3 Phase)	Supplied*		MCA	MOCP	ICF		MCA	MOCP	ICF		MCA	MOCP	ICF		MCA	MOCP	ICF		
		Min	Max			XL	PW			XL	PW			XL	PW			XL	PW	
230	208/230-60	187	253	664.2	800	1165.1	889.1	755.8	800	1256.7	980.7	391.3	500	896.9	620.9	446.5	500	951.9	675.9	
	460-60	414	506	332.4	400	582.8	444.8	368.0	400	618.4	480.4	183.4	250	442.8	305.4	204.7	250	464.2	326.8	
	575-60	518	633	283.8	300	446.0	350.0	301.8	350	464.0	368.0	160.9	200	365.6	246.9	171.8	225	376.4	257.7	
	380-60	342	418	359.9	400	641.6	489.6	394.9	450	676.6	524.6	209.9	250	492.6	339.5	230.9	300	513.6	360.5	
	346-50	325	380	465.1	500	764.8	604.8	508.1	600	807.8	647.8	250.1	300	532.8	379.8	276.0	350	558.6	405.6	
	380/415-50	342	440	427.4	500	677.8	539.8	470.4	500	720.8	508.4	215.8	250	472.0	337.8	234.6	250	497.8	257.7	
245	208/230-60	187	253	664.2	800	1165.1	889.1	755.8	800	1256.7	980.7	392.2	450	722.3	547.9	447.0	500	780.9	602.9	
	460-60	414	506	332.4	400	582.8	444.8	368.0	400	618.4	480.4	195.6	225	361.2	273.5	217.0	250	382.6	294.9	
	575-60	518	633	283.8	300	446.0	350.0	301.8	350	464.0	368.0	168.0	200	286.2	213.2	178.6	200	297.0	230.4	
	380-60	342	418	359.9	400	641.6	489.6	394.9	450	676.6	524.6	205.9	250	396.0	294.5	226.9	250	417.0	315.5	
	346-50	325	380	465.1	500	764.8	604.8	508.1	600	807.8	647.8	269.3	300	552.0	399.0	295.2	350	577.8	424.8	
	380/415-50	342	440	427.4	500	677.8	539.8	470.4	500	720.8	508.4	241.4	300	497.0	363.5	267.2	300	522.8	389.3	
255	208/230-60	187	253	664.2	800	1165.1	889.1	755.8	800	1256.7	980.7	462.3	500	835.2	633.2	535.6	600	908.6	706.6	
	460-60	414	506	332.4	400	582.8	444.8	368.0	400	618.4	480.4	221.2	250	408.8	312.3	242.9	250	437.4	336.4	
	575-60	518	633	283.8	300	446.0	350.0	301.8	350	464.0	368.0	191.1	225	289.4	233.1	205.5	225	331.0	261.0	
	380-60	342	418	359.9	400	641.6	489.6	394.9	450	676.6	524.6	242.1	250	454.8	342.8	268.6	300	482.8	370.8	
	346-50	325	380	465.1	500	764.8	604.8	508.1	600	807.8	647.8	303.8	350	586.5	433.5	366.3	400	648.9	495.9	
	380/415-50	342	440	427.4	500	677.8	539.8	470.4	500	720.8	508.4	266.6	300	521.6	388.7	292.8	350	556.0	418.0	
270	208/230-60	187	253	727.5	800	1098.9	896.9	819.1	1000	1190.5	988.5	462.3†	500†	896.9	620.9	535.6	600	908.6	706.6	
	460-60	414	506	364.3	400	549.9	448.9	399.9	450	585.5	484.5	221.2†	250†	442.8	305.4	242.9	250	437.4	336.4	
	575-60	518	633	294.6	300	418.5	348.5	312.6	350	436.5	366.5	191.1†	225†	365.6	246.9	205.5	225	331.0	261.0	
	380-60	342	418	387.8	400	598.0	486.0	422.8	450	633.0	521.0	242.1†	250†	492.6	339.5	268.6	300	482.8	370.8	
	346-50	325	380	472.1	500	771.8	611.8	515.1	600	814.8	654.8	303.8†	350†	532.8	379.8	366.3	400	648.9	495.9	
	380/415-50	342	440	437.7	500	688.1	550.1	480.7	500	731.1	593.1	266.6†	300†	472.0	292.9	292.8	350	556.0	418.0	
290	208/230-60	187	253	800.0	800	1301.5	1025.5	910.6	1000	1411.5	1135.5	513.6	600	1019.2	743.2	587.2	700	1092.6	816.6	
	460-60	414	506	400.7	450	651.1	513.1	443.5	500	693.9	555.9	245.2	300	500.8	367.3	273.8	300	529.4	395.9	
	575-60	518	633	337.4	350	499.6	403.6	359.0	400	521.2	425.2	212.0	250	416.6	292.1	208.8	250	394.6	306.5	
	380-60	342	418	432.5	500	714.2	562.2	474.5	500	756.2	604.2	274.1	350	556.8	403.8	302.2	350	585.2	431.8	
	346-50	325	380	554.1	600	853.8	693.8	605.7	1000	905.4	745.4	373.0	450	655.7	502.7	407.5	450	690.1	537.1	
