

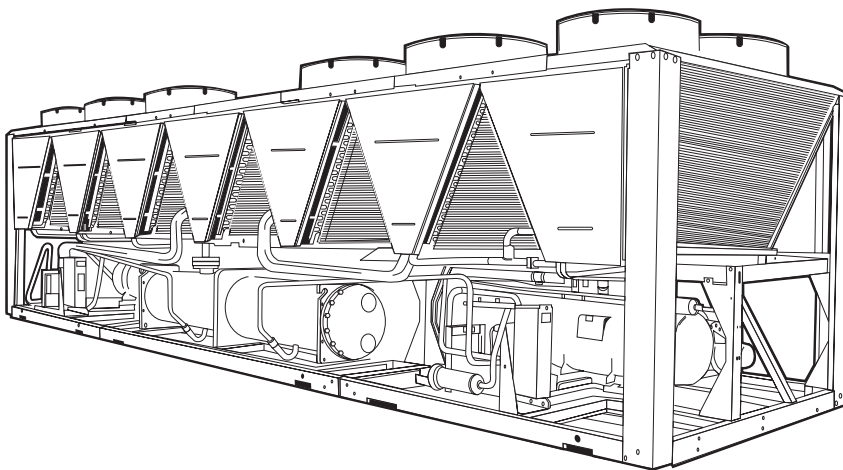


Product Data

AQUAFORCE™ 30XA080-500 Air-Cooled Liquid Chillers

80 to 500 Nominal Tons

AQUAFORCE™



AquaForce chillers were designed from the ground up to meet the efficiency demands of today and the future by providing premium air-cooled chiller packages for contractors, consulting engineers and building owners.

- Rotary screw compression
- R-134a HFC refrigerant
- Quiet AeroAcoustic™ fan system
- Micro-channel condenser coil technology
- Easy to use *ComfortLink*™ controls
- Optional Integrated hydronic package

Features/Benefits

AquaForce 30XA chillers provide best full load and part load performance in a single chassis from 80 to 500 tons.

Premium performance

Aqua series chillers are Carrier's most efficient air-cooled models. The AquaForce chiller is one of the most affordable air-cooled chillers to operate and maintain. The AquaForce chiller offers full load EER (Energy Efficiency Ratio) up to 10.9 and IPLV (Integrated Part-Load Value) up to 15.4 with microchannel technology. High-efficiency rotary screw compressors with infinitely variable slide valves allow the chillers to exactly match actual load conditions, delivering exceptional part load performance. The AquaForce chillers deliver superior efficiency through the entire operating range to keep costs and demand charges down. This exceptional performance has a significant impact on energy savings and cost of ownership.



Well exceeds ASHRAE 90.1 Standards.

Features/Benefits (cont)



AquaForce™ chillers' quiet operation make them ideal for sound sensitive applications

Great performance is delivered in a low sound unit that will be quiet enough for any application including hospitals, schools and other sites located in residential neighbor-hoods. The AquaForce chiller's AeroAcoustic™ fan is almost twice as quiet per cfm as the competition. In part load operation, such as cooler weather or night time duty, fewer fans operate. This results in even quieter operation.

Built in reliability

AquaForce chillers were developed under one of the most exacting qualification programs ever used for commercial chiller products. The compressors are virtually maintenance-free and protected by an auto-adaptive control that minimizes compressor wear. Operate AquaForce chillers year-round from -20 F (-29 C) to 125 F (52 C), with a combination of options and control methods. The following features are also provided to help ensure reliable performance:

Multiple independent circuits

provide redundancy and greater reliability.

Electronic expansion valve (EXV)

allows for precise control through all operating ranges.

Highly efficient, reliable chilled water circuit

AquaForce chillers provide a comprehensive chilled water circuit utilizing a high efficiency shell-in-tube flooded cooler. Units are equipped with a 100% drainable cooler.

Electronic thermal-dispersion flow switch is included with the cooler. The switch is factory installed and tested and contains no moving parts for high reliability.

Environmentally sound

R-134a refrigerant enables you to make a responsible choice in helping to preserve the environment. R-134a refrigerant is an HFC refrigerant that does not contain ozone-layer damaging chlorine. R-134a refrigerant is unaffected by the Montreal Protocol. R-134a refrigerant is a safe, non-toxic, efficient and environmentally sound refrigerant.

Easy installation

A single chassis design provides a one-piece unit from 80 to 500 tons. The base rail is industrial-quality 1/4-in. cold-rolled steel for maximum structural integrity. The zinc-dipped and painted galvanized frame provides protection for corrosion resistance. With such a structurally sound base, no perimeter mounting rail is needed.

ComfortLink™ controls for ease of use

The *ComfortLink* controls communicate in easy to understand English, making it as easy as possible to monitor and control each AquaForce chiller while accurately maintaining fluid temperatures. *ComfortLink* controls are available with French, Portuguese and Spanish as a standard configuration option. Carrier 30 Series chillers' *ComfortLink* controls provide features such as chilled water temperature reset, demand limiting, compressor wear minimization and protection, temperature and pressure displays and diagnostic functions. These controls result in higher chiller reliability, simplified training and more productive service calls with correspondingly lower operational and maintenance costs.

Two user interface options are available, the TouchPilot™ display and the Navigator™ module.

Carrier's TouchPilot display is an easy to use touch screen display that provides simple navigation for configuration and control of AquaForce units.

Carrier's exclusive handheld Navigator display provides convenience and powerful information in the palm of your hand. The Navigator display helps technicians to quickly diagnose problems and even prevent them from occurring.

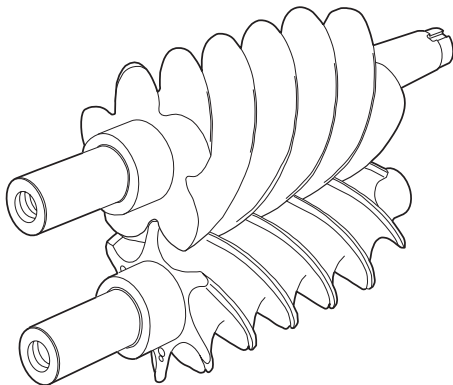
All AquaForce units are ready to be used with Carrier Comfort Network® (CCN) devices.

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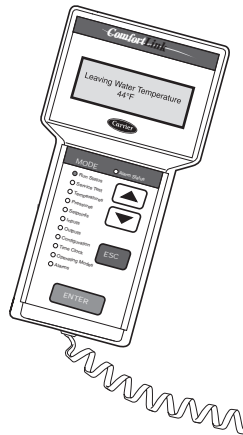
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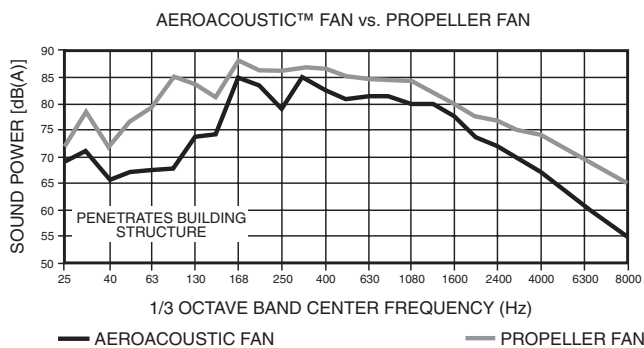
TOUCH PILOT™ DISPLAY



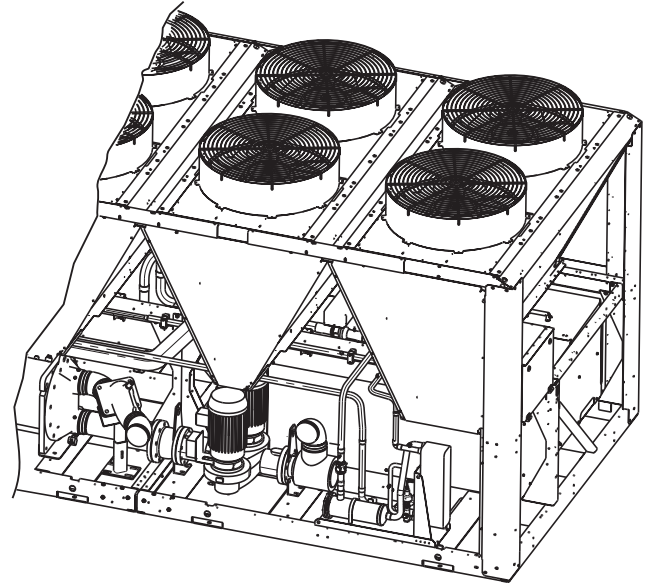
**SMOOTH ROTARY COMPRESSOR
TWIN-SCREW DESIGN**



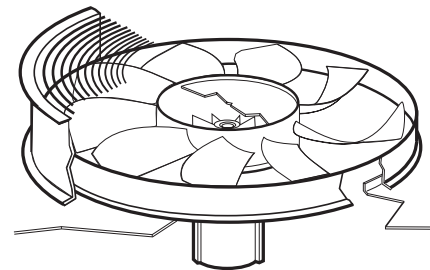
OPTIONAL NAVIGATOR™ DISPLAY



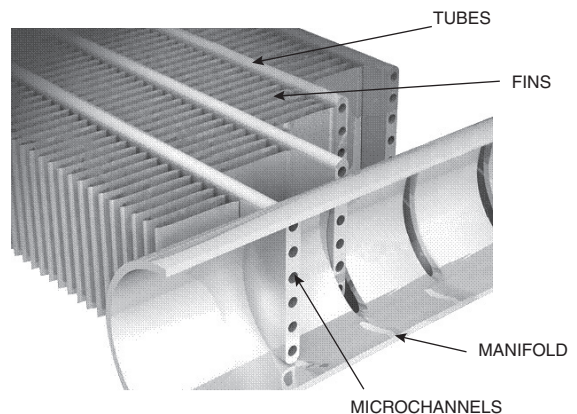
AEROACOUSTIC FAN VS PROPELLER FAN



OPTIONAL PUMP PACKAGE



LOW-NOISE AEROACOUSTIC FAN



OPTIONAL MICROCHANNEL COILS

Model number nomenclature



30XA A 200 6 F - 0 - - - L

30XA – Air-Cooled AquaForce™ Chiller

Design Series

Unit Sizes
080 140 240 350
090 160 260 400
100 180 280 450
110 200 300 500
120 220 325

Voltage
1 – 575-3-60
2 – 380-3-60
4 – 230-3-60
6 – 460-3-60
7 – 200-3-60

Condenser Coil/Low Sound Options

6 – Aluminum Fin/Copper Tube, High Ambient Temperature, Compressor Enclosures
8 – Aluminum Pre-Coat Fin/Copper Tube, High Ambient Temperature, Compressor Enclosures
9 – Aluminum E-Coat Fin/Copper Tube, High Ambient Temperature, Compressor Enclosures
F – Aluminum Fin/Copper Tube, Standard Ambient Temperature, Compressor Enclosures
H – Aluminum Pre-Coat Fin/Copper Tube, Standard Ambient Temperature, Compressor Enclosures
J – Aluminum E-Coated Fin/Copper Tube, Standard Ambient Temperature, Compressor Enclosures
- – Aluminum Fin/Copper Tube, High Ambient Temperature
0 – Copper Fin/Copper Tube, High Ambient Temperature
1 – Aluminum Pre-Coat Fin/Copper Tube, High Ambient Temperature
2 – Aluminum E-Coat Fin/Copper Tube, High Ambient Temperature
3 – Copper E-Coat Fin/Copper Tube, High Ambient Temperature
4 – Micro Channel Heat Exchanger (MCHX), High Ambient Temperature
7 – Copper Fin/Copper Tube, High Ambient Temperature, Low Sound
B – Copper E-Coat Fin/Copper Tube, High Ambient Temperature, Low Sound
C – MCHX, High Ambient Temperature, Low Sound
G – Copper Fin/Copper Tube, Standard Ambient Temperature, Low Sound
K – Copper E-Coat Fin/Copper Tube, Standard Ambient Temperature, Low Sound
L – MCHX, Standard Ambient Temperature, Low Sound
N – Aluminum Fin/Copper Tube, Standard Ambient Temperature
P – Copper Fin/Copper Tube, Standard Ambient Temperature
Q – Aluminum Pre-Coat Fin/Copper Tube, Standard Ambient Temperature
R – Aluminum E-Coat Fin/Copper Tube, Standard Ambient Temperature
S – Copper E-Coat Fin/Copper Tube, Standard Ambient Temperature
T – MCHX, Standard Ambient Temperature

Hydronic Pump Package Options

- – None
1 – Single Pump, 5 HP
2 – Single Pump, 7.5 HP
3 – Single Pump, 10 HP
4 – Single Pump, 15 HP
7 – Dual Pump, 5 HP
8 – Dual Pump, 7.5 HP
B – Dual Pump, 10 HP
C – Dual Pump, 15 HP

Cooler/Brine Options

0 – Integral Cooler
3 – Integral Cooler, Minus One Pass
5 – Integral Cooler, Plus One Pass
B – Integral Cooler, Brine
F – Integral Cooler, Minus One Pass, Brine
H – Integral Cooler, Plus One Pass, Brine

LEGEND

CFSP — Coil Face Shipping Protection
EMM — Energy Management Module
LON — Local Operating Network
XL — Across-the-Line Starter

Packaging/Security Options

L – Coil Face Shipping Protection (CFSP)
0 – CFSP, Skid
1 – Skid, Top Crate, Bag
3 – CFSP, Coil Trim Panels
4 – CFSP, Skid, Coil Trim Panels, Shipping
5 – Skid, Top Crate, Bag, Coil Trim Panels
7 – CFSP, Coil Trim Panels, Upper & Lower Grilles
8 – CFSP, Skid, Coil Trim Panels, Upper & Lower Grilles
9 – Skid, Top Crate, Bag, Coil Trim Panels, Upper & Lower Grilles
C – CFSP, Trim Panels, Upper & Lower Grilles, Hail Guards
D – CFSP, Skid, Coil Trim Panels, Upper & Lower Grilles, Hail Guards
F – Skid, Top Crate, Bag, Trim Panels, Upper & Lower Grilles, Hail Guards

Controls/Communication Options

- – Navigator™ Display
0 – Navigator Display, EMM
1 – Navigator Display, Service Option
2 – Navigator Display, EMM, Service Option
3 – Touch Pilot™ Display
4 – Touch Pilot Display, EMM
5 – Touch Pilot Display, Service Option
6 – Touch Pilot Display, EMM, Service Option
7 – Navigator Display, BACnet Translator
8 – Navigator Display, BACnet Translator, EMM
9 – Navigator Display, BACnet Translator, Service Option
B – Navigator Display, BACnet Translator, EMM, Service Option
C – Touch Pilot Display, BACnet Translator
D – Touch Pilot Display, BACnet Translator, EMM
F – Touch Pilot Display, BACnet Translator, Service Option
G – Touch Pilot Display, BACnet Translator, EMM, Service Option
H – Navigator Display, LON Translator
J – Navigator Display, LON Translator, EMM
K – Navigator Display, LON Translator, Service Option
L – Navigator Display, LON Translator, EMM, Service Option
M – Touch Pilot Display, LON Translator
N – Touch Pilot Display, LON Translator, EMM
P – Touch Pilot Display, LON Translator, Service Option
Q – Touch Pilot Display, LON Translator, EMM, Service Option

Electrical Options

- – Single Point Power, XL, Terminal Block, No Control Transformer
0 – Single Point Power, Wye-Delta, Terminal Block, No Control Transformer
3 – Dual Point Power, XL, Terminal Block, No Control Transformer
4 – Dual Point Power, Wye-Delta, Terminal Block, No Control Transformer
7 – Single Point Power, XL, Disconnect, No Control Transformer
8 – Single Point Power, Wye-Delta, Disconnect, No Control Transformer
C – Dual Point Power, XL, Disconnect, No Control Transformer
D – Dual Point Power, Wye-Delta, Disconnect, No Control Transformer
H – Single Point Power, XL, Terminal Block, Control Transformer
J – Single Point Power, Wye-Delta, Terminal Block, Control Transformer
M – Dual Point Power, XL, Terminal Block, Control Transformer
N – Dual Point Power, Wye-Delta, Terminal Block, Control Transformer
R – Single Point Power, XL, Disconnect, Control Transformer
S – Single Point Power, Wye-Delta, Disconnect, Control Transformer
W – Dual Point Power, XL, Disconnect, Control Transformer
X – Dual Point Power, Wye-Delta, Disconnect, Control Transformer

Refrigeration Circuit Options

- – None
1 – Suction Service Valves
2 – Low Ambient Temperature Head Pressure Control
5 – Suction Service Valves, Low Ambient Temperature Head Pressure Control

Quality Assurance

ARI* capacity ratings (English and SI)



UNITS WITH AL/CU CONDENSER COILS

UNIT SIZE	CAPACITY		TOTAL POWER (kW)	FULL LOAD		IPLV		COOLER FLOW RATE		COOLER PRESSURE DROP	
	Tons	kW		EER	COP	EER	COP	GPM	L/s	ft wg	kPa
080	75.6	265.5	91.6	9.9	2.9	14.2	4.2	180.7	11.4	11.6	34.7
090	84.8	297.8	95.1	10.7	3.1	14.5	4.3	202.7	12.8	11.4	33.9
100	93.9	330.1	107.8	10.5	3.1	14.9	4.4	224.7	14.2	13.6	40.8
110	102.4	359.9	118.6	10.4	3.0	15.2	4.4	244.9	15.5	13.8	41.3
120	110.7	389.0	129.5	10.3	3.0	15.1	4.4	264.8	16.7	11.8	35.3
140	132.8	466.7	148.7	10.7	3.1	14.3	4.2	317.7	20.0	13.2	39.5
160	152.3	535.1	173.0	10.6	3.1	14.4	4.2	364.2	23.0	13.0	38.9
180	171.3	601.9	192.1	10.7	3.1	14.2	4.2	409.7	25.8	15.4	46.1
200	194.0	681.7	217.2	10.7	3.1	14.8	4.3	464.0	29.3	13.1	39.3
220	211.7	743.7	239.6	10.6	3.1	14.3	4.2	506.2	31.9	15.4	46.1
240	228.1	801.6	264.1	10.4	3.0	14.8	4.3	545.6	34.4	17.7	52.9
260	250.9	881.7	281.7	10.7	3.1	14.3	4.2	600.2	37.9	10.2	30.5
280	268.5	943.4	301.2	10.7	3.1	14.3	4.2	642.1	40.5	11.5	34.3
300	287.5	1010.2	326.3	10.6	3.1	14.5	4.2	687.6	43.4	13.1	39.0
325	306.6	1077.4	347.1	10.6	3.1	14.3	4.2	733.4	46.3	13.4	40.1
350	324.1	1138.7	374.8	10.4	3.0	14.2	4.2	775.1	48.9	14.8	44.4
400	383.6	1348.0	449.4	10.2	3.0	14.8	4.3	917.6	57.9	10.4	31.0
450	426.8	1499.5	509.3	10.1	2.9	14.1	4.1	1020.8	64.4	10.0	29.9
500	458.0	1609.4	549.2	10.0	2.9	14.3	4.2	1095.5	69.1	12.0	36.0

UNITS WITH MCHX CONDENSER COILS

MCHX COILS UNIT SIZE	CAPACITY		TOTAL POWER (kW)	FULL LOAD		IPLV		COOLER FLOW RATE		COOLER PRESSURE DROP	
	Tons	kW		EER	COP	EER	COP	GPM	L/s	ft wg	kPa
080	75.8	266.4	90.1	10.1	3.0	14.4	4.2	181.4	11.4	11.7	35.0
090	85.2	299.4	93.4	10.9	3.2	14.8	4.3	203.8	12.9	11.5	34.2
100	94.4	331.8	105.7	10.7	3.1	15.2	4.4	225.9	14.3	13.8	41.2
110	103.0	362.0	116.4	10.6	3.1	15.4	4.5	246.4	15.5	14.0	41.8
120	111.4	391.5	127.2	10.5	3.1	15.4	4.5	266.5	16.8	11.9	35.7
140	133.4	468.7	146.4	10.9	3.2	14.4	4.2	319.1	20.1	13.3	39.8
160	153.1	537.8	170.1	10.8	3.2	14.6	4.3	366.1	23.1	13.1	39.3
180	172.0	604.4	189.2	10.9	3.2	14.4	4.2	411.4	26.0	15.5	46.4
200	194.9	684.9	213.7	10.9	3.2	15.1	4.4	466.2	29.4	13.2	39.6
220	212.7	747.3	235.7	10.8	3.2	14.6	4.3	508.7	32.1	15.6	46.5
240	229.2	805.4	260.1	10.6	3.1	15.0	4.4	548.3	34.6	17.9	53.4
260	251.7	884.3	278.8	10.8	3.2	14.4	4.2	601.9	38.0	10.3	30.7
280	269.3	946.2	298.0	10.8	3.2	14.5	4.2	644.1	40.6	11.5	34.5
300	288.3	1012.9	323.3	10.7	3.1	14.7	4.3	689.5	43.5	13.1	39.2
325	307.1	1079.1	344.8	10.7	3.1	14.4	4.2	734.6	46.3	13.5	40.2
350	324.5	1140.2	372.7	10.4	3.1	14.4	4.2	776.2	49.0	14.9	44.5
400	385.0	1352.9	444.1	10.4	3.0	14.9	4.4	920.9	58.1	10.4	31.2
450	427.6	1502.6	505.5	10.2	3.0	14.2	4.2	1022.9	64.5	10.0	30.0
500	459.1	1613.2	544.8	10.1	3.0	14.4	4.2	1098.2	69.3	12.1	36.1

LEGEND

Al — Aluminum
COP — Coefficient of Performance
Cu — Copper
EER — Energy Efficiency Ratio
IPLV — Integrated Part Load Value
MCHX — Micro-Channel Heat Exchanger

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

†Aluminum Fins/Copper Tubes.

NOTES:

1. Rated in accordance with ARI Standard 550/590-2003 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)
 Fouling Factor:
 0.00010 hr x sq ft °F/Btu (0.000018 m² x °C/W)
 Condenser Conditions:
 Entering Air Temperature: 95 F (35 C)

3. All data in this table is rated in accordance with ARI Standard 550/590.



ARI Standard
550/590 AC

Physical data



30XA080-500 — ENGLISH

UNIT 30XA	080	090	100	110	120	140	160	180	200	220
OPERATING WEIGHT (lb)*										
Al-Cu Condenser Coils	7,674	9,959	10,186	10,326	10,471	12,760	13,003	13,590	13,712	14,727
Cu-Cu Condenser Coils	8,398	10,924	11,151	11,291	11,436	13,966	14,209	15,037	15,159	16,295
MCHX Condenser Coils	7,234	9,382	9,603	9,738	9,877	12,023	12,255	12,699	12,810	13,748
REFRIGERANT TYPE	R-134a, EXV Controlled System									
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C	86/86/—	97/97/—	108/108/—	135/108/—	135/135/—	202/115/—	225/135/—	205/205/—	225/225/—	270/225/—
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	60/60/—	62/62/—	73/73/—	100/73/—	100/100/—	137/79/—	159/100/—	141/141/—	161/161/—	179/161/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws									
Quantity	2	2	2	2	2	2	2	2	2	2
Speed (rpm)	3500									
(Qty) Compressor Model Number Ckt A	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-186	(1) 06TS-186	(1) 06TS-266	(1) 06TT-301	(1) 06TT-266	(1) 06TT-301	(1) 06TT-356
(Qty) Compressor Model Number Ckt B	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-155	(1) 06TS-186	(1) 06TS-155	(1) 06TS-186	(1) 06TT-266	(1) 06TT-301	(1) 06TT-301
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oil Charge (gal), Ckt A/Ckt B/Ckt C	5.5/5.5/—	5.5/5.5/—	5.5/5.5/—	5.5/5.5/—	5.5/5.5/—	6.25/5.5/—	6.25/5.5/—	6.25/6.25/—	6.25/6.25/—	6.75/6.25/—
Minimum Capacity Step (%)										
Standard	15	15	15	14	15	11	11	15	15	14
Optional	9	9	9	8	10	7	8	10	10	10
COOLER	Flooded, Shell and Tube Type									
Net Fluid Volume (gal.)	16.5	18.5	18.5	20.0	23.0	25.5	27.5	31.5	34.0	37.0
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220	220	220	220
Maximum Fluid Side Pressure Without Pumps (psig)	300	300	300	300	300	300	300	300	300	300
Maximum Fluid Side Pressure With Pumps (psig)	—	150	150	150	150	150	150	—	—	—
WATER CONNECTIONS										
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5	5	5	6	6	6
Number of Passes	2	2	2	2	2	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5	5	5	8	8	8
Number of Passes	1	1	1	1	1	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	4	4	4	4	4	5	5	6	6	6
Number of Passes	3	3	3	3	3	3	3	3	3	3
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge									
Fan Speed (rpm) Standard/High Ambient**	850/—	850/—	850/—	850/—	850/—	850/1140	850/1140	850/1140	850/1140	850/1140
No. Blades...Diameter (in.)	9...30	9...30	9...30	9...30	9...30	9...30	9...30	9...30	9...30	9...30
No. Fans (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Airflow (cfm) 850 rpm	55,800	74,400	74,400	74,400	74,400	93,000	93,000	111,600	111,600	120,900
Total Airflow (cfm) 1140 rpm	—	—	—	—	—	124,000	124,000	148,800	148,800	161,200
CONDENSER COILS										
No. Coils (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Face Area (sq ft)	141	188	188	188	188	234	234	281	281	305
HYDRONIC MODULE (Optional)	Pump(s) with pressure/temperature taps and combination valve. Single or Dual, 3600 rpm									
Pump	N/A							N/A		
CHASSIS DIMENSIONS (ft-in.)										
Length	11-10	15-9				19-8		23-7		27-6
Width	7-4 ²⁵ / ₃₂									
Height	7-6 ⁷ / ₁₆									

UNIT 30XA	240	260	280	300	325	350	400	450	500
OPERATING WEIGHT (lb)*									
Al-Cu Condenser Coils	14,887	16,853	17,022	17,362	18,834	19,040	24,578	26,600	26,894
Cu-Cu Condenser Coils	16,455	18,662	18,831	19,292	21,005	21,211	26,990	29,254	29,547
MCHX Condenser Coils	13,897	15,720	15,878	16,141	17,467	17,659	23,038	24,901	25,167
REFRIGERANT TYPE	R-134a, EXV Controlled System								
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C	270/270/—	375/220/—	375/270/—	415/270/—	375/375/—	415/375/—	270/270/375	415/205/415	415/270/415
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	193/193/—	247/156/—	260/193/—	300/193/—	260/260/—	300/260/—	192/192/258	290/135/290	294/193/294
COMPRESSORS	Semi-Hermetic Twin Rotary Screws								
Quantity	2	2	2	2	2	2	3	3	3
Speed (rpm)	3500								
(Qty) Compressor Model Number Ckt A	(1) 06TT-356	(1) 06TU-483	(1) 06TU-483	(1) 06TU-554	(1) 06TU-483	(1) 06TU-554	(1) 06TT-356	(1) 06TU-554	(1) 06TU-554
(Qty) Compressor Model Number Ckt B	(1) 06TT-356	(1) 06TT-301	(1) 06TT-356	(1) 06TT-356	(1) 06TU-483	(1) 06TU-483	(1) 06TT-356	(1) 06TT-266	(1) 06TT-356
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	(1) 06TU-483	(1) 06TU-554	(1) 06TU-554
Oil Charge (gal), Ckt A/Ckt B/Ckt C	6.75/6.75/—	7.5/6.75/—	7.5/6.75/—	7.5/6.75/—	7.5/7.5/—	7.5/7.5/—	6.75/6.75/7.5	7.5/6.25/7.5	7.5/6.75/7.5
Minimum Capacity Step (%)									
Standard	15	11	13	12	15	15	9	6	7
Optional	10	8	9	7	10	10	6	4	5
COOLER	Flooded, Shell and Tube Type								
Net Fluid Volume (gal.)	39.0	42.0	44.0	48.5	50.5	53.4	68.0	75.0	83.0
Maximum Refrigerant Pressure (psig)	220	220	220	220	220	220	220	220	220
Maximum Fluid Side Pressure Without Pumps (psig)	300	300	300	300	300	300	150	150	150
Maximum Fluid Side Pressure With Pumps (psig)	—	—	—	—	—	—	—	—	—
WATER CONNECTIONS									
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8	8	8	8	8
Number of Passes	2	2	2	2	2	2	1	1	1
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8	8	—	—	—
Number of Passes	1	1	1	1	1	1	—	—	—
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8	8	—	—	—
Number of Passes	3	3	3	3	3	3	—	—	—
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge								
Fan Speed (rpm) Standard/High Ambient**	850/1140	850/1140	850/1140	850/1140	850/1140	850/1140	850/1140	850/1140	850/1140
No. Blades...Diameter (in.)	9...30	9...30	9...30	9...30	9...30	9...30	9...30	9...30	9...30
No. Fans (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	10/6/—	10/6/—	9/9/—	9/9/—	6/6/8	8/6/8	8/6/8
Total Airflow (cfm) 850 rpm	120,900	139,500	148,800	148,800	167,400	167,400	186,000	204,600	204,600
Total Airflow (cfm) 1140 rpm	161,200	186,000	198,400	198,400	223,200	223,200	248,000	272,800	272,800
CONDENSER COILS									
No. Coils (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	10/6/—	10/6/—	9/9/—	9/9/—	6/6/8	8/6/8	8/6/8
Total Face Area (sq ft)	305	352	375	375	422	422	469	516	516
HYDRONIC MODULE (Optional)	N/A								
Pump									
CHASSIS DIMENSIONS (ft-in.)									
Length	27-6	31-5			35-4		39-3	43-2	
Width									
Height	7-4¾ 7-67/16								

LEGEND

Cu	—	Copper
Al	—	Aluminum
EXV	—	Electronic Expansion Valve
MCHX	—	Micro-Channel Heat Exchanger
N/A	—	Not Applicable

*Operating weight includes 2 pumps on models 30XA090-160. No pumps are available on 30XA080 or 30XA180-500. See pages 8-19 for mounting weights for units without pumps and units with single pump packages.

†30XA080 unit does not have an economizer.

**The high ambient temperature option is not available on 30XA080-120 units.



30XA080-500 — SI

UNIT 30XA	080	090	100	110	120	140	160	180	200	220
OPERATING WEIGHT (kg)*										
Al-Cu Condenser Coils	3 481	4 517	4 620	4 684	4 750	5 788	5 898	6 164	6 220	6 680
Cu-Cu Condenser Coils	3 809	4 855	5 058	5 122	5 187	6 335	6 445	6 821	6 876	7 391
MCHX Condenser Coils	3 281	4 255	4 356	4 417	4 480	5 454	5 559	5 760	5 811	6 236
REFRIGERANT TYPE	R-134a, EXV Controlled System									
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C	39/39/—	44/44/—	49/49/—	49/44/—	102/102/—	91.6/52.2/—	102/61.2/—	93/93/—	102/102/—	122.5/102/—
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	27.2/27.2/—	28.1/28.1/—	33.1/33.1/—	45.4/33.1/—	45.4/45.4/—	62.1/35.8/—	72.1/45.4/—	64.0/64.0/—	73.0/73.0/—	81.2/73.0/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws									
Quantity	2	2	2	2	2	2	2	2	2	2
Speed (r/s)	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3	58.3
(Qty) Compressor Model Number Ckt A	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-186	(1) 06TS-186	(1) 06TS-266	(1) 06TT-301	(1) 06TT-266	(1) 06TT-301	(1) 06TT-356
(Qty) Compressor Model Number Ckt B	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-155	(1) 06TS-186	(1) 06TS-155	(1) 06TS-186	(1) 06TT-266	(1) 06TT-301	(1) 06TT-301
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Oil Charge (liters), Ckt A/Ckt B/Ckt C	20.8/20.8/—	20.8/20.8/—	20.8/20.8/—	20.8/20.8/—	20.8/20.8/—	23.7/20.8/—	23.7/23.7/—	23.7/23.7/—	23.7/23.7/—	25.6/23.7/—
Minimum Capacity Step (%)	15	15	15	14	15	11	11	15	15	14
Standard	9	9	9	8	10	7	8	10	10	10
Optional										
COOLER	Flooded, Shell and Tube Type									
Net Fluid Volume (liters)	62.5	70.0	70.0	75.7	87.1	96.5	104.1	119.2	128.7	140.1
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Fluid Side Pressure Without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068	2 068	2 068	2 068	2 068	2 068
Maximum Fluid Side Pressure With Pumps	—	1 034	1 034	1 034	1 034	1 034	1 034	—	—	—
WATER CONNECTIONS										
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5	5	5	6	6	6
Number of Passes	2	2	2	2	2	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5	5	5	8	8	8
Number of Passes	1	1	1	1	1	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	4	4	4	4	4	5	5	6	6	6
Number of Passes	3	3	3	3	3	3	3	3	3	3
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge									
Fan Speed (r/s) Standard/High Ambient**	14.2/—	14.2/—	14.2/—	14.2/—	14.2/—	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0
No. Blades, Diameter (mm)	9...762	9...762	9...762	9...762	9...762	9...762	9...762	9...762	9...762	9...762
No. Fans (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Airflow (L/s) 14.2 r/s	26 335	35 113	35 113	35 113	35 113	43 891	43 891	52 669	52 669	57 059
Total Airflow (L/s) 19.0 r/s	—	—	—	—	—	58 522	58 522	70 226	70 226	76 078
CONDENSER COILS										
No. Coils (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Face Area (sq m)	13	17	17	17	17	22	22	26	26	28
HYDRONIC MODULE (Optional)										
Pump	N/A	Pump(s) with pressure/temperature taps and combination valve. Single or Dual, 58.3 r/s						N/A		
CHASSIS DIMENSIONS (mm)										
Length	3 606		4 800		2 255	5 994		7 188		8 382
Width					2296.9					
Height										

UNIT 30XA	240	260	280	300	325	350	400	450	500
OPERATING WEIGHT (kg)*									
Al-Cu Condenser Coils	6 753	7 644	7 721	7 876	8 543	8 636	11 149	12 066	12 199
Cu-Cu Condenser Coils	7 464	8 465	8 542	8 751	9 528	9 621	12 243	13 269	13 402
MCHX Condenser Coils	6 304	7 130	7 202	7 322	7 923	8 010	10 450	11 295	11 416
REFRIGERANT TYPE	R-134a, EXV Controlled System								
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C	122.5/122.5/—	170.1/99.8/—	170.1/122.5/—	188.3/122.5/—	170.1/170.1/—	188.3/170.1/—	122.5/122.5/170.1	188.3/102/188.3	188.3/188.3/122.5
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	87.5/87.5/—	112.0/71.0/—	118.0/88.0/—	136.1/88.0/—	118.0/118.0/—	136.1/118.0/—	87.1/87.1/117.0	131.5/61.2/131.5	133.3/87.5/133.3
COMPRESSORS	Semi-Hermetic Twin Rotary Screws								
Quantity	2	2	2	2	2	2	3	3	3
Speed (r/s)	3500	3500	3500	3500	3500	3500	3500	3500	3500
(Qty) Compressor Model Number Ckt A	(1) 06TT-356	(1) 06TU-483	(1) 06TU-483	(1) 06TU-554	(1) 06TU-483	(1) 06TU-554	(1) 06TT-356	(1) 06TU-554	(1) 06TU-554
(Qty) Compressor Model Number Ckt B	(1) 06TT-356	(1) 06TT-301	(1) 06TT-356	(1) 06TT-356	(1) 06TT-483	(1) 06TT-483	(1) 06TT-356	(1) 06TT-266	(1) 06TT-356
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	(1) 06TU-483	(1) 06TU-554	(1) 06TU-554
Oil Charge (liter), Ckt A/Ckt B/Ckt C	25.6/25.6/—	28.4/25.6/—	28.4/25.6/—	28.4/25.6/—	28.4/25.6/—	28.4/25.6/—	25.6/25.6/28.4	28.4/23.7/28.4	28.4/25.6/28.4
Minimum Capacity Step (%)	15	10	13	12	15	14	9	6	7
Standard	10	8	9	7	10	10	6	4	5
Optional									
COOLER	Flooded, Shell and Tube Type								
Net Fluid Volume (liters)	147.6	159.0	166.6	183.6	191.2	202.1	257.4	283.9	314.2
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Fluid Side Pressure Without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068	2 068	1 034	1 034	1 034
Maximum Fluid Side Pressure With Pumps	—	—	—	—	—	—	—	—	—
WATER CONNECTIONS									
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8	8	8	8	8
Number of Passes	2	2	2	2	2	2	1	1	1
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8	8	—	—	—
Number of Passes	1	1	1	1	1	1	—	—	—
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8	8	—	—	—
Number of Passes	3	3	3	3	3	3	—	—	—
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge								
Fan Speed (r/s) Standard/High Ambient**	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0	14.2/19.0
No. Blades, Diameter (mm)	9...762	9...762	9...762	9...762	9...762	9...762	9...762	9...762	9...762
No. Fans (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	10/6/—	10/6/—	9/9/—	9/9/—	6/6/8	8/6/8	8/6/8
Total Airflow (L/s) 14.2 r/s	57 059	65 837	70 226	70 226	79 004	79 004	87 782	96 561	96 561
Total Airflow (L/s) 19.0 r/s	76 078	87 782	93 634	93 634	93 634	105 339	117 043	128 747	128 747
CONDENSER COILS									
No. Coils (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	10/6/—	10/6/—	9/9/—	9/9/—	6/6/8	8/6/8	8/6/8
Total Face Area (sq m)	28	33	35	35	39	39	44	48	48
HYDRONIC MODULE (Optional)									
Pump	N/A								
CHASSIS DIMENSIONS (mm)									
Length	8 382		9 576		10 770		11 964		13 158
Width					2 255				
Height					2 300				

LEGEND

Cu	—	Copper
Al	—	Aluminum
EXV	—	Electronic Expansion Valve
MCHX	—	Micro-Channel Heat Exchanger
N/A	—	Not Applicable

*Operating weight includes 2 pumps on models 30XA090-160. No pumps are available on 30XA080 or 30XA180-500. See pages 8-19 for mounting weights for units without pumps and units with single pump packages.

†30XA080 unit does not have an economizer.

**The high ambient temperature option is not available on 30XA080-120 units.

UNIT MOUNTING WEIGHTS

UNITS WITHOUT PUMPS AND WITH MCHX CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	Total												
080	1947	1673	1670	1943	7234												
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	Total										
090	1201	2043	750	951	1983	1199	8127										
100	1226	2098	780	981	2038	1224	8348										
110	1239	2136	798	1006	2075	1229	8483										
120	1272	2174	800	1007	2106	1263	8622										
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	Total								
140	1897	1444	864	1181	1217	883	1584	1699	10,768								
160	1949	1469	878	1206	1246	899	1603	1750	11,000								
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	Total						
180	905	1484	1164	1849	1187	1224	1868	840	1289	888	12,699						
200	909	1499	1188	1870	1192	1232	1879	848	1299	893	12,810						
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	813	1196	1592	1498	828	1216	1259	848	1363	1064	1237	832	13,748				
240	829	1218	1617	1520	830	1218	1261	850	1371	1073	1260	849	13,897				
260	495	1431	1630	763	2465	1013	1528	2380	800	1333	1386	495	15,720				
280	497	1451	1663	771	2497	1015	1530	2390	803	1358	1406	497	15,878				
300	502	1465	1686	786	2568	1027	1557	2454	811	1367	1417	502	16,141				
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	742	742	978	1531	783	2546	1067	1563	2334	804	1646	1247	742	742	17,467		
350	745	745	982	1546	792	2598	1077	1589	2386	808	1651	1249	745	745	17,659		
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	847	1234	1511	2965	1255	789	2214	1071	1566	2286	747	1265	2152	991	1277	868	23,038
450	856	1179	2160	2282	905	1057	2030	2053	2711	1934	1551	1266	1440	1385	1216	876	24,901
500	843	1236	2207	2334	909	1060	2037	2060	2718	1941	1555	1269	1457	1401	1279	863	25,167

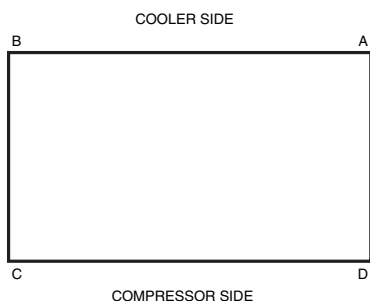
UNITS WITHOUT PUMPS AND WITH MCHX CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	Total												
080	883	759	758	882	3281												
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	Total										
090	545	927	340	431	899	544	3686										
100	556	952	354	445	924	555	3786										
110	562	969	362	456	941	558	3848										
120	577	986	363	457	955	573	3911										
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	Total								
140	860	655	392	536	552	401	719	771	4884								
160	884	666	398	547	565	408	727	794	4990								
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	Total						
180	410	673	528	839	538	555	847	381	584	403	5760						
200	412	680	539	848	541	559	852	385	589	405	5811						
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	369	542	722	680	376	552	571	385	618	483	561	378	6236				
240	376	552	734	690	377	553	572	386	622	487	572	385	6304				
260	225	649	740	346	1118	460	693	1079	363	605	629	225	7130				
280	225	658	754	350	1133	461	694	1084	364	616	638	225	7202				
300	228	664	765	357	1165	466	706	1113	368	620	643	228	7322				
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	337	337	444	695	355	1155	484	709	1058	365	746	565	337	337	7923		
350	338	338	446	701	359	1179	488	721	1082	367	749	567	338	338	8010		
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	384	560	685	1345	569	358	1004	486	710	1037	339	574	976	450	579	394	10 450
450	388	535	980	1035	411	479	921	931	1230	877	704	574	653	628	551	397	11 295
500	382	561	1001	1059	412	481	924	934	1233	880	705	576	661	635	580	391	11 416

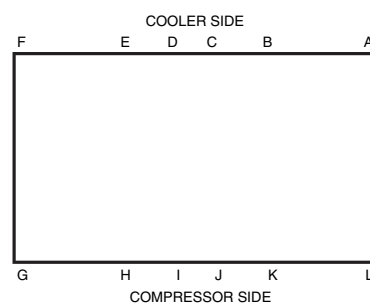
UNIT MOUNTING WEIGHTS (cont)

UNITS WITHOUT PUMPS AND WITH MCHX CONDENSER COILS

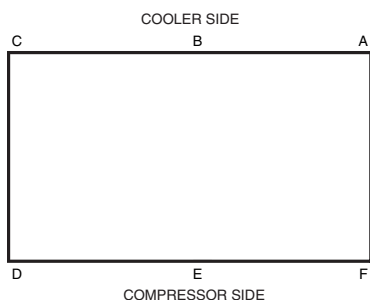
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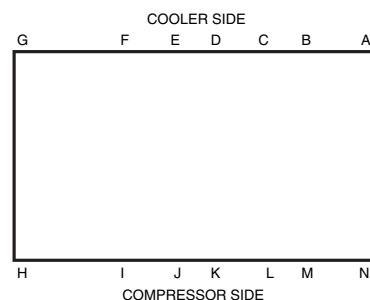
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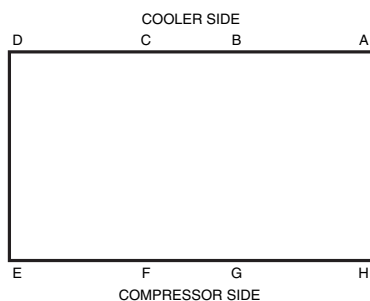
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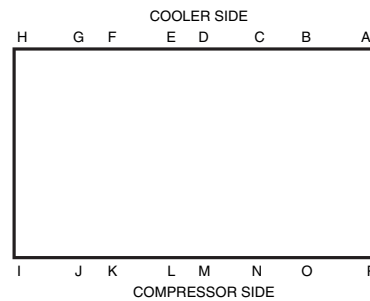
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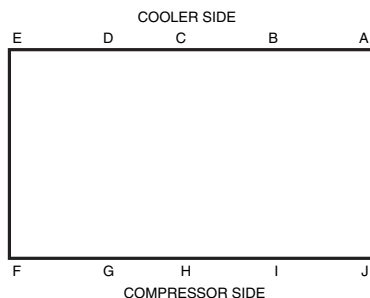
30XA140,160



30XA400-500



30XA180-200



LEGEND

MCHX — Micro-Channel Heat Exchanger

UNIT MOUNTING WEIGHTS (cont) SINGLE PUMP UNITS WITH MCHX CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS						
	A	B	C	D	E	F	Total
090	1201	2754	1087	900	1944	1199	9085
100	1226	2814	1123	924	1995	1224	9306
110	1239	2855	1145	945	2027	1229	9441
120	1272	2893	1147	947	2059	1263	9580

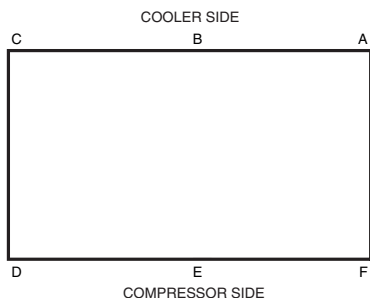
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS								
	A	B	C	D	E	F	G	H	Total
140	1897	1444	1609	1606	1078	810	1584	1699	11,726
160	1949	1469	1626	1635	1103	824	1603	1750	11,958

SINGLE PUMP UNITS WITH MCHX CONDENSER COILS — SI

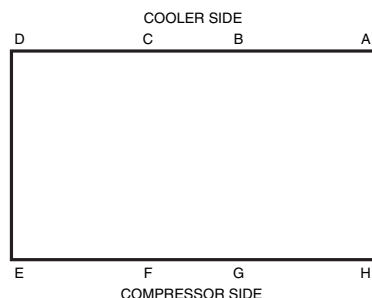
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS						
	A	B	C	D	E	F	Total
090	545	1249	493	408	882	544	4121
100	556	1276	510	419	905	555	4221
110	562	1295	519	429	920	558	4282
120	577	1312	520	430	934	573	4346

30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS								
	A	B	C	D	E	F	G	H	Total
140	860	655	730	728	489	367	719	771	5319
160	884	666	737	742	500	374	727	794	5424

30XA090-120



30XA140,160



LEGEND

MCHX — Micro-Channel Heat Exchanger

UNIT MOUNTING WEIGHTS (cont)
DUAL PUMP UNITS WITH MCHX CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS						
	A	B	C	D	E	F	Total
090	1201	2962	1176	900	1944	1199	9382
100	1226	3022	1212	924	1995	1224	9603
110	1239	3064	1234	945	2027	1229	9738
120	1272	3101	1236	947	2059	1263	9877

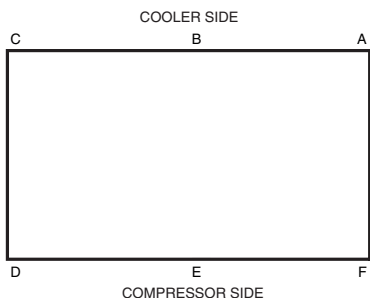
30XA UNIT SIZE	MOUNTING WEIGHT (lb) MCHX CONDENSER COILS							
	A	B	C	D	E	F	G	Total
140	1897	1444	1818	1694	1078	810	1584	12,023
160	1949	1469	1834	1724	1103	824	1603	12,255

DUAL PUMP UNITS WITH MCHX CONDENSER COILS — SI

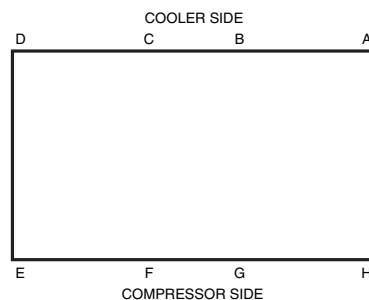
30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS						
	A	B	C	D	E	F	Total
090	545	1343	533	408	882	544	4255
100	556	1371	550	419	905	555	4356
110	562	1390	560	429	920	558	4417
120	577	1407	560	430	934	573	4480

30XA UNIT SIZE	MOUNTING WEIGHT (kg) MCHX CONDENSER COILS							
	A	B	C	D	E	F	G	Total
140	860	655	825	769	489	367	719	5454
160	884	666	832	782	500	374	727	5559

30XA090-120



30XA140,160



LEGEND

MCHX — Micro-Channel Heat Exchanger

UNIT MOUNTING WEIGHTS (cont)

UNITS WITHOUT PUMPS AND WITH Al/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	Total												
080	2059	1785	1778	2051	7674												
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	Total										
090	1273	2188	822	1023	2127	1271	8704										
100	1299	2244	853	1054	2184	1297	8931										
110	1312	2284	872	1079	2222	1303	9071										
120	1346	2322	874	1082	2255	1337	9216										
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	G	H	Total								
140	2007	1554	938	1254	1291	957	1695	1809	11,505								
160	2061	1581	953	1281	1321	974	1715	1862	11,748								
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	Total						
180	979	1558	1239	1998	1261	1298	2016	915	1363	962	13,590						
200	984	1574	1263	2020	1267	1308	2029	923	1375	968	13,712						
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	883	1266	1697	1603	898	1286	1329	918	1468	1169	1307	902	14,727				
240	900	1288	1723	1626	901	1289	1331	921	1477	1179	1331	920	14,887				
260	566	1572	1701	834	2607	1084	1599	2521	871	1404	1528	566	16,853				
280	569	1594	1734	843	2640	1087	1601	2533	875	1429	1549	569	17,022				
300	578	1617	1762	862	2720	1103	1633	2607	887	1444	1570	578	17,362				
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	856	856	1054	1607	859	2697	1143	1639	2485	880	1722	1322	856	856	18,834		
350	860	860	1059	1623	869	2752	1153	1666	2539	885	1727	1326	860	860	19,040		
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	924	1311	1588	3119	1332	866	2368	1148	1643	2440	824	1342	2306	1069	1354	945	24,578
450	933	1256	2276	2398	982	1134	2184	2207	2866	2089	1629	1343	1556	1501	1293	953	26,600
500	921	1314	2325	2452	987	1139	2194	2217	2875	2098	1633	1348	1575	1519	1357	941	26,894

*Condenser Coil: Aluminum Fins/Copper Tubing.

