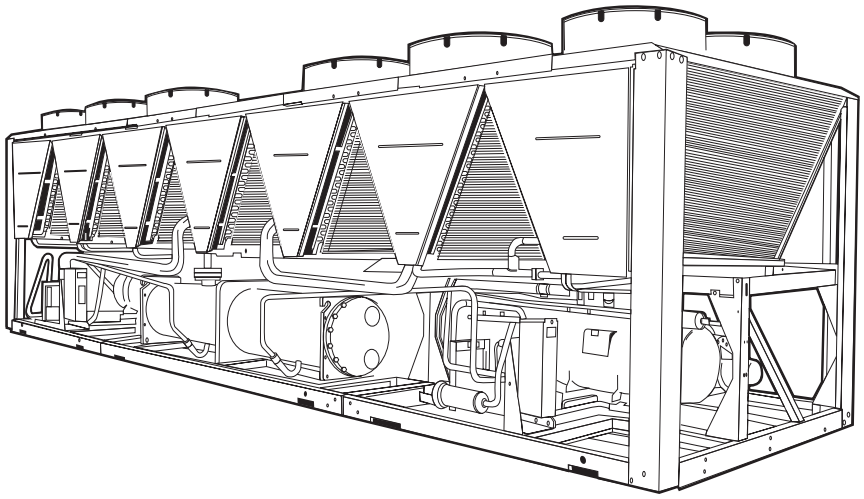
Product Data

AQUAFORCE™ 30XA080-500 Air-Cooled Liquid Chillers

80 to 500 Nominal Tons

AQUAFORCE™



ASHRAE 90.1 COMPLIANT

Well exceeds ASHRAE 90.1 Standards.

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
- Easy to use *Comfort*Link™ controls

Features/Benefits

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

Premium performance

The Aqua Series of 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 10.7 and IPLV (Integrated Part-Load Value) up to 15.1. 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 will deliver superior efficiency through all operating ranges to keep costs and demand charges down. This exceptional performance will have a significant impact on energy savings and cost of ownership.

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 neighborhoods. The AquaForce chiller's AeroAcoustic™ fan is almost twice as quiet as the competition's per cfm. During part load operation, when units operate with fewer fans, means even quieter operation in cooler weather and during nighttime 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, nontoxic, 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.

*Comfort*Link™ controls for ease of use

The *Comfort*Link controls communicate in plain English, making it as easy as possible to monitor and control each AquaForce chiller while accurately maintaining fluid temperatures. Carrier 30 Series chillers' *Comfort*Link 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.

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 the Carrier Comfort Network (CCN).

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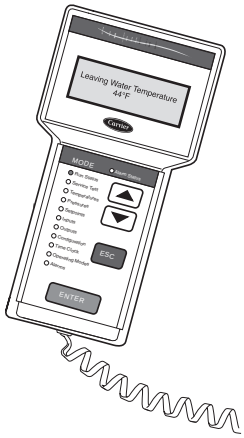
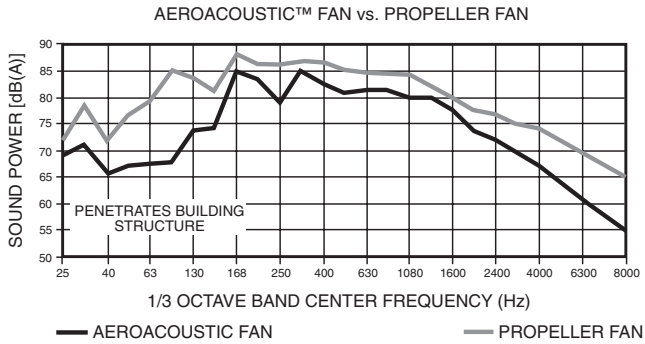
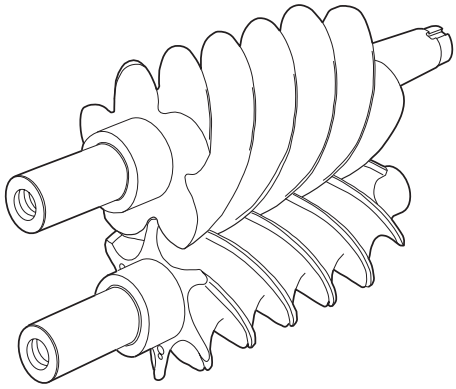
Features/Benefits (cont)



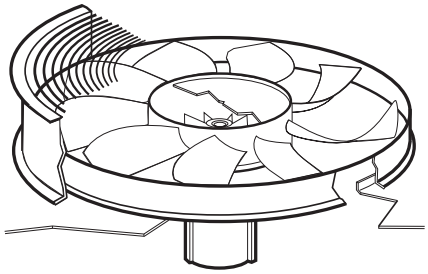
NAVIGATOR™ DISPLAY



AEROACOUSTIC FAN VS PROPELLER FAN



SMOOTH ROTARY COMPRESSOR TWIN-SCREW DESIGN



LOW-NOISE AEROACOUSTIC FAN

Model number nomenclature

AQUAFORCE™ CHILLER MODEL NUMBER DESIGNATION

30XA - 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/High Ambient 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

Not Used

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

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

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

Controls/Communication Options
- – None
0 – EMM
1 – Remote Service Ports, GFI-CO
2 – EMM, Remote Service Port, GFI-CO
7 – BACnet™ Translator
8 – BACnet Translator, EMM
9 – BACnet Translator, Remote Service Port, GFI-CO
B – BACnet Translator, EMM, Remote Service Port, GFI-CO
H – LON Translator
J – LON Translator, EMM
K – LON Translator, Remote Service Port, GFI-CO
L – LON Translator, EMM, Remote Service Port, GFI-CO

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

LEGEND

EMM — Energy Management Module
GFI-CO — Ground Fault Interrupting Convenience Outlet
LON — Local Operating Network
XL — Across-the-Line Starter

Quality Assurance

Certified to ISO 9001:2000

ARI* capacity ratings (English and SI)

30XA 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	75.4	265.3	83.7	9.9	2.8	14.2	4.0	180.4	11.4	11.4	34.1
090	84.4	297.0	84.6	10.7	3.0	14.5	4.1	201.9	12.7	10.6	31.7
100	94.3	331.7	97.7	10.5	3.0	14.8	4.2	225.5	14.2	13.2	39.5
110	102.4	360.3	108.3	10.4	2.9	15.1	4.3	244.9	15.5	12.5	37.4
120	110.7	389.5	119.1	10.3	2.9	15.1	4.3	264.8	16.7	12.6	37.7
140	132.9	467.4	135.6	10.7	3.1	14.3	4.1	317.8	20.0	13.9	41.6
160	152.6	536.9	160.0	10.6	3.0	14.4	4.1	365.1	23.0	14.6	43.7
180	171.3	602.5	176.3	10.7	3.0	14.3	4.1	409.6	25.8	13.1	39.2
200	194.0	682.4	201.4	10.7	3.1	14.8	4.2	463.9	29.3	13.9	41.6
220	211.6	744.1	222.3	10.6	3.0	14.3	4.1	505.9	31.9	14.1	42.2
240	228.2	802.7	247.0	10.4	3.0	14.8	4.2	545.8	34.4	14.5	43.4
260	251.0	882.8	261.9	10.7	3.0	14.3	4.1	600.3	37.9	14.4	43.1
280	268.6	944.6	280.1	10.7	3.0	14.4	4.1	642.2	40.5	14.3	42.8
300	287.5	1011.2	305.2	10.6	3.0	14.6	4.2	687.5	43.4	13.5	40.4
325	306.7	1078.6	323.3	10.6	3.0	14.3	4.1	733.4	46.3	13.7	41.0
350	324.3	1140.4	351.1	10.4	3.0	14.3	4.1	775.4	48.9	13.8	41.3
400	383.7	1349.5	423.0	10.2	2.9	14.7	4.2	917.6	57.9	10.7	32.0
450	426.2	1499.1	482.1	10.0	2.8	14.1	4.0	1019.3	64.3	10.7	32.0
500	457.0	1607.2	523.5	9.9	2.8	14.2	4.1	1092.8	68.9	11.5	34.4

LEGEND

COP — Coefficient of Performance
EER — Energy Efficiency Ratio
IPLV — Integrated Part Load Value

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

NOTES:

1. Rated in accordance with ARI Standard 550/590-98 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 m^2 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.

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	8,704	8,931	9,071	9,216	11,505	11,748	13,590	13,712	14,727
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/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws									
Quantity	2	2	2	2	2	2	2	2	2	2
Speed (rpm)	3500									
(Qty) Compressor Nominal Capacity (tons) Ckt A	(1) 45*	(1) 45	(1) 50	(1) 60	(1) 60	(1) 90	(1) 100	(1) 90	(1) 100	(1) 120
(Qty) Compressor Nominal Capacity (tons) Ckt B	(1) 45*	(1) 45	(1) 50	(1) 50	(1) 60	(1) 50	(1) 60	(1) 90	(1) 100	(1) 100
(Qty) Compressor Nominal Capacity (tons) 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 (psig)	300	300	300	300	300	300	300	300	300	300
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
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	23,953	25,975	26,269
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
COMPRESSORS	Semi-Hermetic Twin Rotary Screws								
Quantity	2	2	2	2	2	2	3	3	3
Speed (rpm)	3500								
(Qty) Compressor Nominal Capacity (tons) Ckt A	(1) 120	(1) 165	(1) 165	(1) 185	(1) 165	(1) 185	(1) 120	(1) 90	(1) 120
(Qty) Compressor Nominal Capacity (tons) Ckt B	(1) 120	(1) 100	(1) 120	(1) 120	(1) 165	(1) 165	(1) 120	(1) 185	(1) 185
(Qty) Compressor Nominal Capacity (tons) Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	(1) 165	(1) 185	(1) 185
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	10	13	12	15	14	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 (psig)	300	300	300	300	300	300	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
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	186,000	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
CHASSIS DIMENSIONS (ft-in.)									
Length	27-6	31-5			35-4		39-3	43-2	
Width	7-4 3/4								
Height	7-6 7/16								

LEGEND

Cu — Copper
Al — Aluminum
N/A — Not Applicable

*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	3,445	3,906	4,009	4,068	4,129	5,159	5,263	6,087	6,135	6,587
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/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws									
Quantity	2	2	2	2	2	2	2	2	2	2
Speed (r/s)	58.3									
(Qty) Compressor Nominal Capacity (tons) Ckt A	(1) 45*	(1) 45	(1) 50	(1) 60	(1) 60	(1) 90	(1) 100	(1) 90	(1) 100	(1) 120
(Qty) Compressor Nominal Capacity (tons) Ckt B	(1) 45*	(1) 45	(1) 50	(1) 50	(1) 60	(1) 50	(1) 60	(1) 90	(1) 100	(1) 100
(Qty) Compressor Nominal Capacity (tons) 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 (%)										
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 (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 (kPa)	2068	2068	2068	2068	2068	2068	2068	2068	2068	2068
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
CHASSIS DIMENSIONS (mm.)										
Length	3606	4800				5994		7188		8382
Width	2255									
Height	2296.9									

UNIT 30XA	240	260	280	300	325	350	400	450	500
OPERATING WEIGHT (kg)									
Al/Cu Condenser Coils	6,653	7,536	7,606	7,748	8,409	8,495	10,983	11,873	11,991
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
COMPRESSORS	Semi-Hermetic Twin Rotary Screws								
Quantity	2	2	2	2	2	2	3	3	3
Speed (r/s)	3500								
(Qty) Compressor Nominal Capacity (tons) Ckt A	(1) 120	(1) 165	(1) 165	(1) 185	(1) 165	(1) 185	(1) 120	(1) 90	(1) 120
(Qty) Compressor Nominal Capacity (tons) Ckt B	(1) 120	(1) 100	(1) 120	(1) 120	(1) 165	(1) 165	(1) 120	(1) 185	(1) 185
(Qty) Compressor Nominal Capacity (tons) Ckt C	N/A	N/A	N/A	N/A	N/A	N/A	(1) 165	(1) 185	(1) 185
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/—	28.4/28.4/—	28.4/28.4/—	25.6/25.6/28.4	28.4/23.7/28.4	28.4/25.6/28.4
Minimum Capacity Step (%)									
Standard	15	10	13	12	15	14	9	6	7
Optional	10	8	9	7	10	10	6	4	5
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 (kPa)	2068	2068	2068	2068	2068	2068	1034	1034	1034
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 (in.)	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
CHASSIS DIMENSIONS (mm.)									
Length	8382	9576			10770		11964	13158	
Width	2255								
Height	2300								

LEGEND

Cu — Copper
Al — Aluminum
N/A — Not Applicable

*30XA080 unit does not have an economizer.
†The high ambient temperature option is not available on 30XA080-120 units.

Physical data (cont)

UNIT WEIGHTS — STANDARD UNITS

UNIT WEIGHTS — ENGLISH

30XA UNIT SIZE	MOUNTING WEIGHT (lb)				
	A	B	C	D	Total
080	2023	1759	1773	2039	7594

30XA UNIT SIZE	MOUNTING WEIGHT (lb)						
	A	B	C	D	E	F	Total
090	1243	2145	822	1023	2115	1262	8611
100	1269	2202	853	1054	2171	1288	8837
110	1279	2237	872	1079	2208	1293	8968
120	1309	2270	875	1082	2240	1327	9102

30XA UNIT SIZE	MOUNTING WEIGHT (lb)								
	A	B	C	D	E	F	G	H	Total
140	1944	1513	938	1254	1291	957	1684	1792	11,373
160	1992	1536	953	1281	1321	974	1703	1843	11,603

30XA UNIT SIZE	MOUNTING WEIGHT (lb)										
	A	B	C	D	E	F	G	H	I	J	Total
180	974	1530	1179	1955	1261	1298	2006	900	1356	961	13,420
200	979	1543	1198	1973	1267	1308	2017	907	1367	967	13,525

30XA UNIT SIZE	MOUNTING WEIGHT (lb)												
	A	B	C	D	E	F	G	H	I	J	K	L	Total
220	883	1266	1609	1528	898	1286	1329	918	1449	1147	1307	902	14,522
240	900	1288	1629	1546	901	1289	1332	921	1457	1155	1331	920	14,668
260	566	1563	1655	808	2496	1084	1599	2495	865	1393	1526	566	16,615
280	569	1584	1685	816	2522	1087	1601	2505	868	1418	1547	569	16,769
300	579	1607	1707	832	2590	1104	1633	2575	880	1430	1567	579	17,082

30XA UNIT SIZE	MOUNTING WEIGHT (lb)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
325	856	856	1043	1549	828	2560	1143	1639	2453	873	1708	1320	856	856	18,539
350	860	860	1047	1561	836	2606	1153	1666	2504	877	1713	1323	860	860	18,727

30XA UNIT SIZE	MOUNTING WEIGHT (lb)																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	924	1311	1521	3014	1329	837	2281	1148	1643	2418	817	1341	2280	1052	1354	945	24,214
450	933	1256	2168	2281	982	1134	2097	2178	2858	2067	1629	1343	1528	1475	1293	953	26,175
500	921	1314	2205	2321	987	1139	2107	2188	2868	2077	1633	1348	1543	1489	1357	941	26,436

NOTE: Condenser Coil: Aluminum Fins/Copper Tubing.

UNIT WEIGHTS — SI

30XA UNIT SIZE	MOUNTING WEIGHTS (kg)				
	A	B	C	D	Total
080	918	798	804	925	3445

30XA UNIT SIZE	MOUNTING WEIGHT (kg)						
	A	B	C	D	E	F	Total
090	564	973	373	464	959	572	3906
100	576	999	387	478	985	584	4009
110	580	1015	395	489	1001	587	4068
120	594	1030	397	491	1016	602	4129

30XA UNIT SIZE	MOUNTING WEIGHT (kg)								
	A	B	C	D	E	F	G	H	Total
140	882	686	425	569	585	434	764	813	5159
160	904	697	432	581	599	442	772	836	5263

30XA UNIT SIZE	MOUNTING WEIGHT (kg)										
	A	B	C	D	E	F	G	H	I	J	Total
180	442	694	535	887	572	589	910	408	615	436	6087
200	444	700	543	895	575	593	915	411	620	438	6135

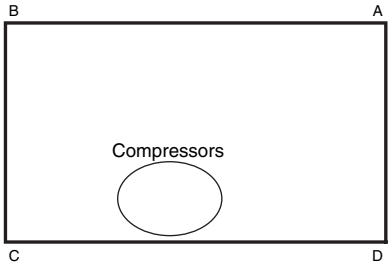
30XA UNIT SIZE	MOUNTING WEIGHT (kg)												
	A	B	C	D	E	F	G	H	I	J	K	L	Total
220	401	574	730	693	407	583	603	416	657	520	593	409	6587
240	408	584	739	701	409	585	604	418	661	524	604	417	6653
260	257	709	751	367	1132	492	725	1132	392	632	692	257	7536
280	258	719	764	370	1144	493	726	1136	394	643	702	258	7607
300	262	729	774	377	1175	501	741	1168	399	649	711	262	7748

30XA UNIT SIZE	MOUNTING WEIGHT (kg)														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	Total
325	388	388	473	703	375	1161	518	744	1113	396	775	599	388	388	8409
350	390	390	475	708	379	1182	523	756	1136	398	777	600	390	390	8495

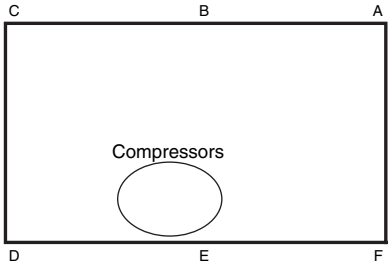
30XA UNIT SIZE	MOUNTING WEIGHT (kg)																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
400	419	595	690	1367	603	380	1035	521	745	1097	370	608	1034	477	614	428	10983
450	423	570	983	1035	446	514	951	988	1297	938	739	609	693	669	586	432	11873
500	418	596	1000	1053	448	516	956	992	1301	942	741	611	700	675	616	427	11991

NOTE: Condenser Coil: Aluminum Fins/Copper Tubing.

