Table 1 — 30XA080-120 — ENGLISH

UNIT 30XA	080	090	100	110	120
OPERATING WEIGHT (lb)*					
Al-Cu Condenser Coils	7,674	8,704	8,931	9,071	9,216
Cu-Cu Condenser Coils	8,398	9,669	9,896	10,036	10,181
MCHX Condenser Coils	7,234	8,127	8,348	8,483	8,622
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (RTPF)	110/110/—	110/110/—	120/120/—	135/120/—	135/135/—
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	93.5/93.5/—	88/88/—	90/90/—	94/90/—	94/94/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (rpm)			3500		
(Qty) Compressor Model Number Ckt A	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-186	(1) 06TS-186
(Qty) Compressor Model Number Ckt B	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-155	(1) 06TS-186
(Qty) Compressor Model Number Ckt C	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/—
Minimum Capacity Step (%)					
Standard	15	15	15	14	15
Optional	9	9	9	8	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (gal.)	16.5	18.5	18.5	20.0	23.0
Maximum Refrigerant Pressure (psig)	220	220	220	220	220
Maximum Water-Side Pressure without Pumps (psig)	300	300	300	300	300
Maximum Water-Side Pressure with Pumps (psig)	—	150	150	150	150
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	4	4	4	4	4
Number of Passes	3	3	3	3	3
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge				
Fan Speed (rpm) Standard/High Ambient**	850/—	850/—	850/—	850/—	850/—
No. Blades...Diameter (in.)	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/—
Total Airflow (cfm) 850 rpm	55,800	74,400	74,400	74,400	74,400
Total Airflow (cfm) 1140 rpm	—	—	—	—	—
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—
Total Face Area (sq ft)	141	188	188	188	188
CHASSIS DIMENSIONS (in.)					
Length	141	188	188	188	188
Width	88	88	88	88	88
Height	91	91	91	91	91

Table 2 — 30XA140-220 — ENGLISH

UNIT 30XA	140	160	180	200	220
OPERATING WEIGHT (lb)*					
Al-Cu Condenser Coils	11,505	11,748	13,590	13,712	14,727
Cu-Cu Condenser Coils	12,711	12,954	15,037	15,159	16,295
MCHX Condenser Coils	10,768	11,000	12,699	12,810	13,748
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (RTPF)	202/121/—	225/159/—	205/205/—	225/225/—	270/225/—
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	128/90/—	126/94/—	132/132/—	152/152/—	159.5/152/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (rpm)			3500		
(Qty) Compressor Model Number Ckt A	(1) 06TT-266	(1) 06TT-301	(1) 06TT-266	(1) 06TT-301	(1) 06TT-356
(Qty) Compressor Model Number Ckt B	(1) 06TS-155	(1) 06TS-186	(1) 06TT-266	(1) 06TT-301	(1) 06TT-301
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A
Oil Charge (gal), Ckt A/Ckt B/Ckt C	6.25/5.5/—	6.25/5.5/—	6.25/6.25/—	6.25/6.25/—	6.75/6.25/—
Minimum Capacity Step (%)					
Standard	11	11	15	15	14
Optional	7	8	10	10	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (gal.)	25.5	27.5	31.5	34.0	37.0
Maximum Refrigerant Pressure (psig)	220	220	220	220	220
Maximum Water-Side Pressure without Pumps (psig)	300	300	300	300	300
Maximum Water-Side Pressure with Pumps (psig)	150	150	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	6	6	6
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	6	6	6
Number of Passes	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
No. Blades...Diameter (in.)	9...30	9...30	9...30	9...30	9...30
No. Fans (Ckt A/Ckt B/Ckt C)	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Airflow (cfm) 850 rpm	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)	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Face Area (sq ft)	234	234	281	281	305
CHASSIS DIMENSIONS (in.)					
Length	235	235	282	282	329
Width	88	88	88	88	88
Height	91	91	91	91	91

LEGEND

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

* All weights include coil trim panels. See pages 65-79 for unit mounting weights.
† 30XA080 units do not have an economizer.
** The standard ambient temperature option is not available on 30XA401, 451, 476, and 501 units. The high ambient temperature option is not available on 30XA080-120 units.

Table 3 — 30XA240-325 — ENGLISH

UNIT 30XA	240	260	280	300	325
OPERATING WEIGHT (lb)*					
Al-Cu Condenser Coils	14,887	16,853	17,022	17,362	18,834
Cu-Cu Condenser Coils	16,455	18,662	18,831	19,292	21,005
MCHX Condenser Coils	13,897	15,720	15,878	16,141	17,467
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (RTPF)	270/270/—	375/220/—	375/270/—	415/270/—	375/375/—
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	159.5/159/—	233.5/156/—	226.5/159.5/—	230/161/—	226.5/226.5/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (rpm)	3500				
(Qty) Compressor Model Number Ckt A	(1) 06TT-356	(1) 06TU-483	(1) 06TU-483	(1) 06TU-554	(1) 06TU-483
(Qty) Compressor Model Number Ckt B	(1) 06TT-356	(1) 06TT-301	(1) 06TT-356	(1) 06TT-356	(1) 06TU-483
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A
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/—
Minimum Capacity Step (%)					
Standard	15	11	13	12	15
Optional	10	8	9	7	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (gal.)	39.0	42.0	44.0	48.5	50.5
Maximum Refrigerant Pressure (psig)	220	220	220	220	220
Maximum Water-Side Pressure without Pumps (psig)	300	300	300	300	300
Maximum Water-Side Pressure with Pumps (psig)	—	—	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8
Number of Passes	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
No. Blades...Diameter (in.)	9...30	9...30	9...30	9...30	9...30
No. Fans (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	9/7/—	10/6/—	9/9/—
Total Airflow (cfm) 850 rpm	120,900	139,500	148,800	148,800	167,400
Total Airflow (cfm) 1140 rpm	161,200	186,000	198,400	198,400	223,200
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	9/7/—	10/6/—	9/9/—
Total Face Area (sq ft)	305	352	375	375	422
CHASSIS DIMENSIONS (in.)					
Length	329	376	376	376	423
Width	88	88	88	88	88
Height	91	91	91	91	91

Table 4 — 30XA350-501 — ENGLISH

UNIT 30XA	350	401	451	476	501
OPERATING WEIGHT (lb)*					
Al-Cu Condenser Coils	19,040	22,688	23,423	27,518	29,882
Cu-Cu Condenser Coils	21,211	25,100	26,074	30,175	33,020
MCHX Condenser Coils	17,659	20,785	21,737	25,362	27,403
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (RTPF)	415/375/—	460 / 385 /—	530 / 385 / —	475 / 465 / —	560 / 495 / —
Refrigerant Charge (lb) Ckt A/Ckt B/Ckt C (MCHX)	231.5/226.5/—	275 / 225 / —	290 / 225 / —	285 / 280 / —	300 / 290 / —
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (rpm)					
(Qty) Compressor Model Number Ckt A	(1) 06TU-554	(1) 06TV-680	(1) 06TV-819	(1) 06TV-753	(1) 06TV-819
(Qty) Compressor Model Number Ckt B	(1) 06TU-483	(1) 06TU-554	(1) 06TU-554	(1) 06TV-680	(1) 06TV-753
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A
Oil Charge (gal), Ckt A/Ckt B/Ckt C	7.5/7.5/—	7.5/7.5/—	7.5/7.5/—	7.5/7.5/—	7.5/7.5/—
Minimum Capacity Step (%)					
Standard	15	15	12	15	15
Optional	10	11	8	11	11
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type			
Net Fluid Volume (gal.)	53.4	64.5	64.5	81.8	81.8
Maximum Refrigerant Pressure (psig)	220	220	220	220	220
Maximum Water-Side Pressure without Pumps (psig)	300	300	300	300	300
Maximum Water-Side Pressure with Pumps (psig)	—	—	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	—	—	—	—
Number of Passes	3	—	—	—	—
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge				
Fan Speed (rpm) Standard/High Ambient**	850/1140	—/1140	—/1140	—/1140	—/1140
No. Blades...Diameter (in.)	9...30	9...30	9...30	9...30	9...30
No. Fans (Ckt A/Ckt B/Ckt C)	9/9/—	11/9/—	13/9/—	11/11/—	14/12/—
Total Airflow (cfm) 850 rpm	167,400	—	—	—	—
Total Airflow (cfm) 1140 rpm	223,200	248,000	272,800	272,800	322,400
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	9/9/—	11/9/—	13/9/—	11/11/—	14/12/—
Total Face Area (sq ft)	422	469	516	516	608
HYDRONIC MODULE (Optional)	N/A				
Pump					
CHASSIS DIMENSIONS (in.)					
Length	423	470	517	517	611
Width	88	88	88	88	88
Height	91	91	91	91	91

LEGEND

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

* All weights include coil trim panels. See pages 65-79 for unit mounting weights.
† 30XA080 units do not have an economizer.
** The standard ambient temperature option is not available on 30XA401, 451, 476, and 501 units. The high ambient temperature option is not available on 30XA080-120 units.

Table 5 — 30XA080-120 — SI

UNIT 30XA	080	090	100	110	120
OPERATING WEIGHT (kg)*					
Al-Cu Condenser Coils	3 481	3 948	4 051	4 115	4 181
Cu-Cu Condenser Coils	3 809	4 386	4 489	4 552	4 618
MCHX Condenser Coils	3 281	3 686	3 786	3 848	3 911
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (RTPF)	50/50/—	50/50/—	54/54/—	61/61/—	61/61/—
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	42.4/42.4/—	39.9/39.9/—	40.8/40.8/—	42.6/40.8/—	42.6/42.6/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (r/s)			58.3		
(Qty) Compressor Model Number Ckt A	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-186	(1) 06TS-186
(Qty) Compressor Model Number Ckt B	(1) 06TS-137†	(1) 06TS-137	(1) 06TS-155	(1) 06TS-155	(1) 06TS-186
(Qty) Compressor Model Number Ckt C	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/—
Minimum Capacity Step (%)					
Standard	15	15	15	14	15
Optional	9	9	9	8	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (liters)	62.5	70.0	70.0	75.7	87.1
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Water-Side Pressure without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068
Maximum Water-Side Pressure with Pumps (kPa)	—	1 034	1 034	1 034	1 034
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	5	5	5
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	4	4	4	4	4
Number of Passes	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/—
No. Blades...Diameter (mm)	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/—
Total Airflow (L/s) 14.2 r/s	26 335	35 113	35 113	35 113	35 113
Total Airflow (L/s) 19.0 r/s	—	—	—	—	—
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	3/3/—	4/4/—	4/4/—	4/4/—	4/4/—
Total Face Area (sq m)	13	17	17	17	17
CHASSIS DIMENSIONS (mm)					
Length	3 587	4 780	4 780	4 780	4 780
Width	2 236	2 236	2 236	2 236	2 236
Height	2 300	2 300	2 300	2 300	2 300

Table 6 — 30XA140-220 — SI

UNIT 30XA	140	160	180	200	220
OPERATING WEIGHT (kg)*					
Al-Cu Condenser Coils	5 219	5 329	6 164	6 220	6 680
Cu-Cu Condenser Coils	5 766	5 876	6 821	6 876	7 391
MCHX Condenser Coils	4 884	4 990	5 760	5 811	6 236
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (RTPF)	92/55/—	102/72/—	93/93/—	102/102—	112/102/—
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	58.0/40.8/—	57.2/42.6/—	59.9/59.9/—	68.9/68.9/—	72.3/68.9/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (r/s)			58.3		
(Qty) Compressor Model Number Ckt A	(1) 06TT-266	(1) 06TT-301	(1) 06TT-266	(1) 06TT-301	(1) 06TT-356
(Qty) Compressor Model Number Ckt B	(1) 06TS-155	(1) 06TS-186	(1) 06TT-266	(1) 06TT-301	(1) 06TT-301
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A
Oil Charge (liters), Ckt A/Ckt B/Ckt C	23.7/20.8/—	23.7/23.7/—	23.7/23.7/—	23.7/23.7/—	25.6/23.7/—
Minimum Capacity Step (%)					
Standard	11	11	15	15	14
Optional	7	8	10	10	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (liters)	96.5	104.1	119.2	128.7	140.1
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Water-Side Pressure without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068
Maximum Water-Side Pressure with Pumps (kPa)	1 034	1 034	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	5	5	6	6	6
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	5	5	6	6	6
Number of Passes	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
No. Blades...Diameter (mm)	9...762	9...762	9...762	9...762	9...762
No. Fans (Ckt A/Ckt B/Ckt C)	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Airflow (L/s) 14.2 r/s	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)	6/4/—	6/4/—	6/6/—	6/6/—	7/6/—
Total Face Area (sq m)	22	22	26	26	28
CHASSIS DIMENSIONS (mm)					
Length	5 975	5 975	7 168	7 168	8 363
Width	2 236	2 236	2 236	2 236	2 236
Height	2 300	2 300	2 300	2 300	2 300

LEGEND

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

* All weights include coil trim panels. See pages 65-79 for unit mounting weights.
† 30XA080 units do not have an economizer.
** The standard ambient temperature option is not available on 30XA401, 451, 476, and 501 units. The high ambient temperature option is not available on 30XA080-120 units.

