



Product Data

30HXA076-186 30HXC076-271 Condenserless and Fluid-Cooled Chillers 50/60 Hz

75 to 265 Tons (264 to 931 kW)

Quality Assurance



Certificate No FM 21837

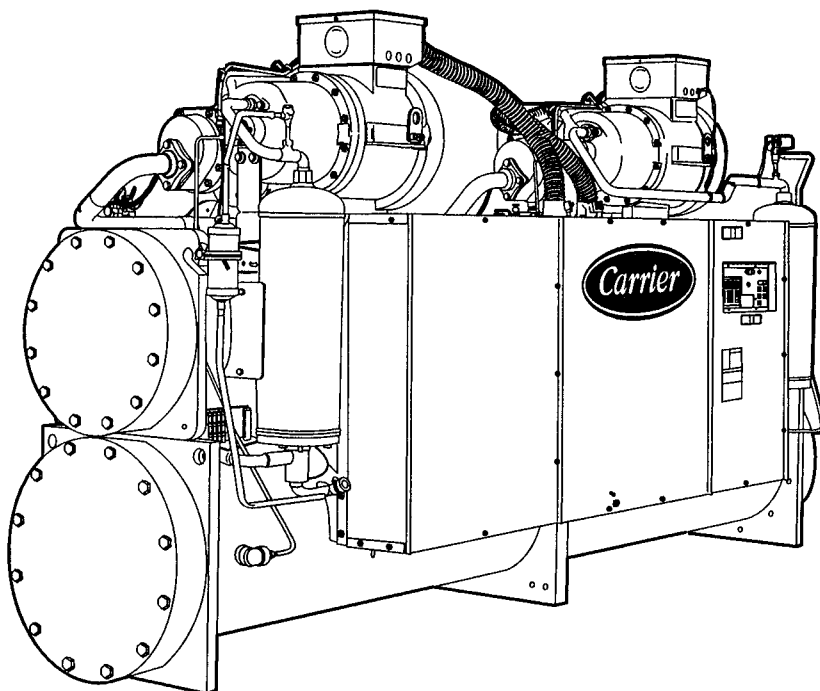
Approvals:

ISO 9002

EN 29002

BS5750 PART 2

ANSI/ASQC Q92



Fluid-cooled and condenserless chillers designed from the ground up to meet the needs of today and tomorrow, including:

- Fits through a standard door with no disassembly required
- Chlorine-free HFC-134a refrigerant
- Smooth compression using screw compressors
- Mechanically cleanable coolers and condensers (30HXC)

Features/Benefits

Quality design and construction make the 30HXC (Fluid Cooled) and the 30HXA (Condenserless) units the preferred choice

Easy installation

The 30HX chiller has a compact design that fits through a standard door opening and requires minimal indoor space. The 30HX chiller is delivered as a complete package for easy installation. There are no extra controls, clocks, starters, or other items to install.

The 30HX unit also provides a single point electrical power entrance (using the accessory field-installed control transformer) and quick, easy piping using either welded or accessory victaulic-type clamp-on couplings for the cooler.

The 30HX 208/230-v and 460-v units are designed in accordance with UL (Underwriters' Laboratory, U.S.A.) standards and the 575-v units are designed in accordance with CSA (Canadian Standards Association) standards to minimize electrical inspections.

A quick start-up is assured once installation is complete, since each 30HX unit is manufactured at an ISO 9002-listed manufacturing facility to guarantee quality. In addition, all units are tested under full load at the factory to provide reliable start-up.

Easy operation

The 30HX units have a quiet, low-vibration design featuring screw compressors.

Efficiency levels of the 30HX units exceed minimums established by ASHRAE (American Society of Heating and Refrigeration Engineers) and CSA for both full- and part-load operation, thus saving on operating costs through lower electrical

costs. All 30HX units are also rated in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) standards. The 60 Hz 30HXC units are ARI certified.

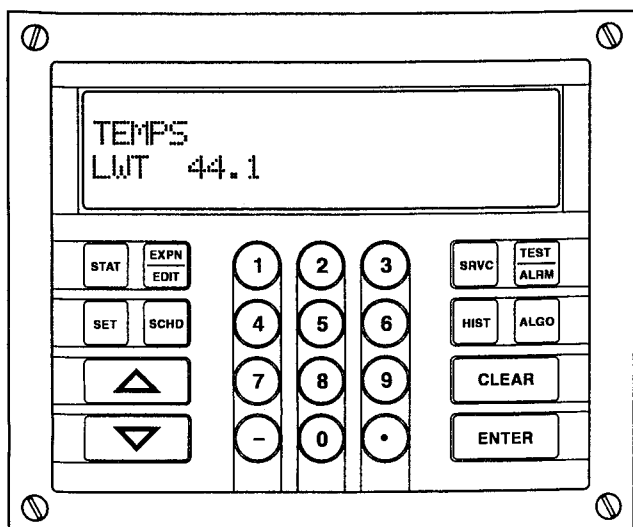
The 30HX controls are fully automatic. The leaving-fluid temperature is directly controlled, and the entering-fluid temperature is continuously monitored to detect load and flow changes controlling to within .5° F (.3° C).

Dual, independent refrigerant circuits provide reliable, dependable cooling, and the 30HX units use medium-pressure HFC-134a refrigerant to minimize stress on the compressors and ensure a long life.

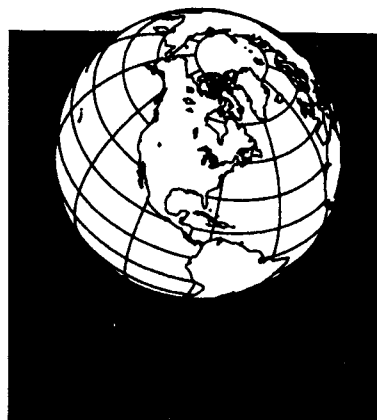
From a service standpoint, the 30HX units offer the following features:

- Use of HFC-134a refrigerant, which has no planned phase-out in its future
- Mechanically-cleanable cooler and condenser (30HXC units)
- Twin-screw compressors, which require no routine service or maintenance
- Easily accessed suction and discharge pressure and temperature information using either standard or accessory display module

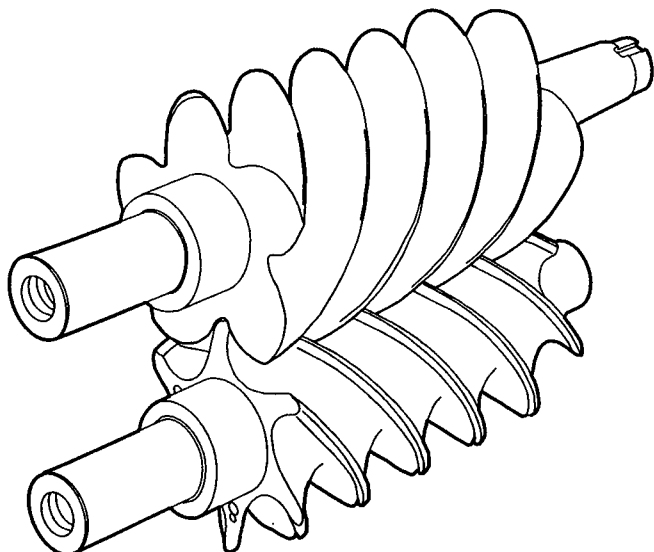
STANDARD DISPLAY MODULE



ENVIRONMENTAL LEADERSHIP



TWIN-SCREW COMPRESSOR DESIGN



FITS THROUGH STANDARD DOORWAY

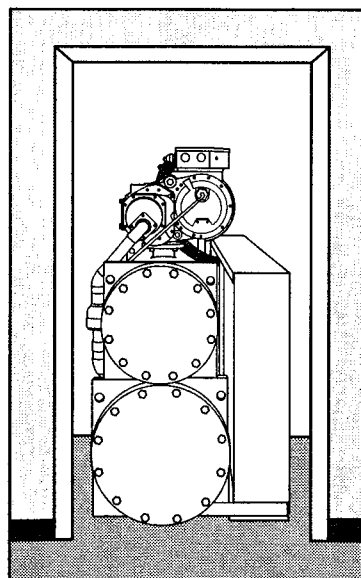
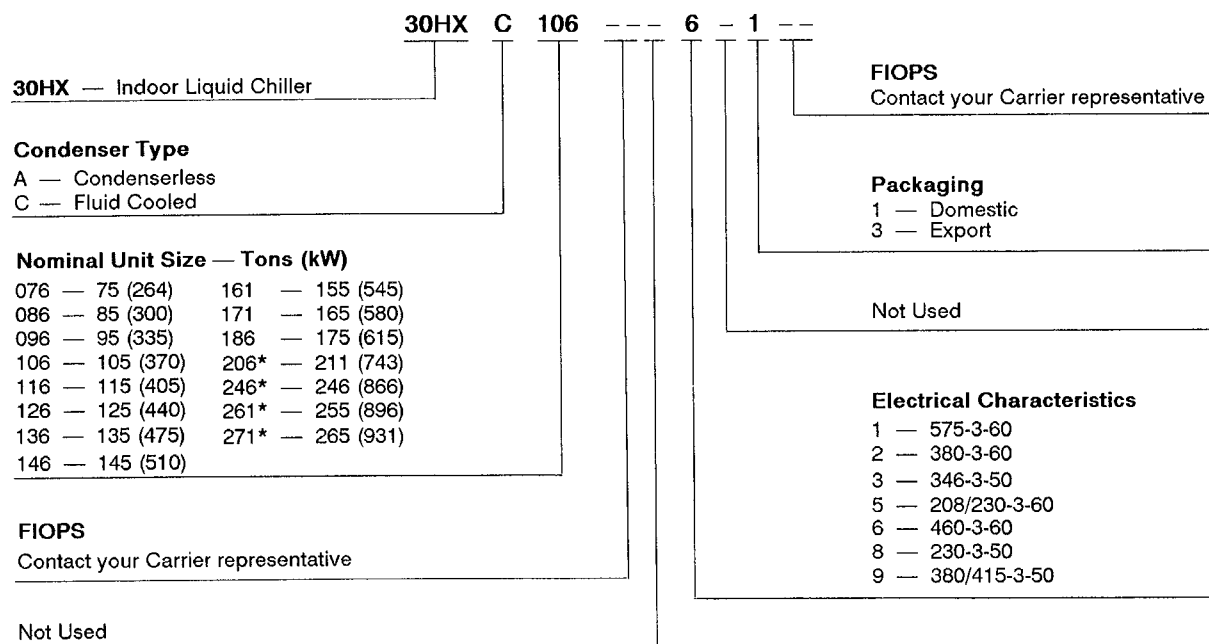


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Model number nomenclature



LEGEND

FIOPS — Factory-Installed Options

*30HXC only

Physical data



ENGLISH

UNIT SIZE 30HX	076	086	096	106	116	126	136	146
UNIT WEIGHT (lb)								
Fluid Cooled (HXC)	5700	5723	5855	6177	6415	6465	6688	6718
Condenserless (HXA)	4717	4744	4835	5151	5162	5205	5308	5333
COMPRESSORS	Semi-Hermetic, Twin Screw							
Quantity	2	2	2	2	2	2	2	2
Nominal Capacity per Compressor (tons)	39/39	46/39	56/39	66/39	66/46	66/56	80/56	80/66
Economizer	No	No	No	No	No	No	No	No
No. Capacity Steps								
Standard	6	6	6	6	6	6	6	6
Optional (maximum)	8	8	8	8	8	8	8	8
Minimum Step Capacity (%)								
Standard	20	20	20	20	20	20	20	20
Optional	10	10	10	10	10	10	10	10
REFRIGERANT	R-134a							
Charge* (lb) Circuit A/Circuit B	60/60	76/65	94/70	110/70	105/76	112/89	124/89	119/100
COOLER	Shell and Tube with Enhanced Copper Tubes							
Part No. 10HX400-	001	001	002	010	007	007	006	006
Net Fluid Volume (gal)	17.0	17.0	19.0	22.6	21.4	21.4	24.0	24.0
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220	220
Maximum Fluid-Side Pressure (psig)	300	300	300	300	300	300	300	300
Fluid Connections								
Inlet and Outlet (in.)	4	4	4	5	4	4	4	4
Drain (in. NPT)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Relief Valve								
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (lb air/min)	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7
Relief Setting (psig)	220	220	220	220	220	220	220	220
30HXA OIL SEPARATOR								
Part No. 09RX400-	007	007	008	008	009	009	009	009
Maximum Refrigerant Pressure (psig)	320	320	320	320	320	320	320	320
Refrigerant Connections (in.)								
Discharge	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8
Liquid	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8
Relief Valve								
Connection (in. SAE Flare)	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
Flow Capacity (lb air/min)	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6
Relief Setting (psig)	320	320	320	320	320	320	320	320
CONDENSER (HXC)	Shell and Tube with Enhanced Copper Tubes							
Part No. 09RX400-	001	001	002	002	003	003	004	004
Net Fluid Volume (gal)	16.8	16.8	18.3	18.3	23.9	23.9	27.5	27.5
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220	220
Maximum Water-Side Pressure (psig)	300	300	300	300	300	300	300	300
Water Connections (in.)								
Inlet and Outlet	5	5	5	5	5	5	5	5
Drain (NPT)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Relief Valve								
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (lb air/min)	31.7	31.7	31.7	31.7	31.7	31.7	31.7	31.7
Relief Setting (psig)	220	220	220	220	220	220	220	220
DISCHARGE LINE†								
Relief Valve								
Connection (in. SAE Flare)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Flow Capacity (lb air/min)	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Setting (psig)	350	350	350	350	350	350	350	350

LEGEND

NPTF — National Pipe Thread Female
SAE — Society of Automotive Engineers

*Charges listed are for 30HXC units. The 30HXA units are shipped with a holding charge only. To determine the refrigerant charge requirements for 30HXA units see the System Refrigerant Charge table in the Application Data on page 21.

†Only on units with factory-installed suction service valves.

ENGLISH (cont)

UNIT SIZE 30HX	161	171	186	206	246	261	271
UNIT WEIGHT (lb)							
Fluid Cooled (HXC)	7452	7660	7854	10,581	10,969	10,992	11,029
Condenserless (HXA)	5752	5777	5946	—	—	—	—
COMPRESSORS	Semi-Hermetic, Twin Screw						
Quantity	2	2	2	3	3	3	3
Nominal Capacity per Compressor (tons)	80/56	66/80	80/80	66/39/80	80/56/80	80/66/80	80/80/80
Economizer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. Capacity Steps							
Standard	6	6	6	8	8	8	8
Optional (maximum)	8	8	8	11	11	11	11
Minimum Step Capacity (%)							
Standard	20	20	20	13	13	13	13
Optional	10	10	10	7	7	7	7
REFRIGERANT	R-134a						
Charge* (lb) Circuit A/Circuit B	150/110	119/140	135/135	220/135	220/135	220/135	220/135
COOLER TYPE	Shell and Tube with Enhanced Copper Tubes						
Part No. 10HX400-	104	012	013	125	126	126	126
Net Fluid Volume (gal)	28.5	28.5	33.4	43.1	47.2	47.2	47.2
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220
Maximum Fluid-Side Pressure (psig)	300	300	300	300	300	300	300
Fluid Connections							
Inlet and Outlet (in.)	5	5	5	6	6	6	6
Drain (NPT)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Relief Valve							
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (lb air/min)	31.7	31.7	31.7	31.7	31.7	31.7	31.7
Relief Setting (psig)	220	220	220	220	220	220	220
30HXA OIL SEPARATOR							
Part No. 09RX400-	009	010	010	—	—	—	—
Maximum Refrigerant Pressure (psig)	320	320	320	—	—	—	—
Refrigerant Connections (in.)							
Discharge	2 1/8	2 1/8	2 1/8	—	—	—	—
Liquid	1 3/8	1 3/8	1 3/8	—	—	—	—
Relief Valve							
Connection (in. SAE Flare)	5/8	5/8	5/8	—	—	—	—
Flow Capacity (lb air/min)	21.6	21.6	21.6	—	—	—	—
Relief Setting (psig)	320	320	320	—	—	—	—
CONDENSER (HXC)	Shell and Tube with Enhanced Copper Tubes						
Part No. 09RX400-	005	006	006	104	105	105	105
Net Fluid Volume (gal)	30.6	37.6	37.6	47.6	55.1	55.1	55.1
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220
Maximum Water-Side Pressure (psig)	300	300	300	300	300	300	300
Water Connections (in.)							
Inlet and Outlet	5	5	5	6	6	6	6
Drain (NPT)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Relief Valve							
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (lb air/min)	31.7	31.7	31.7	31.7	31.7	31.7	31.7
Relief Setting (psig)	220	220	220	220	220	220	220
DISCHARGE LINE†							
Relief Valve							
Connection (in. SAE Flare)	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Flow Capacity (lb air/min)	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Setting (psig)	350	350	350	350	350	350	350

LEGEND

NPTF — National Pipe Thread Female
SAE — Society of Automotive Engineers

*Charges listed are for 30HXC units. The 30HXA units are shipped with a holding charge only. To determine the refrigerant charge requirements for 30HXA units see the System Refrigerant Charge table in the Application Data on page 21.

†Only on units with factory-installed suction service valves

Physical data (cont)



SI

UNIT SIZE 30HX	076	086	096	106	116	126	136	146
UNIT WEIGHT (kg)								
Fluid Cooled (HXC)	2586	2596	2656	2802	2910	2933	3034	3047
Condenserless (HXA)	2140	2152	2193	2336	2341	2361	2408	2419
COMPRESSORS	Semi-Hermetic, Twin Screw							
Quantity	2	2	2	2	2	2	2	2
Nominal Capacity per Compressor (kW)	137/137	162/137	197/137	232/137	232/137	232/197	281/197	281/232
Economizer	No	No	No	No	No	No	No	No
No. Capacity Steps								
Standard	6	6	6	6	6	6	6	6
Optional (maximum)	8	8	8	8	8	8	8	8
Minimum Step Capacity (%)								
Standard	20	20	20	20	20	20	20	20
Optional	10	10	10	10	10	10	10	10
REFRIGERANT	R-134a							
Charge* (kg) Circuit A/Circuit B	27.3/27.3	34.5/29.5	42.7/31.8	50.0/31.8	47.7/34.5	50.9/40.5	56.4/40.5	54.1/45.5
COOLER	Shell and Tube with Enhanced Copper Tubes							
Part No. 10HX400-	001	001	002	010	007	007	006	006
Net Fluid Volume (L)	64.3	64.3	71.9	85.5	81.0	81.0	90.8	90.8
Maximum Refrigerant Pressure (kPa)	1517	1517	1517	1517	1517	1517	1517	1517
Maximum Fluid-Side Pressure (kPa)	2068	2068	2068	2068	2068	2068	2068	2068
Fluid Connections								
Inlet and Outlet (in.)	4	4	4	5	4	4	4	4
Drain (NPT)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Relief Valve								
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (kg air/min)	14.38	14.38	14.38	14.38	14.38	14.38	14.38	14.38
Relief Setting (kPa)	1517	1517	1517	1517	1517	1517	1517	1517
30HXA OIL SEPARATOR								
Part No. 09RX400-	007	007	008	008	009	009	009	009
Maximum Refrigerant Pressure (kPa)	2205	2205	2205	2205	2205	2205	2205	2205
Refrigerant Connections (in.)								
Discharge	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8	2 1/8
Liquid	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8	1 1/8
Relief Valve								
Connection (in. SAE Flare)	5/8	5/8	5/8	5/8	5/8	5/8	5/8	5/8
Flow Capacity (kg air/min)	9.80	9.80	9.80	9.80	9.80	9.80	9.80	9.80
Relief Setting (kPa)	2206	2206	2206	2206	2206	2206	2206	2206
CONDENSER (HXC)	Shell and Tube with Enhanced Copper Tubes							
Part No. 09RX400-	001	001	002	002	003	003	004	004
Net Fluid Volume (L)	63.6	63.6	69.3	69.3	90.5	90.5	104.1	104.1
Maximum Refrigerant Pressure (kPa)	1517	1517	1517	1517	1517	1517	1517	1517
Maximum Water-Side Pressure (kPa)	2068	2068	2068	2068	2068	2068	2068	2068
Water Connections (in.)								
Inlet and Outlet	5	5	5	5	5	5	5	5
Drain (NPT)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Relief Valve								
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (kg air/min)	14.38	14.38	14.38	14.38	14.38	14.38	14.38	14.38
Relief Setting (kPa)	1517	1517	1517	1517	1517	1517	1517	1517
DISCHARGE LINE†								
Relief Valve								
Connection (in. SAE Flare)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Flow Capacity (kg air/min)	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Relief Pressure (kPa)	2413	2413	2413	2413	2413	2413	2413	2413

LEGEND

NPTF — National Pipe Thread Female
SAE — Society of Automotive Engineers

*Charges listed are for 30HXC units. The 30HXA units are shipped with a holding charge only. To determine the refrigerant charge requirements for 30HXA units see the System Refrigerant Charge table in the Application Data on page 21.

†Only on units with factory-installed suction service valves.

SI (cont)

UNIT SIZE 30HX	161	171	186	206	246	261	271
UNIT WEIGHT (kg)							
Fluid Cooled (HXC)	3380	3476	3563	4799	4975	4986	5003
Condenserless (HXA)	2609	2620	2697	—	—	—	—
COMPRESSORS	Semi-Hermetic, Twin Screw						
Quantity	2	2	2	3	3	3	3
Nominal Capacity per Compressor (kW)	281/197	232/281	281/281	232/137/281	281/197/281	281/232/281	281/281/281
Economizer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. Capacity Steps							
Standard	6	6	6	8	8	8	8
Optional (maximum)	8	8	8	11	11	11	11
Minimum Step Capacity (%)							
Standard	20	20	20	13	13	13	13
Optional	10	10	10	7	7	7	7
REFRIGERANT	R-134a						
Charge* (kg) Circuit A/Circuit B	68.2/50.0	54.1/63.6	61.2/61.2	99.8/61.2	99.8/61.2	99.8/61.2	99.8/61.2
COOLER	Shell and Tube with Enhanced Copper Tubes						
Part No. 10HX400-	104	012	013	125	126	126	126
Net Fluid Volume (L)	107.9	107.9	126.4	163.2	178.7	178.8	178.7
Maximum Refrigerant Pressure (kPa)	1517	1517	1517	1517	1517	1517	1517
Maximum Fluid-Side Pressure (kPa)	2068	2068	2068	2068	2068	2068	2068
Fluid Connections							
Inlet and Outlet (in.)	5	5	5	6	6	6	6
Drain (NPT)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Relief Valve							
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (kg air/min)	14.28	14.38	14.38	14.38	14.38	14.38	14.38
Relief Setting (kPa)	1517	1517	1517	1517	1517	1517	1517
30HXA OIL SEPARATOR							
Part No. 09RX400-	009	010	010	—	—	—	—
Maximum Refrigerant Pressure (kPa)	2205	2205	2205	—	—	—	—
Refrigerant Connections (in.)							
Discharge	2 1/8	2 1/8	2 1/8	—	—	—	—
Liquid	1 3/8	1 3/8	1 3/8	—	—	—	—
Relief Valve							
Connection (in. SAE Flare)	5/8	5/8	5/8	—	—	—	—
Flow Capacity (kg air/min)	9.80	9.80	9.80	—	—	—	—
Relief Setting (kPa)	2206	2206	2206	—	—	—	—
CONDENSER (HXC)	Shell and Tube with Enhanced Copper Tubes						
Part No. 09RX400-	005	006	006	104	105	105	105
Net Fluid Volume (L)	115.8	142.3	142.3	177.9	208.6	208.6	208.6
Maximum Refrigerant Pressure (kPa)	1517	1517	1517	1517	1517	1517	1517
Maximum Water-Side Pressure (kPa)	2068	2068	2068	2068	2068	2068	2068
Water Connections							
Inlet and Outlet	5	5	5	6	6	6	6
Drain (NPT)	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Relief Valve							
Connection (in. NPTF)	3/4	3/4	3/4	3/4	3/4	3/4	3/4
Flow Capacity (kg air/min)	14.38	14.38	14.38	14.38	14.38	14.38	14.38
Relief Setting (kPa)	1517	1517	1517	1517	1517	1517	1517
DISCHARGE LINE†							
Relief Valve							
Connection (in. SAE Flare)	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Flow Capacity (kg air/min)	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Relief Pressure (kPa)	2413	2413	2413	2413	2413	2413	2413

LEGEND

NPTF — National Pipe Thread Female
SAE — Society of Automotive Engineers

*Charges listed are for 30HXC units. The 30HXA units are shipped with a holding charge only. To determine the refrigerant charge requirements for 30HXA units see the System Refrigerant Charge table in the Application Data on page 21.

†Only on units with factory-installed suction service valves.

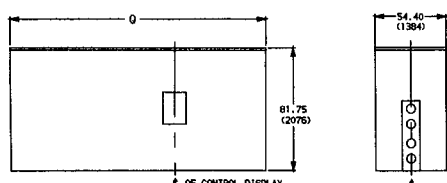
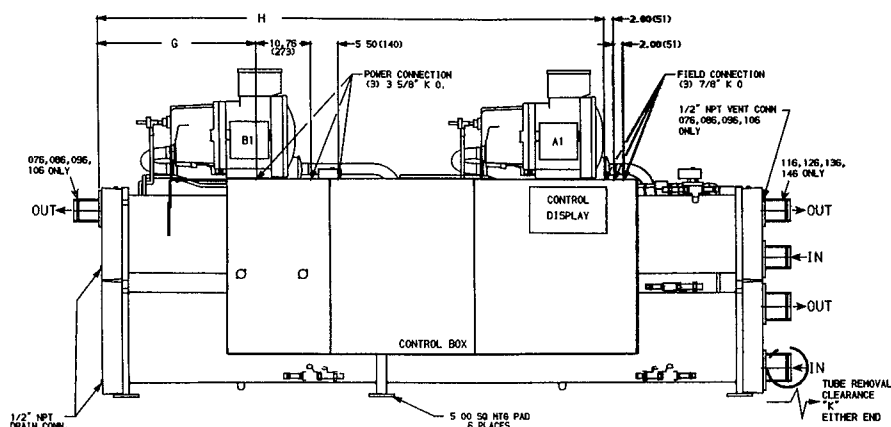
30HXC SIZES 076-146

LEGEND

K.O. — Knockout
THK — Thickness
TYP — Typical

NOTES:

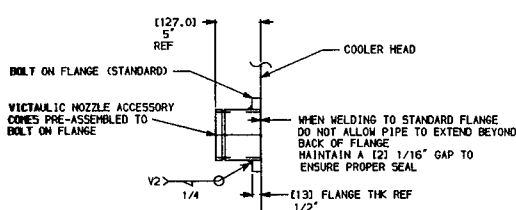
- Operating weight includes weight of water and refrigerant
- Denotes center of gravity
- Denotes accessory or factory-installed option
- Dimensions in () are in millimeters and weights in () are in kilograms
- Recommended service clearance around machine is 36" (914.4)



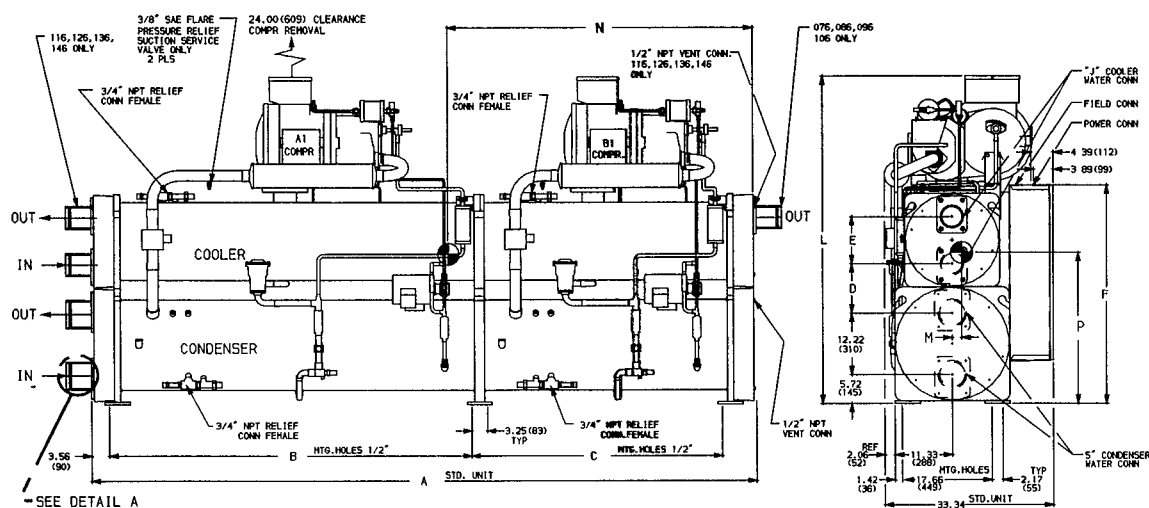
LEAVE 36.00 (914) CLEARANCE AT SIDES OF SOUND ENCLOSURE FOR SERVICE
LEAVE POSTED CLEARANCE AT ENDS OF SOUND ENCLOSURE FOR TUBE REMOVAL.