30XA080



30XA090-120



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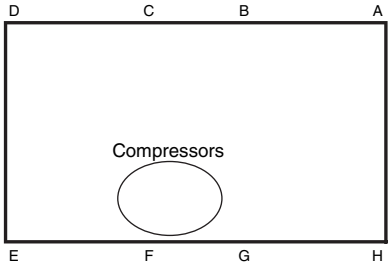

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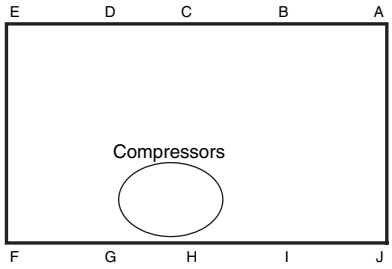

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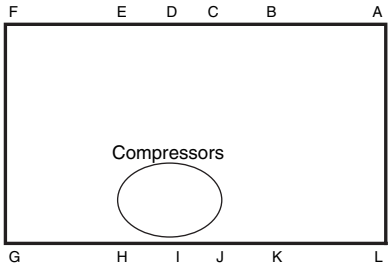
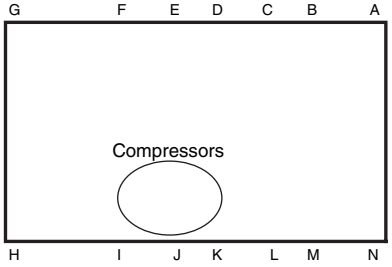
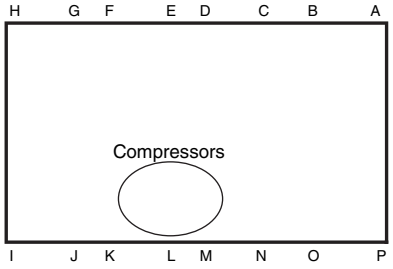


30XA325-350



30XA400-450



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	
High Ambient Temperature Option	X	
Controls/Communication Options		
BACnet™ Translator Control	X	X
Chillervisor System Manager III Multi-Unit Control		X
DataLINK™ Control		X
DataPort™ Control		X
Energy Management Module	X	X
Convenience Outlet	X	X
LON Translator Control	X	X
Remote Enhanced Display		X
Remote Service Port	X	X
Cooler Options		
Medium Temperature Brine	X	
Minus One Pass Cooler	X	
Plus One Pass Cooler	X	
Electrical Options		
Unit-Mounted Main Disconnect, Non-Fused	X	
Control Transformer	X	X
Refrigeration Circuit Options		
Wye-Delta Compressor Start	X	
Low Ambient Temperature Head Pressure Control	X	X
Suction Service Valve	X	
Security/Packaging Option		
Condenser Coil Trim Panels	X	X

LEGEND

LON — Local Operating Network

Factory-installed options

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 11 or the Environmental Corrosion Protection white paper for more information.

High ambient temperature option provides high-speed condenser fan motors to increase the condenser airflow. 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.

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 reset 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, and discrete input for "Ice Done" indication for ice storage system interface.

Service option provides a remote service port for Navigator™ display connection 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. The control transformer is also available as a field-installed accessory.

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.

Field-installed accessories

Control transformer is sized to supply the needs of the control circuit from the main power supply. The control transformer is also available as a factory-installed option.

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

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 reset 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.

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

DataPort™ control is an interface device that allows a non-Carrier control device to *read* values in the system elements connected to the Carrier Comfort Network (CCN) Communication Bus using ASCII over a RS-232 connection. This accessory is externally remote mounted with its own power supply.

DataLINK™ control is an interface device that allows a non-Carrier controller to *read and write* values in the system elements connected to the CCN Communication Bus using ASCII over a RS-232 connection.

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.

CONDENSER COIL CORROSION PROTECTION OPTIONS

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

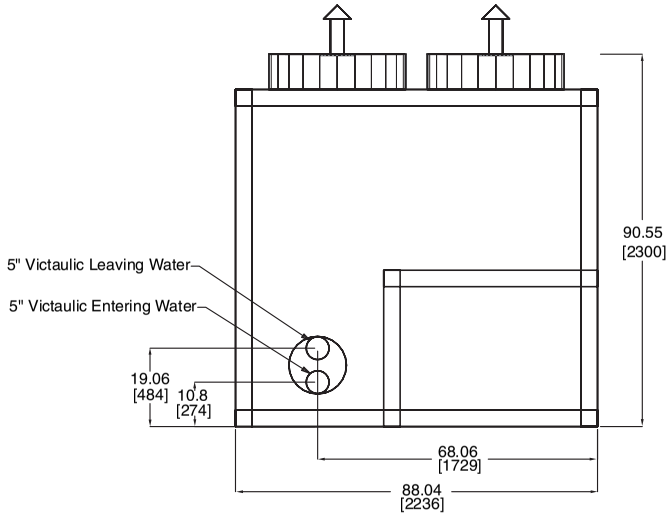
LEGEND

AL — Aluminum

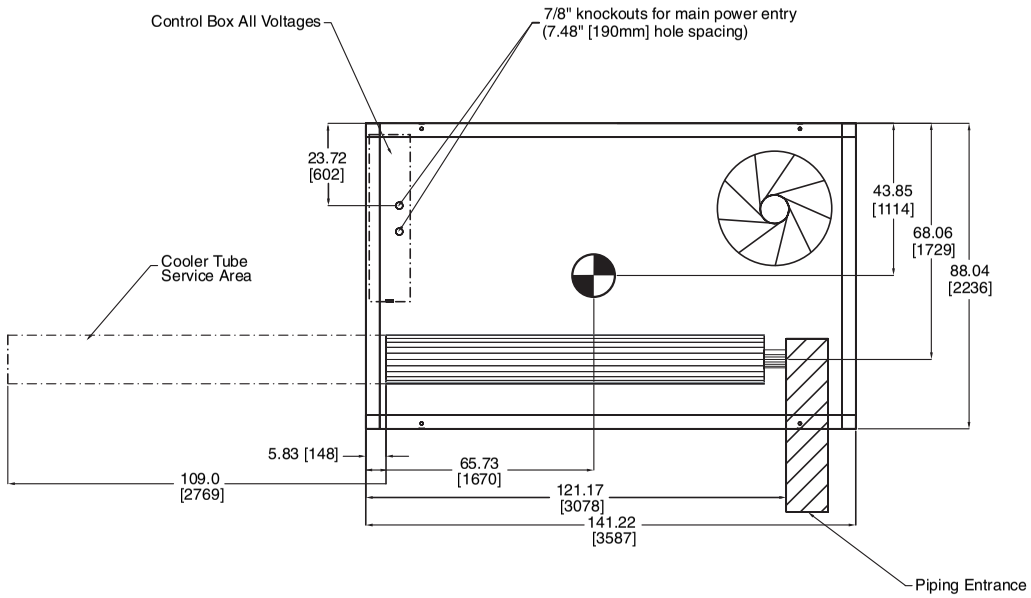
*See selection guide "Environmental Corrosion Protection" for more information (Publication 811-20062).

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 single-point power 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.

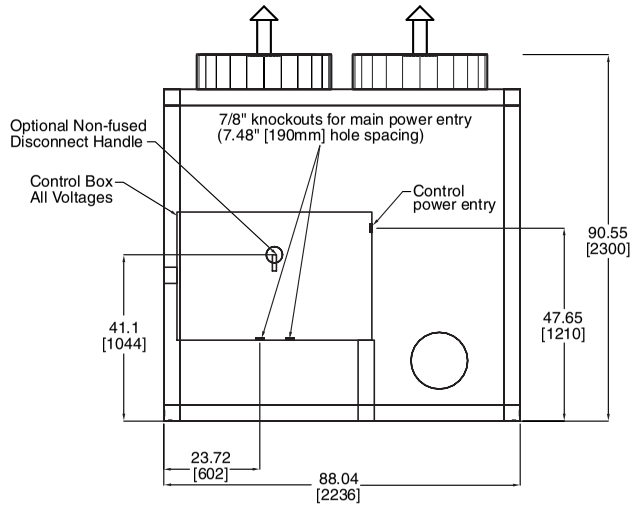


END VIEW

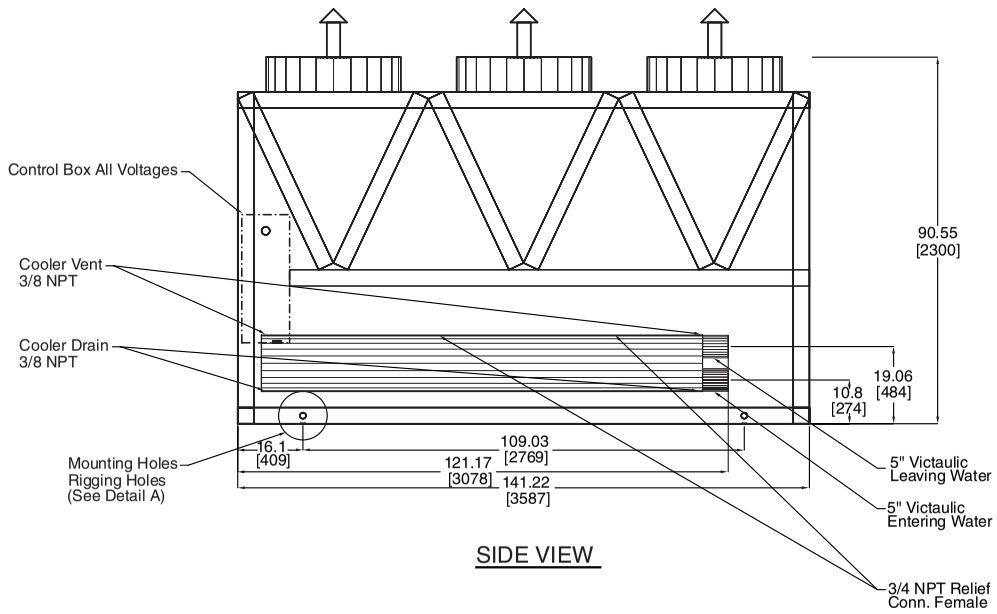


TOP VIEW

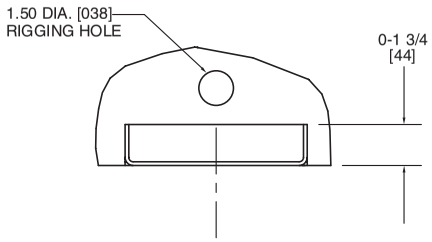
30XA080 (cont)

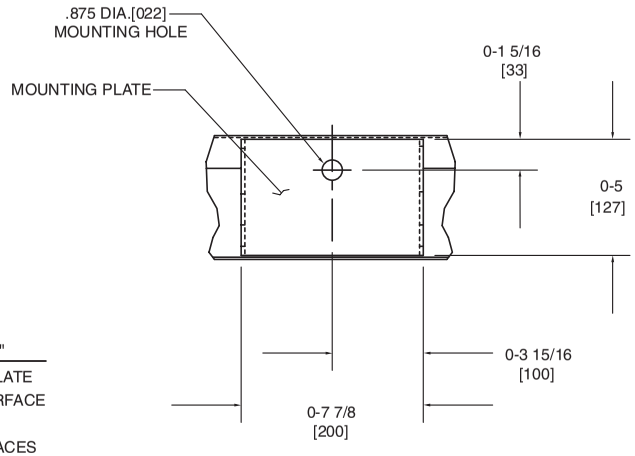


LEFT END VIEW



SIDE VIEW



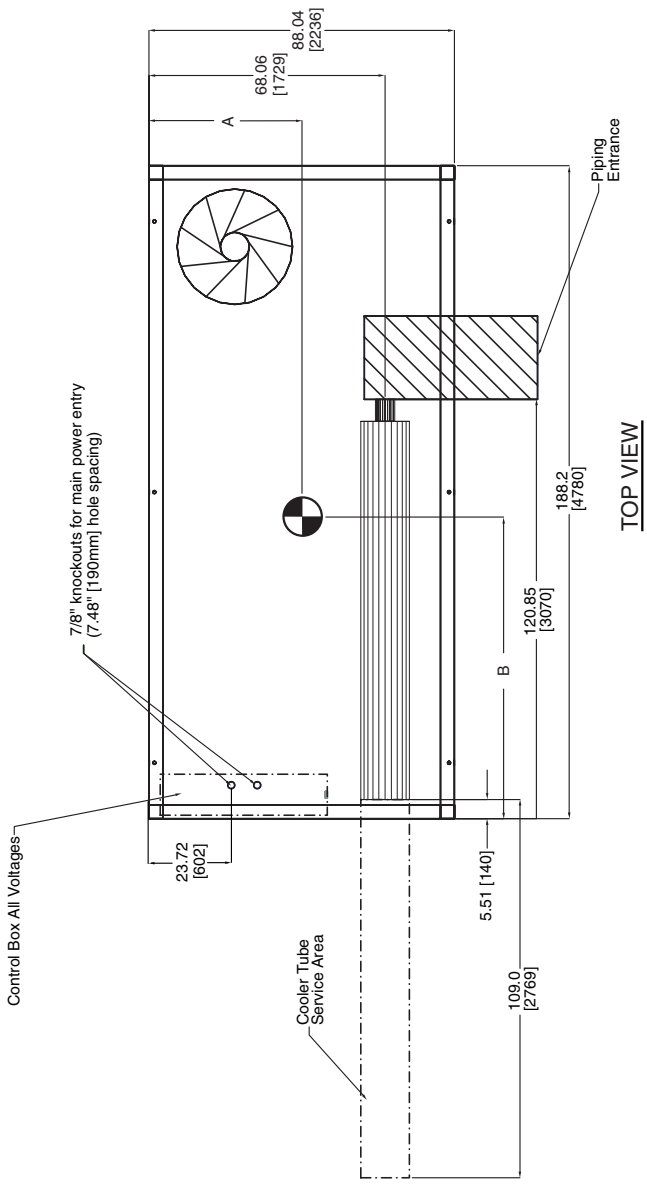


DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

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 single-point power 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.

Dimensions (cont)

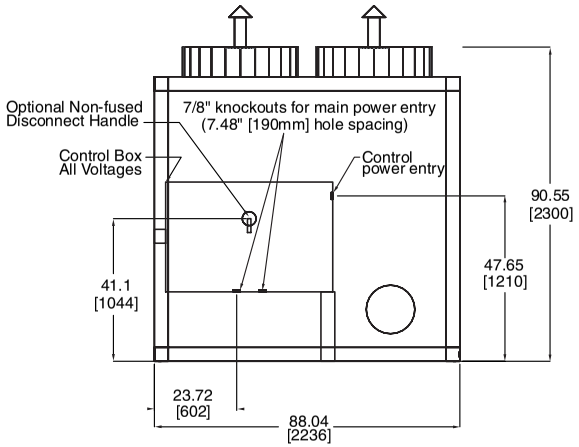
30XA090-120



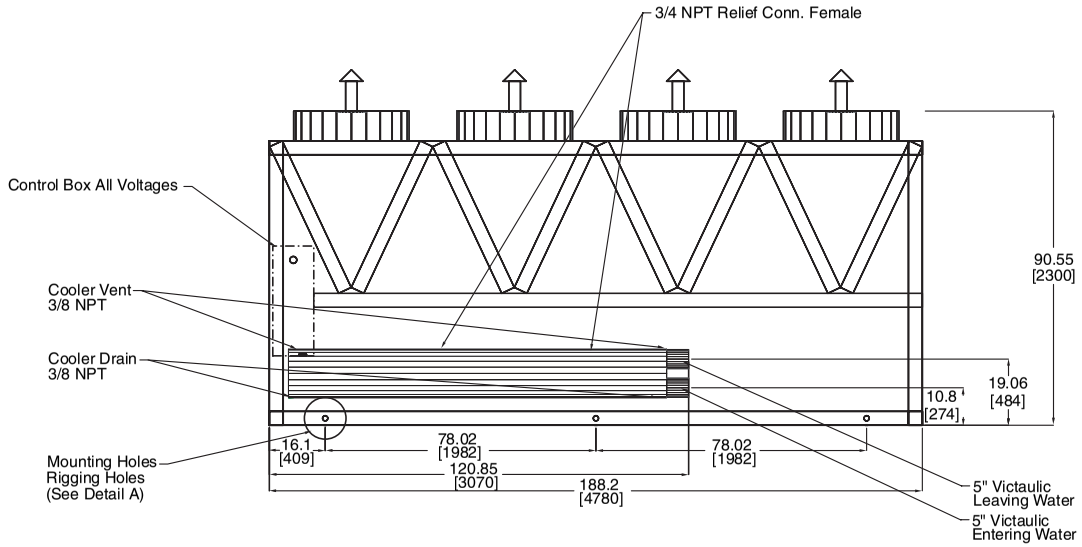
30XA UNIT	A	B
090	44.11 (1120)	86.93 (2208)
100	44.11 (1120)	87.22 (2215)
110	44.11 (1120)	87.62 (2226)
120	44.11 (1120)	87.12 (2213)

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 single-point power 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.