Table 7 — 30XA240-325 — SI

UNIT 30XA	240	260	280	300	325
OPERATING WEIGHT (kg)*					
Al-Cu Condenser Coils	6 753	7 644	7 721	7 876	8 543
Cu-Cu Condenser Coils	7 464	8 465	8 542	8 751	9 528
MCHX Condenser Coils	6 304	7 130	7 202	7 322	7 923
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (RTPF)	122.5/122.5/—	170.1/99.8/—	170.1/122.5/—	188.3/122.5/—	170.1/170.1/—
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	72.3/72.1/—	105.9/70.8/—	102.7/72.3/—	104.3/73.0/—	102.7/102.7/—
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (r/s)			3500		
(Qty) Compressor Model Number Ckt A	(1) 06TT-356	(1) 06TU-483	(1) 06TU-483	(1) 06TU-554	(1) 06TU-483
(Qty) Compressor Model Number Ckt B	(1) 06TT-356	(1) 06TT-301	(1) 06TT-356	(1) 06TT-356	(1) 06TU-483
(Qty) Compressor Model Number Ckt C	N/A	N/A	N/A	N/A	N/A
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/—
Minimum Capacity Step (%)					
Standard	15	10	13	12	15
Optional	10	8	9	7	10
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type
Net Fluid Volume (liters)	147.6	159.0	166.6	183.6	191.2
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Water-Side Pressure without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068
Maximum Water-Side Pressure with Pumps (kPa)	—	—	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	6	8	8	8	8
Number of Passes	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
No. Blades...Diameter (mm)	9...762	9...762	9...762	9...762	9...762
No. Fans (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	9/7/—	10/6/—	9/9/—
Total Airflow (L/s) 14.2 r/s	57 059	65 837	70 226	70 226	79 004
Total Airflow (L/s) 19.0 r/s	76 078	87 782	93 634	93 634	93 634
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	7/6/—	9/6/—	9/7/—	10/6/—	9/9/—
Total Face Area (sq m)	28	33	35	35	39
CHASSIS DIMENSIONS (mm)					
Length	8 363	9 555	9 555	9 555	10 750
Width	2 236	2 236	2 236	2 236	2 236
Height	2 300	2 300	2 300	2 300	2 300

Table 8 — 30XA350-501 — SI

UNIT 30XA	350	401	451	476	501
OPERATING WEIGHT (kg)*					
Al-Cu Condenser Coils	8 636	10 292	10 624	12 482	13 557
Cu-Cu Condenser Coils	9 621	11 387	11 827	13 686	14 087
MCHX Condenser Coils	8 010	9 424	9 859	10 641	11 540
REFRIGERANT TYPE	R-134a, EXV Controlled System				
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (RTPF)	188.3/170.1/—	209 / 175 /—	240 / 175 / —	215 / 211 / —	254 / 224 / —
Refrigerant Charge (kg) Ckt A/Ckt B/Ckt C (MCHX)	105.0/102.7/—	125 / 102 / —	132 / 102 / —	129 / 127 / —	136 / 132 / —
COMPRESSORS	Semi-Hermetic Twin Rotary Screws				
Quantity	2	2	2	2	2
Speed (r/s)			58.3		
(Qty) Compressor Model Number Ckt A	(1) 06TU-554	(1) 06TV-680	(1) 06TV-819	(1) 06TV-753	1) 06TV-819
(Qty) Compressor Model Number Ckt B	(1) 06TU-483	(1) 06TU-554	(1) 06TU-554	(1) 06TV-680	(1) 06TV-753
(Qty) Compressor Model Number Ckt C	N/A	N/A	(1) 06TU-554	N/A	N/A
Oil Charge (liter), Ckt A/Ckt B/Ckt C	28.4/28.4/—	28.4/28.4/—	28.4/28.4/—	28.4/28.4/—	28.4/28.4/—
Minimum Capacity Step (%)					
Standard	14	15	12	15	15
Optional	10	11	8	11	11
COOLER	Flooded, Shell and Tube Type	Flooded, Shell and Tube Type			
Net Fluid Volume (liters)	202.1	244.2	244.2	309.6	309.6
Maximum Refrigerant Pressure (kPa)	1516.8	1516.8	1516.8	1516.8	1516.8
Maximum Water-Side Pressure without Pumps (kPa)	2 068	2 068	2 068	2 068	2 068
Maximum Water-Side Pressure with Pumps (kPa)	—	—	—	—	—
WATER CONNECTIONS					
Drain (NPT, in.)	3/8	3/8	3/8	3/8	3/8
Standard, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	2	2	2	2	2
Minus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	8	8	8	8
Number of Passes	1	1	1	1	1
Plus 1 Pass, Inlet and Outlet, Victaulic (in.)	8	—	—	—	—
Number of Passes	3	—	—	—	—
CONDENSER FANS	Shrouded Axial Type, Vertical Discharge				
Fan Speed (r/s) Standard/High Ambient**	14.2/19.0	—/19.0	—/19.0	—/19.0	—/19.0
No. Blades...Diameter (mm)	9...762	9...762	9...762	9...762	9...762
No. Fans (Ckt A/Ckt B/Ckt C)	9/9/—	11/9/—	13/9/—	11/11/—	14/12/—
Total Airflow (L/s) 14.2 r/s	79 004	—	—	—	—
Total Airflow (L/s) 19.0 r/s	105 339	117 044	128 748	128 748	152 157
CONDENSER COILS					
No. Coils (Ckt A/Ckt B/Ckt C)	9/9/—	11/9/—	13/9/—	11/11/—	14/12/—
Total Face Area (sq m)	39	44	48	48	57
CHASSIS DIMENSIONS (mm)					
Length	10 750	11 945	13 139	13 139	15 532
Width	2 236	2 236	2 236	2 236	2 236
Height	2 300	2 300	2 300	2 300	2 300

LEGEND

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

* All weights include coil trim panels. See pages 65-79 for unit mounting weights.
† 30XA080 units do not have an economizer.
** The standard ambient temperature option is not available on 30XA401, 451, 476, and 501 units. The high ambient temperature option is not available on 30XA080-120 units.

RIGGING UNIT (SEE FIG. 27-29)

The 30XA080-501 units are designed for overhead rigging and it is important that this method be used. Holes are provided in frame base channels, marked for rigging (see rigging label on unit). Field-supplied shackles are required to facilitate lifting. Secure the shackles to the base rails at the points noted on the rigging label. See Table 9 for the number of lifting points for each unit.

Do not use a forklift truck to move the units.

Use spreader bars to keep cables or chains clear of unit sides. As further protection, plywood sheets may be placed against sides of unit, behind cables or chains. Run cables or chains to a central suspension point so that angle from horizontal is not less than 45 degrees. Raise and set unit down carefully.

See Fig. 27-29 for rigging centers of gravity.

For shipping, some domestic units and all export units are mounted on a wooden skid under entire base of unit. Skid can be removed before unit is moved to installation site. Lift the unit from above to remove skid. See Fig. 27-29 for rigging center of gravity. On export units, the top skid can be used as the spreader bars. If the unit was shipped with a shipping bag, the bag must be removed to gain access to the rigging holes in the base rail.

If overhead rigging is not available, the unit can be moved on rollers or dragged. When unit is moved on rollers, the unit skid, if equipped, must be removed. To lift the unit, use jacks at the rigging points. Use a minimum number of rollers to distribute the load such that the rollers are no more than 6 ft (1.8 m) apart. If the unit is to be dragged, lift the unit as described above, and place unit on a pad. Apply moving force to the pad, and not the unit. When in its final location, raise the unit and remove the pad. If the unit was shipped with protection, it must be removed before start-up. The shipping bag for export units must be removed before start-up.

Table 9 — Number of Lifting Points for 30XA080-501

30XA UNIT SIZE	NUMBER OF LIFTING POINTS
080, 082, 50B*	4
090-122	6
140-162	8
180-202	10
220-400	12
401, 450, 451, 476, 500, 50A*	14

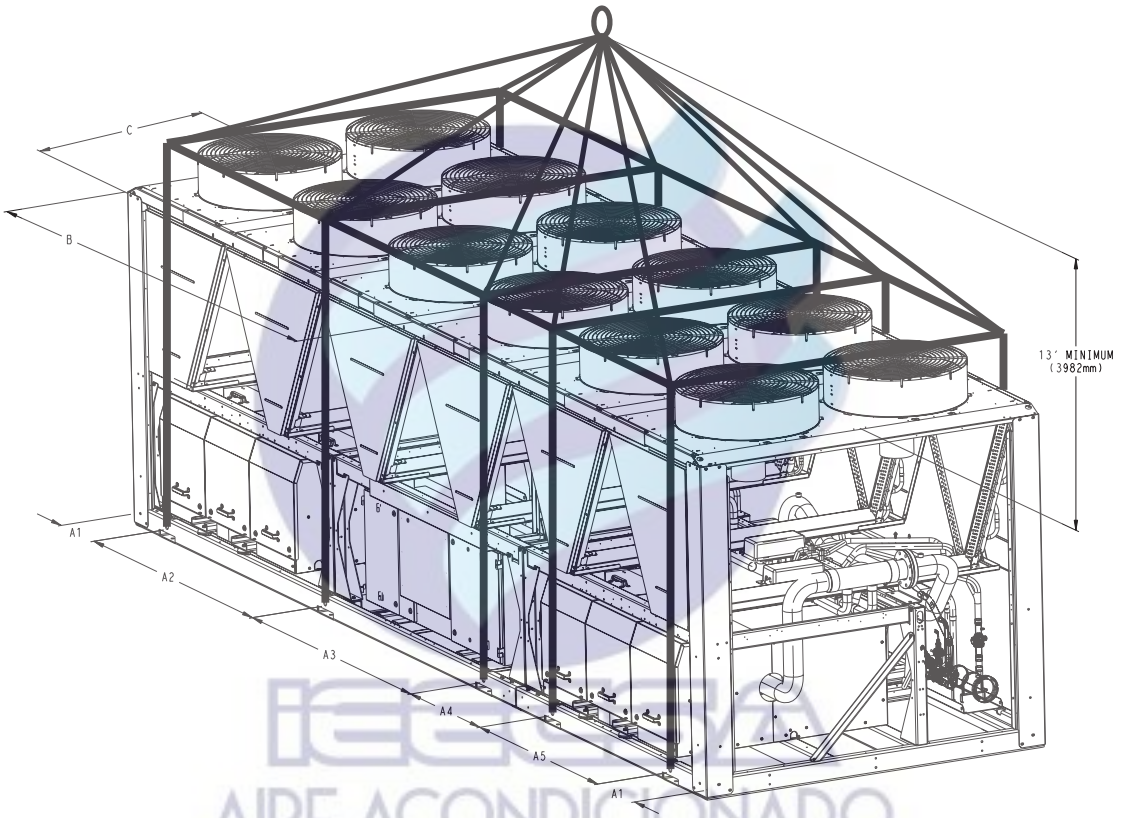
* The 30XA501 unit is shipped as two separate modules: 50A and 50B.

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING. DO NOT ATTEMPT TO FORK THESE UNITS IF NO SKID IS SUPPLIED.

NOTES:

1. 1.50 dia. (38.1mm) lifting holes provided for field supplied clevis.
2. Rig with a minimum of 25 ft (7620mm) length chains or cables.
3. If central lifting point is used, it must be a minimum of 13 ft. (3962mm) above the top of the unit.
4. Spreader bars made from steel or double nailed, and notched 2x6's approximately 8 ft. (2438mm) long, must be placed just above the top of the unit (and stacks) to reduce the risk of damage to the top of the unit and coils.
5. If overhead rigging is not available, the unit can be moved on rollers or dragged. When unit is moved on rollers, the unit skid, if equipped, must be removed. To lift the unit, use jacks at the rigging points. Use a minimum of one roller every 6 ft. (1829mm) to distribute the load. If the unit is to be dragged, lift the unit as described above, and place unit on a pad. Apply moving force to the pad, not the unit. When in its final location, raise the unit and remove the pad.
6. Check bill of lading for shipping weight of unit.