	380/415-50	342	440	509.1	600	759.5	621.5	560.7	600	811.1	673.1	312.8	350	565.2	434.7	344.9	400	599.6	467.6	
315	208/230-60	187	253	890.4	1000	1391.3	1115.3	1000.0	1000	1501.3	1225.3	513.6	600	1019.2	743.2	587.2	700	1092.6	816.6	
	460-60	414	506	445.6	500	696.0	558.0	488.4	500	738.8	600.8	245.2	300	500.8	367.3	273.8	300	529.4	395.9	
	575-60	518	633	374.0	400	536.2	440.2	395.6	450	557.8	461.8	212.0	250	416.6	292.1	208.8	250	394.6	306.5	
	380-60	342	418	479.3	500	761.0	609.0	521.3	600	803.0	651.0	274.1	350	556.8	403.8	302.2	350	585.2	431.8	
	346-50	325	380	567.5	600	867.2	707.2	619.1	700	918.8	758.8	373.0	450	655.7	502.7	407.5	450	690.1	537.1	
	380/415-50	342	440	523.2	600	773.6	635.6	574.8	600	825.2	687.2	312.8	350	565.2	434.7	344.9	400	599.6	467.6	
330	208/230-60	187	253	727.5	800	1098.9	896.9	819.1	1000	1190.5	988.5	727.5	800	1098.9	896.9	819.1	1000	1190.5	988.5	
	460-60	414	506	364.3	400	549.9	448.9	399.9	450	585.5	484.5	364.3	400	549.9	448.9	399.9	450	585.5	484.5	
	575-60	518	633	294.6	300	418.5	348.5	312.6	350	436.5	366.5	294.6	300	418.5	348.5	312.6	350	436.5	366.5	
	380-60	342	418	387.8	400	598.0	486.0	422.8	450	633.0	521.0	387.8	400	598.0	486.0	422.8	450	633.0	521.0	
	230-50	207	253	677.7	700	1088.1	870.1	735.7	800	1146.1	928.1	677.7	700	1088.1	870.1	735.7	800	1146.1	928.1	
	346-50	325	380	472.1	500	771.8	611.8	515.1	600	814.8	654.8	472.1	500	771.8	611.8	515.1	600	814.8	654.8	
380/415-50	342	440	437.7	500	688.1	550.1	480.7	500	731.1	593.1	437.7	500	688.1	550.1	480.7	500	731.1	593.1		
360	208/230-60	187	253	800.0	800	1301.5	1025.5	910.6	1000	1411.5	1135.5	800.0	800	1301.5	1025.5	910.6	1000	1411.5	1135.5	
	460-60	414	506	400.7	450	651.1	513.1	443.5	500	693.9	555.9	400.7	450	651.1	513.1	443.5	500	693.9	555.9	
	575-60	518	633	337.4	350	499.6	403.6	359.0	400	521.2	425.2	337.4	350	499.6	403.6	359.0	400	521.2	425.2	
	380-60	342	418	432.5	500	714.2	562.2	474.5	500	756.2	604.2	432.5	500	714.2	562.2	474.5	500	756.2	604.2	
	230-50	207	253	749.9	800	1160.3	942.3	819.5	700	1229.9	1011.9	677.7	700	1088.1	870.1	735.7	800	1146.1	928.1	
	346-50	325	380	554.1	600	853.8	693.8	605.7	1000	905.4	745.4	472.1	500	771.8	611.8	515.1	600	814.8	654.8	
380/415-50	342	440	509.1	600	759.5	621.5	560.7	600	811.1	673.1	437.7	500	688.1	550.1	480.7	500	731.1	593.1		
390	208/230-60	187	253	890.4	1000	1391.3	1115.3	1000.0	1000	1501.3	1225.3	800.0	800	1301.5	1025.5	910.6	1000	1411.5	1135.5	
	460-60	414	506	445.6	500	696.0	558.0	488.4	500	738.8	600.8	400.7	450	651.1	513.1	443.5	500	693.9	555.9	
	575-60	518	633	374.0	400	536.2	440.2	395.6	450	557.8	461.8	337.4	350	499.6	403.6	359.0	400	521.2	425.2	
	380-60	342	418	479.3	500	761.0	609.0	521.3	600	803.0	651.0	432.5	500	714.2	562.2	474.5	500	756.2	604.2	
	230-50	207	253	796.2	800	1206.6	988.3	865.8	1000	1276.2	1058.2	749.9	800	1160.3	942.3	819.5	700	1229.9	1011.9	
	346-50	325	380	567.5	600	867.2	707.2	619.1	700	918.8	758.8	554.1	600	853.8	693.8	605.7	1000	905.4	745.4	
380/415-50	342	440	523.2	600	773.6	635.6	574.8	600	825.2	687.2	509.1	600	759.5	621.5	560.7	600	811.1	673.1		
420	208/230-60	187	253	890.4	1000	1391.3	1115.3	1000.0	1000	1501.3	1225.3	890.4	1000	1391.3	1115.3	1000.0	1000	1501.3	1225.3	
	460-60	414	506	445.6	500	696.0	558.0	488.4	500	738.8	600.8	445.6	500	696.0	558.0	488.4	500	7		