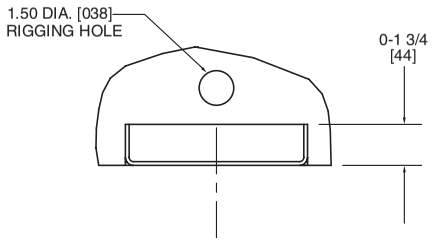
30XA090-120 (cont)

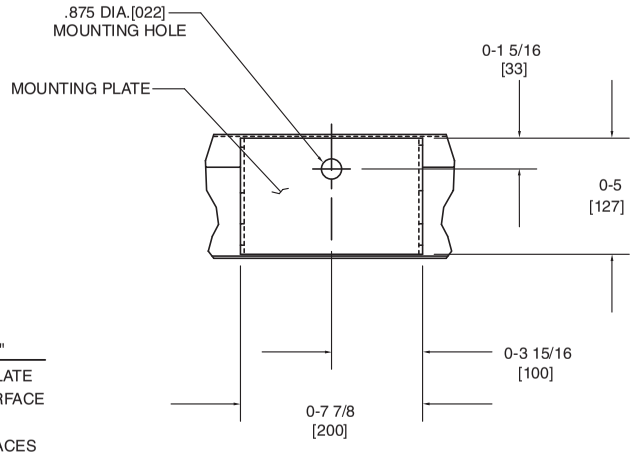


LEFT END VIEW



SIDE VIEW





DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

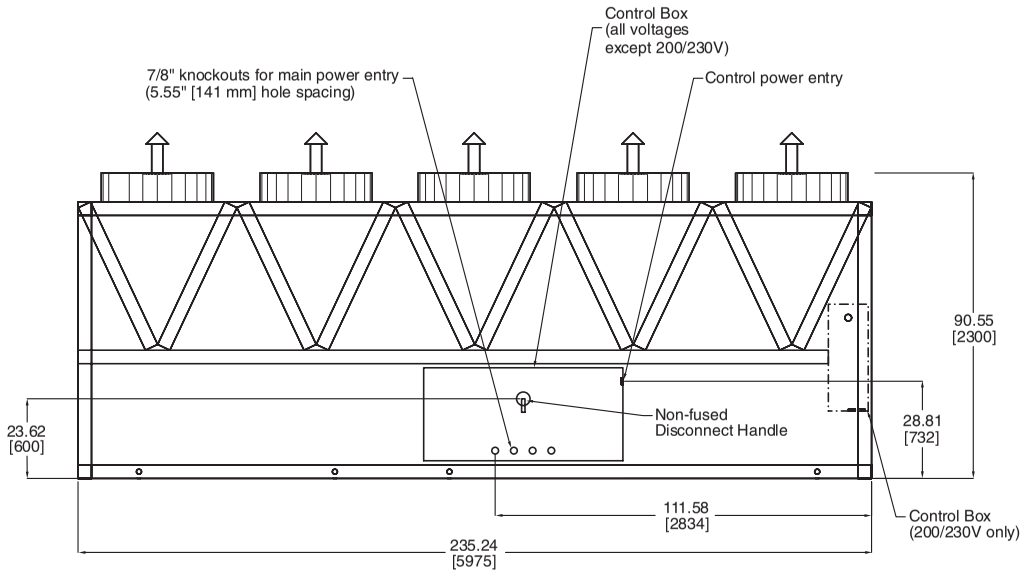
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have $^{1}/_{4}$-in. flare connection.
3. $^{3}/_{8}$-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with single-point power 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
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)

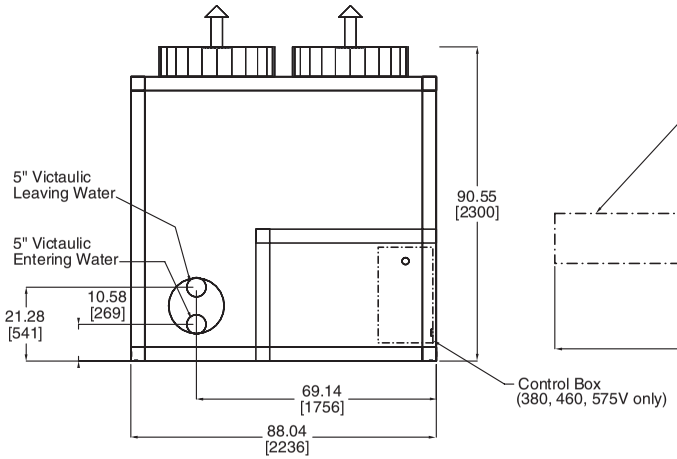
30XA140,160

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 single-point power 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.

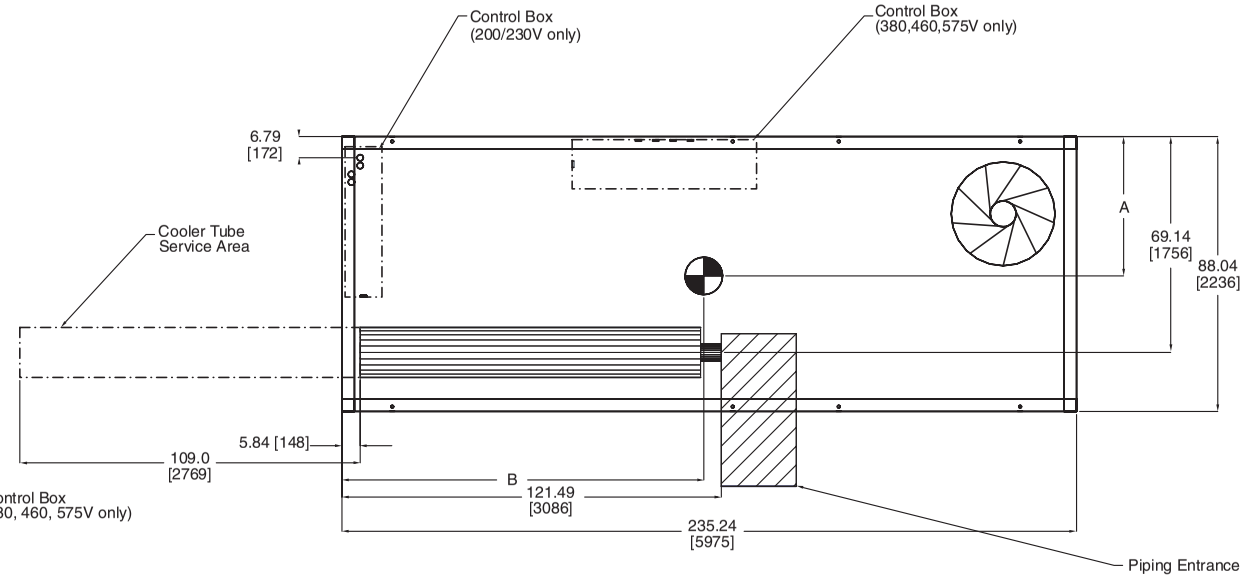
30XA UNIT	A	B
140	44.63 (1134)	115.88 (2943)
160	44.61 (1133)	115.64 (2937)



BACK VIEW

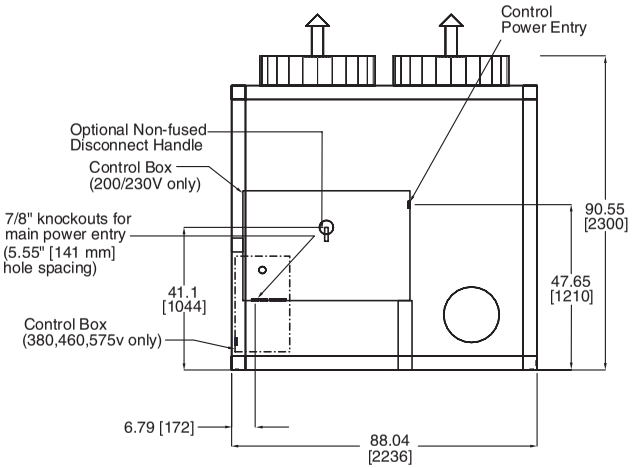


END VIEW

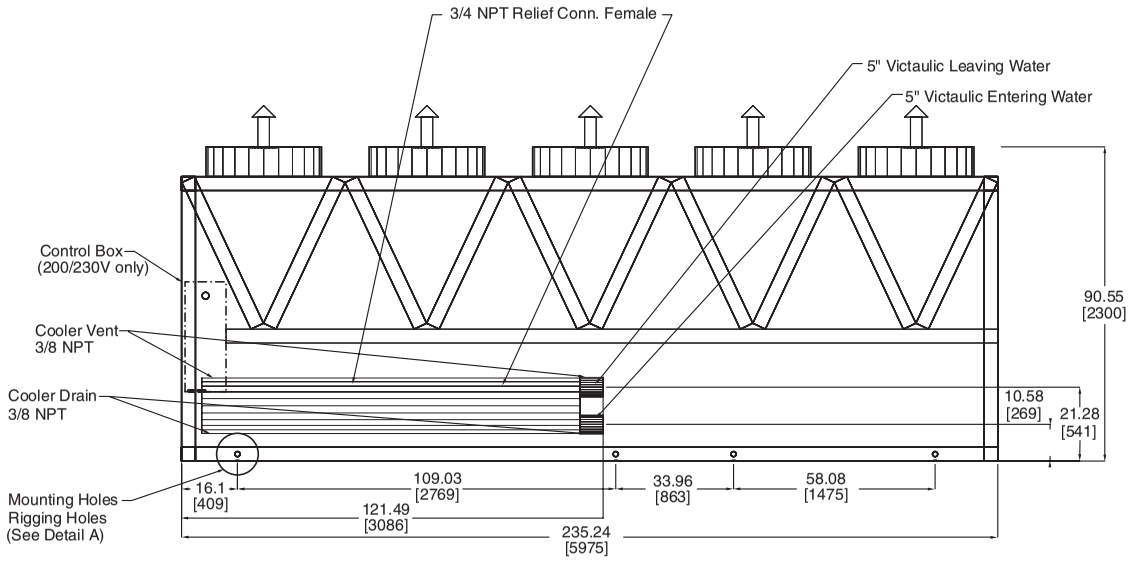


TOP VIEW

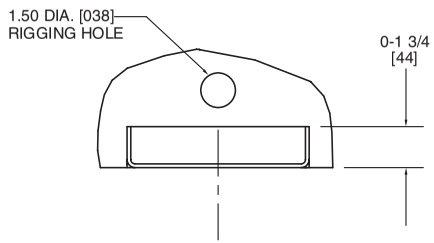
30XA140,160 (cont)

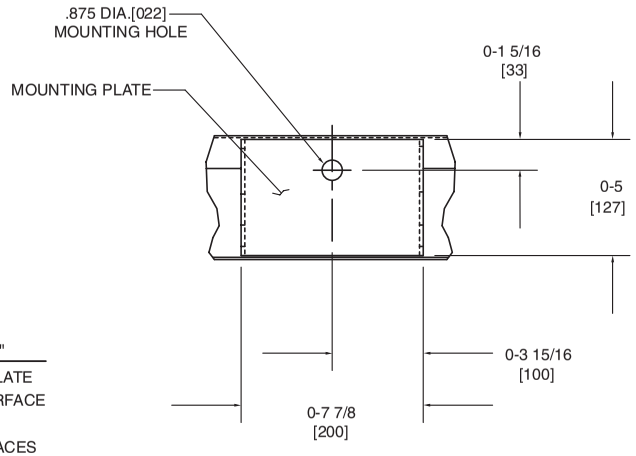


LEFT END VIEW



SIDE VIEW



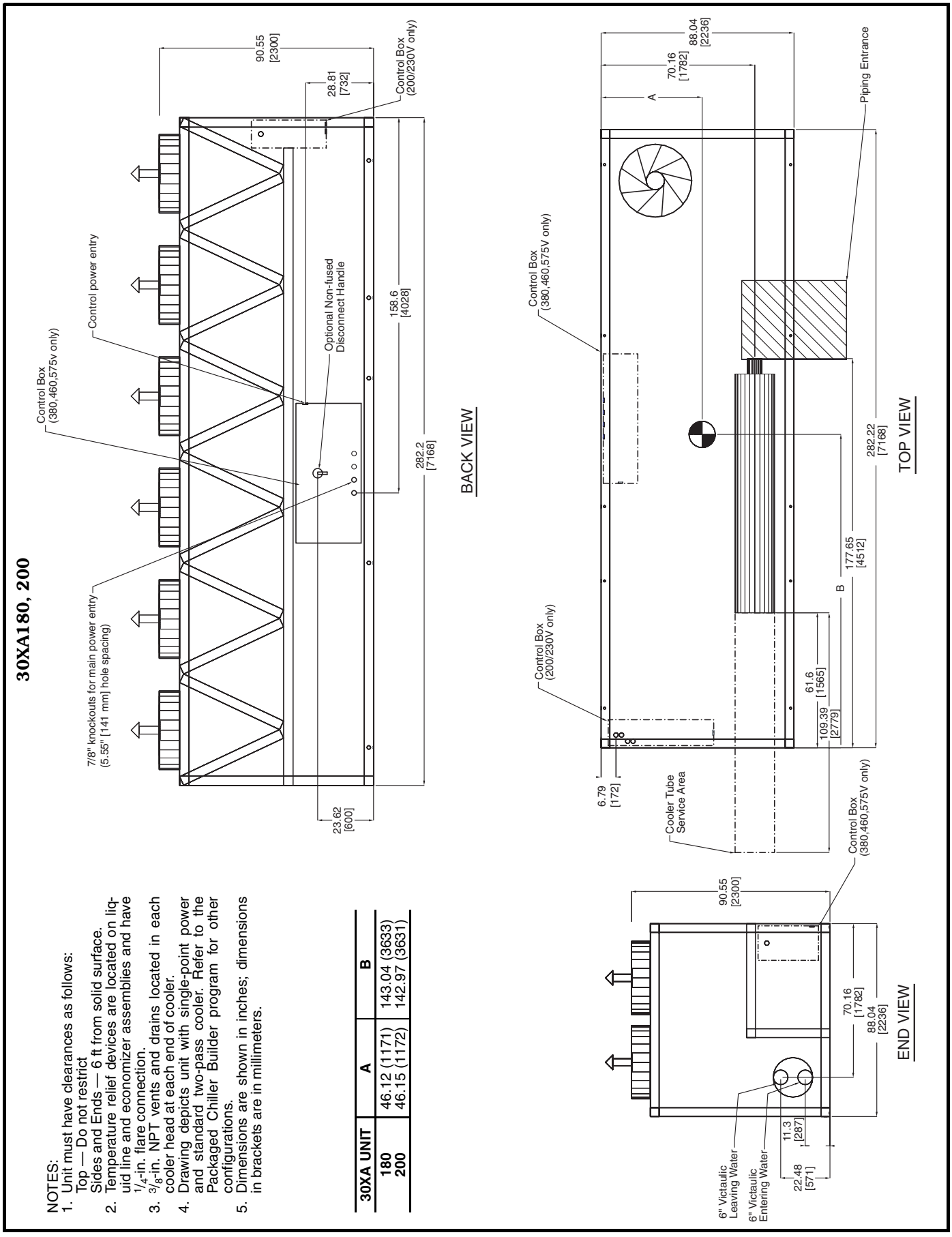


DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

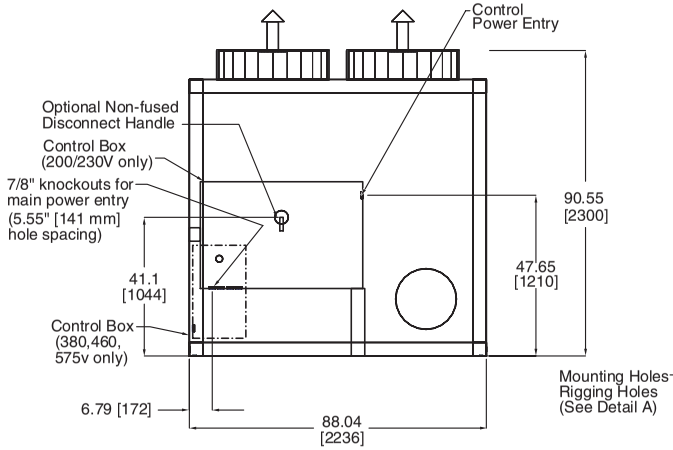
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have $^1/_4$-in. flare connection.
3. $^3/_8$-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with single-point power 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)

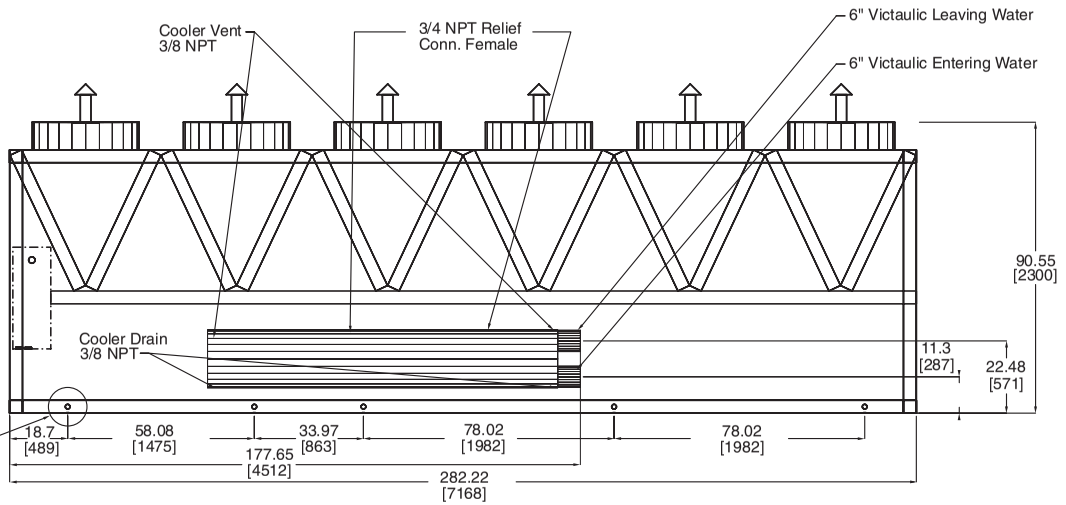
Dimensions (cont)



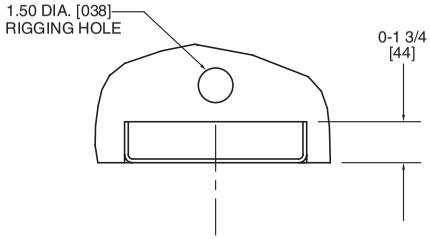
30XA180, 200 (cont)