UNITS WITHOUT PUMPS AND WITH Al/Cu CONDENSER COILS — SI

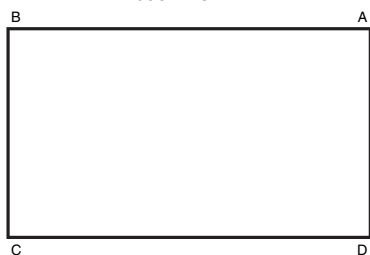
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	Total												
080	934	810	807	930	3481												
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	Total										
090	578	992	373	464	965	576	3948										
100	589	1018	387	478	991	588	4051										
110	595	1036	396	489	1008	591	4115										
120	611	1053	397	491	1023	607	4181										
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	G	H	Total								
140	910	705	425	569	585	434	769	821	5219								
160	935	717	432	581	599	442	778	845	5329								
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	Total						
180	444	707	562	906	572	589	915	415	618	436	6164						
200	446	714	573	916	575	593	920	419	624	439	6220						
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	401	574	770	727	407	583	603	416	666	530	593	409	6680				
240	408	584	782	738	409	585	604	418	670	535	604	417	6753				
260	257	713	772	378	1182	492	725	1144	395	637	693	257	7644				
280	258	723	787	382	1197	493	726	1149	397	648	703	258	7721				
300	262	734	799	391	1234	501	741	1182	402	655	712	262	7876				
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	388	388	478	729	390	1224	518	744	1127	399	781	600	388	388	8543		
350	390	390	480	736	394	1248	523	756	1152	401	784	601	390	390	8636		
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	419	595	720	1415	604	393	1074	521	745	1107	374	609	1046	485	614	428	11 149
450	423	570	1032	1088	446	514	991	1001	1300	948	739	609	706	681	586	432	12 066
500	418	596	1055	1112	448	516	995	1005	1304	952	741	611	714	689	616	427	12 199

*Condenser Coil: Aluminum Fins/Copper Tubing.

UNIT MOUNTING WEIGHTS (cont)
UNITS WITHOUT PUMPS AND WITH Al/Cu CONDENSER COILS

30XA080

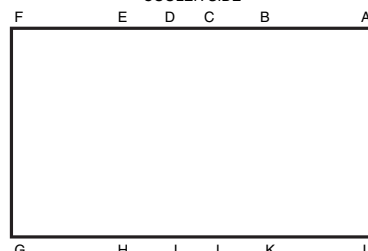
COOLER SIDE



COMPRESSOR SIDE

30XA220-300

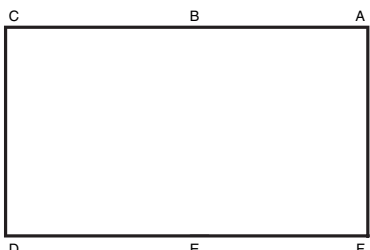
COOLER SIDE



COMPRESSOR SIDE

30XA090-120

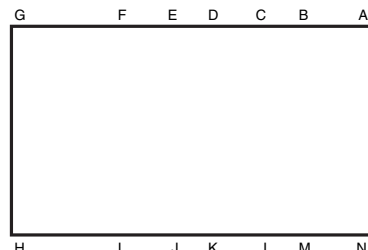
COOLER SIDE



COMPRESSOR SIDE

30XA325-350

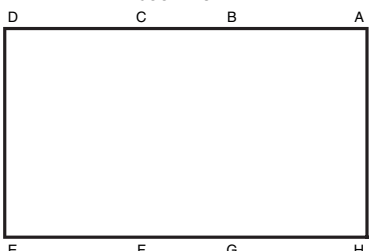
COOLER SIDE



COMPRESSOR SIDE

30XA140,160

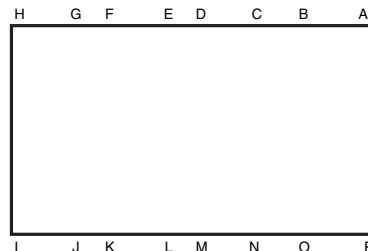
COOLER SIDE



COMPRESSOR SIDE

30XA400-500

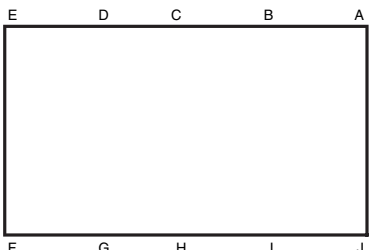
COOLER SIDE



COMPRESSOR SIDE

30XA180-200

COOLER SIDE



COMPRESSOR SIDE

UNIT MOUNTING WEIGHTS (cont)

SINGLE PUMP UNITS WITH Al/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*						
	A	B	C	D	E	F	Total
090	1273	2898	1160	972	2089	1271	9,662
100	1299	2959	1196	997	2140	1297	9,889
110	1312	3002	1219	1019	2175	1303	10,029
120	1346	3041	1221	1021	2208	1337	10,174

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*								
	A	B	C	D	E	F	G	H	Total
140	2007	1554	1683	1679	1152	883	1695	1809	12,463
160	2061	1581	1701	1710	1178	898	1715	1862	12,706

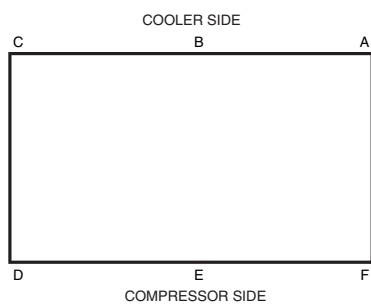
SINGLE PUMP UNITS WITH Al/Cu CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*						
	A	B	C	D	E	F	Total
090	578	1314	526	441	947	576	4383
100	589	1342	543	452	971	588	4485
110	595	1362	553	462	986	591	4549
120	611	1379	554	463	1001	607	4615

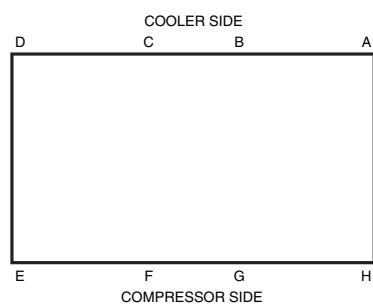
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*								
	A	B	C	D	E	F	G	H	Total
140	910	705	763	762	523	401	769	821	5653
160	935	717	771	776	534	408	778	845	5763

*Condenser Coil: Aluminum Fins/Copper Tubing.

30XA090-120



30XA140,160



UNIT MOUNTING WEIGHTS (cont)
DUAL PUMP UNITS WITH Al/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*						
	A	B	C	D	E	F	Total
090	1273	3106	1248	972	2089	1271	9,959
100	1299	3168	1285	997	2140	1297	10,186
110	1312	3211	1307	1019	2175	1303	10,326
120	1346	3249	1310	1021	2208	1337	10,471

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Al/Cu*							
	A	B	C	D	E	F	G	Total
140	2007	1554	1891	1768	1152	883	1695	12,760
160	2061	1581	1909	1799	1178	898	1715	13,003

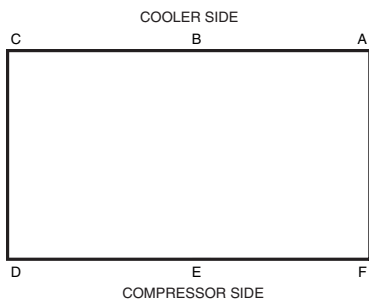
DUAL PUMP UNITS WITH Al/Cu CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*					
	A	B	C	D	E	Total
090	578	1409	566	441	947	4517
100	589	1437	583	452	971	4620
110	595	1456	593	462	986	4684
120	611	1474	594	463	1001	4750

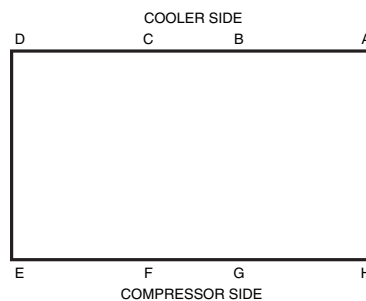
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Al/Cu*							
	A	B	C	D	E	F	G	Total
140	910	705	858	802	523	401	769	5788
160	935	717	866	816	534	408	778	5898

*Condenser Coil: Aluminum Fins/Copper Tubing.

30XA090-120



30XA140,160



UNIT MOUNTING WEIGHTS (cont) UNITS WITHOUT PUMPS AND WITH Cu/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	Total												
080	2244	1970	1956	2228	8398												
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	E	F	Total										
090	1394	2429	943	1144	2368	1392	9,669										
100	1420	2485	974	1174	2425	1418	9,896										
110	1433	2525	993	1200	2463	1424	10,036										
120	1467	2563	995	1202	2496	1458	10,181										
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	E	F	G	H	Total								
140	2188	1735	1058	1375	1411	1078	1876	1990	12,711								
160	2242	1762	1074	1401	1442	1095	1896	2043	12,954								
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	Total						
180	1099	1679	1359	2239	1382	1419	2258	1035	1483	1083	15037						
200	1105	1695	1384	2261	1388	1428	2271	1044	1495	1089	15159						
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	995	1378	1865	1771	1010	1398	1441	1030	1636	1337	1419	1014	16,295				
240	1012	1400	1891	1794	1013	1401	1443	1033	1645	1347	1443	1032	16,455				
260	679	1798	1814	947	2833	1197	1712	2748	984	1517	1754	679	18,662				
280	682	1820	1847	956	2866	1200	1715	2759	988	1542	1775	682	18,831				
300	699	1858	1883	983	2962	1224	1754	2848	1008	1564	1811	699	19,292				
30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	1037	1037	1175	1728	980	2939	1263	1760	2727	1001	1842	1443	1037	1037	21,005		
350	1041	1041	1180	1743	990	2993	1274	1786	2780	1006	1848	1447	1041	1041	21,211		
30XA UNIT SIZE	MOUNTING WEIGHT (lb) —Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	1045	1432	1708	3361	1453	987	2609	1269	1764	2681	945	1462	2547	1189	1474	1065	26,990
450	1054	1377	2457	2579	1103	1255	2426	2449	3107	2330	1749	1464	1738	1682	1413	1073	29,254
500	1041	1434	2506	2633	1108	1259	2435	2458	3116	2340	1754	1468	1756	1700	1477	1061	29,547

†Condenser Coil: Copper Fins/Copper Tubing.

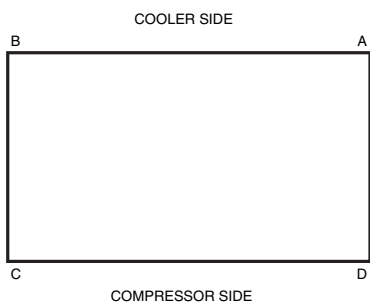
UNITS WITHOUT PUMPS AND WITH Cu/Cu CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	Total												
080	1018	893	887	1011	3809												
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	Total										
090	632	1102	428	519	1074	631	4386										
100	644	1127	442	533	1100	643	4489										
110	650	1145	450	544	1117	646	4552										
120	665	1163	451	545	1132	661	4618										
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	G	H	Total								
140	992	787	480	624	640	489	851	903	5766								
160	1017	799	487	636	654	497	860	927	5876								
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	Total						
180	499	762	617	1016	627	644	1024	470	673	491	6821						
200	501	769	628	1026	630	648	1030	474	678	494	6876						
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	Total				
220	451	625	846	804	458	634	653	467	742	607	644	460	7391				
240	459	635	858	814	460	635	655	469	746	611	654	468	7464				
260	308	816	823	429	1285	543	777	1246	446	688	796	308	8465				
280	309	826	838	434	1300	544	778	1252	448	700	805	309	8542				
300	317	843	854	446	1343	555	796	1292	457	710	821	317	8751				
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total		
325	470	470	533	784	445	1333	573	798	1237	454	836	655	470	470	9528		
350	472	472	535	791	449	1358	578	810	1261	456	838	656	472	472	9621		
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	474	649	775	1524	659	447	1183	576	800	1216	428	663	1155	539	669	483	12 243
450	478	624	1114	1170	500	569	1100	1111	1409	1057	793	664	788	763	641	487	13 269
500	472	651	1137	1194	502	571	1105	1115	1413	1061	796	666	797	771	670	481	13 402

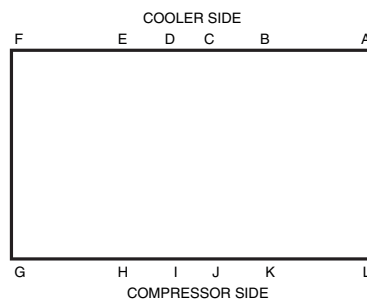
†Condenser Coil: Copper Fins/Copper Tubing.

UNIT MOUNTING WEIGHTS (cont)
UNITS WITHOUT PUMPS AND WITH Cu/Cu CONDENSER COILS

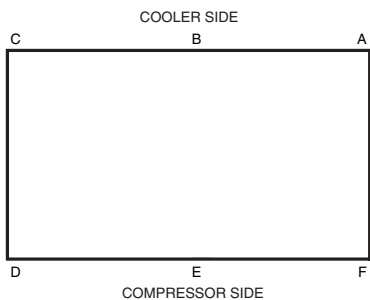
30XA080



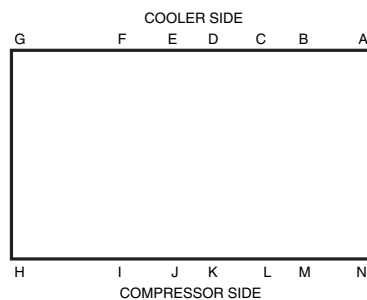
30XA220-300



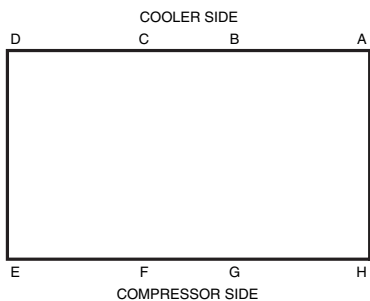
30XA090-120



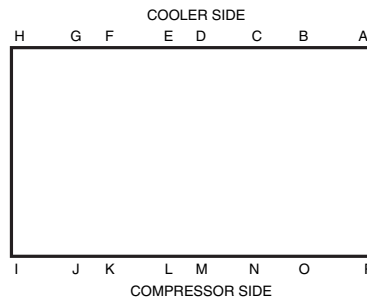
30XA325-350



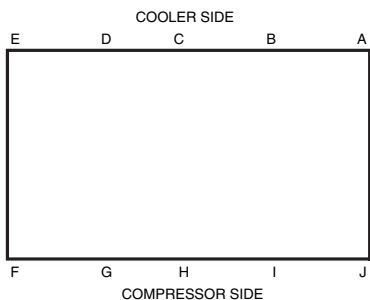
30XA140,160



30XA400-500



30XA180-200



UNIT MOUNTING WEIGHTS (cont)

SINGLE PUMP UNITS WITH Cu/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†						
	A	B	C	D	E	F	Total
090	1394	3139	1280	1093	2330	1392	10,627
100	1420	3201	1317	1117	2382	1418	10,854
110	1433	3244	1339	1139	2416	1424	10,994
120	1467	3282	1342	1142	2449	1458	11,139

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†							
	A	B	C	D	E	F	G	Total
140	2188	1735	1804	1800	1273	1004	1876	13,669
160	2242	1762	1821	1831	1299	1019	1896	13,912

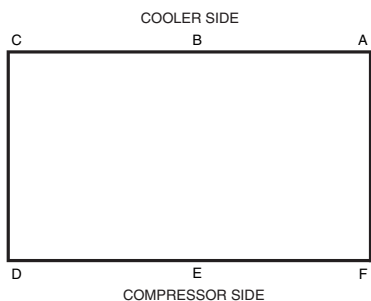
SINGLE PUMP UNITS WITH Cu/Cu CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†						
	A	B	C	D	E	F	Total
090	632	1424	581	496	1057	631	4820
100	644	1452	597	507	1080	643	4923
110	650	1471	607	517	1096	646	4987
120	665	1489	609	518	1111	661	5053

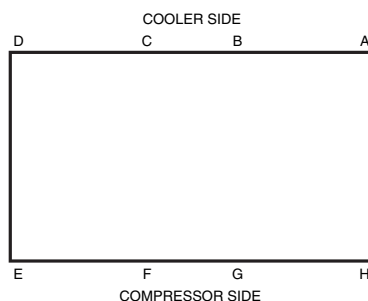
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†							
	A	B	C	D	E	F	G	Total
140	992	787	818	816	577	455	851	6200
160	1017	799	826	830	589	462	860	6310

†Condenser Coil: Copper Fins/Copper Tubing.

30XA090-120



30XA140,160



UNIT MOUNTING WEIGHTS (cont)
DUAL PUMP UNITS WITH Cu/Cu CONDENSER COILS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†						
	A	B	C	D	E	F	Total
090	1394	3347	1369	1093	2330	1392	10,924
100	1420	3409	1406	1117	2382	1418	11,151
110	1433	3452	1428	1139	2416	1424	11,291
120	1467	3491	1430	1142	2449	1458	11,436

30XA UNIT SIZE	MOUNTING WEIGHT (lb) — Cu/Cu†								
	A	B	C	D	E	F	G	H	Total
140	2188	1735	2012	1889	1273	1004	1876	1990	13,966
160	2242	1762	2029	1919	1299	1019	1896	2043	14,209

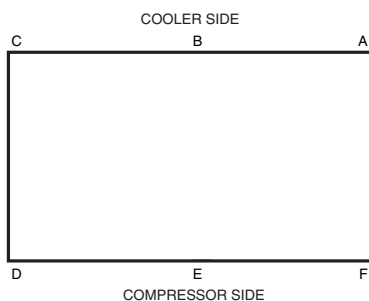
DUAL PUMP UNITS WITH Cu/Cu CONDENSER COILS — SI

30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†						
	A	B	C	D	E	F	Total
090	632	1518	621	496	1057	631	4955
100	644	1546	638	507	1080	643	5058
110	650	1566	648	517	1096	646	5122
120	665	1583	649	518	1111	661	5187

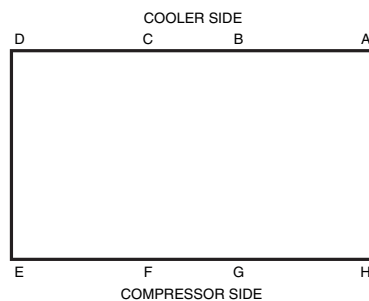
30XA UNIT SIZE	MOUNTING WEIGHT (kg) — Cu/Cu†								
	A	B	C	D	E	F	G	H	Total
140	992	787	913	857	577	455	851	903	6335
160	1017	799	921	871	589	462	860	927	6445

†Condenser Coil: Copper Fins/Copper Tubing.

30XA090-120



30XA140,160



Options and accessories



ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Condenser Coil and Fan Options		
Aluminum Fins/Pre-coated	X	
Aluminum Fins E-Coat	X	
Compressor Sound Reduction Enclosures	X	
High Ambient Temperature Option	X	
Microchannel Heat Exchanger	X	
Controls/Communication Options		
BACnet™ Translator Control	X	X
Chillervisor System Manager III Multi-Unit Control		X
Energy Management Module	X	X
Convenience Outlet	X	X
LON Translator Control	X	X
Navigator™ Module	X	X
Remote Enhanced Display		X
Remote Service Port	X	X
Touch Pilot™ Display	X	X
Cooler Options		
Medium Temperature Brine	X	
Minus One Pass Cooler	X	
Plus One Pass Cooler	X	
Remote Cooler		X
Electrical Options		
Unit-Mounted Main Disconnect, Non-Fused	X	
Control Transformer	X	
Hydronic Pump Package	X	
Refrigeration Circuit Options		
Wye-Delta Compressor Start	X	
Low Ambient Temperature Head Pressure Control	X	X
Minimum Load Control		X
Suction Service Valve	X	
Security/Packaging Option		
Security Grilles	X	X
Condenser Coil Hail Guards	X	X
Condenser Coil Trim Panels	X	X

LEGEND

LON — Local Operating Network

Factory-installed options

Microchannel technology is available as a condenser coil option for all sizes of AquaForce™ units. This option increases unit efficiency, capacity and corrosion resistance, while using significantly less refrigerant. Microchannel coils are provided with a standard 3-year parts warranty.

Condenser coil options are available to match coil construction to the site conditions for the best durability. Refer to the Condenser Coil Corrosion Protection Options table on page 21 or the Environmental Corrosion Protection white paper for more information.

High ambient temperature option provides high-speed condenser fan motors to increase the condenser air-flow. This option may allow for an increase in machine capacity, and may also result the selection of a smaller chassis to meet given capacity requirements. The high ambient temperature option is not available on 30XA080-120 units.

Minus-one-pass cooler provides a lower pressure drop through the cooler for applications with low delta T or high flow or where the coolers are piped in a series arrangement.

Plus-one-pass cooler provides a greater efficiency for brine applications and in applications with a high delta T and low flow.

Wye-delta start is an alternate starting method which reduces the in-rush current when starting the compressor.

Compressor suction service valve provides additional protection. Standard refrigerant discharge isolation and liquid valves enable service personnel to store the refrigerant charge in the cooler or condenser during servicing. This factory-installed option allows for isolation of the compressor from the cooler vessel.

Energy management module provides energy management capabilities to minimize chiller energy consumption. Several features are provided with this module including leaving fluid temperature reset, cooling set point or demand limit control from a 4 to 20 mA signal, space temperature reset (requires field-installed space temperature sensor), 2-step demand limit control (from 0 to 100%) activated by a remote contact closure, and discrete input for “Ice Done” indication for ice storage system interface.

Service option provides a remote service port for Navigator™ display connection (sizes 080-120, not required on other sizes) and a factory-installed convenience outlet that includes 4-amp GFI (Ground Fault Interrupt) receptacle. Convenience outlet is 115-v female receptacle. Service option not available with 380-v units, and is also available as a field-installed accessory.

Low ambient temperature head pressure control permits operation of the 30XA units to –20 F (–29 C) outdoor ambient temperature. The control is also available as a field-installed accessory and may require field-installed wind baffles.

Medium temperature brine option allows for leaving fluid temperatures to be set between 15 and 39 F (–9.4 to 3.9 C). The expansion device is modified to correct for the lower refrigeration flow rates. Low ambient temperature head pressure control and suction line insulation are required.

Unit-mounted non-fused disconnect option provides non-fused disconnect for unit power located at the unit.

BACnet™ translator control provides an interface between the chiller and a BACnet Local Area Network (LAN, i.e., MS/TP EIA-485). The BACnet translator control is also available as a field-installed accessory.



LON translator control provides an interface between the chiller and a Local Operating Network (LON, i.e., LonWorks FT-10A ANSI/EIA-709.1). The LON translator control is also available as a field-installed accessory.

Condenser coil trim panels provide an aesthetic, finished appearance for the condenser coil ends of the compressor side of the unit. Condenser coil trim panels are also available as a field-installed accessory.

Control transformer is sized to supply the needs of the control circuit from the main power supply.

Hydronic pump package adds circulating pumps, a combination valve (isolation, modulation and check), strainer, victaulic piping connections, insulation and heaters and pressure temperature taps (3). The pumps are available in single or dual (lead/lag controlled), cooler pump versions with total dynamic head external to the chiller from approximately 20 to 140 ft (6.1 to 42.7 m). The hydronic pump package is only available for unit sizes 30XA090-160.

Security grilles are coated grilles that protect the condenser, cooler and compressors. These are also available as an accessory.

Hail guards are sheet metal hoods that provide protection against damage from hail and flying debris. These are also available as an accessory.

Compressor enclosures provide sound reduction for the screw compressors.

Navigator™ module provides a portable, hand-held display for convenient access to unit status, operation, configuration and troubleshooting diagnostics capability.

Touch Pilot™ display provides a touch screen user interface. This fixed screen display can be used to commission, monitor and control Carrier Comfort Network® devices. It provides access to configuration, maintenance, service, set point, time schedule, alarm history and status data.

Field-installed accessories

Touch Pilot display used as an accessory is a cost-effective, touch-screen, remote mount device that can be used in lieu of the remote enhanced display.

Remote enhanced display is a remotely mounted indoor 40-character per line, 16-line display panel for unit monitoring and diagnostics.

Remote cooler kit allows for remote installation of the cooler.

Chillervisor System Manager III multi-unit control allows sequencing of between two and eight chillers in parallel.

Low ambient temperature head pressure control permits operation of the 30XA units to -20 F outdoor ambient temperature. The control is also available as a factory-installed option and may require field-installed wind baffles.

Energy Management Module provides energy management capabilities to minimize chiller energy consumption. Several features are provided with this module including leaving fluid temperature reset, cooling set point, space temperature reset (requires field-installed space temperature sensor) or demand limit control from a 4 to 20 mA signal, 2-step demand limit control (from 0 to 100%) activated by a remote contact closure (one-step demand limit does not require the Energy Management Module), and discrete input for “Ice Done” indication for ice storage system interface.

Remote service port consists of a receptacle for Navigator device connection. The port is housed in a waterproof enclosure conveniently located for easy access to information during operation and maintenance routines.

Navigator Module is required when there is a need for a portable hand-held display, and the main display is a Touch Pilot display.

Convenience outlet includes 4-amp GFI (Ground Fault Interrupt) receptacle. Convenience outlet is 115-v female receptacle. Not available with 380-v units.

BACnet™ translator control provides an interface between the chiller and a BACnet Local Area Network (LAN, i.e., MS/TP EIA-485). The BACnet translator control is also available as a factory-installed option.

LON translator control provides an interface between the chiller and a Local Operating Network (LON, i.e., LonWorks FT-10A ANSI/EIA-709.1). The LON translator control is also available as a factory-installed option.

Condenser coil trim panels provide an aesthetic, finished appearance for the condenser coil ends of the compressor side of the unit. Condenser coil trim panels are also available as a factory-installed option.

Minimum load control allows additional capacity reduction for unit operation below the minimum step of unloading via hot gas bypass.

Security grilles are coated grilles that protect the condenser, cooler, and compressors. These are also available as a factory-installed option.

Hail guards are sheet metal hoods that provide protection against damage from hail and flying debris. These are also available as a factory-installed option.

CONDENSER COIL CORROSION PROTECTION OPTIONS

ENVIRO-SHIELD™ OPTION*	ENVIRONMENT				
	Standard	Mild Coastal	Severe Coastal	Industrial	Combined Industrial/Coastal
AL Fins (Standard Coils)	X				
CU Fins (Standard Coils)		X			
Microchannel Heat Exchanger	X	X			
AL Fins, E-coat			X	X	X
CU Fins, E-coat			X		
AL Fins, Precoated		X			

LEGEND

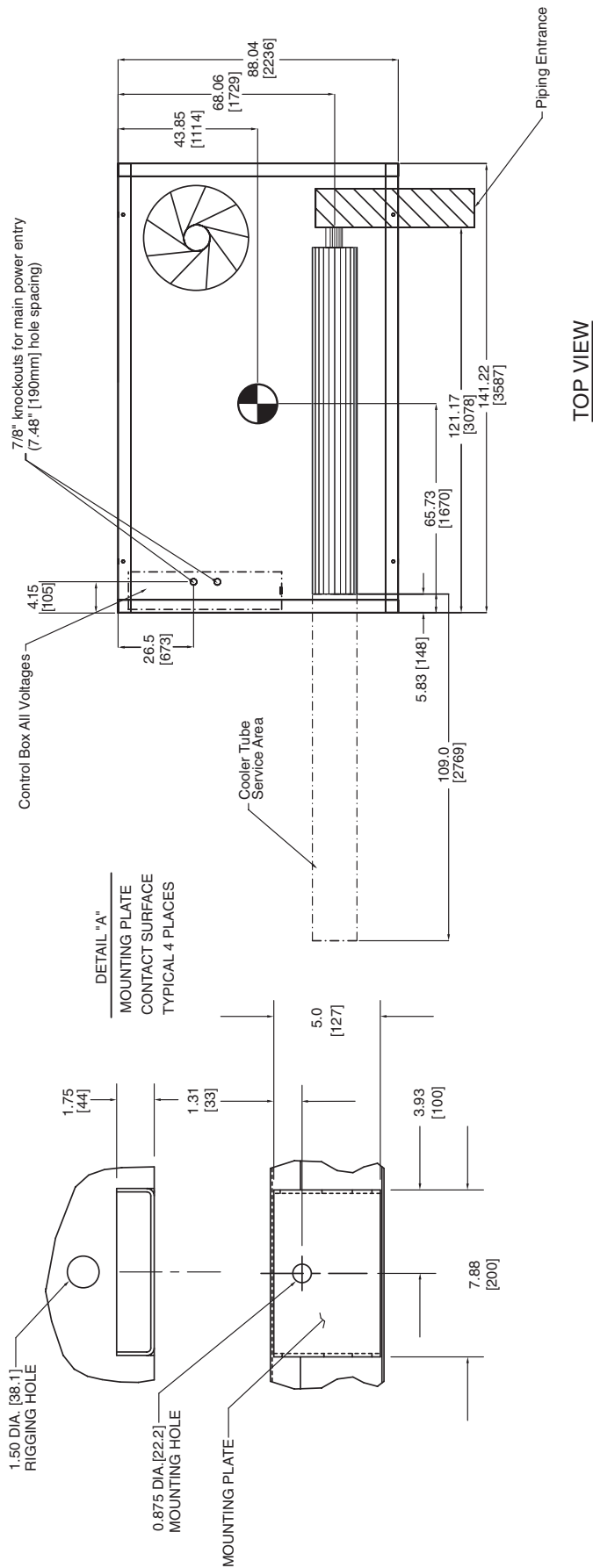
AL — Aluminum

*See selection guide “Environmental Corrosion Protection” for more information (Publication 811-20062).

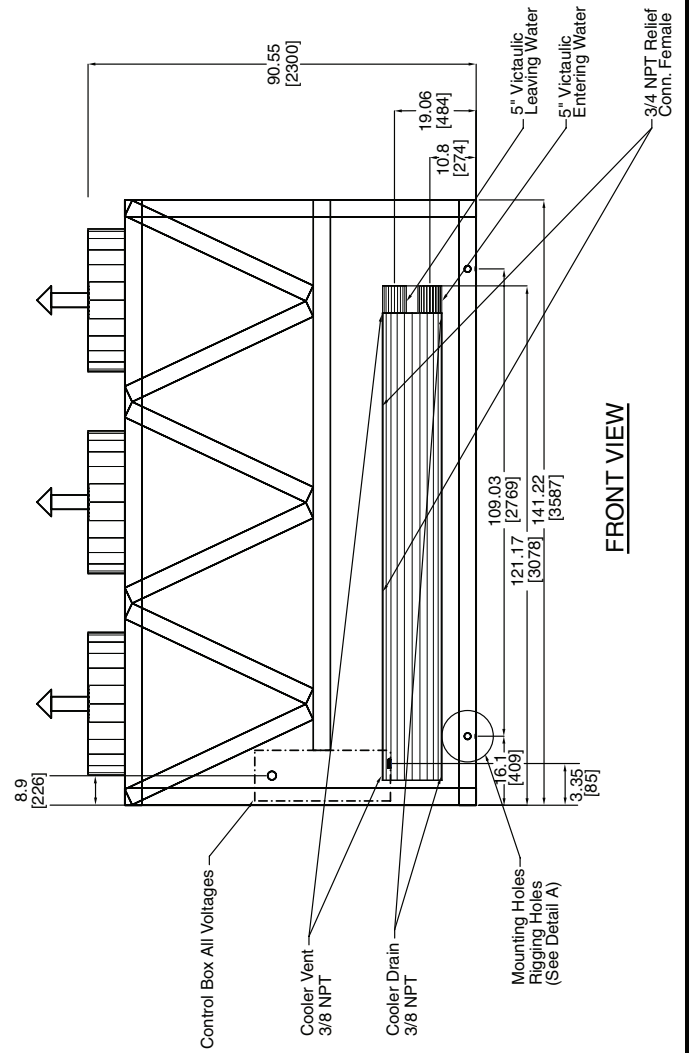
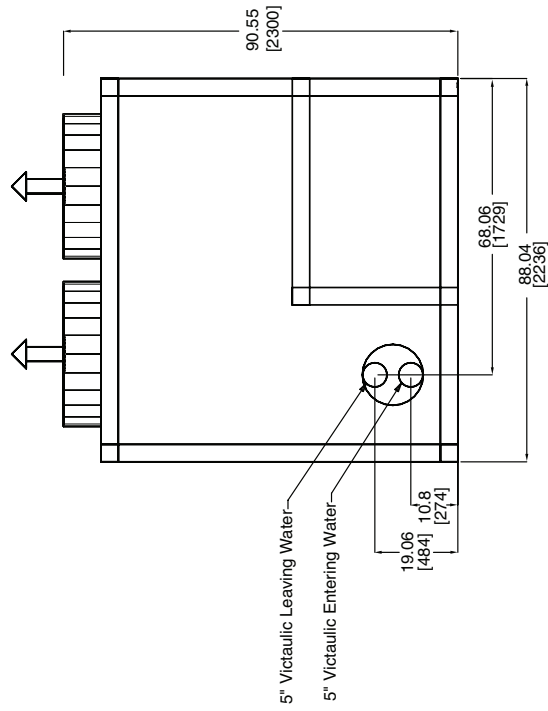
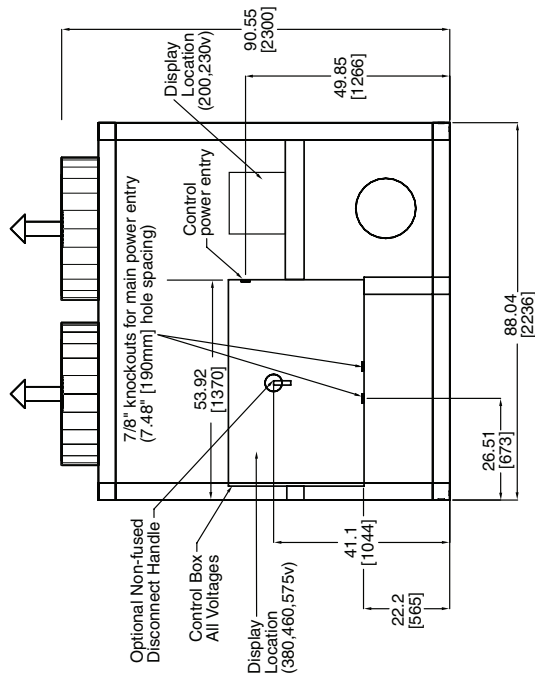
30XA080

NOTES:

1. Unit must have clearances as follows:
Top — Do not restrict.
Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
5. Dimensions are shown in inches; dimensions in brackets are in millimeters.

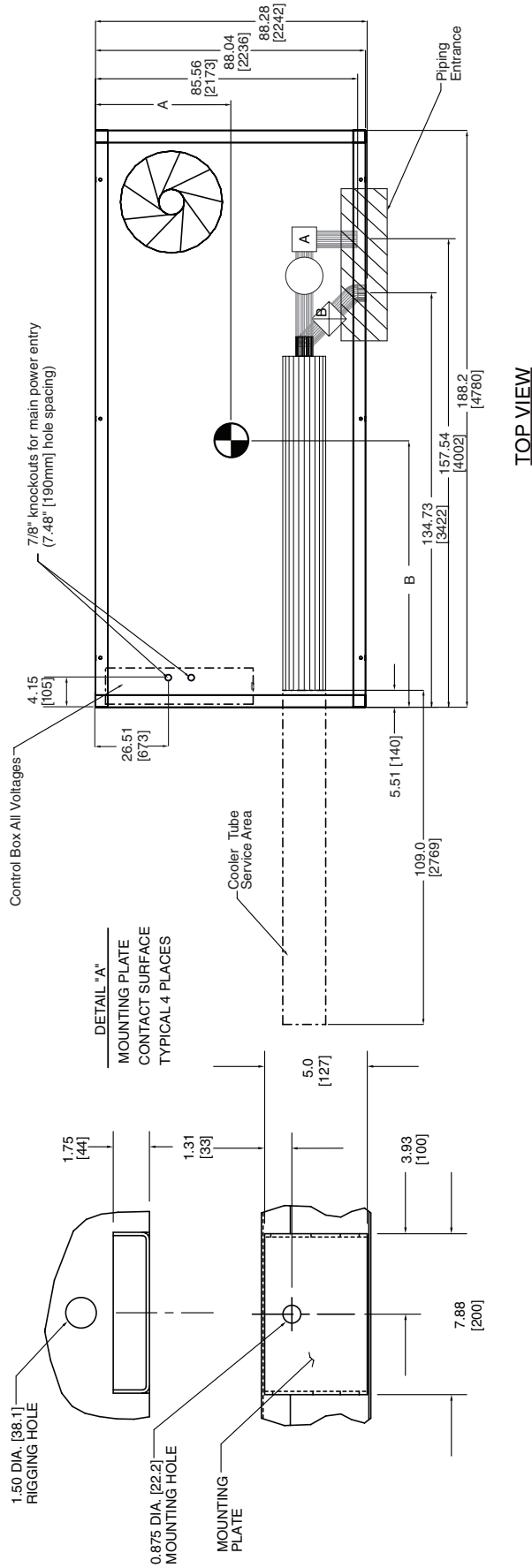


30XA080 (cont)





30XA090-120

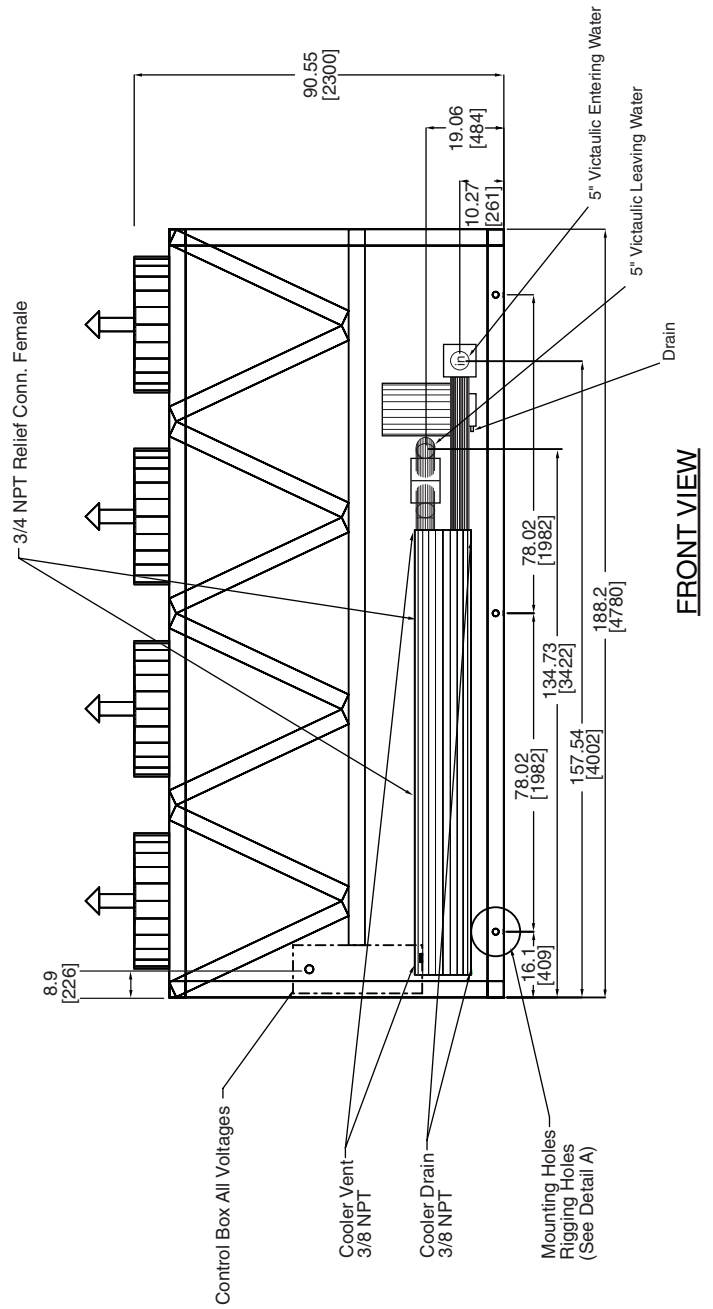
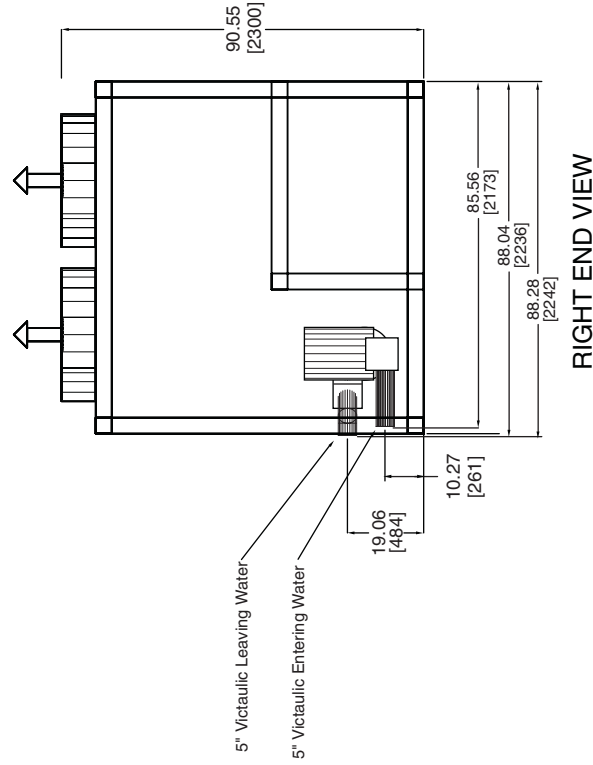
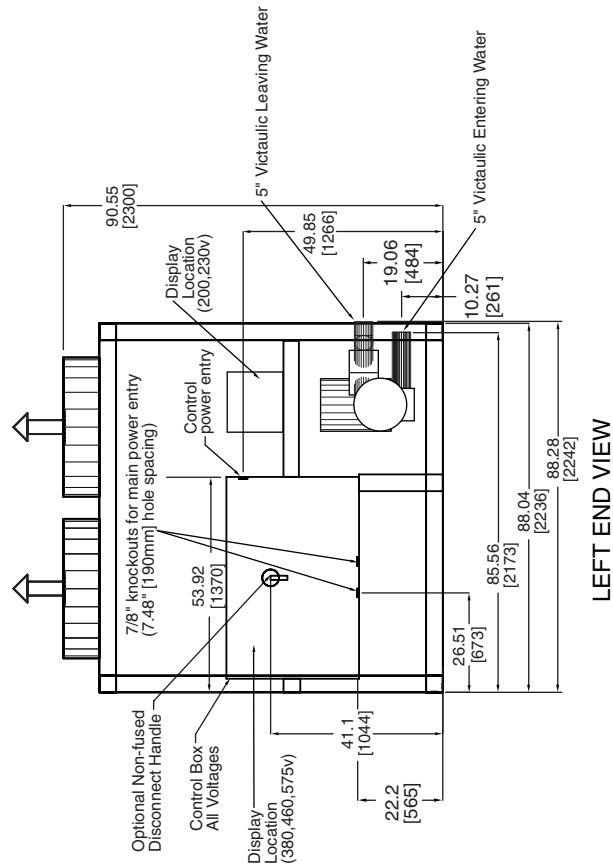


- NOTES:
- Unit must have clearances as follows:
 - Top — Do not restrict
 - Sides and Ends — 6 ft from solid surface.
 - Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 - 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 - Drawing depicts unit with single-point power and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 - Dimensions are shown in inches; dimensions in brackets are in millimeters.