Electrical data (cont)



COMPRESSOR

UNIT SIZE	NAMEPLATE V-Hz (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
230	208/230-60	89.8/446	89.8/446	89.8/446	—/—	151.3/690	151.3/690	—/—
	460-60	44.9/223	44.9/223	44.9/223		75.7/345	75.7/345	
	575-60	36.6/164	36.6/164	36.6/164		62.2/240	62.2/240	
	380-60	46.8/247	46.8/247	46.8/247		80.2/382	80.2/382	
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	
	380/415-50	75.7/345	75.7/345	75.7/345		75.7/345	75.7/345	
230-PW	208/230-60	89.8/268	89.8/268	89.8/268	—/—	151.3/414	151.3/414	—/—
	460-60	44.9/134	44.9/134	44.9/134		75.7/207	75.7/207	
	575-60	36.6/ 99	36.6/ 99	36.6/ 99		62.2/144	62.2/144	
	380-60	46.8/149	46.8/149	46.8/149		80.2/230	80.2/230	
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	
	380/415-50	75.7/327	75.7/327	75.7/327		75.7/207	75.7/207	
245	208/230-60	89.8/446	89.8/446	89.8/446	—/—	151.3/690	151.3/690	—/—
	460-60	44.9/223	44.9/223	44.9/223		75.7/345	75.7/345	
	575-60	36.6/164	36.6/164	36.6/164		62.2/240	62.2/240	
	380-60	46.8/247	46.8/247	46.8/247		80.2/382	80.2/382	
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	
	380/415-50	75.7/345	75.7/345	75.7/345		75.7/345	75.7/345	
245-PW	208/230-60	89.8/268	89.8/268	89.8/268	—/—	151.3/414	151.3/414	—/—
	460-60	44.9/134	44.9/134	44.9/134		75.7/207	75.7/207	
	575-60	36.6/ 99	36.6/ 99	36.6/ 99		62.2/144	62.2/144	
	380-60	46.8/149	46.8/149	46.8/149		80.2/230	80.2/230	
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	
	380/415-50	75.7/327	75.7/327	75.7/327		75.7/207	75.7/207	
255	208/230-60	89.8/446	89.8/446	89.8/446	—/—	151.3/690	151.3/690	—/—
	460-60	44.9/223	44.9/223	44.9/223		75.7/345	75.7/345	
	575-60	36.6/164	36.6/164	36.6/164		62.2/240	62.2/240	
	380-60	46.8/247	46.8/247	46.8/247		80.2/382	80.2/382	
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	
	380/415-50	75.7/345	75.7/345	75.7/345		75.7/345	75.7/345	
255-PW	208/230-60	89.8/268	89.8/268	89.8/268	—/—	151.3/414	151.3/414	—/—
	460-60	44.9/134	44.9/134	44.9/134		75.7/207	75.7/207	
	575-60	36.6/ 99	36.6/ 99	36.6/ 99		62.2/144	62.2/144	
	380-60	46.8/149	46.8/149	46.8/149		80.2/230	80.2/230	
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	
	380/415-50	75.7/327	75.7/327	75.7/327		75.7/207	75.7/207	
270	208/230-60	107.7/506	107.7/506	107.7/506	—/—	107.7/506	107.7/506	107.7/506
	460-60	53.9/253	53.9/253	53.9/253		53.9/253	53.9/253	53.9/253
	575-60	41.7/176	41.7/176	41.7/176		41.7/176	41.7/176	41.7/176
	380-60	55.8/280	55.8/280	55.8/280		55.8/280	55.8/280	55.8/280
	346-50	55.8/294	55.8/294	80.2/400		55.8/294	80.2/400	80.2/400
	380/415-50	53.9/253	53.9/253	75.7/345		53.9/253	75.7/345	75.7/345
270-PW	208/230-60	107.7/304	107.7/304	107.7/304	—/—	107.7/304	107.7/304	107.7/304
	460-60	53.9/152	53.9/152	53.9/152		53.9/152	53.9/152	53.9/152
	575-60	41.7/106	41.7/106	41.7/106		41.7/106	41.7/106	41.7/106
	380-60	55.8/168	55.8/168	55.8/168		55.8/168	55.8/168	55.8/168
	346-50	55.8/177	55.8/177	80.2/240		55.8/177	80.2/240	80.2/240
	380/415-50	53.9/152	53.9/152	75.7/207		53.9/152	75.7/207	75.7/207
290	208/230-60	89.8/446	107.7/506	151.3/690	—/—	89.8/446	107.7/506	151.3/690
	460-60	44.9/223	53.9/253	75.7/345		44.9/223	53.9/253	75.7/345
	575-60	36.6/164	41.7/176	62.2/240		36.6/164	41.7/176	62.2/240
	380-60	46.8/247	55.8/280	80.2/382		46.8/247	55.8/280	80.2/382
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	80.2/400
	380/415-50	75.7/345	75.7/345	75.7/345		75.7/345	75.7/345	75.7/345
290-PW	208/230-60	89.8/268	107.7/304	151.3/414	—/—	89.8/268	107.7/304	151.3/414
	460-60	44.1/349	53.9/152	75.7/207		44.9/134	53.9/152	75.7/207
	575-60	36.6/ 99	41.7/106	62.2/144		36.6/ 99	41.7/106	62.2/144
	380-60	46.8/149	55.8/168	80.2/230		46.8/149	55.8/168	80.2/230
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	80.2/240
	380/415-50	75.7/207	75.7/207	75.7/207		75.7/207	75.7/207	75.7/207

NOTE: See Legend and Notes on page 44

COMPRESSOR (cont)