UNIT WITH SOUND ENCLOSURE

(NOT TO SCALE)



DETAIL "A" NOZZLE ACCESSORY TYPICAL



SEE DETAIL A

UNIT 30HXC	OPER- ATING WEIGHT lb (kg)	DIMENSIONS — in. (mm)														
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
076	5700 (2586)	102.12 (2594)	45.87 (1165)	45.87 (1165)	9.87 (251)	9.36 (236)	43.50 (1105)	15.60 (396)	85.15 (2163)	4.00 (102)	95.00 (2413)	65.22 (1657)	1.90 (48)	47.00 (1194)	30.80 (782)	120.00 (3048)
086	5723 (2597)	102.12 (2594)	45.87 (1165)	45.87 (1165)	9.87 (251)	9.36 (236)	43.50 (1105)	15.60 (396)	85.15 (2163)	4.00 (102)	95.00 (2413)	65.22 (1657)	1.90 (48)	47.00 (1194)	30.80 (782)	120.00 (3048)
096	5855 (2657)	102.12 (2594)	54.12 (1375)	37.63 (956)	9.87 (251)	9.36 (236)	43.50 (1105)	15.60 (396)	85.15 (2163)	4.00 (102)	95.00 (2413)	65.22 (1657)	1.90 (48)	47.00 (1194)	30.80 (782)	120.00 (3048)
106	6177 (2803)	102.12 (2594)	54.12 (1375)	37.63 (956)	10.47 (266)	10.28 (261)	45.50 (1156)	15.60 (396)	85.15 (2163)	5.00 (127)	95.00 (2413)	67.22 (1707)	1.90 (48)	47.00 (1194)	30.80 (782)	120.00 (3048)
116	6415 (2911)	132.56 (3367)	72.12 (1832)	50.63 (1286)	9.87 (251)	9.36 (236)	43.50 (1105)	31.11 (790)	100.66 (2557)	4.00 (102)	126.00 (3200)	65.22 (1657)	1.70 (43)	62.20 (1580)	29.40 (747)	168.00 (4267)
126	6465 (2933)	132.56 (3367)	72.12 (1832)	50.63 (1286)	9.87 (251)	9.36 (236)	43.50 (1105)	31.11 (790)	100.66 (2557)	4.00 (102)	126.00 (3200)	65.22 (1657)	1.70 (43)	62.20 (1580)	29.40 (747)	168.00 (4267)
136	6688 (3034)	132.56 (3367)	72.12 (1832)	50.63 (1286)	9.87 (251)	9.36 (236)	43.50 (1105)	31.11 (790)	100.66 (2557)	4.00 (102)	126.00 (3200)	65.22 (1657)	1.70 (43)	62.20 (1580)	29.40 (747)	168.00 (4267)
146	6718 (3048)	132.56 (3367)	72.12 (1832)	50.63 (1286)	9.87 (251)	9.36 (236)	43.50 (1105)	31.11 (790)	100.66 (2557)	4.00 (102)	126.00 (3200)	65.22 (1657)	1.70 (43)	62.20 (1580)	29.40 (747)	168.00 (4267)

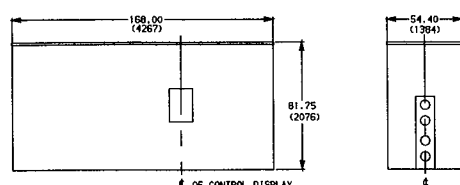
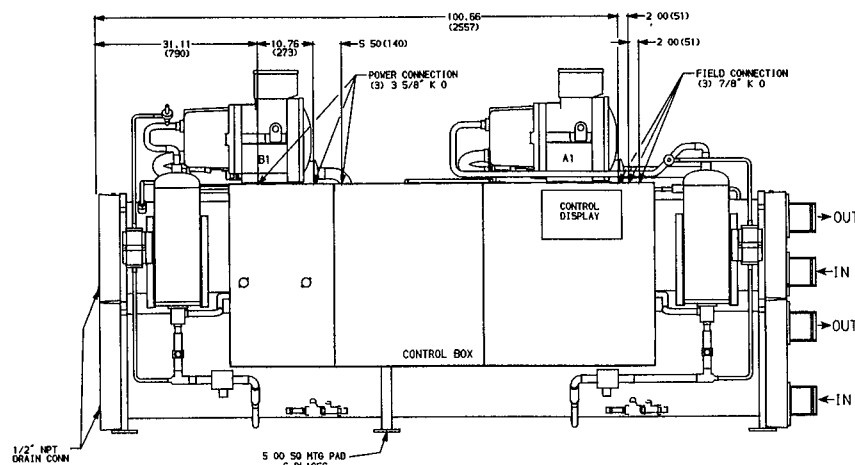
30HXC SIZES 161-186

LEGEND

K.O. — Knockout
THK — Thickness
TYP — Typical

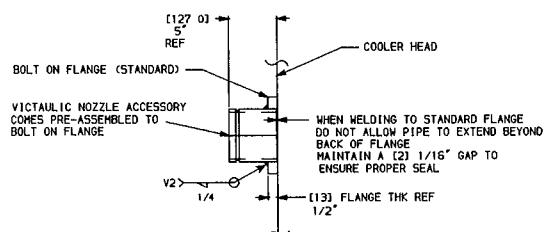
NOTES:

- NOTES:**
- 1 Operating weight includes weight of water and refrigerant
 - 2  Denotes center of gravity
 - 3  Denotes accessory or factory-installed option
 - 4 Dimensions in () are in millimeters and weights in () are in kilograms
 - 5 Recommended service clearance around machine is 36" (914.4)

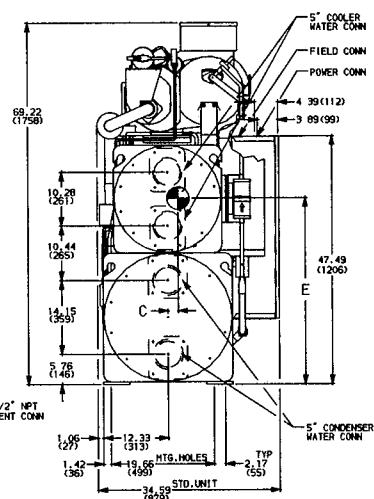
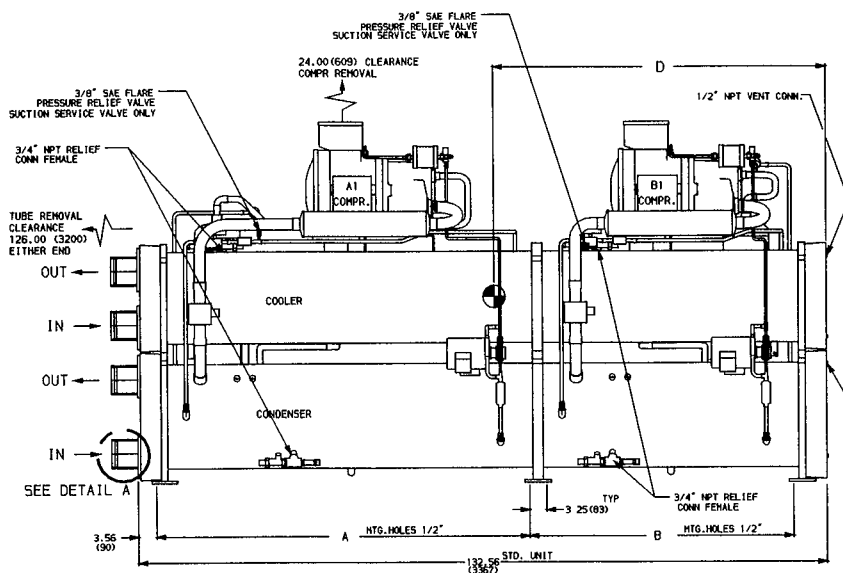


LEAVE 36 00 (914) CLEARANCE AT
SIDES OF SOUND ENCLOSURE FOR SERVICE
LEAVE POSTED CLEARANCE AT ENDS
OF SOUND ENCLOSURE FOR TUBE REMOVAL

UNIT WITH SOUND ENCLOSURE
(NOT TO SCALE)



DETAIL "A"
NOZZLE ACCESSORY TYPICAL

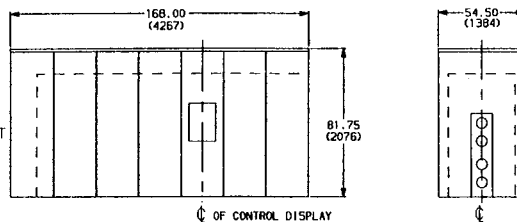
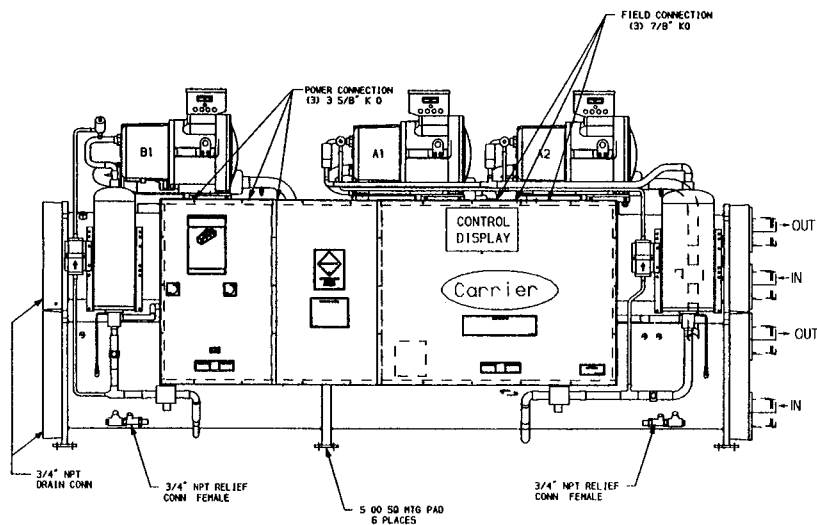


UNIT 30HXC	OPERATING WEIGHT lb (kg)	DIMENSIONS — in. (mm)				
		A	B	C	D	E
161	7452 (3381)	72.12 (1832)	50.63 (1286)	2.00 (51)	63.50 (1588)	31.00 (787)
171	7660 (3475)	61.37 (1559)	61.37 (1559)	2.00 (51)	63.50 (1588)	31.00 (787)
186	7854 (3564)	61.37 (1559)	61.37 (1559)	2.00 (51)	63.50 (1588)	31.00 (787)

Dimensions (cont)

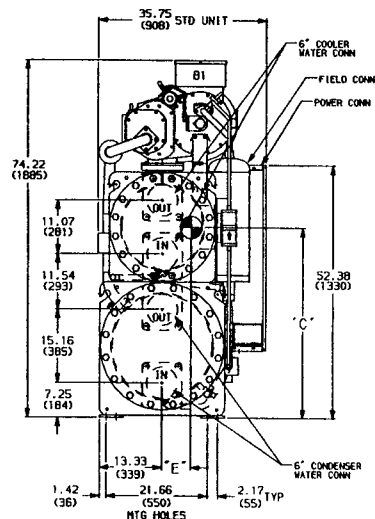
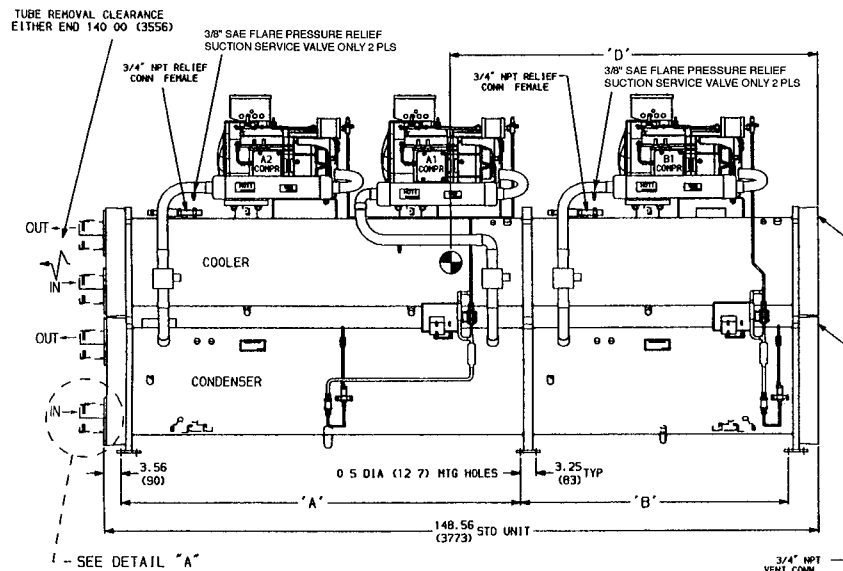


30HXC SIZES 206-271



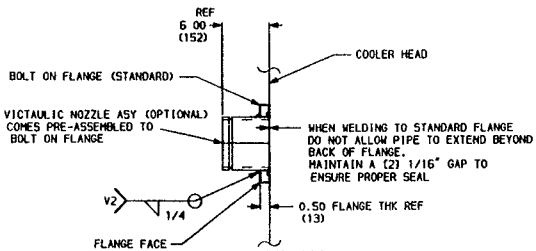
LEAVE 36.00 (914) CLEARANCE AT SIDES OF SOUND ENCLOSURE FOR SERVICE.
LEAVE POSTED CLEARANCE AT ENDS OF SOUND ENCLOSURE FOR TUBE REMOVAL

UNIT WITH SOUND ENCLOSURE ACCESSORY
(NOT TO SCALE)



LEGEND

K.O. — Knockout
THK — Thickness
TYP — Typical



DETAIL "A"
NOZZLE ACCESSORY, TYPICAL

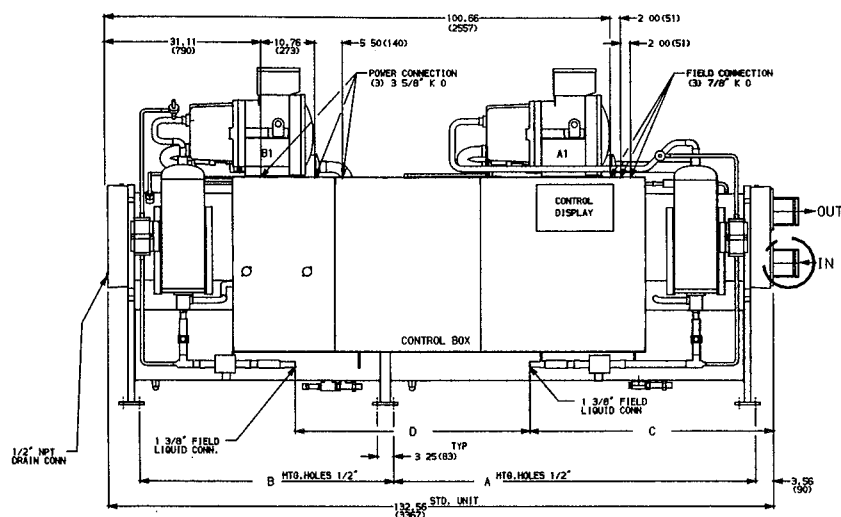
NOTES:

1. Denotes center of gravity. See Weight Distribution table on page 13 for weight distribution.
2. Dimensions are in inches. Dimensions in () are in millimeters.
3. Recommended service clearance around unit (front, back, and one side) is 36 in (914).

UNIT 30HXC	OPERATING WEIGHT lb (kg)	DIMENSIONS — in. (mm)				
		A	B	C	D	E
206	10581 (4799)	83.38 (2118)	55.38 (1407)	33.88 (860)	60.22 (1529)	2.01 (51)
246	10969 (4975)	83.38 (2118)	55.38 (1407)	34.38 (873)	60.22 (1529)	2.01 (51)
261	10992 (4986)	83.38 (2118)	55.38 (1407)	34.38 (873)	60.22 (1529)	2.01 (51)
271	11029 (5002)	83.38 (2118)	55.38 (1407)	34.38 (873)	60.22 (1529)	2.01 (51)

LEGEND

K.O.	—	Knockout
SAE	—	Society of Automotive Engineers, U S A
THK	—	Thickness
TYP	—	Typical



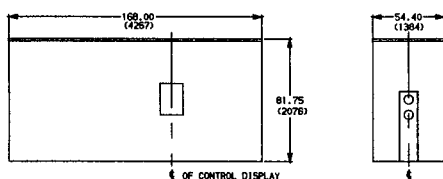
1 Operating weight includes weight of water and refrigerant

2 Denotes center of gravity

3 Denotes accessory or factory-installed option

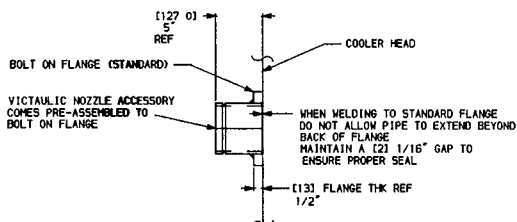
4 Dimensions in () are in millimeters and weights in () are in kilograms

5 Recommended service clearance around machine is 36" (914 4)

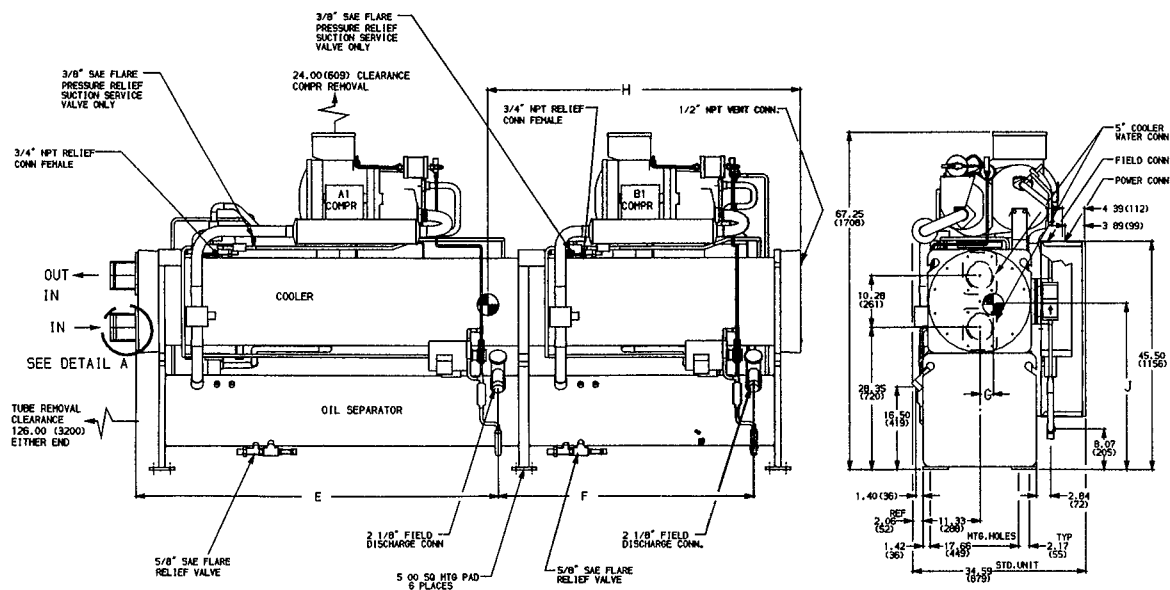


LEAVE 36 00 (914) CLEARANCE AT
SIDES OF SOUND ENCLOSURE FOR SERVICE
LEAVE POSTED CLEARANCE AT ENDS
OF SOUND ENCLOSURE FOR TUBE REMOVAL

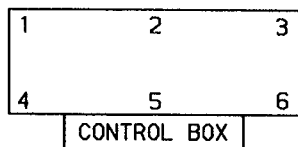
UNIT WITH SOUND ENCLOSURE
(NOT TO SCALE)



DETAIL "A"
NOZZLE ACCESSORY TYPICAL

12

WEIGHT DISTRIBUTION AT MOUNTING PLATES



WEIGHT DISTRIBUTION AT EACH MOUNTING PLATE,

30HXC UNITS — lb (kg)

UNIT 30HXC	MOUNTING PLATE NO.					
	1	2	3	4	5	6
076	738 (335)	943 (428)	595 (270)	1110 (503)	1418 (643)	896 (406)
086	738 (335)	947 (430)	597 (271)	1112 (504)	1427 (647)	902 (409)
096	686 (311)	968 (439)	693 (314)	1027 (466)	1447 (656)	1034 (469)
106	730 (331)	1028 (466)	744 (337)	1073 (487)	1510 (685)	1092 (495)
116	728 (330)	1114 (505)	777 (352)	1053 (478)	1615 (733)	1127 (511)
126	738 (335)	1127 (511)	780 (354)	1061 (481)	1628 (738)	1131 (513)
136	758 (344)	1176 (533)	811 (368)	1083 (491)	1689 (766)	1171 (531)
146	763 (346)	1182 (536)	815 (370)	1085 (492)	1697 (770)	1172 (532)
161	817 (371)	1272 (577)	908 (412)	1219 (553)	1890 (857)	1346 (610)
171	936 (425)	1318 (598)	840 (381)	1379 (626)	1946 (883)	1241 (563)
186	962 (436)	1361 (617)	860 (390)	1410 (640)	1996 (905)	1265 (574)
206	948 (430)	2406 (1091)	1243 (564)	1201 (545)	3133 (1421)	1650 (748)
246	985 (447)	2515 (1141)	1306 (592)	1154 (523)	3276 (1486)	1733 (786)
261	985 (447)	2520 (1143)	1311 (595)	1154 (523)	3283 (1489)	1739 (789)
271	985 (447)	2529 (1147)	1318 (598)	1154 (523)	3294 (1494)	1749 (793)

30HXA UNITS — lb (kg)

UNIT 30HXA	MOUNTING PLATE NO.					
	1	2	3	4	5	6
076	555 (252)	793 (360)	418 (190)	926 (420)	1326 (601)	699 (317)
086	555 (252)	798 (362)	418 (190)	928 (421)	1340 (608)	705 (320)
096	509 (231)	808 (367)	493 (224)	848 (385)	1350 (612)	827 (375)
106	555 (252)	869 (394)	541 (245)	896 (406)	1410 (640)	880 (399)
116	530 (240)	895 (406)	540 (245)	855 (388)	1456 (660)	887 (402)
126	540 (245)	905 (410)	541 (245)	864 (392)	1468 (666)	887 (402)
136	548 (249)	926 (420)	555 (252)	873 (396)	1498 (679)	908 (412)
146	551 (250)	930 (422)	555 (252)	883 (400)	1506 (683)	908 (412)
161	560 (254)	965 (438)	598 (271)	954 (433)	1650 (748)	1025 (465)
171	627 (284)	968 (439)	534 (242)	1072 (486)	1658 (752)	918 (416)
186	648 (294)	1004 (455)	552 (250)	1110 (504)	1703 (772)	939 (426)

NOTE: See pages 8-12 for center of gravity details.

Options and accessories



ITEM	FACTORY- INSTALLED OPTION	FIELD- INSTALLED ACCESSORY
Wye-Delta Start	X	
Brine	X	
Non-Fused Disconnect	X	
Expanded Display		X
Control Power Transformer		X
Minimum Load Control	X	X
Sound Reduction Enclosure		X
Vibration Isolation		X
Victaulic Connection		X
Temperature Reset Sensor		X
Chilled Fluid Flow Switch		X
Flotronic™ System Manager		X

Factory-installed options

Wye-delta start — Generally, Wye-delta start is not required when using multiple compressors since the starting current is generally less than with one larger compressor using Wye-delta start. Wye-delta start is standard on 208/230 v, 60 Hz and 230 v and 346 v, 50 Hz units. It is available as a factory-installed option for all other unit voltages.

Brine — The brine option permits supply liquid temperatures to be set below 40 F (4.4 C). Refrigeration circuit components, such as the expansion device, are modified at the factory to correct for the lower refrigeration flow rates.

Non-fused disconnect — This disconnect will provide disconnect capability for main unit power located at the unit. (Not available on 271 size 208/230 v, 60 Hz and 230 v, 50 Hz units.)

Minimum load control — This option allows additional capacity reduction for unit operation below the minimum step of unloading (down to 10% of the minimum unit capacity). Minimum load control is also available as a field-installed accessory.

Field-installed accessories

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

Minimum load control — This accessory allows additional capacity reduction for unit operation below the minimum step of unloading (down to 10% of the minimum unit capacity). Minimum load control is also available as a factory-installed option.

Sound reduction enclosure — This kit contains a sound enclosure that covers the entire unit to reduce sound levels.

Vibration isolation — Neoprene isolators are field installed to reduce vibration transmission from the compressor through the floor and into the conditioned space.

Victaulic connection — The kit contains a victaulic-type cooler connection to replace the standard weld-type connection.

Temperature reset sensor — This accessory sensor provides temperature reset capability from either the occupied space or outdoor-air temperature.

NOTE: Temperature reset capability using return temperature is standard.

Chilled fluid flow switch — This accessory is available for field installation and provides loss of flow protection for the 30HX chillers. Loss of flow protection is required for all 30HX chillers.

Flotronic system manager — This control can be used to regulate up to eight 30HXA or 30HXC chillers.

Expanded display — This accessory kit contains an indoor-mounted display panel for remote unit diagnostics. The panel displays 16 lines with 40 characters per line and may be located up to 100 ft (30.1 m) from the chiller.

One expanded display may monitor up to 9 chillers.

Application data



Unit location

Unit should be level to assure (particularly in its major length-wise dimension) proper oil return.

The unit should be located indoors in an area of temperature greater than 50 F (10 C).

Good acoustic design practice should be followed, i.e., unit should not be located adjacent to sound sensitive areas unless appropriate consideration has been made.

Cooler fluid temperature

1. *Maximum* leaving chilled-fluid temperature (LCWT) is 60 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 C).
2. *Minimum* LCWT is 40 F (4 C) for standard units. Special-order brine units are required for operation with leaving fluid temperatures in the range of 39 to 15 F (4 to -9 C). For ratings below 40 F (4 C) LCWT, contact your local Carrier representative.
3. *Minimum* entering chilled-fluid temperature (ECWT) is 45 F (7.2 C). *Maximum* ECWT is 70 F (21.1 C).

Leaving-fluid temperature reset

The accessory reset sensor can be applied to the chiller to provide 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 applications are offered:

From return-fluid temperature — Increases LCWT set point as return (or entering) fluid temperature decreases (indicating load decrease). Reset from return fluid may be used in any application where return fluid provides accurate load indication. Limitation of return-fluid reset is that the LCWT may only be reset to value of design return-fluid temperature. No additional hardware is required.

From outdoor-air temperature — Increases LCWT as outdoor ambient temperature decreases (indicating load decrease). This reset should be applied only where outdoor ambient temperature is an accurate indication of load. A field-supplied thermistor is required.

From occupied 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. A field-supplied thermistor is required.

Condenser fluid temperature

1. *Maximum* leaving condenser fluid temperature is 105 F (40.5 C) on all 30HXC units.
2. *Minimum* entering condenser fluid temperature without condenser flow regulation is 70 F (21.1 C).

Cooler and fluid-cooled condenser temperature rise

Ratings and performance data in this publication are for a cooling temperature rise of 10° F (5.6° C). Units may be operated at a different temperature rise, provided flow limits are not exceeded and corrections to capacity, etc., are

made. For minimum flow rates, see the Minimum Flow Rates table. High flow rate is limited by pressure drop that can be tolerated.

Minimum cooler flow — Flow (maximum cooler temperature rise) for standard units is shown in the Minimum Flow Rates table. Minimum flow rate must be maintained to prevent fouling. When gpm (L/s) required is lower (or rise is higher), follow recommendations below:

1. Multiple smaller chillers can be applied in series, each providing a portion of the design temperature rise.
2. Chilled fluid can be recirculated to raise flow rate. However, mixed temperature entering cooler must be maintained at a minimum of at least 5° F (2.8° C) above the leaving chilled fluid temperature.
3. Special minus 1-pass cooler can be used. Contact your Carrier representative for further information.

MINIMUM FLOW RATES

DEVICE	UNIT SIZE	FLOW RATE, GPM (L/s)
COOLER	076	105 (6.6)
	086,096	125 (7.9)
	106-126	155 (9.8)
	136	200 (12.6)
	146	210 (13.2)
	161,171	240 (15.1)
	186	270 (17.0)
	206	324 (20.4)
	246	358 (22.6)
	261	358 (22.6)
	271	358 (22.6)
CONDENSER	076,086	105 (6.6)
	096,106	135 (8.5)
	116,126	170 (10.7)
	136,146	195 (12.3)
	161	235 (14.8)
	171,186	255 (16.1)
	206	273 (17.2)
	246	333 (21.0)
	261	333 (21.0)
	271	333 (21.0)

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

Return fluid can 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. Contact your Carrier representative if pressure drop appears excessive.

Variable cooler flow rates — These variable rates may be applied to standard 30HX series chillers. However, the unit will attempt to maintain a constant leaving chilled-fluid temperature. In such cases, minimum flow must be in excess of 3 gpm per ton (3.2 L per kW) 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.

Minimum fluid-cooled condenser flow — This value (maximum rise) is shown in Minimum Flow Rates table. Condensers may be piped in series. Ensure leaving-fluid temperature does not exceed 105 F (40.5 C).

Application data (cont)



Oversizing chillers

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

It is also recommended that the installation of 2 smaller chillers be considered where operation at minimum load is critical. The operation of 2 small chillers at higher loading is preferred to operating a single chiller at or near its minimum recommended value.

The minimum load control accessory should not be used as a means to allow oversizing chillers. Minimum load control should be given consideration where substantial operating time is anticipated below the minimum unloading step.

Parallel chillers

Where chiller capacities greater than can be supplied by a single 30HX chiller are required, or where stand-by capability is desired, chillers may be installed in parallel. Units may be of the same or different sizes. However, cooler and condenser flow rates must be balanced to ensure proper flow to each chiller. The accessory Flotronic™ System Manager control may be used for proper leaving chilled fluid temperature control and to ensure proper staging sequence of up to 8 chillers. Refer to the accessory Flotronic System Manager installation instructions for further details.

Series chillers

Where a large temperature drop (greater than 25 F [13.9 C]) is desired and higher fluid pressure drop across the cooler can be tolerated, chillers may be installed in series. The leaving fluid temperature sensors need not be relocated. However, the cooler minimum entering fluid temperature limitations should be considered for the chillers located downstream of other chillers. Condensers should be piped in parallel to maximize capacity and efficiency. This should also minimize condenser pressure drop and saturated condensing temperatures. However, if condensers are piped in series, ensure that the leaving water temperature does not exceed 105 F (40.5 C).

Energy management

Demand limiting and load shedding are popular techniques used to reduce peak electric demands typically experienced during hot summer days when air conditioning loads are highest. When utility electricity demands exceed a certain level, electrical loads are turned off to keep the peak demands below a prescribed maximum limit. Compressor unloading reduces electrical demand while allowing the chiller to operate under part-load capacity and to maintain partial chilled fluid cooling.

Electrical demand can be limited by unloading the chiller to a predetermined percentage of the load. One stage of unloading can be initiated by a remote signal to significantly reduce the chiller power consumption. This power reduction applies to the full load power at nominal conditions. The demand limit control should not be cycled less than 10 minutes on and 5 minutes off.

Duty cycling

Duty cycling will cycle an electrical load at regular intervals, regardless of electrical demand. This reduces the electrical demand by “fooling” demand measuring devices. Duty cycling of the entire compressor is **NOT** recommended since motor windings and bearings will be damaged by constant cycling.