TOP VIEW

30XA UNIT	A	B
090	44.11 [1120]	86.93 [2208]
100	44.11 [1120]	87.22 [2215]
110	44.11 [1120]	87.62 [2226]
120	44.11 [1120]	87.12 [2213]

30XA090-120 (cont)



Dimensions (cont)

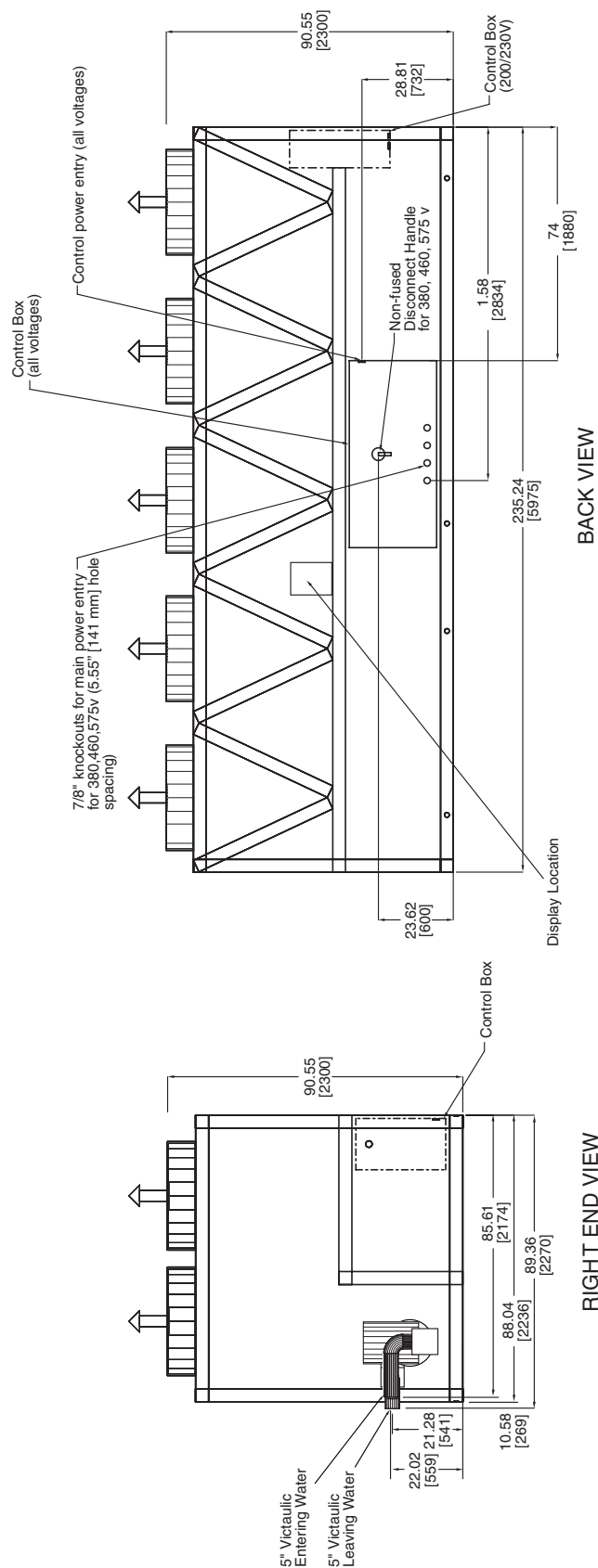
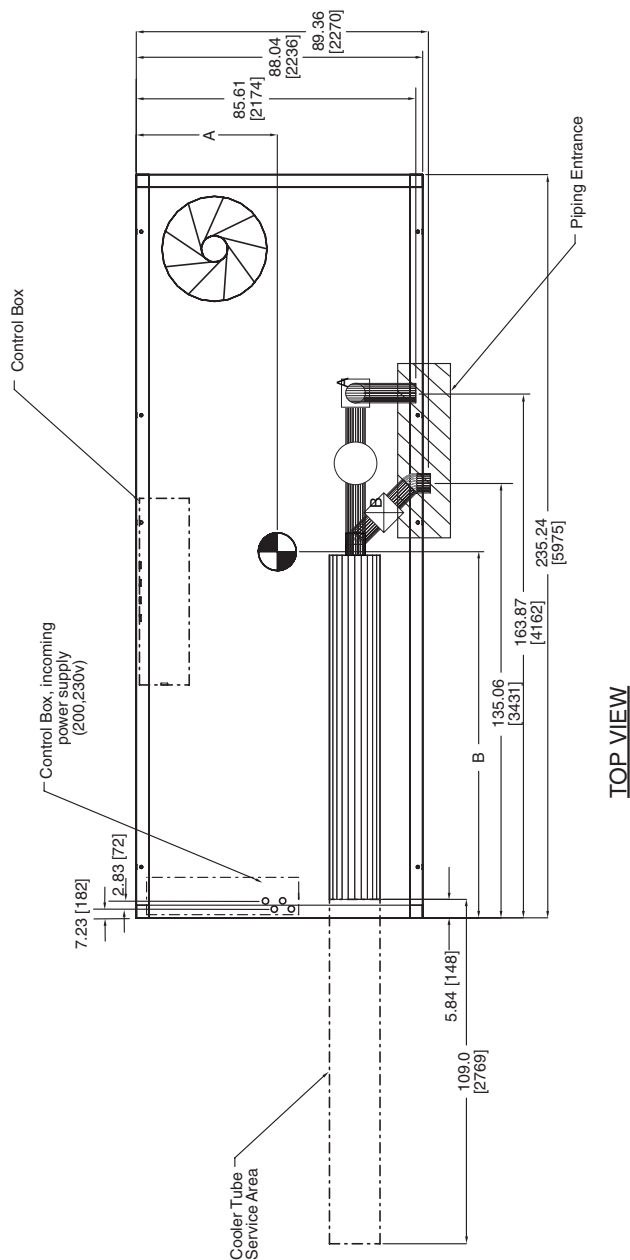


30XA140,160

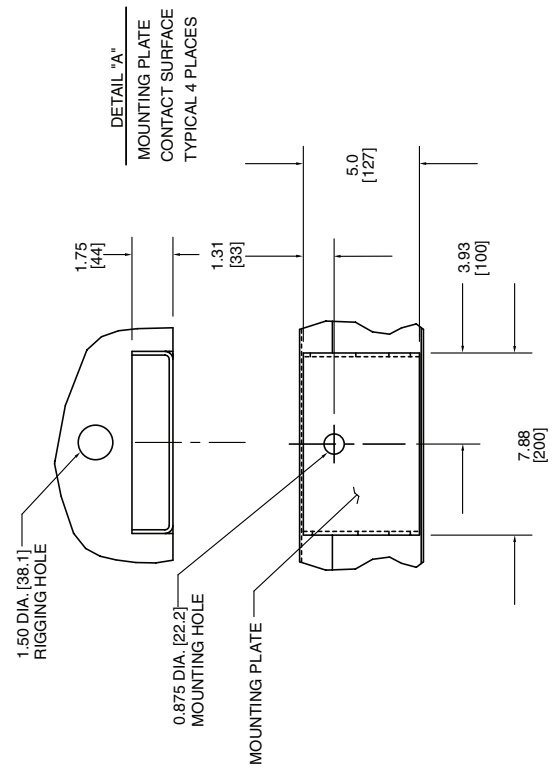
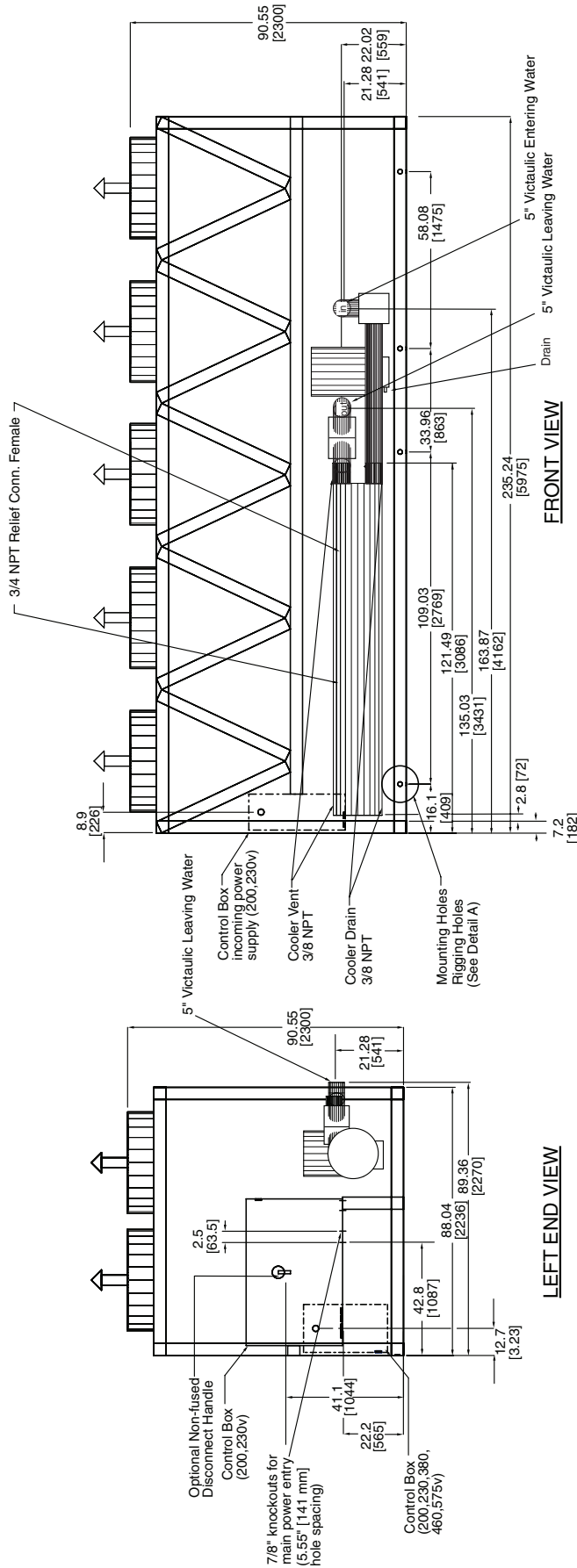
NOTES:

1. Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with standard condenser fans, and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
5. Dimensions are shown in inches; dimensions in brackets are in millimeters.

30XA UNIT	A	B
140	44.63 [1134]	115.88 [2943]
160	44.61 [1133]	115.64 [2937]

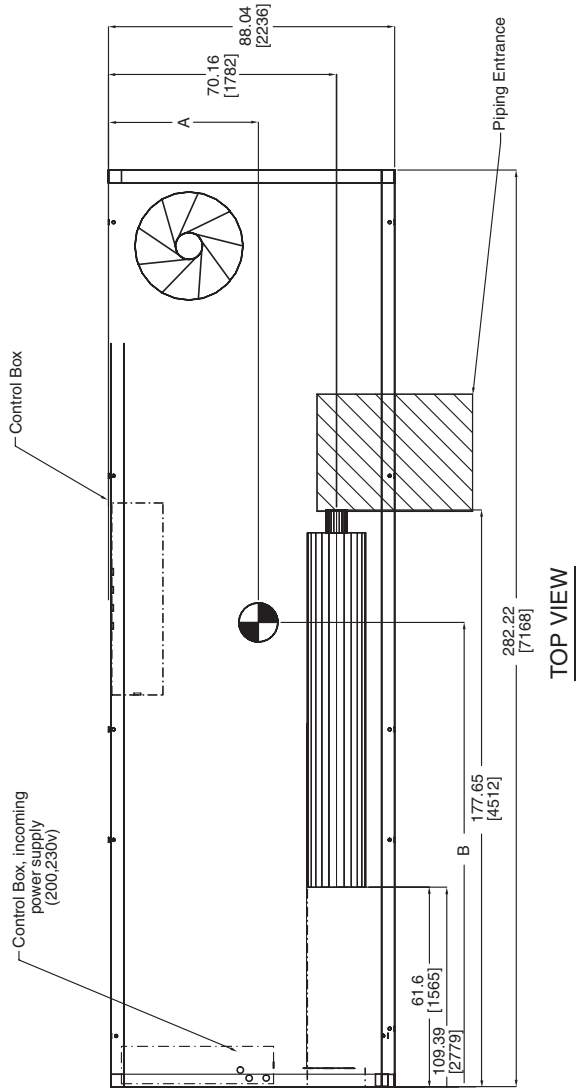


30XA140, 160 (cont)





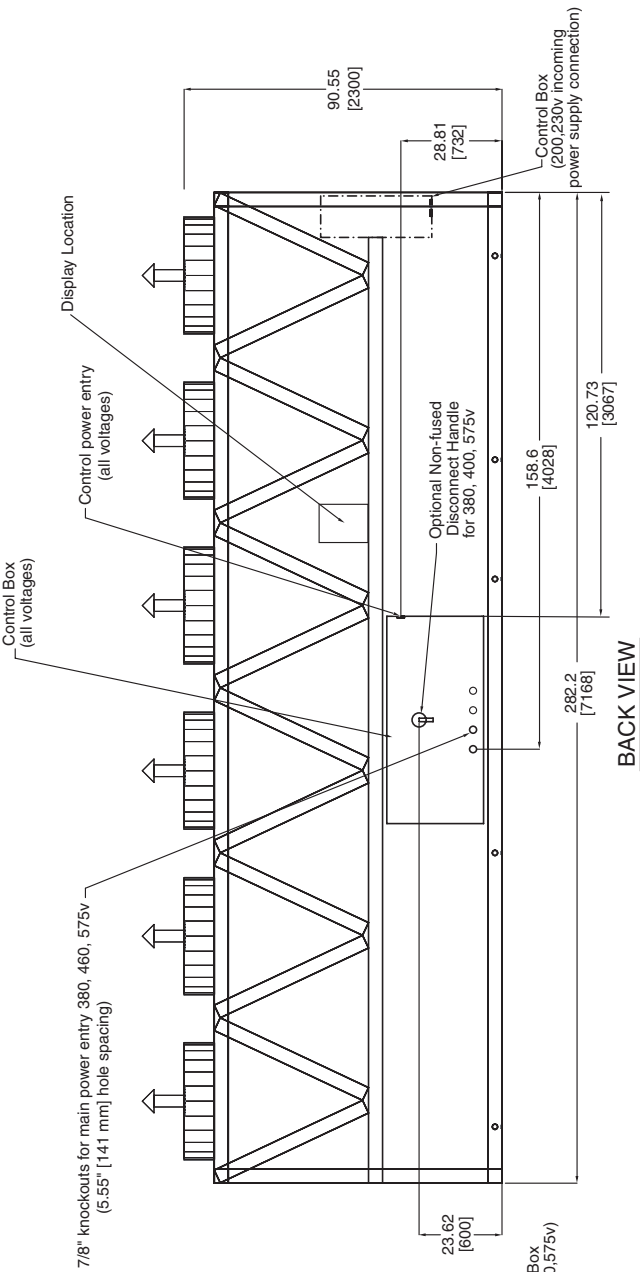
30XA180,200



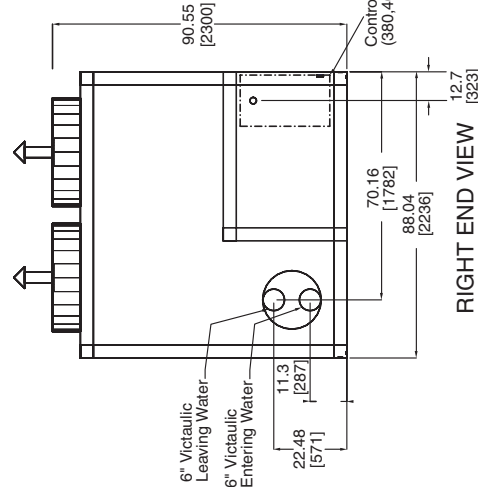
TOP VIEW

- NOTES:
1. Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
 2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 4. Drawing depicts unit with standard condenser fans, and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 5. Dimensions are shown in inches; dimensions in brackets are in millimeters.

30XA UNIT	A	B
180	46.12 [1171]	143.04 [3633]
200	46.15 [1172]	142.97 [3631]

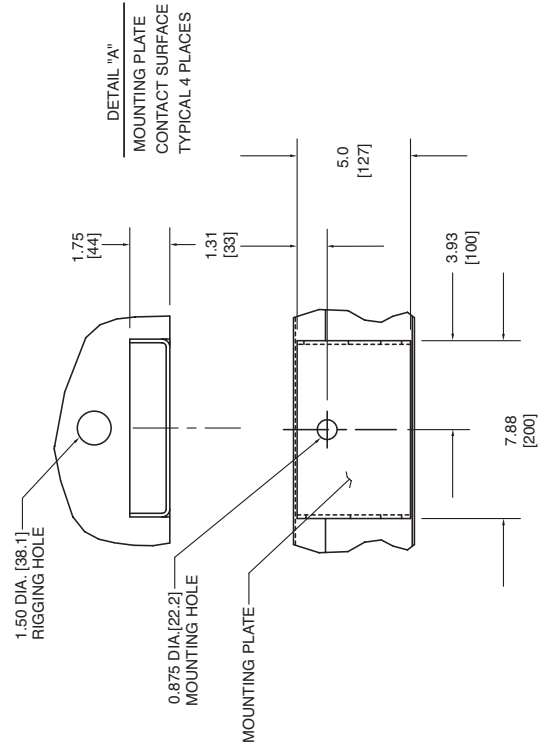
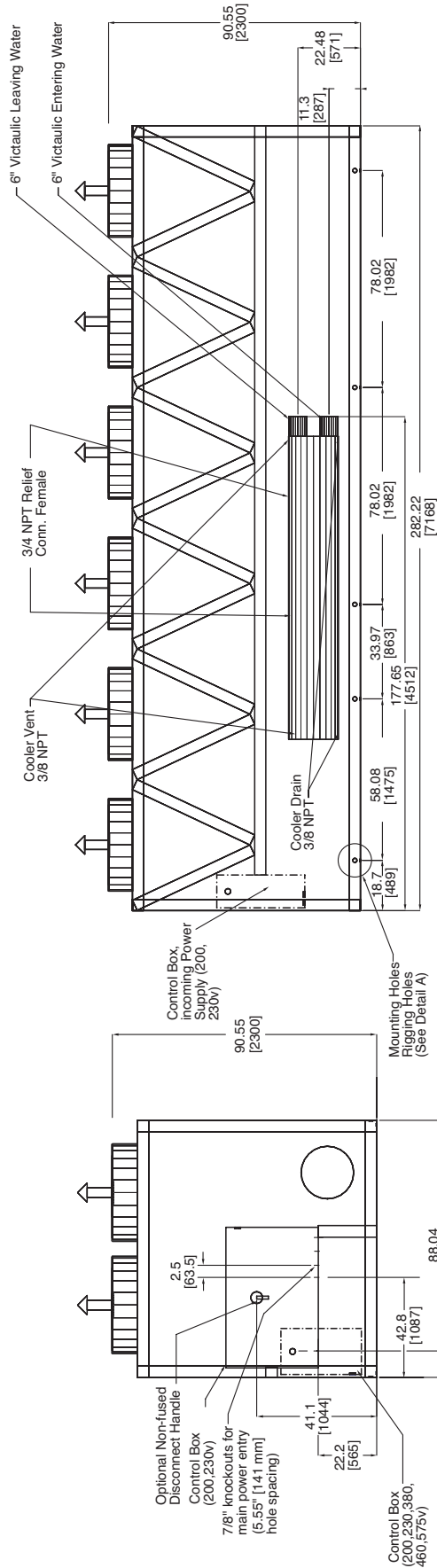


BACK VIEW



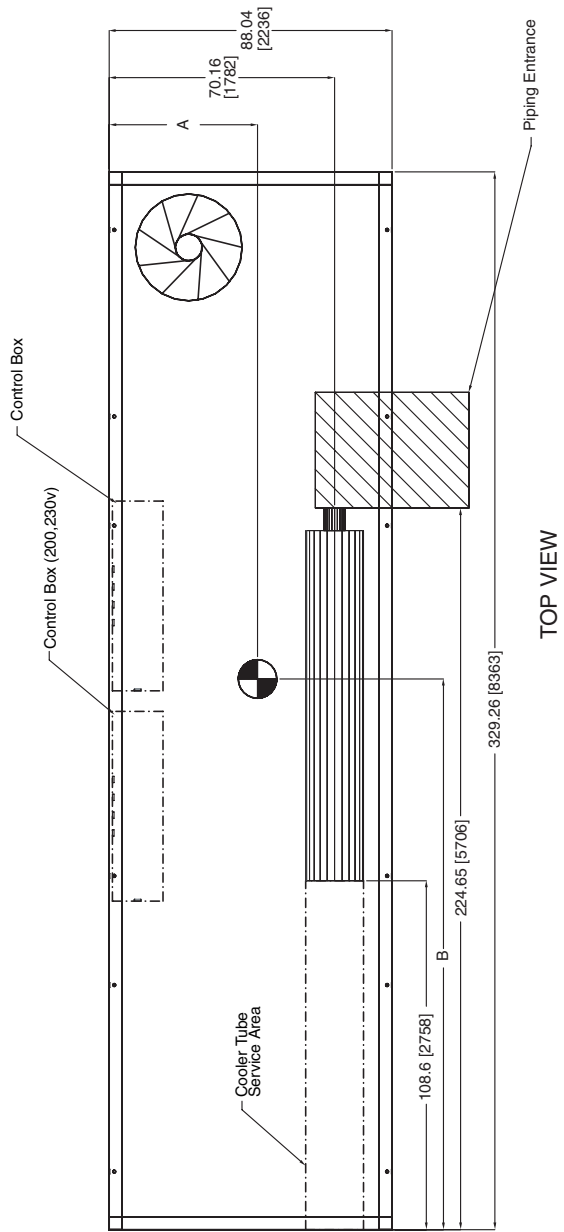
RIGHT END VIEW

30XA180,200 (cont)





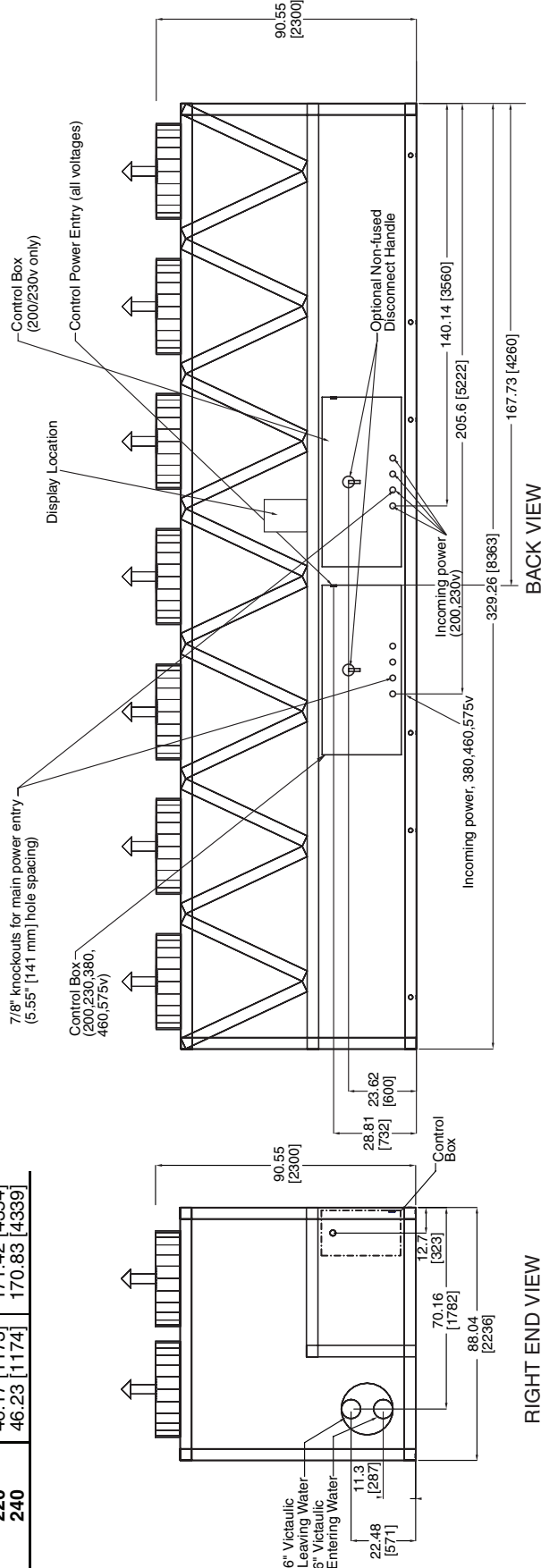
30XA220,240



TOP VIEW

- NOTES:
1. Unit must have clearances as follows:
 - Top — Do not restrict
 - Sides and Ends — 6 ft from solid surface.
 2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 4. Drawing depicts unit with standard condenser fans, and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 5. Dimensions are shown in inches; dimensions in brackets are in millimeters.

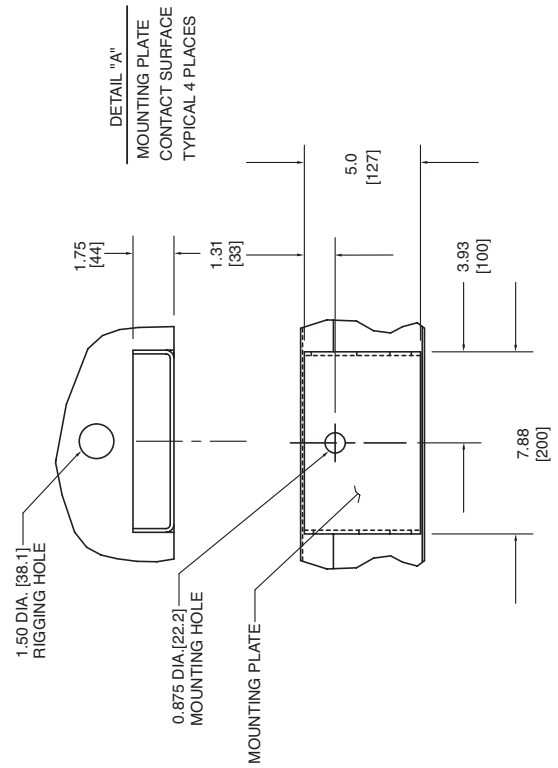
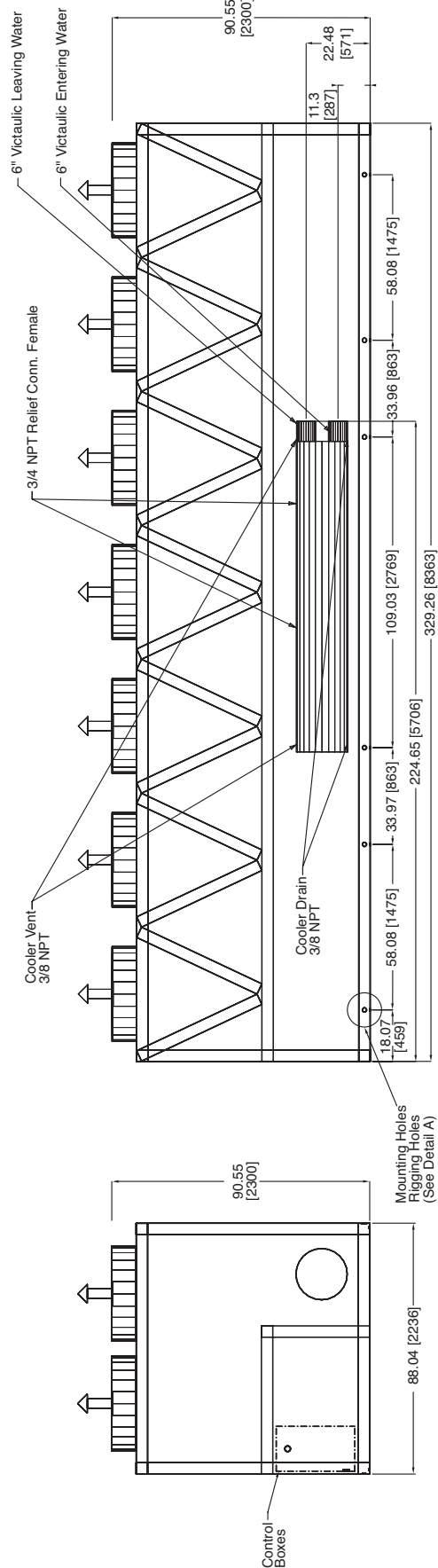
30XA UNIT	A	B
220	46.17 [1173]	171.42 [4354]
240	46.23 [1174]	170.83 [4339]



RIGHT END VIEW

BACK VIEW

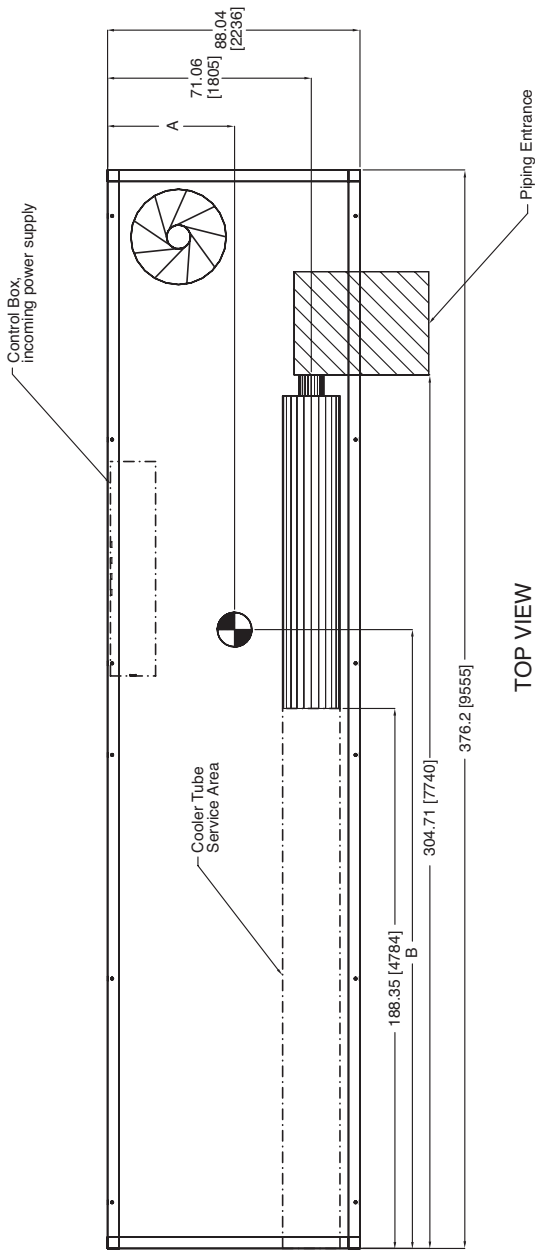
30XA220,240 (cont)





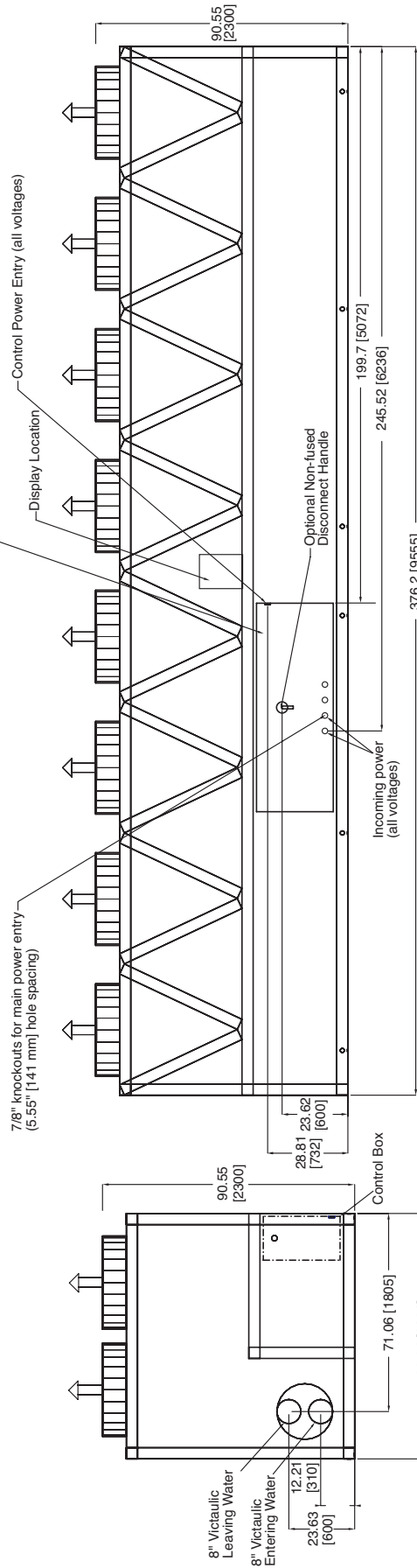
30XA260-300

- NOTES:
1. Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
 2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 4. Drawing depicts unit with standard condenser fans and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 5. Dimensions are shown in inches; dimensions in brackets are in millimeters.



TOP VIEW

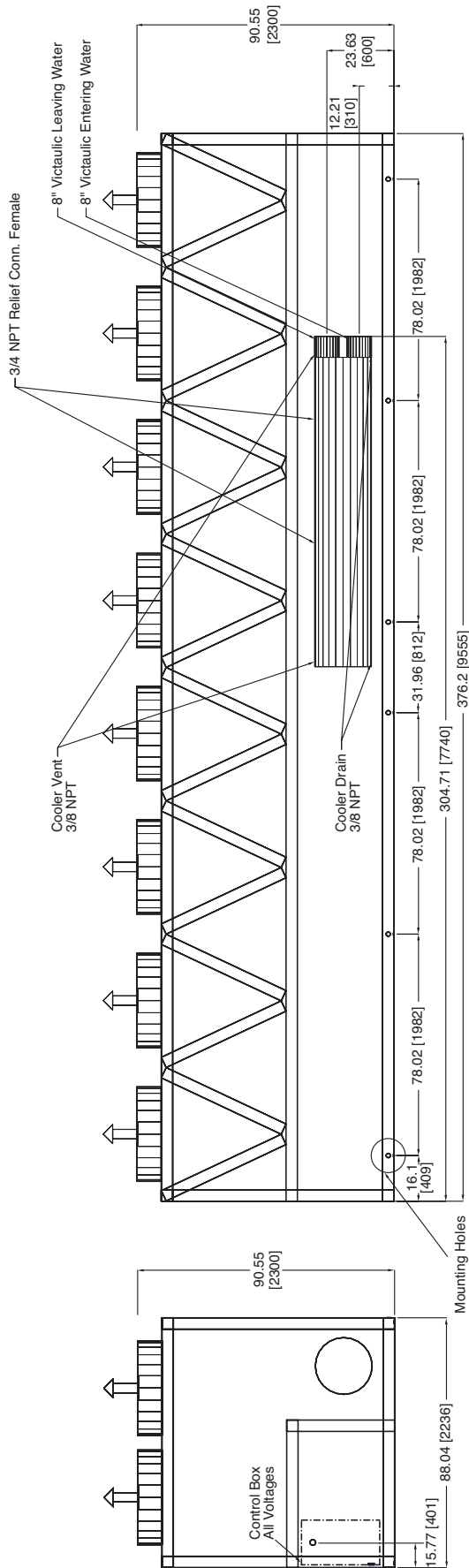
30XA UNIT	A	B
260	44.22 [1123]	216.16 [5490]
280	44.30 [1125]	215.86 [5483]
300	44.32 [1126]	216.18 [5491]



RIGHT END VIEW

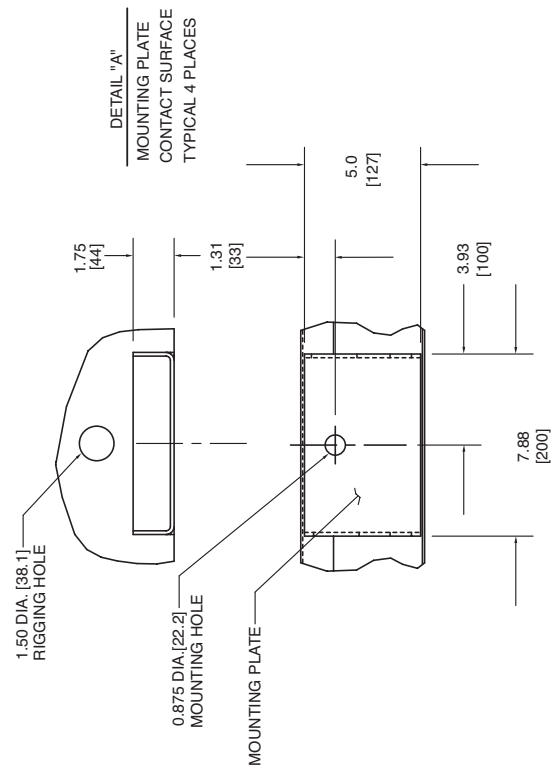
BACK VIEW

30XA260-300 (cont)



LEFT END VIEW

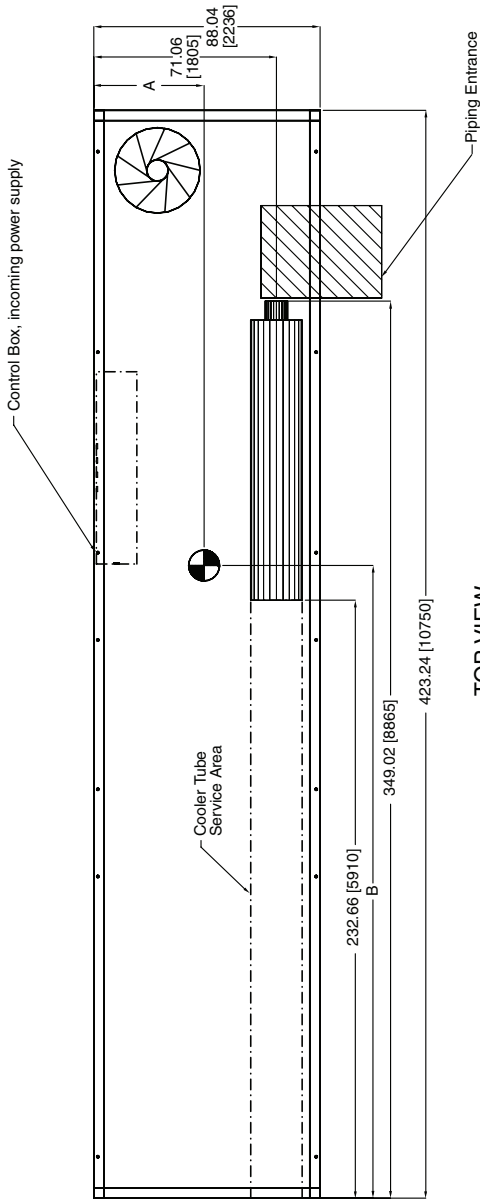
FRONT VIEW





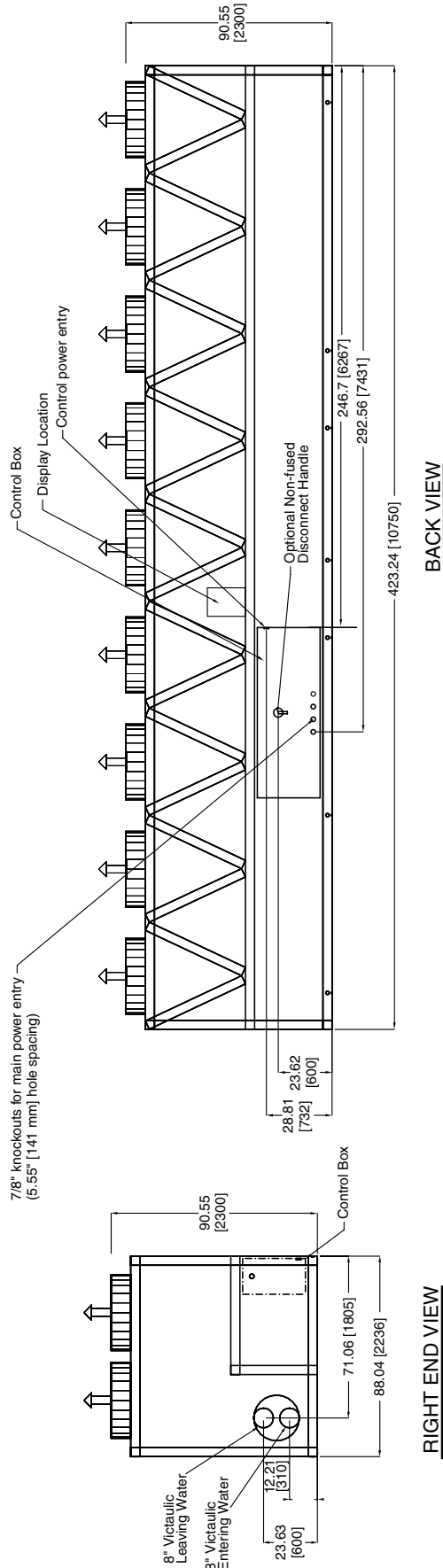
30XA325,350

- NOTES:
1. Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
 2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 4. Drawing depicts unit with standard condenser fans and standard two-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 5. Dimensions are shown in inches; dimensions in brackets are in millimeters.