MODEL NUMBER	MAX. SHIPPING WT. W/O PACKAGING		MAX. SHIPPING WT. WITH PACKAGING		LIFTING HOLES										CENTER OF GRAVITY			
					"A1"		"A2"		"A3"		"A4"		"A5"		"B"		"C"	
	LBS	KGS	LBS	KGS	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
30XA080,082	7831	3552	8811	3997	16.1	408.9	109.03	2769.3	---	---	---	---	---	---	75.5	1919	43.9	1114
30XA080,082 -CU	8555	3881	9535	4325	16.1	408.9	109.03	2769.3	---	---	---	---	---	---	75.1	1908	43.9	1116
30XA090,092	10083	4574	11153	5059	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	101.3	2573	44.1	1120
30XA090,092 -CU	10751	4877	11821	5362	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	100.6	2555	44.2	1122
30XA100,102	10310	4677	11380	5162	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	101.0	2566	44.1	1120
30XA100,102 -CU	10978	4980	12048	5465	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	100.4	2549	44.2	1122
30XA110,112	10563	4791	11633	5277	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	100.6	2556	44.1	1120
30XA110,112 -CU	11231	5094	12301	5580	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	100.0	2540	44.2	1122
30XA120,122	10681	4845	11751	5330	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	101.1	2569	44.1	1120
30XA120,122 -CU	11349	5148	12419	5633	16.1	408.9	78.02	1981.7	78.02	1981.7	---	---	---	---	100.5	2552	44.2	1122
30XA140,142	13217	5995	14377	6521	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	---	---	119.4	3033	44.6	1134
30XA140,142 -CU	14126	6408	15286	6934	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	---	---	119.2	3029	44.7	1134
30XA160,162	13429	6091	14589	6618	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	---	---	119.6	3039	44.6	1133
30XA160,162 -CU	14338	6504	15498	7030	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	---	---	119.5	3034	44.6	1134
30XA180,182	13935	6321	15185	6888	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	62.02	1575.3	139.2	3536	46.1	1171
30XA180,182 -CU	15382	6977	16632	7544	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	62.02	1575.3	139.4	3541	46.0	1168
30XA200,202	14014	6357	15264	6924	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	62.02	1575.3	139.3	3538	46.1	1172
30XA200,202 -CU	15461	7013	16711	7580	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	62.02	1575.3	139.5	3543	46.0	1169
30XA50B	3558	1614	4538	2059	16.1	408.9	109.03	2769.3	---	---	---	---	---	---	70.0	1778	42.7	1084
30XA50B -CU	4282	1942	5262	2387	16.1	408.9	109.03	2769.3	---	---	---	---	---	---	70.0	1778	42.7	1084

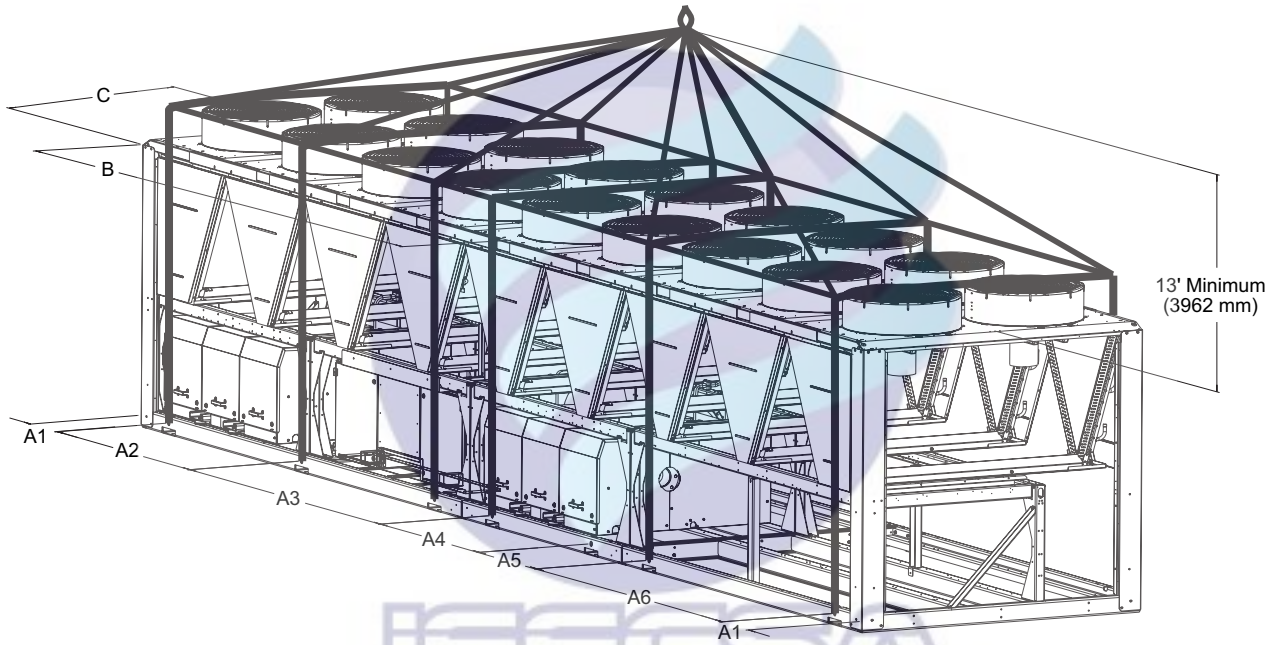
Fig. 27 — Unit Rigging Label Detail 30XA080-202, 50B

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING. DO NOT ATTEMPT TO FORK THESE UNITS IF NO SKID IS SUPPLIED.

NOTES:

1. 1.50 dia. (38.1mm) lifting holes provided for field supplied clevis.
2. Rig with a minimum of 25 ft (7620mm) length chains or cables.
3. If central lifting point is used, it must be a minimum of 13 ft. (3962mm) above the top of the unit.
4. Spreader bars made from steel or double nailed, and notched 2x6's approximately 8 ft. (2438mm) long, must be placed just above the top of the unit (and stacks) to reduce the risk of damage to the top of the unit and coils.
5. If overhead rigging is not available, the unit can be moved on rollers or dragged. When unit is moved on rollers, the unit skid, if equipped, must be removed. To lift the unit, use jacks at the rigging points. Use a minimum of one roller every 6 ft. (1829mm) to distribute the load. If the unit is to be dragged, lift the unit as described above, and place unit on a pad. Apply moving force to the pad, not the unit. When in its final location, raise the unit and remove the pad.
6. Check bill of lading for shipping weight of unit.



MODEL NUMBER	MAX. SHIPPING WT. W/O PACKAGING		MAX. SHIPPING WT. WITH PACKAGING		LIFTING HOLES												CENTER OF GRAVITY			
					"A1"		"A2"		"A3"		"A4"		"A5"		"A6"		"B"		"C"	
	LBS	KGS	LBS	KGS	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
30XA220,222	15071	6836	16411	7444	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	32.00	812.7	62.02	1575.3	157.9	4010	46.2	1173
30XA220,222-CU	16639	7547	17979	8155	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	32.00	812.7	62.02	1575.3	158.5	4027	46.0	1170
30XA240,242	15231	6909	16571	7516	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	32.00	812.7	62.02	1575.3	158.5	4025	46.2	1174
30XA240,242-CU	16799	7620	18139	8228	16.1	408.9	62.02	1575.3	32.00	812.7	109.03	2769.3	32.00	812.7	62.02	1575.3	159.1	4040	46.1	1171
30XA260,262	17055	7736	18485	8384	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	160.1	4066	44.2	1123
30XA260,262-CU	18864	8556	20294	9205	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	162.8	4136	44.3	1125
30XA280,282	17224	7813	18654	8461	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	160.4	4074	44.3	1125
30XA280,282-CU	19033	8633	20463	9282	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	163.1	4143	44.4	1127
30XA300,302	17834	8089	19264	8738	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	160.1	4066	44.3	1126
30XA300,302-CU	19764	8965	21194	9613	16.1	408.9	78.02	1981.7	78.02	1981.7	32.00	812.7	78.02	1981.7	78.02	1981.7	162.9	4138	44.4	1127
30XA325,327	19306	8757	20826	9446	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	177.1	4499	42.9	1090
30XA325,327-CU	21477	9742	22997	10431	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	180.7	4591	43.1	1095
30XA350,352	19512	8850	21032	9540	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	176.6	4485	42.9	1090
30XA350,352-CU	21683	9835	23203	10524	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	180.2	4577	43.1	1096

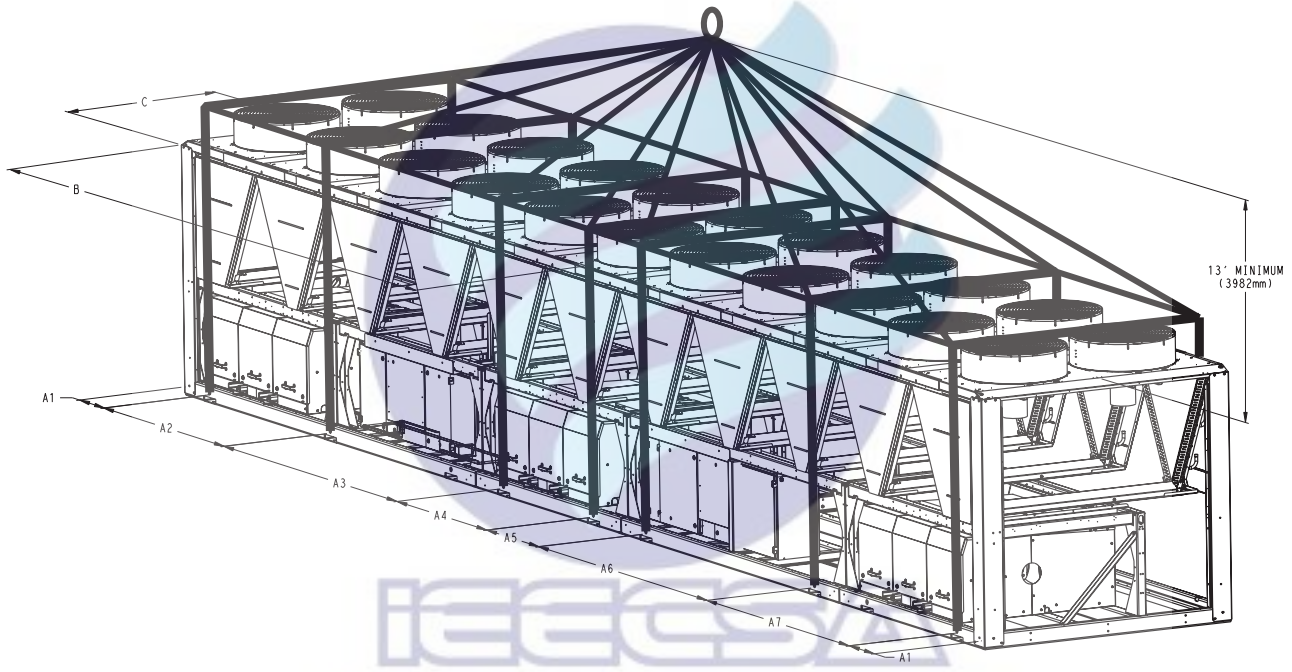
Fig. 28 — Unit Rigging Label Detail 30XA220-352

⚠ CAUTION - NOTICE TO RIGGERS:

ALL PANELS MUST BE IN PLACE WHEN RIGGING. DO NOT ATTEMPT TO FORK THESE UNITS IF NO SKID IS SUPPLIED.

NOTES:

1. 1.50 dia. (38.1mm) lifting holes provided for field supplied clevis.
2. Rig with a minimum of 25 ft (7620mm) length chains or cables.
3. If central lifting point is used, it must be a minimum of 13 ft. (3962mm) above the top of the unit.
4. Spreader bars made from steel or double nailed, and notched 2x6's approximately 8 ft. (2438mm) long, must be placed just above the top of the unit (and stacks) to reduce the risk of damage to the top of the unit and coils.
5. If overhead rigging is not available, the unit can be moved on rollers or dragged. When unit is moved on rollers, the unit skid, if equipped, must be removed. To lift the unit, use jacks at the rigging points. Use a minimum of one roller every 6 ft. (1829mm) to distribute the load. If the unit is to be dragged, lift the unit as described above, and place unit on a pad. Apply moving force to the pad, not the unit. When in its final location, raise the unit and remove the pad.
6. Check bill of lading for shipping weight of unit.



MODEL NUMBER	MAX. SHIPPING WT. W/O PACKAGING		MAX. SHIPPING WT. WITH PACKAGING		LIFTING HOLES														CENTER OF GRAVITY			
					"A1"		"A2"		"A3"		"A4"		"A5"		"A6"		"A7"		"B"		"C"	
	LBS	KGS	LBS	KGS	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
30XA400	24214	11006	25824	11738	16.1	408.9	78.02	1981.7	110.02	2794.5	78.02	1981.7	110.02	2794.5	62.02	1575.3	---	---	229.6	5831	45.8	1163
30XA400-CU	26626	12103	28236	12835	16.1	408.9	78.02	1981.7	110.02	2794.5	78.02	1981.7	110.02	2794.5	62.02	1575.3	---	---	230.1	5844	45.7	1161
30XA450	26175	11898	27875	12671	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	94.02	2388.1	252.6	6416	44.7	1136
30XA450-CU	28829	13104	30529	13877	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	94.02	2388.1	253.2	6430	44.7	1136
30XA500	26436	12017	28136	12789	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	94.02	2388.1	253.3	6434	44.8	1137
30XA500-CU	29090	13223	30790	13995	16.1	408.9	78.02	1981.7	110.02	2794.5	62.02	1575.3	32.00	812.7	109.03	2769.3	94.02	2388.1	253.8	6447	44.8	1138
30XA401	22152	10048	23762	10778	16.1	408.9	92.04	2338.0	78.02	1981.7	110.00	2793.9	78.02	1981.7	78.02	1981.7	---	---	250.5	6362	44.5	1131
30XA401-CU	24564	11142	26174	11872	16.1	408.9	92.04	2338.0	78.02	1981.7	110.00	2793.9	78.02	1981.7	78.02	1981.7	---	---	250.5	6362	44.5	1131
30XA451	22883	10380	24654	11183	16.1	408.9	78.02	1981.7	78.02	1981.7	31.98	812.2	78.02	1981.7	110.02	2794.4	109.03	2769.3	220.7	5606	44.4	1127
30XA451-CU	25537	11583	27308	12387	16.1	408.9	78.02	1981.7	78.02	1981.7	31.98	812.2	78.02	1981.7	110.02	2794.4	109.03	2769.3	220.7	5606	44.4	1127
30XA476	26837	12173	28608	12977	16.1	408.9	78.02	1981.7	78.02	1981.7	31.98	812.2	78.02	1981.7	110.02	2794.4	109.03	2769.3	217.0	5512	48.1	1222
30XA476-CU	29491	13377	31262	14180	16.1	408.9	78.02	1981.7	78.02	1981.7	31.98	812.2	78.02	1981.7	110.02	2794.4	109.03	2769.3	217.0	5512	48.1	1222
30XA50A	25642	11631	27252	12361	16.1	408.9	92.04	2338.0	78.02	1981.7	78.02	1981.7	110.00	2793.9	78.02	1981.7	---	---	255.5	6490	48.5	1233
30XA50A-CU	28054	12725	29664	13455	16.1	408.9	92.04	2338.0	78.02	1981.7	78.02	1981.7	110.00	2793.9	78.02	1981.7	---	---	255.5	6490	48.5	1233

Fig. 29 — Unit Rigging Label Detail 30XA400-50A

Step 3 — Make Refrigerant, Cooler Fluid and Drain Piping Connections

See Fig. 30-54 for piping applications.