Wye-delta start

Wye-delta start is standard on 30HX 208/230 V 60 Hz units and 230 v 50 Hz units and optional on all other 30HX units. This feature is not always required on 30HX units due to the use of multiple compressors that allow small electrical load increments, but is available if required. Maximum instantaneous current flow (see ICF in Electrical Data tables on pages 40-44) should be used in determining need.

Vibration isolation

External vibration isolators are available as field-installed accessories.

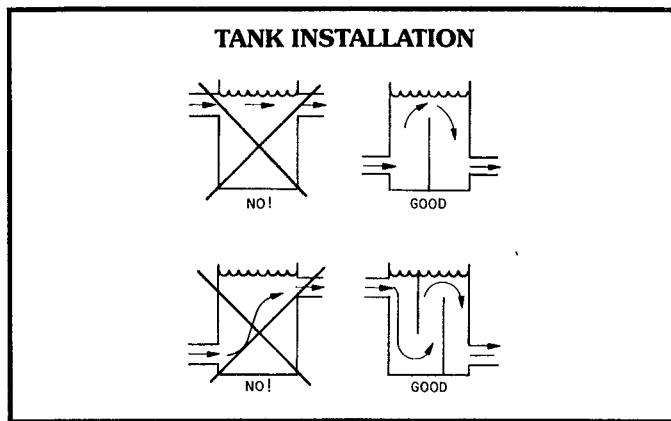
Strainers

A strainer with a minimum screen size of 20 mesh should be installed in both the cooler and condenser fluid lines, just ahead of the cooler and condenser, and as close to the cooler and condenser as possible. For 30HXA units, this recommendation applies only to the cooler.

Chilled fluid loop volume

The chilled fluid loop volume in circulation must equal or exceed 2 gal per nominal ton of cooling (2 L per kW) for temperature stability and accuracy in normal air conditioning applications. For example, a 30HXC096 with a nominal capacity of 92.8 tons would require 185.6 gal (702 L) in circulation in the system loop.

For process jobs where accuracy is vital, or for operation at ambient temperatures below 32 F (0° C) with low unit 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. See below.



Fouling factor

The factor used to calculate tabulated ratings was $0.00025 \text{ ft}^2 \cdot \text{hr} \cdot \text{F/Btu}$ ($.000044 \text{ m}^2 \cdot \text{K/W}$). As fouling factor is increased, unit capacity decreases and compressor power increases. To determine selections at other fouling factors, use the chiller program in the electronic catalog.

Cooler and fluid-cooled condenser freeze protection

If chiller refrigerant or fluid lines are in an area where ambient conditions fall below 32 F (0° C), it is recommended that an antifreeze solution be added to protect the unit and fluid piping to a temperature 15° F (8.3° C) below the lowest anticipated temperature. For corrections to performance, refer to the chiller program in the electronic catalog.

Use only antifreeze solutions approved for heat exchanger duty. Use of automotive antifreezes is not recommended because of the fouling that can occur once their relatively short-lived inhibitors break down.

If not protected with an antifreeze solution, draining cooler and outdoor piping is recommended if system will not be used during freezing weather conditions.

30HXA remote condenser requirements

1. Ensure each refrigerant circuit has its own head pressure control.
2. Condenser must provide 15° F (8.3° C) subcooling, a maximum of 40° F (22.2° C) difference between saturated condensing temperature and outdoor ambient temperature (to prevent overload at high ambient temperatures), and a minimum of 20° F (11.1° C) difference (to assure subcooling).
3. Minimum saturated discharge temperature (SDT) is 90 F (32.2 C) at design conditions. Maximum SDT is 135 F (57.2 C).
4. Do not manifold independent refrigerant circuits into a single condenser.
5. Condenser should not be located more than 15 ft (4.6 m) below chiller to maintain subcooling.
6. Design discharge and liquid piping according to Carrier System Design Manual. Piping must be sized for HFC-134a. Refer to the ASHRAE Refrigeration Handbook for R-134a sizing tables. Also see 30HX Installation instructions and the Typical 30HXA Refrigerant Piping to Remove Condenser diagram on page 22.
7. Maximum interconnecting refrigerant line length is 200 ft (61 m) actual.
8. Liquid line solenoid valves required when condenser is located above chiller and liquid line length exceeds 50 ft (15 m).

Application data (cont)



Refrigerant pipe sizing for 30HXA with Carrier 09D condenser combinations — For refrigerant pipe sizing of the 30HXA follow these directions:

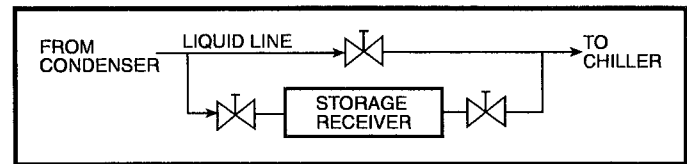
Discharge line:

1. For applications at conditions of 40 F (4.4 C) or higher LWT (leaving water temperature), use the Refrigerant Line Sizes for 30HXA Chiller/09DK Condenser Combinations tables on pages 19 and 20.
For applications using brine, other condensers, or LWT below 40 F (4.4 C), size lines using the ASHRAE Refrigeration Handbook, or other suitable design guide.
2. Install horizontal lines level or pitched slightly toward the base of discharge riser and the condenser (in the direction of flow).
3. If chiller is below the condenser, loop the discharge line to at least one inch above the top of condenser.
4. If chiller is below the condenser, some standard units and all units with MINIMUM LOAD CONTROL require double discharge riser as shown in Double Discharge Riser Pipe Sizes table.
5. Minimize line length and restrictions to minimize pressure drop and refrigerant charge.
6. If accessory sound enclosure is applied, run lines along the floor so sound enclosure may be notched to clear lines.

Liquid line:

1. For applications at conditions of 40 F (4.4 C) or higher LWT (leaving water temperature), use the Refrigerant Line Sizes for 30HXA Chiller/09DK Condenser Combinations tables on pages 19 and 20.
For applications using brine, other condensers, or LWT below 40 F (4.4 C), size lines using the ASHRAE Refrigeration Handbook, or other suitable design guide.
2. If chiller is above condenser, maximum vertical separation is 15 ft with combinations shown.

3. Minimize line length and restrictions to minimize pressure drop and refrigerant charge.
4. Above 50 ft liquid line length and where chiller is below condenser, liquid line solenoid valves are required. The solenoid valves must be located close to the chiller.
5. If sound enclosure is applied, run lines along floor so sound enclosure may be notched to clear lines.
6. In-line receivers are NOT recommended due to their negative effect on system subcooling. Where the use of a receiver is desired for service purposes, the receiver should be piped in parallel with the main liquid line and equipped with shut-off valves to isolate it during unit operation. See sketch below:



Relief valve vent lines

1. Vent per local code requirements.
2. Each chiller has a minimum of 4 refrigerant relief valves: 2 on the cooler, 2 on the condenser (30HXC) or oil separator (30HXA). Units with factory installed suction service valves also have 2 relief valves on the compressor discharge line. See Dimensions section on pages 8-12 for specific locations.
3. If sound enclosure is applied, run lines along floor so sound enclosure may be notched to clear lines.

REFRIGERANT LINE SIZES FOR 30HXA CHILLER/09DK CONDENSER COMBINATIONS

RECOMMENDED REFRIGERANT PIPE SIZES (in. OD)

30HXA UNIT SIZE	CKT	TOTAL LENGTH OF INTERCONNECTING PIPING — FT (M)					
		0-50 (0-15)		50-100 (15-30)		100-200 (30-60)	
		Liquid Line*	Discharge Line†	Liquid Line*	Discharge Line†	Liquid Line*	Discharge Line†
076	A	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
	B	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
086	A	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
	B	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
096	A	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
	B	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
106	A	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
116	A	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$
126	A	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
136	A	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	3 $\frac{1}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
146	A	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	3 $\frac{1}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
161	A	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	2 $\frac{1}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$
171	A	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	3 $\frac{1}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$
186	A	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$
	B	1 $\frac{3}{8}$	2 $\frac{5}{8}$	1 $\frac{5}{8}$	2 $\frac{5}{8}$	2 $\frac{1}{8}$	3 $\frac{1}{8}$

LEGEND

OD — Outside Diameter

*Above 50 ft liquid line length and where chiller is below condenser, liquid line solenoid valve is required.

†Double discharge riser is required on **ALL** units which have minimum load control installed.

 values indicate double discharge riser required on STANDARD unit. See Double Discharge Riser Pipe Sizes table on page 20.

NOTES.

1. Refrigerant and Double Discharge Riser Pipe Sizes tables are based on equal chiller and 09DK condenser sizes — i.e., 30HXA096 with 09DK094.
2. For other system combinations, size lines per ASHRAE (American Society of Heating, Refrigerating, and Air Conditioning Engineers) or other R-134a line sizing guide.
3. Refrigerant and Double Discharge Rise Pipe Sizes tables are based on cooler leaving water temperatures of 40 F (4.4 C) or above.
4. Line lengths refer to actual line length, not total equivalent length. A 50% allowance has been included for fittings.

Application data (cont)



REFRIGERANT LINE SIZES FOR 30HXA CHILLER/09DK CONDENSER COMBINATIONS (cont)

DOUBLE DISCHARGE RISER PIPE SIZES (in. OD)

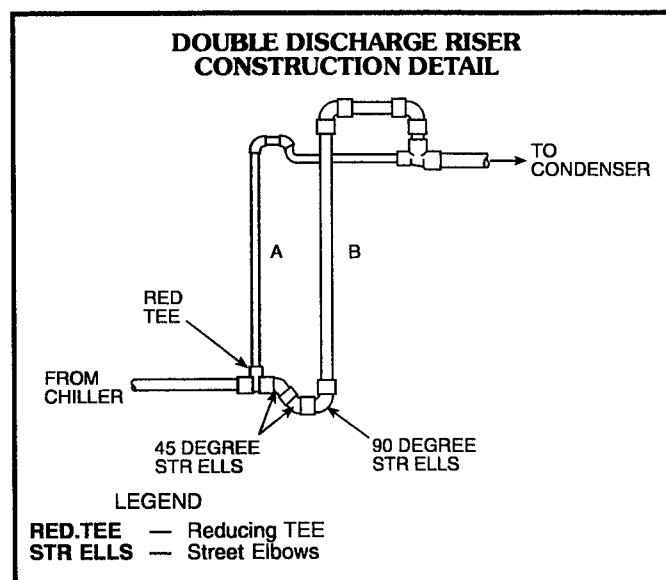
30HXA UNIT SIZE	CKT	RISER "A"	RISER "B"			
		Total Length of Interconnecting Piping — FT (M)*				
		0-200 (0-60)	0-50 (0-15)	50-100 (15-30)	100-200 (30-60)	
076	A	1⅞	1⅞	1⅞	1⅞	
	B	1⅞	1⅞	1⅞	1⅞	
086	A	1⅞	1⅞	1⅞	1⅞	
	B	1⅞	1⅞	1⅞	1⅞	
096	A	1⅞	1⅞	1⅞	2⅞	
	B	1⅞	1⅞	1⅞	1⅞	
106	A	1⅞	1⅞	2⅞	2⅞	
	B	1⅞	1⅞	1⅞	1⅞	
116	A	1⅞	1⅞	2⅞	2⅞	
	B	1⅞	1⅞	1⅞	1⅞	
126	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	1⅞	1⅞	2⅞	
136	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	1⅞	1⅞	2⅞	
146	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	1⅞	2⅞	2⅞	
161	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	1⅞	2⅞	2⅞	
171	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	2⅞	2⅞	2⅞	
186	A	1⅞	2⅞	2⅞	2⅞	
	B	1⅞	2⅞	2⅞	2⅞	

LEGEND

- A** — Riser Without Trap
B — Riser With Trap
OD — Outside Diameter

*Total Length of Interconnecting Piping refers to actual length, not total equivalent length

NOTE Horizontal line sections should be sized according to the Total Length of Interconnecting Piping columns on the Recommended Refrigerant Pipe Sizes table on page 19



For chillers using brine or those matched with other condensers, the lines must be sized manually using design guides such as ASHRAE, or curves in the 30HXA installation instructions. In many 30HXA sizes, the individual refrigerant circuits have unequal capacities. The Circuit Cooling Capacity table below lists the percentage capacity of each circuit for line sizing purposes. The Circuit Unloading Capacity table below indicates the minimum unloading capacities per circuit as well as a sample calculation of the minimum circuit tonnage for riser design. The example below lists circuit capacity calculations based on the Circuit Cooling and Circuit Unloading Capacity tables.

CIRCUIT COOLING CAPACITY

30HXA UNIT SIZE	PERCENT OF TOTAL UNIT CAPACITY	
	Circuit A %	Circuit B %
076	50	50
086	55	45
096	59	41
106	64	36
116	60	40
126	55	45
136	59	41
146	55	45
161	59	41
171	47	53
186	50	50

CIRCUIT UNLOADING CAPACITY

	MINIMUM CIRCUIT CAPACITY — PERCENT OF FULL LOAD	
	Standard Unit	With Minimum Load Control
All Sizes, All Circuits	40%	20%

Example Calculation of Circuit Capacities:

Select (Standard) 30HXA 086 Chiller
From Electronic catalog (E-cat) selection or balance diagram:

Total Unit Capacity = 74 tons (From unit selection at design conditions)

Using the Circuit Cooling Capacity table:

Ckt "A" design capacity = $74 \times 0.55 = 40.7$ tons

Using the Circuit Unloading Capacity table:

Ckt "A" minimum capacity = $40.7 \times 0.40 = 16.3$ tons

Ckt "B" design capacity = $74 \times 0.45 = 33.3$ tons

Ckt "B" minimum capacity = $33.3 \times 0.40 = 13.3$ tons

System refrigerant charge — The 30HXA units are shipped from the factory with a small holding charge of R-134a refrigerant. The approximate refrigerant charge required for starting the 30HXA system is listed in the table below. This initial charge will allow starting of the unit. Additional refrigerant may be required to accommodate liquid line storage. See the liquid line refrigerant storage capacity table below for liquid line storage information.

SYSTEM REFRIGERANT CHARGE FOR START-UP

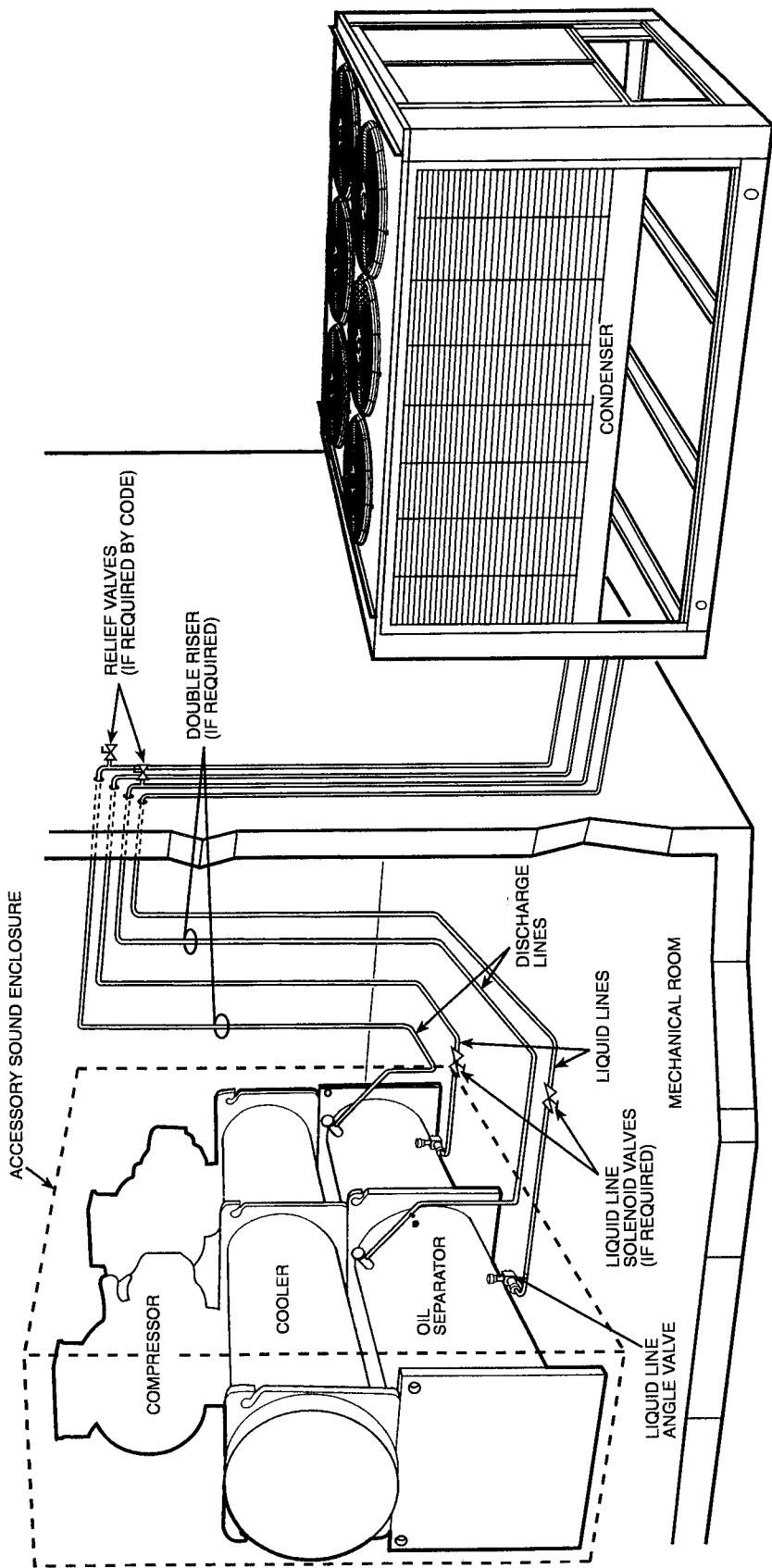
30HXA UNIT SIZE	CKT	REFRIGERANT BASE CHARGE (FOR ESTIMATING PURPOSES ONLY)	
		lbs	kg
076	A	75	34
	B	75	34
086	A	94	43
	B	80	36
096	A	114	52
	B	80	36
106	A	134	61
	B	80	36
116	A	137	62
	B	95	43
126	A	137	62
	B	116	53
136	A	147	67
	B	125	57
146	A	161	73
	B	132	60
161	A	190	86
	B	132	60
171	A	154	70
	B	186	85
186	A	186	85
	B	186	85

NOTE: Multiply the liquid line length (in feet) by the factor shown below for the refrigerant/ft of the tubing. Add base unit charge to liquid line charge to determine approximate refrigerant charge

LIQUID LINE REFRIGERANT STORAGE CAPACITY

PIPING SIZE (in.)	REFRIGERANT (lbs) PER FT OF TUBING LENGTH	REFRIGERANT (kg) PER M OF TUBING LENGTH
1½	0.41	0.61
1¾	0.63	0.94
1⅝	0.89	1.33
2¼	1.52	2.26

TYPICAL 30HXA REFRIGERANT PIPING TO REMOTE CONDENSER



Selection procedure (with example)



Carrier's electronic catalog chiller selection program provides quick, easy selection of Carrier chillers. The program considers specific temperature and flow requirements and other factors, such as fouling and altitude correction. It can also select an air-cooled condenser for the condenserless 30HXA unit to match the required conditions. To select a 30HXA unit, use the electronic catalog or contact your Carrier representative. To select a 30HXC chiller, use the electronic catalog or follow one of the procedures below.

ENGLISH (60 Hz)

I Determine 30HXC unit size and operating conditions required to meet given capacity at given conditions.

Given:

Capacity 175 Tons
Leaving Chilled Water Temp (LCWT) 44 F
Cooler Water Temp Rise 10° F
Condenser Entering Water Temp 85 F
Condenser Water Temp Rise 10° F
Fouling Factor (Cooler and
Condenser) 00025

NOTE: For other than 10° F temperature rise, data corrections must be made using the chiller program in the electronic catalog. On some units, a change of controls is also necessary.

II From Cooling Capacities table on page 26 and pressure drop curves on pages 36 and 37, determine operating data for selected unit.

Unit 30HXC186
Capacity 175.8 tons
Compressor Motor Power Input 133.4 kW
Cooler Water Flow 421.4 gpm
Cooler Pressure Drop 13.0 ft of water
Condenser Water Flow 508.0 gpm
Condenser Pressure Drop 16.4 ft of water

SI (50 Hz)

I Determine unit size and operating conditions required to meet given capacity at given conditions.

Given:

Capacity 617 kW
Leaving Chilled Water Temp (LCWT) 7 C
Cooler Water Temp Rise 5.6° C
Condenser Entering Water Temp 30 C
Condenser Water Temp Rise 5.6° C
Fouling Factor (Cooler and
Condenser) 000044

NOTE: For other than 5.6° C temperature rise, data corrections must be made using the chiller program in the electronic catalog. On some units, a change of controls is also necessary.

II From Cooling Capacity table on page 30 and pressure drop curves on pages 36 and 37, determine operating data for selected unit.

Unit 30HXC186
Capacity 620.6 kW
Compressor Motor Power Input 135.0 kW
Cooler Water Flow 26.7 L/s
Cooler Pressure Drop 37 kPa
Condenser Water Flow 32.2 L/s
Condenser Pressure Drop 49.0 kPa

Performance data



30HXC Ratings

All performance data is based on:

1. Cooler water temperature rise of 10° F (5.6° C).
2. Cooler and condenser fouling factor of .00025 ft² • hr • F/Btu (.000044 m² • K/W).

3. 10° F (5.6° C) subcooling.

4. Refrigerant 134a.

30HXC ARI* RATINGS (60 Hz only)

UNIT SIZE 30HXC	CAPACITY		INPUT POWER (kW)	COOLER FLOW		COOLER PRESSURE DROP		CONDENSER FLOW		CONDENSER PRESSURE DROP		EER	IPLV†
	Tons	kW		Gpm	L/s	Ft of Water	kPa	Gpm	L/s	Ft of Water	kPa		
076	74.5	262.0	54.9	179.0	11.3	12.3	36.8	224.0	14.1	7.3	21.8	16.3	19.6
086	82.0	288.4	61.5	197.0	12.4	14.6	43.6	246.0	15.5	8.8	26.3	16.0	19.0
096	92.8	326.4	68.8	223.0	14.1	14.4	43.0	278.0	17.6	9.0	26.9	16.2	19.2
106	103.1	362.6	77.3	247.0	15.6	13.0	38.9	309.0	19.5	10.9	32.6	16.0	18.5
116	112.1	394.3	81.9	269.0	17.0	11.3	33.8	336.0	21.2	13.8	41.2	16.4	19.3
126	121.3	426.6	89.4	291.0	18.4	13.1	39.2	364.0	23.0	16.0	47.8	16.3	19.3
136	134.6	473.4	100.1	323.0	20.4	12.4	37.1	404.0	25.5	15.2	45.4	16.1	18.7
146	143.8	505.7	108.4	345.0	21.8	14.0	41.8	431.0	27.2	17.1	51.1	15.9	18.5
161	155.1	545.5	116.5	372.0	23.5	11.7	35.0	465.0	29.4	17.8	53.2	16.0	17.7
171	164.4	578.2	122.9	395.0	24.9	13.0	38.9	493.0	31.1	14.6	43.6	16.1	18.6
186	176.0	619.0	132.7	422.0	26.6	11.9	35.6	528.0	33.3	16.6	49.6	15.9	17.9
206	211.5	743.8	152.6	508.0	32.0	12.7	38.0	635.0	40.0	17.5	52.3	16.6	19.4
246	246.7	867.6	179.2	592.0	37.4	13.9	41.5	740.0	46.7	18.3	54.7	16.5	18.7
261	255.1	897.2	187.1	612.0	38.6	14.7	43.9	765.0	48.3	19.5	58.3	16.4	18.8
271	265.1	932.4	197.2	636.0	40.1	15.8	47.2	795.0	50.2	21.1	63.1	16.1	18.8

LEGEND

EER — Energy Efficiency Ratio (Capacity [Btuh] ÷ Input Power [W])

IPLV — Integrated Part-Load Value

*Air Conditioning and Refrigeration Institute (U.S.A.)

†IPLV shown is for unloading sequence A.

NOTES:

1. Rated (60 Hz only) in accordance with ARI Standard 590-92 at standard rating conditions.
2. Standard rating conditions are as follows:
Cooler Conditions:
Leaving water temperature: 44 F (6.7 C)
Entering water temperature: 54 F (12.2 C)
Condenser Conditions:
Entering water temperature: 85 F (29.4 C)
Flow: 3 gpm per ton (0.054 L/s per kW)
Fouling Factor (Cooler and Condenser):
0.00025 hr x sq ft x F per Btuh (0.000044 m² x k per W)

3. IPLV is a single number part-load efficiency value calculated from the system full-load efficiency values and corrected for a typical building air-conditioning application.

4. All data in this table is rated (60 Hz only) in accordance with ARI Standard 590-92 as represented in the Ecologic™ Chiller Selection Program (E-Cat) version 1.10.



60 Hz Only

Rated in accordance with
ARI Standard 590-92

30HXA Ratings

1. All performance data is based on:
 - a. Cooler water temperature rise of 10° F (5.6° C).
 - b. Cooler fouling factor of .00025 ft² • hr • F/Btu (.000044 m² • K/W).
 - c. 10° F (5.6° C) subcooling.
 - d. Refrigerant 134a.

2. Combining 30HXA units with remote condensers which have greater than (less than) the 10° F (5.6° C) subcooling in the ratings, increases (decreases) system capacity. To adjust capacity, multiply capacity ratings by 0.96; then adjust this result upward by 0.4% for each degree F (0.7% for each degree C) of available subcooling.

30HXA ARI* RATINGS (60 Hz only)

UNIT SIZE 30HXA	CAPACITY		INPUT POWER (kW)	COOLER FLOW		COOLER PRESSURE DROP		EER	AIR COOLED CONDENSER	
	Tons	kW		Gpm	L/s	Ft of Water	kPa		UNIT	(QTY)
076	68	239	85	154.9	9.8	10.9	32.6		09DK084	(1)
086	74	260	95	177.4	11.2	12.6	37.7	9.4	09DK084	(1)
096	83	291	105	198.0	12.5	11.8	35.3	9.4	09DK094	(1)
106	95	335	121	228.4	14.4	11.4	34.1	9.4	09DK074 (1) and 044	(1)
116	102	359	132	244.9	15.5	9.7	29.0	9.3	09DK074 (1) and 054	(1)
126	112	395	142	269.3	17.0	11.4	34.1	9.5	09DK074	(2)
136	121	426	160	290.4	18.3	10.4	31.1	9.1	09DK084	(2)
146	135	476	168	324.4	20.5	12.6	37.7	9.7	09DK084	(2)
161	143	502	182	341.8	21.6	10.1	30.2	9.4	09DK084	(2)
171	153	538	199	367.0	23.2	11.5	34.4	9.2	09DK084	(2)
186	165	579	222	394.9	24.9	10.6	31.7	8.9	09DK084	(2)

LEGEND

EER — Energy Efficiency Ratio (Capacity [Btuh] ÷ Input Power [W])

*Air Conditioning and Refrigeration Institute (U.S.A.)

NOTES:

- 1 Rated in accordance with ARI Standard 590-92 at standard rating conditions.
- 2 Standard rating conditions are as follows:
 - Cooler Conditions:
 - Leaving water temperature: 44 F (6.7 C)
 - Entering water temperature: 54 F (12.2 C)
 - Condenser Conditions:
 - Entering air temperature: 95 F (35 C)
 - Flow: 3 gpm per ton (0.054 L/s per kW)
- 3 All data in this table is rated in accordance with ARI Standard 590-92 as represented in the Ecologic™ Chiller Selection Program (E-Cat) version 1.10.