TOP VIEW

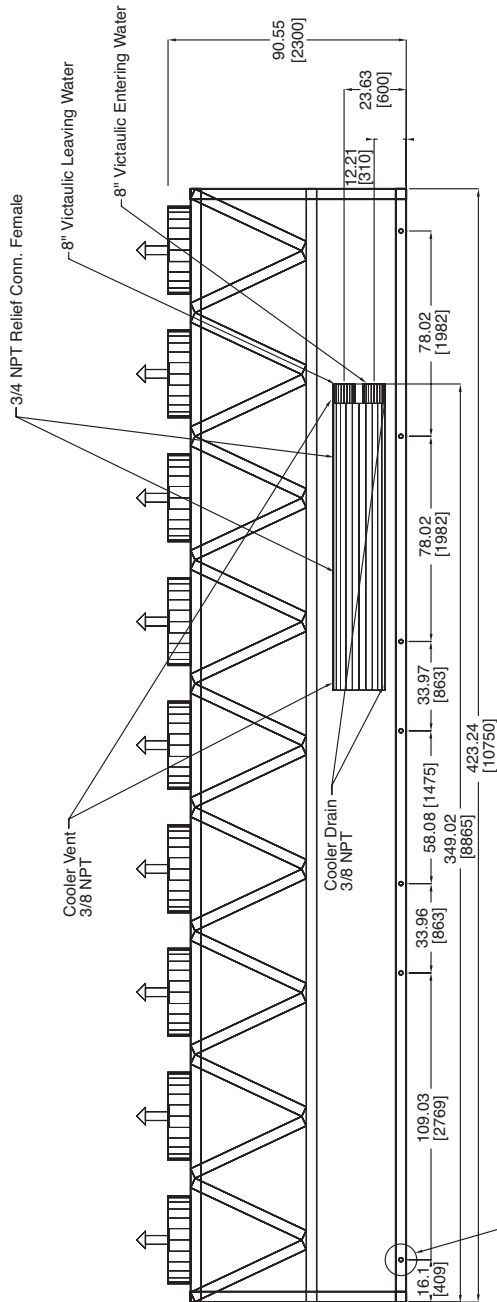
30XA UNIT	A	B
325	42.92 [1090]	246.16 [6252]
350	42.92 [1090]	246.72 [6267]



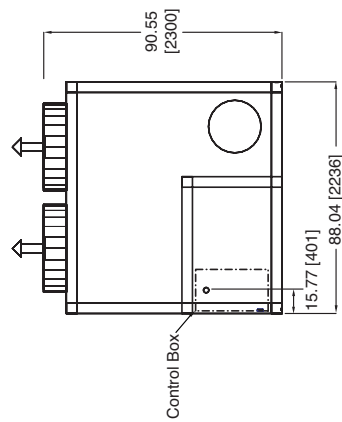
RIGHT END VIEW

BACK VIEW

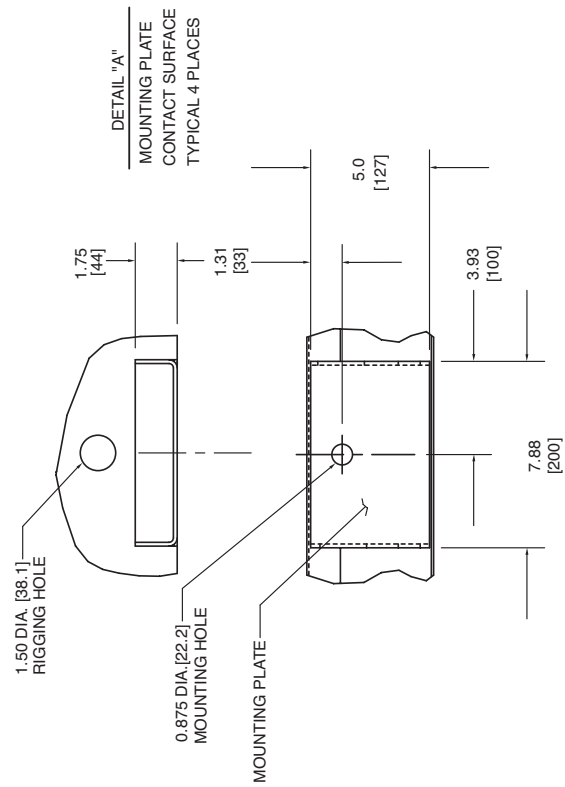
30XA325, 350 (cont)



FRONT VIEW



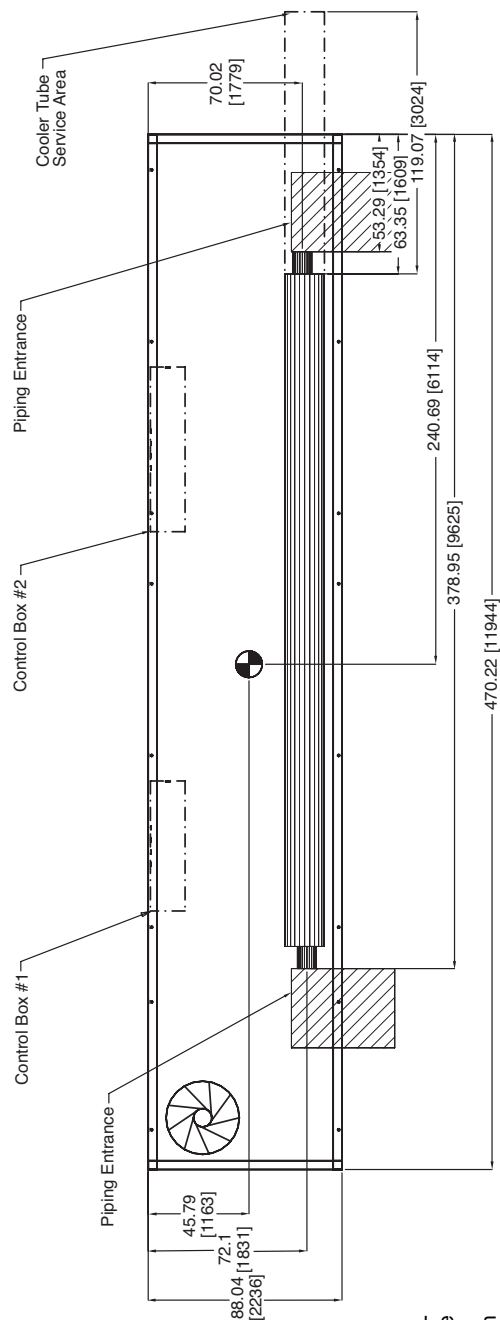
LEFT END VIEW



Dimensions (cont)

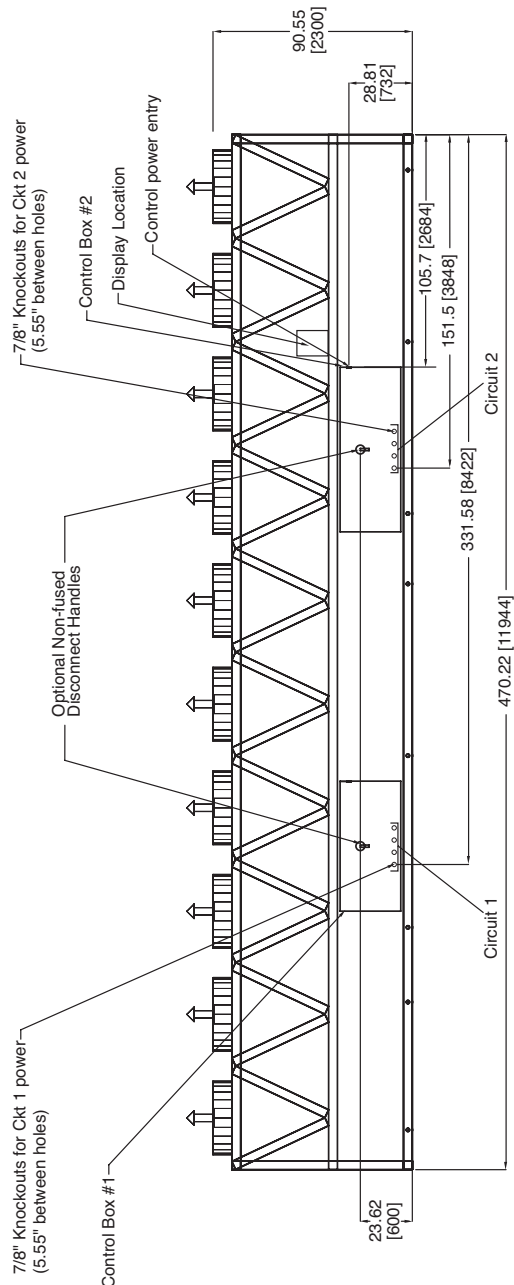


30XA400

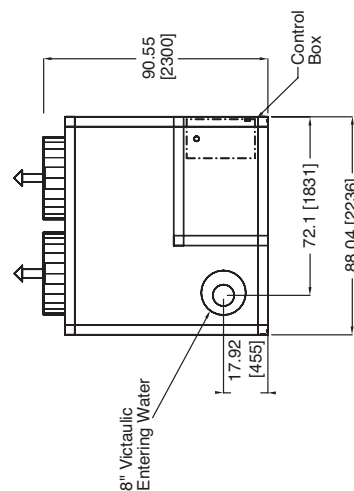


TOP VIEW

- NOTES:
- Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
 - Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
 - 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
 - Drawing depicts unit with dual-point power standard condenser fans and standard one-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
 - Actual cooler consists of two separate coolers piped in series at the factory. Piping may be split for rigging.
 - Dimensions are shown in inches; dimensions in brackets are in millimeters.

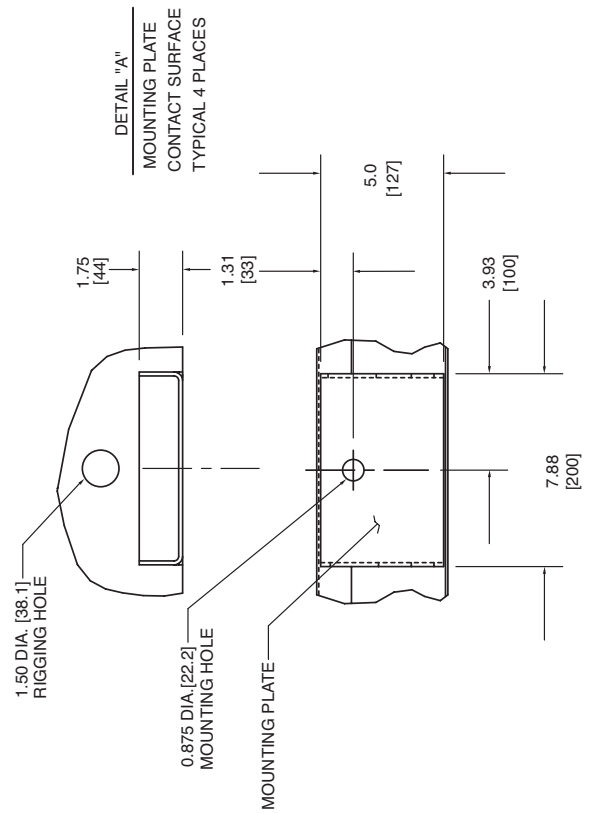
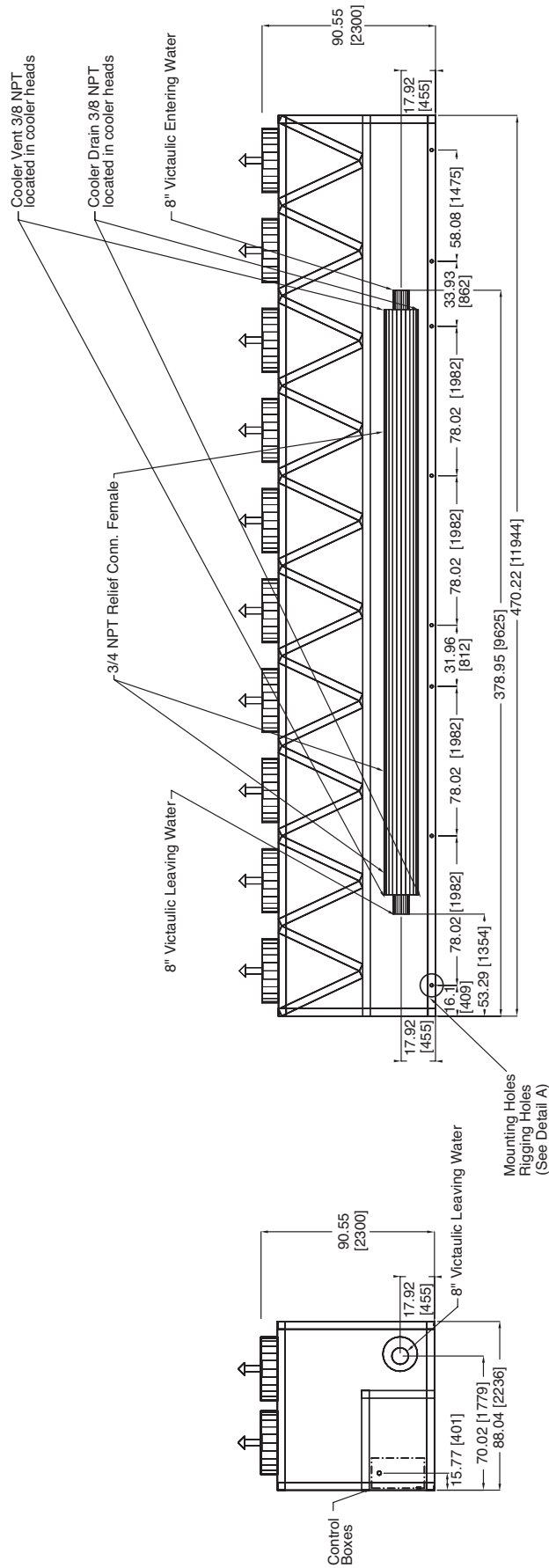


BACK VIEW



RIGHT END VIEW

30XA400 (cont)



Dimensions (cont)

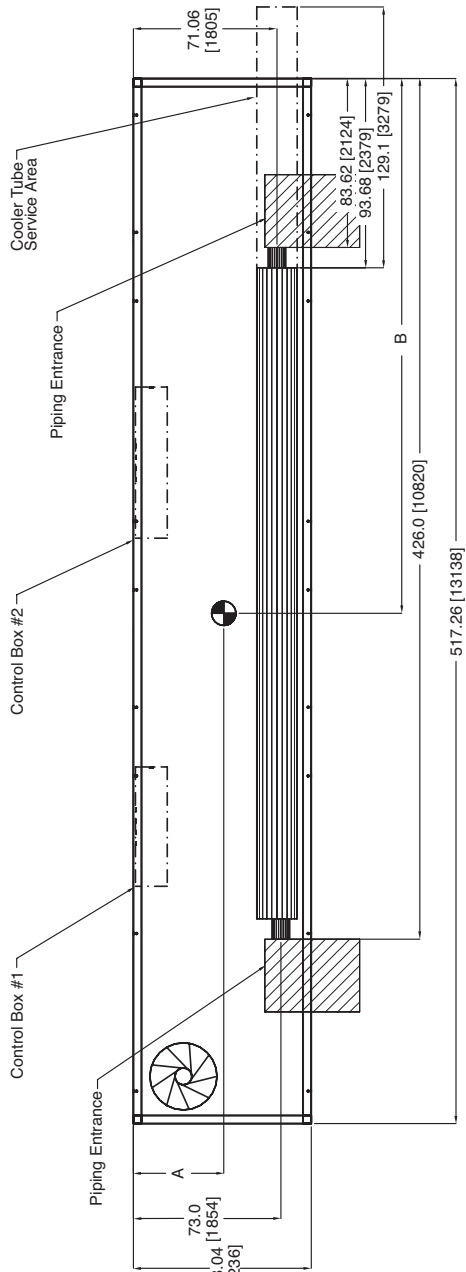


30XA450,500

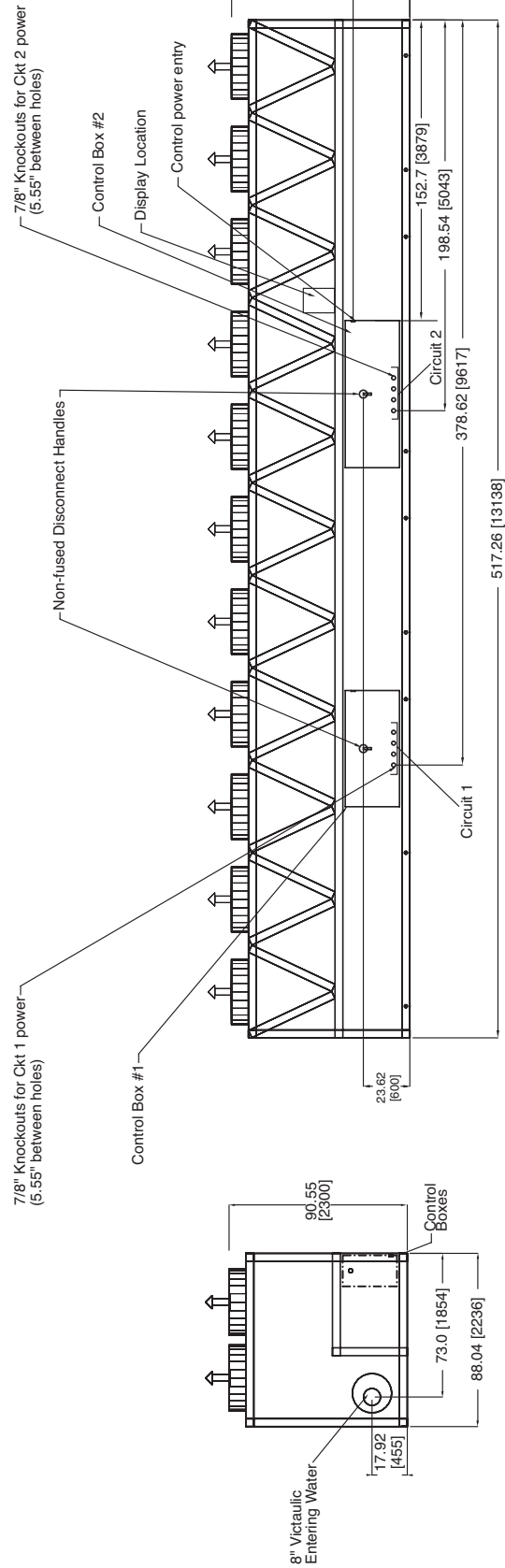
NOTES:

1. Unit must have clearances as follows:
Top — Do not restrict
Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with dual-point power standard condenser fans and standard one-pass cooler. Refer to the Packaged Chiller Builder program for other configurations.
5. Actual cooler consists of two separate coolers piped in series at the factory. Piping may be split for rigging.
6. Dimensions are shown in inches; dimensions in brackets are in millimeters.

30XA UNIT	A	B
450	44.71 [1136]	264.7 [6723]
500	44.78 [1137]	263.99 [6705]



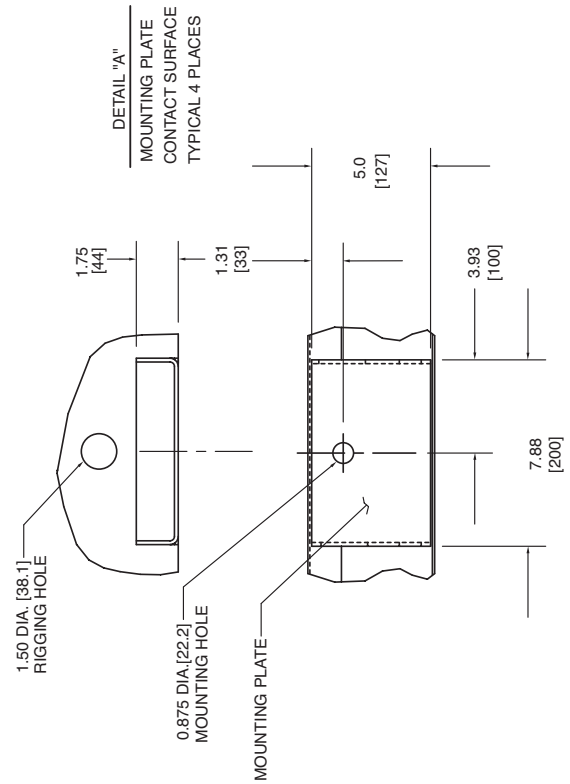
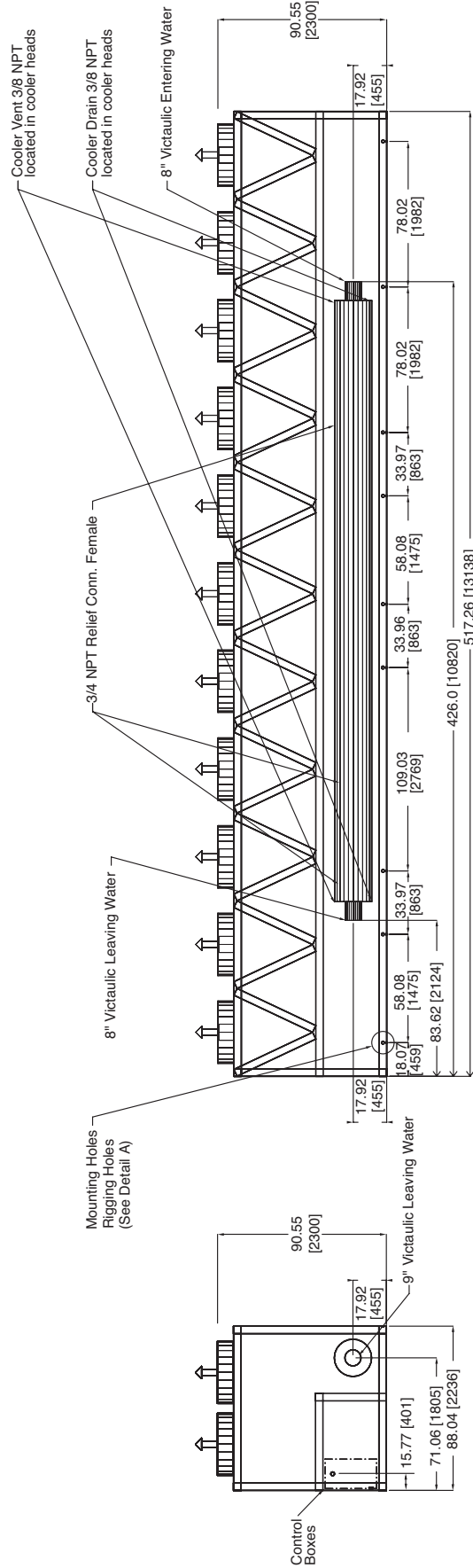
TOP VIEW



RIGHT END VIEW

BACK VIEW

30XA450,500 (cont)



COOLER OPTION DIMENSIONS ENGLISH

30XA UNIT SIZE*	STANDARD COOLER				PLUS ONE PASS COOLER				MINUS ONE PASS COOLER			
	Distance to Leaving Water Connection (in.)	Height Leaving Water Connection (in.)	Distance to Entering Water Connection (in.)	Victaulic Connection Size (in.)	Distance to Leaving/ Entering Water Connection (in.)	Height Leaving Water Connection (in.)	Distance to Entering Water Connection (in.)	Victaulic Connection Size (in.)	Distance to Leaving/ Entering Water Connection (in.)	Height Leaving Water Connection (in.)	Distance to Entering Water Connection (in.)	Victaulic Connection Size (in.)
080	121.2	19.1	121.2	5.0	15.5	19.6	121.2	4.0	68.1	14.9	124.8	5.0
090	120.9	18.1	120.9	5.0	12.2	19.6	120.9	4.0	68.1	14.9	124.5	5.0
100	120.9	18.1	120.9	5.0	12.2	19.6	120.9	4.0	68.1	14.9	124.5	5.0
110	120.9	18.1	120.9	5.0	12.2	19.6	120.9	4.0	68.1	14.9	124.5	5.0
120	120.9	18.1	120.9	5.0	12.2	19.6	120.9	4.0	68.1	14.9	124.5	5.0
130	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
140	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
150	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
160	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
170	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
180	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
190	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
200	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
210	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
220	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
230	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
240	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
250	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
260	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
270	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
280	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
290	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
300	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
310	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
325	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0
350	121.5	21.3	121.5	5.0	12.2	21.3	121.5	5.0	69.1	15.9	124.8	6.0

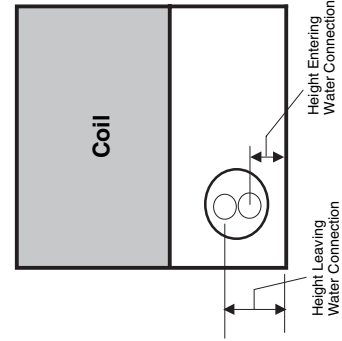
SI

30XA UNIT SIZE*	STANDARD COOLER				PLUS ONE PASS COOLER				MINUS ONE PASS COOLER			
	Distance to Leaving Water Connection (mm)	Height Leaving Water Connection (mm)	Distance to Entering Water Connection (mm)	Victaulic Connection Size (mm)	Distance to Leaving/ Entering Water Connection (mm)	Height Leaving Water Connection (mm)	Distance to Entering Water Connection (mm)	Victaulic Connection Size (mm)	Distance to Leaving/ Entering Water Connection (mm)	Height Leaving Water Connection (mm)	Distance to Entering Water Connection (mm)	Victaulic Connection Size (mm)
080	3077.8	484.0	3077.8	127.0	379.1	497.2	3077.8	101.6	1728.7	379.1	3170.7	127.0
090	3069.6	460.0	3069.6	127.0	297.7	497.2	3069.6	101.6	1728.7	379.1	3162.6	127.0
100	3069.6	460.0	3069.6	127.0	297.7	497.2	3069.6	101.6	1728.7	379.1	3162.6	127.0
110	3069.6	460.0	3069.6	127.0	297.7	497.2	3069.6	101.6	1728.7	379.1	3162.6	127.0
120	3069.6	460.0	3069.6	127.0	297.7	497.2	3069.6	101.6	1728.7	379.1	3162.6	127.0
130	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
140	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
150	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
160	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
170	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
180	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
190	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
200	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
210	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
220	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
230	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
240	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
250	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
260	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
270	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
280	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
290	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
300	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
310	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
325	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4
350	3085.8	540.5	3085.8	127.0	301.1	540.5	3085.8	127.0	1756.2	404.6	3170.8	152.4

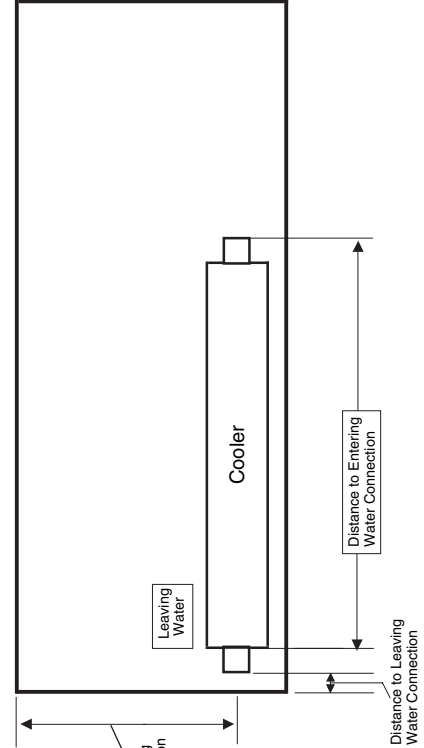
*30XA400-500 units are equipped with standard coolers only. Refer to unit dimensional drawings for cooler dimensions.

NOTE: Refer to dimensional drawings for all other unit dimensions.

Side View



Top View



Selection procedure



Carrier's Packaged Chiller Builder Selection Program provides quick, easy selection of Carrier's air-cooled liquid chillers. The program considers specific temperature, fluid and flow requirements among other factors such as fouling and altitude corrections.

Before selecting a chiller, consider the following points:

Leaving water temperature (LWT)

- If the LWT is less than 40 F (4.4 C), loop freeze protection to a minimum of 15° F (8.3° C) below the LWT set point is required. The medium temperature brine option is also required.
- If the LWT requirement is greater than 60 F (15.5 C), a mixing loop is required.

Entering water temperature (EWT)

- If the EWT requirement is greater than 70 F (21.1 C), a mixing loop is required. The EWT should not exceed 70 F (21.1 C) for extended operation. Pulldown can be accomplished from 95 F (35 C).

Cooler flow rate or cooler delta-T:

- The cooler delta-T (EWT – LWT) must fall between 5 and 20° F (2.8 to 11.1° C) while still meeting the maximum entering requirements.
- For larger or smaller delta-T applications, a mixing loop is required.
- If the cooler flow is variable, the rate of change of flow should not exceed 10% per minute. A loop volume of greater than 3 gallons per ton (3.2 l/kW) is also recommended.

Cooler pressure drop:

- A high cooler pressure drop can be expected when the cooler delta-T is low. A mixing loop can help to alleviate this situation.
- Alternatively, consider a reduced pass option when there is a low delta-T.
- A low cooler pressure drop can be expected when cooler delta-T is high.
- The plus-one-pass cooler option is recommended to increase performance when cooler delta-T is high. This is particularly helpful with brine applications.

Water quality, fouling factor:

- Poor water quality can increase the required cooler fouling factor.
- Higher than standard fouling factors lead to lower capacity and higher input kW from a given chiller size compared to running the same application with better quality water (and lower fouling factors).

Operation below 32 F (0° C) ambient temperature:

- Low ambient temperature head pressure control is required.

- Consider wind baffles if average wind speed is greater than 5 mph (8 km/h).
- Consider higher loop volumes, 6 to 10 gallons per nominal ton (6.5 to 10.8 l/kW).
- Loop freeze protection with glycol is strongly recommended to a minimum of 15° F (8.3° C) below lowest anticipated ambient temperature.
- Chilled water pump control is strongly recommended; otherwise override capability is required.

Chiller idle below 32 F (0° C) ambient temperature:

- Loop freeze protection with glycol is strongly recommended to a minimum of 15° F (8.3° C) below lowest anticipated ambient temperature.
- Chilled water pump control is strongly recommended; otherwise override capability is required.
- Drain the cooler — This will require a small amount of glycol for residual water. Cooler heaters will need to be disconnected.

Ambient Temperature:

- Highest allowable ambient air temperature is 125 F (52 C).

NOTE: It may be necessary to select the high ambient option to obtain performance with ambient air temperatures approaching 125 F (52 C).

Cooling capacity requirement:

- Do not oversize the chillers by more than 15% at design conditions.
- If capacity control is required below the standard minimum step of unloading, the minimum load control option should be employed. (See Selection Guide.)

Coil corrosion requirements:

- Coastal application
- Industrial application
- Coastal/industrial application
- Urban application
- Farming

Temperature reset:

- Return water (standard)
- Outside air temperature (standard)
- Space temperature (accessory sensor required)
- 4 to 20 mA (requires an Energy Management Module)

Demand limit:

- 2-step (requires an Energy Management Module)
- 4 to 20 mA (requires an Energy Management Module)
- CCN Loadshed

Selection procedure (cont)



To select a 30XA chiller, use the Packaged Chiller Builder Selection program or follow one of the procedures below.

ENGLISH

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

Given:

Capacity 106 Tons
Leaving Chilled Water Temp (LCWT) 42 F
Cooler Water Temp Rise 10° F
Condenser Entering Air Temp 95 F
Fouling Factor (Cooler). 0.00010 (ft² · hr · F/Btu)

NOTE: For other than 10° F temperature rise, data corrections must be made using the Packaged Chiller Builder Program.

II From Chiller Ratings table on page 47 and pressure drop curves on page 46, determine operating data for selected unit.

Unit 30XA120
Capacity 107.5 tons
Power Input 126.7 kW
Cooler Water Flow 257.0 gpm
Cooler Pressure Drop 12.0 ft of water

SI

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

Given:

Capacity 450 kW
Leaving Chilled Water Temp (LCWT) 6 C
Cooler Water Temp Rise 5.6° C
Condenser Entering Air Temp 35 C
Fouling Factor (Cooler). 0.0176 (m² · °C/W)

NOTE: For other than 5.6° C temperature rise, data corrections must be made using the Packaged Chiller Builder Program.

II From Chiller Ratings table on page 48 and cooler pressure drop curves on page 46, determine operating data for selected unit.

Unit 30XA140
Capacity 458.1 kW
Power Input 147.5 kW
Cooler Water Flow 19.7 l/s
Cooler Pressure Drop 41.9 kPa

AquaForce™ pump selection

Several pump sizes are available for each AquaForce chiller size to provide flexibility in matching water system requirements. A dual pump option is also available for primary/standby operation. The Carrier Packaged Chiller Builder Selection Program can be used (and is recommended) for pump selection, or selection can be done manually.

Proper water system design is critical; cooling loads, water pressure drops and proper water line sizing must be accounted for in order to ensure proper system operation. Incorrect or incomplete analysis/design of the water loop could lead to low water flow, loss of water temperature control, and excessive cycling of chiller compressors.

The following are the steps for manual selection of water pumps for the 30XA chillers (refer to Pump Curve Hydronic Package tables).

1. Calculate the water flow rate (gpm or l/s) and the total water (or brine) pressure drop of the system external to the 30XA chiller.
2. Use the pump envelope charts (page 43) to determine proper pump sizing. Plot water flow rate and total head, point on the chart. The next pump curve above this point corresponds to the correct pump.

NOTE: Although pump bhp (brake horsepower) increases with glycol concentration, pumps and pump overloads are selected such that glycol concentrations up to 50% will not trip pump overloads if run within the recommended gpm ranges.

Example: Required water flow rate for a 30XA090, chiller is 200 gpm (12.6 l/s). The pressure drop for the water system external to the chiller is 60 feet (179.4 kPa). The dual pump is needed. Select the pump.

After examining the dual pump charts for the 30XA090 and using the indicated flow rate and external pressure drop, select pump 8.

Performance data



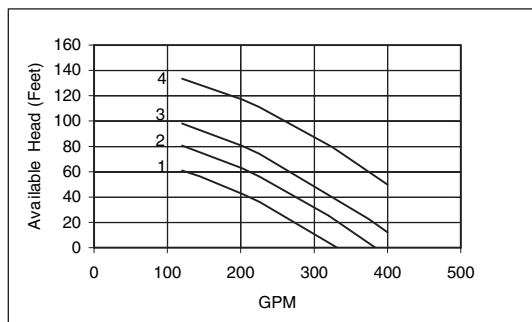
PUMP IMPELLER SIZES

30XA UNIT SIZE	PUMP Hp	SINGLE PUMP				DUAL PUMP			
		Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve	Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve
090-160	5	1	3450	4.5	I	7	3450	4.5	II
	7.5	2	3450	5	I	8	3450	5	II
	10	3	3450	5.4	I	B	3450	5.4	II
	15	4	3450	6.1	I	C	3450	6.1	II

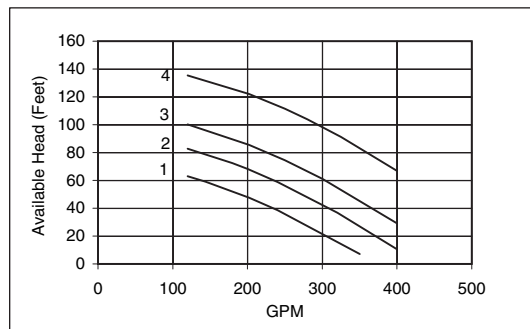
*Option Code refers to the Hydronics Option (position 11) in the model number. See Model Number Nomenclature on page 4 for option identification.

SINGLE PUMP ENVELOPE CURVES (30XA090-160)

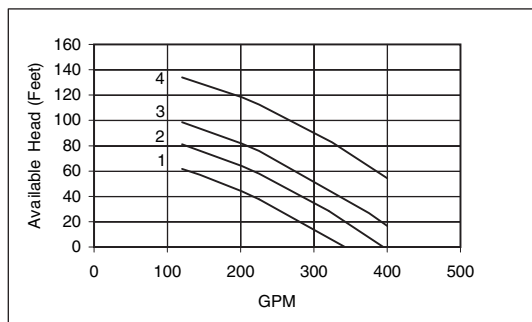
30XA090,100



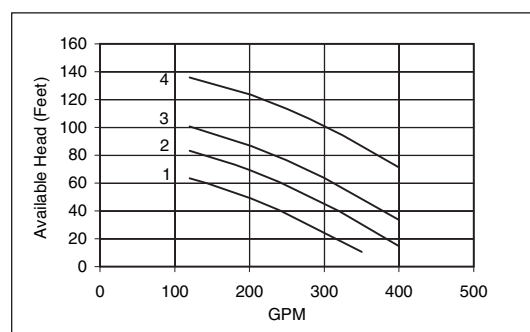
30XA140



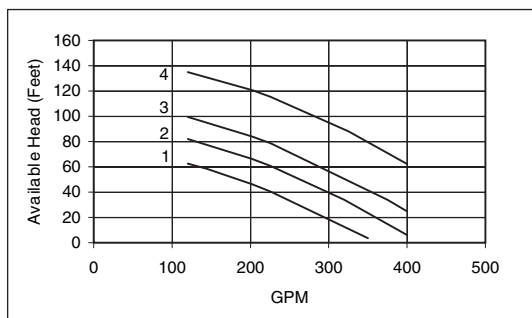
30XA110



30XA160



30XA120

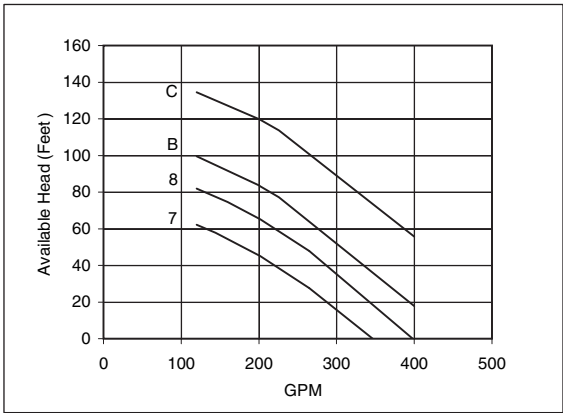


Selection	Pump
1	Single 5HP
2	Single 7.5HP
3	Single 10HP
4	Single 15HP

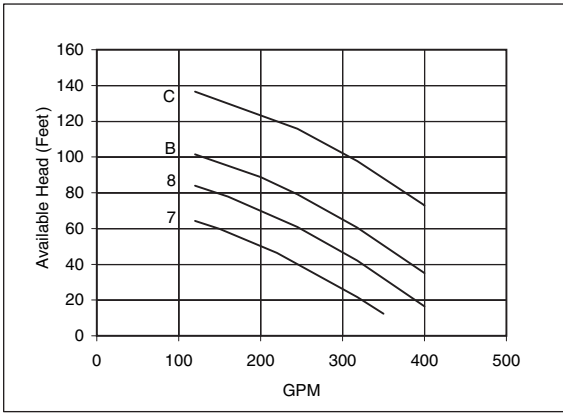


→ DUAL PUMP ENVELOPE CURVES (30XA090-160)

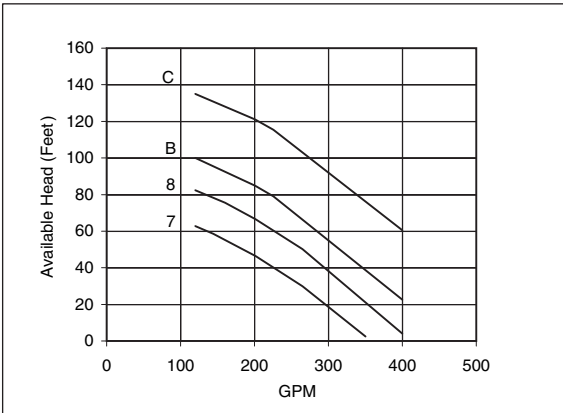
30XA090,100



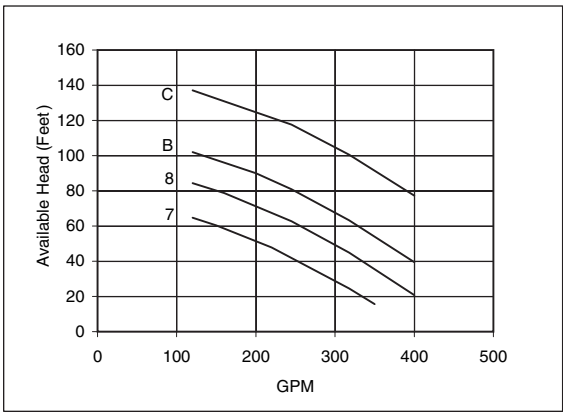
30XA140



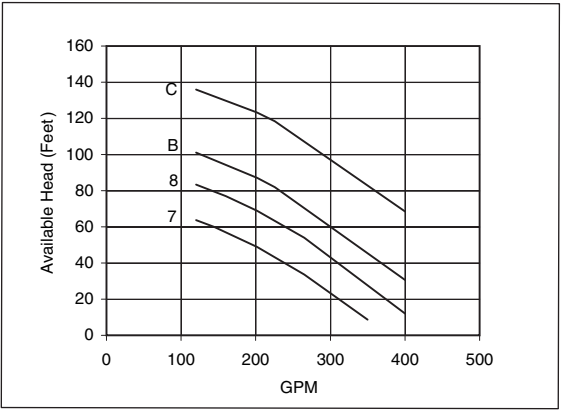
30XA110



30XA160

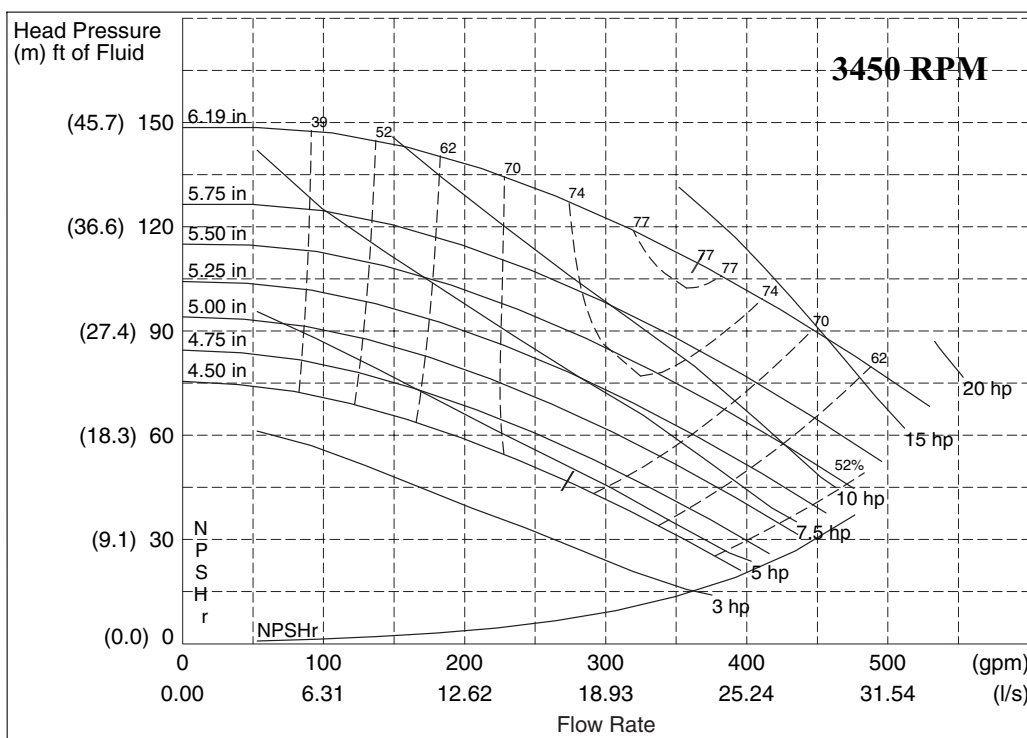


30XA120



Selection	Pump
7	Dual 5HP
8	Dual 7.5HP
B	Dual 10HP
C	Dual 15HP

PUMP CURVE I FOR HYDRONIC PACKAGE SINGLE PUMP (FRESH WATER)

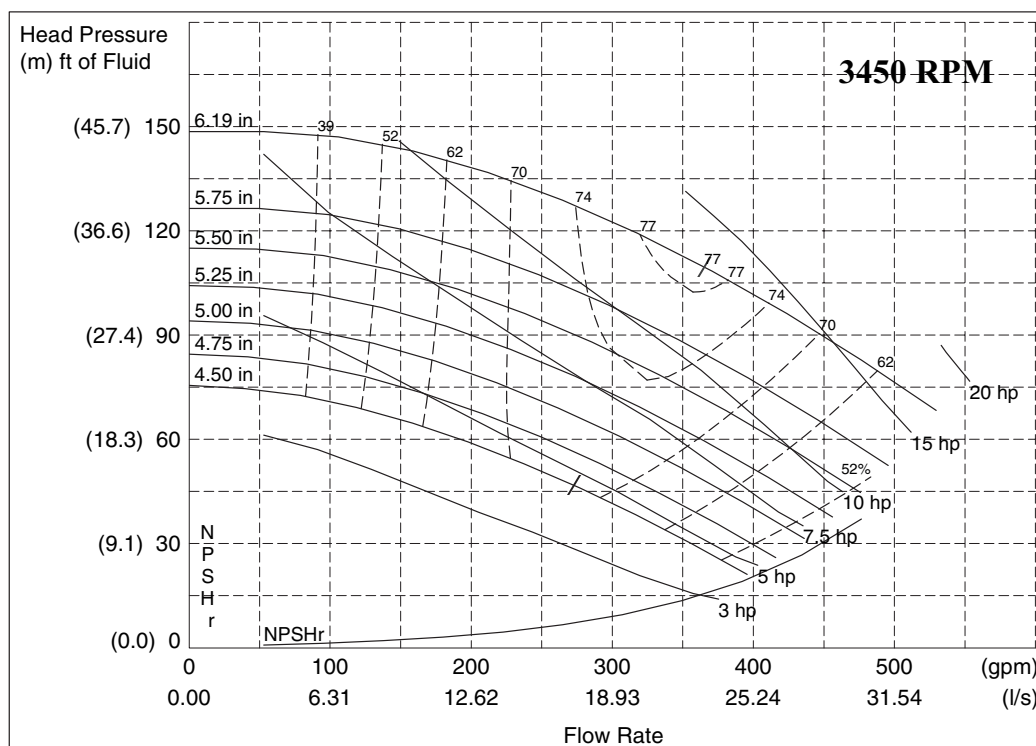


LEGEND

NPSHr — Net Positive Suction Head (Pressure) Required

NOTE: Refer to the Model Number Nomenclature for option identification. Refer to the Pump Impeller Sizes table on page 43 for more information.