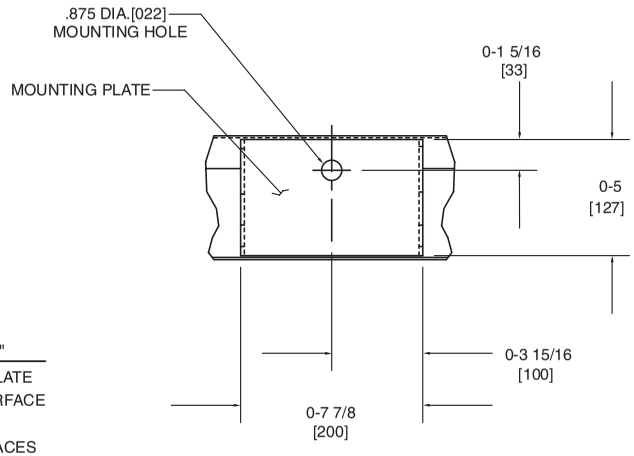


LEFT END VIEW



SIDE VIEW



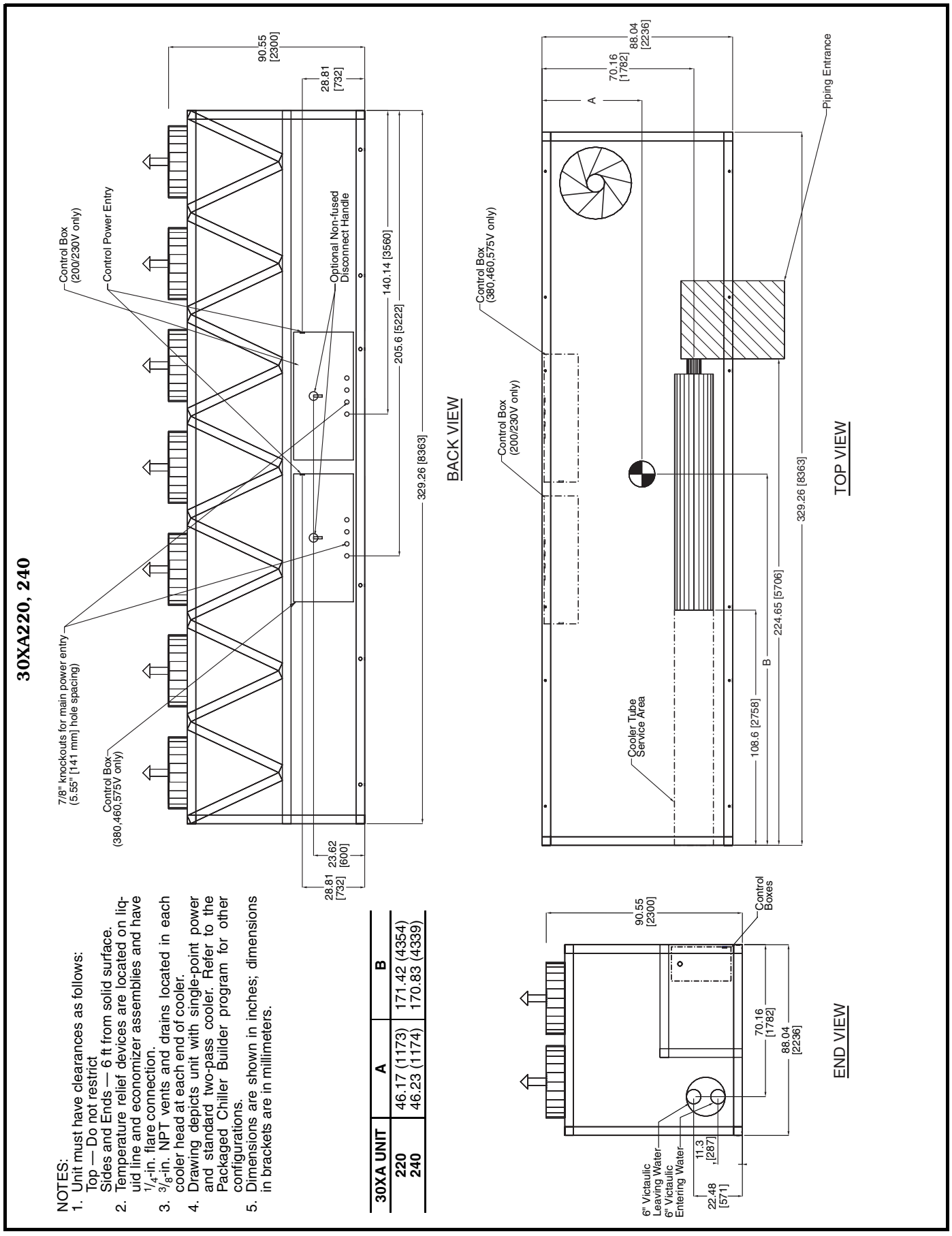


DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

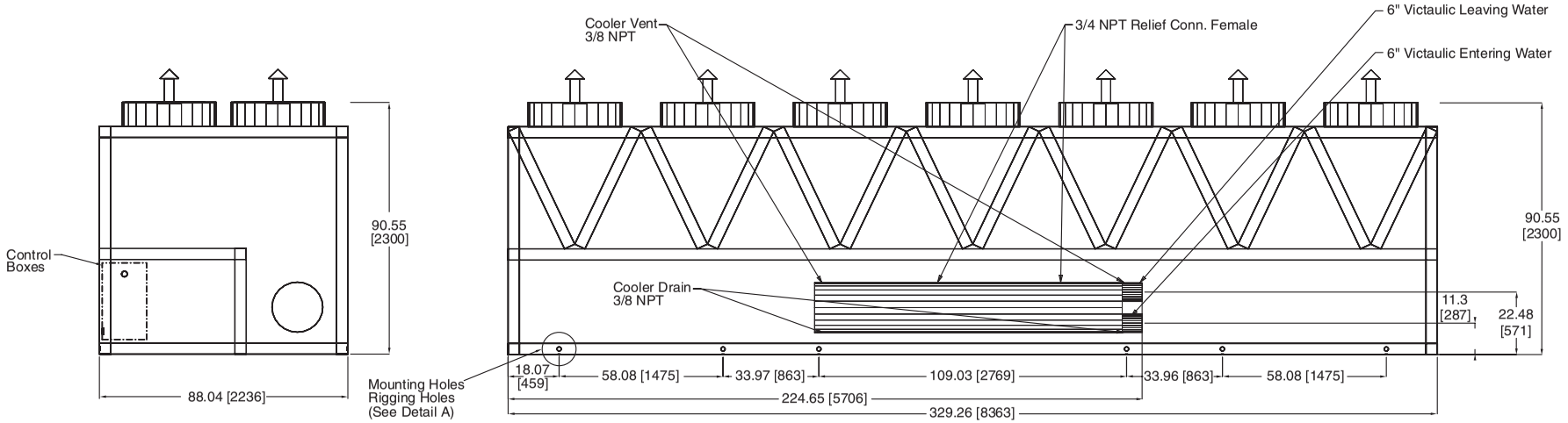
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have $^{1}/_{4}$-in. flare connection.
3. $^{3}/_{8}$-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with single-point power 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)

Dimensions (cont)

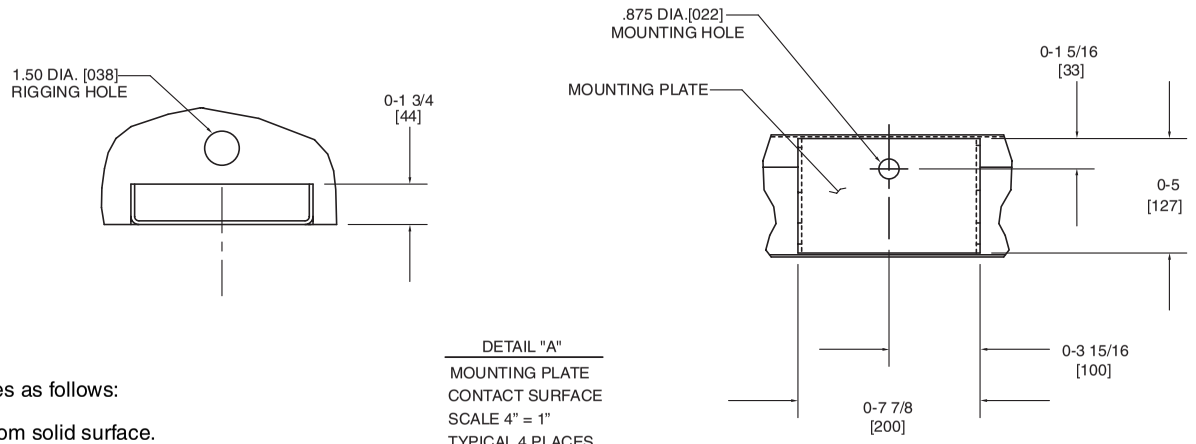


30XA220, 240 (cont)



LEFT END VIEW

SIDE VIEW



DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

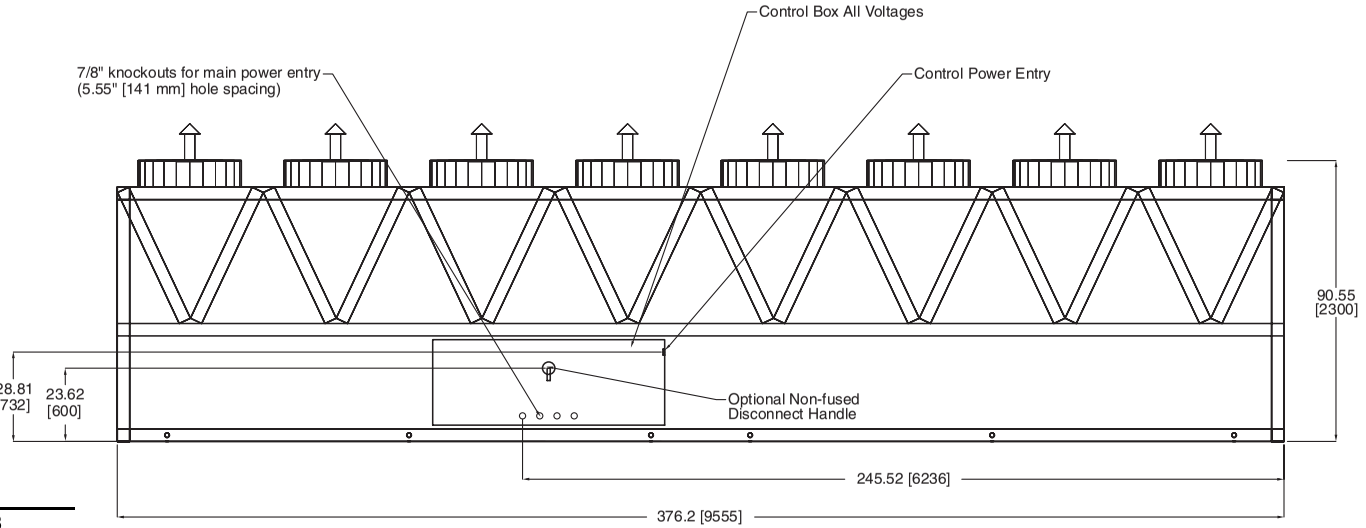
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have $^{1}/_{4}$-in. flare connection.
3. $^{3}/_{8}$-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with single-point power 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)

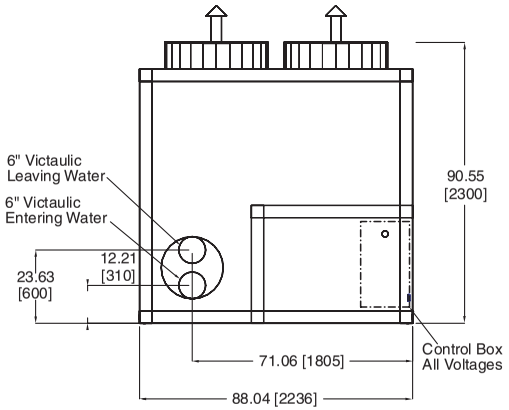
30XA260-300

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 single-point power 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.

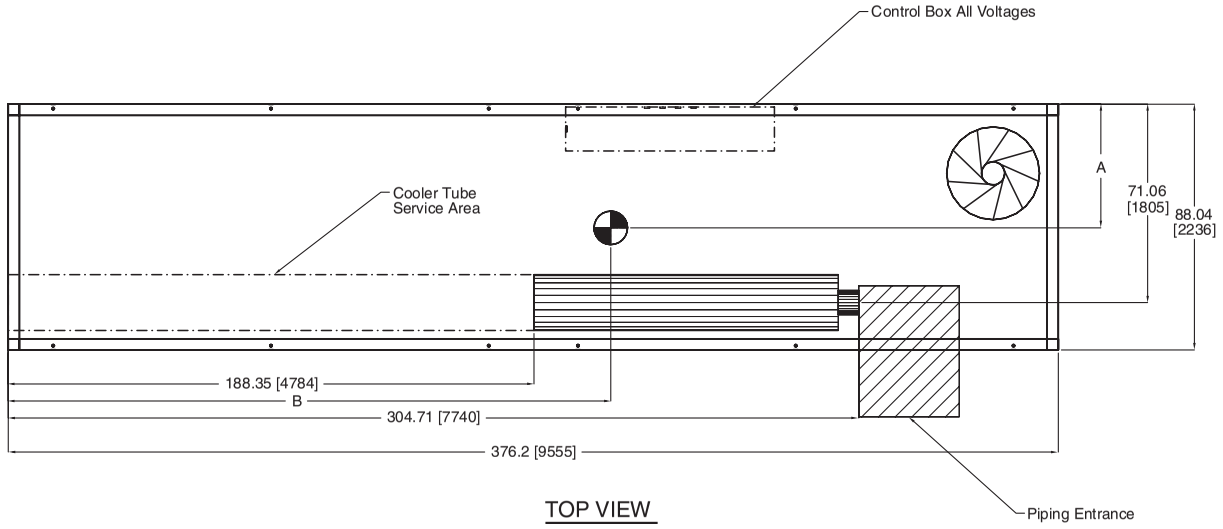
30XA UNIT	A	B
260	44.22 (1123)	216.16 (5490)
280	44.30 (1125)	215.86 (5483)
300	44.32 (1126)	216.18 (5491)



BACK VIEW

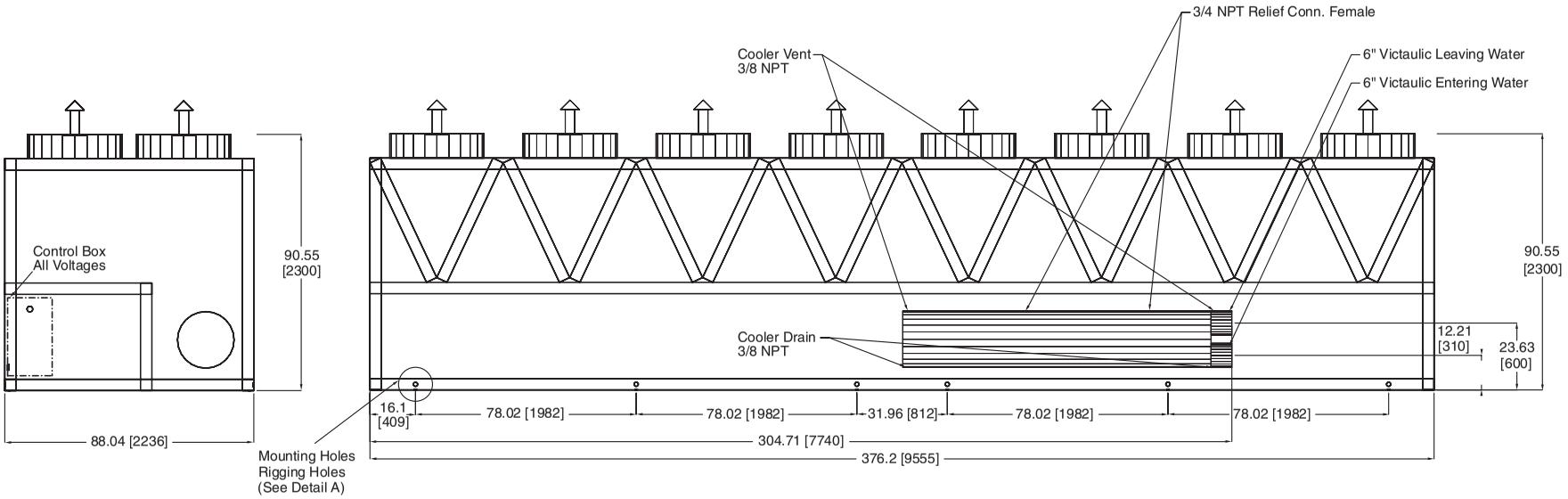


END VIEW

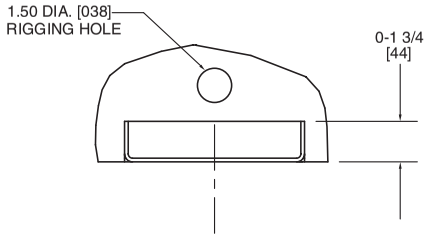


TOP VIEW

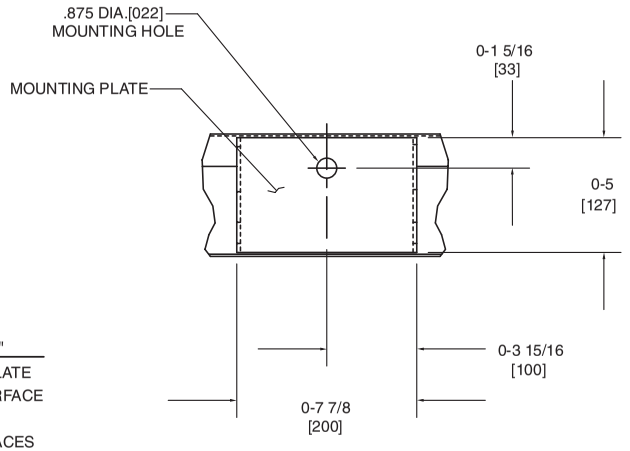
30XA260-300 (cont)



LEFT END VIEW



SIDE VIEW



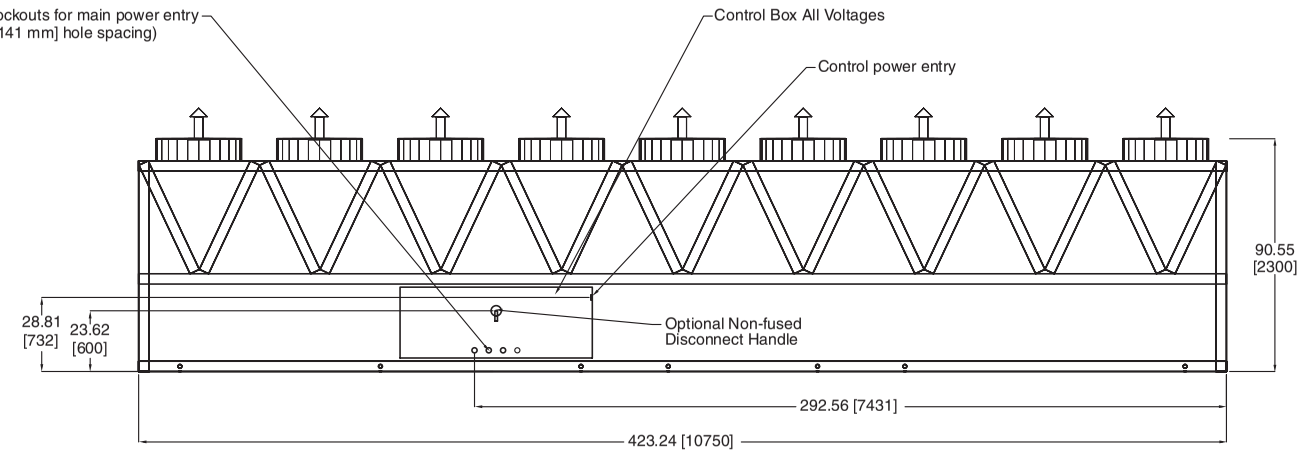
DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

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 single-point power 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
260	44.22 (1123)	216.16 (5490)
280	44.30 (1125)	215.86 (5483)
300	44.32 (1126)	216.18 (5491)

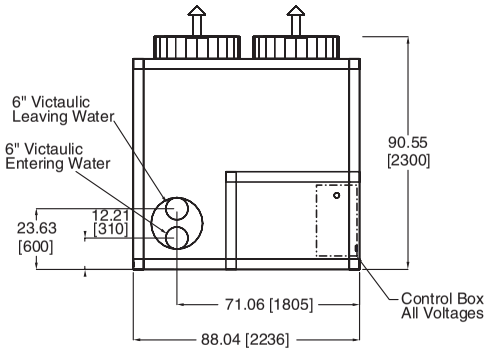
30XA325,350

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 single-point power 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.