Performance data (cont)



30HXC COOLING CAPACITIES 60 Hz, ENGLISH

LCWT (F)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)															
		75				80				85				90			
		Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)
40	076	73.8	48.4	176.5	208.0	70.8	51.1	169.4	202.7	67.8	54.0	162.3	197.5	65.0	57.0	155.7	192.9
	086	81.2	54.1	194.4	229.6	77.9	57.3	186.5	223.8	74.8	60.4	179.0	218.3	71.9	63.8	172.2	213.8
	096	91.7	60.5	219.6	259.0	88.1	64.1	210.9	252.6	84.5	67.7	202.3	246.4	81.3	71.5	194.5	241.2
	106	102.0	67.8	244.1	288.2	97.9	72.0	234.4	281.3	93.7	76.2	224.3	273.9	90.2	80.7	215.8	268.5
	116	110.7	71.8	265.0	311.7	106.6	76.3	255.2	304.9	102.0	80.8	244.2	296.9	97.8	85.5	234.2	290.1
	126	119.7	78.5	286.6	337.6	115.1	83.3	275.5	329.7	110.4	88.2	264.3	321.9	106.1	93.4	253.9	315.0
	136	132.8	88.4	318.0	375.4	127.7	93.5	305.6	366.5	122.7	98.7	293.6	358.0	118.3	104.1	283.1	351.1
	146	142.0	95.6	339.9	402.0	136.4	101.3	326.6	392.5	130.8	106.9	313.2	382.9	126.4	113.2	302.6	376.4
	161	148.7	99.1	356.1	420.5	146.3	108.2	350.2	420.6	143.6	117.5	343.8	420.3	142.1	128.1	340.2	423.7
	171	157.4	105.5	376.8	445.4	155.1	114.5	371.2	445.7	152.6	124.1	365.3	446.1	151.1	134.9	361.8	449.8
	186	168.7	113.8	403.7	477.7	166.3	123.8	398.1	478.6	163.5	134.1	391.4	478.7	162.0	145.6	387.9	482.9
	206	202.4	131.3	484.5	569.9	199.4	142.1	477.3	569.9	196.0	154.5	469.1	569.9	193.5	168.1	463.2	573.0
	246	236.0	153.4	565.1	664.9	232.9	166.9	557.5	666.2	228.1	181.2	545.9	664.2	225.2	197.2	539.0	667.8
	261	244.2	160.5	584.7	689.1	240.7	174.4	576.2	689.7	236.9	189.3	567.2	690.6	234.0	205.3	560.1	694.2
	271	254.0	169.1	608.0	717.9	250.2	183.9	599.0	718.7	246.5	199.4	590.0	720.0	243.7	216.3	583.3	724.5
42	076	77.1	49.1	184.7	216.5	74.1	51.7	177.3	210.8	71.0	54.6	170.0	205.5	67.9	57.5	162.7	200.2
	086	84.9	54.8	203.3	238.8	81.6	57.9	195.4	233.0	78.2	61.1	187.4	227.1	75.0	64.3	179.6	221.5
	096	95.9	61.4	229.6	269.4	92.2	64.6	221.0	262.9	88.4	68.4	211.8	256.3	84.8	72.1	203.1	250.0
	106	106.6	68.6	255.3	299.7	102.4	72.7	245.4	292.6	98.2	76.9	235.1	285.2	93.9	81.2	224.9	277.8
	116	115.7	72.6	277.1	324.2	111.3	76.9	266.7	316.7	106.9	81.6	256.0	309.1	102.2	86.2	244.9	301.1
	126	125.1	79.2	299.7	351.1	120.4	83.9	288.5	343.0	115.6	89.0	277.0	334.9	110.9	94.2	265.6	327.1
	136	138.8	89.7	332.5	390.6	133.7	94.3	320.2	381.4	128.3	99.6	307.4	372.1	123.2	104.8	295.3	363.6
	146	148.4	96.7	355.4	418.0	142.8	102.1	342.2	408.5	137.0	107.9	328.1	398.3	131.7	113.9	315.5	389.7
	161	154.2	99.2	369.3	433.6	151.9	107.9	363.8	433.9	149.1	117.4	357.3	433.6	146.7	127.4	351.3	434.3
	171	163.0	105.4	390.6	458.9	161.2	114.0	386.2	460.2	158.2	123.9	379.1	459.7	156.3	134.6	374.3	462.0
	186	174.6	114.0	418.2	492.0	172.3	123.3	412.7	492.8	169.6	133.8	406.2	493.2	167.1	144.7	400.4	494.6
	206	209.7	131.2	502.3	587.4	206.9	142.0	495.7	588.0	203.6	154.2	487.7	588.2	200.3	167.6	480.0	589.3
	246	244.5	153.7	585.7	685.4	241.5	166.1	578.5	686.4	237.4	181.1	568.7	686.6	233.2	196.5	558.6	686.7
	261	252.9	161.0	605.8	710.2	249.8	173.6	598.4	711.2	245.6	188.8	588.5	711.3	241.8	204.5	579.3	712.6
	271	262.9	169.7	629.8	739.7	259.6	183.1	621.9	740.8	255.4	198.8	611.8	741.2	251.5	215.1	602.5	742.7
44	076	80.5	49.8	193.0	225.1	77.5	52.1	185.8	219.6	74.3	55.1	178.1	213.9	71.1	58.2	170.4	208.3
	086	88.6	55.7	212.4	248.4	85.3	58.3	204.5	242.3	81.8	61.7	196.1	236.2	78.4	65.0	187.9	230.2
	096	100.1	62.3	239.9	280.1	96.5	65.2	231.2	273.5	92.5	69.0	221.8	266.6	88.6	72.9	212.5	259.9
	106	111.2	69.4	266.6	311.4	107.1	73.1	256.8	304.2	102.8	77.6	246.4	296.8	98.2	82.0	235.5	288.8
	116	120.8	73.5	289.5	337.0	116.4	77.4	279.1	329.3	111.8	82.3	267.9	321.4	107.1	87.0	256.7	313.3
	126	130.6	80.1	313.0	364.8	125.9	84.6	301.8	356.6	120.9	89.8	289.9	348.2	115.9	95.0	277.9	339.7
	136	144.9	90.8	347.2	405.9	139.8	94.9	335.2	396.7	134.2	100.4	321.8	387.0	128.9	105.9	308.9	377.9
	146	154.8	97.6	371.2	434.2	149.3	102.8	358.0	424.6	143.4	108.8	343.8	414.4	137.4	114.8	329.4	404.0
	161	159.6	99.5	382.5	446.8	157.6	107.3	377.7	447.3	154.9	117.2	371.3	447.4	152.0	127.3	364.3	447.1
	171	168.8	105.6	404.5	472.8	166.8	113.9	399.8	473.6	164.2	123.6	393.7	473.9	161.5	134.0	387.2	474.4
	186	180.5	114.3	432.7	506.6	178.5	122.8	427.8	507.3	175.8	133.4	421.4	508.0	173.0	144.5	414.7	508.7
	206	216.2	131.1	518.4	603.2	214.5	141.9	514.2	606.2	211.2	153.7	506.3	606.2	207.5	167.1	497.3	606.1
	246	253.1	153.7	606.6	706.0	250.1	165.8	599.5	707.0	246.3	180.4	590.5	707.8	242.1	196.3	580.4	708.2
	261	261.7	161.2	627.2	731.4	258.7	173.3	620.1	732.4	254.8	188.3	610.9	733.2	250.8	204.4	601.1	734.2
	271	271.9	169.8	651.9	761.6	268.9	182.4	644.6	762.7	264.8	198.3	634.8	763.6	260.7	215.0	625.0	764.9

LEGEND

- Cap — Capacity, Tons of Refrigeration
- Cond — Condenser
- kW — Compressor Motor Input Power at Rated Voltage
- LCWT — Leaving Chilled-Water Temperature (F)

30HXC COOLING CAPACITIES (cont) 60 Hz, ENGLISH (cont)

LCWT (F)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)															
		75				80				85				90			
		Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)	Cap	Input kW	Cooler Flow Rate (Gpm)	Cond Flow Rate (Gpm)
46	076	83.9	50.4	201.2	233.6	81.0	52.9	194.2	228.4	77.7	55.6	186.5	222.5	74.4	58.7	178.4	216.6
	086	92.4	56.4	221.7	258.1	89.1	59.0	213.8	251.9	85.5	62.3	205.2	245.6	81.9	65.8	196.5	239.3
	096	104.4	63.1	250.4	291.0	100.7	66.1	241.5	284.3	96.8	69.6	232.1	277.3	92.7	73.6	222.3	270.1
	106	116.0	70.2	278.2	323.4	111.9	73.9	268.3	316.1	107.5	78.3	257.7	308.5	102.8	82.8	246.7	300.5
	116	125.8	74.1	301.7	349.5	121.6	78.2	291.6	342.2	116.9	82.8	280.4	334.1	111.8	87.6	268.4	325.4
	126	135.9	80.8	325.9	378.0	131.5	85.3	315.4	370.5	126.4	90.3	303.3	361.9	121.3	95.9	290.9	353.2
	136	151.1	91.8	362.4	421.6	145.9	96.2	350.1	412.3	140.4	101.2	336.8	402.5	134.7	106.9	323.1	392.5
	146	161.4	98.7	387.1	450.7	155.9	103.8	374.0	441.1	150.0	109.6	359.8	430.9	143.7	115.8	344.7	420.0
	161	165.1	99.5	396.0	460.2	163.1	107.4	391.3	460.7	160.7	116.8	385.4	461.1	157.7	127.2	378.3	460.9
	171	173.9	105.5	417.2	485.2	172.6	113.8	413.9	487.5	170.3	123.2	408.4	488.2	167.4	133.9	401.4	488.5
	186	186.6	114.4	447.5	521.2	184.6	122.9	442.8	522.2	182.2	132.9	437.1	523.2	179.1	144.3	429.6	523.4
	206	222.6	130.6	533.9	618.1	222.0	141.8	532.4	624.2	219.0	153.4	525.3	624.9	215.2	166.8	516.1	624.7
	246	260.5	153.0	624.8	723.5	258.8	166.1	620.7	728.2	255.3	179.5	612.3	728.8	250.9	195.7	601.8	729.1
	261	269.6	160.9	646.8	750.5	267.6	173.8	641.8	754.3	264.0	187.5	633.2	754.8	259.5	203.9	622.5	755.1
	271	280.8	169.7	673.5	782.9	278.1	183.0	667.2	785.5	274.3	197.5	657.8	785.9	269.8	214.6	647.3	786.7
48	076	86.9	50.8	208.6	241.2	84.5	53.6	202.8	237.4	81.3	56.1	195.1	231.4	77.8	59.3	186.7	225.2
	086	96.0	57.0	230.5	267.1	93.0	59.9	223.2	261.9	89.4	62.7	214.7	255.3	85.6	66.4	205.5	248.6
	096	108.1	63.6	259.5	300.4	105.1	67.1	252.1	295.4	101.2	70.1	242.8	288.2	96.9	74.3	232.5	280.8
	106	120.5	70.8	289.3	334.8	116.7	74.8	280.1	328.3	112.3	78.8	269.5	320.5	107.6	83.7	258.2	312.5
	116	130.4	74.4	312.9	360.8	126.8	79.1	304.4	355.5	122.2	83.3	293.2	347.2	117.2	88.5	281.2	338.6
	126	141.0	81.2	338.4	390.6	137.1	86.3	329.1	384.8	132.1	91.0	317.0	376.0	126.7	96.6	304.2	366.9
	136	156.5	92.5	375.6	435.1	152.3	97.5	365.4	428.3	146.8	101.8	352.3	418.3	140.8	107.9	338.0	408.0
	146	167.5	99.3	401.9	465.7	162.6	104.9	390.3	458.0	156.7	110.4	376.1	447.6	150.4	116.9	360.9	436.7
	161	169.8	99.0	407.6	471.3	168.8	107.7	405.0	474.5	166.5	116.2	399.5	474.8	163.7	126.9	392.7	475.1
	171	179.0	105.2	429.6	497.2	178.5	114.0	428.3	501.9	176.1	123.1	422.7	502.4	173.4	133.6	416.1	502.8
	186	191.6	113.9	459.9	533.1	190.8	123.2	458.0	537.4	188.5	132.3	452.3	537.9	185.5	143.9	445.1	538.5
	206	228.9	129.9	549.3	632.9	228.9	141.8	549.4	641.0	226.6	153.4	543.8	643.3	223.0	166.2	535.3	643.3
	246	267.0	151.5	640.8	738.3	267.6	166.3	642.2	749.6	264.4	179.1	634.5	750.6	260.1	195.1	624.3	751.1
	261	276.3	159.6	663.1	765.8	276.6	174.1	663.8	776.2	273.4	186.8	656.1	777.1	269.1	203.4	645.7	777.8
	271	287.6	168.4	690.3	798.6	287.4	183.3	689.8	808.0	284.1	196.4	681.9	809.0	279.5	213.9	670.9	809.8
50	076	89.9	51.0	215.9	248.6	88.0	54.3	211.4	246.4	84.8	56.9	203.7	240.5	81.4	59.8	195.4	234.2
	086	99.3	57.3	238.5	275.3	96.9	60.8	232.8	271.9	93.4	63.5	224.3	265.3	89.5	67.0	215.0	258.4
	096	111.8	63.9	268.5	309.5	109.5	67.9	263.0	306.7	105.5	71.2	253.4	299.4	101.3	74.9	243.2	291.8
	106	124.6	70.9	299.3	344.8	121.6	75.6	292.0	340.7	117.2	79.5	281.5	332.8	112.5	84.3	270.0	324.6
	116	134.8	74.5	323.7	371.6	132.1	79.9	317.2	368.7	127.5	84.2	306.2	360.6	122.5	89.0	294.1	351.8
	126	145.9	81.4	350.3	402.5	142.7	87.1	342.6	398.7	137.9	91.8	331.0	390.4	132.4	97.2	318.0	381.1
	136	161.8	92.9	388.5	448.1	158.7	98.7	381.0	444.5	153.2	103.3	367.8	434.5	147.2	108.7	353.5	424.0
	146	173.5	99.8	416.5	480.5	169.5	106.1	406.9	475.2	163.5	111.5	392.7	464.7	157.2	117.8	377.4	453.8
	161	174.1	98.0	418.0	481.0	174.5	107.7	418.9	488.3	172.3	116.3	413.7	488.9	169.5	126.6	407.1	489.1
	171	183.6	104.5	440.8	507.8	183.8	114.1	441.4	514.9	182.2	122.9	437.6	517.0	179.6	133.2	431.1	517.5
	186	196.3	112.9	471.3	543.7	197.0	123.4	473.1	552.6	194.9	132.5	467.9	553.5	192.0	143.6	461.0	554.1
	206	234.9	129.0	564.1	646.9	235.4	141.4	565.2	656.3	234.5	153.3	563.1	662.3	231.1	165.9	554.8	662.5
	246	273.7	149.7	657.2	753.3	275.6	165.6	661.7	768.5	273.4	179.6	656.5	772.6	269.6	194.2	647.2	773.3
	261	283.2	158.1	679.9	781.4	285.3	173.9	685.1	797.1	282.5	187.7	678.4	799.8	278.7	202.7	669.2	800.7
	271	294.6	166.7	707.4	814.3	296.8	183.1	712.6	830.5	293.5	197.3	704.7	832.2	289.5	213.2	695.0	833.3

Performance data (cont)



30HXC COOLING CAPACITIES (cont) 60 Hz, SI

LCWT (C)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)											
		25				30				35			
		Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)
4	076	250.6	49.2	10.8	12.8	232.0	54.3	10.0	12.2	217.3	60.1	9.3	11.8
	086	275.9	55.2	11.8	14.1	255.9	60.7	11.0	13.5	240.7	67.2	10.3	13.1
	096	311.9	61.7	13.4	15.9	289.4	68.1	12.4	15.2	272.0	75.4	11.7	14.8
	106	346.6	69.3	14.9	17.7	320.5	76.6	13.8	16.9	301.9	85.5	13.0	16.5
	116	376.3	73.4	16.2	19.2	349.0	81.4	15.0	18.3	327.9	90.6	14.1	17.8
	126	407.1	80.1	17.5	20.8	378.4	89.0	16.2	19.9	355.7	99.0	15.3	19.4
	136	451.6	90.1	19.4	23.1	420.3	99.3	18.0	22.1	396.8	109.8	17.0	21.6
	146	482.8	97.6	20.7	24.7	449.2	107.8	19.3	23.7	424.3	119.7	18.2	23.2
	161	512.0	102.9	22.0	26.2	496.1	119.5	21.3	26.2	491.1	140.1	21.1	26.9
	171	542.4	109.0	23.3	27.8	528.4	126.4	22.7	27.9	522.8	147.1	22.4	28.5
	186	580.9	118.0	24.9	29.8	565.4	136.3	24.3	29.9	560.5	158.6	24.1	30.6
	206	697.5	135.5	29.9	35.5	677.6	157.3	29.1	35.6	667.3	183.3	28.6	36.2
	246	813.9	158.6	34.9	41.5	789.2	184.7	33.9	41.5	778.2	215.8	33.4	42.3
	261	842.1	165.9	36.2	43.0	818.4	192.4	35.1	43.1	809.2	224.2	34.7	44.0
	271	875.5	175.1	37.6	44.8	851.4	202.7	36.6	44.9	843.0	236.0	36.2	45.9
5	076	261.1	49.7	11.2	13.3	241.8	54.9	10.4	12.6	225.4	60.6	9.7	12.2
	086	287.5	55.6	12.4	14.6	266.7	61.4	11.5	14.0	249.5	67.8	10.7	13.5
	096	324.9	62.1	14.0	16.5	301.5	68.8	13.0	15.8	282.1	76.0	12.1	15.3
	106	361.0	69.8	15.5	18.4	334.3	77.4	14.4	17.5	312.9	86.0	13.4	17.0
	116	392.1	73.8	16.8	19.9	364.0	82.1	15.6	19.0	339.9	91.2	14.6	18.4
	126	424.1	80.6	18.2	21.5	394.0	89.6	16.9	20.6	368.7	99.6	15.8	19.9
	136	470.6	90.7	20.2	23.9	437.7	100.2	18.8	22.9	411.3	110.6	17.7	22.2
	146	503.0	98.1	21.6	25.6	466.9	108.5	20.1	24.5	439.6	120.4	18.9	23.8
	161	529.6	102.5	22.8	26.9	512.9	119.4	22.0	26.9	505.0	139.7	21.7	27.4
	171	560.6	108.8	24.1	28.5	544.8	126.0	23.4	28.6	537.4	146.8	23.1	29.1
	186	600.6	117.5	25.8	30.6	583.6	136.0	25.1	30.7	576.0	158.2	24.7	31.3
	206	720.8	135.5	31.0	36.5	699.8	156.9	30.1	36.5	686.3	182.8	29.5	37.0
	246	840.7	158.3	36.1	42.6	816.7	184.4	35.1	42.7	800.0	214.9	34.4	43.2
	261	870.0	165.4	37.4	44.2	846.0	192.1	36.3	44.2	831.6	223.5	35.7	44.9
	271	904.5	174.3	38.9	46.0	879.8	202.4	37.8	46.1	866.2	235.2	37.2	46.9
6	076	271.8	50.3	11.7	13.7	252.0	55.4	10.8	13.1	233.7	61.0	10.0	12.6
	086	299.2	56.2	12.9	15.2	277.7	62.0	11.9	14.5	258.6	68.3	11.1	13.9
	096	338.0	62.9	14.5	17.1	313.9	69.4	13.5	16.3	292.4	76.6	12.6	15.7
	106	375.7	70.3	16.2	19.0	348.5	78.1	15.0	18.2	324.2	88.0	13.9	17.6
	116	408.0	74.5	17.5	20.6	379.5	82.8	16.3	19.7	352.2	92.4	15.1	18.9
	126	441.2	81.3	19.0	22.3	410.6	90.4	17.7	21.4	382.0	100.9	16.4	20.6
	136	489.6	91.7	21.0	24.8	455.7	101.0	19.6	23.7	426.2	111.3	18.3	22.9
	146	523.3	99.2	22.5	26.5	486.5	109.4	20.9	25.4	455.4	121.1	19.6	24.6
	161	547.1	102.3	23.5	27.7	530.5	119.3	22.8	27.7	519.0	139.1	22.3	28.0
	171	580.5	107.9	24.9	29.4	562.9	125.8	24.2	29.4	552.2	146.2	23.7	29.8
	186	619.6	117.4	26.6	31.4	603.2	135.8	25.9	31.5	591.7	157.5	25.4	31.9
	206	744.1	135.4	32.0	37.5	724.2	156.7	31.1	37.6	705.5	182.0	30.3	37.8
	246	867.8	158.5	37.3	43.8	844.4	183.9	36.3	43.9	822.6	214.5	35.4	44.2
	261	897.6	165.9	38.6	45.4	873.7	191.7	37.6	45.4	854.8	222.5	36.7	45.9
	271	933.1	174.7	40.1	47.3	908.3	201.8	39.0	47.3	890.1	234.1	38.3	47.9
7	076	282.6	51.0	12.2	14.2	262.5	55.9	11.3	13.6	242.4	61.4	10.4	13.0
	086	311.1	56.9	13.4	15.7	289.1	62.6	12.4	15.0	268.0	68.7	11.5	14.4
	096	351.4	63.7	15.1	17.7	327.0	70.0	14.1	16.9	303.0	77.0	13.0	16.2
	106	390.4	71.1	16.8	19.7	363.2	78.7	15.6	18.8	335.8	89.6	14.4	18.1
	116	424.1	75.2	18.2	21.3	395.1	83.4	17.0	20.4	365.2	92.1	15.7	19.5
	126	458.6	82.1	19.7	23.1	427.4	91.0	18.4	22.1	396.3	100.8	17.0	21.2
	136	508.9	92.9	21.9	25.7	474.6	101.8	20.4	24.6	441.6	111.9	19.0	23.6
	146	543.9	99.9	23.4	27.5	506.9	110.3	21.8	26.3	471.6	123.1	20.3	25.3
	161	564.2	102.6	24.3	28.5	548.7	119.1	23.6	28.5	533.4	140.6	22.9	28.7
	171	596.9	108.8	25.7	30.1	582.0	125.6	25.0	30.2	567.6	145.7	24.4	30.4
	186	638.5	117.7	27.5	32.3	622.8	135.5	26.8	32.3	608.0	156.8	26.2	32.6
	206	767.1	135.4	33.0	38.5	748.4	156.2	32.2	38.6	727.6	181.7	31.3	38.8
	246	895.0	158.6	38.5	45.0	872.9	183.3	37.5	45.1	845.8	212.9	36.4	45.1
	261	925.5	166.2	39.8	46.6	902.9	191.3	38.8	46.7	878.1	221.4	37.8	46.9
	271	961.8	175.0	41.4	48.5	938.3	201.4	40.4	48.6	914.4	233.1	39.3	48.9

LEGEND

- Cap — Capacity, kW
- Cond — Condenser
- kW — Compressor Motor Input Power at Rated Voltage
- LCWT — Leaving Chilled-Water Temperature (C)

30HXC COOLING CAPACITIES (cont) 60 Hz, SI (cont)

LCWT (C)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)											
		25				30				35			
		Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)
8	076	293.7	51.6	12.6	14.7	273.5	56.3	11.8	14.1	252.3	62.0	10.9	13.4
	086	323.2	57.7	13.9	16.3	300.9	63.1	13.0	15.5	278.3	69.3	12.0	14.8
	096	365.1	64.5	15.7	18.3	340.5	70.6	14.7	17.5	314.9	77.7	13.6	16.7
	106	405.6	71.9	17.5	20.4	378.0	79.3	16.3	19.5	348.3	87.5	15.0	18.6
	116	440.6	76.0	19.0	22.1	411.4	83.9	17.7	21.1	380.1	92.8	16.4	20.2
	126	476.4	82.9	20.5	23.9	444.9	91.6	19.1	22.9	412.1	101.5	17.7	21.9
	136	528.7	93.9	22.8	26.6	494.2	102.5	21.3	25.5	458.6	112.7	19.7	24.4
	146	564.9	101.0	24.3	28.4	527.9	111.0	22.7	27.3	489.5	124.7	21.1	26.2
	161	581.9	102.7	25.0	29.2	567.2	118.7	24.4	29.3	548.7	139.1	23.6	29.3
	171	614.9	108.9	26.5	30.9	601.1	125.2	25.9	31.0	584.7	145.4	25.2	31.1
	186	657.9	117.9	28.3	33.1	643.3	135.0	27.7	33.2	625.2	156.2	26.9	33.3
	206	787.2	135.1	33.9	39.4	773.3	155.8	33.3	39.7	749.9	181.2	32.3	39.7
	246	921.7	158.4	39.7	46.1	901.2	182.6	38.8	46.3	873.3	212.6	37.6	46.3
	261	953.6	166.3	41.0	47.8	932.0	190.6	40.1	47.9	905.3	221.1	39.0	48.0
	271	991.1	175.2	42.7	49.8	968.6	200.7	41.7	49.9	941.5	232.5	40.5	50.1
9	076	304.4	52.1	13.1	15.2	284.8	56.7	12.3	14.6	262.7	62.6	11.3	13.9
	086	335.3	58.4	14.4	16.8	313.3	63.5	13.5	16.1	289.6	70.0	12.5	15.3
	096	378.6	65.2	16.3	18.9	354.4	71.0	15.3	18.2	327.7	78.4	14.1	17.3
	106	420.8	72.5	18.1	21.1	393.4	79.8	16.9	20.2	362.9	88.3	15.6	19.2
	116	456.3	76.5	19.6	22.8	428.2	84.3	18.4	21.9	396.1	93.6	17.1	20.9
	126	492.9	83.4	21.2	24.6	462.9	92.1	19.9	23.7	428.8	102.2	18.5	22.7
	136	548.4	94.8	23.6	27.5	514.6	103.1	22.2	26.4	477.2	113.8	20.5	25.2
	146	585.5	101.8	25.2	29.3	549.2	111.7	23.6	28.2	508.4	123.3	21.9	27.0
	161	599.3	102.6	25.8	30.0	585.6	118.3	25.2	30.0	566.6	137.9	24.4	30.1
	171	630.9	108.8	27.2	31.6	619.8	125.0	26.7	31.8	602.2	145.0	25.9	31.9
	186	676.7	117.9	29.1	33.9	663.0	134.5	28.5	34.0	644.7	156.1	27.8	34.2
	206	807.4	134.7	34.8	40.2	797.3	155.9	34.3	40.7	773.6	180.8	33.3	40.7
	246	944.2	157.5	40.7	47.1	930.4	181.9	40.1	47.5	902.1	212.3	38.8	47.6
	261	977.2	165.6	42.1	48.8	962.1	189.6	41.4	49.2	934.2	221.0	40.2	49.3
	271	1017.3	174.6	43.8	50.9	999.6	199.6	43.0	51.2	971.1	232.3	41.8	51.3
10	076	313.9	52.4	13.5	15.6	296.0	57.4	12.8	15.1	273.4	63.2	11.8	14.4
	086	346.8	58.8	14.9	17.3	325.9	64.1	14.0	16.7	301.2	70.7	13.0	15.9
	096	390.5	65.6	16.8	19.5	368.4	71.8	15.9	18.8	340.8	79.1	14.7	17.9
	106	435.2	73.0	18.7	21.7	409.0	80.4	17.6	20.9	378.0	89.1	16.3	19.9
	116	470.9	76.7	20.3	23.4	445.1	85.0	19.2	22.6	412.4	94.4	17.8	21.6
	126	509.4	83.8	21.9	25.3	481.1	92.9	20.7	24.5	446.3	103.1	19.2	23.5
	136	565.3	95.3	24.4	28.2	534.7	104.1	23.0	27.3	496.1	114.7	21.4	26.1
	146	605.1	102.4	26.1	30.2	570.8	112.7	24.6	29.2	529.1	124.4	22.8	27.9
	161	614.0	102.1	26.4	30.6	604.2	118.1	26.0	30.8	585.3	137.8	25.2	30.9
	171	647.4	108.5	27.9	32.3	639.1	124.9	27.5	32.6	621.3	144.8	26.8	32.7
	186	692.5	117.2	29.8	34.6	683.7	134.3	29.4	34.9	664.7	155.9	28.6	35.0
	206	827.5	133.8	35.6	41.1	822.5	155.8	35.4	41.8	798.8	180.5	34.4	41.8
	246	965.4	156.2	41.6	47.9	959.1	182.3	41.3	48.8	931.4	211.8	40.1	48.8
	261	998.8	164.5	43.0	49.7	991.6	190.3	42.7	50.5	963.4	220.5	41.5	50.5
	271	1039.2	173.4	44.8	51.8	1030.1	199.9	44.4	52.5	1001.2	231.8	43.1	52.6

Performance data (cont)



30HXC COOLING CAPACITIES (cont) 50 Hz, SI

LCWT (C)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)											
		25				30				35			
		Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)
4	076	245.7	48.1	10.5	12.5	227.4	53.1	9.8	12.0	212.9	58.8	9.1	11.6
	086	274.3	54.8	11.8	14.0	255.9	60.8	11.0	13.5	240.1	67.1	10.3	13.1
	096	312.4	61.8	13.4	16.0	292.2	68.8	12.5	15.4	274.5	76.2	11.8	14.9
	106	343.5	68.5	14.7	17.6	317.6	75.8	13.6	16.8	300.5	85.0	12.9	16.4
	116	376.5	73.5	16.2	19.2	350.6	81.8	15.1	18.4	329.9	91.2	14.2	17.9
	126	410.5	80.9	17.6	20.9	382.8	90.2	16.4	20.1	360.1	100.5	15.5	19.6
	136	455.0	90.9	19.5	23.3	425.4	100.7	18.3	22.4	401.2	111.2	17.2	21.8
	146	482.2	97.4	20.7	24.7	448.9	107.7	19.3	23.7	425.2	120.1	18.3	23.2
	161	496.4	99.0	21.3	25.4	475.6	113.5	20.4	25.1	466.6	131.7	20.0	25.5
	171	538.2	108.1	23.1	27.5	520.5	124.2	22.3	27.5	509.1	142.7	21.9	27.7
	186	579.7	117.7	24.9	29.7	561.1	135.1	24.1	29.6	552.6	156.1	23.7	30.2
	206	686.3	133.2	29.5	34.9	661.7	153.4	28.4	34.7	644.2	176.4	27.7	34.9
	246	797.0	154.9	34.2	40.6	766.4	178.7	32.9	40.3	748.6	206.5	32.1	40.7
	261	838.0	165.0	36.0	42.8	808.7	189.8	34.7	42.5	792.1	218.9	34.0	43.0
	271	874.2	174.8	37.5	44.7	845.5	201.1	36.3	44.6	831.7	232.4	35.7	45.3
5	076	256.0	48.5	11.0	13.0	237.0	53.6	10.2	12.4	220.9	59.2	9.5	11.9
	086	285.1	55.1	12.2	14.5	266.3	61.3	11.4	14.0	249.0	67.7	10.7	13.5
	096	324.7	62.0	13.9	16.5	304.1	69.5	13.1	15.9	284.7	76.8	12.2	15.4
	106	357.7	69.0	15.4	18.2	331.2	76.6	14.2	17.4	311.1	85.5	13.4	16.9
	116	391.6	73.7	16.8	19.8	365.4	82.5	15.7	19.1	341.8	91.7	14.7	18.5
	126	426.6	81.3	18.3	21.7	398.5	90.9	17.1	20.9	373.0	101.0	16.0	20.2
	136	473.3	91.3	20.3	24.1	442.8	101.5	19.0	23.2	416.0	112.0	17.9	22.5
	146	502.4	98.0	21.6	25.6	466.3	108.3	20.0	24.5	440.3	120.7	18.9	23.9
	161	514.2	98.7	22.1	26.1	493.4	113.8	21.2	25.9	480.5	131.5	20.6	26.1
	171	557.0	108.1	23.9	28.4	537.9	124.2	23.1	28.2	524.6	142.8	22.5	28.4
	186	600.0	117.3	25.8	30.6	580.1	135.1	24.9	30.5	568.8	155.9	24.4	30.9
	206	710.4	133.5	30.5	36.0	684.9	153.3	29.4	35.7	664.1	176.4	28.5	35.8
	246	824.2	154.9	35.4	41.8	794.9	178.8	34.2	41.5	770.8	206.0	33.1	41.6
	261	866.6	164.7	37.2	44.0	837.7	190.0	36.0	43.8	816.1	218.7	35.1	44.1
	271	904.1	174.3	38.8	46.0	874.9	201.1	37.6	45.8	856.1	232.1	36.8	46.3
6	076	266.4	49.2	11.5	13.5	247.0	54.1	10.6	12.8	229.0	59.6	9.8	12.3
	086	296.1	55.5	12.7	15.0	277.0	61.9	11.9	14.4	258.3	68.2	11.1	13.9
	096	337.1	62.7	14.5	17.1	316.3	70.0	13.6	16.5	295.3	77.4	12.7	15.9
	106	372.3	69.6	16.0	18.8	345.3	77.3	14.8	18.0	322.0	87.3	13.8	17.4
	116	406.8	74.2	17.5	20.5	380.6	83.1	16.4	19.8	353.9	92.9	15.2	19.0
	126	443.0	81.7	19.0	22.4	414.9	91.5	17.8	21.6	386.3	102.2	16.6	20.8
	136	491.6	92.1	21.1	24.9	460.6	102.3	19.8	24.0	431.2	112.8	18.5	23.2
	146	522.6	99.0	22.5	26.5	485.9	109.2	20.9	25.4	455.8	121.2	19.6	24.6
	161	531.7	98.8	22.9	26.9	511.6	114.0	22.0	26.7	494.7	131.3	21.3	26.7
	171	575.4	108.2	24.7	29.2	557.2	124.3	24.0	29.1	540.5	142.7	23.2	29.1
	186	619.5	117.4	26.6	31.4	600.2	135.0	25.8	31.3	585.5	155.5	25.2	31.6
	206	734.4	133.6	31.6	37.0	709.9	153.3	30.5	36.8	684.7	176.2	29.4	36.7
	246	851.5	155.2	36.6	43.0	823.3	178.7	35.4	42.7	794.1	205.9	34.1	42.6
	261	894.8	165.3	38.5	45.2	866.8	190.0	37.3	45.1	840.4	218.2	36.1	45.1
	271	933.1	174.7	40.1	47.3	904.4	200.8	38.9	47.1	880.8	231.3	37.9	47.4
7	076	277.0	49.8	11.9	13.9	257.4	54.6	11.1	13.3	237.6	60.0	10.2	12.7
	086	307.4	56.1	13.2	15.5	288.2	62.4	12.4	15.0	267.8	68.7	11.5	14.3
	096	349.9	63.4	15.0	17.6	328.6	70.4	14.1	17.0	306.1	77.9	13.2	16.4
	106	386.9	70.4	16.6	19.5	360.0	77.9	15.5	18.7	333.1	88.9	14.3	18.0
	116	422.3	74.9	18.2	21.2	396.0	83.7	17.0	20.5	366.8	92.6	15.8	19.6
	126	459.8	82.3	19.8	23.1	431.6	92.1	18.6	22.3	400.7	102.1	17.2	21.4
	136	510.4	93.2	22.0	25.8	479.2	103.0	20.6	24.8	446.9	113.4	19.2	23.9
	146	543.2	99.8	23.4	27.4	506.3	110.1	21.8	26.3	471.7	123.2	20.3	25.3
	161	548.8	99.2	23.6	27.7	530.2	114.1	22.8	27.5	510.0	132.5	21.9	27.4
	171	594.3	108.3	25.6	30.0	576.4	124.3	24.8	29.9	557.4	142.7	24.0	29.8
	186	638.6	117.8	27.5	32.3	620.6	135.0	26.7	32.2	602.2	155.1	25.9	32.3
	206	757.7	133.7	32.6	38.0	734.9	153.1	31.6	37.9	708.0	176.4	30.5	37.7
	246	879.0	155.4	37.8	44.2	852.3	178.3	36.7	44.0	818.3	204.9	35.2	43.6
	261	923.1	165.7	39.7	46.5	897.0	189.8	38.6	46.4	865.1	217.6	37.2	46.2
	271	962.2	175.1	41.4	48.5	935.4	200.7	40.2	48.5	905.9	230.6	39.0	48.4