⚠ CAUTION

Remove the chilled water flow switch and entering and leaving water thermistors before welding connecting piping. Reinstall flow switch and thermistors after welding is complete. Failure to remove these devices may cause unit damage.

30XA501 UNIT ASSEMBLY

The 30XA501 units are shipped as two separate pieces referred to as the 50A module (section including cooler and compressors) and the 50B module. These two pieces must be field combined prior to installing cooler piping and electrical connections. Below are the steps for installing the 30XA501 unit assembly.

⚠ CAUTION

Make sure all the ball valves on the discharge and liquid lines of both the modules (50A and 50B) are closed before joining the two units together. Do not open the ball valves until indicated in Step C. Both the 50A and 50B units are shipped with refrigerant charge, and the ball valves must remain closed until the connecting tubing is installed. Failure to follow the below steps closely could result in air inside the refrigerant system, lowering the unit performance or charge leakage. Work should be performed by a skilled HVAC technician.

Brazing the 50A and 50B Sections

If the assembly process is executed by an outside company (that is, not a Carrier-certified service technician), the following procedures must be followed in order to maintain the factory warranty on the equipment:

- The final component assembly required as part of the installation of this unit requires Carrier supervision.
- A vacuum-rise test is required to ensure that the brazing was done correctly, there is no risk of leaking, and the machine is dehydrated properly. If this test is performed by an outside company, supervision by a Carrier Service technician is required.
- A Carrier Service technician must approve the work executed by the outside company. Without Carrier technician supervision and approval, the equipment warranty will not be honored for any refrigerant-related matter.

Step A: Position Unit

Position 50A and 50B units adjacent to each other as shown on the dimensional drawing (Fig. 23). Frames must be in close contact for installation of connecting piping.

Step B: Connect Discharge and Liquid Line Piping

The discharge and liquid line piping for pieces 50A and 50B are sealed from the factory with brazed caps, and must be joined in the field using the parts included in the box marked "Tubing Installation Kit" attached to the frame of 50B.

Use Fig. 30-32 as a guide for discharge line piping installation. Locate the brazed caps on the 50A and 50B discharge line piping segments. Make sure the ball valves on either side of the brazed caps are in closed position. Both the 50A and 50B units are shipped with refrigerant charge, and the ball valves must remain closed until the connecting tubing is installed. Before performing any cutting or brazing work, check the capped piping after the ball valve for pressure and reclaim any refrigerant in the line. To remove the brazed caps, cut the tubing along the score lines directly above the caps. Use proper cutting tools to ensure the cut is perpendicular to the tube surface and free of debris. To connect the piping, braze tube parts labeled 00PSN500588600A using two elbow DE13BC301 to the unit piping (Fig. 32). All work should be done by a certified brazer following all best practice preparation and brazing techniques. Be sure to cover valves on adjacent piping with a wet rag before brazing to avoid internal damage.

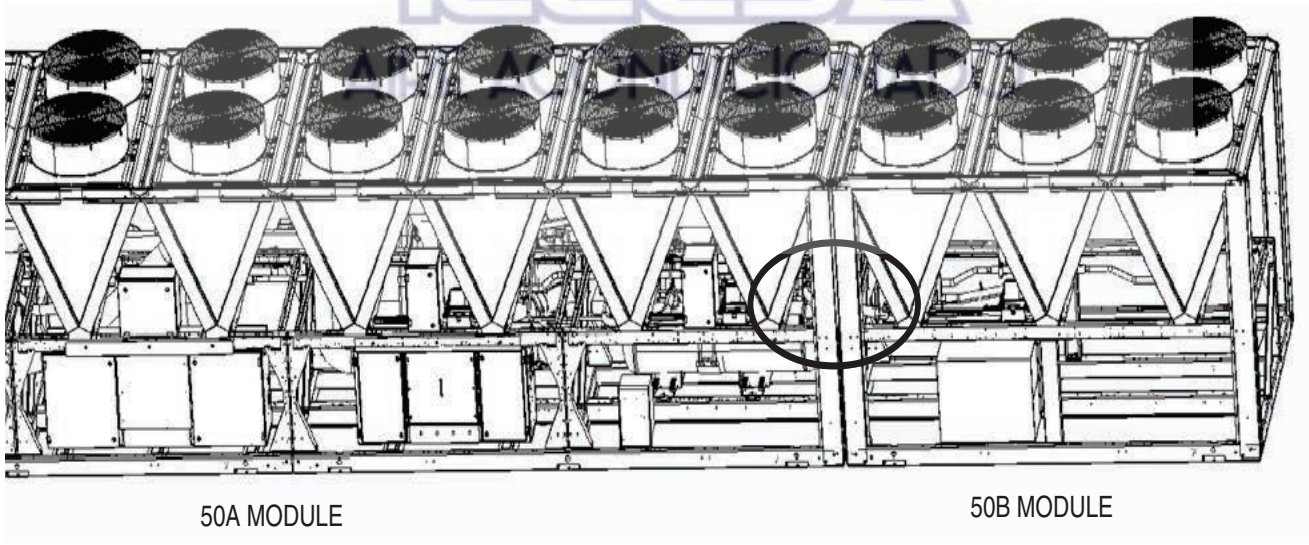
For the liquid line piping, follow the above procedure using Fig. 30-32 as a guide. To connect the piping, braze tube parts labeled 00PSN500588500A using two elbow DE13BB301 to the unit piping (Fig. 35).

Step C: Drawing Vacuum and Opening the Refrigerant Paths

Use the Schrader ports shown in Fig. 32 and 35 to connect a vacuum pump and pull down the pressure on these isolated sections to at least 50 microns. Open the ball valves at this point, one at a time.

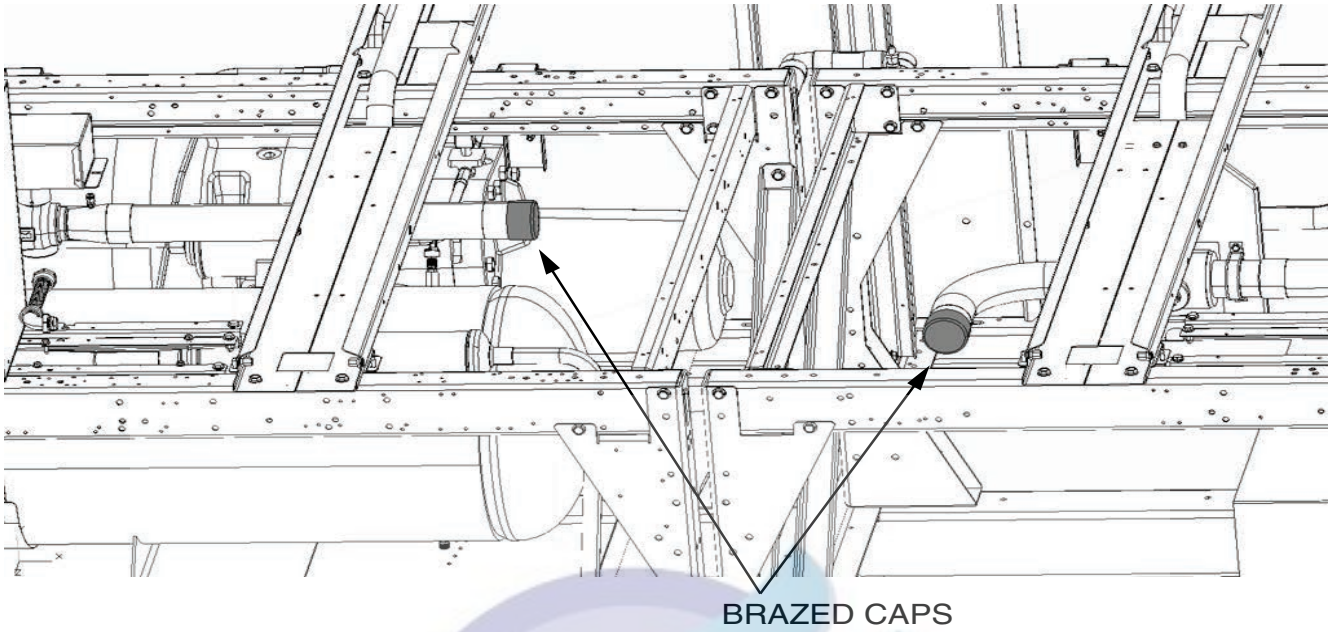
Step D: Connect Fan Wiring

The fan wiring for the 50A and 50B sections must be connected in the field. Connect 50A and 50B junction boxes (shown in Fig. 36) using the conduit jumper shipped inside Circuit B power box.



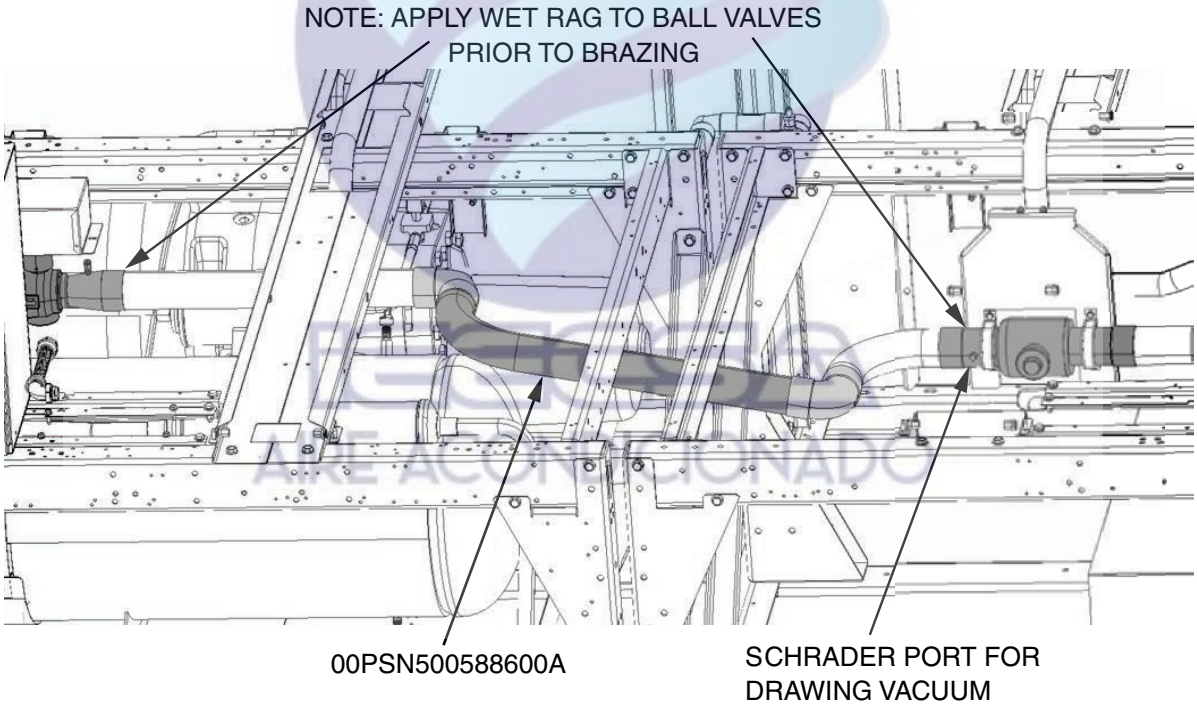
NOTE: See Fig. 31 and 32 for detailed view of circled area.