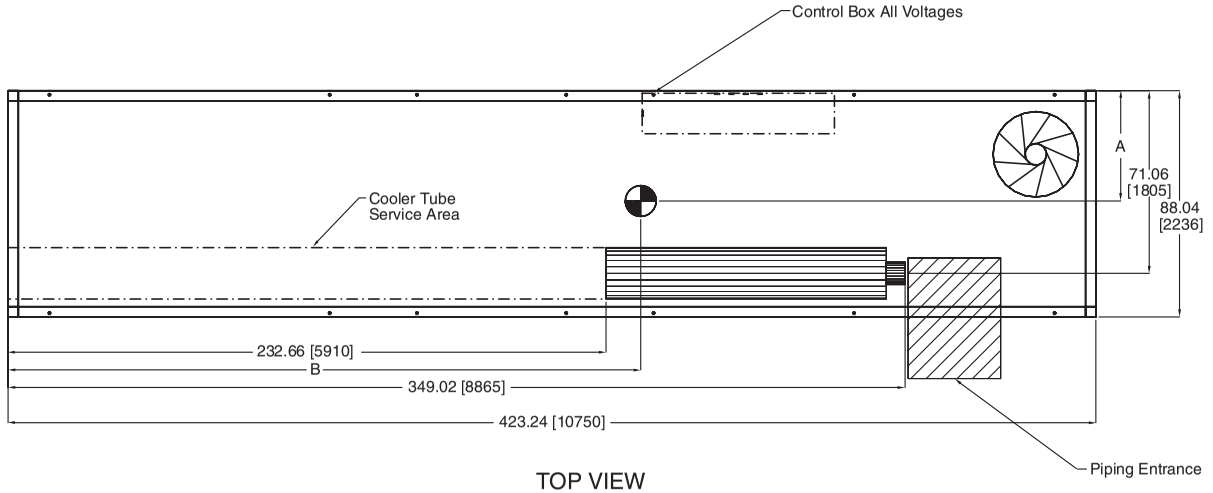


BACK VIEW

30XA UNIT	A	B
325	42.92 (1090)	246.16 (6252)
350	42.92 (1090)	246.72 (6267)

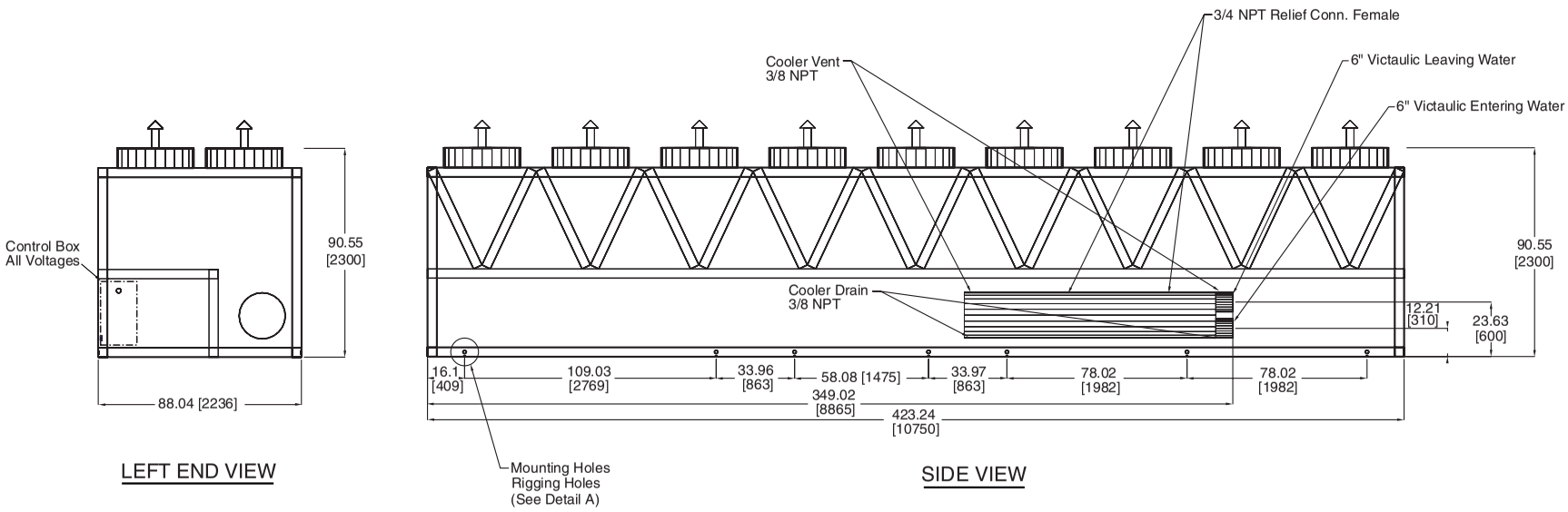


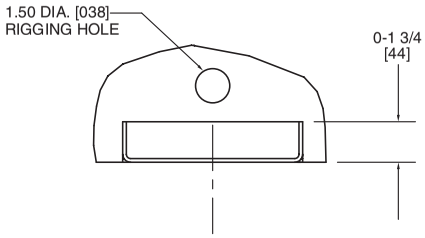
END VIEW

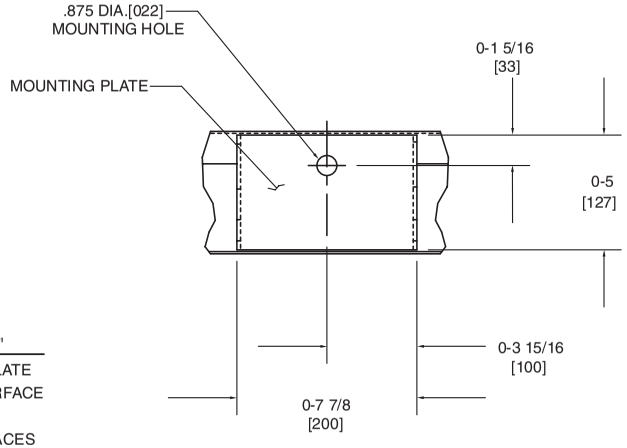


TOP VIEW

30XA325,350 (cont)







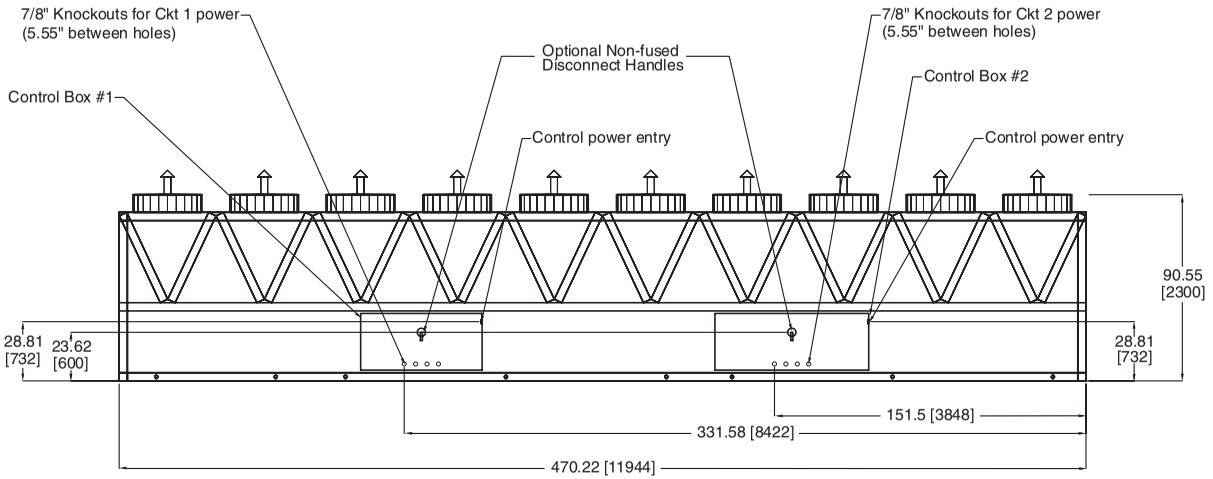
DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

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 single-point power 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.

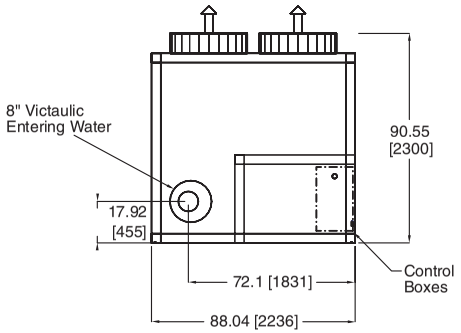
30XA UNIT	A	B
325	42.92 (1090)	246.16 (6252)
350	42.92 (1090)	246.72 (6267)

30XA400

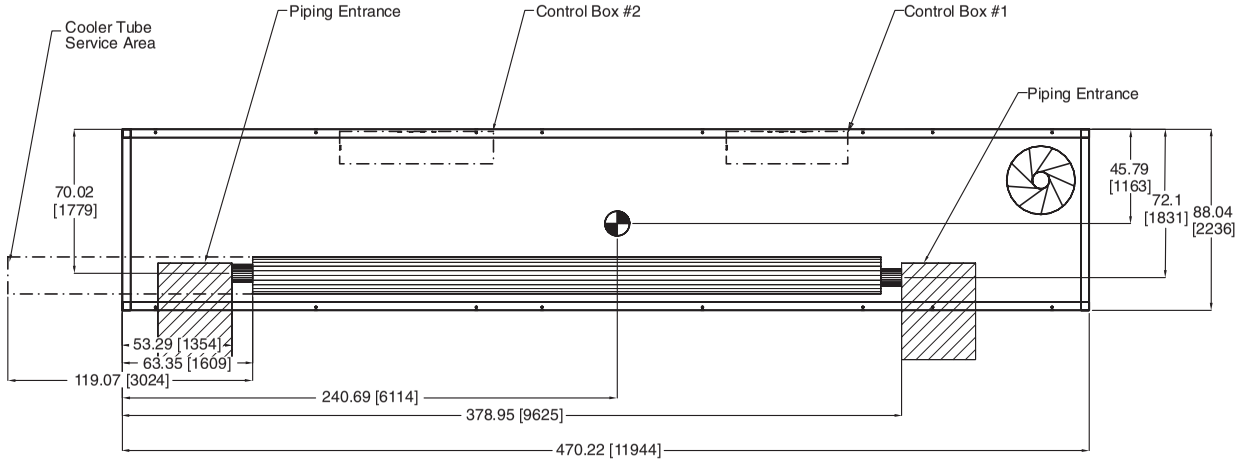
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have 1/4-in. flare connection.
3. 3/8-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with dual-point power 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.



BACK VIEW



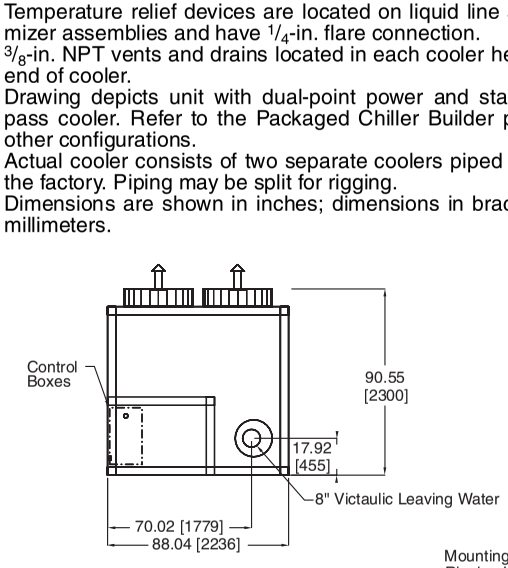
END VIEW



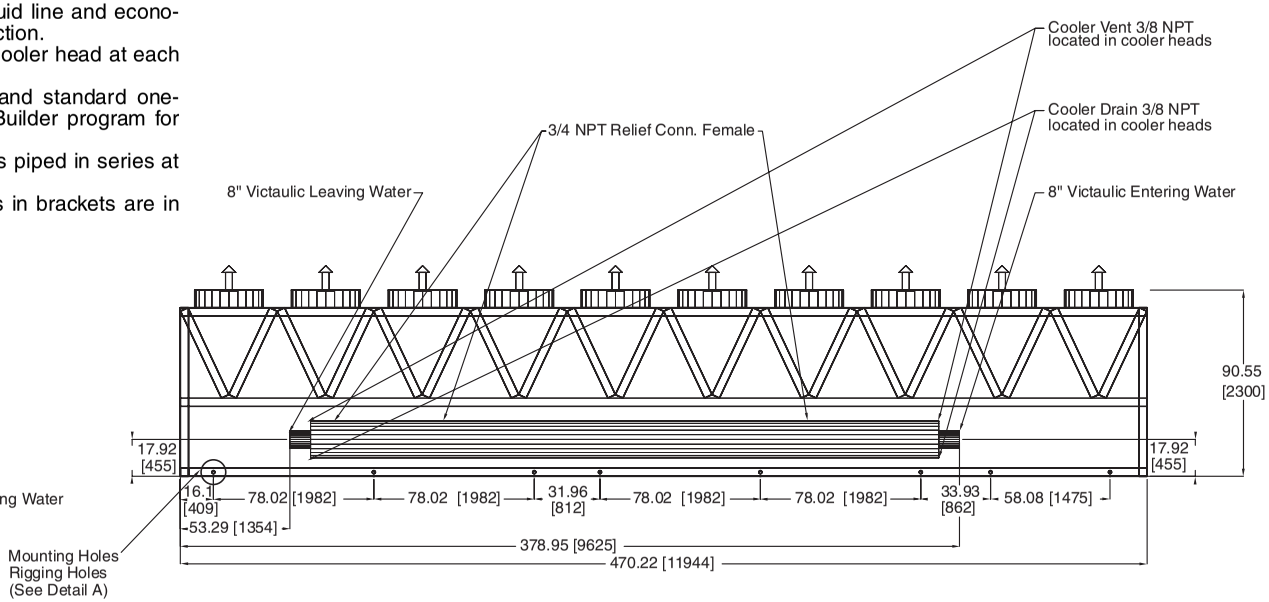
TOP VIEW

30XA400 (cont)

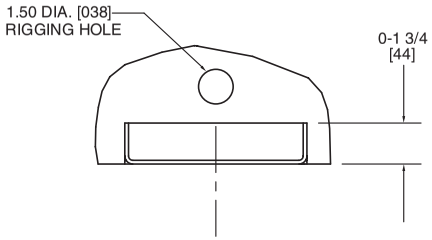
NOTES:
1. Unit must have clearances as follows:
   Top — Do not restrict
   Sides and Ends — 6 ft from solid surface.
2. Temperature relief devices are located on liquid line and economizer assemblies and have $^1/_4$-in. flare connection.
3. $^3/_8$-in. NPT vents and drains located in each cooler head at each end of cooler.
4. Drawing depicts unit with dual-point power 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.

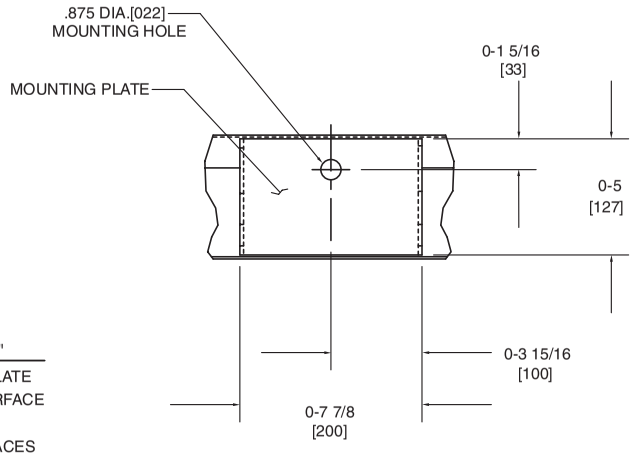


LEFT END VIEW



SIDE VIEW

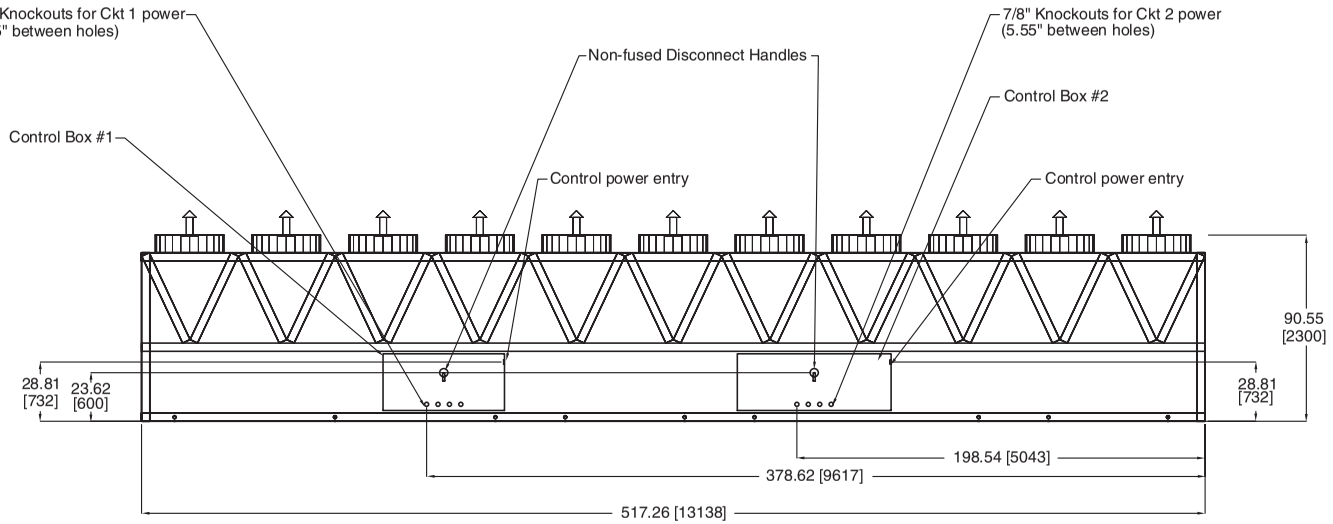




DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

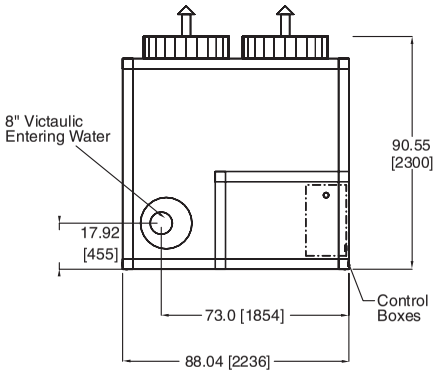
30XA450, 500

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 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.