LEGEND

Cap — Capacity, kW
 Cond — Condenser
 kW — Compressor Motor Input Power at
 Rated Voltage
 LCWT — Leaving Chilled-Water Temperature (C)

30HXC COOLING CAPACITIES (cont)
50 Hz, SI (cont)

LCWT (C)	UNIT SIZE 30HXC	CONDENSER ENTERING WATER TEMPERATURE (F)											
		25				30				35			
		Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cond Flow Rate (L/s)
8	076	287.9	50.4	12.4	14.4	268.1	55.0	11.5	13.8	247.3	60.6	10.6	13.1
	086	318.9	56.8	13.7	16.0	299.4	62.8	12.9	15.5	278.2	69.3	12.0	14.8
	096	363.0	64.1	15.6	18.2	341.3	70.7	14.7	17.6	318.0	78.5	13.7	16.9
	106	402.0	71.1	17.3	20.2	374.6	78.5	16.1	19.3	345.1	86.6	14.9	18.4
	116	438.3	75.5	18.9	21.9	411.6	84.0	17.7	21.2	381.8	93.3	16.4	20.3
	126	477.0	83.0	20.5	23.9	448.6	92.5	19.3	23.1	416.9	102.9	17.9	22.2
	136	529.7	94.1	22.8	26.6	498.0	103.5	21.4	25.7	464.2	114.3	20.0	24.7
	146	564.2	100.8	24.3	28.4	527.3	110.9	22.7	27.2	489.2	124.5	21.1	26.2
	161	566.4	99.4	24.4	28.4	548.7	113.9	23.6	28.3	524.9	130.6	22.6	28.0
	171	612.5	108.5	26.4	30.8	596.2	124.1	25.7	30.7	575.3	142.7	24.8	30.6
	186	658.4	118.0	28.3	33.1	641.8	134.7	27.6	33.1	620.2	154.8	26.7	33.0
	206	778.5	133.5	33.5	38.9	760.4	153.1	32.7	39.0	731.5	176.4	31.5	38.7
	246	905.1	155.3	39.0	45.3	881.2	177.8	37.9	45.2	846.6	205.1	36.4	44.9
	261	951.8	165.9	41.0	47.7	927.0	189.4	39.9	47.6	894.0	217.9	38.5	47.4
	271	991.9	175.4	42.7	49.8	966.4	200.2	41.6	49.8	934.2	230.5	40.2	49.7
9	076	298.1	50.8	12.8	14.9	279.2	55.4	12.0	14.3	257.5	61.2	11.1	13.6
	086	330.3	57.3	14.2	16.5	310.9	63.0	13.4	16.0	289.2	70.0	12.5	15.3
	096	376.1	64.7	16.2	18.8	354.3	71.0	15.3	18.2	330.5	79.2	14.2	17.5
	106	416.8	71.7	17.9	20.9	389.9	79.0	16.8	20.0	359.7	87.4	15.5	19.1
	116	453.4	76.0	19.5	22.6	427.7	84.2	18.4	21.9	397.6	94.1	17.1	21.0
	126	492.9	83.5	21.2	24.6	465.8	92.9	20.1	23.9	433.6	103.6	18.7	22.9
	136	548.9	94.9	23.6	27.5	517.5	103.8	22.3	26.5	482.6	115.3	20.8	25.5
	146	584.8	101.7	25.2	29.3	548.6	111.5	23.6	28.2	507.8	123.1	21.9	26.9
	161	584.1	99.4	25.1	29.2	567.2	113.7	24.4	29.1	543.9	131.0	23.4	28.8
	171	628.8	108.4	27.1	31.5	616.2	124.0	26.5	31.6	594.1	142.8	25.6	31.4
	186	677.4	118.0	29.2	34.0	662.2	134.4	28.5	34.0	640.5	154.9	27.6	33.9
	206	799.4	133.3	34.4	39.8	785.2	153.4	33.8	40.1	756.4	176.4	32.6	39.8
	246	928.3	154.5	40.0	46.2	910.6	177.6	39.2	46.5	876.5	205.2	37.7	46.2
	261	975.6	165.3	42.0	48.7	958.2	188.7	41.3	49.0	924.3	218.2	39.8	48.8
	271	1018.4	174.8	43.8	50.9	998.9	199.5	43.0	51.2	965.3	230.7	41.6	51.0
10	076	307.5	51.1	13.2	15.3	290.2	56.1	12.5	14.8	268.1	61.7	11.5	14.1
	086	341.2	57.7	14.7	17.0	322.0	63.3	13.9	16.4	300.6	70.5	12.9	15.8
	096	387.7	65.1	16.7	19.3	367.5	71.6	15.8	18.8	343.5	79.8	14.8	18.1
	106	431.1	72.2	18.6	21.5	405.3	79.6	17.5	20.7	374.6	88.2	16.1	19.7
	116	467.6	76.1	20.1	23.2	443.8	84.7	19.1	22.6	413.7	94.8	17.8	21.7
	126	509.0	83.7	21.9	25.3	483.2	93.4	20.8	24.6	451.0	104.4	19.4	23.7
	136	565.8	95.4	24.4	28.2	537.0	104.6	23.1	27.4	501.5	116.2	21.6	26.4
	146	604.3	102.2	26.0	30.2	570.1	112.5	24.6	29.1	528.5	124.2	22.8	27.9
	161	597.9	98.8	25.8	29.8	586.0	113.7	25.2	29.9	563.3	131.2	24.3	29.6
	171	645.6	108.2	27.8	32.2	635.5	124.1	27.4	32.4	614.1	142.9	26.5	32.3
	186	693.1	117.4	29.9	34.6	683.5	134.3	29.4	34.9	661.2	155.0	28.5	34.8
	206	820.3	132.6	35.3	40.7	811.2	153.5	34.9	41.2	782.3	176.4	33.7	40.9
	246	949.5	153.3	40.9	47.1	939.6	178.0	40.5	47.7	906.6	205.2	39.1	47.5
	261	997.3	164.2	43.0	49.6	988.2	189.6	42.6	50.3	955.1	218.3	41.1	50.1
	271	1040.2	173.5	44.8	51.8	1030.0	199.9	44.4	52.5	996.5	230.6	42.9	52.4

Performance data (cont)



COMBINATION RATINGS 60 Hz, ENGLISH

LCWT (F)	UNIT SIZE 30HXA	09DK AIR COOLED CONDENSER Unit (Qty)		CONDENSER ENTERING AIR TEMPERATURE (F)														
				85			95			105			115			125		
				Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)
40	076	084	(1)	68.0	77.9	162.9	62.8	81.6	150.4	57.2	85.8	136.9	51.7	90.8	123.7	46.4	95.5	111.0
	086	084	(1)	74.0	86.0	177.1	68.6	90.9	164.3	62.8	96.4	150.2	56.9	102.9	136.3	51.3	109.4	122.9
	096	094	(1)	82.7	95.2	197.9	76.6	100.7	183.3	70.1	107.2	167.9	63.8	114.4	152.6	57.6	121.7	137.8
	106	074	(1) and 044	94.8	109.9	226.9	88.3	116.3	211.3	81.0	123.2	193.8	73.7	131.8	176.4	66.8	140.4	159.8
	116	074	(1) and 054	101.6	119.6	243.2	94.5	126.4	226.3	86.8	134.1	207.9	79.1	143.6	189.4	71.8	152.8	172.0
	126	074	(2)	111.5	128.9	266.9	104.1	136.3	249.2	95.8	144.4	229.3	87.3	154.9	209.0	79.5	165.2	190.3
	136	084	(2)	120.8	145.4	289.3	112.4	153.6	269.0	103.2	163.9	247.1	94.4	175.3	226.1	86.1	186.5	206.1
	146	084	(2)	134.0	152.3	320.8	125.4	161.6	300.2	115.6	171.3	276.7	105.7	184.3	253.1	96.6	197.0	231.2
	161	084	(2)	138.6	161.0	331.9	132.9	175.8	318.0	126.1	194.7	301.9	119.5	217.4	286.0	112.4	240.6	269.1
42	076	084	(1)	70.6	79.4	169.1	65.3	83.2	156.5	59.5	87.2	142.7	53.8	92.3	128.8	48.3	97.0	115.8
	086	084	(1)	76.8	87.9	184.0	71.3	92.9	170.7	65.3	98.3	156.5	59.3	104.7	142.0	53.5	111.3	128.1
	096	094	(1)	85.7	97.4	205.4	79.6	102.9	190.6	73.0	109.3	174.9	66.4	116.5	159.0	59.9	123.9	143.6
	106	074	(1) and 044	98.3	112.3	235.6	91.7	118.7	219.7	84.4	125.4	202.2	76.7	134.1	183.8	69.6	142.8	166.6
	116	074	(1) and 054	105.4	122.1	252.5	98.3	129.0	235.5	90.4	136.3	216.7	82.3	146.1	197.1	74.8	155.5	179.2
	126	074	(2)	115.6	131.5	277.0	108.2	139.1	259.2	99.7	147.1	238.8	90.9	157.4	217.9	82.8	167.9	198.3
	136	084	(2)	125.3	148.5	300.1	116.7	157.0	279.6	107.4	167.0	257.4	98.3	178.3	235.4	89.4	189.9	214.3
	146	084	(2)	139.1	155.3	333.2	130.4	164.9	312.3	120.4	174.4	288.3	110.1	187.3	263.6	100.6	200.2	241.0
	161	084	(2)	143.5	163.8	343.7	137.7	178.9	329.8	130.8	197.6	313.4	123.9	220.3	296.9	114.2	241.7	273.6
44	076	084	(1)	73.2	80.9	175.5	67.8	84.7	162.6	62.0	88.6	148.5	55.9	93.7	133.9	50.4	98.6	120.8
	086	084	(1)	79.6	89.9	190.9	74.0	94.9	177.4	68.0	100.1	163.0	61.7	106.5	147.8	55.6	113.3	133.4
	096	094	(1)	88.9	99.7	213.0	82.6	105.2	198.0	75.9	111.4	182.0	69.0	118.5	165.5	62.4	126.1	149.5
	106	074	(1) and 044	102.0	114.7	244.5	95.3	121.1	228.4	87.8	127.8	210.4	79.9	136.2	191.5	72.4	145.2	173.5
	116	074	(1) and 054	109.3	124.6	262.0	102.2	131.7	244.9	94.0	139.0	225.4	85.6	148.5	205.3	77.8	158.1	186.6
	126	074	(2)	119.9	134.3	287.5	112.4	141.9	269.3	103.7	149.9	248.7	94.7	159.8	227.0	86.2	170.6	206.6
	136	084	(2)	129.8	151.9	311.2	121.1	160.3	290.4	111.7	170.0	267.9	102.2	181.2	245.1	93.1	193.1	223.1
	146	084	(2)	144.2	158.6	345.7	135.3	168.1	324.4	125.2	178.0	300.2	114.6	190.2	274.8	104.6	203.5	250.9
	161	084	(2)	148.4	166.7	355.8	142.6	181.9	341.8	135.7	200.4	325.4	128.6	223.1	308.3	116.0	242.6	278.1
46	076	084	(1)	75.8	82.4	181.9	70.4	86.3	168.8	64.4	90.3	154.4	58.2	95.2	139.4	52.3	100.4	125.4
	086	084	(1)	82.5	91.9	197.9	76.8	96.9	184.2	70.7	102.1	169.7	64.1	108.4	153.8	57.9	115.3	138.8
	096	094	(1)	92.1	101.9	220.9	85.7	107.4	205.6	78.9	113.5	189.3	71.8	120.6	172.1	64.1	127.7	153.8
	106	074	(1) and 044	105.7	117.2	253.5	98.8	123.7	236.9	91.2	130.5	218.8	83.2	138.4	199.5	75.3	147.7	180.5
	116	074	(1) and 054	113.3	127.2	271.7	105.9	134.5	254.1	97.7	141.9	234.4	89.1	150.9	213.7	81.0	160.8	194.2
	126	074	(2)	124.3	137.2	298.2	116.5	144.8	279.5	107.9	152.9	258.7	98.6	162.3	236.5	89.6	173.3	214.9
	136	084	(2)	134.5	155.2	322.6	125.6	163.9	301.3	116.1	173.2	278.5	106.1	184.3	254.6	94.6	194.3	226.9
	146	084	(2)	149.5	162.1	358.6	140.3	171.6	336.5	130.2	181.6	312.3	119.3	193.1	286.2	108.8	206.8	260.9
	161	084	(2)	153.4	169.6	368.1	147.6	184.9	354.1	140.7	203.2	337.6	133.3	225.9	319.7	117.9	243.5	282.8
48	076	084	(1)	78.6	83.9	188.7	72.9	88.1	174.9	66.8	92.1	160.3	60.4	96.7	145.0	54.3	102.0	130.3
	086	084	(1)	85.5	93.9	205.2	79.7	98.9	191.2	73.4	104.3	176.2	66.7	110.3	160.1	60.1	117.3	144.3
	096	094	(1)	95.3	104.2	228.7	88.9	109.7	213.3	81.9	115.7	196.5	74.5	123.0	178.8	65.3	128.4	156.7
	106	074	(1) and 044	109.5	119.9	262.8	102.3	126.3	245.6	94.7	133.2	227.4	86.5	140.9	207.6	78.2	150.2	187.7
	116	074	(1) and 054	117.3	130.2	281.5	109.7	137.4	263.4	101.4	144.9	243.5	92.7	153.4	222.4	84.1	163.5	201.8
	126	074	(2)	128.8	140.2	309.1	120.7	147.8	289.7	112.0	155.9	268.9	102.6	164.9	246.1	93.1	176.1	223.3
	136	084	(2)	139.2	158.6	334.1	130.2	167.1	312.5	120.6	176.3	289.4	110.2	187.3	264.6	96.3	195.4	231.0
	146	084	(2)	154.8	165.7	371.6	145.4	175.1	349.0	135.3	185.2	324.6	124.1	196.2	297.8	113.0	210.0	271.1
	161	084	(2)	158.6	172.4	380.6	152.7	187.9	366.5	145.7	206.1	349.7	137.9	228.7	331.0	119.8	244.5	287.5
50	076	084	(1)	81.3	85.8	195.2	75.5	89.9	181.1	69.3	93.9	166.4	62.8	98.3	150.8	56.3	103.6	135.1
	086	084	(1)	88.5	96.0	212.4	82.5	101.1	198.1	76.1	106.6	182.7	69.3	112.5	166.4	62.5	119.4	150.0
	096	094	(1)	98.7	106.5	236.9	92.1	112.2	221.1	84.9	118.3	203.9	77.4	125.4	185.9	66.4	129.2	159.5
	106	074	(1) and 044	113.4	122.6	272.2	106.0	129.0	254.6	98.3	136.0	236.0	89.9	143.5	215.8	81.2	152.7	195.1
	116	074	(1) and 054	121.5	133.3	291.6	113.6	140.4	272.9	105.3	147.9	252.8	96.2	156.1	231.1	87.2	166.4	209.4
	126	074	(2)	133.3	143.2	320.1	125.1	150.7	300.3	116.3	159.1	279.2	106.6	167.8	255.9	96.7	179.0	232.1
	136	084	(2)	144.1	162.0	346.1	134.9	170.6	324.0	125.0	179.9	300.0	114.5	190.6	274.8	98.1	196.7	235.6
	146	084	(2)	160.3	169.4	384.8	150.6	178.7	361.7	140.4	188.9	337.2	129.0	199.6	309.7	117.3	213.1	281.7
	161	084	(2)	163.8	175.2	393.3	157.9	191.4	379.1	150.7	209.3	361.9	142.7	231.8	342.5	121.8	245.6	292.5

COMBINATION RATINGS (cont) 50 Hz, ENGLISH

LCWT (F)	UNIT SIZE 30HXA	09DK AIR COOLED CONDENSER Unit (Qty)	CONDENSER ENTERING AIR TEMPERATURE (F)											
			85			95			105			115		
			Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)	Cap	Input kW	Cooler Flow Rate (GPM)
40	076	084 (1)	63.8	68.8	152.7	58.9	73.0	141.0	53.7	77.7	128.5	48.5	83.3	116.2
	086	084 (1)	73.2	75.5	175.3	67.9	80.4	162.6	62.1	85.8	148.7	56.4	92.2	134.9
	096	094 (1)	82.1	85.2	196.6	76.1	90.7	182.2	69.7	97.2	166.8	63.4	104.3	151.7
	106	074 (1) and 044 (1)	94.0	94.9	225.1	87.6	101.2	209.7	80.4	108.1	192.4	73.2	116.6	175.1
	116	074 (1) and 054 (1)	101.2	103.5	242.3	94.2	110.3	225.6	86.5	118.0	207.2	78.9	127.4	188.8
	126	074 (2)	111.5	110.1	266.8	104.0	117.6	249.0	95.7	125.7	229.1	87.2	136.2	208.9
	136	084 (2)	120.8	127.0	28.2	112.4	135.1	269.1	103.3	145.4	247.3	94.5	156.8	226.2
	146	084 (2)	133.9	133.5	320.5	125.2	142.8	299.8	115.5	152.5	276.4	105.6	165.4	252.8
	161	084 (2)	138.7	142.5	332.1	133.0	157.4	318.3	126.2	176.3	302.1	119.5	199.0	286.2
	171	084 (2)	148.7	156.7	356.0	142.2	173.2	340.4	134.8	194.3	322.7	127.8	219.1	306.0
	186	084 (2)	160.8	177.4	384.9	153.4	195.6	367.2	145.2	220.5	347.6	137.9	248.2	330.2
42	076	084 (1)	66.2	70.5	158.5	61.3	74.7	146.8	55.9	79.2	133.9	50.4	85.1	120.8
	086	084 (1)	76.0	77.4	182.0	70.6	82.3	169.0	64.7	87.6	155.0	58.7	93.9	140.6
	096	094 (1)	85.2	87.4	204.1	79.1	92.9	189.4	72.6	99.2	173.8	66.0	106.3	158.1
	106	074 (1) and 044 (1)	97.6	97.3	233.7	91.1	103.6	218.1	83.8	110.2	200.7	76.2	118.8	182.5
	116	074 (1) and 054 (1)	105.0	106.0	251.6	98.0	112.9	234.7	90.1	120.2	215.9	82.0	129.9	196.5
	126	074 (2)	115.6	112.8	276.8	108.1	120.4	259.0	99.7	128.3	238.7	90.9	138.6	217.7
	136	084 (2)	125.3	130.0	300.3	116.8	138.5	279.7	107.5	148.5	257.6	98.3	159.8	235.5
	146	084 (2)	138.9	136.5	332.8	130.2	146.0	312.0	120.2	155.6	288.0	109.9	168.4	263.4
	161	084 (2)	143.6	145.4	344.0	137.8	160.4	330.0	130.9	179.2	313.6	124.0	201.9	297.1
	171	084 (2)	153.8	159.7	368.5	147.5	176.5	353.4	139.8	197.1	335.0	132.5	222.4	317.3
	186	084 (2)	166.4	181.0	398.6	159.0	199.6	380.8	150.7	224.0	361.0	143.0	252.3	342.6
44	076	084 (1)	68.6	72.1	164.4	63.7	76.5	152.6	58.1	80.9	139.3	52.4	86.7	125.7
	086	084 (1)	78.8	79.4	188.9	73.3	84.3	175.6	67.3	89.4	161.4	61.1	95.7	146.4
	096	094 (1)	88.3	89.7	211.7	82.1	95.1	196.8	75.5	101.3	180.9	68.6	108.3	164.5
	106	074 (1) and 044 (1)	101.2	99.6	242.6	94.6	106.0	226.7	87.1	112.6	208.9	79.3	120.9	190.2
	116	074 (1) and 054 (1)	108.9	108.5	261.1	101.8	115.5	244.1	93.7	122.8	224.6	85.4	132.2	204.7
	126	074 (2)	119.9	115.5	287.5	112.3	123.1	269.2	103.7	131.1	248.5	94.7	141.1	226.9
	136	084 (2)	129.9	133.4	311.4	121.2	141.9	290.6	111.8	151.6	268.0	102.3	162.8	245.2
	146	084 (2)	144.1	139.8	345.3	135.2	149.3	324.0	125.1	159.2	299.9	114.5	171.3	274.5
	161	084 (2)	148.5	148.2	356.1	142.7	163.5	342.0	135.8	182.0	325.6	128.7	204.7	308.5
	171	084 (2)	159.1	163.0	381.5	152.7	180.0	366.1	145.1	200.4	347.7	137.2	225.6	328.8
	186	084 (2)	172.1	184.7	412.5	164.7	203.7	394.9	156.3	227.4	374.7	148.2	256.3	355.3
46	076	084 (1)	71.1	73.8	170.5	66.0	78.4	158.4	60.4	82.9	144.9	54.6	88.4	130.9
	086	084 (1)	81.7	81.3	195.9	76.0	86.2	182.4	70.0	91.4	167.8	63.5	97.5	152.4
	096	094 (1)	91.5	91.9	219.5	85.2	97.3	204.3	78.4	103.4	188.1	71.3	110.4	171.1
	106	074 (1) and 044 (1)	104.9	102.1	251.6	98.0	108.5	235.1	90.6	115.2	217.3	82.6	123.0	198.1
	116	074 (1) and 054 (1)	112.9	111.1	270.8	105.6	118.3	253.2	97.4	125.7	233.6	88.8	134.7	213.1
	126	074 (2)	124.2	118.4	298.0	116.4	126.0	279.3	107.8	134.1	258.5	98.5	143.5	236.3
	136	084 (2)	134.6	136.7	322.8	125.7	145.4	301.5	116.2	154.7	278.7	106.2	165.9	254.7
	146	084 (2)	149.3	143.3	358.2	140.1	152.7	336.1	130.1	162.8	311.9	119.2	174.3	285.9
	161	084 (2)	153.5	151.1	368.3	147.7	166.4	354.3	140.8	184.8	337.8	133.4	207.5	319.9
	171	084 (2)	164.5	166.5	394.6	158.1	183.5	379.1	150.3	203.6	360.5	142.2	228.9	341.0
	186	084 (2)	177.9	188.4	426.6	170.6	207.8	409.2	161.9	230.7	388.3	153.4	260.2	367.9
48	076	084 (1)	73.6	75.7	176.7	68.3	80.4	164.0	62.7	84.9	150.5	56.7	90.1	136.2
	086	084 (1)	84.6	83.3	203.1	78.9	88.2	189.2	72.7	93.5	174.6	66.1	99.5	158.5
	096	094 (1)	94.7	94.1	227.3	88.3	99.6	212.0	81.4	105.6	195.4	74.1	112.8	177.8
	106	074 (1) and 044 (1)	108.7	104.7	260.8	101.6	111.1	243.8	94.1	117.9	225.8	85.9	125.5	206.2
	116	074 (1) and 054 (1)	116.9	114.1	280.5	109.4	121.2	262.5	101.1	128.7	242.7	92.4	137.2	221.7
	126	074 (2)	128.7	121.5	308.9	120.6	129.0	289.5	112.0	137.2	268.7	102.5	146.1	246.0
	136	084 (2)	139.3	140.1	334.3	130.3	148.7	312.7	120.6	157.8	289.5	110.3	168.8	264.7
	146	084 (2)	154.7	146.9	371.2	145.3	156.2	348.6	135.1	166.4	324.3	124.0	177.3	297.5
	161	084 (2)	158.7	153.9	380.9	152.8	169.5	366.7	145.8	187.7	349.9	138.0	210.2	331.2
	171	084 (2)	170.0	169.8	407.9	163.5	187.0	392.4	155.7	207.0	373.6	147.2	232.2	353.2
	186	084 (2)	183.8	192.1	441.1	176.5	211.9	423.7	167.6	234.2	402.2	158.5	264.0	380.4
50	076	084 (1)	76.2	77.8	183.1	70.8	82.3	169.9	65.1	87.0	156.2	59.0	91.9	141.6
	086	084 (1)	87.6	85.4	210.3	81.7	90.3	196.2	75.3	95.8	180.9	68.6	101.6	164.8
	096	094 (1)	98.1	96.4	235.5	91.5	102.1	219.8	84.4	108.1	202.7	77.0	115.2	184.8
	106	074 (1) and 044 (1)	112.5	107.4	270.2	105.2	113.7	252.7	97.6	120.7	234.3	89.2	128.1	214.3
	116	074 (1) and 054 (1)	121.0	117.1	290.5	113.2	124.2	271.8	104.9	131.7	252.0	95.9	139.8	230.4
	126	074 (2)	133.3	124.4	320.1	125.0	132.0	300.1	116.2	140.3	279.0	106.5	149.0	255.7
	136	084 (2)	144.2	143.5	346.3	135.0	152.1	324.2	125.0	161.4	300.2	114.5	172.2	275.0
	146	084 (2)	160.1	150.6	384.4	150.5	159.8	361.3	140.3	170.1	336.8	128.8	180.7	309.4
	161	084 (2)	163.9	156.7	393.5	158.0	172.9	379.3	150.8	190.9	362.1	142.8	213.4	342.8
	171	084 (2)	175.5	173.3	421.5	169.1	190.6	405.9	161.1	210.4	386.9	152.3	235.5	365.6
	186	084 (2)	189.7	195.9	455.5	182.6	216.1	438.4	173.4	238.0	416.4	163.7	267.6	393.1

Performance data (cont)