PUMP CURVE II FOR HYDRONIC PACKAGE DUAL PUMP (FRESH WATER)



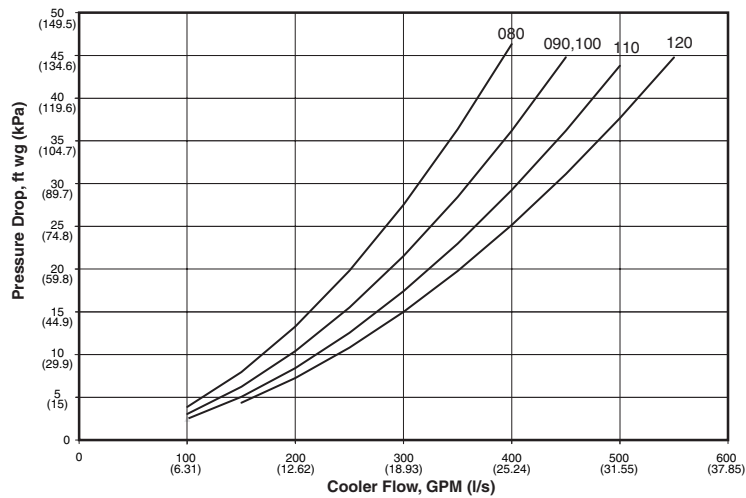
LEGEND

NPSHr — Net Positive Suction Head (Pressure) Required

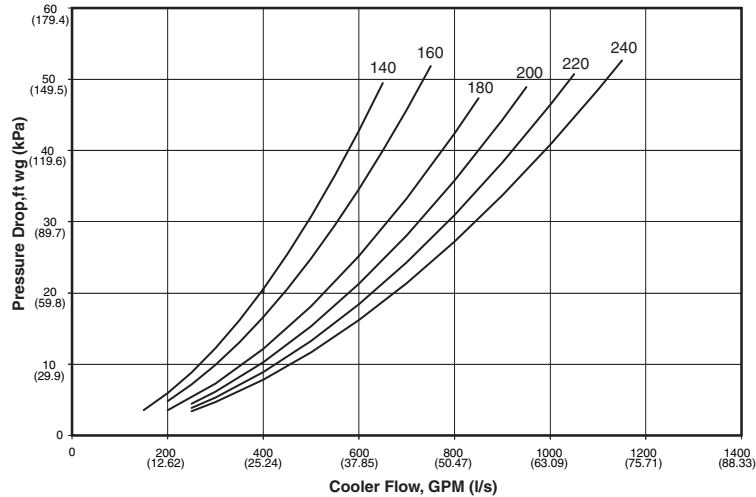
NOTE: Refer to the Model Number Nomenclature for option identification. Refer to the Pump Impeller Sizes table on page 43 for more information.



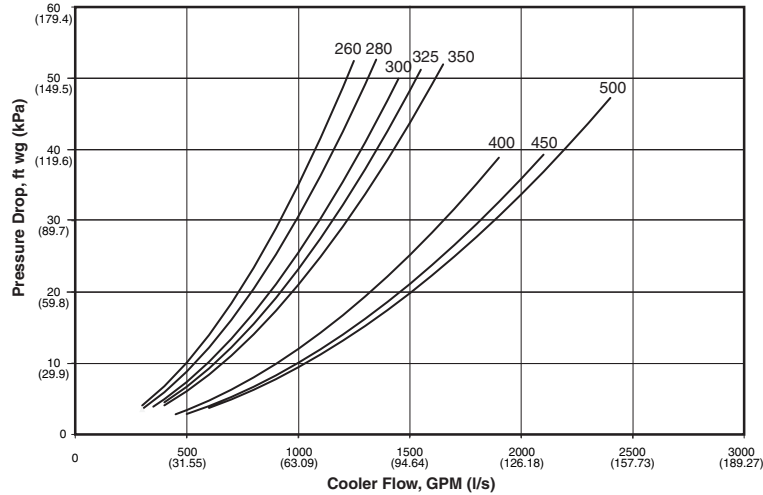
COOLER PRESSURE DROP CURVES
30XA080-120



30XA140-240



30XA260-500



**30XA PACKAGED AIR-COOLED CHILLER RATINGS TABLE — ENGLISH**

LCWT (F)	30XA UNIT SIZE	CONDENSER ENTERING AIR TEMPERATURE (F)											
		85			95			105			115		
		Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)
40	080	74.7	82.2	178.5	70.2	88.3	167.6	65.4	95.2	156.2	60.5	102.7	144.5
	090	82.4	84.9	196.7	79.2	92.7	189.1	75.8	101.6	181.1	72.3	111.3	172.6
	100	91.6	94.2	218.7	87.7	103.3	209.4	83.5	113.4	199.3	79.2	124.6	189.2
	110	100.4	103.5	239.8	96.2	113.7	229.7	91.6	124.9	218.7	86.8	137.6	207.3
	120	108.9	112.8	260.1	104.3	123.9	249.0	99.1	136.0	236.7	93.8	150.1	224.0
	140	129.4	131.6	309.1	124.5	144.7	297.3	119.2	159.2	284.7	113.6	175.0	271.3
	160	149.2	152.7	356.3	143.2	168.2	342.1	136.7	185.1	326.4	129.9	204.1	310.3
	180	166.5	170.1	397.5	160.3	186.8	382.9	153.8	205.1	367.3	146.9	225.2	350.8
	200	189.2	191.9	451.8	181.8	210.8	434.3	174.1	231.6	415.7	165.8	254.4	395.9
	220	205.4	211.6	490.5	197.3	232.8	471.1	188.5	256.3	450.2	179.1	282.6	427.8
	240	223.9	228.8	534.8	214.7	251.6	512.7	204.7	277.0	488.9	194.0	305.7	463.4
	260	244.1	248.0	583.1	234.9	272.7	561.1	225.2	300.2	537.8	214.9	330.8	513.1
	280	261.6	264.9	624.8	251.4	291.4	600.4	240.5	321.0	574.4	228.9	354.2	546.7
	300	282.2	284.0	674.0	271.1	311.4	647.6	259.1	342.9	618.9	246.3	378.2	588.3
	325	298.8	304.6	713.7	287.5	334.8	686.6	275.6	368.8	658.1	263.0	406.5	628.1
	350	318.1	325.0	759.7	305.8	357.2	730.4	292.8	393.5	699.4	279.1	434.1	666.6
	400	376.3	390.7	898.8	361.5	429.8	863.4	345.3	473.1	824.6	319.9	501.4	764.1
	450	417.8	444.9	997.7	401.3	490.0	958.4	383.9	540.3	916.8	324.5	539.7	774.9
	500	450.2	477.4	1075.3	431.9	525.7	1031.6	412.5	579.5	985.2	346.8	578.4	828.2
42	080	77.5	83.8	185.1	72.9	89.8	174.1	68.0	96.7	162.4	62.9	104.3	150.3
	090	85.1	85.9	203.4	81.8	93.8	195.5	78.3	102.7	187.2	74.6	112.6	178.4
	100	95.1	96.5	227.3	91.0	105.7	217.5	86.6	116.0	207.0	81.8	127.0	195.6
	110	103.7	105.8	247.9	99.3	116.2	237.4	94.5	127.6	225.9	89.5	140.5	213.9
	120	112.4	115.4	268.6	107.5	126.7	257.0	102.2	139.1	244.2	96.7	153.7	231.2
	140	133.8	133.5	319.8	128.7	146.7	307.6	123.2	161.3	294.5	117.4	177.3	280.5
	160	154.1	155.0	368.4	147.9	170.7	353.6	141.2	187.7	337.5	134.2	207.0	320.8
	180	172.2	172.7	411.6	165.9	189.5	396.5	159.1	208.0	380.3	152.0	228.2	363.1
	200	195.5	194.9	467.2	187.9	214.0	449.1	179.9	234.9	429.9	171.3	258.0	409.3
	220	213.0	214.4	509.1	204.5	235.8	488.8	195.5	259.5	467.1	185.7	286.1	443.9
	240	231.4	234.1	553.0	222.2	256.3	531.1	212.1	281.5	507.0	201.0	310.7	480.4
	260	252.5	252.3	603.6	243.0	277.2	580.7	232.8	305.0	556.4	222.1	335.9	530.8
	280	270.8	269.0	647.2	260.2	295.9	621.8	248.9	325.8	594.8	236.8	359.5	566.0
	300	290.9	290.9	695.1	279.4	318.8	667.7	267.3	350.0	638.9	251.6	379.0	601.4
	325	308.9	310.3	738.2	297.1	341.0	710.0	284.7	375.3	680.4	271.6	413.6	649.2
	350	327.7	333.5	783.2	315.2	365.8	753.4	302.1	401.9	722.0	285.7	440.3	682.8
	400	387.8	399.8	926.7	372.7	439.1	890.8	356.7	483.0	852.6	325.4	510.8	777.7
	450	431.0	454.1	1029.9	414.2	499.3	989.9	396.2	550.6	946.9	318.2	513.1	760.5
	500	463.6	489.7	1107.9	445.0	537.8	1063.6	425.3	591.8	1016.4	344.1	535.1	822.2
44	080	80.2	85.5	191.8	75.6	91.6	180.7	70.5	98.3	168.6	65.3	105.9	156.2
	090	88.0	87.2	210.4	84.8	95.1	202.7	80.9	103.9	193.3	77.0	113.8	184.2
	100	98.4	98.5	235.3	93.9	107.8	224.7	89.7	118.5	214.6	84.7	129.7	202.6
	110	107.0	108.2	255.9	102.4	118.6	244.9	97.5	130.3	233.1	92.3	143.6	220.8
	120	115.8	118.1	277.0	110.7	129.5	264.8	105.3	142.4	251.8	99.7	157.4	238.4
	140	138.2	135.3	330.5	132.8	148.7	317.7	127.2	163.5	304.3	121.2	179.6	289.8
	160	159.1	157.4	380.4	152.3	173.0	364.2	145.7	190.5	348.5	138.5	210.1	331.3
	180	177.8	175.1	425.2	171.3	192.1	409.7	164.4	210.9	393.1	157.1	231.3	375.6
	200	201.9	197.9	482.7	194.0	217.2	464.0	185.7	238.4	444.1	176.9	261.8	422.9
	220	219.9	218.8	525.9	211.7	239.6	506.2	202.4	262.8	484.0	192.4	289.7	460.1
	240	237.4	242.1	567.7	228.1	264.1	545.6	218.4	288.9	522.3	205.2	309.9	490.6
	260	260.9	256.5	623.9	250.9	281.7	600.2	240.5	310.0	575.2	229.4	341.2	548.6
	280	279.1	275.1	667.5	268.5	301.2	642.1	257.3	330.8	615.3	244.9	364.9	585.6
	300	299.4	297.8	715.9	287.5	326.3	687.6	275.0	358.4	657.7	256.8	379.5	614.1
	325	319.0	316.1	762.8	306.6	347.1	733.4	293.9	382.1	702.7	280.4	420.9	670.5
	350	337.3	342.0	806.6	324.1	374.8	775.1	310.6	411.9	742.8	289.6	444.7	692.5
	400	399.3	409.6	954.8	383.6	449.4	917.6	367.0	494.3	877.7	330.5	510.7	790.3
	450	443.5	465.5	1060.5	426.8	509.3	1020.8	408.0	562.4	975.6	331.3	522.0	792.3
	500	475.9	504.1	1138.1	458.0	549.2	1095.5	435.0	603.7	1040.1	349.8	552.1	836.5

LEGEND

Cap. — Cooling Capacity (Tons of Refrigeration)
kW — Total Power
LCWT — Leaving Chilled Water Temperature

NOTES:

- All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-2003, based on:
 - A cooler water temperature rise of 10° F. For other than a 10° F temperature rise, data corrections must be made using the Packaged Chiller Builder Program.
 - A fouling factor of 0.00010 (ft² · hr · F/Btu) in the cooler.
 - Refrigerant 134a.
- Ratings generated are based on standard ambient temperature (850 rpm condenser fan) units.

Performance data (cont)



30XA PACKAGED AIR-COOLED CHILLER RATINGS TABLE — ENGLISH (cont)

LCWT (F)	30XA UNIT SIZE	CONDENSER ENTERING AIR TEMPERATURE (F)											
		85			95			105			115		
		Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)	Cap Tons	Power	Cooler Flow Rate (gpm)
46	080	83.1	87.3	198.9	78.2	93.4	187.2	73.1	100.2	175.0	67.9	107.6	162.4
	090	91.4	89.0	218.6	87.6	96.8	209.6	83.6	105.6	200.1	79.5	115.3	190.2
	100	101.6	100.7	243.1	97.4	110.3	232.9	92.8	121.0	222.1	87.8	132.5	210.0
	110	110.4	110.6	264.1	105.6	121.2	252.7	100.6	133.2	240.8	95.2	146.7	227.9
	120	119.4	120.9	285.7	114.1	132.4	273.0	108.5	145.7	259.7	102.8	161.2	245.9
	140	142.8	137.3	341.6	137.3	150.8	328.5	131.4	165.7	314.5	125.2	182.0	299.6
	160	164.0	160.4	392.5	157.5	176.1	376.8	150.5	193.4	360.1	143.1	213.3	342.4
	180	183.6	177.7	439.4	176.9	194.9	423.3	169.7	213.8	406.2	162.2	234.4	388.1
	200	208.2	201.8	498.2	200.4	220.7	479.4	191.8	242.1	459.0	182.7	265.7	437.1
	220	226.2	224.9	541.2	217.8	245.3	521.2	208.7	268.9	499.4	198.9	295.1	475.8
	240	243.4	250.7	582.5	233.9	273.5	559.7	223.8	299.2	535.4	208.3	311.8	498.4
	260	269.0	261.9	643.7	259.0	286.9	619.8	248.5	315.0	594.6	237.1	346.7	567.3
	280	287.4	282.1	687.7	276.5	308.8	661.5	264.9	338.7	633.9	252.7	372.1	604.8
	300	307.4	306.8	735.6	295.6	335.0	707.3	282.8	367.1	676.7	262.0	379.9	627.0
	325	329.6	322.0	788.6	316.8	353.7	758.0	303.5	389.1	726.2	289.5	428.4	692.8
	350	347.2	351.1	830.8	333.7	384.9	798.5	319.6	422.6	764.6	293.6	449.1	702.4
	400	410.0	421.3	981.1	394.1	461.8	942.9	377.2	507.0	902.4	317.1	470.7	758.8
	450	455.8	477.0	1090.7	438.0	523.8	1047.9	415.2	569.0	993.4	336.1	516.9	804.2
	500	488.0	519.4	1167.6	468.6	568.7	1121.3	441.9	614.1	1057.5	360.7	557.0	863.1
48	080	86.1	89.1	206.1	81.0	95.3	194.0	75.8	102.2	181.4	70.3	102.0	168.4
	090	94.7	90.7	226.7	90.7	98.7	217.2	86.6	107.6	207.3	82.2	107.2	196.8
	100	104.8	102.9	250.8	100.4	112.7	240.3	95.6	123.5	229.0	90.5	124.9	216.6
	110	113.7	113.1	272.3	108.8	123.9	260.4	103.6	136.2	248.1	98.1	139.8	234.8
	120	123.0	123.8	294.5	117.4	135.5	281.1	111.7	149.3	267.5	105.8	154.9	253.3
	140	147.4	139.2	352.9	141.7	152.9	339.3	135.7	168.0	324.8	129.2	171.5	309.3
	160	168.4	164.9	403.3	161.8	180.2	387.4	154.9	197.4	370.8	147.4	204.1	353.0
	180	189.5	180.3	453.7	182.5	197.6	437.0	175.1	216.7	419.3	167.3	222.1	400.6
	200	213.7	208.0	511.4	205.7	226.6	492.5	197.4	247.1	472.6	188.3	254.6	450.9
	220	232.0	232.3	555.4	223.3	253.3	534.5	214.0	276.8	512.3	202.2	277.6	484.0
	240	249.4	259.4	597.1	239.4	283.1	573.3	228.8	309.7	547.8	208.8	288.8	499.8
	260	277.0	268.2	663.2	266.6	293.6	638.4	255.7	321.8	612.4	244.3	333.8	584.9
	280	295.7	289.3	708.0	284.4	316.5	680.8	272.4	347.1	652.1	257.7	352.3	617.0
	300	315.1	317.4	754.3	302.7	346.4	724.7	287.7	370.2	688.9	266.5	360.8	638.2
	325	339.9	328.9	813.8	327.0	360.3	783.0	313.2	396.1	749.9	298.7	412.9	715.2
	350	356.9	361.1	854.4	343.2	395.0	821.6	328.4	433.7	786.2	287.2	398.2	687.5
	400	420.9	433.4	1007.7	404.4	474.8	968.0	386.8	521.4	925.9	325.8	473.9	780.1
	450	468.1	490.3	1120.6	450.0	537.3	1077.3	422.6	575.7	1011.6	349.1	525.5	835.8
	500	499.5	537.6	1195.8	479.4	588.1	1147.7	448.1	626.1	1072.8	361.9	546.2	866.3
50	080	89.0	91.1	213.3	83.9	97.3	200.9	78.5	104.3	188.0	72.9	104.2	174.6
	090	97.8	92.4	234.4	93.9	100.6	224.9	89.6	109.7	214.7	85.1	109.5	203.7
	100	108.0	105.0	258.6	103.4	115.0	247.8	98.5	126.0	236.0	93.2	127.6	223.2
	110	117.1	115.6	280.5	112.0	126.6	268.2	106.7	139.3	255.5	101.0	143.2	241.8
	120	126.6	126.6	303.3	120.8	138.6	289.4	115.0	153.1	275.6	108.9	159.1	260.9
	140	152.1	141.2	364.3	146.2	155.0	350.1	140.0	170.2	335.3	133.3	173.9	319.2
	160	172.8	169.5	413.8	165.9	185.2	397.4	158.8	202.8	380.4	151.2	209.7	362.3
	180	195.4	182.9	468.1	188.2	200.4	450.8	180.6	219.6	432.6	172.6	225.2	413.4
	200	219.0	214.3	524.7	210.8	233.4	505.0	202.2	254.3	484.4	193.0	262.0	462.4
	220	237.7	239.9	569.3	228.7	261.6	547.7	219.1	285.7	524.8	210.4	291.5	504.0
	240	255.2	268.5	611.4	244.9	293.2	586.6	232.0	311.9	555.8	218.3	301.7	523.0
	260	284.2	276.2	680.8	273.8	301.5	655.9	262.9	329.5	629.8	252.9	336.9	605.9
	280	303.1	298.5	726.1	291.7	325.8	698.6	279.6	356.4	669.8	268.8	364.5	643.9
	300	322.7	328.4	772.9	309.8	358.3	742.1	292.3	373.8	700.2	278.5	373.5	667.0
	325	348.9	338.6	835.7	335.9	370.0	804.6	322.4	404.9	772.3	310.1	415.2	742.7
	350	365.7	372.7	876.1	351.6	407.4	842.2	334.6	442.8	801.5	312.8	440.6	749.4
	400	430.9	447.6	1032.1	414.1	489.6	991.8	394.3	527.7	944.5	330.8	470.4	792.3
	450	479.6	505.2	1148.8	460.7	553.5	1103.6	419.6	548.9	1005.2	353.1	519.1	845.8
	500	510.6	556.2	1223.1	489.8	608.3	1173.1	445.5	601.1	1067.2	—	—	—

LEGEND

Cap. — Cooling Capacity (Tons of Refrigeration)
 kW — Total Power
 LCWT — Leaving Chilled Water Temperature

NOTES:

- All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-2003, based on:
 - A cooler water temperature rise of 10° F. For other than a 10° F temperature rise, data corrections must be made using the Packaged Chiller Builder Program.
 - A fouling factor of 0.00010 (ft² · hr · F/Btu) in the cooler.
 - Refrigerant 134a.
- Ratings generated are based on standard ambient temperature (850 rpm condenser fan) units.
- Data for 30XA450, 500, LCWT 50, Condenser Entering Air Temperature 115 F not available at time of printing.



30XA PACKAGED AIR-COOLED CHILLER RATINGS TABLE — SI

LCWT (C)	30XA UNIT SIZE	CONDENSER ENTERING AIR TEMPERATURE (C)											
		30			35			40			45		
		Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)
5	080	265.9	83.5	11.4	251.3	89.0	10.8	236.0	95.2	10.1	220.3	101.9	9.6
	090	293.1	86.1	12.6	282.9	93.2	12.1	272.1	101.2	11.7	260.8	109.9	11.2
	100	326.7	96.2	14.0	314.0	104.5	13.5	300.4	113.6	12.9	285.9	123.4	12.3
	110	357.2	105.7	15.3	343.5	114.9	14.7	328.7	125.0	14.1	313.2	136.3	13.4
	120	387.3	115.2	16.6	372.2	125.3	16.0	355.5	136.2	15.3	338.6	148.9	14.5
	140	460.7	133.8	19.8	444.8	145.7	19.1	427.9	158.7	18.4	409.9	172.9	17.6
	160	530.8	155.3	22.8	511.6	169.4	21.9	490.7	184.6	21.0	469.0	201.6	20.1
	180	593.0	173.0	25.4	573.1	188.1	24.6	552.2	204.6	23.7	530.1	222.5	22.7
	200	673.3	195.2	28.9	649.7	212.4	27.9	624.6	231.1	26.8	598.2	251.5	25.7
	220	732.3	215.0	31.4	705.9	234.3	30.3	677.8	255.4	29.1	647.9	278.8	27.8
	240	797.6	233.1	34.2	768.0	253.7	32.9	736.1	276.5	31.6	701.9	302.1	30.1
	260	869.3	252.6	37.3	839.6	275.0	36.0	808.2	299.7	34.7	775.2	327.0	33.3
	280	931.9	269.5	40.0	898.8	293.6	38.6	863.8	320.2	37.1	826.8	349.9	35.5
	300	1003.0	290.0	43.0	967.3	315.0	41.5	930.0	342.6	39.9	889.2	374.0	38.2
	325	1063.6	310.4	45.6	1027.0	337.9	44.1	988.7	368.4	42.4	948.5	402.2	40.7
	350	1130.4	332.3	48.5	1091.7	361.2	46.8	1050.7	393.4	45.1	1006.8	429.7	43.2
	400	1337.4	398.8	57.4	1290.5	434.0	55.4	1240.2	473.3	53.2	1185.9	516.9	50.9
	450	1485.3	453.4	63.7	1432.4	494.6	61.4	1376.9	540.0	59.1	1197.4	539.1	50.9
	500	1599.2	487.9	68.6	1541.5	531.2	66.1	1479.5	579.7	63.5	1279.7	578.2	54.4
6	080	274.4	85.0	11.8	259.6	90.4	11.1	244.1	96.6	10.5	227.9	103.3	9.8
	090	301.7	87.1	13.0	291.2	94.2	12.5	280.0	102.2	12.0	268.3	111.0	11.5
	100	337.7	98.2	14.5	324.5	106.6	13.9	310.4	115.9	13.3	295.3	125.8	12.7
	110	367.7	107.7	15.8	353.4	117.1	15.2	338.1	127.4	14.5	322.2	139.0	13.8
	120	398.1	117.5	17.1	382.4	127.8	16.4	365.3	139.1	15.7	348.0	152.0	14.9
	140	474.7	135.5	20.4	458.1	147.5	19.7	440.6	160.7	18.9	422.1	174.9	18.1
	160	546.4	157.5	23.5	526.4	171.7	22.6	504.9	187.0	21.7	482.6	204.2	20.7
	180	610.9	175.3	26.2	590.5	190.6	25.3	569.0	207.2	24.4	546.3	225.2	23.4
	200	693.2	198.0	29.8	668.8	215.3	28.7	643.1	234.1	27.6	615.8	254.7	26.4
	220	756.3	217.6	32.5	729.0	237.0	31.3	699.9	258.3	30.0	669.1	281.9	28.7
	240	818.6	239.4	35.1	790.1	258.9	33.9	758.5	281.2	32.6	724.3	306.6	31.1
	260	895.9	256.4	38.5	864.9	279.1	37.1	832.6	304.0	35.7	798.4	331.5	34.3
	280	960.3	273.7	41.2	926.6	297.7	39.8	890.4	324.6	38.2	852.2	354.5	36.6
	300	1029.9	296.3	44.2	993.1	321.7	42.6	954.3	350.0	41.0	913.6	381.0	39.2
	325	1095.4	315.5	47.0	1057.3	343.4	45.4	1017.7	374.3	43.7	976.1	408.4	41.9
	350	1160.7	339.9	49.8	1120.4	369.5	48.1	1078.3	402.1	46.3	1033.9	438.1	44.4
	400	1373.7	407.4	59.0	1325.1	443.2	56.9	1273.8	482.9	54.7	1195.6	517.0	51.3
	450	1526.2	462.9	65.5	1472.7	503.9	63.2	1416.3	549.3	60.8	1229.1	546.1	52.3
	500	1640.0	500.0	70.4	1581.3	543.3	67.9	1518.2	592.1	65.2	1304.7	585.1	55.5
7	080	283.2	86.6	12.2	265.5	91.6	11.4	252.3	98.1	10.8	235.9	104.8	10.1
	090	311.4	88.5	13.4	297.8	95.1	12.8	288.2	103.4	12.4	276.1	112.2	11.9
	100	347.7	100.1	14.9	330.1	107.8	14.2	320.5	118.2	13.8	304.7	128.2	13.1
	110	377.9	109.9	16.2	359.9	118.6	15.5	347.7	130.0	14.9	331.3	141.8	14.2
	120	409.0	120.0	17.6	389.0	129.5	16.7	375.2	142.0	16.1	357.7	155.4	15.4
	140	488.4	137.2	21.0	466.7	148.7	20.0	453.6	162.6	19.5	434.6	176.9	18.7
	160	561.9	159.8	24.1	535.1	173.0	23.0	519.5	189.5	22.3	496.8	206.9	21.3
	180	628.5	177.5	27.0	601.9	192.1	25.8	585.7	209.8	25.2	562.6	227.9	24.2
	200	713.5	200.7	30.6	681.7	217.2	29.3	662.1	237.2	28.4	634.0	258.1	27.2
	220	776.5	222.3	33.3	743.7	239.6	31.9	721.8	261.8	31.0	690.9	285.1	29.7
	240	837.3	246.8	36.0	801.6	264.1	34.4	776.7	289.3	33.4	735.9	306.1	31.6
	260	922.2	260.1	39.6	881.7	281.7	37.9	857.3	308.4	36.8	822.2	336.2	35.3
	280	985.7	279.7	42.3	943.4	301.2	40.5	916.5	329.9	39.4	878.5	359.3	37.7
	300	1056.9	302.7	45.4	1010.2	326.3	43.4	978.9	357.6	42.0	930.3	380.8	40.0
	325	1127.5	320.7	48.4	1077.4	347.1	46.3	1047.1	380.4	45.0	1004.5	414.9	43.1
	350	1190.7	347.8	51.1	1138.7	374.8	48.9	1105.8	411.2	47.5	1045.8	441.5	44.9
	400	1408.9	416.9	60.5	1348.0	449.4	57.9	1306.7	493.2	56.1	1209.8	515.5	52.0
	450	1565.3	473.4	67.2	1499.5	509.3	64.4	1451.7	561.1	62.3	1250.2	551.0	53.2
	500	1678.5	513.0	72.1	1609.4	549.2	69.1	1546.9	603.0	66.4	1295.3	560.7	55.1

LEGEND

Cap. — Cooling Capacity (kW of Refrigeration)
 kW — Total Power
 LCWT — Leaving Chilled Water Temperature

NOTES:

- All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-2003, based on:
 - A cooler water temperature rise of 5.6° C. For other than a 5.6° C temperature rise, data corrections must be made using the Packaged Chiller Builder Program.
 - A fouling factor of 0.00018 (m² · °C/W) in the cooler.
 - Refrigerant 134a.
- Ratings generated are based on standard ambient temperature (850 rpm condenser fan) units.

Performance data (cont)



30XA PACKAGED AIR-COOLED CHILLER RATINGS TABLE — SI (cont)

LCWT (C)	30XA UNIT SIZE	CONDENSER ENTERING AIR TEMPERATURE (C)											
		30			35			40			45		
		Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)	Cap kW	Power	Cooler Flow Rate (l/s)
8	080	292.4	88.2	12.6	276.8	93.8	11.9	260.7	99.9	11.2	244.0	106.5	10.5
	090	322.1	90.1	13.8	310.0	97.2	13.3	297.4	105.1	12.8	284.0	113.7	12.2
	100	357.7	102.0	15.4	344.2	110.8	14.8	329.8	120.4	14.2	314.2	130.7	13.5
	110	388.6	112.1	16.7	373.4	121.7	16.0	357.4	132.6	15.4	340.6	144.6	14.6
	120	420.3	122.6	18.1	403.2	133.0	17.3	385.5	145.0	16.6	367.4	158.8	15.8
	140	503.0	138.9	21.6	485.5	151.2	20.9	467.0	164.6	20.1	447.3	179.1	19.2
	160	577.4	162.8	24.8	556.6	176.7	23.9	534.5	192.2	23.0	511.3	209.7	22.0
	180	647.1	179.8	27.8	625.5	195.4	26.9	602.8	212.4	25.9	579.0	230.7	24.9
	200	732.9	204.8	31.5	708.1	221.7	30.4	681.5	240.5	29.3	652.6	261.5	28.0
	220	795.9	228.3	34.2	769.2	246.9	33.1	740.7	267.7	31.8	709.9	291.0	30.5
	240	856.4	254.6	36.8	825.9	275.4	35.5	793.6	298.5	34.1	743.9	307.7	32.0
	260	947.3	265.5	40.7	915.4	288.2	39.3	882.2	313.2	37.9	846.5	341.1	36.4
	280	1012.0	286.1	43.5	977.0	310.3	42.0	940.3	337.3	40.4	901.8	366.9	38.7
	300	1081.5	311.6	46.5	1043.7	337.2	44.8	1003.8	365.6	43.1	947.2	380.2	40.7
	325	1161.2	326.2	49.9	1120.3	355.0	48.1	1078.0	386.8	46.3	1033.9	421.7	44.4
	350	1222.4	356.2	52.5	1179.2	386.9	50.7	1134.3	420.8	48.7	1057.5	444.8	45.4
	400	1442.9	427.5	62.0	1392.0	464.3	59.8	1338.2	505.0	57.5	1222.8	514.2	52.5
	450	1604.2	483.8	68.9	1547.4	526.4	66.5	1473.7	566.4	63.3	1238.9	524.6	52.8
	500	1716.1	527.6	73.7	1654.9	572.2	71.1	1568.1	611.8	67.4	1297.6	550.1	55.3
10	080	311.1	91.7	13.4	294.6	97.3	12.7	277.7	103.6	11.9	260.1	110.2	11.2
	090	342.4	93.2	14.7	329.9	100.6	14.2	316.5	108.8	13.6	302.2	117.5	13.0
	100	377.8	106.0	16.3	363.4	115.0	15.6	348.0	124.9	15.0	331.2	135.3	14.2
	110	409.7	116.6	17.6	393.4	126.6	16.9	376.7	138.0	16.2	358.9	150.4	15.4
	120	442.8	127.8	19.0	424.4	138.6	18.3	406.3	151.6	17.5	387.1	165.8	16.6
	140	532.3	142.6	22.9	513.6	155.0	22.1	494.0	168.7	21.2	473.0	183.4	20.3
	160	604.7	171.0	26.0	582.9	185.2	25.1	560.5	200.9	24.1	536.8	218.4	23.1
	180	684.2	184.6	29.4	661.3	200.4	28.4	637.3	217.7	27.4	612.1	236.3	26.3
	200	766.8	216.1	33.0	740.9	233.4	31.9	713.8	252.1	30.7	684.9	272.6	29.5
	220	832.0	242.0	35.8	803.4	261.6	34.6	773.3	283.2	33.3	734.2	298.3	31.6
	240	893.3	270.8	38.4	860.5	293.2	37.0	819.1	309.1	35.2	761.8	308.1	32.8
	260	995.1	278.6	42.8	962.0	301.5	41.4	927.7	326.5	39.9	890.8	354.6	38.3
	280	1061.1	301.0	45.6	1024.8	325.8	44.1	986.8	353.2	42.4	939.7	374.9	40.4
	300	1129.3	331.3	48.6	1088.5	358.3	46.8	1039.1	379.1	44.7	964.1	381.0	41.5
	325	1221.4	341.5	52.5	1180.3	370.0	50.8	1137.7	401.2	48.9	1092.1	436.4	47.0
	350	1280.2	375.9	55.1	1235.4	407.4	53.1	1188.6	442.1	51.1	1058.6	422.3	45.5
	400	1508.2	451.6	64.9	1454.9	489.6	62.6	1392.1	522.8	59.9	1192.6	469.1	51.3
	450	1678.6	509.8	72.2	1618.8	553.5	69.6	1520.1	582.8	65.4	1292.6	526.1	55.1
	500	1787.0	561.1	76.9	1720.9	608.3	74.0	1581.2	599.4	68.0	1373.4	564.1	58.5

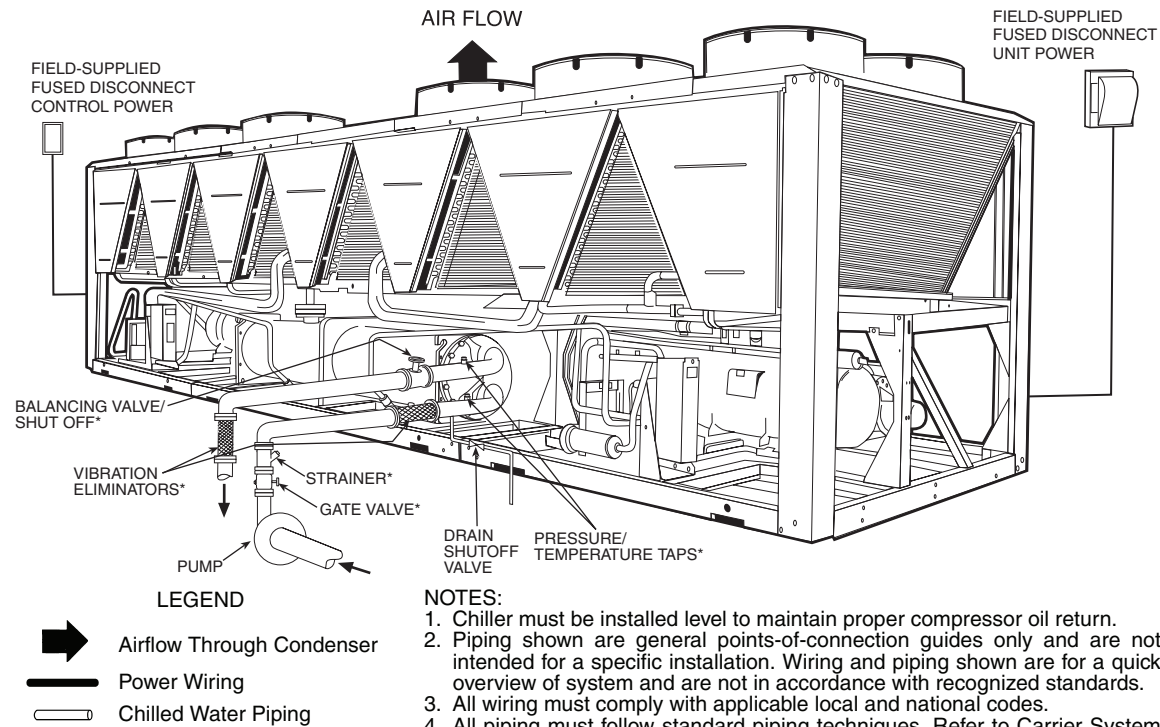
LEGEND

Cap. — Cooling Capacity (kW of Refrigeration)
 kW — Total Power
 LCWT — Leaving Chilled Water Temperature

NOTES:

- All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-2003, based on:
 - A cooler water temperature rise of 5.6° C. For other than a 5.6° C temperature rise, data corrections must be made using the Packaged Chiller Builder Program.
 - A fouling factor of 0.00018 (m² · °C/W) in the cooler.
 - Refrigerant 134a.
- Ratings generated are based on standard ambient temperature (850 rpm condenser fan) units.

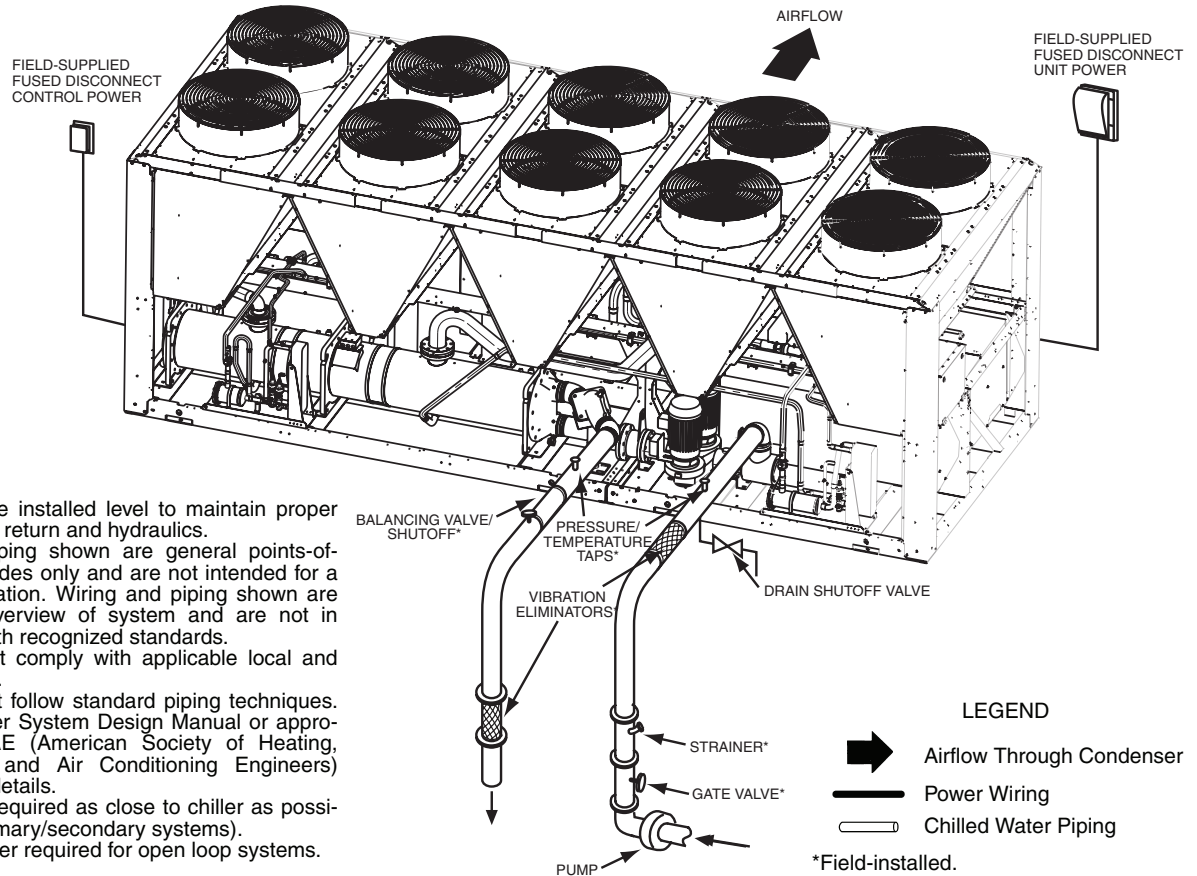
30XA UNITS WITHOUT HYDRONIC PACKAGE



NOTES:

1. Chiller must be installed level to maintain proper compressor oil return.
2. 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.

30XA UNITS WITH HYDRONIC PACKAGE



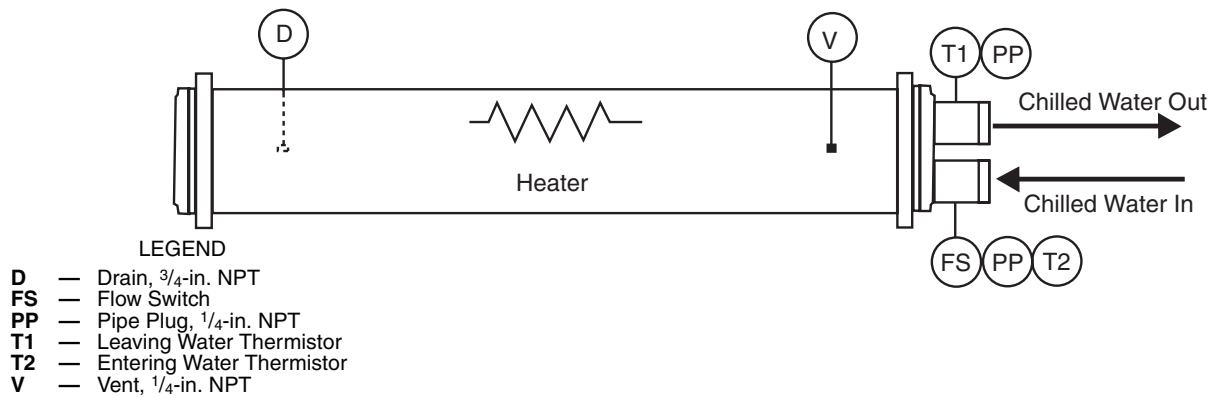
NOTES:

1. Chiller must be installed level to maintain proper compressor oil return and hydraulics.
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. Air separator required as close to chiller as possible (except primary/secondary systems).
6. 20 mesh strainer required for open loop systems.