UNIT SIZE	NAMEPLATE V-Hz (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
230	208/230-60	106 4/506	67 9/345			147 7/690		
	460-60	46 8/253	34.6/173			65 4/345		
	575-60	40.4/176	28 8/120	—/—	—/—	57 1/276	—/—	—/—
	380-60	52 6/280	34.6/191			78 8/382		
	346-50	44.9/247	79.5/382			79 5/382		
	380/415-50	43.6/223	65.4/345			65 4/345		
230-PW	208/230-60	106.4/304	67.9/207			147 4/414		
	460-60	48.7/152	33.3/104			67 9/207		
	575-60	33.3/106	28 2/ 72	—/—	—/—	53.8/165	—/—	—/—
	380-60	53.8/168	33 3/115			79 5/229		
	346-50	44.9/148	79.5/229			79 5/229		
	380/415-50	44.9/134	67 9/207			67.9/207		
245	208/230-60	89 7/446	67.9/345			89 7/446	89 7/446	
	460-60	43 6/223	34.6/173			43.6/223	43 6/223	
	575-60	36 5/164	28.8/120	—/—	—/—	36.5/164	36 5/164	—/—
	380-60	45 5/247	34.6/191			45.5/247	45 5/247	
	346-50	44 9/247	79.5/382			44.9/247	53 8/280	
	380/415-50	43.6/223	65.4/345			43.6/223	46 8/280	
245-PW	208/230-60	89.7/268	67.9/207			89 7/268	89 7/268	
	460-60	44 9/134	33.3/104			44 9/134	44 9/134	
	575-60	33 3/ 98	28 2/ 72	—/—	—/—	33 3/ 98	33 3/ 98	—/—
	380-60	44 9/148	33 3/115			44 9/148	44 9/148	
	346-50	44.9/148	79.5/229			44 9/148	53 8/168	
	380/415-50	43.6/134	67 9/207			44 9/134	48.7/152	
255	208/230-60	89.7/446	106 4/506			89 7/446	106 4/506	
	460-60	43.6/223	46 8/253			43.6/223	46.8/253	
	575-60	36.5/164	40 4/176	—/—	—/—	36 5/164	40 4/176	—/—
	380-60	45 5/247	52 6/280			45.5/247	52 6/280	
	346-50	44 9/247	79 5/382			44 9/247	79 5/382	
	380/415-50	43 6/223	65 4/345			43.6/223	65 4/345	
255-PW	208/230-60	89.7/268	106 4/304			89.7/268	106.4/304	
	460-60	44.9/134	48.7/152			44.9/134	48 7/152	
	575-60	33.3/ 98	33 3/106	—/—	—/—	33.3/ 98	33.3/106	—/—
	380-60	44.9/148	53 8/168			44 9/148	53.8/168	
	346-50	44.9/148	79 5/229			44 9/148	79 5/229	
	380/415-50	44.9/134	67 9/207			44.9/134	67.9/207	
270	208/230-60	89 7/446	106 4/506			89 7/446	106 4/506	
	460-60	43.6/223	46.8/253			43 6/223	46 8/253	
	575-60	36 5/164	40.4/176	—/—	—/—	36 5/164	40 4/176	—/—
	380-60	45 5/247	52.6/280			45 5/247	52 6/280	
	346-50	44 9/247	79.5/382			44 9/247	79 5/382	
	380/415-50	43 6/223	65.4/345			43 6/223	65 4/345	
270-PW	208/230-60	89.7/268	106.4/304			89 7/268	106.4/304	
	460-60	44 9/134	48.7/152			44.9/134	48.7/152	
	575-60	33 3/ 98	33.3/106	—/—	—/—	33.3/ 98	33.3/106	—/—
	380-60	44.9/148	53.8/168			44.9/148	53 8/168	
	346-50	44 9/148	79.5/229			44.9/148	79 5/229	
	380/415-50	44 9/134	67.9/207			44.9/134	67 9/207	
290	208/230-60	89 7/446	147 4/690			89 7/446	106 4/506	
	460-60	43 6/223	65 4/345			43 6/223	46.8/253	
	575-60	36 5/164	57 1/276	—/—	—/—	36 5/164	40 4/176	—/—
	380-60	45 5/247	78 8/382			45 5/247	52.6/280	
	346-50	79 5/382	79 5/229			79.5/382	79 5/382	
	380/415-50	65 4/345	65 4/207			65.4/345	65 4/345	
290-PW	208/230-60	89 7/268	147 4/414			89 7/268	106 4/304	
	460-60	44 9/134	67 9/207			44 9/134	48 7/152	
	575-60	33 3/ 98	53 8/165	—/—	—/—	33 3/ 98	33.3/106	—/—
	380-60	44.9/148	79 5/229			44 9/148	53.8/168	
	346-50	79 5/229	79 5/229			79 5/229	79.5/229	
	380/415-50	67 9/207	67 9/207			67 9/207	67.9/207	

NOTE See Legend and Notes on page 44.

Electrical data (cont)



COMPRESSOR (cont)