COMBINATION RATINGS (cont) 60 Hz, SI

LCWT (C)	UNIT SIZE 30HXA	09DK AIR COOLED CONDENSER Unit	(Qty)	CONDENSER ENTERING AIR TEMPERATURE (C)														
				30			35			40			45			50		
				Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)
4	076	084	(1)	223.2	79.6	8.9	207.3	83.5	8.2	190.5	87.9	7.6	174.0	93.0	6.9	158.0	97.9	6.3
	086	084	(1)	254.8	85.8	10.1	237.8	90.2	9.5	219.4	95.1	8.7	201.1	101.0	8.0	183.6	106.7	7.3
	096	094	(1)	284.6	94.9	11.3	265.5	99.9	10.6	245.1	105.8	9.7	225.1	112.2	8.9	205.5	118.7	8.2
	106	074	(1) and 044	326.5	109.8	13.0	305.8	115.4	12.2	283.0	121.6	11.2	259.9	129.2	10.3	238.1	136.9	9.5
	116	074	(1) and 054	349.9	119.3	13.9	327.5	125.4	13.0	303.3	132.3	12.1	278.9	140.8	11.1	255.9	148.9	10.2
	126	074	(2)	384.1	128.7	15.3	360.4	135.3	14.3	334.4	142.5	13.3	307.7	151.9	12.2	283.1	161.0	11.3
	136	084	(2)	415.7	145.2	16.5	389.2	152.4	15.5	360.6	161.7	14.3	333.0	171.8	13.2	306.2	181.9	12.2
	146	084	(2)	461.6	152.1	18.4	434.0	160.3	17.3	403.5	169.0	16.0	372.4	180.6	14.8	343.8	192.0	13.7
	161	084	(2)	479.3	161.2	19.1	460.8	174.7	18.3	439.6	191.7	17.5	418.6	211.6	16.6	399.4	233.2	15.9
	171	084	(2)	515.0	176.4	20.5	494.2	191.3	19.6	471.0	210.2	18.7	449.1	232.1	17.9	429.0	255.5	17.1
186	084	(2)	555.3	196.2	22.1	531.1	212.5	21.1	505.5	235.0	20.1	482.9	259.4	19.2	461.7	285.4	18.4	
5	076	084	(1)	230.7	81.2	9.2	214.8	85.1	8.5	197.7	89.3	7.9	180.2	94.6	7.2	164.0	99.6	6.5
	086	084	(1)	263.6	87.4	10.5	246.5	91.9	9.8	227.6	96.8	9.1	208.6	102.5	8.3	190.3	108.4	7.6
	096	094	(1)	294.4	96.9	11.7	274.8	101.9	10.9	254.2	107.6	10.1	233.5	114.0	9.3	213.2	120.6	8.5
	106	074	(1) and 044	337.9	111.7	13.4	316.8	117.5	12.6	293.8	123.6	11.7	269.7	131.2	10.7	247.1	139.0	9.8
	116	074	(1) and 054	361.9	121.6	14.4	339.3	127.8	13.5	314.7	134.3	12.5	289.1	143.0	11.5	265.6	151.3	10.6
	126	074	(2)	397.0	131.0	15.8	373.4	137.8	14.9	347.0	144.8	13.8	319.4	154.1	12.7	293.7	163.4	11.7
	136	084	(2)	430.1	147.9	17.1	402.9	155.4	16.0	373.9	164.4	14.9	345.2	174.5	13.7	317.5	184.9	12.6
	146	084	(2)	477.4	154.8	19.0	449.9	163.3	17.9	418.5	171.8	16.7	386.3	183.2	15.4	356.7	194.8	14.2
	161	084	(2)	494.6	163.8	19.7	476.0	177.4	18.9	454.4	194.2	18.1	433.0	214.1	17.2	412.2	236.3	16.4
	171	084	(2)	531.5	179.0	21.1	511.0	194.1	20.3	486.9	212.7	19.4	463.7	235.0	18.4	442.6	259.0	17.6
186	084	(2)	573.4	199.6	22.8	549.5	216.2	21.9	522.8	238.1	20.8	498.9	263.0	19.9	475.9	289.8	18.9	
6	076	084	(1)	238.4	82.8	9.5	222.3	86.7	8.9	204.8	90.7	8.2	186.8	96.1	7.4	170.2	101.2	6.8
	086	084	(1)	272.5	89.2	10.8	254.7	93.8	10.1	235.9	98.4	9.4	216.2	104.1	8.6	197.4	110.2	7.9
	096	094	(1)	304.2	98.9	12.1	284.3	103.9	11.3	263.5	109.5	10.5	242.0	115.8	9.6	221.1	122.6	8.8
	106	074	(1) and 044	349.0	114.0	13.9	327.9	119.7	13.1	304.4	125.7	12.1	279.7	133.2	11.1	256.3	141.2	10.2
	116	074	(1) and 054	373.9	123.9	14.9	351.4	130.1	14.0	326.1	136.6	13.0	300.0	145.1	11.9	275.4	153.7	11.0
	126	074	(2)	410.3	133.4	16.3	386.5	140.3	15.4	359.5	147.4	14.3	331.5	156.2	13.2	304.4	165.8	12.1
	136	084	(2)	444.4	150.7	17.7	416.9	158.4	16.6	387.4	167.2	15.4	357.8	177.2	14.2	329.0	187.8	13.1
	146	084	(2)	493.6	157.5	19.6	465.7	166.1	18.5	433.9	175.0	17.3	400.9	185.8	16.0	369.6	197.6	14.7
	161	084	(2)	510.1	166.4	20.3	491.3	180.2	19.6	469.9	196.7	18.7	447.7	216.6	17.8	425.6	239.3	16.9
	171	084	(2)	548.1	181.8	21.8	527.9	197.2	21.0	503.4	215.5	20.0	478.9	237.8	19.1	456.4	262.5	18.2
186	084	(2)	591.3	203.0	23.5	567.5	219.9	22.6	541.0	241.2	21.5	515.5	266.5	20.5	490.6	294.1	19.5	
7	076	084	(1)	246.2	84.4	9.8	230.0	88.4	9.2	212.1	92.5	8.4	193.7	97.7	7.7	176.4	102.9	7.0
	086	084	(1)	281.4	91.0	11.2	263.5	95.6	10.5	244.4	100.2	9.7	224.1	105.7	8.9	204.4	111.9	8.1
	096	094	(1)	314.1	101.0	12.5	294.1	105.9	11.7	272.9	111.3	10.9	250.6	117.7	10.0	229.1	124.6	9.1
	106	074	(1) and 044	360.5	116.1	14.4	339.0	122.0	13.5	315.3	128.0	12.6	290.3	135.1	11.6	265.6	143.3	10.6
	116	074	(1) and 054	386.3	126.2	15.4	363.5	132.5	14.5	337.6	139.2	13.4	311.0	147.3	12.4	285.5	156.1	11.4
	126	074	(2)	424.2	135.9	16.9	399.7	142.8	15.9	372.5	150.0	14.8	343.8	158.4	13.7	315.5	168.2	12.6
	136	084	(2)	458.9	153.7	18.3	431.0	161.4	17.2	401.2	169.9	16.0	370.2	179.9	14.7	340.6	190.6	13.6
	146	084	(2)	510.0	160.6	20.3	481.4	169.2	19.2	449.5	178.2	17.9	415.8	188.4	16.6	382.7	200.6	15.2
	161	084	(2)	525.8	169.1	20.9	507.1	182.9	20.2	485.6	199.2	19.3	462.5	219.0	18.4	439.6	242.2	17.5
	171	084	(2)	565.0	184.8	22.5	544.3	200.4	21.7	520.1	218.5	20.7	494.6	240.7	19.7	470.9	265.9	18.8
186	084	(2)	609.3	206.4	24.3	585.8	223.6	23.3	558.8	244.2	22.3	532.3	270.0	21.2	506.9	298.3	20.2	
8	076	084	(1)	254.2	86.0	10.1	237.6	90.2	9.5	219.5	94.3	8.7	200.7	99.2	8.0	182.4	104.7	7.3
	086	084	(1)	290.6	92.8	11.6	272.5	97.3	10.9	253.0	102.1	10.1	232.3	107.4	9.3	211.8	113.7	8.4
	096	094	(1)	324.4	103.0	12.9	304.0	107.9	12.1	282.3	113.3	11.3	259.5	119.7	10.3	237.4	126.5	9.5
	106	074	(1) and 044	372.3	118.4	14.8	350.2	124.3	14.0	326.5	130.4	13.0	300.9	137.2	12.0	275.1	145.4	11.0
	116	074	(1) and 054	398.9	128.6	15.9	375.5	135.1	15.0	349.4	141.8	13.9	322.2	149.4	12.8	295.4	158.4	11.8
	126	074	(2)	437.9	138.5	17.5	413.1	145.4	16.5	385.7	152.7	15.4	356.3	160.6	14.2	326.7	170.6	13.0
	136	084	(2)	473.6	156.7	18.9	445.3	164.7	17.7	415.2	172.7	16.5	383.0	182.6	15.3	352.5	193.5	14.0
	146	084	(2)	526.7	163.7	21.0	497.3	172.3	19.8	465.6	181.5	18.6	430.9	191.1	17.2	396.1	203.4	15.8
	161	084	(2)	541.7	171.7	21.6	523.1	185.6	20.8	501.5	201.7	20.0	477.1	221.6	19.0	444.5	242.7	17.7
	171	084	(2)	582.1	187.9	23.2	561.4	203.5	22.4	536.8	221.4	21.4	510.5	243.6	20.3	485.9	269.2	19.4
186	084	(2)	627.7	209.8	25.0	604.5	227.3	24.1	577.0	247.3	23.0	548.6	273.5	21.9	514.4	300.0	20.5	
9	076	084	(1)	262.6	87.6	10.5	245.2	92.0	9.8	226.9	96.2	9.0	207.7	100.8	8.3	188.5	106.3	7.5
	086	084	(1)	300.1	94.7	12.0	281.5	99.2	11.2	261.5	104.1	10.4	240.5	109.3	9.6	219.3	115.4	8.7
	096	094	(1)	334.5	105.1	13.3	314.1	110.0	12.5	291.8	115.5	11.6	268.6	121.8	10.7	245.7	128.6	9.8
	106	074	(1) and 044	384.4	120.8	15.3	361.6	126.7	14.4	337.6	132.9	13.5	311.4	139.5	12.4	284.8	147.7	11.4
	116	074	(1) and 054	411.7	131.2	16.4	387.6	137.7	15.5	361.4	144.5	14.4	333.6	151.8	13.3	305.5	160.9	12.2
	126	074	(2)	452.0	141.3	18.0	426.3	148.1	17.0	399.1	155.4	15.9	369.0	163.2				

COMBINATION RATINGS (cont)

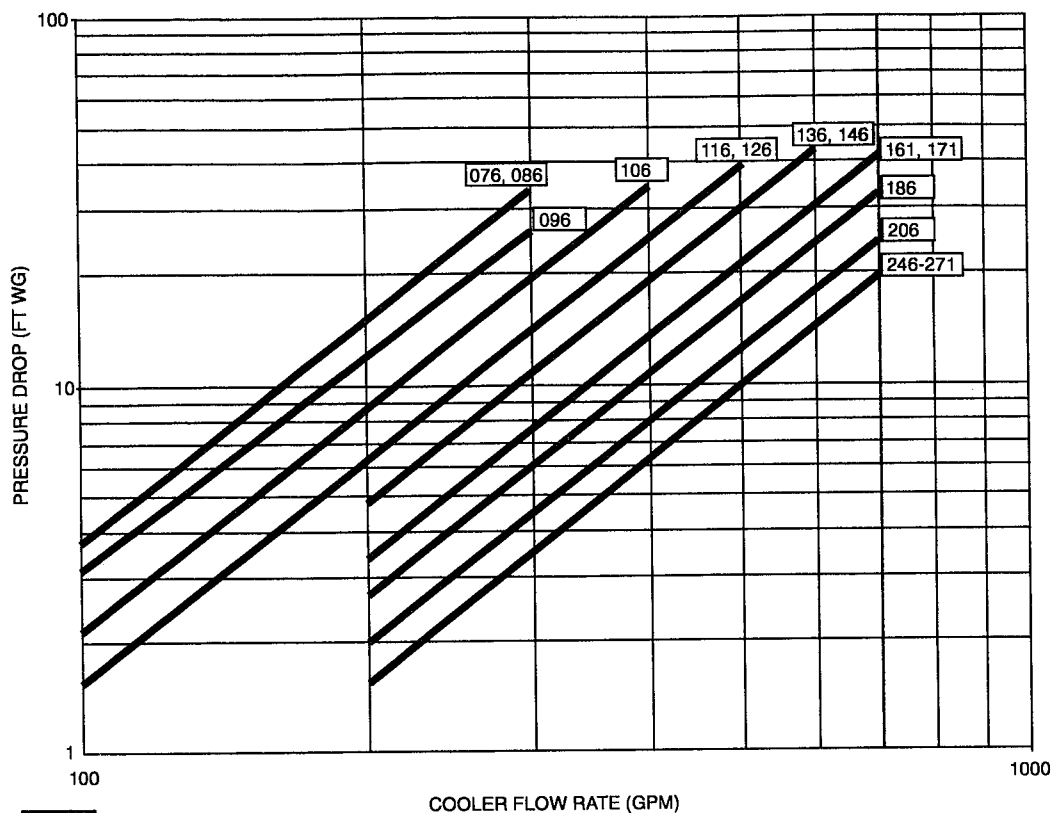
50 Hz, SI

LCWT (C)	UNIT SIZE 30HXA	09DK AIR COOLED CONDENSER Unit (Qty)		CONDENSER ENTERING AIR TEMPERATURE (C)															
				30			35			40			45			50			
				Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	Cap	Input kW	Cooler Flow Rate (L/s)	
4	076	084	(1)	219.7	68.6	8.7	204.2	72.3	8.1	187.6	76.5	7.5	171.3	81.6	6.8	155.6	86.4	6.2	
	086	084	(1)	252.1	75.3	10.0	235.4	79.7	9.4	217.2	84.5	8.6	199.1	90.2	7.9	181.8	95.9	7.2	
	096	094	(1)	282.8	84.9	11.2	263.8	89.9	10.5	243.6	95.7	9.7	223.8	102.0	8.9	204.3	108.5	8.1	
	106	074	(1) and 044	(1)	323.9	94.7	12.9	303.5	100.3	12.1	280.9	106.5	11.2	258.0	114.0	10.3	236.3	121.6	9.4
	116	074	(1) and 054	(1)	348.6	103.3	13.9	326.4	109.3	13.0	302.3	116.2	12.0	278.0	124.6	11.1	255.1	132.7	10.1
	126	074	(2)	383.8	110.0	15.3	360.2	116.6	14.3	334.2	123.7	13.3	307.5	133.1	12.2	282.9	142.3	11.2	
	136	084	(2)	415.9	126.7	16.5	389.5	133.9	15.5	360.8	143.2	14.3	333.2	153.4	13.2	306.3	163.5	12.2	
	146	084	(2)	461.2	133.2	18.3	433.6	141.4	17.2	403.1	150.2	16.0	372.0	161.7	14.8	343.5	173.1	13.7	
	161	084	(2)	479.6	142.7	19.1	461.1	156.2	18.3	439.8	173.2	17.5	418.9	193.2	16.7	399.7	214.8	15.9	
	171	084	(2)	513.7	157.2	20.4	493.0	172.1	19.6	469.9	190.9	18.7	448.0	212.7	17.8	428.0	236.0	17.0	
186	084	(2)	555.3	177.6	22.1	531.1	193.9	21.1	505.5	216.4	20.1	482.9	240.8	19.2	461.7	266.8	18.4		
5	076	084	(1)	227.0	70.1	9.0	211.5	73.9	8.4	194.7	77.9	7.7	177.5	83.1	7.1	161.5	88.0	6.4	
	086	084	(1)	260.8	76.9	10.4	243.8	81.4	9.7	225.3	86.1	9.0	206.6	91.8	8.2	188.7	97.5	7.5	
	096	094	(1)	292.5	86.9	11.6	273.1	91.8	10.9	252.7	97.6	10.1	232.1	103.8	9.2	212.2	110.4	8.4	
	106	074	(1) and 044	(1)	335.0	96.7	13.3	314.2	102.5	12.5	291.6	108.4	11.6	267.8	115.9	10.7	245.3	123.7	9.8
	116	074	(1) and 054	(1)	360.6	105.5	14.3	338.2	111.7	13.5	313.6	118.1	12.5	288.1	126.8	11.5	264.7	135.1	10.5
	126	074	(2)	396.9	112.3	15.8	373.2	119.0	14.8	346.8	126.0	13.8	319.2	135.3	12.7	293.5	144.7	11.7	
	136	084	(2)	430.4	129.4	17.1	403.2	136.9	16.0	374.1	146.0	14.9	345.4	156.0	13.7	317.7	166.4	12.6	
	146	084	(2)	476.9	135.9	19.0	449.4	144.4	17.9	418.1	152.9	16.6	385.9	164.3	15.4	356.3	175.9	14.2	
	161	084	(2)	494.9	145.3	19.7	476.4	159.0	19.0	454.7	175.8	18.1	433.3	195.7	17.2	412.5	217.9	16.4	
	171	084	(2)	530.1	159.8	21.1	509.7	174.8	20.3	485.7	193.4	19.3	462.5	215.6	18.4	441.6	239.5	17.6	
186	084	(2)	573.4	181.0	22.8	549.5	197.6	21.9	522.8	219.5	20.8	498.9	244.4	19.9	475.9	271.2	18.9		
6	076	084	(1)	234.6	71.6	9.3	219.0	75.5	8.7	201.8	79.4	8.0	184.1	84.6	7.3	167.6	89.6	6.7	
	086	084	(1)	269.6	78.7	10.7	252.1	83.2	10.0	233.6	87.8	9.3	214.1	93.3	8.5	195.4	99.3	7.8	
	096	094	(1)	302.2	88.9	12.0	282.6	93.8	11.2	261.9	99.4	10.4	240.6	105.6	9.6	219.7	112.4	8.7	
	106	074	(1) and 044	(1)	346.3	98.9	13.8	325.4	104.6	13.0	302.2	110.5	12.0	277.8	117.9	11.1	254.4	125.8	10.1
	116	074	(1) and 054	(1)	372.7	107.7	14.8	350.2	114.0	13.9	325.0	120.4	12.9	299.1	128.9	11.9	274.5	137.5	10.9
	126	074	(2)	410.0	114.6	16.3	386.3	121.5	15.4	359.3	128.6	14.3	331.2	137.5	13.2	304.3	147.1	12.1	
	136	084	(2)	444.7	132.2	17.7	417.1	139.9	16.6	387.7	148.7	15.4	358.0	158.7	14.3	329.2	169.3	13.1	
	146	084	(2)	493.0	138.7	19.6	465.2	147.3	18.5	433.4	156.1	17.3	400.5	166.9	15.9	369.2	178.8	14.7	
	161	084	(2)	510.4	148.0	20.3	491.7	161.7	19.6	470.2	178.3	18.7	448.0	198.1	17.8	425.8	220.9	17.0	
	171	084	(2)	546.7	162.6	21.8	526.5	177.9	21.0	502.2	196.2	20.0	477.7	218.4	19.0	455.3	243.0	18.1	
186	084	(2)	591.3	184.4	23.5	567.5	201.3	22.6	541.0	222.6	21.5	515.5	247.9	20.5	490.6	275.5	19.5		
7	076	084	(1)	242.3	73.2	9.7	226.6	77.1	9.0	209.0	81.1	8.3	190.9	86.1	7.6	173.8	91.2	6.9	
	086	084	(1)	278.5	80.5	11.1	260.8	84.9	10.4	242.0	89.5	9.6	221.9	94.9	8.8	202.5	101.0	8.1	
	096	094	(1)	312.2	90.9	12.4	292.2	95.8	11.6	271.3	101.2	10.8	249.1	107.5	9.9	227.8	114.3	9.1	
	106	074	(1) and 044	(1)	357.8	101.1	14.3	336.4	106.8	13.4	313.1	112.8	12.5	288.3	119.8	11.5	263.7	127.9	10.5
	116	074	(1) and 054	(1)	385.0	110.0	15.3	362.2	116.4	14.4	336.5	123.0	13.4	310.0	131.0	12.3	284.4	139.8	11.3
	126	074	(2)	423.9	117.1	16.9	399.4	124.0	15.9	372.2	131.3	14.8	343.6	139.6	13.7	315.3	149.4	12.6	
	136	084	(2)	459.2	135.2	18.3	431.3	142.9	17.2	401.4	151.5	16.0	370.4	161.4	14.8	340.8	172.2	13.6	
	146	084	(2)	509.4	141.8	20.3	480.9	150.4	19.2	449.0	159.3	17.9	415.4	169.5	16.5	382.3	181.7	15.2	
	161	084	(2)	526.1	150.6	21.0	507.4	164.4	20.2	485.9	180.8	19.4	462.8	200.6	18.4	439.9	223.8	17.5	
	171	084	(2)	563.6	165.6	22.4	542.9	181.1	21.6	518.9	199.2	20.7	493.4	221.3	19.7	469.8	246.4	18.7	
186	084	(2)	609.3	187.8	24.3	585.8	205.0	23.3	558.8	225.6	22.3	532.3	251.4	21.2	506.9	279.7	20.2		
8	076	084	(1)	250.3	74.7	10.0	234.1	78.8	9.3	216.3	82.9	8.6	197.8	87.6	7.9	179.9	92.9	7.2	
	086	084	(1)	287.7	82.3	11.5	269.7	86.6	10.7	250.5	91.4	10.0	230.0	96.6	9.2	209.8	102.7	8.4	
	096	094	(1)	322.1	93.0	12.8	302.1	97.8	12.0	280.7	103.1	11.2	257.9	109.6	10.3	236.0	116.3	9.4	
	106	074	(1) and 044	(1)	369.5	103.3	14.7	347.6	109.0	13.9	324.1	115.2	12.9	298.8	121.9	11.9	273.2	130.0	10.9
	116	074	(1) and 054	(1)	397.5	112.4	15.8	374.2	118.9	14.9	348.3	125.6	13.9	321.2	133.2	12.8	294.5	142.1	11.7
	126	074	(2)	437.6	119.7	17.4	412.6	126.7	16.4	385.4	133.9	15.4	356.1	141.8	14.2	326.5	151.9	13.0	
	136	084	(2)	473.9	138.3	18.9	445.6	146.2	17.8	415.5	154.3	16.6	383.5	164.1	15.3	352.7	175.1	14.1	
	146	084	(2)	526.1	144.9	21.0	496.7	153.5	19.8	465.1	162.7	18.5	430.5	172.2	17.2	395.7	184.5	15.8	
	161	084	(2)	542.0	153.3	21.6	523.4	167.1	20.9	501.8	183.3	20.0	477.4	203.1	19.0	444.7	224.3	17.7	
	171	084	(2)	580.6	168.8	23.1	560.0	184.3	22.3	535.6	202.1	21.3	509.4	224.1	20.3	484.7	249.6	19.3	
186	084	(2)	627.7	191.2	25.0	604.5	208.7	24.1	577.0	228.7	23.0	548.6	254.9	21.9	514.4	281.4	20.5		
9	076	084	(1)	258.3	76.3	10.3	241.5	80.6	9.6	223.7	84.7	8.9	204.8	89.1	8.2	185.7	94.6	7.4	
	086	084	(1)	297.0	84.1	11.8	278.6	88.5	11.1	259.0	93.3	10.3	238.2	98.5	9.5	217.2	104.5	8.7	
	096	094	(1)	332.7	95.0	13.3	312.2	99.9	12.4	290.1	105.3	11.6	267.0	111.6	10.6	244.3	118.3	9.7	
	106	074	(1) and 044	(1)	381.5	105.6	15.2	358.9	111.4	14.3	335.2	117.6	13.4	309.5	124.1	12.3	282.8	132.2	11.3
	116	074	(1) and 054	(1)	410.3	115.1	16.4	386.3	121.6	15.4	360.3	128.3	14.4	332.5	135.5	13.3	304.4	144.6	12.1
	126	074	(2)	451.7	122.5	18.0	426.0	129.4	17.0	398.8	136.7	15.9	368.7	144.4	14.7	338.0	154.3	13.5	

Performance data (cont)



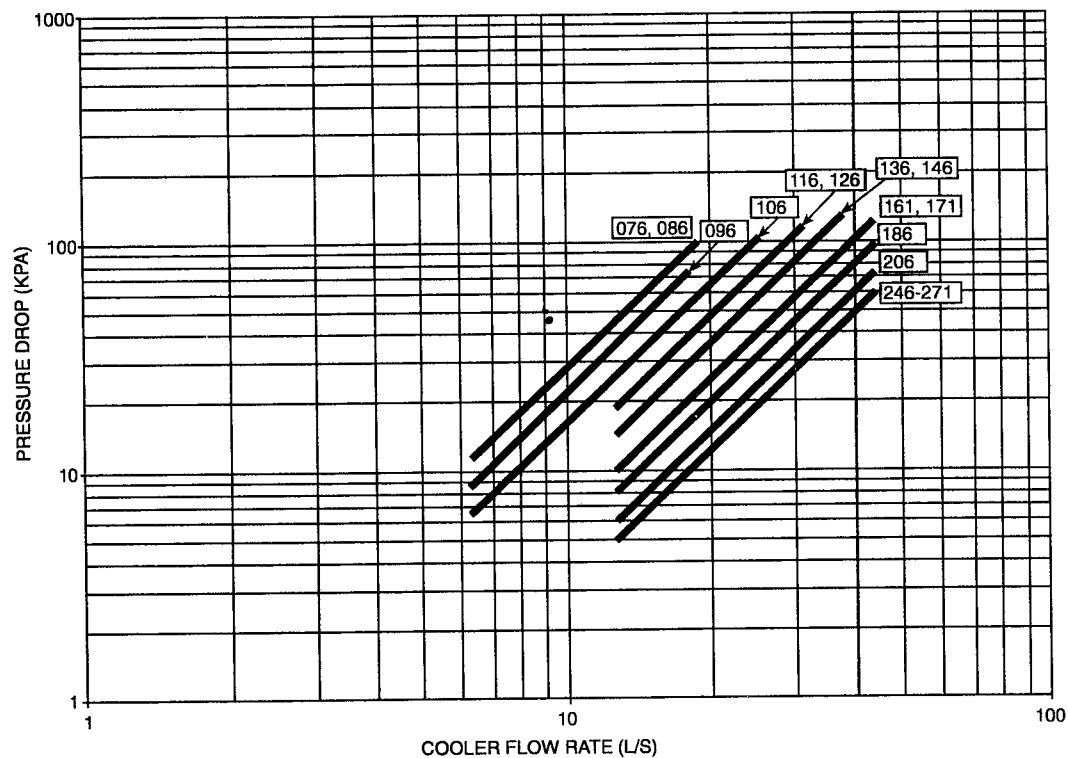
COOLER PRESSURE DROP ENGLISH



— Unit size range

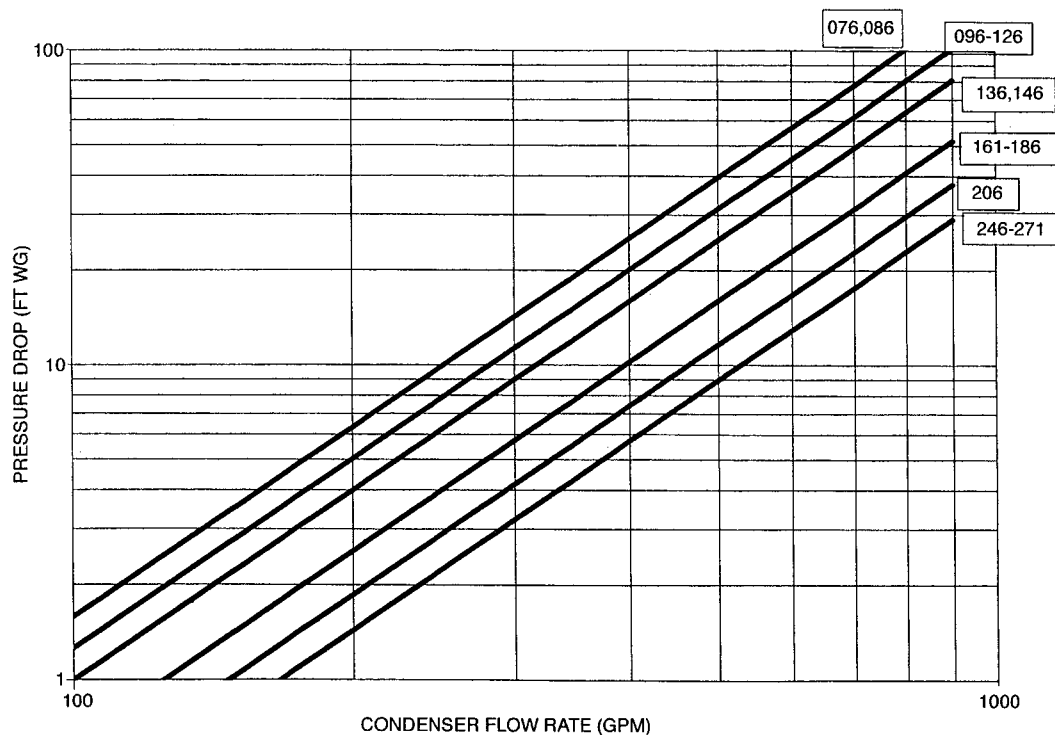
NOTE: Ft of water = 2.31 x change in psig

SI



— Unit size range

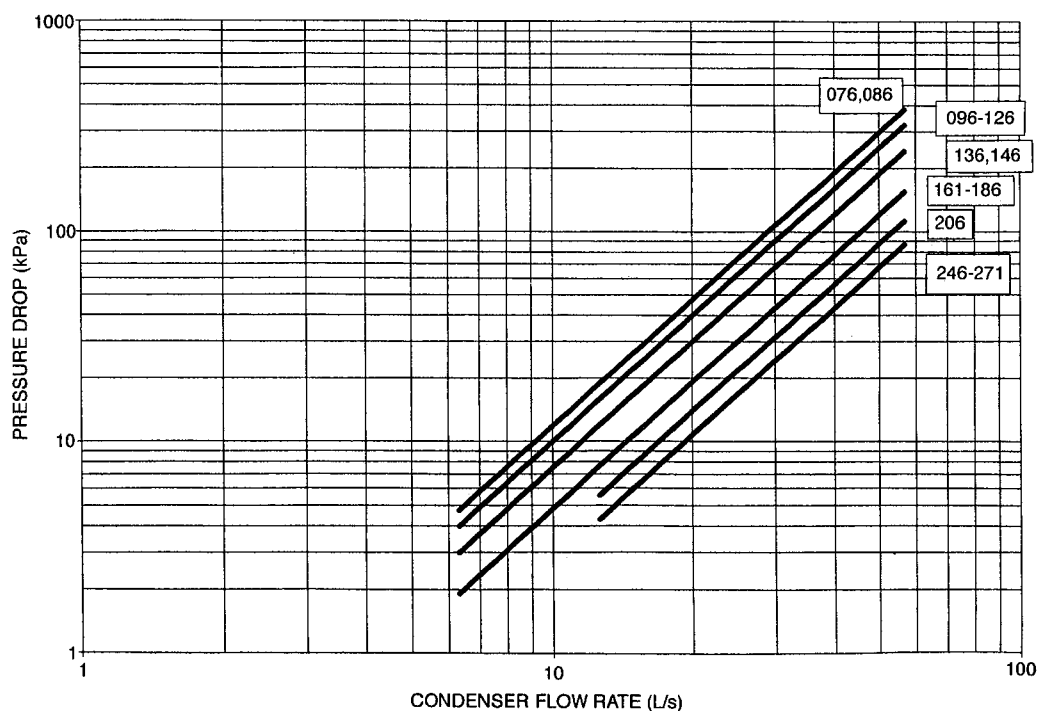
CONDENSER PRESSURE DROP ENGLISH



— Unit size range

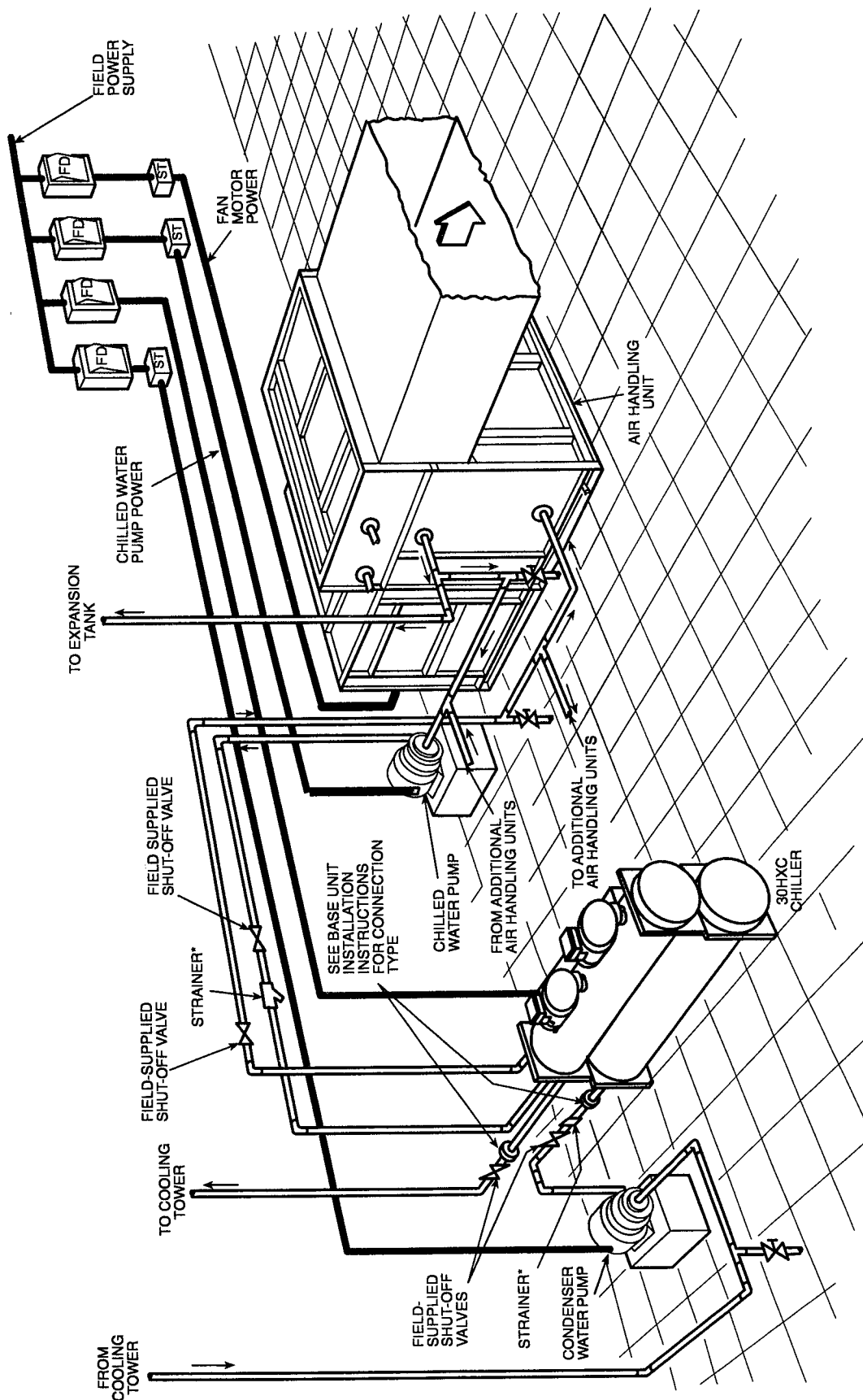
NOTE: Ft of water = 2.31 x change in psig.