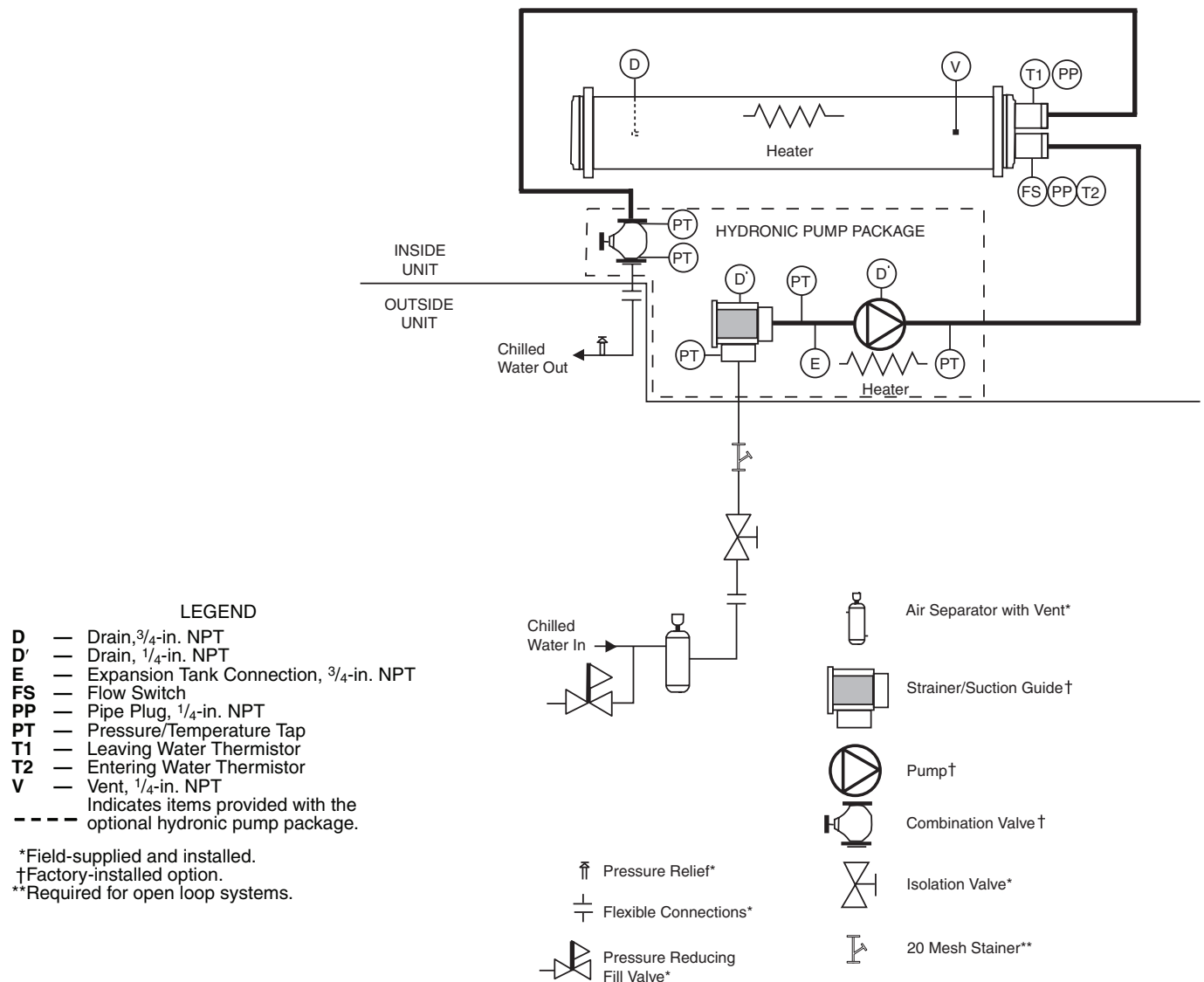
Typical piping and wiring (cont)



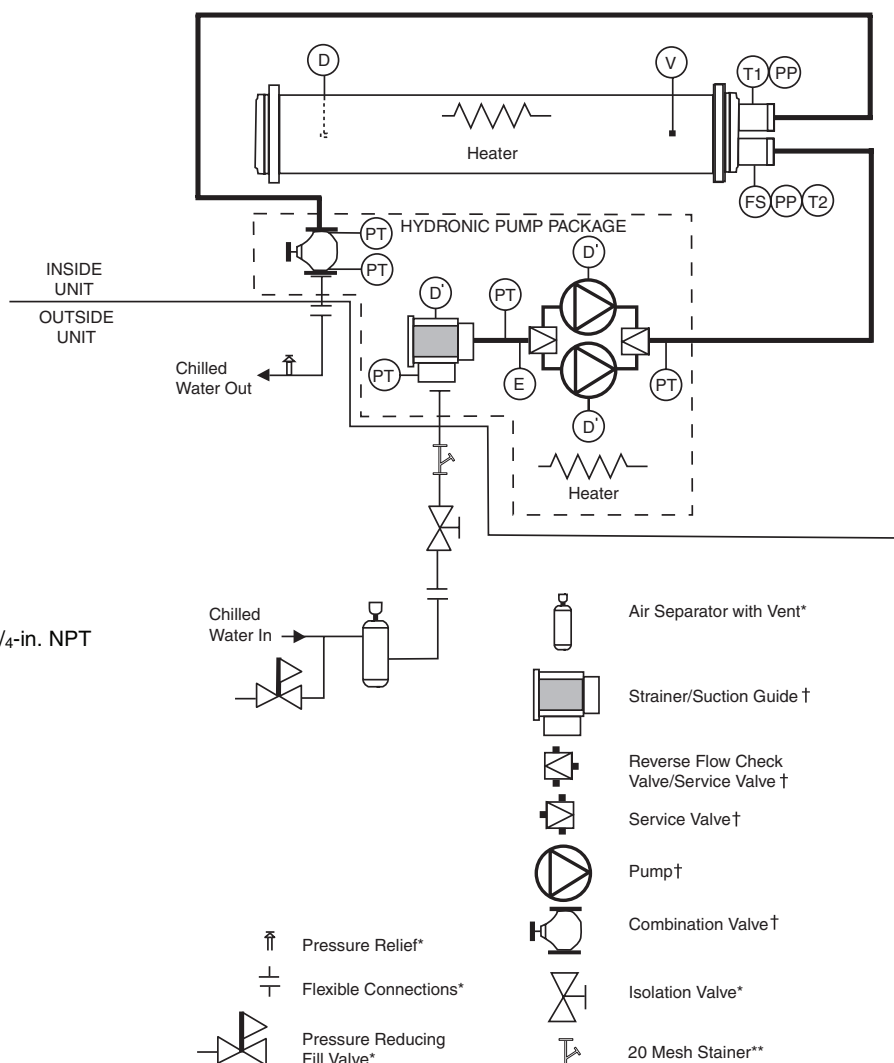
TYPICAL PIPING DIAGRAM ON 30XA UNITS WITHOUT HYDRONIC PACKAGE



TYPICAL PIPING DIAGRAM ON 30XA UNITS WITH HYDRONIC PACKAGE — SINGLE PUMP



TYPICAL PIPING DIAGRAM ON 30XA UNITS WITH HYDRONIC PACKAGE — DUAL PUMPS



SINGLE POINT (STANDARD CONDENSER FAN MOTORS)*

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					7.5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL				WD	XL			
080	230-60	207	253	6	315.5	400	484.2	1170.2	350	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6	347.6	450	549.6	1338.6	400	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6	157.7	200	242.1	585.1	175	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6	121.2	150	191.9	465.9	150	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6	183.5	250	289.7	704.7	225	—	—	—	—	—	—	—	—	—	—	115	40
090	230-60	207	253	8	334.0	450	499.1	1185.1	400	350.0	450	515.1	1201.1	400	357.2	450	522.3	1208.3	400	115	40
	200-60	187	220	8	368.0	500	566.0	1355.0	450	385.7	500	583.7	1372.7	450	393.6	500	591.7	1380.7	450	115	40
	460-60	414	506	8	167.0	225	249.6	592.6	200	175.0	225	257.6	600.6	200	178.6	225	261.2	604.2	200	115	40
	575-60	518	633	8	128.5	175	197.8	471.8	150	134.9	175	204.2	478.2	150	137.7	175	207.0	481.0	150	115	40
	380-60	342	418	8	194.5	250	298.6	713.6	225	204.2	250	308.3	723.3	225	208.6	250	312.6	727.6	250	115	40
100	230-60	207	253	8	364.6	500	536.7	1278.7	400	380.6	500	552.7	1294.7	450	387.8	500	559.9	1301.9	450	115	40
	200-60	187	220	8	401.3	500	607.8	1461.8	450	419.0	500	625.5	1479.5	500	427.0	500	633.5	1487.5	500	115	40
	460-60	414	506	8	182.3	250	268.4	639.4	200	190.3	250	276.4	647.4	225	193.9	250	280.0	651.0	225	115	40
	575-60	518	633	8	139.5	175	211.7	508.7	175	145.9	175	218.1	515.1	175	148.8	200	220.9	517.9	175	115	40
	380-60	342	418	8	212.7	250	321.7	770.7	250	222.4	300	331.3	780.3	250	226.7	300	335.7	784.7	250	115	40
110	230-60	207	253	8	405.7	500	536.7	—	450	421.7	500	552.7	—	500	428.9	600	559.9	—	500	115	40
	200-60	187	220	8	446.2	600	607.8	—	500	463.9	600	625.5	—	600	471.9	600	633.5	—	600	115	40
	460-60	414	506	8	202.4	250	268.4	639.4	225	210.4	250	276.4	647.4	250	214.0	300	280.0	651.0	250	115	40
	575-60	518	633	8	155.5	200	211.7	508.7	175	161.9	225	218.1	515.1	200	164.8	225	220.9	517.9	200	115	40
	380-60	342	418	8	236.4	300	321.7	770.7	300	246.1	300	331.3	780.3	300	250.4	350	335.7	784.7	300	115	40
120	230-60	207	253	8	438.6	600	569.6	—	500	454.6	600	585.6	—	500	461.8	600	592.8	—	600	115	40
	200-60	187	220	8	482.2	600	643.8	—	600	499.9	600	661.5	—	600	507.8	600	669.4	—	600	115	40
	460-60	414	506	8	218.4	300	284.4	655.4	250	226.4	300	292.4	663.4	250	230.0	300	296.0	667.0	300	115	40
	575-60	518	633	8	168.4	225	224.5	521.5	200	174.8	225	230.9	527.9	200	177.7	225	233.8	530.8	200	115	40
	380-60	342	418	8	255.3	350	340.6	789.6	300	265.0	350	350.3	799.3	300	269.4	350	354.7	803.7	300	115	40
140	230-60	207	253	10	534.7	800	796.7	—	700	550.7	800	812.7	—	700	557.9	800	819.9	—	700	115	40
	200-60	187	220	10	588.5	800	906.1	—	700	606.2	800	923.8	—	700	614.1	800	931.8	—	700	115	40
	460-60	414	506	10	267.3	400	398.4	1030.4	350	275.3	400	406.4	1038.4	350	278.9	400	410.0	1042.0	350	115	40
	575-60	518	633	10	205.0	300	315.5	821.5	250	211.4	300	321.9	827.9	250	214.3	300	324.7	830.7	250	115	40
	380-60	342	418	10	311.2	450	478.9	1243.9	350	320.9	450	488.6	1253.6	400	325.3	450	493.0	1258.0	400	115	40
160	230-60	207	253	10	621.1	800	997.6	—	700	637.1	800	1013.6	—	800	644.3	800	1020.8	—	800	115	40
	200-60	187	220	10	682.8	1000	1136.1	—	800	700.5	1000	1153.8	—	800	708.5	1000	1161.7	—	800	115	40
	460-60	414	506	10	309.7	450	498.4	1306.4	350	317.7	450	506.4	1314.4	400	321.3	450	510.0	1318.0	400	115	40
	575-60	518	633	10	238.1	350	396.3	1042.3	300	244.5	350	402.7	1048.7	300	247.4	350	405.6	1051.6	300	115	40
	380-60	342	418	10	361.1	500	598.9	1577.9	450	370.8	500	608.6	1587.6	450	375.2	500	612.9	1591.9	450	115	40
180	230-60	207	253	12	673.2	800	935.2	—	800	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	740.9	1000	1058.5	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	336.6	450	467.6	1099.6	400	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	258.3	350	368.8	874.8	300	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	391.5	500	559.2	1324.2	450	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	12	769.6	1000	1146.0	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	846.0	1000	1299.2	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	383.9	500	572.6	1380.6	450	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	294.8	400	453.0	1099.0	350	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	447.2	600	685.0	1664.0	500	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	13	850.2	1200	1152.0	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	935.1	1200	1305.9	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	424.7	600	575.6	1383.6	500	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	326.3	450	455.4	1101.4	400	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	494.5	700	688.6	1667.6	600	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	13	910.0	1200	1211.8	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	1001.1	1200	1371.8	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	455.0	600	605.9	1413.9	600	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	349.6	450	478.7	1124.7	400	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	529.5	700	723.5	1702.5	600	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	15	516.5	700	777.6	1999.6	600	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	15	396.4	500	616.2	1594.2	450	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	15	600.2	800	933.9	2412.9	700	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	16	549.7	800	810.9	2032.9	700	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	422.1	600	641.9	1619.9	500	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	638.7	800	972.4	2451.4	800	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	16	610.9	800	810.9	2032.9	700	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	468.7	600	641.9	1619.9	600	—	—										

SINGLE POINT (STANDARD CONDENSER FAN MOTORS)* (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	10 HP PUMP, 3450 RPM					15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
080	230-60	207	253	6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6	—	—	—	—	—	—	—	—	—	—	115	40
090	230-60	207	253	8	364.4	450	529.5	1215.5	400	379.0	500	544.1	1230.1	450	115	40
	200-60	187	220	8	401.6	500	599.6	1388.6	450	417.7	500	615.8	1404.8	500	115	40
	460-60	414	506	8	182.2	225	264.8	607.8	200	189.5	250	272.1	615.1	225	115	40
	575-60	518	633	8	140.6	175	209.9	483.9	175	146.5	175	215.8	489.8	175	115	40
	380-60	342	418	8	212.9	250	317.0	732.0	250	221.8	250	325.8	740.8	250	115	40
100	230-60	207	253	8	395.0	500	567.1	1309.1	450	409.6	500	581.7	1323.7	450	115	40
	200-60	187	220	8	434.9	500	641.5	1495.5	500	451.1	600	657.6	1511.6	500	115	40
	460-60	414	506	8	197.5	250	283.6	654.6	225	204.8	250	290.9	661.9	225	115	40
	575-60	518	633	8	151.7	200	223.8	520.8	175	157.5	200	229.7	526.7	175	115	40
	380-60	342	418	8	231.1	300	340.1	789.1	300	239.9	300	348.9	797.9	300	115	40
110	230-60	207	253	8	436.1	600	567.1	—	500	450.7	600	581.7	—	500	115	40
	200-60	187	220	8	479.9	600	641.5	—	600	496.0	600	657.6	—	600	115	40
	460-60	414	506	8	217.6	300	283.6	654.6	250	224.9	300	290.9	661.9	250	115	40
	575-60	518	633	8	167.7	225	223.8	520.8	200	173.5	225	229.7	526.7	200	115	40
	380-60	342	418	8	254.8	350	340.1	789.1	300	263.6	350	348.9	797.9	300	115	40
120	230-60	207	253	8	469.0	600	600.0	—	600	483.6	600	614.6	—	600	115	40
	200-60	187	220	8	515.8	700	677.4	—	600	531.9	700	693.5	—	600	115	40
	460-60	414	506	8	233.6	300	299.6	670.6	300	240.9	300	306.9	677.9	300	115	40
	575-60	518	633	8	180.5	225	236.7	533.7	200	186.4	250	242.5	539.5	225	115	40
	380-60	342	418	8	273.7	350	359.0	808.0	300	282.6	350	367.9	816.9	350	115	40
140	230-60	207	253	10	565.1	800	827.1	—	700	579.7	800	841.7	—	700	115	40
	200-60	187	220	10	622.1	800	939.7	—	700	638.2	800	955.9	—	800	115	40
	460-60	414	506	10	282.5	400	413.6	1045.6	350	289.8	400	420.9	1052.9	350	115	40
	575-60	518	633	10	217.1	300	327.6	833.6	250	223.0	300	333.5	839.5	250	115	40
	380-60	342	418	10	329.6	450	497.3	1262.3	400	338.5	450	506.2	1271.2	400	115	40
160	230-60	207	253	10	651.5	800	1028.0	—	800	666.1	800	1042.6	—	800	115	40
	200-60	187	220	10	716.4	1000	1169.7	—	1000	732.6	1000	1185.8	—	1000	115	40
	460-60	414	506	10	324.9	450	513.6	1321.6	400	332.2	450	520.9	1328.9	400	115	40
	575-60	518	633	10	250.2	350	408.5	1054.5	300	256.1	350	414.3	1060.3	300	115	40
	380-60	342	418	10	379.5	500	617.3	1596.3	450	388.4	500	626.1	1605.1	450	115	40
180	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	15	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	15	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	15	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	40
325	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	40
350	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	40

LEGEND

ICF — Instantaneous Current Flow
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
WD — Wye-Delta
XL — Across-the-Line

*30XA400-500 units are not available with single point power.

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.

- For MCA that is less than or equal to 380 amps, 3 conductors are required.
For MCA between 381-760 amps, 6 conductors are required.
For MCA between 761-1140 amps, 9 conductors are required.
For MCA between 1141-1520 amps, 12 conductors are required.
Calculation of conductors required is based on 75 C copper wire.
- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gauge) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.

Electrical data (cont)



DUAL POINT (STANDARD CONDENSER FAN MOTORS)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	NO HYDRONIC PACKAGE						5 HP PUMP, 3450 RPM						CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP		
		Min	Max				WD	XL				WD	XL					
080	230-60	207	253	3/3	173.3/173.3	250/ 250	342.0/342.0	1028.0/1028.0	225/225	—	—	—	—	—	115	40		
	200-60	187	220	3/3	190.9/190.9	300/ 300	392.9/392.9	1181.9/1181.9	250/250	—	—	—	—	—	115	40		
	460-60	414	506	3/3	86.6/ 86.6	125/ 125	171.0/171.0	514.0/ 514.0	110/110	—	—	—	—	—	115	40		
	575-60	518	633	3/3	66.5/ 66.5	110/ 110	137.2/137.2	411.2/ 411.2	80/ 80	—	—	—	—	—	115	40		
	380-60	342	418	3/3	100.7/100.7	150/ 150	206.9/206.9	621.9/ 621.9	125/125	—	—	—	—	—	115	40		
090	230-60	207	253	4/4	182.9/182.9	300/ 300	348.0/348.0	1034.0/1034.0	225/225	182.9/198.9	300/300	348.0/364.0	1034.0/1050.0	225/250	115	40		
	200-60	187	220	4/4	201.5/201.5	300/ 300	399.5/399.5	1188.5/1188.5	250/250	201.5/219.2	300/350	399.5/417.2	1188.5/1206.2	250/300	115	40		
	460-60	414	506	4/4	91.4/ 91.4	150/ 150	174.0/174.0	517.0/ 517.0	110/110	91.4/ 99.4	150/150	174.0/182.0	517.0/ 525.0	110/125	115	40		
	575-60	518	633	4/4	70.3/ 70.3	110/ 110	139.6/139.6	413.6/ 413.6	90/ 90	70.3/ 76.7	110/125	139.6/146.0	413.6/ 420.0	90/ 90	115	40		
	380-60	342	418	4/4	106.5/106.5	175/ 175	210.5/210.5	625.5/ 625.5	125/125	106.5/116.1	175/175	210.5/220.2	625.5/ 635.2	125/150	115	40		
100	230-60	207	253	4/4	199.9/199.9	300/ 300	372.0/372.0	1114.0/1114.0	250/250	199.9/215.9	300/350	372.0/388.0	1114.0/1130.0	250/300	115	40		
	200-60	187	220	4/4	220.0/220.0	350/ 350	426.5/426.5	1280.5/1280.5	300/300	220.0/237.7	350/350	426.5/444.2	1280.5/1298.2	300/300	115	40		
	460-60	414	506	4/4	99.9/ 99.9	150/ 150	186.0/186.0	557.0/ 557.0	125/125	99.9/107.9	150/175	186.0/194.0	557.0/ 565.0	125/150	115	40		
	575-60	518	633	4/4	76.4/ 76.4	125/ 125	148.6/148.6	445.6/ 445.6	90/ 90	76.4/ 82.8	125/125	148.6/155.0	445.6/ 452.0	90/100	115	40		
	380-60	342	418	4/4	116.5/116.5	175/ 175	225.5/225.5	674.5/ 674.5	150/150	116.5/126.2	175/200	225.5/235.2	674.5/ 684.2	150/150	115	40		
110	230-60	207	253	4/4	241.0/199.9	400/ 300	372.0/372.0	—	300/250	241.0/215.9	400/350	372.0/388.0	—	300/300	115	40		
	200-60	187	220	4/4	264.9/220.0	450/ 350	426.5/426.5	—	350/300	264.9/237.7	450/350	426.5/444.2	—	350/300	115	40		
	460-60	414	506	4/4	120.0/ 99.9	200/ 150	186.0/186.0	557.0/557.0	150/125	120.0/107.9	200/175	186.0/194.0	557.0/ 565.0	150/150	115	40		
	575-60	518	633	4/4	92.5/ 76.4	150/ 125	148.6/148.6	445.6/445.6	110/ 90	92.5/ 82.8	150/125	148.6/155.0	445.6/ 452.0	110/100	115	40		
	380-60	342	418	4/4	140.2/116.5	225/ 175	225.5/225.5	674.5/674.5	175/150	140.2/126.2	225/200	225.5/235.2	674.5/ 684.2	175/150	115	40		
120	230-60	207	253	4/4	241.0/241.0	400/ 400	372.0/372.0	—	300/300	241.0/257.0	400/400	372.0/388.0	—	300/350	115	40		
	200-60	187	220	4/4	264.9/264.9	450/ 450	426.5/426.5	—	350/350	264.9/282.6	450/450	426.5/444.2	—	350/350	115	40		
	460-60	414	506	4/4	120.0/120.0	200/ 200	186.0/186.0	557.0/557.0	150/150	120.0/128.0	200/200	186.0/194.0	557.0/ 565.0	150/150	115	40		
	575-60	518	633	4/4	92.5/ 92.5	150/ 150	148.6/148.6	445.6/445.6	110/110	92.5/ 98.9	150/150	148.6/155.0	445.6/ 452.0	110/125	115	40		
	380-60	342	418	4/4	140.2/140.2	225/ 225	225.5/225.5	674.5/674.5	175/175	140.2/149.9	225/250	225.5/235.2	674.5/ 684.2	175/200	115	40		
140	230-60	207	253	6/4	370.0/199.9	600/ 300	632.0/372.0	—	450/250	370.0/215.9	600/350	632.0/388.0	—	450/300	115	40		
	200-60	187	220	6/4	407.2/220.0	700/ 350	724.8/426.5	—	500/300	407.2/237.7	700/350	724.8/444.2	—	500/300	115	40		
	460-60	414	506	6/4	185.0/ 99.9	300/ 150	316.0/186.0	948.0/557.0	225/125	185.0/107.9	300/175	316.0/194.0	948.0/ 565.0	225/150	115	40		
	575-60	518	633	6/4	141.9/ 76.4	225/ 125	252.4/148.6	758.4/445.6	175/ 90	141.9/ 82.8	225/125	252.4/155.0	758.4/ 452.0	175/100	115	40		
	380-60	342	418	6/4	215.1/116.5	350/ 175	382.8/225.5	1147.8/674.5	300/150	215.1/126.2	350/200	382.8/235.2	1147.8/ 684.2	300/150	115	40		
160	230-60	207	253	6/4	423.5/241.0	700/ 400	800.0/372.0	—	600/300	423.5/257.0	700/400	800.0/388.0	—	600/350	115	40		
	200-60	187	220	6/4	465.6/264.9	800/ 450	918.8/426.5	—	600/350	465.6/282.6	800/450	918.8/444.2	—	600/350	115	40		
	460-60	414	506	6/4	211.3/120.0	350/ 200	400.0/186.0	1208.0/557.0	250/150	211.3/128.0	350/200	400.0/194.0	1208.0/ 565.0	250/150	115	40		
	575-60	518	633	6/4	162.2/ 92.5	250/ 150	320.4/148.6	966.4/445.6	200/110	162.2/ 98.9	250/150	320.4/155.0	966.4/ 452.0	200/125	115	40		
	380-60	342	418	6/4	246.0/140.2	400/ 225	483.8/225.5	1462.8/674.5	300/175	246.0/149.9	400/250	483.8/235.2	1462.8/ 684.2	300/200	115	40		
180	230-60	207	253	6/6	370.0/370.0	600/ 600	632.0/632.0	—	450/450	—	—	—	—	—	115	40		
	200-60	187	220	6/6	407.2/407.2	700/ 700	724.8/724.8	—	500/500	—	—	—	—	—	115	40		
	460-60	414	506	6/6	185.0/185.0	300/ 300	316.0/316.0	948.0/ 948.0	225/225	—	—	—	—	—	115	40		
	575-60	518	633	6/6	141.9/141.9	225/ 225	252.4/252.4	758.4/ 758.4	175/175	—	—	—	—	—	115	40		
	380-60	342	418	6/6	215.1/215.1	350/ 350	382.8/382.8	1147.8/1147.8	300/300	—	—	—	—	—	115	40		
200	230-60	207	253	6/6	423.5/423.5	700/ 700	800.0/800.0	—	600/600	—	—	—	—	—	115	40		
	200-60	187	220	6/6	465.6/465.6	800/ 800	918.8/918.8	—	600/600	—	—	—	—	—	115	40		
	460-60	414	506	6/6	211.3/211.3	350/ 350	400.0/400.0	1208.0/1208.0	250/250	—	—	—	—	—	115	40		
	575-60	518	633	6/6	162.2/162.2	250/ 250	320.4/320.4	966.4/ 966.4	200/200	—	—	—	—	—	115	40		
	380-60	342	418	6/6	246.0/246.0	400/ 400	483.8/483.8	1462.8/1462.8	300/300	—	—	—	—	—	115	40		
220	230-60	207	253	7/6	504.2/423.5	800/ 700	806.0/800.0	—	600/600	—	—	—	—	—	115	40		
	200-60	187	220	7/6	554.7/465.6	800/ 800	925.4/918.8	—	700/600	—	—	—	—	—	115	40		
	460-60	414	506	7/6	252.1/211.3	400/ 350	403.0/400.0	1211.0/1208.0	300/250	—	—	—	—	—	115	40		
	575-60	518	633	7/6	193.7/162.2	300/ 250	322.8/320.4	968.8/ 966.4	250/200	—	—	—	—	—	115	40		
	380-60	342	418	7/6	293.3/246.0	500/ 400	487.4/483.8	1466.4/1462.8	350/300	—	—	—	—	—	115	40		
240	230-60	207	253	7/6	504.2/498.2	800/ 800	806.0/800.0	—	600/600	—	—	—	—	—	115	40		
	200-60	187	220	7/6	554.7/548.0	800/ 800	925.4/918.8	—	700/700	—	—	—	—	—	115	40		
	460-60	414	506	7/6	252.1/249.1	400/ 400	403.0/400.0	1211.0/1208.0	300/300	—	—	—	—	—	115	40		
	575-60	518	633	7/6	193.7/191.3	300/ 300	322.8/320.4	968.8/ 966.4	250/250	—	—	—	—	—	115	40		
	380-60	342	418	7/6	293.3/289.7	500/ 500	487.4/483.8	1466.4/1462.8	350/350	—	—	—	—	—	115	40		
260	460-60	414	506	9/6	343.9/211.3	500/ 350	605.0/400.0	1827.0/1208.0	450/250	—	—	—	—	—	115	40		
	575-60	518	633	9/6	263.8/162.2	450/ 250	483.6/320.4	1461.6/ 966.4	350/200	—	—	—	—	—	115	40		
	380-60	342	418	9/6	399.0/246.0	600/ 400	732.7/483.8	2211.7/1462.8	500/300	—	—	—	—	—	115	40		
280	460-60	414	506	9/7	343.9/252.1	500/ 400	605.0/403.0	1827.0/1211.0	450/300	—	—	—	—	—	115	40		
	575-60	518	633	9/7	263.8/193.7	450/ 300	483.6/322.8	1461.6/ 968.8	350/250	—	—	—	—	—	115	40		
	380-60	342	418	9/7	399.0/293.3	600/ 500	732.7/487.4	2211.7/1466.4	500/350	—	—	—	—	—	115	40		
300	460-60	414	506	10/6	408.0/249.1	700/ 400	608.0/400.0	1830.0/1208.0	500/300	—	—	—	—	—	115	40		
	575-60	518	633	10/6	312.8/191.3	500/ 300	486.0/320.4	1464.0/ 966.4	400/250	—	—	—	—	—	115	40		
	380-60	342	418	10/6	474.2/289.7	800/ 500	736.3/483.8	2215.3/1462.8	600/350	—	—	—	—	—	115	40		
325	460-60	414	506	9/9	343.9/343.9	500/ 500	605.0/605.0	1827.0/1827.0	450/450	—	—	—	—	—	115	40		
	575-60	518	633	9/9	263.8/263.8	450/ 450	483.6/483.6	1461.6/1461.6	350/350	—	—	—	—	—	115	40		



DUAL POINT (STANDARD CONDENSER FAN MOTORS) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	7.5 HP PUMP, 3450 RPM					10 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
080	230-60	207	253	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	3/3	—	—	—	—	—	—	—	—	—	—	115	40
090	230-60	207	253	4/4	182.9/206.1	300/300	348.0/371.2	1034.0/1057.2	225/250	182.9/213.3	300/300	348.0/378.4	1034.0/1064.4	225/250	115	40
	200-60	187	220	4/4	201.5/227.1	300/350	399.5/425.2	1188.5/1214.2	250/300	201.5/235.1	300/350	399.5/433.2	1188.5/1222.2	250/300	115	40
	460-60	414	506	4/4	91.4/103.0	150/150	174.0/185.6	517.0/ 528.6	110/125	91.4/106.6	150/150	174.0/189.2	517.0/ 532.2	110/125	115	40
	575-60	518	633	4/4	70.3/ 79.6	110/125	139.6/148.9	413.6/ 422.9	90/100	70.3/ 82.5	110/125	139.6/151.8	413.6/ 425.8	90/100	115	40
	380-60	342	418	4/4	106.5/120.5	175/175	210.5/224.6	625.5/ 639.6	125/150	106.5/124.9	175/175	210.5/228.9	625.5/ 643.9	125/150	115	40
100	230-60	207	253	4/4	199.9/223.1	300/350	372.0/395.2	1114.0/1137.2	250/300	199.9/230.3	300/350	372.0/402.4	1114.0/1144.4	250/300	115	40
	200-60	187	220	4/4	220.0/245.7	350/400	426.5/452.2	1280.5/1306.2	300/300	220.0/253.6	350/400	426.5/460.2	1280.5/1314.2	300/300	115	40
	460-60	414	506	4/4	99.9/111.5	150/175	186.0/197.6	557.0/ 568.6	125/150	99.9/115.1	150/175	186.0/201.2	557.0/ 572.2	125/150	115	40
	575-60	518	633	4/4	76.4/ 85.7	125/125	148.6/157.9	445.6/ 454.9	90/100	76.4/ 88.6	125/125	148.6/160.8	445.6/ 457.8	90/110	115	40
	380-60	342	418	4/4	116.5/130.6	175/200	225.5/239.6	674.5/ 688.6	150/175	116.5/134.9	175/200	225.5/243.9	674.5/ 692.9	150/175	115	40
110	230-60	207	253	4/4	241.0/223.1	400/350	372.0/395.2	—	300/300	241.0/230.3	400/350	372.0/402.4	—	300/300	115	40
	200-60	187	220	4/4	264.9/245.7	450/400	426.5/452.2	—	350/300	264.9/253.6	450/400	426.5/460.2	—	350/300	115	40
	460-60	414	506	4/4	120.0/111.5	200/175	186.0/197.6	557.0/ 568.6	150/150	120.0/115.1	200/175	186.0/201.2	557.0/ 572.2	150/150	115	40
	575-60	518	633	4/4	92.5/ 85.7	150/125	148.6/157.9	445.6/ 454.9	110/100	92.5/ 88.6	150/125	148.6/160.8	445.6/ 457.8	110/110	115	40
	380-60	342	418	4/4	140.2/130.6	225/200	225.5/239.6	674.5/ 688.6	175/175	140.2/134.9	225/200	225.5/243.9	674.5/ 692.9	175/175	115	40
120	230-60	207	253	4/4	241.0/264.2	400/400	372.0/395.2	—	300/350	241.0/271.4	400/400	372.0/402.4	—	300/350	115	40
	200-60	187	220	4/4	264.9/290.6	450/450	426.5/452.2	—	350/350	264.9/298.5	450/450	426.5/460.2	—	350/350	115	40
	460-60	414	506	4/4	120.0/131.6	200/200	186.0/197.6	557.0/ 568.6	150/175	120.0/135.2	200/200	186.0/201.2	557.0/ 572.2	150/175	115	40
	575-60	518	633	4/4	92.5/101.8	150/150	148.6/157.9	445.6/ 454.9	110/125	92.5/104.6	150/150	148.6/160.8	445.6/ 457.8	110/125	115	40
	380-60	342	418	4/4	140.2/154.3	225/250	225.5/239.6	674.5/ 688.6	175/200	140.2/158.6	225/250	225.5/243.9	674.5/ 692.9	175/200	115	40
140	230-60	207	253	6/4	370.0/223.1	600/350	632.0/395.2	—	450/300	370.0/230.3	600/350	632.0/402.4	—	450/300	115	40
	200-60	187	220	6/4	407.2/245.7	700/400	724.8/452.2	—	500/300	407.2/253.6	700/400	724.8/460.2	—	500/300	115	40
	460-60	414	506	6/4	185.0/111.5	300/175	316.0/197.6	948.0/ 568.6	225/150	185.0/115.1	300/175	316.0/201.2	948.0/ 572.2	225/150	115	40
	575-60	518	633	6/4	141.9/ 85.7	225/125	252.4/157.9	758.4/ 454.9	175/100	141.9/ 88.6	225/125	252.4/160.8	758.4/ 457.8	175/110	115	40
	380-60	342	418	6/4	215.1/130.6	350/200	382.8/239.6	1147.8/ 688.6	300/175	215.1/134.9	350/200	382.8/243.9	1147.8/ 692.9	300/175	115	40
160	230-60	207	253	6/4	423.5/264.2	700/400	800.0/395.2	—	600/350	423.5/271.4	700/400	800.0/402.4	—	600/350	115	40
	200-60	187	220	6/4	465.6/290.6	800/450	918.8/452.2	—	600/350	465.6/298.5	800/450	918.8/460.2	—	600/350	115	40
	460-60	414	506	6/4	211.3/131.6	350/200	400.0/197.6	1208.0/ 568.6	250/175	211.3/135.2	350/200	400.0/201.2	1208.0/ 572.2	250/175	115	40
	575-60	518	633	6/4	162.2/101.8	250/150	320.4/157.9	966.4/ 454.9	200/125	162.2/104.6	250/150	320.4/160.8	966.4/ 457.8	200/125	115	40
	380-60	342	418	6/4	246.0/154.3	400/250	483.8/239.6	1462.8/ 688.6	300/200	246.0/158.6	400/250	483.8/243.9	1462.8/ 692.9	300/200	115	40
180	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	9/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/6	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	9/7	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/7	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/7	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	10/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	10/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	10/6	—	—	—	—	—	—	—	—	—	—	115	40
325	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	40
350	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	40
400	460-60	414	506	8/12	—	—	—	—	—	—	—	—	—	—	115	50
	575-60	518	633	8/12	—	—	—	—	—	—	—	—	—	—	115	50
	380-60	342	41													

Electrical data (cont)



DUAL POINT (STANDARD CONDENSER FAN MOTORS) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	15 HP PUMP, 3450 RPM						CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP	
		Min	Max				WD	XL				
080	230-60	207	253	3/3	182.9/227.9	300/350	348.0/393.0	1034.0/1079.0	225/300	115	40	
	200-60	187	220	3/3	201.5/251.2	300/350	399.5/449.3	1188.5/1238.3	250/300	115	40	
	460-60	414	506	3/3	91.4/113.9	150/175	174.0/196.5	517.0/ 539.5	110/150	115	40	
	575-60	518	633	3/3	70.3/ 88.3	110/125	139.6/157.6	413.6/ 431.6	90/110	115	40	
	380-60	342	418	3/3	106.5/133.7	175/200	210.5/237.8	625.5/ 652.8	125/175	115	40	
090	230-60	207	253	4/4	199.9/244.9	300/350	372.0/417.0	1114.0/1159.0	250/300	115	40	
	200-60	187	220	4/4	220.0/269.8	350/400	426.5/476.3	1280.5/1330.3	300/350	115	40	
	460-60	414	506	4/4	99.9/122.4	150/175	186.0/208.5	557.0/ 579.5	125/150	115	40	
	575-60	518	633	4/4	76.4/ 94.4	125/125	148.6/166.6	445.6/ 463.6	90/110	115	40	
	380-60	342	418	4/4	116.5/143.8	175/225	225.5/252.8	674.5/ 701.8	150/175	115	40	
100	230-60	207	253	4/4	241.0/244.9	400/350	372.0/417.0	—	300/300	115	40	
	200-60	187	220	4/4	264.9/269.8	450/400	426.5/476.3	—	350/350	115	40	
	460-60	414	506	4/4	120.0/122.4	200/175	186.0/208.5	557.0/ 579.5	150/150	115	40	
	575-60	518	633	4/4	92.5/ 94.4	150/125	148.6/166.6	445.6/ 463.6	110/110	115	40	
	380-60	342	418	4/4	140.2/143.8	225/225	225.5/252.8	674.5/ 701.8	175/175	115	40	
110	230-60	207	253	4/4	241.0/286.0	400/450	372.0/417.0	—	300/350	115	40	
	200-60	187	220	4/4	264.9/314.7	450/500	426.5/476.3	—	350/400	115	40	
	460-60	414	506	4/4	120.0/142.5	200/225	186.0/208.5	557.0/ 579.5	150/175	115	40	
	575-60	518	633	4/4	92.5/110.5	150/175	148.6/166.6	445.6/ 463.6	110/150	115	40	
	380-60	342	418	4/4	140.2/167.5	225/250	225.5/252.8	674.5/ 701.8	175/200	115	40	
120	230-60	207	253	4/4	370.0/244.9	600/350	632.0/417.0	—	450/300	115	40	
	200-60	187	220	4/4	407.2/269.8	700/400	724.8/476.3	—	500/350	115	40	
	460-60	414	506	4/4	185.0/122.4	300/175	316.0/208.5	948.0/ 579.5	225/150	115	40	
	575-60	518	633	4/4	141.9/ 94.4	225/125	252.4/166.6	758.4/ 463.6	175/110	115	40	
	380-60	342	418	4/4	215.1/143.8	350/225	382.8/252.8	1147.8/ 701.8	300/175	115	40	
140	230-60	207	253	6/4	423.5/286.0	700/450	800.0/417.0	—	600/350	115	40	
	200-60	187	220	6/4	465.6/314.7	800/500	918.8/476.3	—	600/400	115	40	
	460-60	414	506	6/4	211.3/142.5	350/225	400.0/208.5	1208.0/ 579.5	250/175	115	40	
	575-60	518	633	6/4	162.2/110.5	250/175	320.4/166.6	966.4/ 463.6	200/150	115	40	
	380-60	342	418	6/4	246.0/167.5	400/250	483.8/252.8	1462.8/ 701.8	300/200	115	40	
160	230-60	207	253	6/4	—	—	—	—	—	115	40	
	200-60	187	220	6/4	—	—	—	—	—	115	40	
	460-60	414	506	6/4	—	—	—	—	—	115	40	
	575-60	518	633	6/4	—	—	—	—	—	115	40	
	380-60	342	418	6/4	—	—	—	—	—	115	40	
180	230-60	207	253	6/6	—	—	—	—	—	115	40	
	200-60	187	220	6/6	—	—	—	—	—	115	40	
	460-60	414	506	6/6	—	—	—	—	—	115	40	
	575-60	518	633	6/6	—	—	—	—	—	115	40	
	380-60	342	418	6/6	—	—	—	—	—	115	40	
200	230-60	207	253	6/6	—	—	—	—	—	115	40	
	200-60	187	220	6/6	—	—	—	—	—	115	40	
	460-60	414	506	6/6	—	—	—	—	—	115	40	
	575-60	518	633	6/6	—	—	—	—	—	115	40	
	380-60	342	418	6/6	—	—	—	—	—	115	40	
220	230-60	207	253	7/6	—	—	—	—	—	115	40	
	200-60	187	220	7/6	—	—	—	—	—	115	40	
	460-60	414	506	7/6	—	—	—	—	—	115	40	
	575-60	518	633	7/6	—	—	—	—	—	115	40	
	380-60	342	418	7/6	—	—	—	—	—	115	40	
240	230-60	207	253	7/6	—	—	—	—	—	115	40	
	200-60	187	220	7/6	—	—	—	—	—	115	40	
	460-60	414	506	7/6	—	—	—	—	—	115	40	
	575-60	518	633	7/6	—	—	—	—	—	115	40	
	380-60	342	418	7/6	—	—	—	—	—	115	40	
260	460-60	414	506	9/6	—	—	—	—	—	115	40	
	575-60	518	633	9/6	—	—	—	—	—	115	40	
	380-60	342	418	9/6	—	—	—	—	—	115	40	
280	460-60	414	506	9/7	—	—	—	—	—	115	40	
	575-60	518	633	9/7	—	—	—	—	—	115	40	
	380-60	342	418	9/7	—	—	—	—	—	115	40	
300	460-60	414	506	10/6	—	—	—	—	—	115	40	
	575-60	518	633	10/6	—	—	—	—	—	115	40	
	380-60	342	418	10/6	—	—	—	—	—	115	40	
325	460-60	414	506	9/9	—	—	—	—	—	115	40	
	575-60	518	633	9/9	—	—	—	—	—	115	40	
	380-60	342	418	9/9	—	—	—	—	—	115	40	
350	460-60	414	506	9/9	—	—	—	—	—	115	40	
	575-60	518	633	9/9	—	—	—	—	—	115	40	
	380-60	342	418	9/9	—	—	—	—	—	115	40	
400	460-60	414	506	8/12	—	—	—	—	—	115	50	
	575-60	518	633	8/12	—	—	—	—	—	115	50	
	380-60	342	418	8/12	—	—	—	—	—	115	50	
450	460-60	414	506	8/14	—	—	—	—	—	115	50	
	575-60	518	633	8/14	—	—	—	—	—	115	50	
	380-60	342	418	8/14	—	—	—	—	—	115	50	
500	460-60	414	506	8/14	—	—	—	—	—	115	50	
	575-60	518	633	8/14	—	—	—	—	—	115	50	
	380-60	342	418	8/14	—	—	—	—	—	115	50	

LEGEND

ICF — Instantaneous Current Flow
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
WD — Wye-Delta
XL — Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.
For MCA between 381-760 amps, 6 conductors are required.

For MCA between 761-1140 amps, 9 conductors are required.

For MCA between 1141-1520 amps, 12 conductors are required.

Calculation of conductors required is based on 75 C copper wire.

- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gauge) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.



SINGLE POINT (HIGH AMBIENT OPTION)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					7.5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL				WD	XL			
140	230-60	207	253	10	562.0	800	838.9	—	700	578.0	800	854.9	—	700	585.2	800	862.1	—	700	115	40
	200-60	187	220	10	618.8	800	952.8	—	700	636.5	800	970.5	—	800	644.4	800	978.5	—	800	115	40
	460-60	414	506	10	281.0	400	419.5	1051.5	350	289.0	400	427.5	1059.5	350	292.6	400	431.1	1063.1	350	115	40
	575-60	518	633	10	216.3	300	332.5	838.5	250	222.7	300	338.9	844.9	250	225.6	300	341.8	847.8	250	115	40
	380-60	342	418	10	328.3	450	504.6	1269.6	400	338.0	450	514.3	1279.3	400	342.3	450	518.7	1283.7	400	115	40
160	230-60	207	253	10	642.7	800	1036.7	—	800	658.7	800	1052.7	—	800	665.9	800	1059.9	—	800	115	40
	200-60	187	220	10	706.9	1000	1179.4	—	800	724.5	1000	1197.1	—	1000	732.5	1000	1205.0	—	1000	115	40
	460-60	414	506	10	320.5	450	518.0	1326.0	400	328.5	450	526.0	1334.0	400	332.1	450	529.6	1337.6	400	115	40
	575-60	518	633	10	247.2	350	412.1	1058.1	300	253.6	350	418.5	1064.5	300	256.5	350	421.4	1067.4	300	115	40
	380-60	342	418	10	374.9	500	622.8	1601.8	450	384.6	500	632.5	1611.5	450	388.9	500	636.8	1615.8	450	115	40
180	230-60	207	253	12	703.9	800	980.8	—	800	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	775.0	1000	1109.1	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	351.9	450	490.4	1122.4	400	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	271.1	350	387.3	893.3	300	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	410.8	500	587.2	1352.2	450	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	12	795.6	1000	1189.6	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	875.0	1200	1347.5	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	396.9	500	594.4	1402.4	450	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	305.8	400	470.7	1116.7	350	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	463.8	600	711.7	1690.7	600	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	13	876.7	1200	1200.4	—	1000	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	964.6	1200	1359.4	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	438.0	600	599.8	1407.8	500	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	337.6	450	475.0	1121.0	400	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	511.5	700	718.3	1697.3	600	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	13	933.0	1200	1256.7	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	1026.7	1200	1421.6	—	1200	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	466.5	600	628.3	1436.3	600	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	359.5	450	497.0	1143.0	400	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	544.4	700	751.2	1730.2	600	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	15	529.1	700	806.6	2028.6	600	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	15	407.4	500	639.7	1617.7	500	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	15	616.7	800	969.3	2448.3	700	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	16	563.0	800	840.5	2062.5	700	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	433.6	600	665.9	1643.9	500	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	656.2	800	1008.8	2487.8	800	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	16	619.6	800	840.5	2062.5	700	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	476.7	600	665.9	1643.9	600	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	722.3	1000	1008.8	2487.8	1000	—	—	—	—	—	—	—	—	—	—	115	40
325	460-60	414	506	18	638.1	800	915.6	2137.6	700	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	491.2	600	723.5	1701.5	600	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	743.0	1000	1095.6	2574.6	1000	—	—	—	—	—	—	—	—	—	—	115	40
350	460-60	414	506	18	694.6	800	915.6	2137.6	800	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	534.2	700	723.5	1701.5	600	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	809.1	1000	1095.6	2574.6	1000	—	—	—	—	—	—	—	—	—	—	115	40

LEGEND

ICF	—	Instantaneous Current Flow
MCA	—	Minimum Circuit Amps
MOCP	—	Maximum Overcurrent Protection
WD	—	Wye-Delta
XL	—	Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.

For MCA between 381-760 amps, 6 conductors are required.

For MCA between 761-1140 amps, 9 conductors are required.

For MCA between 1141-1520 amps, 12 conductors are required.

Calculation of conductors required is based on 75 C copper wire.

- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gauge) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.

Electrical data (cont)



SINGLE POINT (HIGH AMBIENT OPTION) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	10 HP PUMP, 3450 RPM					15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
140	230-60	207	253	10	592.4	800	869.3	—	700	607.0	800	883.9	—	700	115	40
	200-60	187	220	10	652.4	800	986.5	—	800	668.6	800	1002.6	—	800	115	40
	460-60	414	506	10	296.2	400	434.7	1066.7	350	303.5	400	442.0	1074.0	350	115	40
	575-60	518	633	10	228.4	300	344.6	850.6	300	234.3	300	350.5	856.5	300	115	40
	380-60	342	418	10	346.7	450	523.0	1288.0	400	355.5	500	531.9	1296.9	400	115	40
160	230-60	207	253	10	673.1	800	1067.1	—	800	687.7	800	1081.7	—	800	115	40
	200-60	187	220	10	740.5	1000	1213.0	—	1000	756.6	1000	1229.1	—	1000	115	40
	460-60	414	506	10	335.7	450	533.2	1341.2	400	343.0	450	540.5	1348.5	400	115	40
	575-60	518	633	10	259.4	350	424.3	1070.3	300	265.2	350	430.1	1076.1	300	115	40
	380-60	342	418	10	393.3	500	641.2	1620.2	450	402.1	500	650.0	1629.0	450	115	40
180	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	15	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	15	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	15	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	40
325	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	40
350	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	40

LEGEND

ICF	—	Instantaneous Current Flow
MCA	—	Minimum Circuit Amps
MOCP	—	Maximum Overcurrent Protection
WD	—	Wye-Delta
XL	—	Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.

For MCA between 381-760 amps, 6 conductors are required.
For MCA between 761-1140 amps, 9 conductors are required.
For MCA between 1141-1520 amps, 12 conductors are required.
Calculation of conductors required is based on 75 C copper wire.

- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gauge) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.