UNIT SIZE	NAMEPLATE V-Hz (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
315	208/230-60	89.8/446	89.8/446	89.8/446	107.7/506	107.7/506	151.3/690	151.3/690
	460-60	44.9/223	44.9/223	44.9/223	53.9/253	53.9/253	75.7/345	75.7/345
	575-60	36.6/164	36.6/164	36.6/164	41.7/176	41.7/176	62.2/240	62.2/240
	380-60	46.8/247	46.8/247	46.8/247	55.8/280	55.8/280	80.2/382	80.2/382
	346-50	46.8/259	46.8/259	80.2/400	80.2/400	80.2/400	80.2/400	80.2/400
	380/415-50	44.9/223	44.9/223	75.7/345	75.7/345	75.7/345	75.7/345	75.7/345
315-PW	208/230-60	89.8/268	89.8/268	89.8/268	107.7/304	107.7/304	151.3/414	151.3/414
	460-60	44.9/134	44.9/134	44.9/134	53.9/152	53.9/152	75.7/207	75.7/207
	575-60	36.6/ 99	36.6/ 99	36.6/ 99	41.7/106	41.7/106	62.2/144	62.2/144
	380-60	46.8/149	46.8/149	46.8/149	55.8/168	55.8/168	80.2/230	80.2/230
	346-50	46.8/155	46.8/155	80.2/240	80.2/240	80.2/240	80.2/240	80.2/240
	380/415-50	44.9/134	44.9/134	75.7/207	75.7/207	75.7/207	75.7/207	75.7/207
330	208/230-60	107.7/506	107.7/506	107.7/506	—/—	107.7/506	107.7/506	107.7/506
	460-60	53.9/253	53.9/253	53.9/253		53.9/253	53.9/253	53.9/253
	575-60	41.7/176	41.7/176	41.7/176		41.7/176	41.7/176	41.7/176
	380-60	55.8/280	55.8/280	55.8/280		55.8/280	55.8/280	55.8/280
	346-50	55.8/294	55.8/294	80.2/400		55.8/294	80.2/400	80.2/400
	230-50	87.9/366	87.9/366	107.7/545		87.9/366	107.7/545	107.7/545
330-PW	208/230-60	107.7/304	107.7/304	107.7/304	—/—	107.7/304	107.7/304	107.7/304
	460-60	53.9/152	53.9/152	53.9/152		53.9/152	53.9/152	53.9/152
	575-60	41.7/106	41.7/106	41.7/106		41.7/106	41.7/106	41.7/106
	380-60	55.8/168	55.8/168	55.8/168		55.8/168	55.8/168	55.8/168
	346-50	55.8/177	55.8/177	80.2/240		55.8/177	80.2/240	80.2/240
	230-50	87.9/220	87.9/220	107.7/327		87.9/220	107.7/327	107.7/327
360	208/230-60	89.8/446	107.7/506	151.3/690	—/—	89.8/446	107.7/506	151.3/690
	460-60	44.9/223	53.9/253	75.7/345		44.9/223	53.9/253	75.7/345
	575-60	36.6/164	41.7/176	62.2/240		36.6/164	41.7/176	62.2/240
	380-60	46.8/247	55.8/280	80.2/382		46.8/247	55.8/280	80.2/382
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	80.2/400
	230-50	107.7/545	107.7/545	107.7/545		107.7/545	107.7/545	107.7/545
360-PW	208/230-60	89.8/268	107.7/304	151.3/414	—/—	89.8/268	107.7/304	151.3/414
	460-60	44.9/134	53.9/152	75.7/207		44.9/134	53.9/152	75.7/207
	575-60	36.6/ 99	41.7/106	62.2/144		36.6/ 99	41.7/106	62.2/144
	380-60	46.8/149	55.8/168	80.2/230		46.8/149	55.8/168	80.2/230
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	80.2/240
	230-50	107.7/327	107.7/327	107.7/327		107.7/327	107.7/327	107.7/327
390	208/230-60	89.8/446	89.8/446	89.8/446	107.7/506	107.7/506	151.3/690	151.3/690
	460-60	44.9/223	44.9/223	44.9/223	53.9/253	53.9/253	75.7/345	75.7/345
	575-60	36.6/164	36.6/164	36.6/164	41.7/176	41.7/176	62.2/240	62.2/240
	380-60	46.8/247	46.8/247	46.8/247	55.8/280	55.8/280	80.2/382	80.2/382
	346-50	46.8/259	46.8/259	80.2/400	80.2/400	80.2/400	80.2/400	80.2/400
	230-50	77.0/342	77.0/342	107.7/545	107.7/545	107.7/545	107.7/545	107.7/545
390-PW	208/230-60	89.8/268	89.8/268	89.8/268	107.7/304	107.7/304	151.3/414	151.3/414
	460-60	44.9/134	44.9/134	44.9/134	53.9/152	53.9/152	75.7/207	75.7/207
	575-60	36.6/ 99	36.6/ 99	36.6/ 99	41.7/106	41.7/106	62.2/144	62.2/144
	380-60	46.8/149	46.8/149	46.8/149	55.8/168	55.8/168	80.2/230	80.2/230
	346-50	46.8/155	46.8/155	80.2/240	80.2/240	80.2/240	80.2/240	80.2/240
	230-50	77.0/206	77.0/206	107.7/327	107.7/327	107.7/327	107.7/327	107.7/327
420	208/230-60	89.8/446	89.8/446	89.8/446	107.7/506	107.7/506	151.3/690	151.3/690
	460-60	44.9/223	44.9/223	44.9/223	53.9/253	53.9/253	75.7/345	75.7/345
	575-60	36.6/164	36.6/164	36.6/164	41.7/176	41.7/176	62.2/240	62.2/240
	380-60	46.8/247	46.8/247	46.8/247	55.8/280	55.8/280	80.2/382	80.2/382
	346-50	46.8/259	46.8/259	80.2/400	80.2/400	80.2/400	80.2/400	80.2/400
	230-50	77.0/342	77.0/342	107.7/545	107.7/545	107.7/545	107.7/545	107.7/545
420-PW	208/230-60	89.8/268	89.8/268	89.8/268	107.7/304	107.7/304	151.3/414	151.3/414
	460-60	44.9/134	44.9/134	44.9/134	53.9/152	53.9/152	75.7/207	75.7/207
	575-60	36.6/ 99	36.6/ 99	36.6/ 99	41.7/106	41.7/106	62.2/144	62.2/144
	380-60	46.8/149	46.8/149	46.8/149	55.8/168	55.8/168	80.2/230	80.2/230
	346-50	46.8/155	46.8/155	80.2/240	80.2/240	80.2/240	80.2/240	80.2/240
	230-50	77.0/206	77.0/206	107.7/327	107.7/327	107.7/327	107.7/327	107.7/327

NOTE See Legend and Notes on page 44.