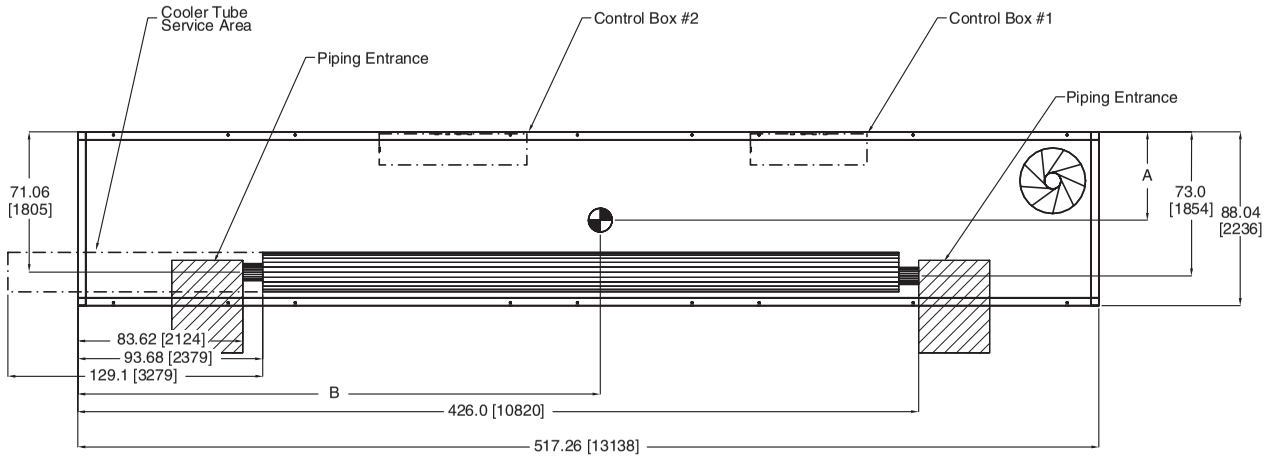


BACK VIEW

30XA UNIT	A	B
450	44.71 (1136)	264.7 (6723)
500	44.78 (1137)	263.99 (6705)

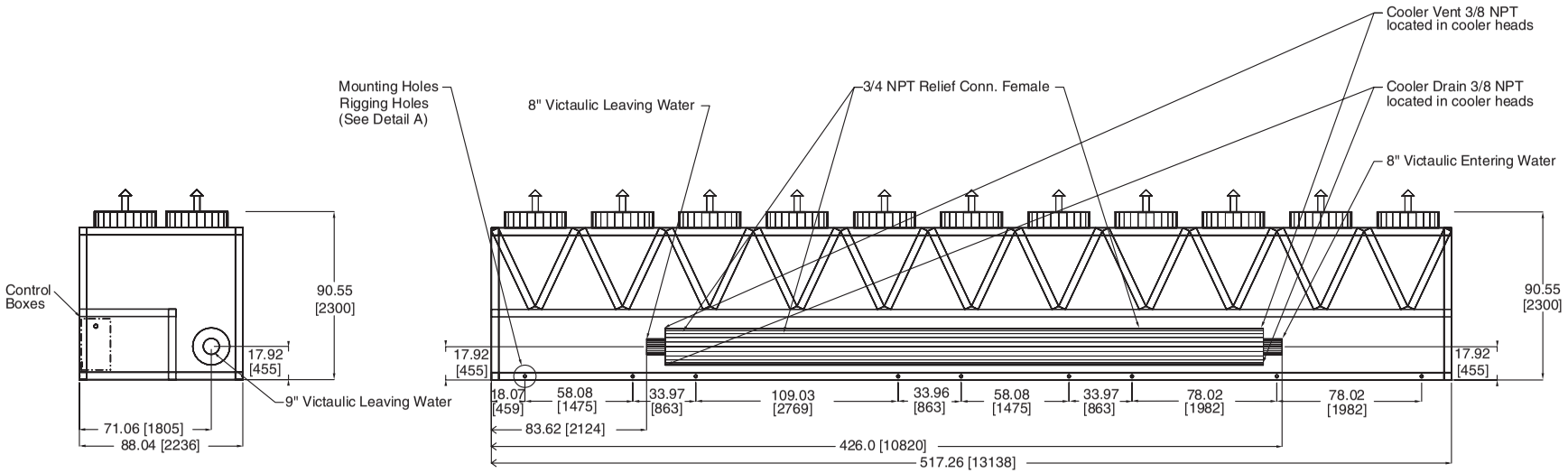


END VIEW



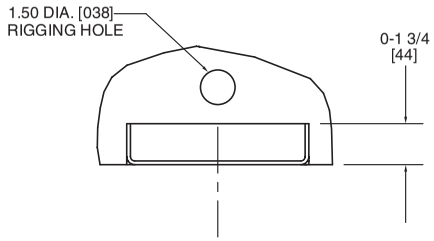
TOP VIEW

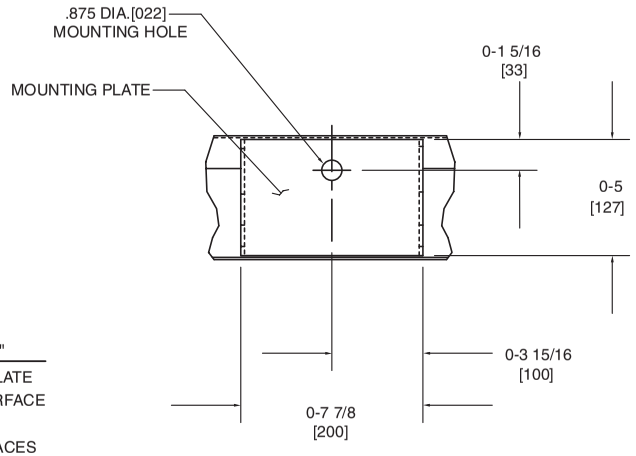
30XA450, 500 (cont)



LEFT END VIEW

SIDE VIEW





DETAIL "A"
MOUNTING PLATE
CONTACT SURFACE
SCALE 4" = 1"
TYPICAL 4 PLACES

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 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)

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).
- For larger or smaller delta-T applications, a mixing loop is required.
- If the cooler flow is variable and 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 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 for a lower delta-T.

  - A low cooler pressure drop can be expected when cooler delta-T is high.
  - Consider the plus-one-pass cooler option to increase delta-T and performance.

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):

- 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):

- 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.
- 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

To select a 30XA chiller, use the Packaged Chiller Builder 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 ($ft^2 \cdot hr \cdot F/Btu$)

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

II From Cooling Capacities table on page 34 and pressure drop curves on page 33, 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). . . . . .0176 ($m^2 \cdot °C/W$)

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

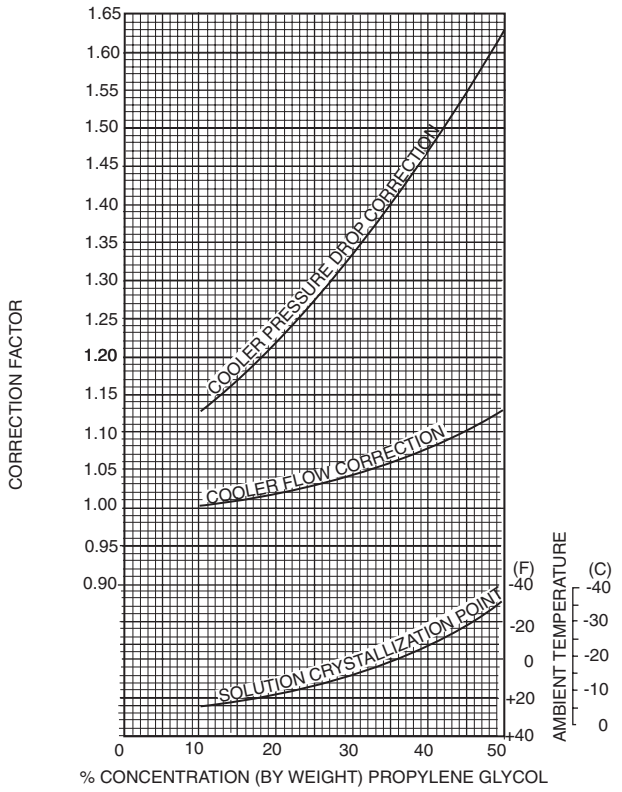
II From Cooling Capacities table on page 36 and cooler pressure drop curves on page 33, determine operating data for selected unit.

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

Selection procedure (cont)

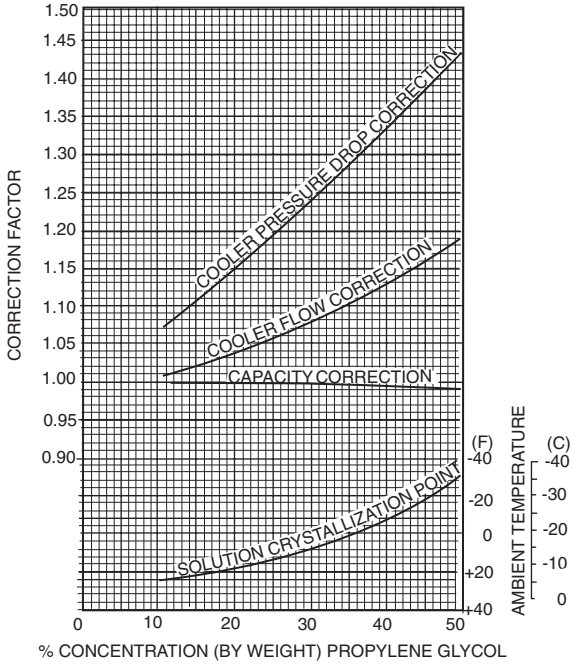
PROPYLENE GLYCOL PERFORMANCE CORRECTION FACTORS AND SOLUTION CRYSTALLIZATION POINTS

Correction factors apply to published chilled water performance ratings from 40 to 60 F (4.4 to 15.6 C) LCWT.



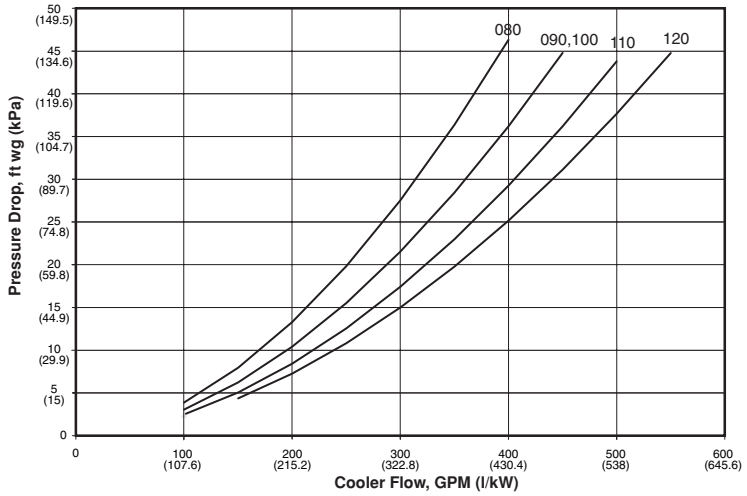
ETHYLENE GLYCOL PERFORMANCE CORRECTION FACTORS AND SOLUTION CRYSTALLIZATION POINTS

Correction factors apply to published chilled water performance ratings from 40 to 60 F (4.4 to 15.6 C) LCWT.

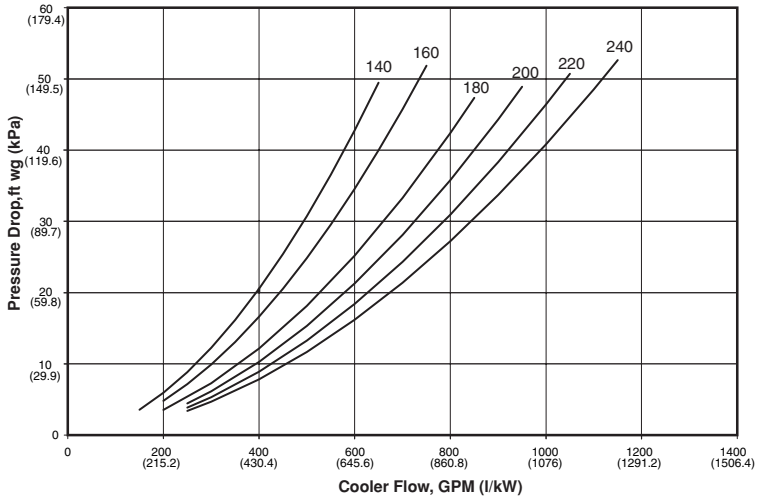


COOLER PRESSURE DROP CURVES

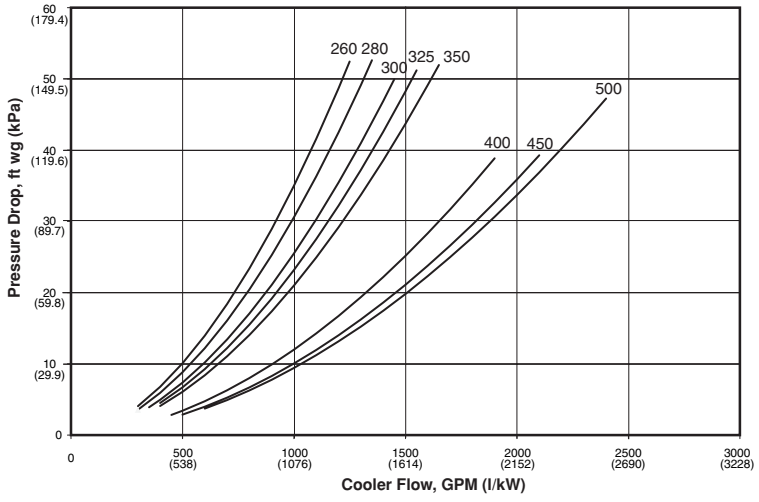
30XA080-120



30XA140-240



30XA260-500



Performance data (cont)

Carrier®

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	75.4	91.5	180.4	70.5	98.3	168.6	65.3	105.9	156.2
	090	88.0	87.2	210.4	84.4	95.0	201.9	80.9	103.9	193.3	77.0	113.8	184.2
	100	98.4	98.5	235.3	94.3	108.1	225.5	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	132.9	148.7	317.8	127.2	163.5	304.3	121.2	179.6	289.8
	160	159.1	157.4	380.4	152.6	173.2	365.1	145.7	190.5	348.5	138.5	210.1	331.3
	180	177.8	175.1	425.2	171.3	192.1	409.6	164.4	210.9	393.1	157.1	231.3	375.6
	200	201.9	197.9	482.7	194.0	217.2	463.9	185.7	238.4	444.1	176.9	261.8	422.9
	220	219.9	218.8	525.9	211.6	239.5	505.9	202.4	262.8	484.0	192.4	289.7	460.1
	240	237.4	242.1	567.7	228.2	264.2	545.8	218.4	288.9	522.3	205.2	309.9	490.6
	260	260.9	256.5	623.9	251.0	281.8	600.3	240.5	310.0	575.2	229.4	341.2	548.6
	280	279.1	275.1	667.5	268.6	301.3	642.2	257.3	330.8	615.3	244.9	364.9	585.6
	300	299.4	297.8	715.9	287.5	326.4	687.5	275.0	358.4	657.7	256.8	379.5	614.1
	325	319.0	316.1	762.8	306.7	347.2	733.4	293.9	382.1	702.7	280.4	420.9	670.5
	350	337.3	342.0	806.6	324.3	375.0	775.4	310.6	411.9	742.8	289.6	444.7	692.5
	400	399.3	409.6	954.8	383.7	449.4	917.6	367.0	494.3	877.7	330.5	510.7	790.3
	450	443.5	465.5	1060.5	426.2	511.2	1019.3	408.0	562.4	975.6	331.3	522.0	792.3
	500	475.9	504.1	1138.1	457.0	552.7	1092.8	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:
1. All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-98, based on:
   a. 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.
   b. A fouling factor of 0.00010 ($ft^2 \cdot hr \cdot F/Btu$) in the cooler.
   c. Refrigerant 134a.
2. Ratings generated are based on standard ambient temperature (850 rpm) units.

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:

1. All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-98, based on:
   a. 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.
   b. A fouling factor of 0.00010 ($ft^2 \cdot hr \cdot F/Btu$) in the cooler.
   c. Refrigerant 134a.
2. Ratings generated are based on standard ambient temperature (850 rpm) units.
3. Data for 30XA450, 500, LCWT 50, Condenser Entering Air Temperature 115 F not available at time of printing.