DUAL POINT (HIGH AMBIENT OPTION)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	NO HYDRONIC PACKAGE						5 HP PUMP, 3450 RPM						CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP		
		Min	Max				WD	XL				WD	XL					
140	230-60	207	253	6/4	383.8/211.9	600/ 300	660.8/391.2	—	450/250	383.8/227.9	600/350	660.8/407.2	—	450/300	115	40		
	200-60	187	220	6/4	422.6/233.3	700/ 350	756.7/447.8	—	500/300	422.6/251.0	700/350	756.7/465.5	—	500/300	115	40		
	460-60	414	506	6/4	191.9/105.9	300/ 150	330.4/195.6	962.4/ 566.6	225/125	191.9/113.9	300/175	330.4/203.6	962.4/574.6	225/150	115	40		
	575-60	518	633	6/4	147.7/ 81.4	225/ 125	263.9/156.3	769.9/ 453.3	175/100	147.7/ 87.8	225/125	263.9/162.7	769.9/459.7	175/110	115	40		
	380-60	342	418	6/4	223.9/124.0	350/ 200	400.2/237.1	1165.2/ 686.1	300/150	223.9/133.7	350/200	400.2/246.8	1165.2/695.8	300/175	115	40		
160	230-60	207	253	6/4	434.8/249.1	700/ 400	828.8/391.2	—	600/300	434.8/265.1	700/400	828.8/407.2	—	600/350	115	40		
	200-60	187	220	6/4	478.1/273.9	800/ 450	950.7/447.8	—	600/350	478.1/291.6	800/450	950.7/465.5	—	600/350	115	40		
	460-60	414	506	6/4	216.9/124.1	350/ 200	414.4/195.6	1222.4/ 566.6	300/150	216.9/132.1	350/200	414.4/203.6	1222.4/574.6	300/175	115	40		
	575-60	518	633	6/4	167.0/ 95.9	250/ 150	331.9/156.3	977.9/ 453.3	200/125	167.0/102.3	250/150	331.9/162.7	977.9/459.7	200/125	115	40		
	380-60	342	418	6/4	253.3/145.4	400/ 225	501.2/237.1	1480.2/ 686.1	300/175	253.3/155.1	400/250	501.2/246.8	1480.2/695.8	300/200	115	40		
180	230-60	207	253	6/6	383.8/383.8	600/ 600	660.8/660.8	—	450/450	—	—	—	—	—	115	40		
	200-60	187	220	6/6	422.6/422.6	700/ 700	756.7/756.7	—	500/500	—	—	—	—	—	115	40		
	460-60	414	506	6/6	191.9/191.9	300/ 300	330.4/330.4	962.4/ 962.4	225/225	—	—	—	—	—	115	40		
	575-60	518	633	6/6	147.7/147.7	225/ 225	263.9/263.9	769.9/ 769.9	175/175	—	—	—	—	—	115	40		
	380-60	342	418	6/6	223.9/223.9	350/ 350	400.2/400.2	1165.2/1165.2	300/300	—	—	—	—	—	115	40		
200	230-60	207	253	6/6	434.8/434.8	700/ 700	828.8/828.8	—	600/600	—	—	—	—	—	115	40		
	200-60	187	220	6/6	478.1/478.1	800/ 800	950.7/950.7	—	600/600	—	—	—	—	—	115	40		
	460-60	414	506	6/6	216.9/216.9	350/ 350	414.4/414.4	1222.4/1222.4	300/300	—	—	—	—	—	115	40		
	575-60	518	633	6/6	167.0/167.0	250/ 250	331.9/331.9	977.9/ 977.9	200/200	—	—	—	—	—	115	40		
	380-60	342	418	6/6	253.3/253.3	400/ 400	501.2/501.2	1480.2/1480.2	300/300	—	—	—	—	—	115	40		
220	230-60	207	253	7/6	515.9/434.8	800/ 700	839.6/828.8	—	700/600	—	—	—	—	—	115	40		
	200-60	187	220	7/6	567.8/478.1	800/ 800	962.6/950.7	—	700/600	—	—	—	—	—	115	40		
	460-60	414	506	7/6	258.0/216.9	400/ 350	419.8/414.4	1227.8/1222.4	350/300	—	—	—	—	—	115	40		
	575-60	518	633	7/6	198.8/167.0	300/ 250	336.2/331.9	982.2/ 977.9	250/200	—	—	—	—	—	115	40		
	380-60	342	418	7/6	301.0/253.3	500/ 400	507.8/501.2	1486.8/1480.2	400/300	—	—	—	—	—	115	40		
240	230-60	207	253	7/6	515.9/505.1	800/ 800	839.6/828.8	—	700/600	—	—	—	—	—	115	40		
	200-60	187	220	7/6	567.8/555.8	800/ 800	962.6/950.7	—	700/700	—	—	—	—	—	115	40		
	460-60	414	506	7/6	258.0/252.6	400/ 400	419.8/414.4	1227.8/1222.4	350/300	—	—	—	—	—	115	40		
	575-60	518	633	7/6	198.8/194.5	300/ 300	336.2/331.9	982.2/ 977.9	250/250	—	—	—	—	—	115	40		
	380-60	342	418	7/6	301.0/294.5	500/ 450	507.8/501.2	1486.8/1480.2	400/350	—	—	—	—	—	115	40		
260	460-60	414	506	9/6	349.1/216.9	500/ 350	626.6/414.4	1848.6/1222.4	450/300	—	—	—	—	—	115	40		
	575-60	518	633	9/6	268.6/167.0	450/ 250	500.9/331.9	1478.9/ 977.9	350/200	—	—	—	—	—	115	40		
	380-60	342	418	9/6	406.2/253.3	600/ 400	758.8/501.2	2237.8/1480.2	500/300	—	—	—	—	—	115	40		
280	460-60	414	506	9/7	349.1/258.0	500/ 400	626.6/419.8	1848.6/1227.8	450/350	—	—	—	—	—	115	40		
	575-60	518	633	9/7	268.6/198.8	450/ 300	500.9/336.2	1478.9/ 982.2	350/250	—	—	—	—	—	115	40		
	380-60	342	418	9/7	406.2/301.0	600/ 500	758.8/507.8	2237.8/1486.8	500/400	—	—	—	—	—	115	40		
300	460-60	414	506	10/6	411.0/252.6	600/ 400	632.0/414.4	1854.0/1222.4	500/300	—	—	—	—	—	115	40		
	575-60	518	633	10/6	315.9/194.5	500/ 300	505.2/331.9	1483.2/ 977.9	400/250	—	—	—	—	—	115	40		
	380-60	342	418	10/6	478.9/294.5	800/ 450	765.4/501.2	2244.4/1480.2	600/350	—	—	—	—	—	115	40		
325	460-60	414	506	9/9	349.1/349.1	500/ 500	626.6/626.6	1848.6/1848.6	450/450	—	—	—	—	—	115	40		
	575-60	518	633	9/9	268.6/268.6	450/ 450	500.9/500.9	1478.9/1478.9	350/350	—	—	—	—	—	115	40		
	380-60	342	418	9/9	406.2/406.2	600/ 600	758.8/758.8	2237.8/2237.8	500/500	—	—	—	—	—	115	40		
350	460-60	414	506	9/9	405.6/349.1	600/ 500	626.6/626.6	1848.6/1848.6	500/450	—	—	—	—	—	115	40		
	575-60	518	633	9/9	311.6/268.6	500/ 450	500.9/500.9	1478.9/1478.9	400/350	—	—	—	—	—	115	40		
	380-60	342	418	9/9	472.4/406.2	800/ 600	758.8/758.8	2237.8/2237.8	600/500	—	—	—	—	—	115	40		
400	460-60	414	506	8/12	343.7/461.1	500/ 600	621.2/622.9	1843.2/1430.9	450/600	—	—	—	—	—	115	50		
	575-60	518	633	8/12	264.2/355.2	400/ 450	496.6/492.7	1474.6/1138.7	350/400	—	—	—	—	—	115	50		
	380-60	342	418	8/12	399.7/537.9	600/ 700	752.3/744.6	2231.3/1723.6	500/600	—	—	—	—	—	115	50		
450	460-60	414	506	8/14	400.2/560.2	600/ 800	621.2/781.2	1843.2/2003.2	500/700	—	—	—	—	—	115	50		
	575-60	518	633	8/14	307.3/430.7	500/ 600	496.6/619.9	1474.6/1597.9	400/500	—	—	—	—	—	115	50		
	380-60	342	418	8/14	465.8/652.8	700/ 800	752.3/939.2	2231.3/2418.2	600/800	—	—	—	—	—	115	50		
500	460-60	414	506	8/14	400.2/608.8	600/ 800	621.2/829.7	1843.2/2051.7	500/700	—	—	—	—	—	115	50		
	575-60	518	633	8/14	307.3/468.0	500/ 600	496.6/657.3	1474.6/1635.3	400/600	—	—	—	—	—	115	50		
	380-60	342	418	8/14	465.8/709.3	700/1000	752.3/995.7	2231.3/2474.7	600/800	—	—	—	—	—	115	50		

LEGEND

ICF	—	Instantaneous Current Flow
MCA	—	Minimum Circuit Amps
MOCP	—	Maximum Overcurrent Protection
WD	—	Wye-Delta
XL	—	Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.

For MCA between 381-760 amps, 6 conductors are required.

For MCA between 761-1140 amps, 9 conductors are required.

For MCA between 1141-1520 amps, 12 conductors are required

Electrical data (cont)



DUAL POINT (HIGH AMBIENT OPTION) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	7.5 HP PUMP, 3450 RPM					10 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
140	230-60	207	253	6/4	383.8/235.1	600/350	660.8/414.4	—	450/300	383.8/242.3	600/350	660.8/421.6	—	450/300	115	40
	200-60	187	220	6/4	422.6/259.0	700/400	756.7/473.4	—	500/300	422.6/266.9	700/400	756.7/481.4	—	500/350	115	40
	460-60	414	506	6/4	191.9/117.5	300/175	330.4/207.2	962.4/578.2	225/150	191.9/121.1	300/175	330.4/210.8	962.4/581.8	225/150	115	40
	575-60	518	633	6/4	147.7/ 90.7	225/125	263.9/165.6	769.9/462.6	175/110	147.7/ 93.5	225/125	263.9/168.4	769.9/465.4	175/110	115	40
	380-60	342	418	6/4	223.9/138.0	350/200	400.2/251.2	1165.2/700.2	300/175	223.9/142.4	350/200	400.2/255.5	1165.2/704.5	300/175	115	40
160	230-60	207	253	6/4	434.8/272.3	700/400	828.8/414.4	—	600/350	434.8/279.5	700/400	828.8/421.6	—	600/350	115	40
	200-60	187	220	6/4	478.1/299.6	800/450	950.7/473.4	—	600/350	478.1/307.6	800/450	950.7/481.4	—	600/400	115	40
	460-60	414	506	6/4	216.9/135.7	350/200	414.4/207.2	1222.4/578.2	300/175	216.9/139.3	350/200	414.4/210.8	1222.4/581.8	300/175	115	40
	575-60	518	633	6/4	167.0/105.2	250/150	331.9/165.6	977.9/462.6	200/125	167.0/108.1	250/150	331.9/168.4	977.9/465.4	200/125	115	40
	380-60	342	418	6/4	253.3/159.5	400/250	501.2/251.2	1480.2/700.2	300/200	253.3/163.8	400/250	501.2/255.5	1480.2/704.5	300/200	115	40
180	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	40
200	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	40
220	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	40
240	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	40
260	460-60	414	506	9/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/6	—	—	—	—	—	—	—	—	—	—	115	40
280	460-60	414	506	9/7	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/7	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/7	—	—	—	—	—	—	—	—	—	—	115	40
300	460-60	414	506	10/6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	10/6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	10/6	—	—	—	—	—	—	—	—	—	—	115	40
325	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	40
350	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	40
400	460-60	414	506	8/12	—	—	—	—	—	—	—	—	—	—	115	50
	575-60	518	633	8/12	—	—	—	—	—	—	—	—	—	—	115	50
	380-60	342	418	8/12	—	—	—	—	—	—	—	—	—	—	115	50
450	460-60	414	506	8/14	—	—	—	—	—	—	—	—	—	—	115	50
	575-60	518	633	8/14	—	—	—	—	—	—	—	—	—	—	115	50
	380-60	342	418	8/14	—	—	—	—	—	—	—	—	—	—	115	50
500	460-60	414	506	8/14	—	—	—	—	—	—	—	—	—	—	115	50
	575-60	518	633	8/14	—	—	—	—	—	—	—	—	—	—	115	50
	380-60	342	418	8/14	—	—	—	—	—	—	—	—	—	—	115	50

LEGEND

ICF — Instantaneous Current Flow
MCA — Minimum Circuit Amps
MOCP — Maximum Overcurrent Protection
WD — Wye-Delta
XL — Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.

For MCA between 381-760 amps, 6 conductors are required.

For MCA between 761-1140 amps, 9 conductors are required.

For MCA between 1141-1520 amps, 12 conductors are required.

Calculation of conductors required is based on 75 C copper wire.

- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gage) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.



DUAL POINT (HIGH AMBIENT OPTION) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND REQ'D	15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL			
140	230-60	207	253	6/4	383.8/256.9	600/350	660.8/436.2	—	450/300	115	40
	200-60	187	220	6/4	422.6/283.1	700/400	756.7/497.5	—	500/350	115	40
	460-60	414	506	6/4	191.9/128.4	300/175	330.4/218.1	962.4/589.1	225/150	115	40
	575-60	518	633	6/4	147.7/ 99.4	225/150	263.9/174.3	769.9/471.3	175/125	115	40
	380-60	342	418	6/4	223.9/151.2	350/225	400.2/264.4	1165.2/713.4	300/175	115	40
160	230-60	207	253	6/4	434.8/294.1	700/450	828.8/436.2	—	600/350	115	40
	200-60	187	220	6/4	478.1/323.7	800/500	950.7/497.5	—	600/400	115	40
	460-60	414	506	6/4	216.9/146.6	350/225	414.4/218.1	1222.4/589.1	300/175	115	40
	575-60	518	633	6/4	167.0/113.9	250/175	331.9/174.3	977.9/471.3	200/150	115	40
	380-60	342	418	6/4	253.3/172.7	400/250	501.2/264.4	1480.2/713.4	300/200	115	40
180	230-60	207	253	6/6	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	115	40
200	230-60	207	253	6/6	—	—	—	—	—	115	40
	200-60	187	220	6/6	—	—	—	—	—	115	40
	460-60	414	506	6/6	—	—	—	—	—	115	40
	575-60	518	633	6/6	—	—	—	—	—	115	40
	380-60	342	418	6/6	—	—	—	—	—	115	40
220	230-60	207	253	7/6	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	115	40
240	230-60	207	253	7/6	—	—	—	—	—	115	40
	200-60	187	220	7/6	—	—	—	—	—	115	40
	460-60	414	506	7/6	—	—	—	—	—	115	40
	575-60	518	633	7/6	—	—	—	—	—	115	40
	380-60	342	418	7/6	—	—	—	—	—	115	40
260	460-60	414	506	9/6	—	—	—	—	—	115	40
	575-60	518	633	9/6	—	—	—	—	—	115	40
	380-60	342	418	9/6	—	—	—	—	—	115	40
280	460-60	414	506	9/7	—	—	—	—	—	115	40
	575-60	518	633	9/7	—	—	—	—	—	115	40
	380-60	342	418	9/7	—	—	—	—	—	115	40
300	460-60	414	506	10/6	—	—	—	—	—	115	40
	575-60	518	633	10/6	—	—	—	—	—	115	40
	380-60	342	418	10/6	—	—	—	—	—	115	40
325	460-60	414	506	9/9	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	115	40
350	460-60	414	506	9/9	—	—	—	—	—	115	40
	575-60	518	633	9/9	—	—	—	—	—	115	40
	380-60	342	418	9/9	—	—	—	—	—	115	40
400	460-60	414	506	8/12	—	—	—	—	—	115	50
	575-60	518	633	8/12	—	—	—	—	—	115	50
	380-60	342	418	8/12	—	—	—	—	—	115	50
450	460-60	414	506	8/14	—	—	—	—	—	115	50
	575-60	518	633	8/14	—	—	—	—	—	115	50
	380-60	342	418	8/14	—	—	—	—	—	115	50
500	460-60	414	506	8/14	—	—	—	—	—	115	50
	575-60	518	633	8/14	—	—	—	—	—	115	50
	380-60	342	418	8/14	—	—	—	—	—	115	50

LEGEND

ICF	—	Instantaneous Current Flow
MCA	—	Minimum Circuit Amps
MOCP	—	Maximum Overcurrent Protection
WD	—	Wye-Delta
XL	—	Across-the-Line

NOTES:

- Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed minimum and maximum limits. Maximum allowable phase imbalance is: voltage, 2%; amps 10%.
- Cooler heater is wired into the control circuit so it is always operable as long as the control power supply disconnect is on, even if any safety device is open.
- For MCA that is less than or equal to 380 amps, 3 conductors are required.

For MCA between 381-760 amps, 6 conductors are required.
For MCA between 761-1140 amps, 9 conductors are required.
For MCA between 1141-1520 amps, 12 conductors are required.

Calculation of conductors required is based on 75 C copper wire.

- Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
 - Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gauge) to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
 - Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
- Data provided circuit 1/circuit 2 where there are two circuits.

Electrical data (cont)



POWER AND CONTROL CONNECTIONS

30XA	VOLTAGE 3 PH 60 Hz	POWER AND CONTROL CONNECTIONS					
		COMBI*		PEB1†		PEB2†	
		Power	Control	Power	Control	Power	Control
080 090 100 110 120	200	Circuit 1 (& 2)**	Yes				
	230	Circuit 1 (& 2)	Yes				
	380	Circuit 1 (& 2)	Yes				
	460	Circuit 1 (& 2)	Yes				
	575	Circuit 1 (& 2)	Yes				
140 160 180 200	200	Circuit 1 (& 2)	No		Yes		
	230	Circuit 1 (& 2)	No		Yes		
	380			Circuit 1 (& 2)	Yes		
	460			Circuit 1 (& 2)	Yes		
	575			Circuit 1 (& 2)	Yes		
220 240	200				Yes	Circuit 1 (& 2)	No
	230				Yes	Circuit 1 (& 2)	No
	380			Circuit 1 (& 2)	Yes		
	460			Circuit 1 (& 2)	Yes		
	575			Circuit 1 (& 2)	Yes		
260 280 300 325 350	200						
	230						
	380			Circuit 1 (& 2)	Yes		
	460			Circuit 1 (& 2)	Yes		
	575			Circuit 1 (& 2)	Yes		
400 450 500	200						
	230						
	380			Circuit 1	No	Circuit 2	Yes
	460			Circuit 1	No	Circuit 2	Yes
	575			Circuit 1	No	Circuit 2	Yes

*COMBI box is located at the end of the unit.

†PEB1 and PEB2 boxes are located on the side of the unit. If both boxes are used, the one on the left (viewing from the front of the boxes) is PEB1.

**For dual incoming power.

Shaded area means that box is not used on this model.



COMPRESSOR AND FAN ELECTRICAL DATA

30XA UNIT SIZE	UNIT VOLTAGE V-Hz (3 Ph, 60 Hz)	NUMBER OF COND FANS*	CONDENSER FANS FLA		COMPRESSOR											
					A				B				C			
			LRA (All Units)		RLA		LRA (All Units)		RLA		LRA (All Units)		RLA			
High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)			
080	200	3/3	11.9	6.6	1081.0	345.0	130.9	136.8	1081.0	345.0	130.9	136.8	—	—	—	—
	230	3/3	10.8	6.0	940.0	300.0	118.9	124.2	940.0	300.0	118.9	124.2	—	—	—	—
	380	3/3	6.5	3.6	569.0	182.0	68.8	71.9	569.0	182.0	68.8	71.9	—	—	—	—
	460	3/3	5.5	3.0	470.0	150.0	59.4	62.1	470.0	150.0	59.4	62.1	—	—	—	—
	575	3/3	4.3	2.4	376.0	120.0	45.4	47.5	376.0	120.0	45.4	47.5	—	—	—	—
090	200	4/4	11.9	6.6	1081.0	345.0	134.3	140.0	1081.0	345.0	134.3	140.0	—	—	—	—
	230	4/4	10.8	6.0	940.0	300.0	122.0	127.1	940.0	300.0	122.0	127.1	—	—	—	—
	380	4/4	6.5	3.6	569.0	182.0	70.6	73.5	569.0	182.0	70.6	73.5	—	—	—	—
	460	4/4	5.5	3.0	470.0	150.0	61.0	63.6	470.0	150.0	61.0	63.6	—	—	—	—
	575	4/4	4.3	2.4	376.0	120.0	46.6	48.6	376.0	120.0	46.6	48.6	—	—	—	—
100	200	4/4	11.9	6.6	1357.0	437.0	148.4	154.8	1357.0	437.0	148.4	154.8	—	—	—	—
	230	4/4	10.8	6.0	1180.0	380.0	134.9	140.7	1180.0	380.0	134.9	140.7	—	—	—	—
	380	4/4	6.5	3.6	714.0	230.0	78.3	81.6	714.0	230.0	78.3	81.6	—	—	—	—
	460	4/4	5.5	3.0	590.0	190.0	67.5	70.4	590.0	190.0	67.5	70.4	—	—	—	—
	575	4/4	4.3	2.4	472.0	152.0	51.3	53.5	472.0	152.0	51.3	53.5	—	—	—	—
110	200	4/4	11.9	6.6	1357.0	437.0	180.9	190.7	1357.0	437.0	180.9	190.7	—	—	—	—
	230	4/4	10.8	6.0	1180.0	380.0	164.7	173.6	1180.0	380.0	164.7	173.6	—	—	—	—
	380	4/4	6.5	3.6	714.0	230.0	95.4	100.6	714.0	230.0	95.4	100.6	—	—	—	—
	460	4/4	5.5	3.0	590.0	190.0	82.0	86.4	590.0	190.0	82.0	86.4	—	—	—	—
	575	4/4	4.3	2.4	472.0	152.0	62.9	66.3	472.0	152.0	62.9	66.3	—	—	—	—
120	200	4/4	11.9	6.6	1357.0	437.0	180.9	190.7	1357.0	437.0	180.9	190.7	—	—	—	—
	230	4/4	10.8	6.0	1180.0	380.0	164.7	173.6	1180.0	380.0	164.7	173.6	—	—	—	—
	380	4/4	6.5	3.6	714.0	230.0	95.4	100.6	714.0	230.0	95.4	100.6	—	—	—	—
	460	4/4	5.5	3.0	590.0	190.0	82.0	86.4	590.0	190.0	82.0	86.4	—	—	—	—
	575	4/4	4.3	2.4	472.0	152.0	62.9	66.3	472.0	152.0	62.9	66.3	—	—	—	—
140	200	6/4	11.9	6.6	2162.0	690.0	280.8	293.9	1357.0	437.0	148.4	154.8	—	—	—	—
	230	6/4	10.8	6.0	1880.0	600.0	255.2	267.2	1180.0	380.0	134.9	140.7	—	—	—	—
	380	6/4	6.5	3.6	1138.0	363.0	147.7	154.6	714.0	230.0	78.3	81.6	—	—	—	—
	460	6/4	5.5	3.0	940.0	300.0	127.6	133.6	590.0	190.0	67.5	70.4	—	—	—	—
	575	6/4	4.3	2.4	752.0	240.0	97.5	102.0	472.0	152.0	51.3	53.5	—	—	—	—
160	200	6/4	11.9	6.6	2714.0	863.0	325.2	340.6	1357.0	437.0	180.9	190.7	—	—	—	—
	230	6/4	10.8	6.0	2360.0	750.0	296.0	310.0	1180.0	380.0	164.7	173.6	—	—	—	—
	380	6/4	6.5	3.6	1428.0	454.0	171.3	179.4	714.0	230.0	95.4	100.6	—	—	—	—
	460	6/4	5.5	3.0	1180.0	375.0	147.6	154.6	590.0	190.0	82.0	86.4	—	—	—	—
	575	6/4	4.3	2.4	944.0	300.0	112.9	118.2	472.0	152.0	62.9	66.3	—	—	—	—
180	200	6/6	11.9	6.6	2162.0	690.0	280.8	293.9	2162.0	690.0	280.8	293.9	—	—	—	—
	230	6/6	10.8	6.0	1880.0	600.0	255.2	267.2	1880.0	600.0	255.2	267.2	—	—	—	—
	380	6/6	6.5	3.6	1138.0	363.0	147.7	154.6	1138.0	363.0	147.7	154.6	—	—	—	—
	460	6/6	5.5	3.0	940.0	300.0	127.6	133.6	940.0	300.0	127.6	133.6	—	—	—	—
	575	6/6	4.3	2.4	752.0	240.0	97.5	102.0	752.0	240.0	97.5	102.0	—	—	—	—
200	200	6/6	11.9	6.6	2714.0	863.0	325.2	340.6	2714.0	863.0	325.2	340.6	—	—	—	—
	230	6/6	10.8	6.0	2360.0	750.0	296.0	310.0	2360.0	750.0	296.0	310.0	—	—	—	—
	380	6/6	6.5	3.6	1428.0	454.0	171.3	179.4	1428.0	454.0	171.3	179.4	—	—	—	—
	460	6/6	5.5	3.0	1180.0	375.0	147.6	154.6	1180.0	375.0	147.6	154.6	—	—	—	—
	575	6/6	4.3	2.4	944.0	300.0	112.9	118.2	944.0	300.0	112.9	118.2	—	—	—	—
220	200	7/6	11.9	6.6	2714.0	863.0	387.3	406.6	2714.0	863.0	325.2	340.6	—	—	—	—
	230	7/6	10.8	6.0	2360.0	750.0	352.3	369.8	2360.0	750.0	296.0	310.0	—	—	—	—
	380	7/6	6.5	3.6	1428.0	454.0	204.2	214.3	1428.0	454.0	171.3	179.4	—	—	—	—
	460	7/6	5.5	3.0	1180.0	375.0	176.1	184.9	1180.0	375.0	147.6	154.6	—	—	—	—
	575	7/6	4.3	2.4	944.0	300.0	134.8	141.5	944.0	300.0	112.9	118.2	—	—	—	—
240	200	7/6	11.9	6.6	2714.0	863.0	387.3	406.6	2714.0	863.0	387.3	406.6	—	—	—	—
	230	7/6	10.8	6.0	2360.0	750.0	352.3	369.8	2360.0	750.0	352.3	369.8	—	—	—	—
	380	7/6	6.5	3.6	1428.0	454.0	204.2	214.3	1428.0	454.0	204.2	214.3	—	—	—	—
	460	7/6	5.5	3.0	1180.0	375.0	176.1	184.9	1180.0	375.0	176.1	184.9	—	—	—	—
	575	7/6	4.3	2.4	944.0	300.0	134.8	141.5	944.0	300.0	134.8	141.5	—	—	—	—
260	380	9/6	6.5	3.6	2143.0	684.0	277.9	293.0	1428.0	454.0	171.3	179.4	—	—	—	—
	460	9/6	5.5	3.0	1770.0	565.0	240.4	253.5	1180.0	375.0	147.6	154.6	—	—	—	—
	575	9/6	4.3	2.4	1416.0	452.0	183.7	193.7	944.0	300.0	112.9	118.2	—	—	—	—
	380	9/7	6.5	3.6	2143.0	684.0	277.9	293.0	1428.0	454.0	204.2	214.3	—	—	—	—
	460	9/7	5.5	3.0	1770.0	565.0	240.4	253.5	1180.0	375.0	176.1	184.9	—	—	—	—
280	575	9/7	4.3	2.4	1416.0	452.0	183.7	193.7	944.0	300.0	134.8	141.5	—	—	—	—
	380	9/7	6.5	3.6	2143.0	684.0	330.8	350.3	1428.0	454.0	204.2	214.3	—	—	—	—
	460	9/7	5.5	3.0	1770.0	565.0	285.6	302.4	1180.0	375.0	176.1	184.9	—	—	—	—
	575	9/7	4.3	2.4	1416.0	452.0	218.2	231.0	944.0	300.0	134.8	141.5	—	—	—	—
	380	9/9	6.5	3.6	2143.0	684.0	277.9	293.0	2143.0	684.0	277.9	293.0	—	—	—	—
325	460	9/9	5.5	3.0	1770.0	565.0	240.4	253.5	1770.0	565.0	240.4	253.5	—	—	—	—
	575	9/9	4.3	2.4	1416.0	452.0	183.7	193.7	1416.0	452.0	183.7	193.7	—	—	—	—
	380	9/9	6.5	3.6	2143.0	684.0	330.8	350.3	2143.0	684.0	277.9	293.0	—	—	—	—
	460	9/9	5.5	3.0	1770.0	565.0	285.6	302.4	1770.0	565.0	240.4	253.5	—	—	—	—
	575	9/9	4.3	2.4	1416.0	452.0	218.2	231.0	1416.0	452.0	183.7	193.7	—	—	—	—
400	380	8/12	6.5	3.6	1428.0	454.0	204.2	214.3	1428.0	454.0	204.2	214.3	293.0	2143.0	277.9	293.0
	460	8/12	5.5	3.0	1180.0	375.0	176.1	184.9	1180.0	375.0	176.1	184.9	253.5	1770.0	240.4	253.5
	575	8/12	4.3	2.4	944.0	300.0	134.8	141.5	944.0	300.0	134.8	141.5	193.7	1416.0	183.7	193.7
	380	8/14														

Electrical data (cont)



PUMP ELECTRICAL DATA

PUMP HP	UNIT VOLTAGE V-Hz (3 Ph)	HYDRONIC SYSTEM (SINGLE OR DUAL) FLA (Each)	30XA UNIT SIZE
5	230-60	11.6	090-160
	208-60	12.6	
	460-60	5.8	
	575-60	4.6	
	380-60	7.0	
7.5	230-60	17.4	090-160
	208-60	18.5	
	460-60	8.7	
	575-60	7.0	
	380-60	10.4	
10	230-60	23.0	090-160
	208-60	25.0	
	460-60	11.5	
	575-60	9.2	
	380-60	14.0	
15	230-60	34.0	090-160
	208-60	36.7	
	460-60	17.0	
	575-60	14.0	
	380-60	21.0	

FLA — Full Load Amps

Controls

Microprocessor

The *ComfortLink™* microprocessor controls overall unit operation and controls a number of processes simultaneously. These processes include internal timers, reading inputs, analog to digital conversions, fan control, display control, diagnostic control, output relay control, demand limit, capacity control, head pressure control, and temperature reset. Some processes are updated almost continuously, others every 2 to 3 seconds, and some every 30 seconds. The microprocessor routine is started by switching the Emergency ON-OFF switch to ON position. Pump control of external pumps (where configured) will energize the cooler pump to the internal (or CCN) time schedule (or input occupied signal from external system).

When the unit receives a call for cooling (based on a deviation from chilled water set point), the unit stages up in capacity to maintain the cooler fluid set point. The first compressor starts 1 to 3 minutes after the call for cooling. The *ComfortLink* microprocessor controls the capacity of the chiller by varying the number of compressors on and each loading capacity to satisfy actual dynamic load conditions. The control maintains leaving-fluid temperature set point shown on the Navigator™ device through intelligent positioning of the slide valve and compressor cycling. Accuracy depends on loop volume, loop flow rate, load, and outdoor-air temperature. No adjustment for cooling range or cooler flow rate is required, because the control automatically compensates for cooling range by measuring both return-fluid temperature and leaving-fluid temperature. This is referred to as leaving-fluid temperature control with return-fluid temperature compensation.

The basic logic for determining when to add or remove capacity is a time band integration of deviation from set point plus rate of change of leaving-fluid temperature. When leaving-fluid temperature is close to the set point and slowly moving closer, logic prevents additional capacity. If leaving-fluid temperature is less than 34 F (1.1 C) for

water, or 6° F (3.3° C) below the brine freeze set point for brine units, the unit is shut off until the water temperature for brine reaches 34 F (1.1 C) or to 6° F (3.3° C) above the set point for brine to protect against freezing.

If pulldown control has been selected (adjustable setting), no additional capacity is added as long as the difference between leaving-fluid temperature and the set point is greater than 4° F (2.2° C) and rate of change in leaving-water temperature is greater than the adjustable setting. If it has been less than 90 seconds since the last capacity change, compressors will continue to run unless a safety device trips. This prevents rapid cycling and also helps return oil during short operating periods.

Control sequence

Off cycle — If ambient temperature is below 36 F (2.2 C), cooler heaters are also energized.

Start-up — After control circuit switches on, the prestart process takes place, then microprocessor checks itself, starts pump (if configured) and waits for temperature to stabilize. The controlled pulldown feature limits compressor loading on start-up to reduce demand on start-up and unnecessary compressor usage.

Capacity control — On the first call for cooling, the microprocessor starts initial compressor and fan stage on lead circuit.

As additional cooling is required, the capacity of the compressor is increased by changing the position of the slide valve. As the load increases above the compressor's capacity, another compressor is started and both staged together.

The speed at which capacity is added or reduced is controlled by temperature deviation from set point and rate of temperature change of chilled fluid.

Controls (cont)



The Main Base Board (MBB) responds to the supply chilled water temperature to cycle the compressors to match cooling load requirements.

The Minimum Load control valve is energized by the MBB. The valve allows hot gas to pass directly into the cooler circuit on the initial step of unloading, permitting the unit to operate at lower loads with less compressor cycling.

Sensors

Thermistors are used to control temperature-sensing inputs to the microprocessor. No additional thermistor sensors are required for optional leaving chilled water temperature, return water, or outdoor air reset.

The following sensors can be used on 30XA units:

- Cooler leaving chilled fluid temperature (T1)
- Cooler entering fluid (return) temperature (T2)
- Outside-air temperature (T9)
- Space temperature (T10)

Two refrigerant pressure transducers are used in each circuit for sensing suction and discharge pressure. The microprocessor uses these inputs to control capacity and fan cycling.

- Saturated condensing temperature
- Cooler saturation temperature
- Oil
- Economizer

Additional information

Detailed information on controls and operation is available in the Controls, Start-Up, Operation, Service, and Troubleshooting guide included with each unit. Packaged Service Training programs are also available. Contact a local Carrier representative for more information.

ComfortLink™ controls

Dynamic *ComfortLink* controls keep the chiller on line during periods of extreme operating conditions. If the entering fluid temperature is 95 F (35 C) and the saturated suction temperature is 50 F (10 C) or higher the maximum operating pressure (MOP) feature limits the suction to keep the chiller online. The control automatically starts the chiller in the unloaded state to eliminate the potential of compressor overload due to high head pressure or low suction pressure. The controller will equalize run time on each circuit through the lead/lag feature. If a circuit becomes disabled, the control will automatically set the active circuit to lead, keeping the chiller online at a reduced capacity.

Standard *ComfortLink* controls with Navigator™ display — A portable hand-held display for convenient access to unit status, operation, configuration and troubleshooting diagnostics capability is standard on 30XA units. The four-line, 20-character LCD display provides clear language information in English, French, Spanish, or Portuguese. The weatherproof enclosure and industrial grade extension cord enable the Navigator display to be ideally suited for outdoor applications. Magnets located on the back of the module allow attachment to any sheet metal component for hands-free operation.

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

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

Temperature reset

The Energy Management Module is required for 4 to 20 mA reset of LCWT in constant fluid systems. Reset by return fluid, outdoor-air temperature, or space temperature does not require this option. Reset reduces compressor power usage at part load when design LCWT is not necessary. Humidity control should be considered since higher coil temperatures resulting from reset will reduce latent heat capacity. Three reset options are offered, based on the following:

Return-Fluid Temperature increases LCWT set point as return (or entering) fluid temperature decreases (indicating load decrease). Option may be used in any application where return fluid provides accurate load indication. A limitation of return fluid reset is that LCWT may only be reset to value of design return fluid temperature.

Outdoor-Air Temperature increases the 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.

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

For details on applying a reset option, refer to the Controls, Start-Up, Operation, Service and Troubleshooting literature shipped with the unit. Obtain ordering part numbers for reset option from the Packaged Chiller Builder program or contact a local Carrier representative.

Safety

Abnormal conditions — All control safeties in the chiller operate through compressor protection board or control relay and microprocessor.

Loss of feedback signal to the MBB will cause the compressor(s) to shut down. For other safeties, microprocessor makes appropriate decision to shut down a compressor due to a safety trip or bad sensor reading and displays appropriate failure code on the display. Chiller holds in safety mode until reset; it then reverts to normal control when unit is reset.

Low-pressure safety — Safety cuts out if system pressure drops below minimum.

High-pressure cutout — Switch shuts down compressors if compressor discharge pressure increases to 305 psig (2102.7 kPa).

Compressor anti-cycling — This feature limits compressor cycling.

Loss of flow protection — Proof of flow switches are standard and installed on all 30XA chillers.

Controls (cont)



Sensor failures — Failures are detected by the microprocessor.

Accessory controls

Demand can be limited by controlling the chiller capacity through the demand limit control (the Energy Management Module is required for this function). This FIOP/accessory interfaces with the microprocessor to control the unit so that the chiller's kW demand does not exceed its setting. It is activated from an external switch or a 4 to 20 mA signal.

The standard *ComfortLink*™ control is programmed to accept various accessory temperature reset options (based on outdoor-air temperature [standard], return-fluid temperature [standard], or space temperature [which requires accessory thermistor]), that resets the LCWT. An accessory thermistor (T10) is required if space temperature reset is selected. The Energy Management Module (EMM) is only required for temperature reset that is initiated by a 4 to 20 mA signal.

Demand limit

If the demand limit is applied, it limits the total power draw of unit to a selected point by controlling the number of operational compressors during periods of peak electrical demand.

The Energy Management Module is required for either 2-step or 4 to 20 mA demand limit.

Electronic expansion valve (EXV)

The EXV controls refrigerant flow to the cooler for different operating conditions by varying an orifice size to increase or decrease the flow area through the valve based on microprocessor input. The orifice is positioned by a stepper motor through approximately 3,600 discrete steps and is monitored every three seconds.

Diagnostics

The microprocessor may be put through a service test (see Controls, Start-Up, Operation, Service, and Troubleshooting literature). Service test confirms microprocessor is functional, informs observer through display the condition

of each sensor and switch in chiller, and allows observer to check for proper operation of fans and compressors.

Default settings

To facilitate quick start-ups, 30XA chillers with *ComfortLink* controls are pre-configured with a default setting that assumes stand-alone operation supplying 44 F (6.6 C) chilled water.

Configuration settings will be based on any options or accessories included with the unit at the time of manufacturing.

Date and time are set to U.S.A. Eastern Time zone and will need reconfiguring based on location and local time zone. If operation based on occupancy scheduling is desired, schedule must be set during installation.

Ice duty

ComfortLink controls have the capability of reduced leaving fluid temperature operation for thermal storage, or ice duty. The optional Energy Management display includes input contacts for the "ice done" signal generated by the thermal storage control system. The ice duty feature may be configured to start on an external input command or by the *ComfortLink* standard internal scheduling function. The ice duty function requires brine modification for leaving fluid temperatures below 40 F (4.4 C). Ice duty may be used in combination with any other standard features offered by the Energy Management Module and *ComfortLink* controls.

The production of ice, which is stored for peak cooling demands, can significantly decrease energy costs. The unit produces ice (normally at night) by supplying ice storage tanks with low temperature cooling fluid. The chiller takes advantage of reduced ambient conditions at night for ice-making mode, so the capacity suffers a lower penalty for the low leaving fluid temperatures.

At peak cooling demands, the chiller and the stored ice may share the cooling load to reduce operating costs. The thermal storage system may potentially reduce the size of the chiller plant required to meet demand loads.

Controls and power wiring schematic

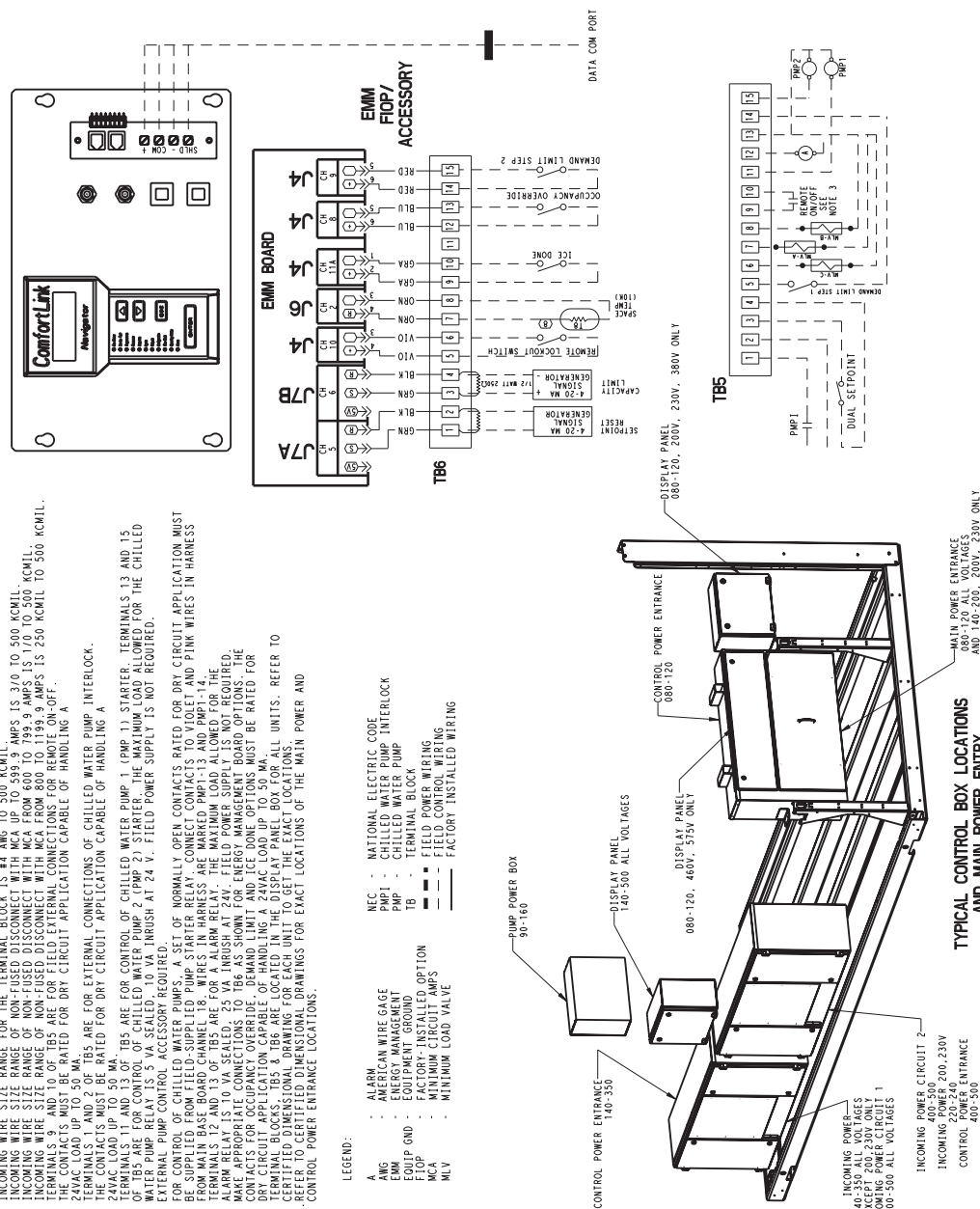


NOTES:

1. FACTORY WIRING IS IN ACCORDANCE WITH UL 1995 STANDARDS. FIELD MODIFICATIONS OR ADDITIONS MUST BE IN COMPLIANCE WITH ALL APPLICABLE CODES. COPPER FOR ALL UNITS.
2. INCOMING WIRE SIZE RANGE FOR THE TERMINAL BLOCK IS 14 AWG TO 500 KCMIL.
3. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA UP TO 595.9 AMPS IS 3/0 TO 500 KCMIL.
4. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 600 TO 799.9 AMPS IS 1/0 TO 500 KCMIL.
5. INCOMING WIRE SIZE RANGE OF NON-FUSED DISCONNECT WITH MCA FROM 800 TO 1199.9 AMPS IS 350 KCMIL TO 500 KCMIL.
6. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
7. TERMINALS 1 AND 2 OF TB5 ARE FOR EXTERNAL CONNECTIONS OF CHILLED WATER PUMP INTERLOCK.
8. THE CONTACTS MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
9. TERMINALS 11 AND 13 OF TB5 ARE FOR CONTROL OF CHILLED WATER PUMP 1 (PMP 1) STARTER. TERMINALS 13 AND 15 OF TB5 ARE FOR CONTROL OF CHILLED WATER PUMP 2 (PMP 2) STARTER. THE MAXIMUM LOAD ALLOWED FOR THE CHILLED WATER PUMP RELAY IS 5 VA SEALED, 10 VA INTRUS AT 24 V. FIELD POWER SUPPLY IS NOT REQUIRED.
10. EXTERNAL PUMP CONTROL ACCESSORY REQUIRED.
11. THE CONTACTS OF CHILLED WATER PUMP 1 (PMP 1) STARTER MUST BE CONNECTED TO RED AND PINK WIRES IN HARNESS FROM MAIN BASE BOARD CHANNEL 18. WIRES IN HARNESS ARE MARKED PMP1-13 AND PMP1-14.
12. TERMINALS 12 AND 13 OF TB5 ARE FOR AN ALARM RELAY. THE MAXIMUM LOAD ALLOWED FOR THE ALARM RELAY IS 10 VA SEALED, 25 VA INTRUS AT 24V. FIELD POWER SUPPLY IS NOT REQUIRED.
13. THE CONTACTS OF ALARM RELAY MUST BE CONNECTED TO RED AND PINK WIRES IN HARNESS FROM MAIN BASE BOARD CHANNEL 18. WIRES IN HARNESS ARE MARKED PMP1-13 AND PMP1-14.
14. CONTACTS FOR OCCUPANT OVERIDE, DEMAND LIMIT, AND REMOTE ON/OFF MUST BE RATED FOR DRY CIRCUIT APPLICATION CAPABLE OF HANDLING A 24VAC LOAD UP TO 50 MA.
15. TERMINAL BLOCKS, TB5 & TB6 ARE LOCATED IN THE DISPLAY PANEL BOX FOR ALL UNITS. REFER TO CERTIFIED DIMENSIONAL DRAWING FOR EACH UNIT TO GET THE EXACT LOCATIONS.
16. CONTROL POWER ENTRANCE LOCATIONS.