SI



— Unit size range

Typical piping and wiring Cooler (30HXA,HXC) and condenser (30HXC only)

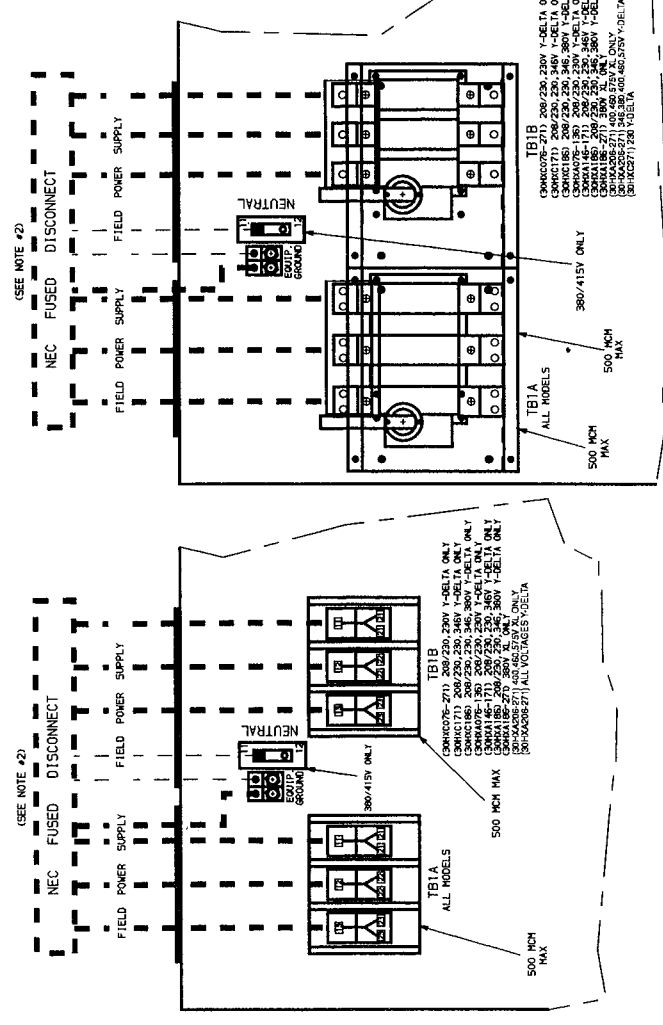
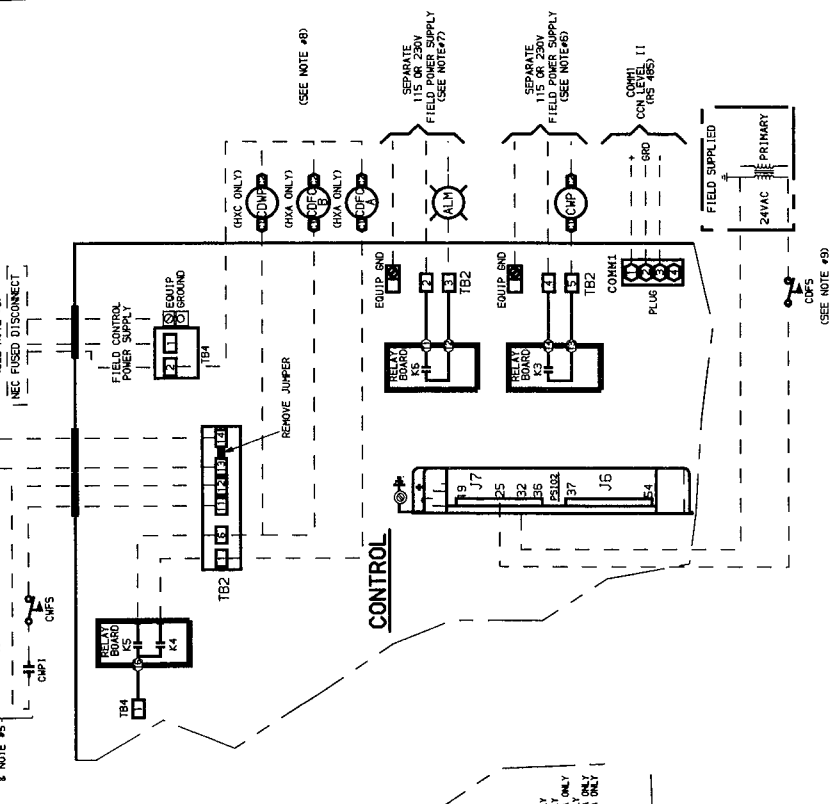


NOTES:

1. Chiller must be installed level to maintain proper compressor oil return.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) handbook for details.
5. See Application Data section on page 15 for minimum cooler loop volume. This system may require the addition of a holding tank to ensure adequate volume.

NON-FUSED DISCONNECT OPTION

STANDARD POWER



LEGEND

- ALM — Alarm
- CCN — Carrier Comfort Network
- CDFC — Condenser Fan Contactor
- CDWS — Condenser Water Pump
- CWFS — Chilled Water Flow Switch
- CWPI — Chilled Water Pump Interlock
- TB — Terminal Block
- Field Power Wiring
- Field Control Wiring
- Factory-Installed Wiring

NOTES:

1. Factory wiring is in accordance with National Electrical Code (NEC). Field modifications or additions must be in compliance with all applicable codes.
2. Wiring for main field supply must be rated 75° C minimum. Use copper for all units. Maximum incoming wire size for each terminal block is 500 kcmil.
3. Power for control circuit should be supplied from a separate source (except 380/415 v units) through a field supplied disconnect with a 30 amp maximum protection for 230 volt control circuit. Connect control circuit power to terminals 1 and 2 of TB4. Control circuit conductors for all units must be copper only. Control circuit power is factory wired for 380/415 v units. Terminals 13 and 14 of TB2 are for field external connection for remote ON-OFF. The contacts must be rated for dry circuit application capable of handling a 24 vac to 50 mA load. Remove jumper between 13 and 14 of TB2 if remote ON-OFF is installed.

5. Terminals 11 and 12 of TB2 are for chilled water flow switch (CWFS) and chilled water pump interlock (CWPI) functions. The contacts must be rated for dry circuit application capable of handling a 24 vac to 50 mA load.
6. Terminals 4 and 5 of TB2 are for control of chilled water pump starter. The maximum load allowed for the chilled water pump relay is 125 va inrush at 115 or 230 volt.
7. Terminals 2 and 3 of TB2 are for alarm. The maximum load allowed for the alarm is 125 va sealed, 1250 va inrush at 115 or 230 volt.
8. Terminal 6 of TB2 is for condenser water pump (HXC only) or Circuit B condenser fan contactor (HXA only). Terminal 1 of TB2 is Circuit A condenser fan contactor (HXA only). The maximum load allowed is 125 va sealed, 1250 va inrush at 115 or 230 volt. Install CDWP or CDWC-B between TB2-6 and TB4-2 (unit control power neutral). Install CDWC-A between TB2-1 and TB4-2 (unit control power neutral). Separate field power supply is not required.
9. Terminals J7-25 and J7-32 of PSIO2 (processor module) are for condenser flow switch (CDFS). The contacts must be rated for dry circuit application capable of handling a 24 vac to 50 mA load. Separate field power supply is required.

ELECTRICAL DATA, 30HXC UNITS

UNIT 30HXC	VOLTAGE			POWER CIRCUIT*			CONTROL CIRCUIT					ICF	
	Nameplate V-Hz (3 Ph)	Supplied		MCA	MOCP	Recommended Fuse Size	Voltage (Single Ph)	Min	Max	MCA	MOCP	WD	XL
		Min	Max										
076	208/230-60						115-60	104	127	15	15	307	†
	Ckt A	187	253	123	200	175						307	†
	Ckt B	187	253	123	200	150						148	374
	460-60	414	506	100	150	125	115-60	104	127	15	15	118	299
	575-60	518	633	80	110	100	115-60	104	127	15	15	169	419
	380-60	342	418	121	175	150	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	115	200	150						266	†
	Ckt B	207	253	115	200	150						266	†
	346-50	325	380	138	175	175	230-50	207	253	15	15	118	†
	380/415-50	342	440	126	175	150	230-50	207	253	—	—	165	400
086	208/230-60						115-60	104	127	15	15	307	†
	Ckt A	187	253	148	250	200						307	†
	Ckt B	187	253	123	200	150						148	374
	460-60	414	506	111	150	125	115-60	104	127	15	15	118	299
	575-60	518	633	89	125	100	115-60	104	127	15	15	169	419
	380-60	342	418	135	200	175	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	140	250	75						305	†
	Ckt B	207	253	115	200	150						305	†
	346-50	325	380	154	225	175	230-50	207	253	15	15	208	†
	380/415-50	342	440	140	200	175	230-50	207	253	—	—	190	479
096	208/230-60						115-60	104	127	15	15	354	†
	Ckt A	187	253	181	300	225						354	†
	Ckt B	187	253	122	200	150						172	449
	460-60	414	506	126	175	150	115-60	104	127	15	15	137	359
	575-60	518	633	101	150	125	115-60	104	127	15	15	195	502
	380-60	342	418	153	225	175	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	169	300	225						347	†
	Ckt B	207	253	115	200	150						347	†
	346-50	325	380	173	250	200	230-50	207	253	15	15	237	†
	380/415-50	342	440	158	225	200	230-50	207	253	—	—	216	562
106	208/230-60						115-60	104	127	15	15	405	†
	Ckt A	187	253	219	350	300						405	†
	Ckt B	187	253	123	200	150						197	529
	460-60	414	506	143	200	175	115-60	104	127	15	15	158	423
	575-60	518	633	115	175	150	115-60	104	127	15	15	223	590
	380-60	342	418	174	250	200	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	202	350	250						397	†
	Ckt B	207	253	115	200	150						397	†
	346-50	325	380	195	300	225	230-50	207	253	15	15	271	†
	380/415-50	342	440	178	250	225	230-50	207	253	—	—	247	661
116	208/230-60						115-60	104	127	15	15	426	†
	Ckt A	187	253	219	350	300						426	†
	Ckt B	187	253	148	250	200						207	539
	460-60	414	506	153	225	175	115-60	104	127	15	15	166	431
	575-60	518	633	122	175	150	115-60	104	127	15	15	234	601
	380-60	342	418	185	250	225	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	202	350	250						417	†
	Ckt B	207	253	140	250	175						417	†
	346-50	325	380	208	300	250	230-50	207	253	15	15	284	†
	380/415-50	342	440	190	250	225	230-50	207	253	—	—	259	673
126	208/230-60						115-60	104	127	15	15	452	†
	Ckt A	187	253	219	350	300						452	†
	Ckt B	187	253	181	300	225						219	551
	460-60	414	506	165	225	200	115-60	104	127	15	15	175	440
	575-60	518	633	131	175	150	115-60	104	127	15	15	248	615
	380-60	342	418	199	250	225	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	202	350	250						440	†
	Ckt B	207	253	169	300	225						440	†
	346-50	325	380	224	300	250	230-50	207	253	15	15	300	†
	380/415-50	342	440	204	300	250	230-50	207	253	—	—	273	687
136	208/230-60						115-60	104	127	15	15	512	†
	Ckt A	187	253	263	450	350						512	†
	Ckt B	187	253	181	300	225						249	646
	460-60	414	506	184	250	225	115-60	104	127	15	15	199	536
	575-60	518	633	147	200	175	115-60	104	127	15	15	282	720
	380-60	342	418	222	300	300	230-60	207	253	15	15		
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	245	400	300						496	†
	Ckt B	207	253	169	300	225						496	†
	346-50	325	380	252	350	300	230-50	207	253	15	15	338	†
	380/415-50	342	440	230	300	300	230-50	207	253	—	—	308	797

See legend and notes on page 42.

ELECTRICAL DATA, 30HXC UNITS (cont)

UNIT 30HXC	VOLTAGE			POWER CIRCUIT*			CONTROL CIRCUIT					ICF	
	Nameplate V-Hz (3 Ph)	Supplied		MCA	MOCP	Recommended Fuse Size	Voltage (Single Ph)	Min	Max	MCA	MOCP	WD	XL
		Min	Max										
146	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	263	450	350						542	†
	Ckt B	187	253	219	350	300						542	†
	460-60	414	506	198	250	225	115-60	104	127	15	15	262	659
	575-60	518	633	158	225	200	115-60	104	127	15	15	210	547
	380-60	342	418	240	350	300	230-60	207	253	15	15	299	737
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	245	400	300						523	†
	Ckt B	207	253	202	350	250						523	†
	346-50	325	380	270	400	350	230-50	207	253	15	15	355	†
	380/415-50	342	440	246	350	300	230-50	207	253	—	—	324	813
161	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	285	500	350						591	†
	Ckt B	187	253	197	350	250						591	†
	460-60	414	506	200	300	250	115-60	104	127	15	15	287	756
	575-60	518	633	160	225	200	115-60	104	127	15	15	230	605
	380-60	342	418	242	350	300	230-60	207	253	15	15	325	843
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	266	450	350						578	†
	Ckt B	207	253	182	300	225						578	†
	346-50	325	380	273	400	350	230-50	207	253	15	15	394	†
	380/415-50	342	440	249	350	300	230-50	207	253	—	—	358	944
171	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	238	400	300						624	†
	Ckt B	187	253	285	500	400						624	†
	460-60	414	506	215	300	250	115-60	104	127	15	15	302	771
	575-60	518	633	172	250	200	115-60	104	127	15	15	242	617
	380-60	342	418	260	350	300	230-60	207	253	15	15	343	861
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	219	350	300						607	†
	Ckt B	207	253	266	450	350						607	†
	346-50	325	380	145/176	250/300	175/225	230-50	207	253	15	15	413	†
	380/415-50	342	440	267	350	300	230-50	207	253	—	—	376	962
186	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	285	500	400						661	†
	Ckt B	187	253	285	500	400						661	†
	460-60	414	506	232	300	300	115-60	104	127	15	15	319	788
	575-60	518	633	185	250	225	115-60	104	127	15	15	255	630
	380-60	342	418	281	400	350	230-60	207	253	15	15	364	882
	230-50						230-60	207	253	15	15		
	Ckt A	207	253	266	450	350						645	†
	Ckt B	207	253	266	450	350						645	†
	346-50	325	380	176/176	300/300	225/225	230-50	207	253	15	15	438	†
	380/415-50	342	440	289	400	350	230-50	207	253	—	—	399	985
206	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	345	500	400						907	†
	Ckt B	187	253	285	500	350						907	†
	460-60	414	506	263	350	300	115-60	104	127	15	15	247	716
	575-60	518	633	210	250	250	115-60	104	127	15	15	198	573
	380-60	342	418	319	400	350	230-60	207	253	15	15	277	795
	346-50	325	380	358	450	400	230-50	207	253	15	15	338	†
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	318	450	400						892	†
	Ckt B	207	253	266	450	350						892	†
	380/415-50	342	440	327	450	400	230-50	207	253	—	—	307	893

See legend and notes on page 42

Electrical data (cont)



ELECTRICAL DATA, 30HXC UNITS (cont)

UNIT 30HXC	VOLTAGE			POWER CIRCUIT*			CONTROL CIRCUIT					ICF	
	Nameplate V-Hz (3 Ph)	Supplied					Voltage (Single Ph)	Min	Max	MCA	MOCP		
		Min	Max	MCA	MOCP	Recommended Fuse Size							
246	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	443	600	600						1024	†
	Ckt B	187	253	285	500	350						1024	†
	460-60	414	506	303	400	350	115-60	104	127	15	15	287	756
	575-60	518	633	242	300	300	115-60	104	127	15	15	230	605
	380-60	342	418	367	450	400	230-60	207	253	15	15	325	843
	346-50	325	380	414	500	450	230-50	207	253	15	15	394	†
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	411	600	500						1010	†
	Ckt B	207	253	266	450	350						1010	†
	380/415-50	342	440	378	500	450	230-50	207	253	—	—	358	944
	261	208/230-60						115-60	104	127	15	15	
Ckt A		187	253	476	700	600						1057	†
Ckt B		187	253	285	500	350						1057	†
460-60		414	506	318	400	350	115-60	104	127	15	15	302	771
575-60		518	633	254	300	300	115-60	104	127	15	15	242	617
380-60		342	418	385	500	450	230-60	207	253	15	15	343	861
346-50		325	380	433	500	500	230-50	207	253	15	15	413	†
230-50							230-50	207	253	15	15		
Ckt A		207	253	400	600	500						1039	†
Ckt B		207	253	266	450	350						1039	†
380/415-50		342	440	395	500	450	230-50	207	253	—	—	376	962
271		208/230-60						115-60	104	127	15	15	
	Ckt A	187	253	514	700	600						1094	†
	Ckt B	187	253	285	500	350						1094	†
	460-60	414	506	335	400	400	115-60	104	127	15	15	319	788
	575-60	518	633	268	350	300	115-60	104	127	15	15	255	630
	380-60	342	418	406	500	450	230-60	207	253	15	15	364	882
	346-50	325	380	458	500	500	230-50	207	253	15	15	438	†
	230-50						230-50	207	253	15	15		
	Ckt A	207	253	478	600	60						1077	†
	Ckt B	207	253	266	450	350						1077	†
	380/415-50	342	440	418	500	350	230-50	207	253	—	—	399	985

LEGEND

- FLA — Full Load Amps
 ICF — Maximum Instantaneous Current Flow during start-up (the point in the starting sequence where the sum of the LRA for the start-up compressor, plus the total RLA for all running compressors, plus the total FLA for all running fan motors is at a maximum)
 LRA — Locked Rotor Amps
 MCA — Minimum Circuit Ampacity (for wire sizing)
 MOCP — Maximum Overcurrent Protection
 RLA — Rated Load Amps
 WD — Wye-Delta Start
 XL — Across-the-Line Start

*Units with one MCA, MOCP, and fuse size value have one terminal block and require one power supply. Units with one MCA, MOCP, and fuse value for Circuit A and another for Circuit B have 2 terminal blocks and require 2 power supplies
 †Wye-Delta Start is standard. Not available in across-the-line start.

NOTES:

- Each main power source must be supplied from a field-supplied fused electrical service with a (factory- or field-installed) disconnect located in sight from the unit
- Control circuit power must be supplied from a separate source through a field-supplied disconnect (except for 380/415-50 units). An accessory control transformer may be used to provide control circuit power from the main unit power supply
- Maximum incoming wire size for each terminal block is 500 kcmil
- Maximum allowable phase imbalance is: voltage, 2%; amps, 5%
- Use copper conductors only

6 The MOCP is calculated as follows:

MOCP = (2 25) (largest RLA) + the sum of the other RLAs. Size the fuse one size down from the result. The RLAs are listed on the unit nameplate

The recommended fuse size in amps (RFA) is calculated as follows:

RFA = (1 50) (largest RLA) + the sum of the other RLAs. Size the fuse one size up from the result. The RLAs are listed on the unit nameplate

VOLTAGE	TERMINAL BLOCKS OR NON-FUSED DISCONNECTS	CONDUCTORS
208/230	2	6
460	1	3
575	1	3
380**	1	3
230	2	6
380/415	1	3
346	2	6



ELECTRICAL DATA, 30HXA UNITS

UNIT 30HXA	VOLTAGE			POWER CIRCUIT*			CONTROL CIRCUIT					ICF	
	Nameplate V-Hz (3 Ph)	Supplied		MCA	MOCP	Recommended Fuse Size	Voltage (Single Ph)	Min	Max	MCA	MOCP	WD	XL
		Min	Max										
076	208/230-60						115-60	104	127	15	15	451	†
	Ckt A	187	253	180	300	225						451	†
	Ckt B	187	253	180	300	225						218	550
	460-60	414	506	146	200	175	115-60	104	127	15	15	175	440
	575-60	518	633	117	150	150	115-60	104	127	15	15	248	615
	380-60	342	418	177	250	200	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	169	300	225						440	†
	Ckt B	207	253	169	300	225						440	†
	346-50	325	380	201	250	225	230-50	207	254	15	15	299	†
	380/415-50	342	440	183	250	225	230-50	207	254	—	—	273	687
086	208/230-60						115-60	104	127	15	15	511	†
	Ckt A	187	253	215	350	300						511	†
	Ckt B	187	253	180	300	225						248	645
	460-60	414	506	162	225	200	115-60	104	127	15	15	199	536
	575-60	518	633	130	175	150	115-60	104	127	15	15	282	720
	380-60	342	418	196	250	225	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	205	350	250						496	†
	Ckt B	207	253	169	300	225						496	†
	346-50	325	380	252	300	300	230-50	207	254	15	15	337	†
	380/415-50	342	440	206	300	250	230-50	207	254	—	—	308	797
096	208/230-60						115-60	104	127	15	15	577	†
	Ckt A	187	253	180	300	225						577	†
	Ckt B	187	253	180	300	225						281	750
	460-60	414	506	183	250	225	115-60	104	127	15	15	225	600
	575-60	518	633	147	200	175	115-60	104	127	15	15	318	836
	380-60	342	418	222	300	300	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	248	400	300						567	†
	Ckt B	207	253	169	300	225						567	†
	346-50	325	380	254	350	300	230-50	207	254	15	15	386	†
	380/415-50	342	440	231	350	300	230-50	207	254	—	—	352	938
106	208/230-60						115-60	104	127	15	15	662	†
	Ckt A	187	253	319	500	400						662	†
	Ckt B	187	253	180	300	225						324	885
	460-60	414	506	209	300	250	115-60	104	127	15	15	259	708
	575-60	518	633	167	250	200	115-60	104	127	15	15	365	985
	380-60	342	418	253	350	300	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	300	500	400						620	†
	Ckt B	207	253	169	300	225						620	†
	346-50	325	380	289	400	350	230-50	207	254	15	15	423	†
	380/415-50	342	440	263	400	300	230-50	207	254	—	—	385	1042
116	208/230-60						115-60	104	127	15	15	690	†
	Ckt A	187	253	319	500	400						690	†
	Ckt B	187	253	215	350	300						337	898
	460-60	414	506	222	300	300	115-60	104	127	15	15	269	718
	575-60	518	633	177	250	200	115-60	104	127	15	15	380	1000
	380-60	342	418	269	400	350	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	300	500	400						649	†
	Ckt B	207	253	205	350	250						443	†
	346-50	325	380	308	450	350	230-50	207	254	15	15	402	†
	380/415-50	342	440	281	400	350	230-50	207	254	—	—		1059
126	208/230-60						115-60	104	127	15	15	728	†
	Ckt A	187	253	319	500	400						728	†
	Ckt B	187	253	262	450	350						354	915
	460-60	414	506	239	350	300	115-60	104	127	15	15	283	732
	575-60	518	633	191	250	225	115-60	104	127	15	15	401	1021
	380-60	342	418	289	400	350	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	300	500	400						683	†
	Ckt B	207	253	248	400	300						683	†
	346-50	325	380	331	400	400	230-50	207	254	15	15	465	†
	380/415-50	342	440	302	400	350	230-50	207	254	—	—	423	1080
136	208/230-60						115-60	104	127	15	15	791	†
	Ckt A	187	253	389	700	500						791	†
	Ckt B	187	253	262	450	350						386	1015
	460-60	414	506	271	400	350	115-60	104	127	15	15	309	812
	575-60	518	633	216	300	250	115-60	104	127	15	15	436	1132
	380-60	342	418	328	450	400	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	369	600	450						817	†
	Ckt B	207	253	248	400	300						817	†
	346-50	325	380	245/164	400/250	300/200	230-50	207	254	15	15	557	†
	380/415-50	342	440	343	500	400	230-50	207	254	—	—	507	1346

See legend and notes on page 44

Electrical data (cont)



ELECTRICAL DATA, 30HXA UNITS (cont)

UNIT 30HXA	VOLTAGE			POWER CIRCUIT*			CONTROL CIRCUIT					ICF	
	Nameplate V-Hz (3 Ph)	Supplied											
		Min	Max	MCA	MOCP	Recommended Fuse Size	Voltage (Single Ph)	Min	Max	MCA	MOCP	WD	XL
146	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	389	700	500						837	†
	Ckt B	187	253	319	500	400						837	†
	460-60	414	506	291	400	350	115-60	104	127	15	15	406	1035
	575-60	518	633	233	300	300	115-60	104	127	15	15	325	828
	380-60	342	418	353	500	400	230-60	207	254	15	15	461	1157
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	369	600	450						859	†
	Ckt B	207	253	300	500	400						859	†
	346-50	325	380	245/199	400/350	300/250	230-50	207	254	15	15	585	†
380/415-50	342	440	369	500	450	230-50	207	254	—	—	532	1371	
161	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	437	700	600						979	†
	Ckt B	187	253	295	500	400						979	†
	460-60	414	506	304	450	350	115-60	104	127	15	15	478	1282
	575-60	518	633	243	350	300	115-60	104	127	15	15	382	1025
	380-60	342	418	368	500	450	230-60	207	254	15	15	539	1428
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	415	700	500						858	†
	Ckt B	207	253	275	450	350						858	†
	346-50	325	380	276/183	450/300	350/225	230-50	207	254	15	15	535	†
380/415-50	342	440	385	500	450	230-50	207	254	—	—	533	1398	
171	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	359	600	450						1030	†
	Ckt B	187	253	437	700	600						1030	†
	460-60	414	506	327	450	400	115-60	104	127	15	15	501	1305
	575-60	518	633	261	350	300	115-60	104	127	15	15	401	1044
	380-60	342	418	396	500	450	230-60	207	254	15	15	567	1456
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	334	600	450						905	†
	Ckt B	207	253	415	700	500						905	†
	346-50	325	380	222/276	350/450	300/350	230-50	207	254	15	15	616	†
380/415-50	342	440	413	600	500	230-50	207	254	—	—	562	1427	
186	208/230-60						115-60	104	127	15	15		
	Ckt A	187	253	437	700	600						1093	†
	Ckt B	187	253	437	700	600						1093	†
	460-60	414	506	355	500	400	115-60	104	127	15	15	529	1333
	575-60	518	633	284	400	350	115-60	104	127	15	15	539	1066
	380-60						230-60	207	254	15	15	601	1490
	Ckt A	342	418	239	400	300	230-60	207	254	15	15	601	1490
	Ckt B	342	418	239	400	300	230-60	207	254	15	15		
	230-50						230-50	207	254	15	15		
	Ckt A	207	253	415	700	500						970	†
Ckt B	207	253	415	700	500						970	†	
346-50	325	380	276/276	450/450	350/350	230-50	207	254	15	15	660	†	
380/415-50	342	440	453	600	600	230-50	207	254	—	—	601	1466	