Performance data (cont)

Carrier®

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	268.0	92.1	11.5	252.3	98.1	10.8	235.9	104.8	10.1
	090	311.4	88.5	13.4	299.9	95.5	12.9	288.2	103.4	12.4	276.1	112.2	11.9
	100	347.7	100.1	14.9	334.7	108.7	14.4	320.5	118.2	13.8	304.7	128.2	13.1
	110	377.9	109.9	16.2	363.4	119.4	15.6	347.7	130.0	14.9	331.3	141.8	14.2
	120	409.0	120.0	17.6	392.6	130.3	16.9	375.2	142.0	16.1	357.7	155.4	15.4
	140	488.4	137.2	21.0	471.5	149.3	20.2	453.6	162.6	19.5	434.6	176.9	18.7
	160	561.9	159.8	24.1	541.5	173.9	23.3	519.5	189.5	22.3	496.8	206.9	21.3
	180	628.5	177.5	27.0	607.7	192.9	26.1	585.7	209.8	25.2	562.6	227.9	24.2
	200	713.5	200.7	30.6	688.4	218.2	29.6	662.1	237.2	28.4	634.0	258.1	27.2
	220	776.5	222.3	33.3	750.1	241.2	32.2	721.8	261.8	31.0	690.9	285.1	29.7
	240	837.3	246.8	36.0	808.1	266.9	34.7	776.7	289.3	33.4	735.9	306.1	31.6
	260	922.2	260.1	39.6	890.4	283.1	38.2	857.3	308.4	36.8	822.2	336.2	35.3
	280	985.7	279.7	42.3	951.8	303.5	40.9	916.5	329.9	39.4	878.5	359.3	37.7
	300	1056.9	302.7	45.4	1018.8	328.8	43.8	978.9	357.6	42.0	930.3	380.8	40.0
	325	1127.5	320.7	48.4	1088.1	349.1	46.7	1047.1	380.4	45.0	1004.5	414.9	43.1
	350	1190.7	347.8	51.1	1149.1	377.9	49.4	1105.8	411.2	47.5	1045.8	441.5	44.9
	400	1408.9	416.9	60.5	1359.7	452.7	58.4	1306.7	493.2	56.1	1209.8	515.5	52.0
	450	1565.3	473.4	67.2	1510.1	515.0	64.8	1451.7	561.1	62.3	1250.2	551.0	53.2
	500	1678.5	513.0	72.1	1617.7	557.4	69.5	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:
1. All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-98, based on:
   a. 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.
   b. A fouling factor of 0.00018 ($m^2 \cdot °C/W$) in the cooler.
   c. Refrigerant 134a.
2. Ratings generated are based on standard ambient temperature (850 rpm) units.

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

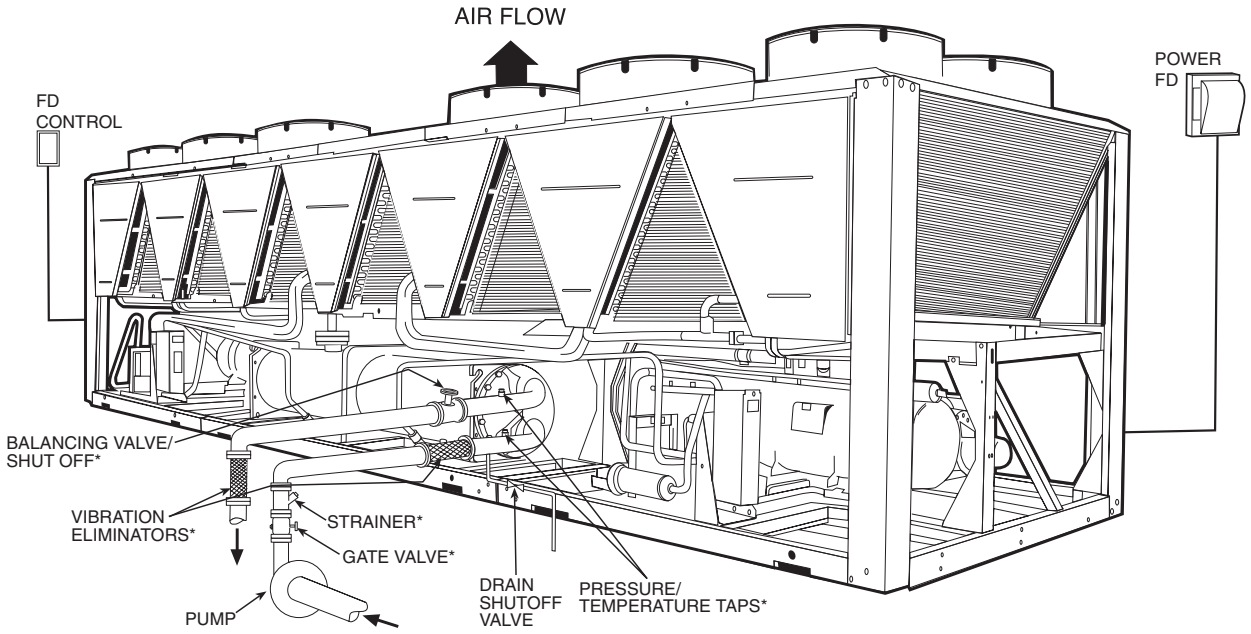
LEGEND

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

NOTES:
1. All ratings are in accordance with ARI (Air Conditioning and Refrigeration Institute, U.S.A.) Standard 550/590-98, based on:
   a. 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.
   b. A fouling factor of 0.00018 ($m^2 \cdot °C/W$) in the cooler.
   c. Refrigerant 134a.
2. Ratings generated are based on standard ambient temperature (850 rpm) units.

Typical piping and wiring

30XA UNITS



LEGEND

- Airflow Through Condenser
- Power Wiring
- Chilled Water Piping

*Field-installed.

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.

Electrical data

30XA140-500 (HIGH AMBIENT TEMPERATURE OPTION)

UNIT 30XA	VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		MAIN POWER SUPPLY QTY REQD	MCA	MOCP	ICF		REC FUSE SIZE	CONTROL CIRCUIT	
		Min	Max				XL	WD		Voltage (1 Ph, 60 Hz)	MCA and MOCP
140	200	187	220	1	618.8	800	—	957.8	700	115	30
	230	207	253	1	561.9	800	—	842.9	700	115	30
	380	342	418	1	327.9	450	1281.3	506.3	400	115	30
	460	414	506	1	282.0	400	1062.5	422.5	350	115	30
	575	518	633	1	216.2	300	846.3	334.3	250	115	30
160	200	187	220	2	477.9/273.7	800/450	—/—	934.4/484.6	600/350	115	30
	230	207	253	2	434.8/249.1	700/400	—/—	814.8/423.2	600/300	115	30
	380	342	418	1	374.5	500	1588.4	614.4	450	115	30
	460	414	506	1	321.5	450	1317.0	512.0	400	115	30
	575	518	633	1	247.0	350	1049.9	405.9	300	115	30
180	200	187	220	2	422.4/422.4	700/700	—/—	761.4/761.4	500/500	115	30
	230	207	253	2	383.8/383.8	600/600	—/—	664.8/664.8	450/450	115	30
	380	342	418	1	410.3	500	1363.7	588.7	450	115	30
	460	414	506	1	353.1	450	1133.6	493.6	400	115	30
	575	518	633	1	271.0	350	901.1	389.1	300	115	30
200	200	187	220	2	477.9/477.9	800/800	—/—	934.4/934.4	600/600	115	30
	230	207	253	2	434.8/434.8	700/700	—/—	814.8/814.8	600/600	115	30
	380	342	418	1	463.4	600	1677.3	703.3	600	115	30
	460	414	506	1	398.1	500	1393.6	588.6	450	115	30
	575	518	633	1	305.6	400	1108.5	464.5	350	115	30
220	200	187	220	2	567.4/477.9	800/800	—/—	946.3/934.4	700/600	115	30
	230	207	253	2	516.0/434.8	800/700	—/—	825.6/814.8	700/600	115	30
	380	342	418	1	511.0	700	1683.8	709.8	600	115	30
	460	414	506	1	439.3	600	1399.1	594.1	500	115	30
	575	518	633	1	337.3	450	1112.8	468.8	400	115	30
240	200	187	220	2	567.4/555.5	800/800	—/—	946.3/934.4	700/700	115	30
	230	207	253	2	516.0/505.2	800/800	—/—	825.6/814.8	700/600	115	30
	380	342	418	1	543.9	700	1716.7	742.7	600	115	30
	460	414	506	1	467.8	600	1427.6	622.6	600	115	30
	575	518	633	1	359.2	450	1134.7	490.7	400	115	30
260	380	342	418	1	616.2	800	2411.8	952.8	700	115	30
	460	414	506	1	530.6	700	2000.1	795.1	600	115	30
	575	518	633	1	407.0	500	1593.4	629.4	500	115	30
280	380	342	418	1	649.1	800	2444.7	985.7	800	115	30
	460	414	506	1	559.1	700	2028.6	823.6	700	115	30
	575	518	633	1	428.9	600	1615.3	651.3	500	115	30
300	380	342	418	1	721.7	1000	2451.2	992.2	1000	115	30
	460	414	506	1	621.2	800	2034.1	829.1	700	115	30
	575	518	633	1	476.3	600	1619.6	655.6	600	115	30
325	380	342	418	2	405.9/405.9	600/600	2201.5/2201.5	742.5/742.5	500/500	115	30
	460	414	506	1	639.9	800	2109.4	904.4	800	115	30
	575	518	633	1	490.7	600	1677.1	713.1	600	115	30
350	380	342	418	2	472.0/405.9	800/600	2201.5/2201.5	742.5/742.5	600/500	115	30
	460	414	506	1	696.4	800	2109.4	904.4	800	115	30
	575	518	633	1	533.8	700	1677.1	713.1	600	115	30
400	380	342	418	2	399.4/537.4	600/700	2195.0/1710.2	736.0/736.2	500/600	115	50
	460	414	506	2	344.5/462.3	500/600	1814.0/1422.2	609.0/617.2	450/600	115	50
	575	518	633	2	264.0/354.9	400/450	1450.4/1130.4	486.4/486.4	350/400	115	50
450	380	342	418	2	465.5/652.2	700/800	2195.0/2381.7	736.0/922.7	600/800	115	50
	460	414	506	2	401.0/561.6	600/800	1814.0/1974.6	609.0/769.6	500/700	115	50
	575	518	633	2	307.2/430.5	500/600	1450.4/1573.7	486.4/609.7	400/500	115	50
500	380	342	418	2	465.5/708.7	700/1000	2195.0/2438.2	736.0/979.2	600/800	115	50
	460	414	506	2	401.0/610.2	600/ 800	1814.0/2023.2	609.0/818.2	500/700	115	50
	575	518	633	2	307.2/467.7	500/ 600	1450.4/1611.0	486.4/647.0	400/600	115	50

LEGEND

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

NOTES:

1. The high ambient option is not available on 30XA080-120 units.
2. 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%.
3. Cooler heater is wired into the control circuit so it is always operable as long as the contol power supply disconnect is on, even if any safety device is open.
4. 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.
5. Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
   a. Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gage) to 500 kcmil.
   b. Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
   c. Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
   d. Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
6. Data provided circuit 1/circuit 2 where there are two circuits.

Electrical data (cont)

30XA080-500 (STANDARD CONDENSER FAN MOTORS)

UNIT 30XA	VOLTAGE (3 Ph, 60 Hz)	VOLTAGE RANGE		MAIN POWER SUPPLY QTY REQD	MCA	MOCP	ICF		REC FUSE SIZE	CONTROL CIRCUIT	
		Min	Max				XL	WD		Voltage (1 Ph, 60 Hz)	MCA and MOCP
080	200	187	220	1	347.6	450	1257.6	521.6	400	115	30
	230	207	253	1	315.5	400	1100.2	460.2	350	115	30
	380	342	418	1	183.5	250	662.7	275.7	225	115	30
	460	414	506	1	157.7	200	550.1	230.1	175	115	30
	575	518	633	1	121.2	150	437.9	181.9	150	115	30
090	200	187	220	1	368.0	500	1274.0	538.0	450	115	30
	230	207	253	1	334.0	450	1115.1	475.1	400	115	30
	380	342	418	1	194.5	250	671.6	284.6	225	115	30
	460	414	506	1	167.0	225	557.6	237.6	200	115	30
	575	518	633	1	128.5	175	443.8	187.8	150	115	30
100	200	187	220	1	401.3	500	1564.8	644.8	450	115	30
	230	207	253	1	364.6	500	1368.7	568.7	400	115	30
	380	342	418	1	212.7	250	824.7	340.7	250	115	30
	460	414	506	1	182.3	250	684.4	284.4	200	115	30
	575	518	633	1	139.5	175	544.7	224.7	175	115	30
110	200	187	220	1	446.2	600	—	644.8	500	115	30
	230	207	253	1	405.7	500	—	568.7	450	115	30
	380	342	418	1	236.4	300	824.7	340.7	300	115	30
	460	414	506	1	202.4	250	684.4	284.4	225	115	30
	575	518	633	1	155.5	200	544.7	224.7	175	115	30
120	200	187	220	1	482.2	600	—	680.8	600	115	30
	230	207	253	1	438.6	600	—	601.6	500	115	30
	380	342	418	1	255.3	350	843.6	359.6	300	115	30
	460	414	506	1	218.4	300	700.4	300.4	250	115	30
	575	518	633	1	168.4	225	557.5	237.5	200	115	30
140	200	187	220	1	588.5	800	—	911.1	700	115	30
	230	207	253	1	534.7	800	—	800.7	700	115	30
	380	342	418	1	311.2	450	1255.9	480.9	350	115	30
	460	414	506	1	267.3	400	1040.4	400.4	350	115	30
	575	518	633	1	205.0	300	829.5	317.5	250	115	30
160	200	187	220	2	465.6/264.9	800/450	—/—	902.8/463.5	600/350	115	30
	230	207	253	2	423.5/241.0	700/400	—/—	786.0/404.0	600/300	115	30
	380	342	418	1	361.1	500	1564.9	590.9	450	115	30
	460	414	506	1	309.7	450	1296.4	491.4	350	115	30
	575	518	633	1	238.1	350	1034.3	390.3	300	115	30
180	200	187	220	2	407.2/407.2	700/700	—/—	729.8/729.8	500/500	115	30
	230	207	253	2	370.0/370.0	600/600	—/—	636.0/636.0	450/450	115	30
	380	342	418	1	391.5	500	1336.2	561.2	450	115	30
	460	414	506	1	336.6	450	1109.6	469.6	400	115	30
	575	518	633	1	258.3	350	882.8	370.8	300	115	30
200	200	187	220	2	465.6/465.6	800/800	—/—	902.8/902.8	600/600	115	30
	230	207	253	2	423.5/423.5	700/700	—/—	786.0/786.0	600/600	115	30
	380	342	418	1	447.2	600	1651.0	677.0	500	115	30
	460	414	506	1	383.9	500	1370.6	565.6	450	115	30
	575	518	633	1	294.8	400	1091.0	447.0	350	115	30
220	200	187	220	2	554.7/548.0	800/800	—/—	909.4/902.8	700/600	115	30
	230	207	253	2	504.2/423.5	800/700	—/—	792.0/786.0	600/600	115	30
	380	342	418	1	494.5	700	1654.6	680.6	600	115	30
	460	414	506	1	424.7	600	1373.6	568.6	500	115	30
	575	518	633	1	326.3	450	1093.4	449.4	400	115	30
240	200	187	220	2	554.7/548.0	800/800	—/—	909.4/902.8	700/700	115	30
	230	207	253	2	504.2/498.2	800/800	—/—	792.0/786.0	600/600	115	30
	380	342	418	1	529.5	700	1689.5	715.5	600	115	30
	460	414	506	1	455.0	600	1403.9	598.9	600	115	30
	575	518	633	1	349.6	450	1116.7	472.7	400	115	30
260	380	342	418	1	600.2	800	2376.9	917.9	700	115	30
	460	414	506	1	516.5	700	1969.6	764.6	600	115	30
	575	518	633	1	396.4	500	1570.2	606.2	450	115	30
280	380	342	418	1	638.2	800	2414.9	955.9	800	115	30
	460	414	506	1	549.8	800	2002.9	797.9	700	115	30
	575	518	633	1	422.0	600	1595.9	631.9	500	115	30
300	380	342	418	1	710.3	1000	2415.4	956.4	800	115	30
	460	414	506	1	610.9	800	2002.9	797.9	700	115	30
	575	518	633	1	468.7	600	1595.9	631.9	600	115	30
325	380	342	418	2	426.0/426.0	700/700	2202.7/2202.7	743.7/743.7	500/500	115	30
	460	414	506	1	624.3	800	2077.5	872.5	700	115	30
	575	518	633	1	479.1	600	1652.9	688.9	600	115	30
350	380	342	418	2	497.6/426.0	800/700	2202.7/2202.7	743.7/743.7	600/500	115	30
	460	414	506	1	685.5	800	2077.5	872.5	800	115	30
	575	518	633	1	525.7	700	1652.9	688.9	600	115	30
400	380	342	418	2	419.4/561.9	700/700	2196.1/1722.0	737.1/748.0	500/700	115	50
	460	414	506	2	340.9/452.0	500/600	1794.0/1400.9	589.0/595.9	450/500	115	50
	575	518	633	2	261.4/347.2	450/450	1435.2/1114.3	471.2/470.3	350/400	115	50
450	380	342	418	2	490.9/685.4	800/1000	2196.1/2390.5	737.1/931.5	600/500	115	50
	460	414	506	2	402.0/553.6	700/ 800	1794.0/1945.6	589.0/740.6	500/700	115	50
	575	518	633	2	308.0/424.4	500/ 600	1435.2/1551.6	471.2/587.6	400/500	115	50
500	380	342	418	2	490.9/745.1	800/1000	2196.1/2450.2	737.1/991.2	600/1000	115	50
	460	414	506	2	402.0/604.9	700/ 800	1794.0/1996.9	589.0/791.9	500/ 700	115	50
	575	518	633	2	308.0/463.9	500/ 600	1435.2/1591.1	471.2/627.1	400/ 600	115	50

LEGEND

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

NOTES:

1. 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%.
2. Cooler heater is wired into the control circuit so it is always operable as long as the contol power supply disconnect is on, even if any safety device is open.
3. 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.
4. Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
   a. Incoming wire size range for the terminal block is no. 4 AWG (American Wire Gage) to 500 kcmil.
   b. Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
   c. Incoming wire size range of non-fused disconnect with MCA from 600 to 799.9 amps is 1/0 to 500 kcmil.
   d. Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.9 amps is 250 kcmil to 500 kcmil.
5. Data provided circuit 1/circuit 2 where there are two circuits.