Fig. 30 — 30XA501 Discharge Line Piping Connection Location (Power Box Side Shown)



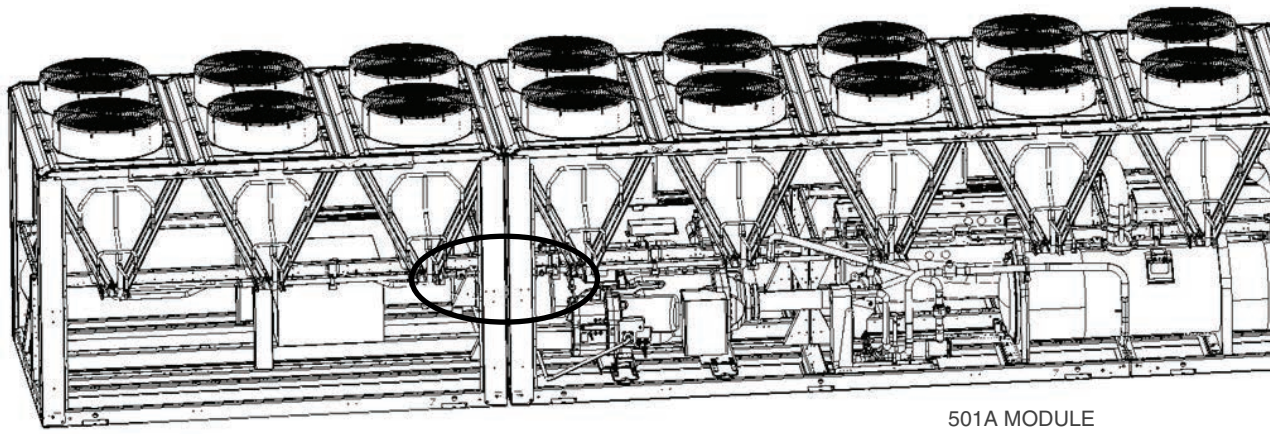
NOTE: Corner posts removed for clarity.

Fig. 31 — 30XA501 Discharge Line Brazed Caps to be Removed



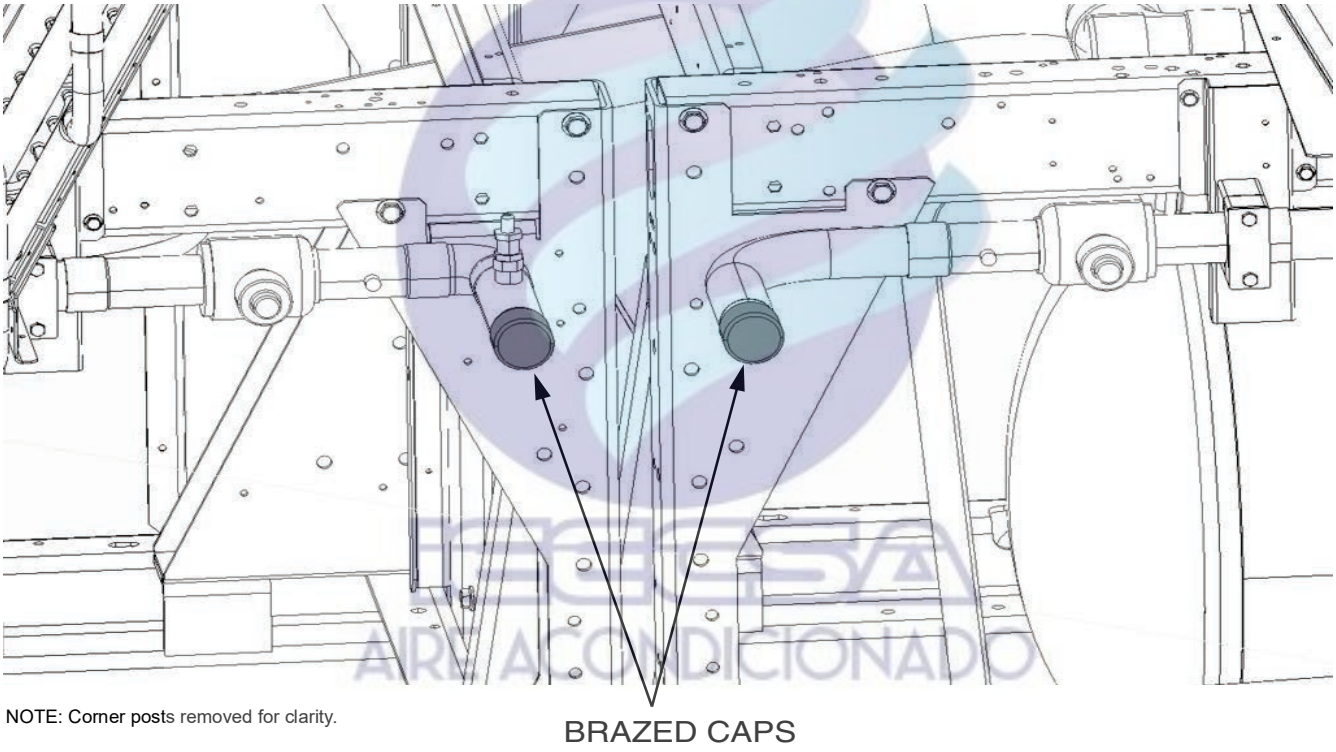
NOTE: Corner posts and coil tray removed for clarity.

Fig. 32 — 30XA501 Discharge Line Piping Installed (In Field)



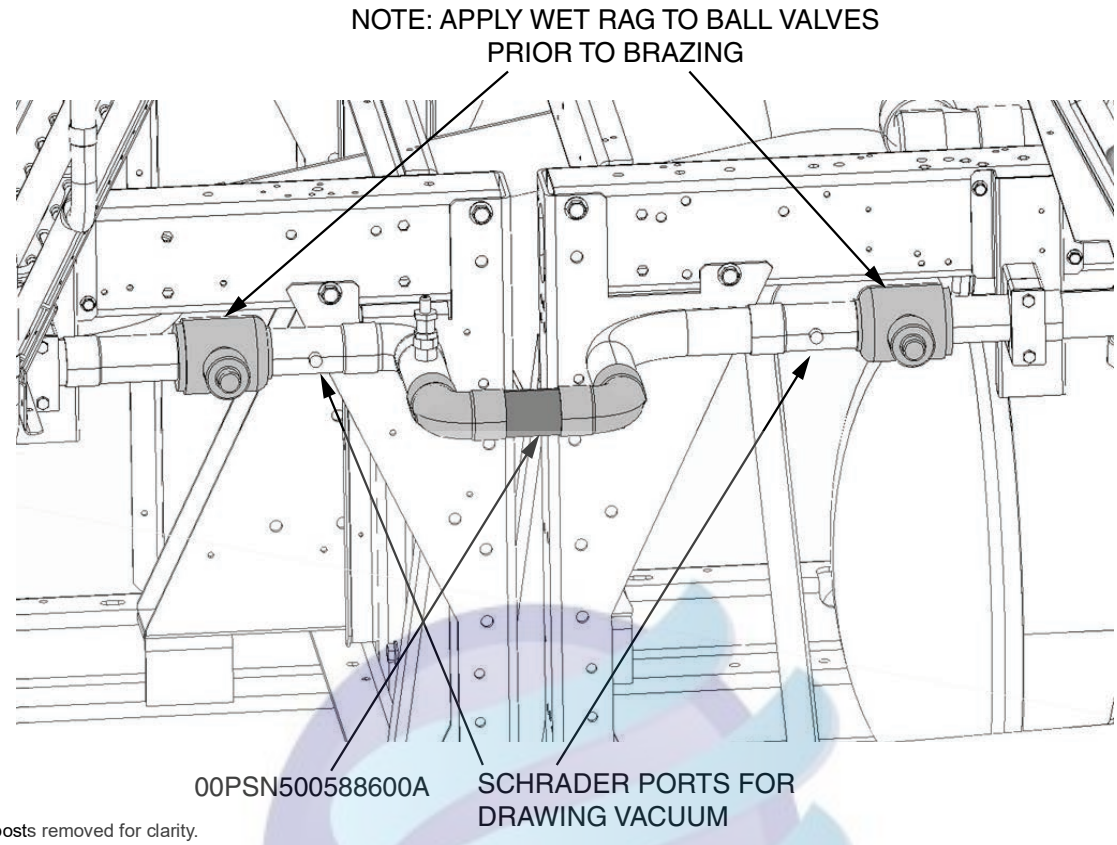
NOTE: See Fig. 34 and 35 for detailed view of circled area.

Fig. 33 — 30XA501 Liquid Line Piping Connection Location (Shown from Cooler Side)



NOTE: Corner posts removed for clarity.

Fig. 34 — 30XA501 Liquid Line Brazed Caps to be Removed



NOTE: Corner posts removed for clarity.

Fig. 35 — 30XA501 Liquid Line Piping Installed (In Field)

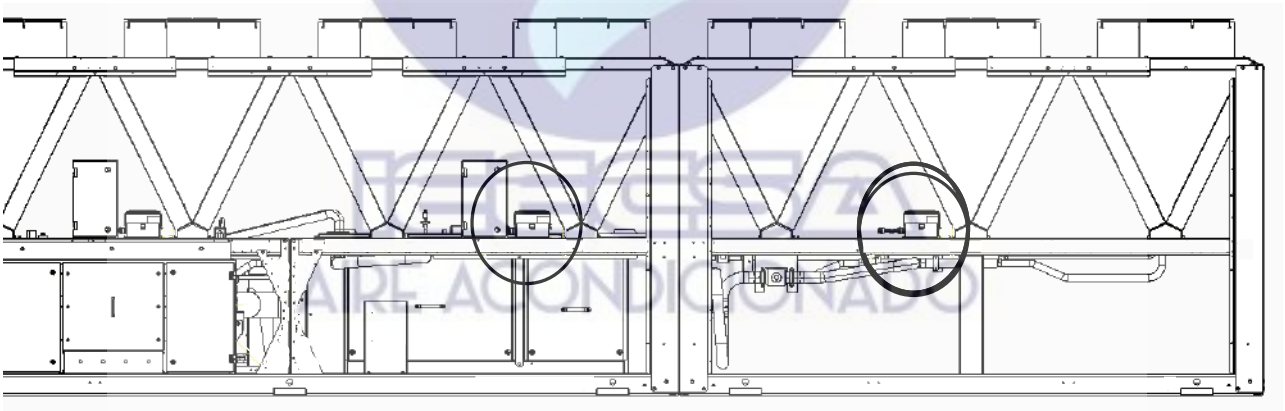


Fig. 36 — 30XA501 Fan Junction Boxes to be Connected with Conduit Jumper

30XA401, 451, 476, 501 Water Line Installation Options

The water lines for the standard coolers for the 401, 451, 476 and 501 unit sizes can be connected through the sections shown in the dimensional drawings (Fig. 20, 21, 22, and 23).

If the water lines are connected to the coolers by means of elbows (as shown in Fig. 37), then it is recommended to use 8 in. Victaulic elbows and 8 in. Victaulic couplings to connect the water lines to the cooler. It is also recommended to provide a break in the water lines close to the cooler. This allows them to be uninstalled to give room for removing the inlet and outlet water heads for cooler tube cleaning if needed at a later stage.

For the 476 and 501 size units, if the water lines are connected by straight pipes coming from the side of the unit (Fig. 38) then it is recommended to use two no. 13 Victaulic elbows (8 in., 11-1/4 degree elbows) per line to provide an offset so that there is enough clearance from the economizer assembly for installation. This offset is not required for the 401, 451 size units. For the 401, 451, 476 and 501 size assemblies it is important to have a short break in the incoming and outgoing water lines so that the cooler heads can be easily removed if cleaning of cooler tubes is required in the future.

The above recommendations are also valid for the *water inlet* on the minus one pass cooler options for the 401, 451, 476 and 501 size assemblies. The *water outlet* connection for the minus one pass cooler options can only be made using an 8 in. Victaulic elbow. As mentioned above, keep a short break in the water line close to the cooler so that the cooler heads can be easily removed if cleaning of cooler tubes is required in the future.