LEGEND:

A	ALARM	NEC	NATIONAL ELECTRIC CODE
ANG	AMERICAN WIRE GAGE	PMP1	CHILLED WATER PUMP INTERLOCK
EMM	ENERGY MANAGEMENT	PMP	CHILLED WATER PUMP
EQUIP GND	EQUIPMENT GROUND	TB	TERMINAL BLOCK
EMM FIOPI/ ACCESSORY	ENERGY MANAGEMENT FIELD POWER INTERLOCK		
MCA	MINIMUM CIRCUIT AMPS		
MLV	MINIMUM LOAD VALVE		



TYPICAL CONTROL BOX LOCATIONS AND MAIN POWER ENTRY

NON-FUSED DISCONNECT

Application data



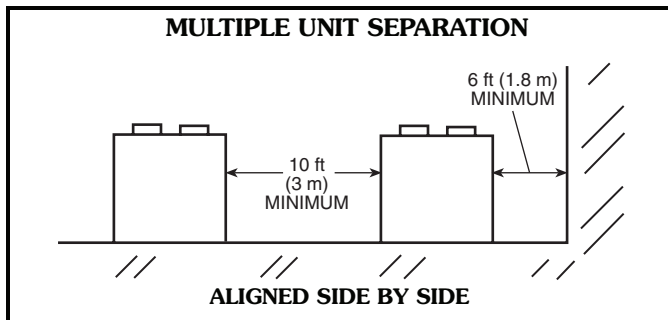
Chiller location and clearances

Do not locate near sound sensitive areas without proper acoustic consideration. For applications requiring mounting a chiller on a building rooftop, consideration should be given to using rubber-in-shear or spring isolators to minimize structure-borne transmission. Unit must be level when installed to ensure proper oil return to the compressors. Clearances must be provided around chillers for airflow, service and local code requirements. See dimensional drawings for specific unit clearance requirements. Ensure adequate clearance between adjacent chillers is maintained. A minimum of 10 ft is recommended. Chiller fan discharge must be at least as high as adjacent solid walls. Installation in pits is not recommended.

Minimum clearances

The recommended minimum clearance to ensure proper airflow through the condenser coils and to allow fan maintenance is as shown below.

Acceptable clearance between the chiller and a single wall may be reduced to 3 ft (914.4 mm) on one side or end opposite the control panel without sacrificing performance. Clearances between chillers in dual chiller applications may be reduced to 6 ft (1.8 m) on one side without sacrificing performance.



Strainers

A screen strainer with a minimum screen size of 20 mesh must be installed a maximum of 10 ft from the unit to prevent debris from damaging internal tubes of the cooler.

Oversizing chillers

Oversizing chillers by more than 15% at design conditions must be avoided as the system operating efficiency is adversely affected (resulting in greater or excessive electrical demand). When future expansion of equipment is anticipated, install a single chiller to meet present load requirements and add a second chiller to meet the additional load demand. It is also recommended that 2 smaller chillers be installed where operation at minimum load is critical. The operation of a smaller chiller loaded to a greater percentage over minimum is preferred to operating a single chiller at or near its minimum recommended value. Minimum Load Control 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.

Cooler water temperature

1. Maximum leaving chilled water temperature (LCWT) for the unit is 60 F (15.5 C). Unit can start and

pull down with up to 95 F (35 C) entering-water temperature. It is recommended that entering-water temperature not exceed 70 F (21.1).

2. Minimum LCWT for a standard unit is 40 F (4.4 C). For leaving-water temperatures between 15 and 39.9 F (–9.4 to 4.4 C) an inhibited antifreeze solution is required. Application of chiller to 15 F (–9.4 C) is possible by ordering the factory-installed medium temperature brine option.

NOTE: Water flowing through cooler should not exceed 100 F.

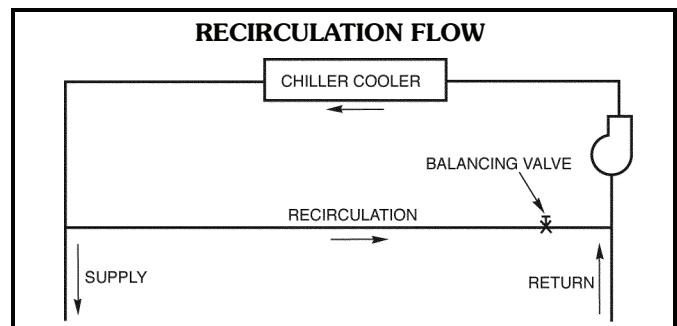
Cooler flow/range

Ratings and performance data in this publication are for a cooling temperature rise of 10° F (5.5° C). The 30XA chillers may be operated at a different temperature rise, providing flow limits are not exceeded and corrections to system guidelines are made. For minimum and maximum cooler flow rates, see the Minimum and Maximum Cooler Flow Rates table. A high flow rate is generally limited by the maximum pressure drop that can be tolerated by the unit. The 30XA chillers are designed for a full load temperature rise of 5° to 20° F (2.8° to 11.1° C). Use the Carrier Selection Program to obtain the rating if a temperature rise other than 10° F (5.5° C) is used.

Minimum cooler flow (maximum cooler temperature rise) — The minimum cooler flow for standard units is shown in the Minimum and Maximum Cooler Flow Rates table. When system design conditions require a lower flow (or higher rise) than the minimum allowable cooler flow, follow the recommendations below.

- a. Multiple smaller chillers may be applied in series, each providing a portion of the design temperature rise.
- b. Cooler fluid may be recirculated to raise the flow rate to the chiller. The mixed temperature entering the cooler must be maintained to a minimum of at least 5 F (2.8 C) above the LCWT and a maximum of no more than 20 F (11.1 C) above the LCWT.

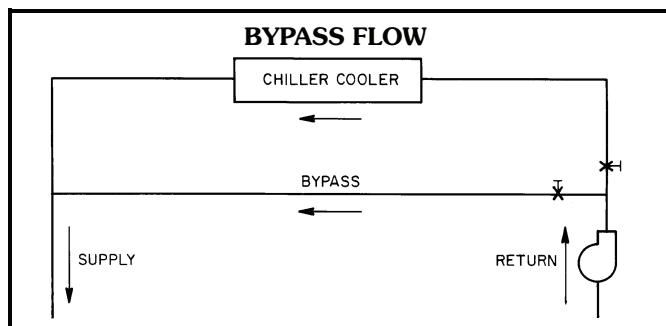
NOTE: Recirculation flow is shown below.



Maximum cooler flow — The maximum cooler flow (approximately 5° F rise) results in a practical maximum pressure drop through cooler.

Return fluid may bypass the cooler to keep the pressure drop through the cooler within acceptable limits. This permits a higher delta T with lower fluid flow through cooler and mixing after the cooler.

NOTE: Bypass flow is shown below.



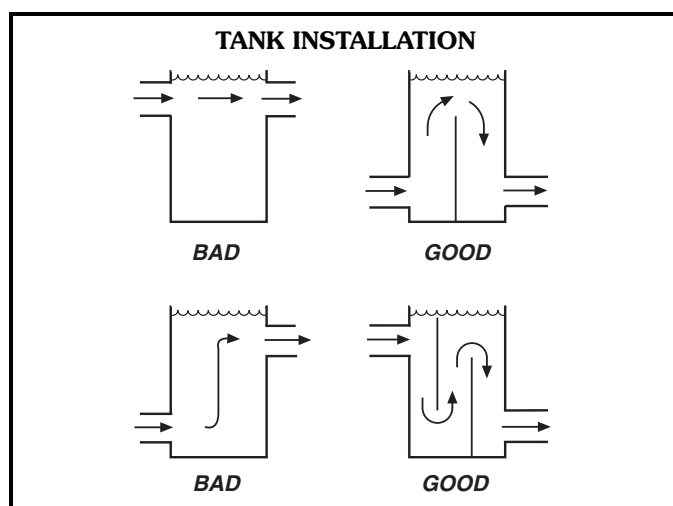
Variable cooler flow rates

Variable rates may be applied to a standard chiller. The unit will, however, attempt to maintain a constant leaving chilled water temperature. In such cases minimum flow must be in excess of minimum flow given in the Minimum and Maximum Cooler Fluid Flow Rates table, and minimum loop water volume must be in excess of 3 gallons per ton (3.2 l/kw). Flow rate must change in steps of less than 10% per minute. Apply a minimum of 6 gal. per ton (6.5 l/kw) water loop volume if flow rate changes more rapidly.

Water loop volume

The volume in circulation must equal or exceed 3 gal. per nominal ton (3.2/kW) of cooling for temperature stability and accuracy in normal air conditioning applications. In process cooling applications, or for operation at ambient temperature below 32 F (0° C) with low loading conditions, there should be from 6 to 10 gal. per ton (6.5 to 10.8 l/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.



Cooler fouling factor

The fouling factor used to calculate tabulated ratings is $0.0001 \text{ ft}^2 \cdot \text{hr} \cdot ^\circ\text{F}/\text{Btu}$ ($0.00018 \text{ m}^2 \cdot ^\circ\text{C}/\text{W}$). As fouling factor is increased, both unit capacity and EER decrease.

The impact of the fouling factor on performance varies significantly with chiller size and application conditions. Ratings must be determined by the Carrier Selection Program.

Cooler and optional hydronic system freeze protection

Freeze protection for the cooler and the optional hydronic system is standard on all 30XA air-cooled chillers. All units are equipped with cooler heaters. Units are protected from freezing down to 0° F (-18 C) through the cooler heaters and control algorithms. If a unit controls the chilled water pump/valves, allowing for flow through the cooler, the unit is protected from freezing down to -20 F (-29 C). Since power is sometimes lost for extended periods during winter storms, freeze protection provided by heater tapes will be effective only if a back-up power supply can be assured for the unit's control circuit, heater and cooler pump. If not protected with an anti-freeze solution, draining the cooler and outdoor piping is recommended if the system will not be used during freezing weather conditions.

Two conditions that must be considered when determining antifreeze concentration are both leaving water set point and ambient freeze conditions. Both of these parameters can help determine the recommended concentration level. Higher concentration must be used to adequately protect the machine.

NOTE: Use only antifreeze solutions approved for heat exchanger duty.

For applications in which the leaving fluid temperature set point is less than 40 F (4.4 C), a suitable inhibited anti-freeze solution must be used. The solution concentration must be sufficient to protect the chilled water loop to a freeze protection (first crystals) concentration of at least 15° F (8.3° C) below the leaving fluid temperature set point.

If the chiller refrigerant or fluid lines are in an area where ambient conditions fall below 34 F (1.1° C), it is highly recommended that an antifreeze solution be added to protect the unit and fluid piping to a temperature of 15° F (8.3° C) below the lowest anticipated ambient temperature.

Select concentration based on either burst or freeze protection as dictated by the application. If the chiller does not operate during the winter, and a start-up is not expected, a burst protection concentration is recommended. This concentration may not be high enough to pump the fluid through the unit. Burst protection is typically a lower concentration that will provide better performance from the machine. If the chiller does operate during winter, a freeze protection concentration is recommended. This concentration will be high enough to keep the fluid in a condition that it can be pumped at low ambient conditions.

IMPORTANT: Glycol anti-freeze solutions are highly recommended since heater tapes provide no protection in the event of a power failure.

Consult glycol fluid manufacturers for burst protection recommendations and fluid specifications.

Application data (cont)



MINIMUM AND MAXIMUM COOLER FLOW RATES

ITEM			MINIMUM		MAXIMUM		NOMINAL	
Cooler Leaving Water Temperature*			40 F (4.4 C)		60 F (15 C)		—	
Cooler Entering Water Temperature†			45 F (7.2 C)		70 F (21.1 C)		—	
30XA UNIT SIZE	Cooler	Number of Passes	Minimum Flow Rate		Maximum Flow Rate		Nominal Flow Rate	
			(gpm)	(L/s)	(gpm)	(L/s)	(gpm)	(L/s)
080	Standard	2	95	6.0	379	23.9	180.4	11.4
	Plus one pass	3	43	2.7	192	12.1		
	Minus one pass	1	196	12.4	782	49.3		
090	Standard	2	101	6.4	403	25.4	201.9	12.7
	Plus one pass	3	43	2.7	200	12.6		
	Minus one pass	1	229	14.4	917	57.9		
100	Standard	2	101	6.4	403	25.4	225.5	14.2
	Plus one pass	3	43	2.7	200	12.6		
	Minus one pass	1	229	14.4	917	57.9		
110	Standard	2	125	7.9	501	31.6	244.9	15.5
	Plus one pass	3	61	3.8	244	15.4		
	Minus one pass	1	254	16.0	1014	64.0		
120	Standard	2	125	7.9	501	31.6	264.8	16.7
	Plus one pass	3	73	4.6	293	18.5		
	Minus one pass	1	281	17.7	1124	70.9		
140	Standard	2	134	8.5	538	33.9	317.8	20.1
	Plus one pass	3	73	4.6	293	18.5		
	Minus one pass	1	324	20.4	1296	81.8		
160	Standard	2	165	10.4	660	41.6	365.1	23.0
	Plus one pass	3	98	6.2	391	24.7		
	Minus one pass	1	354	22.3	1418	89.5		
180	Standard	2	202	12.7	807	50.9	409.6	25.8
	Plus one pass	3	73	4.6	391	24.7		
	Minus one pass	1	416	26.2	1662	104.9		
200	Standard	2	223	14.1	892	56.3	463.9	29.3
	Plus one pass	3	98	6.2	391	24.7		
	Minus one pass	1	458	28.9	1833	115.6		
220	Standard	2	235	14.8	941	59.4	505.9	31.9
	Plus one pass	3	122	7.7	489	30.9		
	Minus one pass	1	501	31.6	2004	126.4		
240	Standard	2	266	16.8	1063	67.1	545.8	34.4
	Plus one pass	3	147	9.3	587	37.0		
	Minus one pass	1	538	33.9	2151	135.7		
260	Standard	2	257	16.2	1027	64.8	600.3	37.9
	Plus one pass	3	141	8.9	562	35.5		
	Minus one pass	1	584	36.8	2334	147.3		
280	Standard	2	293	18.5	1173	74.0	642.2	40.5
	Plus one pass	3	141	8.9	562	35.5		
	Minus one pass	1	620	39.1	2481	156.5		
300	Standard	2	327	20.6	1308	82.5	687.5	43.4
	Plus one pass	3	174	11.0	697	44.0		
	Minus one pass	1	687	43.3	2750	173.5		
325	Standard	2	361	22.8	1442	91.0	733.4	46.3
	Plus one pass	3	211	13.3	843	53.2		
	Minus one pass	1	724	45.7	2897	182.8		
350	Standard	2	379	23.9	1516	95.6	775.4	48.9
	Plus one pass	3	244	15.4	978	61.7		
	Minus one pass	1	767	48.4	3068	193.6		
400	Standard	1	501	31.6	2004	126.4	917.6	57.9
	Plus one pass	—	—	—	—	—		
	Minus one pass	—	—	—	—	—		
450	Standard	1	501	—	2004	—	1019.3	64.3
	Plus one pass	—	—	—	—	—		
	Minus one pass	—	—	—	—	—		
500	Standard	1	501	—	2004	—	1092.8	68.9
	Plus one pass	—	—	—	—	—		
	Minus one pass	—	—	—	—	—		

*For applications requiring cooler leaving water temperature operation at less than 40 F (4.4 C), the units require the use of antifreeze and application may require the brine option. Contact your local Carrier representative for more information.

†For applications requiring cooler entering water temperature operation at less than 45 F (7.2 C), contact your local Carrier representative for unit selection using the Carrier electronic catalog.

NOTES:

1. The 30XA units will start and pull down with loop temperatures up to 95 F (35 C).
2. Nominal flow rates required at ARI conditions 44 F (7 C) leaving fluid temperature, 54 F (12 C) entering water temperature, 95 F (35 C) ambient. Fouling factor 0.00010 ft²-hr-F/Btu (0.000018 m²-K/kW).
3. To obtain proper temperature control, cooler loop fluid volume must be at least 3 gal/ton (3.23 L/kW) of chiller nominal capacity for air conditioning and at least 6 gal/ton (6.5 L/kW) for process applications or systems that must operate in low ambient temperatures (below 32 F [0° C]).

High ambient temperature operation

High outdoor ambient chiller start-up and operation is possible for standard 30XA chillers at ambient temperatures up to 125 F (52 C) at nominal voltage.

Low ambient temperature operation

Units will start and operate down to 32 F (0° C) as standard. Operation to -20 F (-29 C) requires optional low ambient head pressure control as well as wind baffles (field fabricated and installed to all units for operation below 32 F [0° C]) if wind velocity is anticipated to be greater than 5 mph (8 km/h). Inhibited propylene glycol or other suitable corrosion-resistant anti-freeze solution must be field supplied and installed in all units for unit operation below 34 F (1.1 C). Solution must be added to fluid loop to protect loop down to 15° F (8.3° C) below minimum operating ambient temperature. Concentration should be based on expected minimum temperature and either "Burst" or "Freeze" protection levels. At least 6 gal per ton (6.5 l/kw) of water volume is the recommended minimum for a moderate system load.

Altitude correction factors

Correction factors must be applied to standard ratings at altitudes above 2000 ft (609.6 m) using the following multipliers:

ALTITUDE CORRECTION FACTORS

ALTITUDE		CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
(ft)	(m)		
2,000	609.6	0.99	1.01
4,000	1219.2	0.98	1.02
6,000	1828.8	0.97	1.03
8,000	2438.4	0.96	1.04
10,000	3048	0.95	1.05

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

EXTERNAL STATIC		CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
in. wg	Pa		
0.0	0.0	1.000	1.00
0.1	25	0.986	1.01
0.2	50	0.968	1.03

Multiple chillers

Where multiple chillers are required, or where standby capability is desired, chillers may be installed in parallel. Units may be of the same size or different sizes. However, cooler flow rates must be balanced according to the recommendations for each chiller to ensure proper flow.

Unit software is capable of controlling two units as a single plant. Refer to the Controls, Start-Up, Operation, Service, and Troubleshooting guide for further details.

Dual chiller control

The *ComfortLink*™ controller allows 2 chillers (piped in parallel or series) to operate as a single chilled water plant with standard control functions coordinated through the master chiller controller. This standard *ComfortLink* feature requires a communication link between the 2 chillers.

There are several advantages to this type of control:

- Redundancy (multiple circuits)
- Better low load control (lower tonnage capability)
- Lower rigging lift weights (2 machines rather than 1 large machine)
- Chiller Lead-Lag Operation (evens the wear between the two machines)

Parallel dual chiller operation — Parallel Chiller Operation is the recommended option for Dual Chiller Control. In this case, each chiller must control its own dedicated pump or isolation valve. Balancing valves are recommended to ensure proper flow in each chiller. Two field-supplied and installed dual chiller leaving water temperature sensors are required, one for each module, for this function to operate properly.

Consider adding additional isolation valves to isolate each chiller to allow for service on a machine, and still allow for partial capacity from the other chiller.

Series dual chiller operation — Series Chiller Operation is an alternate control method supported by the *ComfortLink* control system. Certain applications might require that the two chillers be connected in series. For nominal 10 F (5.6 C) cooler ranges, use the Minus 1 Pass Cooler arrangement to reduce the fluid-side pressure drop. Use the standard cooler pass arrangement for low flow, high cooler temperature rise applications. Two field-supplied and installed dual chiller leaving water temperature sensors are required, one for each module, for this function to operate properly.

Consider adding additional piping and isolation valves to isolate each chiller to allow for service on a machine, and still allow for partial capacity from the other chiller.

Condenser coil protection (*Enviro-Shield*™)

Refer to the Environmental Corrosion Protection and Microchannel white papers for more information.

Microchannel coil technology is a robust, cost effective alternative to traditional coil design for standard and mild marine applications. Application of microchannel coils for AquaForce™ units will increase performance, provide better corrosion resistance, improve environmental sustainability, be more structurally robust and is easier to clean. With microchannel coils, the full and part load efficiencies will be elevated by 1 to 2%. In addition, the overall unit capacity will increase by approximately 0.5%. Due to the compact all aluminum design, microchannel coils will reduce overall unit operating weight by 6 to 7%. The streamlined microchannel design reduces refrigerant charge by up to 30%. For improved corrosion resistance vs. conventional copper tube aluminum fin coils, microchannel coils can be employed in mild marine environments based on the reliable design. The coil is designed with rubber isolation around the powder painted coil frame to eliminate galvanic couples. Based on the surface structural integrity of the coil, a high pressure washer can be used which makes it easier to clean. Microchannel coils are not recommended, however, for severe coastal or industrial environments.

Application data (cont)

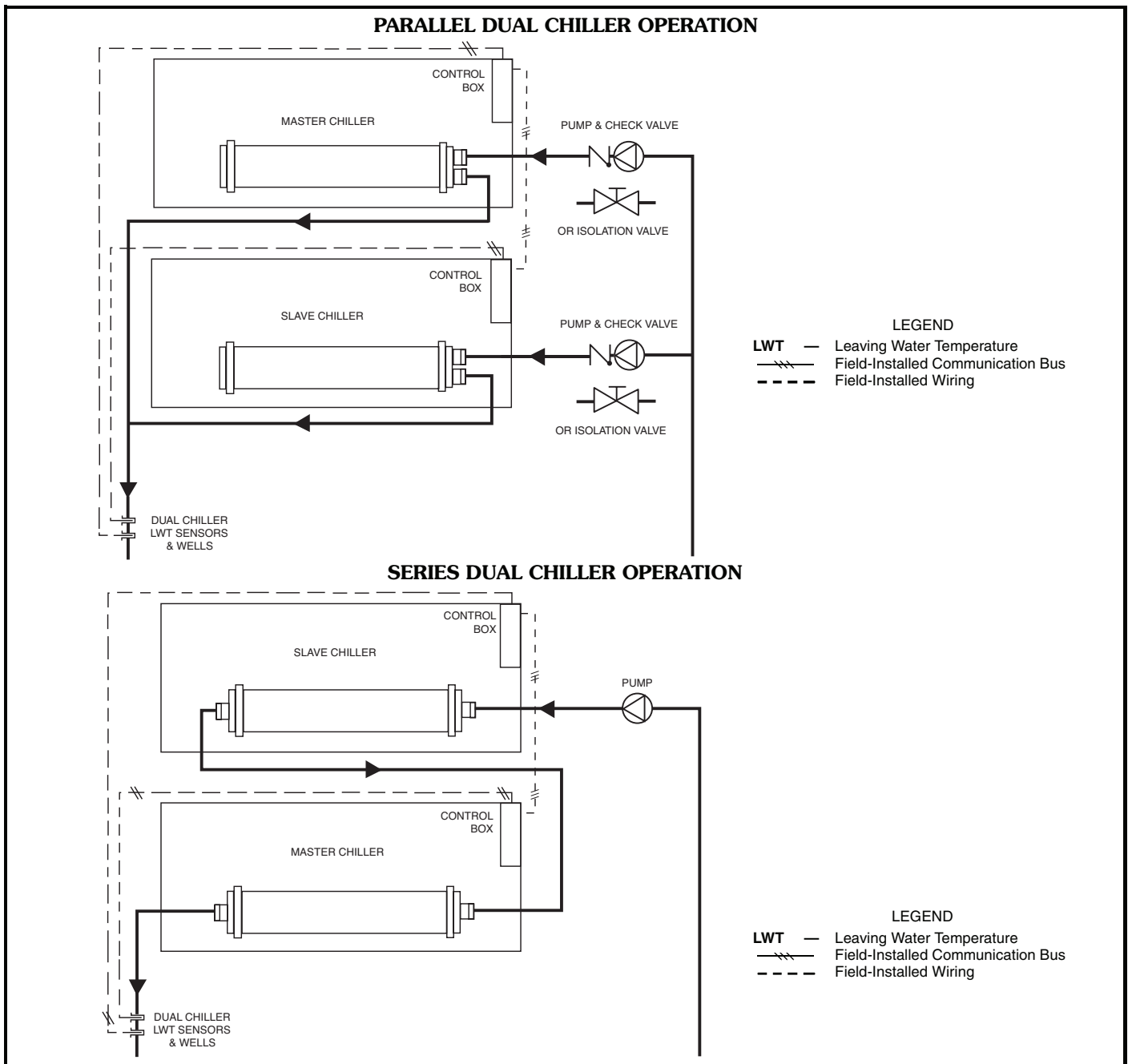


Pre-coated aluminum-fin coils have a durable epoxy-phenolic coating applied to the fin prior to the fin stamping process to provide protection in mildly corrosive coastal environments. Pre-coated coils have an inert barrier between the aluminum fin and copper tube. This barrier electrically disconnects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

Copper-fin coils provide increased corrosion resistance in moderate coastal environments where industrial air pollution is not present. All copper coils eliminate bimetallic construction to eliminate the potential for galvanic corrosion. Application in industrial environments is not recommended due to potential attack from sulfur, sulfur oxide, nitrogen oxides, carbon and several other industrial

air-borne contaminants. In moderate seacoast environments, copper-fin coils have extended life compared to standard or pre-coated aluminum-fin coils.

E-coated aluminum-fin coils have an extremely flexible and durable epoxy coating uniformly applied to all coil surfaces. Unlike brittle phenolic dip and bake coatings, E-coat provides superior protection with unmatched flexibility, edge coverage, metal adhesion, thermal performance and most importantly, corrosion resistance. E-coated coils provide this protection since all coil surfaces are completely encapsulated from environmental contamination. Specify E-coated aluminum-fin coils for industrial environments with high levels of air pollution. This option also provides better protection compared to standard or pre-coated aluminum-fin coils in industrial environments.



E-coated copper-fin coils have the same flexible and durable epoxy coating as E-coated aluminum-fin coils. However, this option combines the natural salt and environmental resistance of all-copper construction with the highest level of corrosion protection. Specify E-coated copper-fin coils in the harshest combination of coastal and industrial environments.

Optional hydronic system selection

Select pump flow from resulting chiller selection and total pressure loss in the system plus the chiller internal pressure loss.

NOTE: Maximum flow (gpm [L/s]), pressure and pump hp must not exceed maximum indicated on pump curve.

Pump flow can be reduced by using the factory-supplied combination valve up to 10%. Beyond that, impeller trimming is recommended to reduce energy consumption. Follow local codes or ASHRAE 90.1 recommendations. Contact your Carrier representative for the specific amount of trim required.

The 30XA AquaForce™ chiller will require a field-supplied expansion tank when the optional pump package is provided.

The expansion tank is based on fluid type, temperature range, fluid pressure and loop volume.

Parallel chillers with hydronic packages require that pump inlets be equalized to prevent pump cavitation. If more than one expansion tank is to be used in the chiller water loop, the expansion tanks must be located together in the common pump suction header. If expansion tank relocation is required for parallel chiller configuration, all materials needed for expansion tank relocation are field supplied. Appropriate measures must be taken for freeze protection.

NOTE: It is recommended for units with the hydronic package that an inlet isolation (shut-off) valve be placed exterior to the unit to allow removal and service of the entire pump assembly, if necessary. The hydronic package is supplied from the factory with a combination valve for isolation of leaving water. Also, if the unit is isolated with valves, a properly sized pressure relief valve is recommended and should be installed in the piping between the unit and the valves, following all applicable local codes.

Air Separation

For proper system operation, it is essential that water loops be installed with proper means to manage air in the system. Free air in the system can cause noise, reduce terminal output, stop flow, or even cause pump failure due to pump cavitation. For closed systems, equipment should be provided to eliminate all air from the system.

The amount of air that water can hold in solution depends on the pressure and temperature of the water/air mixture. Air is less soluble at higher temperatures and at lower pressures. Therefore, separation can best be done at the point of highest water temperature and lowest pressure. Typically, this point would be on the suction side of the pump as the water is returning from the system or terminals. This is generally the optimal place to install an air separator, if possible.

Install automatic air vents at all high points in the system. (If the 30XA unit is located at the high point of the system, a vent can be installed on the piping leaving the heat exchanger on the 1/4 in. NPT female port.)

Install an air separator in the water loop, at the place where the water is at higher temperatures and lower pressures — usually in the chilled water return piping. On a primary-secondary system, the highest temperature water is normally in the secondary loop, close to the decoupler. Preference should be given to that point on the system. In-line or centrifugal air separators are readily available in the field.

It may not be possible to install air separators at the place of the highest temperature and lowest pressure. In such cases, preference should be given to the points of highest temperature. It is important that the pipe be sized correctly so that free air can be moved to the point of separation. Generally, a water velocity of at least 2 feet per second (.6 m per second) will keep free air entrained and prevent it from forming air pockets.

Automatic vents should be installed at all physically elevated points in the system so that air can be eliminated during system operation. Provisions should also be made for manual venting during the water loop fill.

IMPORTANT: Automatic vents should be located in accessible locations for maintenance purposes and protected from freezing.

Electrical/utility interests

Energy management — Use of energy management practices can significantly reduce operating costs, especially during off-peak modes of operation. Demand limiting and temperature reset are two techniques for accomplishing efficient energy management. See Demand Limiting (also called load shedding) section below for further details.

Demand limiting (load shedding)

When a utility's demand for electricity exceeds a certain level, loads are shed to keep electricity demand below a prescribed maximum level. Typically, this happens on hot days when air conditioning is most needed. The Energy Management Module (EMM) can be added to accomplish this reduction. Demand may be limited on the unit by resetting water temperature, or by unloading the chiller to a given predetermined percentage of the load. Demand limit may also be driven by an external 4 to 20 mA signal. These features require a signal from an intelligent central control. Do not cycle demand limiter for less than 10 minutes on and 5 minutes off. Duty cycling cycles electrical loads at regular intervals regardless of need. This reduces the electrical operating costs of building by "fooling" demand indicating devices. Duty cycling of compressors or fans is not recommended since motor winding and bearing life will suffer from constant cycling.

Remote on-off control

Remote on-off control may be applied by hard-wired connection (see Controls and Troubleshooting literature) or by connection to the Carrier Comfort Network® (CCN) system.

Guide specifications



Air-Cooled Liquid Chiller

HVAC Guide Specifications

Size Range: **80 to 500 Tons, Nominal**

Carrier Model Number: **30XA**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Microprocessor controlled, air-cooled liquid chiller utilizing screw compressors and low sound fans.

1.02 QUALITY ASSURANCE

- A. Unit shall be rated in accordance with ARI Standard 550/590 (U.S.A.).
- B. Unit construction shall comply with ASHRAE 15 Safety Code, UL 1995, and ASME applicable codes (U.S.A. codes).
- C. Unit shall be manufactured in a facility registered to ISO 9001:2000 Manufacturing Quality Standard.
- D. Unit shall be full load run tested at the factory.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Unit controls shall be capable of withstanding 150 F (65.5 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 chassis, air-cooled liquid chiller. Contained within the unit cabinet shall be all factory wiring, piping, controls, refrigerant charge (R-134a), and special features required prior to field start-up.

B. Unit Cabinet:

1. Frame shall be of heavy-gage, painted galvanized steel.
2. Cabinet shall be galvanized steel casing with a baked enamel powder or pre-painted finish.
3. Cabinet shall be capable of withstanding 500-hour salt spray test in accordance with the ASTM (U.S.A.) B-117 standard.

C. Fans:

1. Condenser fans shall be direct-driven, 9-blade airfoil cross-section, reinforced polymer construction, shrouded-axial type, and shall be statically and dynamically balanced with inherent corrosion resistance.
2. Air shall be discharged vertically upward.
3. Fans shall be protected by coated steel wire safety guards.

D. Compressor/Compressor Assembly:

1. Comprised of semi-hermetic twin screw type compressors.
2. Compressor motor shall be direct drive, 3500 rpm, protected by motor temperature sensors, suction gas cooled motor.

3. Capacity control shall utilize an infinitely modulating slide valve to modulate capacity from 100% to 15% full load.

E. Cooler:

1. Shall be a mechanically cleanable tubes in a shell-and-tube type cooler with removable heads.
2. Tubes shall be internally enhanced seamless-copper type rolled into tube sheets.
3. Shall be equipped with Victaulic-type water connections.
4. Shell and cooler heads shall be insulated with $\frac{3}{4}$ -in. PVC foam (closed-cell) with a maximum K factor of 0.28.
5. Design shall incorporate a minimum of 2 or 3 independent refrigerant circuits.
6. Cooler shall be tested and stamped in accordance with ASME Code for a refrigerant working side pressure of 220 psig. Cooler shall have a maximum water-side pressure of 300 psig.
7. Cooler shall have a cooler drain and vent.
8. Low-ambient temperature protection: unit shall have factory-installed cooler heater, and pumpout cycle to protect cooler from ambient temperature freeze down to 0° F (-17.8 C).

F. Condenser:

1. Coil shall be air-cooled with integral subcooler, and shall be constructed of aluminum fins mechanically bonded to seamless copper tubes.
2. Tubes shall be cleaned, dehydrated, and sealed.
3. Assembled condenser coils shall be leak tested and pressure tested at 375 psig (2585 kPa).

G. Refrigeration Components:

Refrigerant circuit components shall include replaceable-core filter drier, moisture indicating sight glass, electronic expansion valve, discharge service valves and liquid line service valves, and complete operating charge of both refrigerant R-134a and compressor oil.

H. Controls, Safeties, and Diagnostics:

1. Unit controls shall include the following minimum components:
 - a. Microprocessor with non-volatile memory. Battery backup system shall not be accepted.
 - b. Separate terminal block for power and controls.
 - c. Separate 115-v power supply to serve all controllers, relays, and control components.
 - d. ON/OFF control switch.
 - e. Replaceable solid-state controllers.
 - f. Pressure sensors installed to measure suction, oil, economizer, and discharge pressure. Thermistors installed to measure cooler entering and leaving fluid temperatures and outside air temperature.

2. Unit controls shall include the following functions:
 - a. Automatic circuit lead/lag.
 - b. Capacity control based on leaving chilled fluid temperature and compensated by rate of change of return-fluid temperature with temperature set point accuracy to 0.1° F (0.05° C).
 - c. Limiting the chilled fluid temperature pull-down rate at start-up to an adjustable range of 0.2° F to 2° F (0.1 to 1.1° C) per minute to prevent excessive demand spikes at start-up.
 - d. Seven-day time schedule.
 - e. Leaving chilled fluid temperature reset from return fluid and outside air temperature.
 - f. Chilled water pump start/stop control.
 - g. Chiller control for parallel chiller applications without addition of hardware modules and control panels (requires thermistors).
 - h. Timed maintenance scheduling to signal maintenance activities for strainer maintenance and user-defined maintenance activities.
 - i. Low ambient protection to energize cooler heaters.
 - j. Single step demand limit control activated by remote contact closure.
 3. Diagnostics:
 - a. The control panel shall include, as standard, a display:
 - 1) Touch screen display consisting of 1/4 VGA LCD (liquid crystal display) with adjustable contrast and backlighting.
 - 2) Display shall allow a user to navigate through menus, select desired options and modify data.
 - b. Features of the display shall include:
 - 1) Display shall be customizable and allow up to 72 data points.
 - 2) Display shall support both local equipment or network made for remote mount.
 - 3) Display shall allow access to configuration, maintenance, service, set point, time schedules, alarm history and status data.
 - 4) Display shall have one button for chiller on/off.
 - 5) Display shall include three levels of password protection against unauthorized access to configuration and maintenance information, and display set up parameters.
 - 6) Display shall allow for easy connection of a portable hand held technician tool to access information and upload and/or download chiller settings.
 - 7) Display shall be compatible with the Carrier Comfort Network® (CCN) system and provide network alarm acknowledgement or indication and provide capability to fully monitor and control chiller.
 - 8) Display alarms and parameters shall be capable of being displayed in full text.
 - 9) Display shall be capable of displaying the last 50 alarms and will store a snapshot of a minimum of 20 status data parameters for each alarm.
 - 10) Compressor run hours.
 - 11) Compressor number of starts.
 - 12) Compressor current.
 - 13) Time of day:
 - a) Display module, in conjunction with the microprocessor, must also be capable of displaying the output (results) of a service test. Service test shall verify operation of every switch, thermistor, fan, and compressor before chiller is started.
 - b) Diagnostics shall include the ability to review a list of the 30 most recent alarms with clear language descriptions of the alarm event. Display of alarm codes without the ability for clear language descriptions shall be prohibited.
 - c) An alarm history buffer shall allow the user to store no less than 30 alarm events with clear language descriptions, time and date stamp event entry.
 - d) The chiller controller shall include multiple connection ports for communicating with the local equipment network, the Carrier Comfort Network (CCN) system and the ability to access all chiller control functions from any point on the chiller.
 - e) The control system shall allow software upgrade without the need for new hardware modules.
4. Safeties:
 - a. Unit shall be equipped with thermistors and all necessary components in conjunction with the control system to provide the unit with the following protections:
 - 1) Loss of refrigerant charge.
 - 2) Reverse rotation.
 - 3) Low chilled fluid temperature.
 - 4) Motor overtemperature.
 - 5) High pressure.
 - 6) Electrical overload.
 - 7) Loss of phase.
 - 8) Loss of chilled water flow.
 - b. Condenser fan motors shall have internal overcurrent protection.

Guide specifications (cont)



I. Operating Characteristics:

1. Unit shall be capable of starting and running at outdoor ambient temperatures from 32 F (0° C) to 125 F (52 C) for all sizes.
2. Unit shall be capable of starting up with 95 F (35 C) entering fluid temperature to the cooler.

J. Motors:

Condenser-fan motors shall be totally enclosed, air over, single speed, 3-phase type with permanently lubricated bearings and Class F insulation.

K. Electrical Requirements:

1. Unit primary electrical power supply shall enter the unit at a single location (some chiller voltage/size combinations require 2 power supplies).
2. Primary electrical power supply shall be rated to operate up to 125 F (52 C) ambient temperature.
3. Unit shall operate on 3-phase power at the voltage shown in the equipment schedule.
4. Control points shall be accessed through terminal block.
5. Unit shall be shipped with factory control and power wiring installed.

L. Chilled Water Circuit:

1. Chilled water circuit shall be rated for 300 psig (2068 kPa). Units with optional pump package are rated for 150 psig (1034 kPa) working pressure.
2. Thermal dispersion proof of flow switch shall be factory installed and wired.
3. Optional hydronic package:
 - a. Field pipe connections shall be Victaulic type.
 - b. Optional single or primary/stand-by operation pump systems. Dual pump systems shall have a pump discharge check valve.
 - c. Pumps shall be single stage design, for installation in vertical position and capable of being serviced without disturbing piping connections.
 - 1) Pump casing shall be of class 30 cast iron.
 - 2) The impeller shall be of cast bronze, closed type, dynamically balanced, keyed to the shaft and secured by locking cap screw.
 - 3) The hydronic kit will be provided with a flush line connection to ensure lubrication at the seal face and allow for positive venting of the seal chamber.
 - 4) Each port shall be fitted with an isolation valve that allow the units to operate in parallel or standby, yet may be used to isolate one pumping unit for servicing or removal with the other pump still running.

- 5) Pump shall be rated for 150 psig (1034 kPa) working pressure.
- 6) The pump case shall have gage tappings at the suction and discharge nozzles and include drain ports.
- 7) Dual pumps shall allow for the servicing of one pump without draining the chilled water loop.
- 8) Motors shall totally enclosed 3-phase type with grease lubricated ball bearings.
- 9) Each pump shall be factory tested per Hydraulic Institute Standards.

d. Pressure/temperature taps (3) shall be factory installed to measure the pressure differential across the pump and across the strainer.

e. Combination valve shall be factory installed. Pressure/temperature taps (2) shall be factory installed to measure the pressure differential across the combination valve.

f. Hydronic assembly shall have factory supplied electric freeze protection to -20 F (-29 C).

g. Piping shall be Schedule 40 black steel.

4. Cast iron or ductile iron body strainer with 8 mesh screen. A factory-installed, removable fine mesh clean-out strainer for initial run period shall be included.

M. Special Features:

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

* 1. Low Ambient Temperature Head Pressure Control:

Unit shall be capable of starting and running at outdoor ambient temperatures down to -20 F (-29 C) with the addition of antifreeze in the cooler circuit, wind baffles, and field-installed or factory-installed solid-state low ambient temperature head pressure control with condenser coil temperature sensor.

2. Unit-Mounted Non-Fused Disconnect:

Unit shall be supplied with factory-installed, lockable, non-fused electrical disconnect for main power supply.

3. Optional Condenser Coil Materials:

a. Microchannel coils:

Shall have a series of flat tubes containing a series of multiple, parallel flow microchannels layered between the refrigerant manifolds. Microchannel coils shall consist of a two-pass arrangement. Coil construction shall consist of aluminum alloys for the fins, tubes and manifolds in combination with a corrosion resistant coating on the tubes.

- b. Pre-coated aluminum fin coils:
Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
- c. E-Coated aluminum-fin coils:
Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be black gloss — 60°, 65-90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to no less than 3000 hours salt spray per ASTM B117-90. Coil construction shall be aluminum fins mechanically bonded to copper tubes.
- 4. Remote Enhanced Display:
Unit shall be supplied with indoor-mounted, remote, 40-character per line, 16-line display panel for field installation.
- 5. Medium Temperature Brine:
Unit shall be factory modified to start and operate at leaving chilled fluid temperatures between 15 F and 39 F (–9.4 to 3.9 C).
- 6. Chillervisor System Manager III Multi-Unit Control:
Field-installed control shall sequence between 2 and 8 chillers in parallel in a single system. System shall control chilled water pumps.
- 7. Energy Management Control Module:
A factory or field-installed module shall provide the following energy management capabilities: 4 to 20 mA signals for leaving fluid temperature reset, cooling set point reset or demand limit control; 2-step demand limit control (from 0% to 100%) activated by a remote contact closure; and discrete input for “Ice Done” indication for ice storage system interface.
- 8. Condenser Coil Trim Panels:
Unit shall be supplied with field-installed coil covers.
- 9. BACnet™ Translator Control:
Unit shall be supplied with field-installed interface between the chiller and a BACnet Local Area Network (LAN, i.e., MS/TP EIA-485).
- 10. LON Translator Control:
Unit shall be supplied with field-installed interface between the chiller and a Local Operating Network (LON, i.e., LonWorks FT-10A ANSI/EIA-709.1).
- 11. Navigator™ hand held portable display:
 - a. Portable hand held display module with a minimum of 4 lines and 20 characters per line, or clear English, Spanish, Portuguese or French language.
 - b. Display menus shall provide clear language descriptions of all menu items, operating modes, configuration points and alarm diagnostics. Reference to factory codes shall not be accepted.
 - c. RJ-14 connection plug shall allow display module to be connected to factory-installed receptacle.
 - d. Industrial grade coiled extension cord shall allow the display module to be moved around the chiller.
 - e. Magnets shall hold the display module to any sheet metal panel to allow hands-free operation.
 - f. Display module shall have NEMA 4x housing suitable for use in outdoor environments.
 - g. Display shall have back light and contrast adjustment for easy viewing in bright sunlight or night conditions.
 - h. Raised surface buttons with positive tactile response.
- 12. Touch Pilot™ display:
Unit shall be supplied with a remote mount touch screen display for network attachment to the chiller.
- 13. Temperature Reset:
Shall include leaving chilled fluid temperature reset from space temperature (requires additional sensor) or 4 to 20 mA input (requires Energy Management Control Module).
- 14. Compressor Suction Service Valve:
Standard refrigerant discharge isolation and liquid valves enable service personnel to store the refrigerant charge in the cooler or condenser during servicing. This factory-installed option allows for further isolation of the compressor from the cooler vessel.

Guide specifications (cont)



15. Service Option:

The service option provides a remote service port for Navigator™ connection and a factory-installed convenience outlet that includes 4-amp GFI (Ground Fault Interrupt) receptacle with independent fuse protection. Convenience outlet is 115-v female receptacle. Service option not available with 380 v.

16. Remote Service Port:

Shall be factory or field-installed receptacle for Navigator device connection.

17. Wye-Delta Starter:

Unit shall have a factory-installed, wye-delta start to minimize electrical inrush current.

18. Control Transformer:

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

19. GFI Convenience Outlet:

Shall be factory or field-installed and mounted with easily accessible 115-v female receptacle. Shall include 4 amp GFI receptacle.

20. Plus-One-Pass Cooler:

Unit shall be equipped with plus-one-pass cooler heads to be used with low temperature brine options or high delta T application.

21. Minus-One-Pass Cooler:

Unit shall be equipped with minus-one-pass cooler heads with reduced water-side pressure

drop for series flow dual chiller control or high chilled water flow applications.

22. High Ambient Temperature:

Unit shall be equipped with high speed condenser fan motors to improve performance at high ambient temperatures.

23. Security Grilles:

Unit shall be provided with factory (or field) installed painted grilles to protect the condenser, cooler and compressor.

24. Hail Guards:

Unit shall be provided with factory (or field) installed hail guards for the protection of the condensing coils from hail damage.

25. Low Sound Package:

Unit shall be provided with sound attenuation package to include sheet metal enclosures with sound absorbing panels for each compressor.

26. Remote Cooler Kit:

Allows remote installation of the cooler.

27. Minimum Load Control:

Unit shall be equipped with microprocessor controlled minimum load control that shall permit unit operation below the minimum standard operation (varies by unit size).