COMPRESSOR (cont)

UNIT SIZE	NAMEPLATE V-Hz (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
315	208/230-60	89.7/446	147.4/690			89.7/446	106.4/506	
	460-60	43.6/223	65.4/345			43.6/223	46.8/253	
	575-60	36.5/164	57.1/276	—/—	—/—	36.5/164	40.4/176	—/—
	380-60	45.5/247	78.8/382			45.5/247	52.6/280	
	346-50	79.5/382	79.5/229			79.5/382	79.5/382	
	380/415-50	65.4/345	65.4/207			65.4/345	65.4/345	
315-PW	208/230-60	89.7/268	147.4/414			89.7/268	106.4/304	
	460-60	44.9/134	67.9/207			44.9/134	48.7/152	
	575-60	33.3/ 98	53.8/165	—/—	—/—	33.3/ 98	33.3/106	—/—
	380-60	44.9/148	79.5/229			44.9/148	53.8/168	
	346-50	79.5/229	79.5/229			79.5/229	79.5/229	
	380/415-50	67.9/207	67.9/207			67.9/207	67.9/207	
330	208/230-60	107.7/506	107.7/506	107.7/506		107.7/506	107.7/506	107.7/506
	460-60	53.9/253	53.9/253	53.9/253		53.9/253	53.9/253	53.9/253
	575-60	41.7/176	41.7/176	41.7/176	—/—	41.7/176	41.7/176	41.7/176
	380-60	55.8/280	55.8/280	55.8/280		55.8/280	55.8/280	55.8/280
	346-50	55.8/294	55.8/294	80.2/400		55.8/294	80.2/400	80.2/400
	230-50	87.9/366	87.9/366	107.7/545		87.9/366	107.7/545	107.7/545
330-PW	208/230-60	107.7/304	107.7/304	107.7/304		107.7/304	107.7/304	107.7/304
	460-60	53.9/152	53.9/152	53.9/152		53.9/152	53.9/152	53.9/152
	575-60	41.7/106	41.7/106	41.7/106	—/—	41.7/106	41.7/106	41.7/106
	380-60	55.8/168	55.8/168	55.8/168		55.8/168	55.8/168	55.8/168
	346-50	55.8/177	55.8/177	80.2/240		55.8/177	80.2/240	80.2/240
	230-50	87.9/220	87.9/220	107.7/327		87.9/220	107.7/327	107.7/327
360	208/230-60	89.8/446	107.7/506	151.3/690		89.8/446	107.7/506	151.3/690
	460-60	44.9/223	53.9/253	75.7/345		44.9/223	53.9/253	75.7/345
	575-60	36.6/164	41.7/176	62.2/240	—/—	36.6/164	41.7/176	62.2/240
	380-60	46.8/247	55.8/280	80.2/382		46.8/247	55.8/280	80.2/382
	346-50	55.8/294	55.8/294	80.2/400		55.8/294	80.2/400	80.2/400
	230-50	87.9/366	87.9/366	107.7/545		87.9/366	107.7/545	107.7/545
360-PW	208/230-60	89.8/268	107.7/304	151.3/414		89.8/268	107.7/304	151.3/414
	460-60	44.1/349	53.9/152	75.7/207		44.1/349	53.9/152	75.7/207
	575-60	36.6/ 99	41.7/106	62.2/144	—/—	36.6/ 99	41.7/106	62.2/144
	380-60	46.8/149	55.8/168	80.2/230		46.8/149	55.8/168	80.2/230
	346-50	55.8/177	55.8/177	80.2/240		55.8/177	80.2/240	80.2/240
	230-50	87.9/220	87.9/220	107.7/327		87.9/220	107.7/327	107.7/327
390	208/230-60	89.8/446	107.7/506	151.3/690		89.8/446	107.7/506	151.3/690
	460-60	44.9/223	53.9/253	75.7/345		44.9/223	53.9/253	75.7/345
	575-60	36.6/164	41.7/176	62.2/240	—/—	36.6/164	41.7/176	62.2/240
	380-60	46.8/247	55.8/280	80.2/382		46.8/247	55.8/280	80.2/382
	346-50	80.2/400	80.2/400	80.2/400		80.2/400	80.2/400	80.2/400
	230-50	107.7/545	107.7/545	107.7/545		107.7/545	107.7/545	107.7/545
390-PW	208/230-60	89.8/268	107.7/304	151.3/414		89.8/268	107.7/304	151.3/414
	460-60	44.1/349	53.9/152	75.7/207		44.1/349	53.9/152	75.7/207
	575-60	36.6/ 99	41.7/106	62.2/144	—/—	36.6/ 99	41.7/106	62.2/144
	380-60	46.8/149	55.8/168	80.2/230		46.8/149	55.8/168	80.2/230
	346-50	80.2/240	80.2/240	80.2/240		80.2/240	80.2/240	80.2/240
	230-50	107.7/327	107.7/327	107.7/327		107.7/327	107.7/327	107.7/327
420	208/230-60	89.8/446	89.8/446	89.8/446	107.7/506	107.7/506	151.3/690	151.3/690
	460-60	44.9/223	44.9/223	44.9/223	53.9/253	53.9/253	75.7/345	75.7/345
	575-60	36.6/164	36.6/164	36.6/164	41.7/176	41.7/176	62.2/240	62.2/240
	380-60	46.8/247	46.8/247	46.8/247	55.8/280	55.8/280	80.2/382	80.2/382
	346-50	46.8/259	46.8/259	80.2/400	80.2/400	80.2/400	80.2/400	80.2/400
	230-50	77.0/342	77.0/342	107.7/545	107.7/545	107.7/545	107.7/545	107.7/545
420-PW	208/230-60	89.8/268	89.8/268	89.8/268	107.7/304	107.7/304	151.3/414	151.3/414
	460-60	44.9/134	44.9/134	44.9/134	53.9/152	53.9/152	75.7/207	75.7/207
	575-60	36.6/ 99	36.6/ 99	36.6/ 99	41.7/106	41.7/106	62.2/144	62.2/144
	380-60	46.8/149	46.8/149	46.8/149	55.8/168	55.8/168	80.2/230	80.2/230
	346-50	46.8/155	46.8/155	80.2/240	80.2/240	80.2/240	80.2/240	80.2/240
	230-50	77.0/206	77.0/206	107.7/327	107.7/327	107.7/327	107.7/327	107.7/327