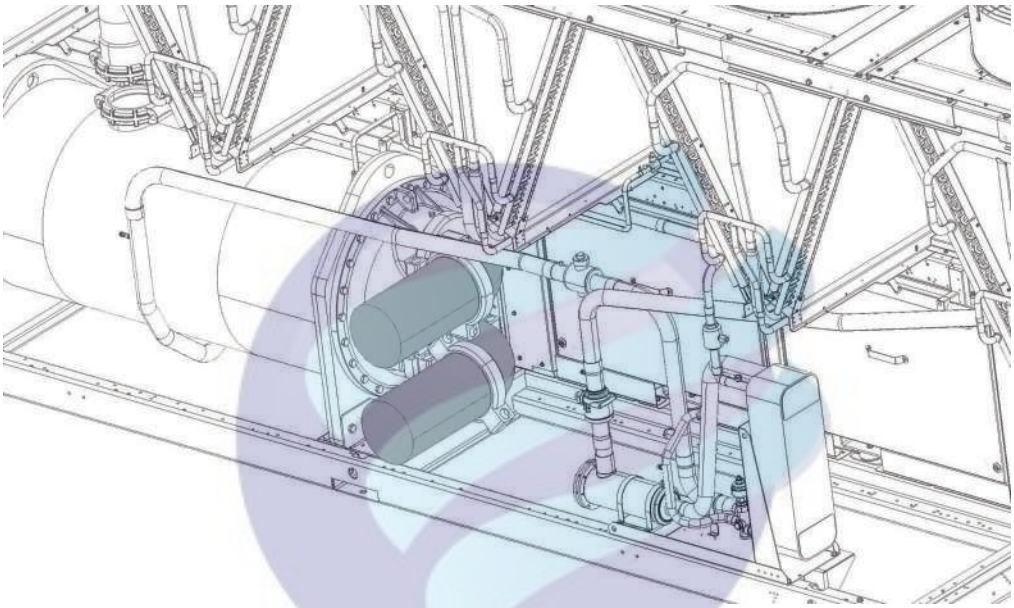


Fig. 37 — 30XA401, 451, 476, 501 Water Line Installation Using Elbows

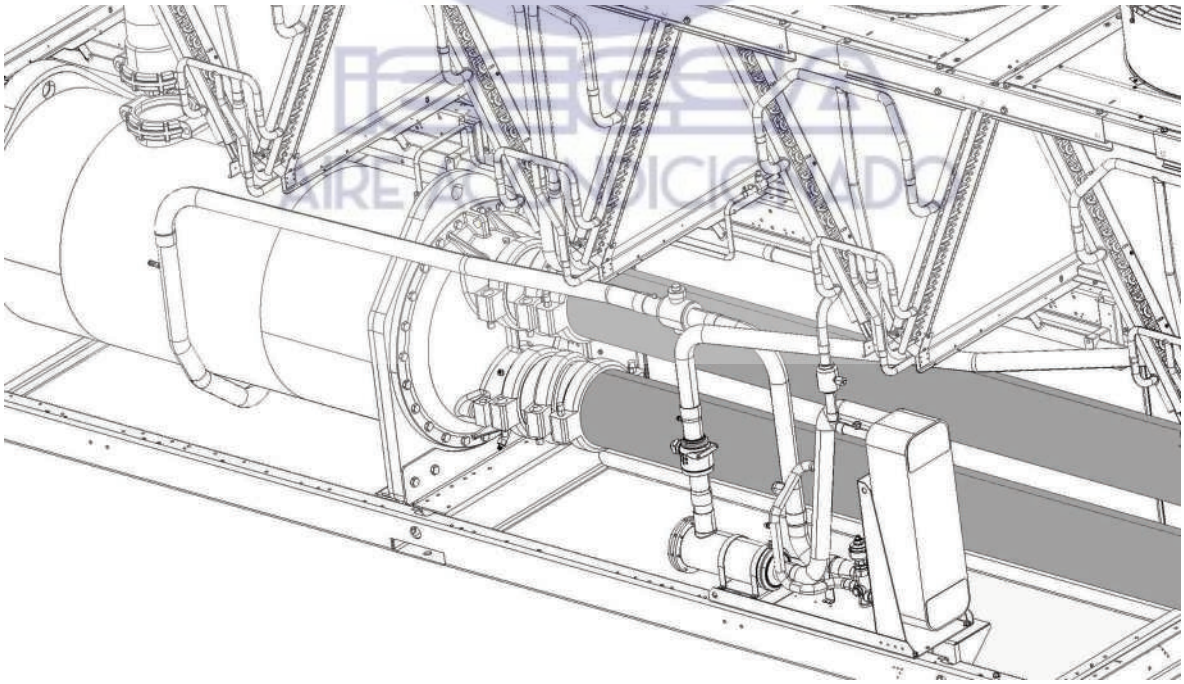


Fig. 38 — 30XA476, 501 Water Line Connection Using 2 No. 13 Victaulic Elbows Per Line from the Side of the Unit

GENERAL

See Fig. 39-42 for typical piping and wiring. The Victaulic connections allow clamp-on connection of water lines to the coolers in all 30XA units. See Table 10 for 30XA unit operating range. See Fig. 43 for cooler option dimensions. A flow sensor is factory-installed in the side of the entering fluid nozzle for flooded units and is located in the leaving fluid nozzle for DX cooler units. See Fig. 44.

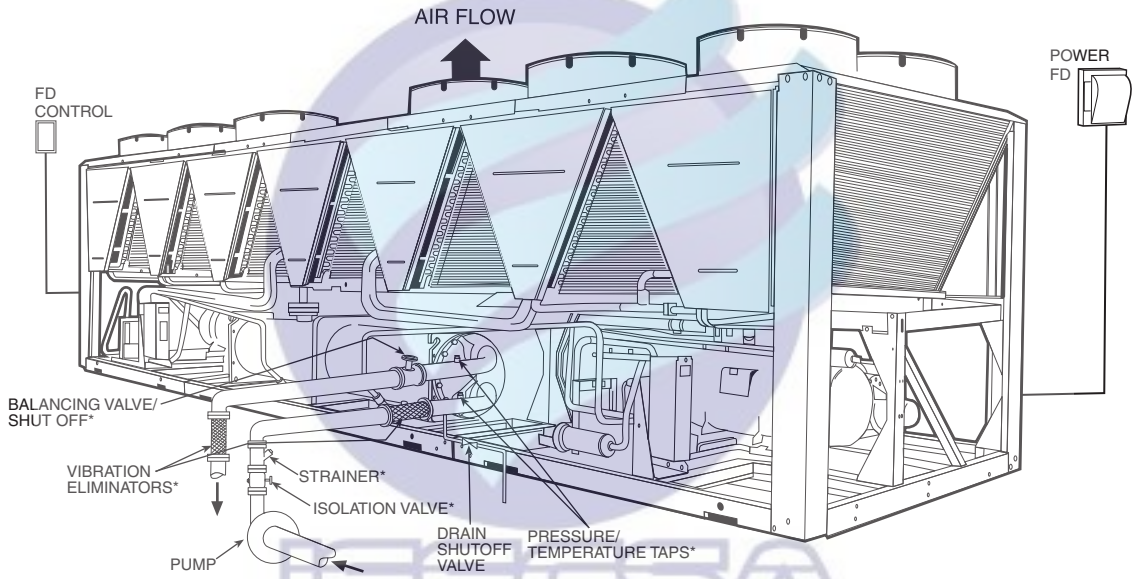
Minimum Loop Volume

The preferred minimum loop volume is dependent on the type of application. In order to obtain leaving water temperature stability for comfort cooling applications, a minimum of 3 gallons per ton (3.25 liters per kW) is required on all unit sizes. For process cooling applications, applications where high stability is critical, or operation at ambient temperatures below 32°F (0°C) is expected, the loop volume should be increased to 6 to 10 gallons per ton (6.46 to 10.76 liters per kW) of cooling. In order to achieve this volume, it may be necessary to add a water storage tank to the water loop. If a storage tank is added to the system, it should be properly vented so that the tank can be completely filled and all air eliminated. Failure to do so could cause lack of pump stability and poor system operation. Any storage tank that is placed in the water loop should have internal baffles to allow thorough mixing of the fluid. See Fig. 45.

System Piping

Proper system design and installation procedures should be followed closely. The system must be constructed with pressure tight components and thoroughly tested for installation leaks. Factory-supplied hydronic systems are available with single or dual (for back-up) pumps. The factory-installed system includes all of the components above the line in Fig. 46 and 47.

Installation of water systems should follow sound engineering practice as well as applicable local and industry standards. Improperly designed or installed systems may cause unsatisfactory operation and/or system failure. Consult a water treatment specialist or appropriate literature for information regarding filtration, water treatment, and control devices. Figures 46 and 47 show a typical installation with components that might be installed with the hydronic package of the 30XA unit.



LEGEND

FD — Fused Disconnect

Airflow Through Condenser

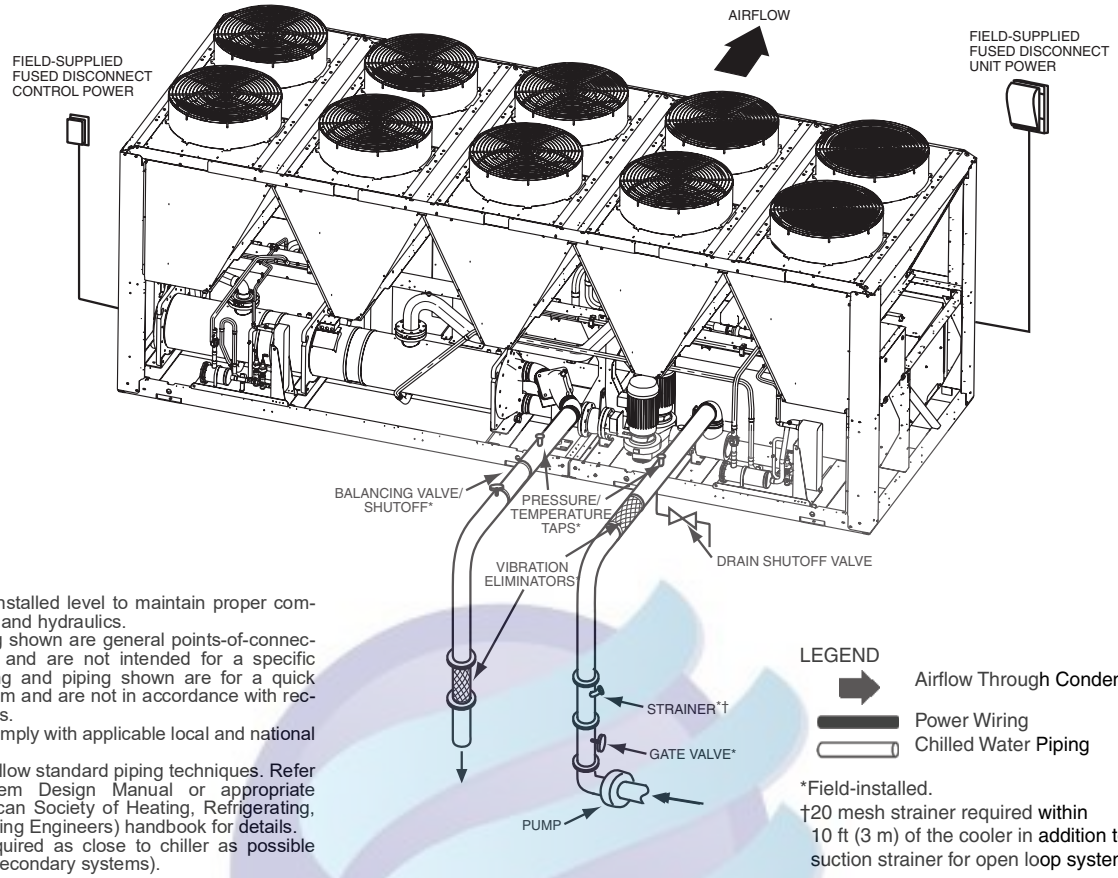
Chilled Water Piping

Power Wiring

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, Refrigerating, and Air-Conditioning Engineers) handbook for details.

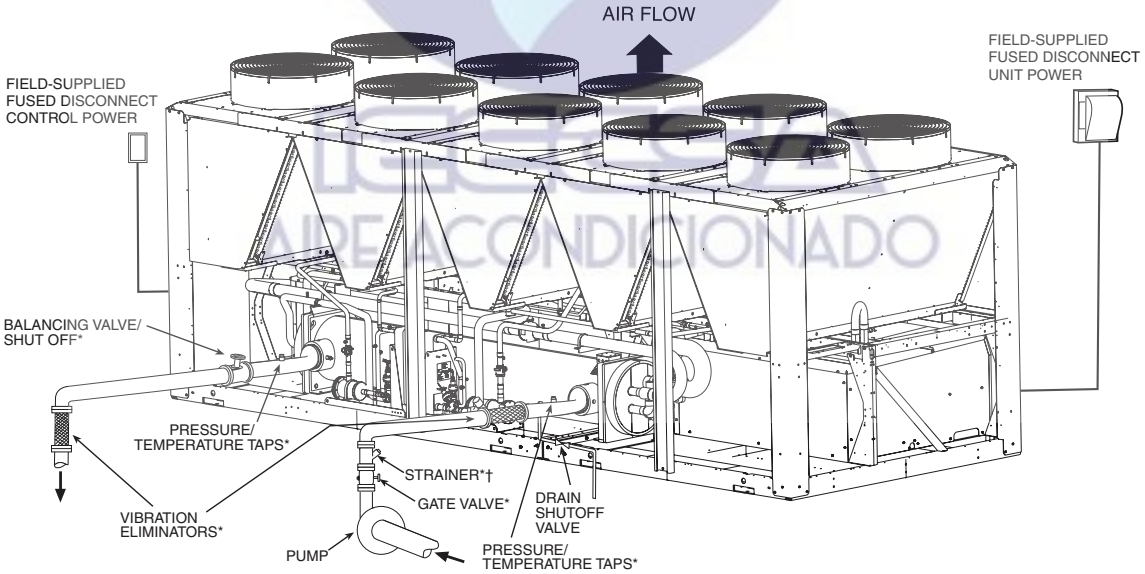
Fig. 39 — 30XA Flooded Cooler Typical Piping and Wiring (Units without Hydronic Package)



NOTES:
1. Chiller must be installed level to maintain proper compressor oil return and hydraulics.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details.
5. Air separator required as close to chiller as possible (except primary/secondary systems).