Controls

Microprocessor

The *Comfort*Link™ 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 *Comfort*Link 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.

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.

Dynamic *Comfort*Link 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.

Controls (cont)

Standard *Comfort*Link™ 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.

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.

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 *Comfort*Link 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 *Comfort*Link 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 — *Comfort*Link™ 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 *Comfort*Link 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 *Comfort*Link 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.

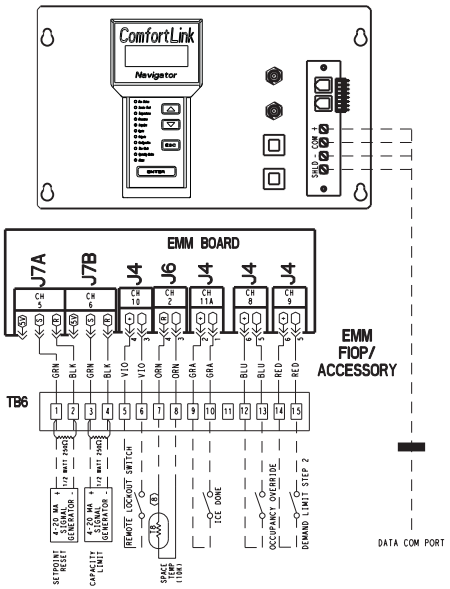
Controls and power wiring schematic, sizes 080-500

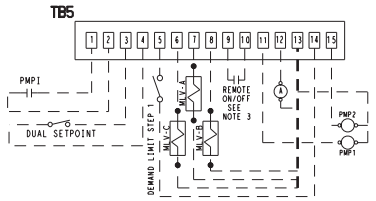
NOTES:
1. Factory wiring is in accordance with UL 1995 standards. Field modifications or additions must be in compliance with all applicable codes.
2. Wiring for main field supply must be rated 75 C minimum. Use copper for all units.
   Incoming wire size range for units 080-120, all voltages is 4-500 kcmil.
   Incoming wire size range for units 140-240, 200/230 v is 1/0-500 kcmil.
   Incoming wire size range for units 140-240, 380, 460, 575 v is 4-500 kcmil.
   Incoming wire size range for units 260-500, 380, 460, 575 v is 1/0-500 kcmil.
3. Terminals 9 and 10 of TB5 are for field external connections for remote on-off. The contacts must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.
4. Terminals 1 and 2 of TB5 are for external connections of chilled water pump interlock. The contacts must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.
5. Terminals 11 and 13 of TB5 are for control of chilled water pump 1 (PMP1) starter. Terminals 13 and 15 of TB5 are for control of chilled water pump 2 (PMP2) starter. The maximum load allowed for the chilled water pump relay is 5 va sealed, 10 va inrush at 24 v. Field power supply is not required.
6. For control of chilled water pumps, a set of normally open contacts rated for dry circuit application must be supplied from field-supplied pump starter relay. Connect contacts to violet and pink wires in harness from main base board channel 18. Wires in harness are marked PMP1-13 and PMP1-14.
7. 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 inrush at 24 v. Field power supply is not required.
8. Make appropriate connections to TB6 as shown for energy management board options. The contacts for occupancy override, demand limit and ice done options must be rated for dry circuit application capable of handling a 24 vac load up to 50 mA.

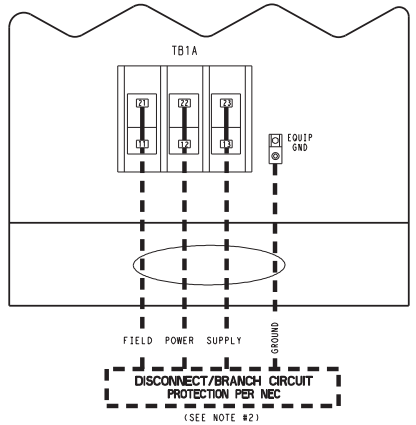
LEGEND

A	—	Alarm
EMM	—	Energy Management
FEB	—	Fan Electrical Box
MLV	—	Minimum Load Valve
NEC	—	National Electric Code
PEB	—	Power Electrical Box
PMP	—	Chilled Water Pump
PMPI	—	Chilled Water Pump Interlock
TB	—	Terminal Block

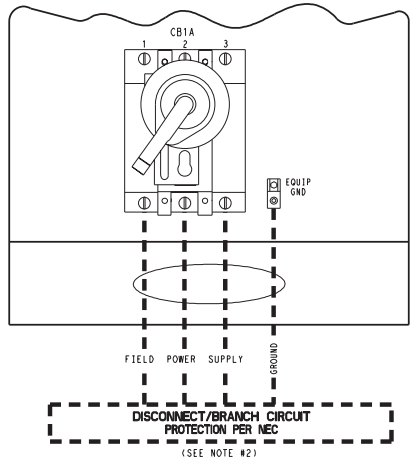
Field Power Wiring
Field Control Wiring
Factory Installed Wiring



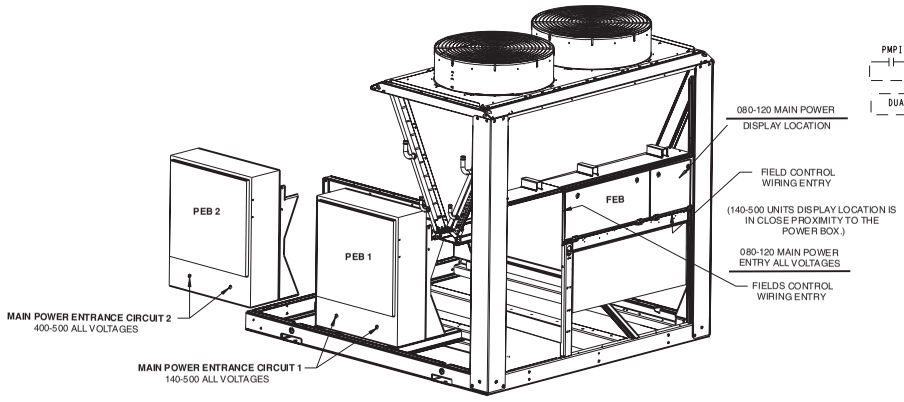




TERMINAL BLOCK



NON-FUSED DISCONNECT



TYPICAL CONTROL BOX LOCATIONS AND MAIN POWER ENTRY

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.

Strainers

A strainer with a minimum screen size of 20 mesh must be installed in the entering cooler fluid line, no more than 10 ft ahead 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 43 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.

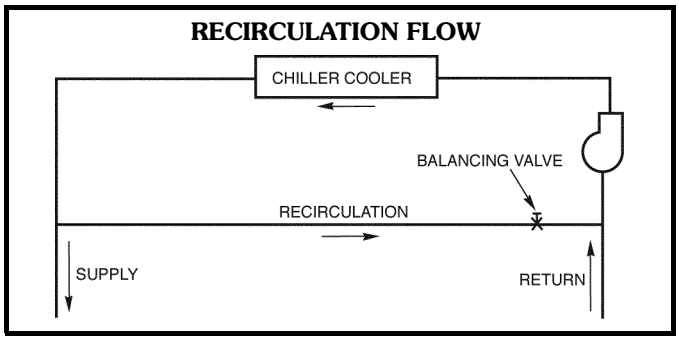
Cooler flow/range

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 Packaged Chiller 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. However, the mixed temperature entering cooler must be maintained a minimum of at least 5 F (2.8 C) above the LCWT.

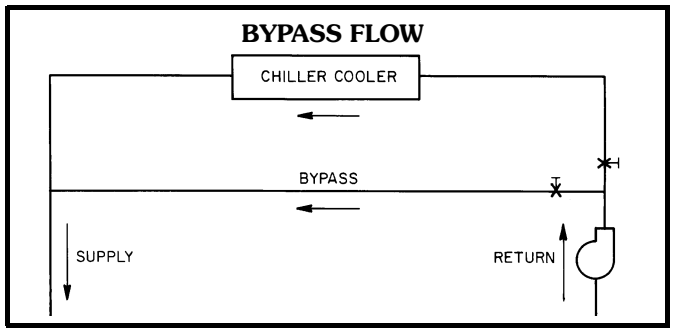
NOTE: Recirculation flow is shown below.



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 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 6 gal. or more per ton (6.5 l/kw) water loop volume minimum if flow rate changes more rapidly.

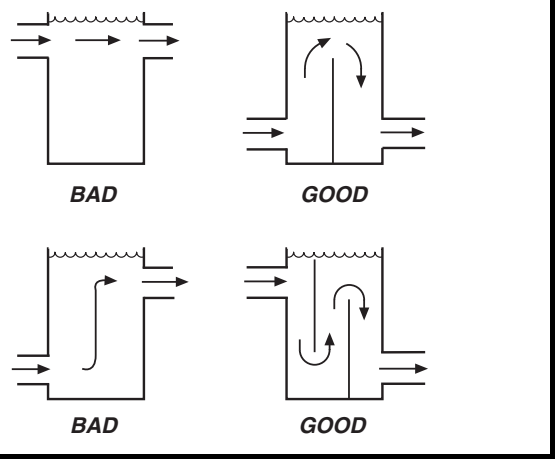
Application data (cont)

Water loop volume

The volume in circulation must equal or exceed 3 gal. per nominal ton (6.5 l/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.

TANK INSTALLATION



Cooler fouling factor

The fouling factor used to calculate tabulated ratings is 0.001 $ft^2 \cdot hr \cdot °F/Btu$ (.000018 $m^2 \cdot °C/W$). As fouling factor is increased, unit capacity decreases and compressor power increases. Corrections to published ratings can be approximated by using the following multipliers:

FOULING FACTORS

FOULING FACTOR (English) ($ft^2 \cdot hr \cdot F/Btu$)	FOULING FACTOR (SI) ($m^2 \cdot °C/W$)	CAPACITY MULTIPLIER	COMPRESSOR POWER MULTIPLIER
.00025	.000044	0.991	0.995
.00050	.000088	0.977	0.987
.00075	.000132	0.955	0.979
.00175	.000308	0.910	0.952

Cooler freeze protection

Freeze protection for the cooler 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 antifreeze 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 water temperature set point is less than 40 F (4.4 C), a suitable inhibited antifreeze 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 water 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 required 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, nor is a start-up 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.

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 kp/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.

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	—	—	—	—	—		

*Maximum ambient temperature and percent of unit capacity will vary based on unit load and return water temperature. All models are qualified for use at 125 F (46 C). Some models may require the high ambient fan option. Contact a local Carrier representative to obtain performance data using the Carrier electronic catalog.

†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 one of the special order brine option. Contact a local Carrier representative for more information.

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

NOTES:
1. The 30XA units will start 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]).
4. Where winds of 5 mph (2.2 m/s) or greater are anticipated at outdoor ambient temperatures below 32 F (0° C), wind baffles are required.
5. Requires optional or accessory low ambient kit for operation below 32 F (0° C).

Application data (cont)

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 *Comfort*Link™ 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 *Comfort*Link 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 *Comfort*Link 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 white paper for more information.

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 airborne 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.

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.

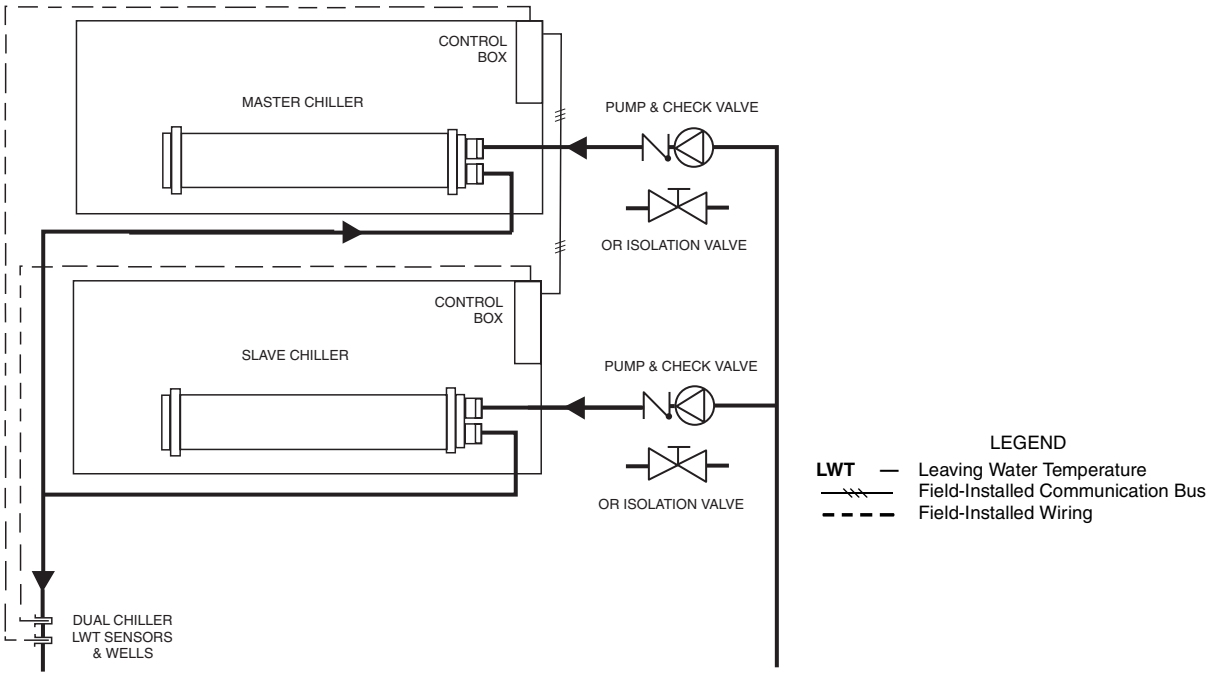
Demand limiting (load shedding)

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.

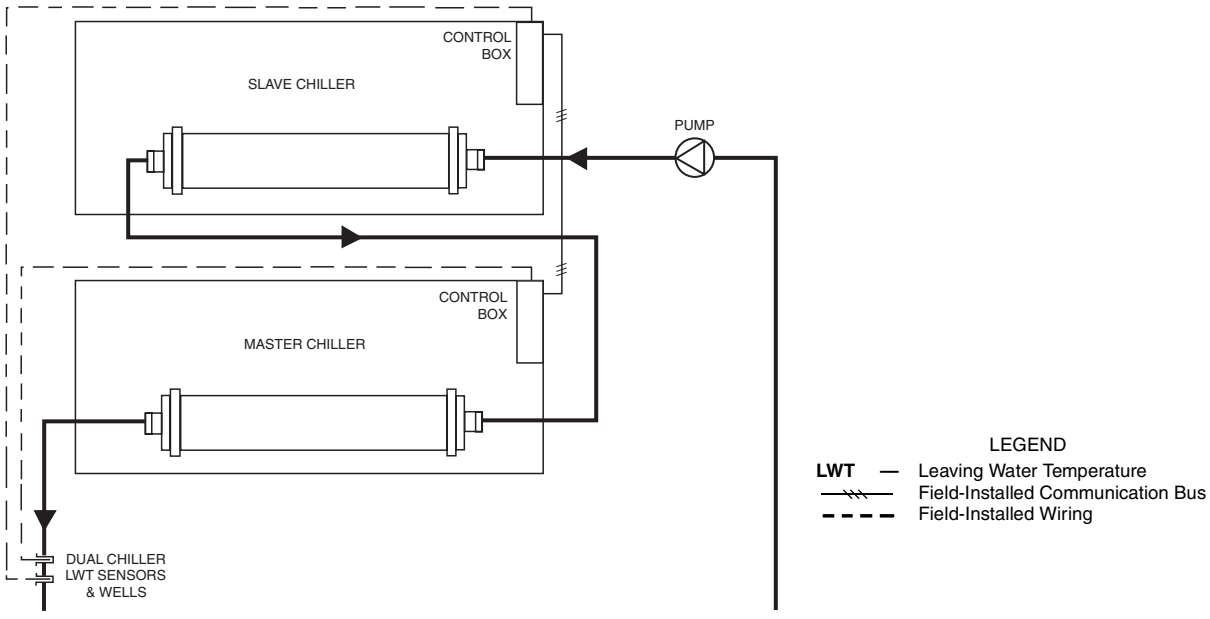
Remote on-off control

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

PARALLEL DUAL CHILLER OPERATION



SERIES DUAL CHILLER OPERATION



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 shall be insulated with $^3/_4$-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 (–15 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) Portable hand-held display module with a minimum of 4 lines and 20 characters per line, in clear English, Spanish, Portuguese or French language.
      2) 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.
   b. Information included for display shall be:
      1) Compressor lockout.
      2) Loss of charge.
      3) Low fluid flow.
      4) Cooler freeze protection.
      5) Thermistor and transducer malfunction.
      6) Entering and leaving-fluid temperature.
      7) Evaporator and condenser pressure.
      8) System refrigerant temperatures.
      9) Chiller run hours.
      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) 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.
      b. Condenser fan motors shall have internal overcurrent protection.

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 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) (30XA080-350) or 150 psig (1034 kPa) (30XA400-500).
2. Electronic thermal dispersion proof of flow switch shall be factory installed and wired.

M. Special Features:

Certain standard features are not applicable when the features designated by * are specified. For assistance in amending the specifications, contact a 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, non-fused electrical disconnect for main power supply.

3. Optional Condenser Coil Materials:

a. 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.

b. 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 and PVC-coated grilles to protect the condenser coil and internal chiller components from physical damage.

9. DataPort™ Control:

Unit shall be supplied with field-installed interface device that allows a non-Carrier controller to *read* values in system elements connected to the CCN Communication Bus using ASCII over its RS-232 connection.

10. DataLINK™ Control:

Unit shall be supplied with field installed interface device that allows a non-Carrier controller to *read and write values* in system elements connected to the CCN Communication Bus using ASCII over its RS-232 connection.

11. 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).

12. 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).

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.

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.