LEGEND

- FLA — Full Load Amps
 ICF — Maximum Instantaneous Current Flow during start-up (the point in the starting sequence where the sum of the LRA for the start-up compressor, plus the total RLA for all running compressors, plus the total FLA for all running fan motors is at a maximum)
 LRA — Locked Rotor Amps
 MCA — Minimum Circuit Ampacity (for wire sizing)
 MOCP — Maximum Overcurrent Protection
 RLA — Rated Load Amps
 WD — Wye-Delta Start
 XL — Across-the-Line Start

*Units with one MCA, MOCP, and fuse size value have one terminal block and require one power supply. Units with one MCA, MOCP, and fuse value for Circuit A and another for Circuit B have 2 terminal blocks and require 2 power supplies.
 †Wye-Delta Start is standard. Not available in across-the-line start

**The 30HXA186 units have 2 terminal blocks/non-fused disconnects and 6 parallel conductors

NOTES:

- 1 Main power must be supplied from a field-supplied fused electrical service with a (factory- or field-installed) disconnect located in sight from the unit
- 2 Control circuit power must be supplied from a separate source through a field-supplied disconnect (except for 380/415-50 units). An accessory control transformer may be used to provide control circuit power from the main unit power supply
- 3 Maximum incoming wire size for each terminal block is 500 kcmil
- 4 Maximum allowable phase imbalance is: voltage, 2%; amps, 5%
- 5 Use copper conductors only

- 6 The MOCP is calculated as follows:

$MOCP = (2 \text{ } 25) (\text{largest RLA}) + \text{the sum of the other RLAs}$ Size the fuse one size down from the result. The RLAs are listed on the unit nameplate

The recommended fuse size in amps (RFA) is calculated as follows:

$RFA = (1 \text{ } 50) (\text{largest RLA}) + \text{the sum of the other RLAs}$ Size the fuse one size up from the result. The RLAs are listed on the unit nameplate

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

VOLTAGE	TERMINAL BLOCKS OR NON-FUSED DISCONNECTS	CONDUCTORS
208/230	2	6
460	1	3
575	1	3
380**	1	3
230	2	6
380/415	1	3
346	2	6



COMPRESSOR ELECTRICAL DATA, 30HXC UNITS

UNIT SIZE 30HXC	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
076-XL	208/230-60	*	*	*	*
	460-60	44.3	330	44.3	330
	575-60	35.4	264	35.4	264
	380-60	53.7	365	53.7	365
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	55.8	344	55.8	344
076-WD	208/230-60	98.1	209	98.1	209
	460-60	44.3	104	44.3	104
	575-60	35.4	83	35.4	83
	380-60	53.7	115	53.7	115
	230-50	92.1	174	92.1	174
	346-50	61.1	120	61.1	120
	380/415-50	55.8	109	55.8	109
086-XL	208/230-60	*	*	*	*
	460-60	53.6	330	44.3	330
	575-60	42.8	264	35.4	264
	380-60	64.9	365	53.7	365
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	67.7	423	55.8	344
086-WD	208/230-60	118.6	209	98.1	209
	460-60	53.6	104	44.3	104
	575-60	42.8	83	35.4	83
	380-60	64.9	115	53.7	115
	230-50	111.8	213	92.1	174
	346-50	74.2	147	61.1	120
	380/415-50	67.7	134	55.8	109
096-XL	208/230-60	*	*	*	*
	460-60	65.5	405	44.3	330
	575-60	52.3	324	35.4	264
	380-60	79.2	448	53.7	365
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	81.7	506	55.8	344
096-WD	208/230-60	144.9	256	98.1	209
	460-60	65.5	128	44.3	104
	575-60	52.3	102	35.4	83
	380-60	79.2	141	53.7	115
	230-50	134.9	255	92.1	174
	346-50	89.5	176	61.1	120
	380/415-50	81.7	160	55.8	109
106-XL	208/230-60	*	*	*	*
	460-60	79.2	485	44.3	330
	575-60	63.3	388	35.4	264
	380-60	95.9	536	53.7	365
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	97.8	605	55.8	344
106-WD	208/230-60	175.4	307	98.1	209
	460-60	79.2	153	44.3	104
	575-60	63.3	123	35.4	83
	380-60	95.9	169	53.7	115
	230-50	161.7	305	92.1	174
	346-50	107.3	210	61.1	120
	380/415-50	97.8	191	55.8	109

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

Electrical data (cont)



COMPRESSOR ELECTRICAL DATA, 30HXC UNITS (cont)

UNIT SIZE 30HXC	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
116-XL	208/230-60	*	*	*	*
	460-60	79.2	485	53.6	330
	575-60	63.3	388	42.8	264
	380-60	95.9	536	64.9	365
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	87.8	605	67.7	423
116-WD	208/230-60	175.4	307	118.6	209
	460-60	79.2	153	53.6	104
	575-60	63.3	123	42.8	83
	380-60	95.5	169	64.9	115
	230-50	161.7	305	111.8	213
	346-50	107.3	210	74.2	147
	380/415-50	97.8	191	67.7	134
126-XL	208/230-60	*	*	*	*
	460-60	79.2	485	65.5	405
	575-60	63.3	388	52.3	324
	380-60	95.9	536	79.2	448
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	97.8	605	81.7	506
126-WD	208/230-60	175.4	307	144.9	256
	460-60	79.2	153	65.5	128
	575-60	63.3	123	52.3	102
	380-60	95.9	169	79.2	141
	230-50	161.7	305	134.9	255
	346-50	107.3	210	89.5	176
	380/415-50	97.8	191	81.7	160
136-XL	208/230-60	*	*	*	*
	460-60	94.9	580	65.5	405
	575-60	75.8	484	52.3	324
	380-60	114.9	641	79.2	448
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	118.8	715	81.7	506
136-WD	208/230-60	210.0	367	144.9	256
	460-60	94.6	183	65.5	128
	575-60	75.8	147	52.3	102
	380-60	114.9	203	79.2	141
	230-50	196.3	361	134.9	255
	346-50	130.3	248	89.5	176
	380/415-50	118.8	226	81.7	160
146-XL	208/230-60	*	*	*	*
	460-60	94.9	580	79.2	485
	575-60	75.8	484	63.3	388
	380-60	114.9	641	95.9	536
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	118.8	715	97.8	605
146-WD	208/230-60	210.0	367	175.4	307
	460-60	94.9	183	79.2	153
	575-60	75.8	147	63.3	123
	380-60	114.9	203	95.9	169
	230-50	196.3	361	161.7	305
	346-50	130.3	248	107.3	210
	380/415-50	118.8	226	97.8	191

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

COMPRESSOR ELECTRICAL DATA, 30HXC UNITS (cont)

UNIT SIZE 30HXC	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
161-XL	208/230-60	*	*	*	*
	460-60	103.1	685	71.2	525
	575-60	82.4	548	56.9	420
	380-60	124.8	757	86.2	580
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	128.6	856	88.2	600
161-WD	208/230-60	228.8	433	157.6	350
	460-60	103.1	216	71.2	175
	575-60	82.4	173	56.9	140
	380-60	124.8	239	86.2	193
	230-50	212.5	432	145.7	348
	346-50	141.0	297	96.7	232
	380/415-50	128.6	270	88.2	200
171-XL	208/230-60	*	*	*	*
	460-60	86.1	580	103.1	685
	575-60	68.8	484	82.4	548
	380-60	104.2	641	124.8	757
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	105.8	715	128.6	856
171-WD	208/230-60	190.6	367	228.8	433
	460-60	86.1	183	103.1	216
	575-60	68.8	147	82.4	173
	380-60	104.2	203	124.8	239
	230-50	174.8	361	212.5	432
	346-50	116.0	248	141.0	297
	380/415-50	105.8	233	128.6	270
186-XL	208/230-60	*	*	*	*
	460-60	103.1	685	103.1	685
	575-60	82.4	548	82.4	548
	380-60	124.8	757	124.8	757
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	128.6	856	128.6	856
186-WD	208/230-60	228.8	433	228.8	433
	460-60	103.1	216	103.1	216
	575-60	82.4	173	82.4	173
	380-60	124.8	239	124.8	239
	230-50	212.5	432	212.5	432
	346-50	141.0	297	141.0	297
	380/415-50	128.6	270	128.6	270

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

Electrical data (cont)



COMPRESSOR ELECTRICAL DATA, 30HXC UNITS (cont)

UNIT SIZE 30HXC	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS					
		A1		A2		B1	
		RLA	LRA	RLA	LRA	RLA	LRA
206-XL	208/230-60	*	*	*	*	*	*
	460-60	86.1	580	44.3	330	103.1	685
	575-60	68.8	484	35.4	264	82.4	548
	380-60	104.2	641	53.7	365	124.8	757
	230-50	*	*	*	*	*	*
	346-50	*	*	*	*	*	*
	380/415-50	105.8	715	55.8	344	128.6	856
206-WD	208/230-60	190.6	367	98.1	209	228.8	433
	460-60	86.1	183	44.3	104	103.1	216
	575-60	68.8	147	35.4	83	82.4	173
	380-60	104.2	203	53.7	115	124.8	239
	230-50	174.8	361	92.1	174	212.5	432
	346-50	116.0	248	61.1	120	141.0	297
	380/415-50	105.8	233	55.8	109	128.6	270
246-XL	208/230-60	*	*	*	*	*	*
	460-60	103.1	685	71.2	525	103.1	685
	575-60	82.4	548	56.9	420	82.4	548
	380-60	124.8	757	86.2	580	124.8	757
	230-50	*	*	*	*	*	*
	346-50	*	*	*	*	*	*
	380/415-50	128.6	856	88.2	600	128.6	856
246-WD	208/230-60	228.8	433	157.6	350	228.8	433
	460-60	103.1	216	71.2	175	103.1	216
	575-60	82.4	173	56.9	140	82.4	173
	380-60	124.8	239	86.2	193	124.8	239
	230-50	212.5	432	145.7	348	212.5	432
	346-50	141.0	297	96.7	232	141.0	297
	380/415-50	128.6	270	88.2	200	128.6	270
261-XL	208/230-60	*	*	*	*	*	*
	460-60	103.1	685	86.1	580	103.1	685
	575-60	82.4	548	68.8	484	82.4	548
	380-60	124.8	757	104.2	641	124.8	757
	230-50	*	*	*	*	*	*
	346-50	*	*	*	*	*	*
	380/415-50	128.6	856	105.8	715	128.6	856
261-WD	208/230-60	228.8	433	190.6	367	228.8	433
	460-60	103.1	216	86.1	183	103.1	216
	575-60	82.4	173	68.8	147	82.4	173
	380-60	124.8	239	104.2	203	124.8	239
	230-50	212.5	432	174.8	361	212.5	432
	346-50	141.0	297	116.0	248	141.0	297
	380/415-50	128.6	270	105.8	233	128.6	270
271-XL	208/230-60	*	*	*	*	*	*
	460-60	103.1	685	103.1	685	103.1	685
	575-60	82.4	548	82.4	548	82.4	548
	380-60	124.8	757	124.8	757	124.8	757
	230-50	*	*	*	*	*	*
	346-50	*	*	*	*	*	*
	380/415-50	128.6	856	128.6	856	128.6	856
271-WD	208/230-60	228.8	433	228.8	433	228.8	433
	460-60	103.1	216	103.1	216	103.1	216
	575-60	82.4	173	82.4	173	82.4	173
	380-60	124.8	239	124.8	239	124.8	239
	230-50	212.5	432	212.5	432	212.5	432
	346-50	141.0	297	141.0	297	141.0	297
	380/415-50	128.6	270	128.6	270	128.6	270

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available

COMPRESSOR ELECTRICAL DATA, 30HXA UNITS

UNIT SIZE 30HXA	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
076-XL	208/230-60	*	*	*	*
	460-60	64.9	485	64.9	485
	575-60	51.9	388	51.9	388
	380-60	78.7	536	78.7	536
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	81.5	605	81.5	605
076-WD	208/230-60	143.8	307	143.8	307
	460-60	64.9	153	64.9	153
	575-60	51.9	123	51.9	123
	380-60	78.7	169	78.7	169
	230-50	134.8	305	134.8	305
	346-50	89.4	210	89.4	210
	380/415-50	81.5	191	81.5	191
086-XL	208/230-60	*	*	*	*
	460-60	77.6	580	64.9	485
	575-60	62.1	484	51.9	388
	380-60	94.0	641	78.7	536
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	99.2	715	81.5	605
086-WD	208/230-60	171.9	367	143.8	307
	460-60	77.6	183	64.9	153
	575-60	62.1	147	51.9	123
	380-60	94.0	203	78.7	169
	230-50	163.9	361	134.8	305
	346-50	108.8	248	89.4	210
	380/415-50	99.2	226	81.5	191
096-XL	208/230-60	*	*	*	*
	460-60	94.8	685	64.9	485
	575-60	75.7	548	51.9	388
	380-60	114.7	757	78.7	536
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	119.9	856	81.5	685
096-WD	208/230-60	209.8	433	143.8	307
	460-60	94.8	216	64.9	153
	575-60	75.5	173	51.9	123
	380-60	114.7	239	78.7	169
	230-50	198.2	432	134.8	305
	346-50	131.4	297	89.4	210
	380/415-50	119.9	270	81.5	191
106-XL	208/230-60	*	*	*	*
	460-60	115.4	820	64.9	485
	575-60	92.2	656	51.9	388
	380-60	139.7	906	78.7	536
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	145.4	960	81.5	605
106-WD	208/230-60	255.5	518	143.8	307
	460-60	115.4	259	64.9	153
	575-60	92.2	207	51.9	123
	380-60	139.7	286	78.7	169
	230-50	240.2	485	134.8	305
	346-50	159.4	334	89.4	210
	380/415-50	145.4	303	81.5	191

LEGEND

LRA — Locked Rotor Amps
 RLA — Rated Load Amps
 WD — Wye-Delta Start
 XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

Electrical data (cont)



COMPRESSOR ELECTRICAL DATA, 30HXA UNITS (cont)

UNIT SIZE 30HXA	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
116-XL	208/230-60	*	*	*	*
	460-60	115.4	820	77.6	580
	575-60	92.2	656	62.1	484
	380-60	139.7	906	94.0	641
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	145.4	960	99.2	715
116-WD	208/230-60	255.5	578	171.9	367
	460-60	115.4	259	77.6	183
	575-60	92.2	207	62.1	147
	380-60	139.7	286	94.0	203
	230-50	240.2	485	163.9	361
	346-50	159.4	334	108.8	248
	380/415-50	145.4	303	99.2	226
126-XL	208/230-60	*	*	*	*
	460-60	115.4	820	94.8	685
	575-60	92.2	656	75.7	548
	380-60	139.7	906	114.7	757
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	145.4	960	119.9	856
126-WD	208/230-60	255.5	518	209.8	447
	460-60	115.4	259	94.8	216
	575-60	92.2	207	75.7	173
	380-60	139.7	286	114.7	239
	230-50	240.2	485	198.2	432
	346-50	159.4	334	131.4	297
	380/415-50	145.4	303	119.9	270
136-XL	208/230-60	*	*	*	*
	460-60	140.7	920	94.8	685
	575-60	112.4	736	75.7	548
	380-60	170.2	1017	114.7	757
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	178.8	1226	119.9	856
136-WD	208/230-60	311.4	581	209.8	433
	460-60	140.7	291	94.8	216
	575-60	112.4	233	75.7	173
	380-60	170.2	321	114.7	239
	230-50	295.3	619	198.2	432
	346-50	195.9	426	131.4	297
	380/415-50	178.8	387	119.9	276
146-XL	208/230-60	*	*	*	*
	460-60	140.7	920	115.4	820
	575-60	112.4	736	92.2	656
	380-60	170.2	1017	139.7	906
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	178.8	1226	145.4	960
146-WD	208/230-60	311.4	581	255.5	518
	460-60	140.7	291	115.4	259
	575-60	112.4	233	92.2	207
	380-60	170.2	321	139.7	286
	230-50	295.3	619	240.2	485
	346-50	195.9	426	159.4	334
	380/415-50	178.8	387	145.4	303

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

COMPRESSOR ELECTRICAL DATA, 30HXA UNITS (cont)

UNIT SIZE 30HXA	NAMEPLATE V-Hz (3 Phase)	COMPRESSOR NUMBERS			
		A1		B1	
		RLA	LRA	RLA	LRA
161-XL	208/230-60	*	*	*	*
	460-60	157.9	1175	106.6	790
	575-60	126.2	940	85.1	630
	380-60	191.2	1299	129.0	870
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	201.2	1265	133.4	1045
161-WD	208/230-60	349.6	743	235.9	527
	460-60	157.9	371	106.6	263
	575-60	126.2	297	85.1	211
	380-60	191.2	410	129.0	290
	230-50	332.3	638	220.3	607
	346-50	220.5	439	146.2	402
	380/415-50	201.2	400	133.4	348
171-XL	208/230-60	*	*	*	*
	460-60	129.6	920	157.9	1175
	575-60	103.6	736	126.2	940
	380-60	156.9	1017	191.2	1299
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	161.7	1226	201.2	1265
171-WD	208/230-60	286.9	581	349.6	743
	460-60	129.6	291	157.9	371
	575-60	103.6	233	126.2	297
	380-60	156.9	321	191.2	410
	230-50	267.2	619	332.3	638
	346-50	177.3	426	220.5	439
	380/415-50	161.7	387	201.2	400
186-XL	208/230-60	*	*	*	*
	460-60	157.9	1175	157.9	1175
	575-60	126.2	940	126.2	940
	380-60	191.2	1299	191.2	1299
	230-50	*	*	*	*
	346-50	*	*	*	*
	380/415-50	201.2	1265	201.2	1265
186-WD	208/230-60	349.6	743	349.6	743
	460-60	157.9	371	157.9	371
	575-60	126.2	297	126.2	297
	380-60	191.2	410	191.2	410
	230-50	332.3	638	332.3	638
	346-50	220.5	439	220.5	439
	380/415-50	201.2	400	201.2	400

LEGEND

LRA — Locked Rotor Amps
RLA — Rated Load Amps
WD — Wye-Delta Start
XL — Across-the-Line Start

*Units are shipped with wye-delta start as standard. Across-the-line start is not available.

Controls



The standard microprocessor-based control in the 30HX units provides the following functions:

- leaving fluid temperature control (using both entering and leaving fluid sensors)
- 7-day time sequence of both pump and chiller
- temperature reset from return fluid (standard) or from outdoor ambient (accessory), occupied space temperature (accessory), 4-20 mA signal (accessory), or via the optional Carrier Comfort Network (CCN)
- automatic compressor lead-lag switching based on compressor accumulated run times and number of cycles
- automatic temperature range across the cooler adjustment
- fully automatic control of the chiller components

A standard 2-line, 24-character per line display is used to accomplish the following (see figure below):

- set schedules and set points
- identify operating mode
- display current temperatures and pressures being used by the control for internal calculations
- identify abnormal (alarm or alert) conditions

An accessory 16-line, 40-character per line expanded display is also available (see figure below). This accessory displays the same information as the standard display, but has the advantage of being able to display multiple points simultaneously.

Sequence of operation

The control has a 44 F (6.2 C) leaving fluid temperature (LWT) set point as shipped from the factory. If temperature reset or demand limiting is in effect, this set point may change.

Start-up — The circulating pump is energized (either externally or by the internal timeclock). The chiller starts. (If the flow switch is applied, the chiller starts after the flow has been proven. All 30HX chillers require loss of flow protection.) The compressor starts unloaded.

NOTE: Which compressor starts first is determined by the automatic lead/lag feature.

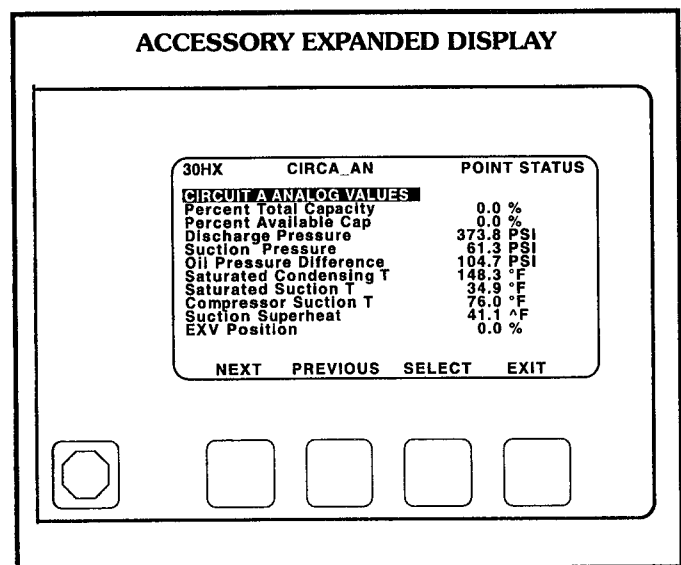
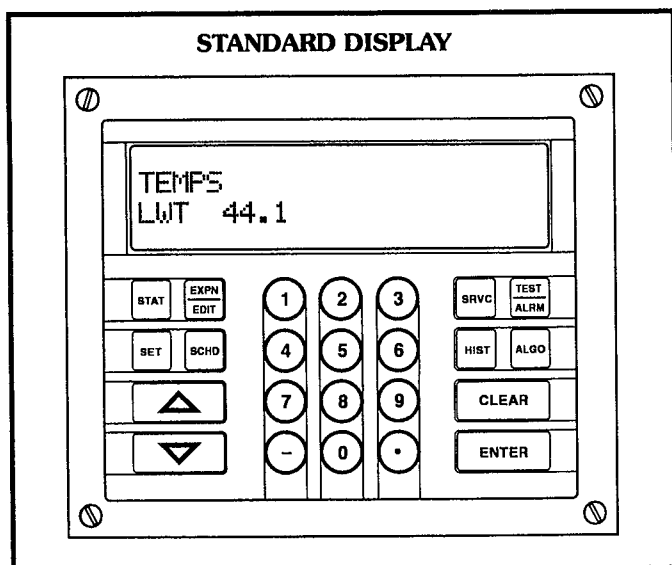
If the entering fluid temperature is 85 F (29 C) or higher, the maximum operating pressure (MOP) feature limits the suction pressure to keep the chiller on line.

Normal operation — The entering fluid temperature sensor monitors changes in entering fluid temperature to anticipate changes in the cooling load. Based on leaving fluid temperature, the control adds or subtracts capacity to maintain a constant leaving fluid temperature.

Transition to off — The chiller unloads once the “time-to-stop” signal has been given. This signal can be either internal or external.

Safeties — The 30HX control as shipped from the factory automatically deenergizes any active compressor that experiences any of the following:

- electrical overload
- thermal overload protection
- high pressure
- low oil pressure
- loss of refrigerant charge
- loss of phase protection
- reverse rotation (control prevents compressor start)
- current imbalance
- ground current
- low chilled fluid temperature



Guide specifications



Fluid-Cooled and Condenserless Liquid Chillers

HVAC Guide Specifications

Size Range: **75 to 265 Tons (264 to 931 kW)**

Carrier Model Number: **30HXA — Condenserless**
30HXC — Fluid Cooled

Part 1 — General

1.01 SYSTEM DESCRIPTION

Microprocessor controlled, fluid-cooled (30HXC) or condenserless (30HXA) liquid chiller utilizing screw compressors and electronic expansion valves.

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standard 590, latest revision (U.S.A.). The 60 Hz 30HXC units shall be ARI certified for performance.
- B. Unit construction shall comply with ASHRAE 15 Safety Code, NEC, and ASME applicable codes (U.S.A. codes).
- C. Unit shall be manufactured at an ISO 9002 registered facility.
- D. All 208/230 v, 460 v, 575 v, 60 Hz units shall be constructed in accordance with UL or CSA standards and shall be tested and listed by ETL or ETL, Canada, as conforming to those standards. Units shall carry the ETL and ETL, Canada, labels.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Unit controls shall be capable of withstanding 150 F (66 C) storage temperatures in the control compartment.
- B. Unit shall be stored and handled per unit manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, single-piece, fluid-cooled (30HXC) or condenserless (30HXA) liquid chiller. Contained within the unit cabinet shall be all factory wiring, piping, controls, refrigerant charge (HFC-134a), and special features required prior to field start-up.

B. Compressors:

1. Semi-hermetic twin-screw compressors with internal muffler and check valve.
2. Each compressor shall be equipped with a discharge shutoff valve.

C. Cooler:

1. Shall be tested and stamped in accordance with ASME code (U.S.A.) for a refrigerant working-side pressure of 220 psig (1517 kPa). Water-side pressure rating shall be 300 psig (2068 kPa). In Canada, maximum water-side pressure shall be 250 psig (1725 kPa), per the Canadian National Registry.

2. Shall be mechanically cleanable shell-and-tube type with removable heads.
3. Tubes shall be internally-enhanced, seamless-copper type, and shall be rolled into tube sheets.
4. Shall be equipped with weld-on fluid connections.
5. Shell shall be insulated with 3/4-in. (19-mm) closed-cell, polyvinyl-chloride foam with a maximum K factor of 0.28. Heads may require field insulation.
6. Shall have a cooler drain and vent.
7. Design shall incorporate 2 independent refrigerant circuits.

D. Condenser (30HXC units):

1. Shall be tested and stamped in accordance with ASME code (U.S.A.) for a refrigerant working-side pressure of 220 psig (1517 kPa). Water-side pressure rating shall be 300 psig (2068 kPa). In Canada, maximum water-side pressure shall be 250 psig (1725 kPa), per the Canadian National Registry.
2. Shall be mechanically cleanable shell-and-tube type with removable heads.
3. Tubes shall be internally-enhanced, seamless-copper type, and shall be rolled into tube sheets.
4. Shall be equipped with weld-on water connections.
5. Design shall incorporate 2 independent refrigerant circuits.

E. Oil Separator (30HXA Units):

1. Shall be tested and stamped in accordance with ASME Code (U.S.A.) for a refrigerant working-side pressure of 320 psig (2206 kPa).
2. Design shall incorporate 2 independent refrigerant circuits.

F. Refrigeration Components:

Refrigerant circuit components shall include oil separator, high and low side pressure relief devices, discharge and liquid line shutoff valves, filter drier, moisture indicating sight glass, expansion valve, refrigerant economizer (unit sizes 161-271), and complete charge of compressor oil. The 30HXC units shall have a complete operating charge of refrigerant HFC-134a; 30HXA units shall have a holding charge only.

G. Controls, Safeties, and Diagnostics:

1. Controls:

- a. Unit controls shall include as a minimum: Microprocessor, LOCAL/OFF/REMOTE switch, 2-line, 24-character per line diagnostic display with keypad.

- b. Shall be capable of performing the following functions:

- 1) Automatic compressor lead/lag switching.
- 2) Capacity control based on leaving chilled fluid temperature with return fluid temperature sensing.
- 3) Limit the chilled fluid temperature pull-down rate at start-up to an adjustable range of 0.2° F to 2 F (0.1° C to 1.1° C) per minute to prevent excessive demand spikes at start-up.
- 4) Seven-day time scheduling of pump(s) and chiller(s).

2. Diagnostics:

- a. Display module shall be capable of displaying set points, time, system status (including temperatures, pressures, and percent loading), and any alarm or alert conditions.
- b. Control module, in conjunction with the microprocessor, shall be capable of displaying the output of a run test to verify operation of every switch, sensor, potentiometer, and compressor before chiller is started.

3. Safeties:

Unit shall be equipped with all necessary components, and in conjunction with the control system shall provide the unit with protection against the following:

- a. Loss of refrigerant charge.
- b. Reverse rotation.
- c. Low chilled fluid temperature.
- d. Low oil pressure.
- e. Voltage imbalance.
- f. Ground current.
- g. Thermal overload.
- h. High pressure.
- i. Electrical overload.
- j. Loss of phase.

H. Operating Characteristics:

Unit shall be capable of starting up with 95 F (35 C) entering fluid temperature to the cooler.

I. Electrical Requirements:

1. Unit primary electrical power supply shall enter the unit at a single location (some units have multiple power poles).
2. Unit shall operate on 3-phase power at the voltage shown in the equipment schedule.
3. Control voltage shall be 115-v (60 Hz) or 230-v (50 Hz), single-phase, separate power supply.
4. Unit shall be shipped with factory control and power wiring installed.

J. 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. Wye-Delta Starter:

Unit shall have a factory-installed, Wye-Delta starter to minimize electrical inrush current.

2. Sound Reduction Enclosure:

Unit shall have field-installed sound reduction enclosure which covers the entire unit to muffle compressor noise.

3. Vibration Isolation:

Unit shall be supplied with rubber-in-shear vibration isolators for field installation.

4. Control Power Transformer:

Unit shall be supplied with a field installed transformer that will supply control circuit power from the main unit power supply.

5. Non-Fused Disconnect:

Unit shall be supplied with factory-installed, non-fused electrical disconnect for main power supply. (Not available on 271 size 208/230 v, 60 Hz and 230 v, 50 Hz units.)

6. Chilled Fluid Flow Switch:

Unit shall be supplied with field-installed differential pressure type proof-of-flow sensing switch.

7. Victaulic Connection:

Unit shall be supplied with victaulic-type cooler connections (field installed).

8. Expanded Display:

Unit shall be supplied with indoor-mounted, remote 40-character per line, 16-line display panel. Display shall be field installed.

9. Temperature Reset Sensor:

Unit shall reset leaving chilled fluid temperature based on outdoor ambient temperature or space temperature when this sensor is installed.

* 10. Brine Option:

Unit shall be factory modified to start and operate at leaving chilled fluid temperatures of between 15 F (-9 C) and 40 F (5 C).

* 11. Minimum Load Control:

Unit shall be equipped with factory (or field) installed, microprocessor-controlled, minimum-load control that shall permit unit operation down to 10% of full capacity.

12. Flotronic™ System Manager:

Control shall enable management of multiple chillers (up to 8) in a single system.