NOTE See Legend and Notes on page 44

Electrical data (cont)



CONDENSER FANS

UNIT SIZE	NAMEPLATE VOLTAGE (V-Ph-Hz)	STANDARD 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)
230B, 245B	208/230-3-60	6	1	0.746	(4) 5.4, (2) 5.5	(4) 31.6, (2) 30.0	6	5	3.730	(6) 14.6	(6) 41.6
	460-3-60				(4) 2.7, (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) 3.0	(6) 30.0				(6) 7.3	(6) 41.0
255B, 270B, 290B, 315B	208/230-3-60	8	1	0.746	(6) 5.4, (2) 5.5	(6) 31.6, (2) 30.0	8	5	3.730	(8) 14.6	(8) 41.6
	460-3-60				(6) 2.7, (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) 3.0	(8) 30.0				(8) 7.3	(8) 41.0
230A, 245A, 255A, 270A, 330A/B, 360B (50 Hz)	208/230-3-60	10	1	0.746	(6) 5.4, (4) 5.5	(6) 31.6, (4) 30.0	10	5	3.730	(10) 14.6	(10) 41.6
	460-3-60				(6) 2.7, (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
	230-3-50**				(10) 6.4	(10) 30.3				(10) 12.2	(10) 41.6
290A, 315A, 360A/B (60 Hz), 390A/B and 420A/B	380/415-3-50	12	1	0.746	(10) 3.0	(10) 30.0	12	5	3.730	(10) 7.3	(10) 41.0
	208/230-3-60				(8) 5.4, (4) 5.5	(8) 31.6, (4) 30.0				(12) 14.6	(12) 41.6
	460-3-60				(8) 2.7, (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
	230-3-50**				(12) 6.4	(12) 30.3				(12) 12.2	(12) 41.6
	380/415-3-50				(12) 3.0	(12) 30.0				(12) 7.3	(12) 41.0

LEGEND AND NOTES FOR ELECTRICAL DATA TABLES

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%.

†Wherever across-the-line and part-wind data differs, the higher value of the two is listed.

**330A/B (and larger) units only

NOTES

- All modules have single point primary power connection. Main power must be supplied from a field-supplied disconnect.
- The unit control circuit power (115 v, 1-ph for 208/230-, 460-, and 575-v units, 230 v, 1-ph 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.
- 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 or the unit ON-OFF or LOCAL/ENABLE-STOP-CCN circuit switch is turned to OFF or STOP position, respectively.

- Units have the following power wiring terminal blocks and parallel conductors

UNIT SIZE	VOLTAGE	TERMINAL BLOCKS	PARALLEL CONDUCTORS
230B, 245B, 255B, 270B, 290B, 315B	208/230	1	6
	460	1	3
	575	1	3
	380	1	3
	346	1	3
	380/415	1	3
230A, 245A, 255A, 270A, 290A, 315A, 330A/B to 420A/B	208/230	3	9
	460	2	6
	575	2	6
	380	2	6
	230**	3	9
	346	2	6
	380/415	2	6

- Maximum incoming wire size for each terminal block is 500 kcmil
- Power draw of control circuits includes both crankcase heaters (where used) and cooler heaters. Each compressor has a crankcase heater which draws 180 w of power. Units ordered with cooler heater option have 8 cooler heaters, 210 w each, and a 120-w circuit board heater



Controls (cont)



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 30GT units have a thermistor (T5/T6) located in the cooler. The EXV is controlled to maintain superheat entering pistons at approximately 30 F (15 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 50 F (9.9 C) on 30GN units, and 55 F (12.8 C) on 30GT units. 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 (which may be reconfigured in the field) limits rate of pulldown to 1° F (0.6° C) per minute, thereby reducing the kW demand on start-up.

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. The 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 options, based on return fluid temperature, outdoor-air temperature, or space temperature, that reset the LCWT. An accessory thermistor T10, is required if outdoor temperature or space temperature reset is elected.