*Field-installed.
†20 mesh strainer required within 10 ft (3 m) of the cooler in addition to suction strainer for open loop systems.

Fig. 40 — 30XA Flooded Cooler Typical Piping and Wiring (Units with Hydronic Package)

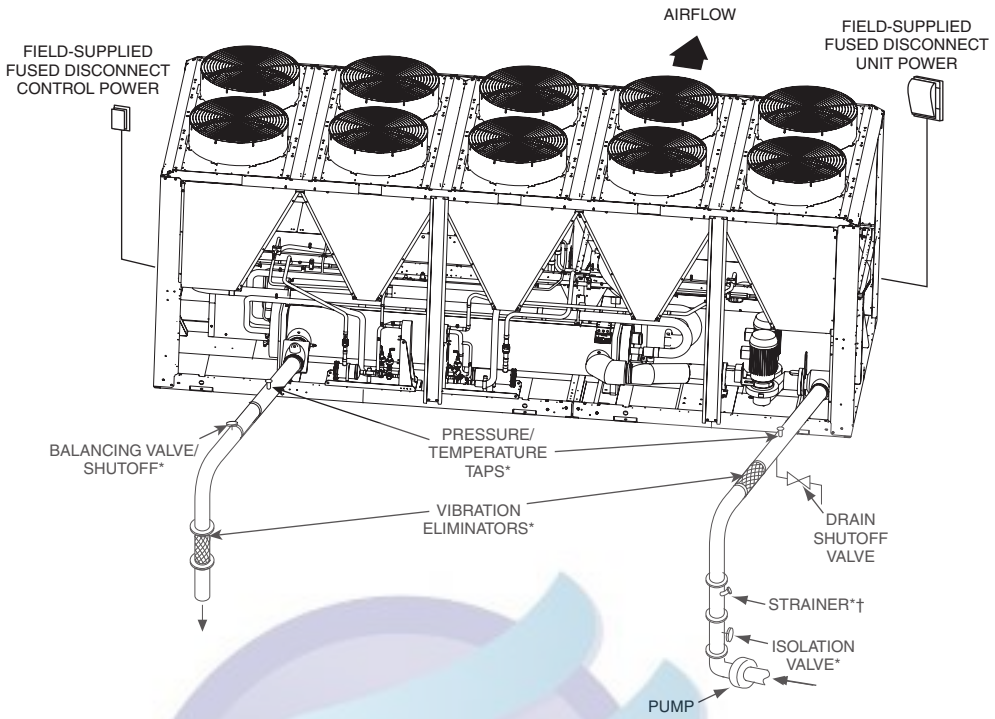


LEGEND
Airflow Through Condenser
Power Wiring
Chilled Water Piping

*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, Refrigerating, and Air-Conditioning Engineers) handbook for details.
5. A 20 mesh strainer is required within 10 ft (3 m) of the cooler.

Fig. 41 — 30XA DX Cooler Typical Piping and Wiring (Units without Hydronic Package)



NOTES:
1. Chiller must be installed level to maintain proper compressor oil return and hydraulics.
2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
3. All wiring must comply with applicable local and national codes.
4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) handbook for details.
5. Air separator required as close to chiller as possible (except primary/secondary systems).
6. 20 mesh strainer required within 10 ft (3 m) of the cooler in addition to suction strainer for open loop systems.

LEGEND

Airflow Through Condenser

Power Wiring

Chilled Water Piping

*Field-installed.

Fig. 42 — 30XA DX Cooler Typical Piping and Wiring (Units with Hydronic Package)

ENGLISH

30XA UNIT SIZE*	STANDARD COOLER						PLUS ONE PASS COOLER						MINUS ONE PASS COOLER					
	Distance to Leaving Water Connect. (in.)	Height Leaving Water Connect. (in.)	Distance to Leaving/ Entering Water Connect. (in.)	Distance to Entering Water Connect. (in.)	Height Entering Water Connect. (in.)	Victaulic Connect. Size (in.)	Distance to Leaving Water Connect. (in.)	Height Leaving Water Connect. (in.)	Distance to Leaving/ Entering Water Connect. (in.)	Distance to Entering Water Connect. (in.)	Height Entering Water Connect. (in.)	Victaulic Connect. Size (in.)	Distance to Leaving Water Connect. (in.)	Height Leaving Water Connect. (in.)	Distance to Leaving/ Entering Water Connect. (in.)	Distance to Entering Water Connect. (in.)	Height Entering Water Connect. (in.)	Victaulic Connect. Size (in.)
080	121.2	19.1	68.1	121.2	10.8	5.0	1.5	19.6	68.1	121.2	10.3	4.0	–2.2	14.9	68.1	124.8	14.9	5.0
090	120.9	19.1	68.1	120.9	10.8	5.0	1.2	19.6	68.1	120.9	10.3	4.0	–2.5	14.9	68.1	124.5	14.9	5.0
100	120.9	19.1	68.1	120.9	10.8	5.0	1.2	19.6	68.1	120.9	10.3	4.0	–2.5	14.9	68.1	124.5	14.9	5.0
110	120.9	19.1	68.1	120.9	10.8	5.0	1.2	19.6	68.1	120.9	10.3	4.0	–2.5	14.9	68.1	124.5	14.9	5.0
120	120.9	19.1	68.1	120.9	10.8	5.0	1.2	19.6	68.1	120.9	10.3	4.0	–2.5	14.9	68.1	124.5	14.9	5.0
140	121.5	21.3	69.1	121.5	10.6	5.0	1.2	21.3	69.1	121.5	10.6	5.0	–2.2	15.9	69.1	124.8	15.9	6.0
160	121.5	21.3	69.1	121.5	10.6	5.0	1.2	21.3	69.1	121.5	10.6	5.0	–2.2	15.9	69.1	124.8	15.9	6.0
180	177.7	22.5	70.2	177.7	11.3	6.0	53.6	22.4	70.2	180.6	11.4	6.0	53.6	13.2	70.2	180.6	13.2	8.0
200	177.3	22.5	70.2	177.3	11.3	6.0	53.2	22.4	70.2	180.2	11.4	6.0	53.2	13.2	70.2	180.2	13.2	8.0
220	224.7	22.5	70.2	224.7	11.3	6.0	100.6	22.4	70.2	227.6	11.4	6.0	100.6	13.2	70.2	227.6	13.2	8.0
240	224.7	22.5	70.2	224.7	11.3	6.0	100.6	22.4	70.2	227.6	11.4	6.0	100.6	13.2	70.2	227.6	13.2	8.0
260	304.7	23.6	71.1	304.7	12.2	8.0	180.3	23.4	71.1	310.3	12.5	8.0	180.3	16.3	71.1	310.3	16.3	8.0
280	304.7	23.6	71.1	304.7	12.2	8.0	180.3	23.4	71.1	310.3	12.5	8.0	180.3	16.3	71.1	310.3	16.3	8.0
300	304.7	23.6	71.1	304.7	12.2	8.0	180.3	23.4	71.1	310.3	12.5	8.0	180.3	16.3	71.1	310.3	16.3	8.0
325	349.0	23.6	71.1	349.0	12.2	8.0	224.7	23.4	71.1	354.7	12.5	8.0	224.7	16.3	71.1	354.7	16.3	8.0
350	349.0	23.6	71.1	349.0	12.2	8.0	224.7	23.4	71.1	354.7	12.5	8.0	224.7	16.3	71.1	354.7	16.3	8.0
401	287.7	26.0	72.6	287.7	12.6	8.0	N/A	N/A	N/A	N/A	N/A	N/A	284.7	19.3	72.6	287.7	19.3	8.0
451	427.7	26.0	72.6	427.7	12.6	8.0	N/A	N/A	N/A	N/A	N/A	N/A	424.8	19.3	72.6	427.7	19.3	8.0
476	429.6	28.9	72.6	429.6	15,5	8.0	N/A	N/A	N/A	N/A	N/A	N/A	427.1	22.2	72.6	429.0	22.2	8.0
501	429.8	28.9	72.6	429.8	15.5	8.0	N/A	N/A	N/A	N/A	N/A	N/A	432.4	22.2	72.6	429.2	22.2	8.0

SI

30XA UNIT SIZE*	STANDARD COOLER						PLUS ONE PASS COOLER						MINUS ONE PASS COOLER					
	Distance to Leaving Water Connect. (mm)	Height Leaving Water Connect. (mm)	Distance to Leaving/ Entering Water Connect. (mm)	Distance to Entering Water Connect. (mm)	Height Entering Water Connect. (mm)	Victaulic Connect. Size (mm)	Distance to Leaving Water Connect. (mm)	Height Leaving Water Connect. (mm)	Distance to Leaving/ Entering Water Connect. (mm)	Distance to Entering Water Connect. (mm)	Height Entering Water Connect. (mm)	Victaulic Connect. Size (mm)	Distance to Leaving Water Connect. (mm)	Height Leaving Water Connect. (mm)	Distance to Leaving/ Entering Water Connect. (mm)	Distance to Entering Water Connect. (mm)	Height Entering Water Connect. (mm)	Victaulic Connect. Size (mm)
080	3077.8	484.0	1728.7	3077.8	274.2	127.0	37.9	497.2	1728.7	3077.8	261.0	101.6	–55.1	379.1	1728.7	3170.7	379.1	127.0
090	3069.6	484.0	1728.7	3069.6	274.2	127.0	29.7	497.2	1728.7	3069.6	261.0	101.6	–63.2	379.1	1728.7	3162.6	379.1	127.0
100	3069.6	484.0	1728.7	3069.6	274.2	127.0	29.7	497.2	1728.7	3069.6	261.0	101.6	–63.2	379.1	1728.7	3162.6	379.1	127.0
110	3069.6	484.0	1728.7	3069.6	274.2	127.0	29.7	497.2	1728.7	3069.6	261.0	101.6	–63.2	379.1	1728.7	3162.6	379.1	127.0
120	3069.6	484.0	1728.7	3069.6	274.2	127.0	29.7	497.2	1728.7	3069.6	261.0	101.6	–63.2	379.1	1728.7	3162.6	379.1	127.0
140	3085.8	540.5	1756.2	3085.8	268.7	127.0	30.1	540.5	1756.2	3085.8	268.7	127.0	–55.0	404.6	1756.2	3170.8	404.6	152.4
160	3085.8	540.5	1756.2	3085.8	268.7	127.0	30.1	540.5	1756.2	3085.8	268.7	127.0	–55.0	404.6	1756.2	3170.8	404.6	152.4
180	4512.3	571.0	1782.1	4512.3	287.0	152.4	1361.4	569.5	1782.1	4587.2	288.5	152.4	1361.4	336.0	1782.1	4587.2	336.0	203.2
200	4502.4	571.0	1782.1	4502.4	287.0	152.4	1351.6	569.5	1782.1	4577.4	288.5	152.4	1351.6	336.0	1782.1	4577.4	336.0	203.2
220	5706.2	571.0	1782.1	5706.2	287.0	152.4	2555.3	569.5	1782.1	5781.1	288.5	152.4	2555.3	336.0	1782.1	5781.1	336.0	203.2
240	5706.2	571.0	1782.1	5706.2	287.0	152.4	2555.3	569.5	1782.1	5781.1	288.5	152.4	2555.3	336.0	1782.1	5781.1	336.0	203.2
260	7739.6	600.2	1804.9	7739.6	310.1	203.2	4580.8	593.9	1804.9	7882.8	316.5	203.2	4580.8	413.3	1804.9	7882.8	413.3	203.2
280	7739.6	600.2	1804.9	7739.6	310.1	203.2	4580.8	593.9	1804.9	7882.8	316.5	203.2	4580.8	413.3	1804.9	7882.8	413.3	203.2
300	7739.6	600.2	1804.9	7739.6	310.1	203.2	4580.8	593.9	1804.9	7882.8	316.5	203.2	4580.8	413.3	1804.9	7882.8	413.3	203.2
325	8865.1	600.2	1804.9	8865.1	310.1	203.2	5706.4	593.9	1804.9	9008.4	316.5	203.2	5706.4	413.3	1804.9	9008.4	413.3	203.2
350	8865.1	600.2	1804.9	8865.1	310.1	203.2	5706.4	593.9	1804.9	9008.4	316.5	203.2	5706.4	413.3	1804.9	9008.4	413.3	203.2
401	7282.3	659.2	1844.1	7282.3	319.2	203.2	N/A	N/A	N/A	N/A	N/A	N/A	7232.1	489.2	1844.1	7307.8	489.2	203.2
451	10864.3	659.2	1844.1	10864.3	319.2	203.2	N/A	N/A	N/A	N/A	N/A	N/A	10788.7	489.2	1844.1	10864.3	489.2	203.2
476	10912.9	733.0	1844.1	10912.9	393.0	203.2	N/A	N/A	N/A	N/A	N/A	N/A	10847.8	563.1	1844.1	10895.8	562.9	203.2
501	10918.0	733.0	1844.1	10918.0	393.0	203.2	N/A	N/A	N/A	N/A	N/A	N/A	10983.0	563.1	1844.1	10900.0	562.9	203.2