Ground current protection

The 30GN,GT units have ground current protection, shutting 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 (standard — 30GT only)

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 will result in LED displaying the appropriate overload or status code.

If this is done, display will show 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.

Flotronic II (CCN) controls with 8-character display/set point board (30GN only)

An 8-digit LCD alphanumeric panel displays all of the Flotronic control codes (with explanation of codes), plus set points, time of day, and actual temperatures, pressures, and superheat.

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 30 F (16 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.

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 426 psig (2937 kPa).

Ground current safety — Safety opens on sensing a current-to-ground in compressor windings in excess of 2.5 amps.

Compressor anti-cycling — This feature limits compressor cycling.

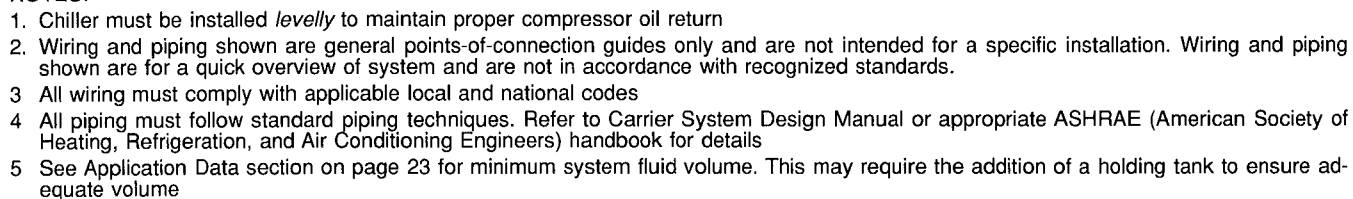
Loss of flow protection — Protection is provided by temperature differences between entering and leaving fluid temperature sensors if cooler temperature drops to 35 F (1.8 C).

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 (not on Flotronic™ II units) 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).

NOTE: The TEST function on 30GN units allows for the same functions as quick test on 30GT units.



Reciprocating Air-Cooled Liquid Chiller

HVAC Guide Specifications —

Size Range: **220 to 400 Tons; 770 to 1400 kW**

Nominal

Carrier Model Number: **30GN,GT**

Part 1 — General

1.01 SYSTEM DESCRIPTION

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

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standard 590-92, 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.
- E. Unit operation shall be fully tested at the factory.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be stored and handled according to unit manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, 2-module, air-cooled liquid chiller. Contained within the unit cabinets shall be all factory wiring, piping, controls, refrigerant charge (R-22), 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. PVC coated steel wire safety guards.
3. Statically and dynamically balanced fan wheels.

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. Equipped with victaulic-type water 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 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-22 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 or LOCAL/ENABLE-STOP-CCN control switch.
 - 4) Replaceable solid-state relay panel.
 - 5) Eight-character diagnostic display/set point panel on 30GN unit. Two-digit panel on 30GT unit.
 - 6) Thermistors and pressure transducers (30GN) or potentiometers (30GT).

- b. Controls shall be capable of performing the following functions:

- 1) Automatic circuit lead/lag
- 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.
- 5) Seven-day time schedule (30GN only).
- 6) Leaving chilled fluid temperature reset from return fluid (30GN only).
- 7) Demand limit control with 2-point control (0 to 100% each) (30GN only).

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.
- 8) Ground current protection for each compressor shuts down compressor when no more than 2.5 supply amps are measured to prevent the formation of acids.

- 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. On 30GN units, diagnostic display module shall be capable of indicating the safety lock-out condition by displaying a code for which an explanation may be scrolled at the display. On 30GT units, display module shall be capable of indicating the tripping of protec-

tions 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, transducer (30GN only), or potentiometer (30GT only) malfunction.
- 8) Entering and leaving fluid temperature.
- 9) Evaporator and discharge pressure (30GN only).
- 10) Electronic expansion valve positions (30GN only).
- 11) All set points (30GN only).
- 12) Time of day (30GN only).

- b. 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 shall be provided in each module 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.

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.

K. Electrical Requirements:

1. Each module's primary electrical power supply (3 ph) shall be connected to a single location.
2. Each module's control power (single ph) shall be connected to a separate entry point.

3. 60-Hz units 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:

Unit shall be factory equipped with (30GN only) or shall have field-installed (all 30GN and 30GT290B, 360A (50 Hz), 360A/B (60 Hz), and 390B units) electrically actuated suction cut-off type cylinder unloaders.

3. Demand Limit Control (30GT units only):

Unit shall be equipped with a 2-point demand limit control activated remotely by an electric signal.

* 4. Condenser Coil Material:

Unit shall be factory equipped with a condenser coil made from copper tubes and copper fins, copper tubes and aluminum heresite fins, copper tubes and copper heresite fins, or copper tubes and pre-coated fins.

5. Hail Guard:

Unit shall be equipped with sheet metal type coil guard protection against debris and damage.

* 6. Part Wind Start:

Shall be factory installed to reduce compressor inrush current

7. Pressure Gages (30GT units only):

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 (30GT units only):

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. (Reset is standard on 30GN units.)

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:

Unit shall be factory supplied with eight 210-w 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:

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 consists 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, and shall source the power from the main unit power connection.

18. Coastal Filter Package:

Field installed accessory protects the unit from corrosion damage in coastal areas and in areas with high sulfur emissions.

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 modules together.

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Manufacturer reserves the right to discontinue, or change at any time, specifications or designs without notice and without incurring obligations.

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