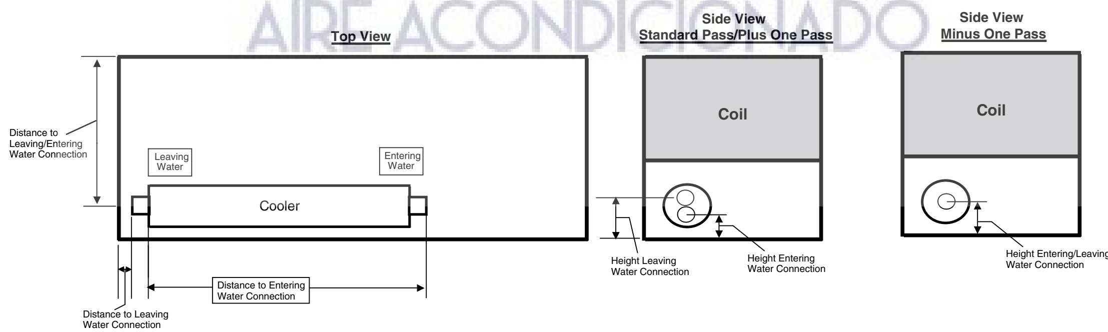


Fig. 43 — Flooded Cooler Option Dimensions

Table 10 — 30XA Minimum and Maximum Cooler Flow Rates

ITEM					MINIMUM		MAXIMUM	
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	Nominal Flow Rate		Cooler	Number of Passes	Minimum Flow Rate**		Maximum Flow Rate	
	(gpm)	(L/s)			(gpm)	(L/s)	(gpm)	(L/s)
080	180.4	11.4	Standard, Flooded	2	95	6	379	23.9
			Plus One Pass, Flooded	3	43	2.7	192	12.1
			Minus One Pass, Flooded	1	196	12.4	782	49.3
082	172.8	10.9	DX Cooler	—	86	5.4	346	21.8
090	201.9	12.7	Standard, Flooded	2	101	6.4	403	25.4
			Plus One Pass, Flooded	3	43	2.7	200	12.6
			Minus One Pass, Flooded	1	229	14.4	917	57.9
092	193.7	12.2	DX Cooler	—	97	6.1	387	24.4
100	225.5	14.2	Standard, Flooded	2	101	6.4	403	25.4
			Plus One Pass, Flooded	3	43	2.7	200	12.6
			Minus One Pass, Flooded	1	229	14.4	917	57.9
102	214.3	13.5	DX Cooler	—	107	6.7	429	27.0
110	244.9	15.5	Standard, Flooded	2	125	7.9	501	31.6
			Plus One Pass, Flooded	3	61	3.8	244	15.4
			Minus One Pass, Flooded	1	254	16	1014	64
112	235.2	14.8	DX Cooler	—	118	7.4	470	29.6
120	264.8	16.7	Standard, Flooded	2	125	7.9	501	31.6
			Plus One Pass, Flooded	3	73	4.6	293	18.5
			Minus One Pass, Flooded	1	281	17.7	1124	70.9
122	254.7	16.0	DX Cooler	—	127	8.0	509	32.1
140	317.8	20.1	Standard, Flooded	2	134	8.5	538	33.9
			Plus One Pass, Flooded	3	73	4.6	293	18.5
			Minus One Pass, Flooded	1	324	20.4	1296	81.8
142	303.5	19.1	DX Cooler	—	152	9.6	607	38.2
160	365.1	23	Standard, Flooded	2	165	10.4	660	41.6
			Plus One Pass, Flooded	3	98	6.2	391	24.7
			Minus One Pass, Flooded	1	354	22.3	1418	89.5
162	347	21.9	DX Cooler	—	174	10.9	694	43.7
180	409.6	25.8	Standard, Flooded	2	202	12.7	807	50.9
			Plus One Pass, Flooded	3	73	4.6	391	24.7
			Minus One Pass, Flooded	1	416	26.2	1662	104.9
182	401.7	25.3	DX Cooler	—	201	12.6	803	50.6
200	463.9	29.3	Standard, Flooded	2	223	14.1	892	56.3
			Plus One Pass, Flooded	3	98	6.2	391	24.7
			Minus One Pass, Flooded	1	458	28.9	1833	115.6
202	447.1	28.2	DX Cooler	—	224	14.1	894	56.3
220	505.9	31.9	Standard, Flooded	2	235	14.8	941	59.4
			Plus One Pass, Flooded	3	122	7.7	489	30.9
			Minus One Pass, Flooded	1	501	31.6	2004	126.4
222	493	31.1	DX Cooler	—	246	15.5	950	59.9
240	545.8	34.4	Standard, Flooded	2	266	16.8	1063	67.1
			Plus One Pass, Flooded	3	147	9.3	587	37
			Minus One Pass, Flooded	1	538	33.9	2151	135.7
242	530	33.5	DX Cooler	—	265	16.7	950	59.9
260	600.3	37.9	Standard, Flooded	2	257	16.2	1027	64.8
			Plus One Pass, Flooded	3	141	8.9	562	35.5
			Minus One Pass, Flooded	1	584	36.8	2334	147.3
262	583	36.8	DX Cooler	—	292	18.4	950	59.9
280	642.2	40.5	Standard, Flooded	2	293	18.5	1173	74
			Plus One Pass, Flooded	3	141	8.9	562	35.5
			Minus One Pass, Flooded	1	620	39.1	2481	156.5
282	627	39.5	DX Cooler	—	313	19.8	950	59.9
300	687.5	43.4	Standard, Flooded	2	327	20.6	1308	82.5
			Plus One Pass, Flooded	3	174	11	697	44
			Minus One Pass, Flooded	1	687	43.3	2750	173.5
302	665	42.0	DX Cooler	—	333	21.0	1331	83.9
325	733.4	46.3	Standard, Flooded	2	361	22.8	1442	91
			Plus One Pass, Flooded	3	211	13.3	843	53.2
			Minus One Pass, Flooded	1	724	45.7	2897	182.8
327	720	45.4	DX Cooler	—	360	22.7	1440	90.8
350	775.4	48.9	Standard, Flooded	2	379	23.9	1516	95.6
			Plus One Pass, Flooded	3	244	15.4	978	61.7
			Minus One Pass, Flooded	1	767	48.4	3068	193.6
352	757	47.8	DX Cooler	—	379	23.9	1514	95.5

See Legend and Notes on page 98.

Table 10 — 30XA Minimum and Maximum Cooler Flow Rates (cont)

ITEM					MINIMUM		MAXIMUM	
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	Nominal Flow Rate		Cooler	Number of Passes	Minimum Flow Rate**		Maximum Flow Rate	
	(gpm)	(L/s)			(gpm)	(L/s)	(gpm)	(L/s)
401	948	59.9	Standard, Flooded	2	474	29.9	1896	119.6
			Plus One Pass, Flooded	—	—	—	—	—
			Minus One Pass, Flooded	1	800	50.5	3792	239.3
451	1047	66.1	Standard, Flooded	2	523.5	33.0	2094	132.1
			Plus One Pass, Flooded	—	—	—	—	—
			Minus One Pass, Flooded	1	800	50.5	4000	252.4
476	1104	69.7	Standard, Flooded	2	552	34.8	2208	139.3
			Plus One Pass, Flooded	—	—	—	—	—
			Minus One Pass, Flooded	1	950	59.9	4000	252.4
501	1184	74.7	Standard, Flooded	2	592	37.3	2368	149.4
			Plus One Pass, Flooded	—	—	—	—	—
			Minus One Pass, Flooded	1	950	59.9	4000	252.4

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

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

** For minimum cooler flow rate with brine applications, refer to E-CAT software performance.

NOTES:
1. The 30XA units will start and pull down with loop temperatures up to 95°F (35°C).
2. Nominal flow rates required at AHRI (Air Conditioning, Heating, and Refrigeration Institute) 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]).

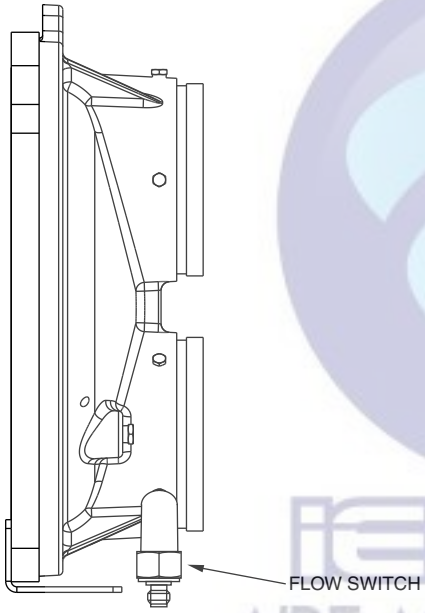


Fig. 44 — Flow Switch

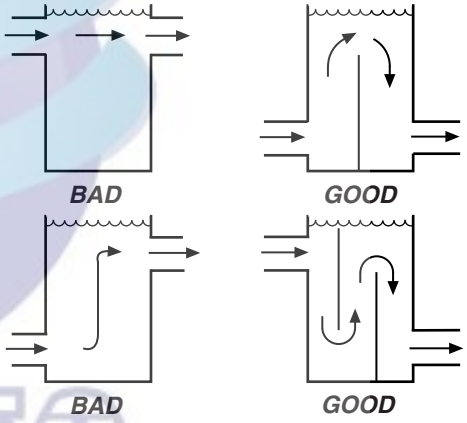


Fig. 45 — Tank Baffling

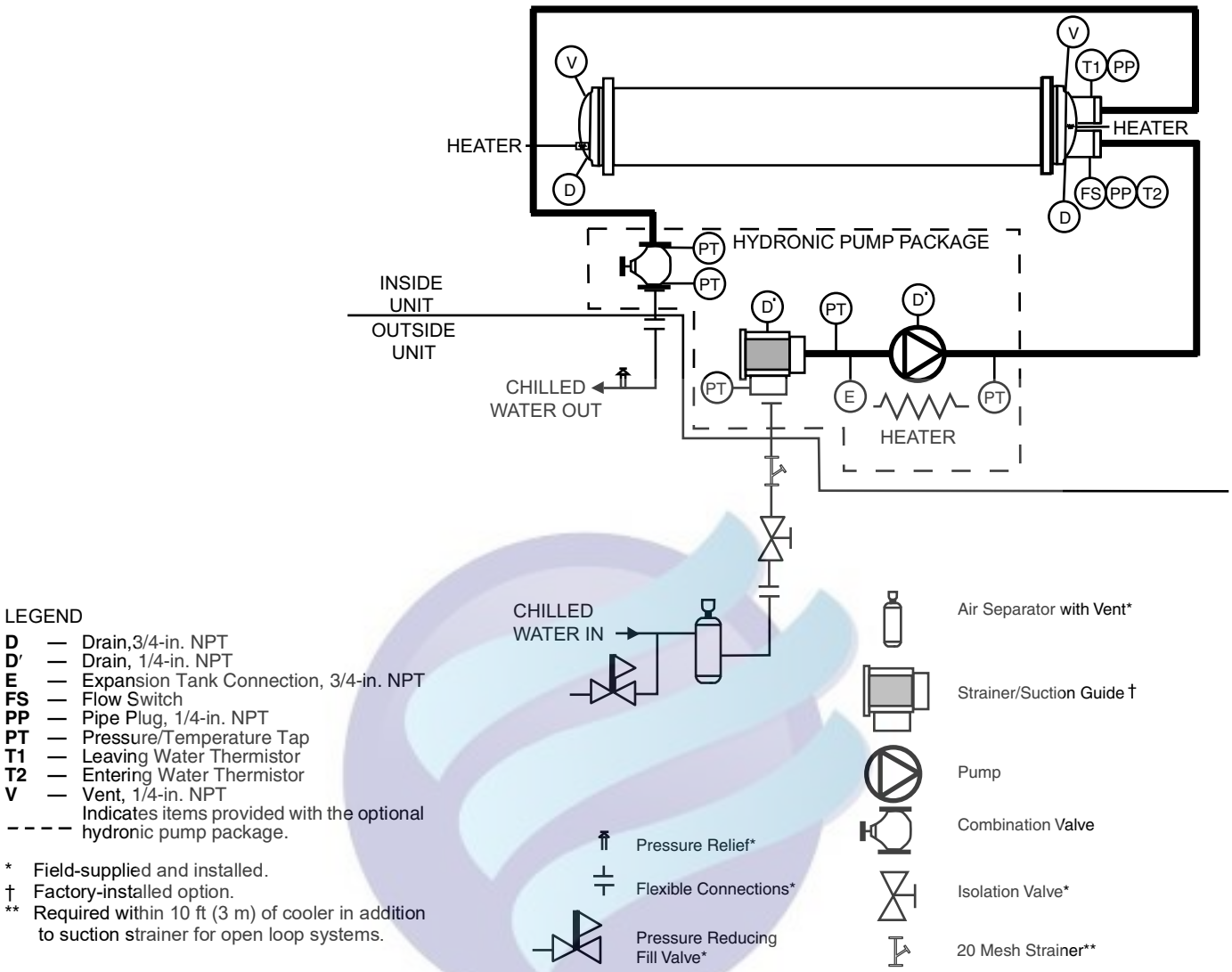


Fig. 46 — Typical Piping Diagram on 30XA Units with Hydronic Package — Single Pump (Flooded Cooler)

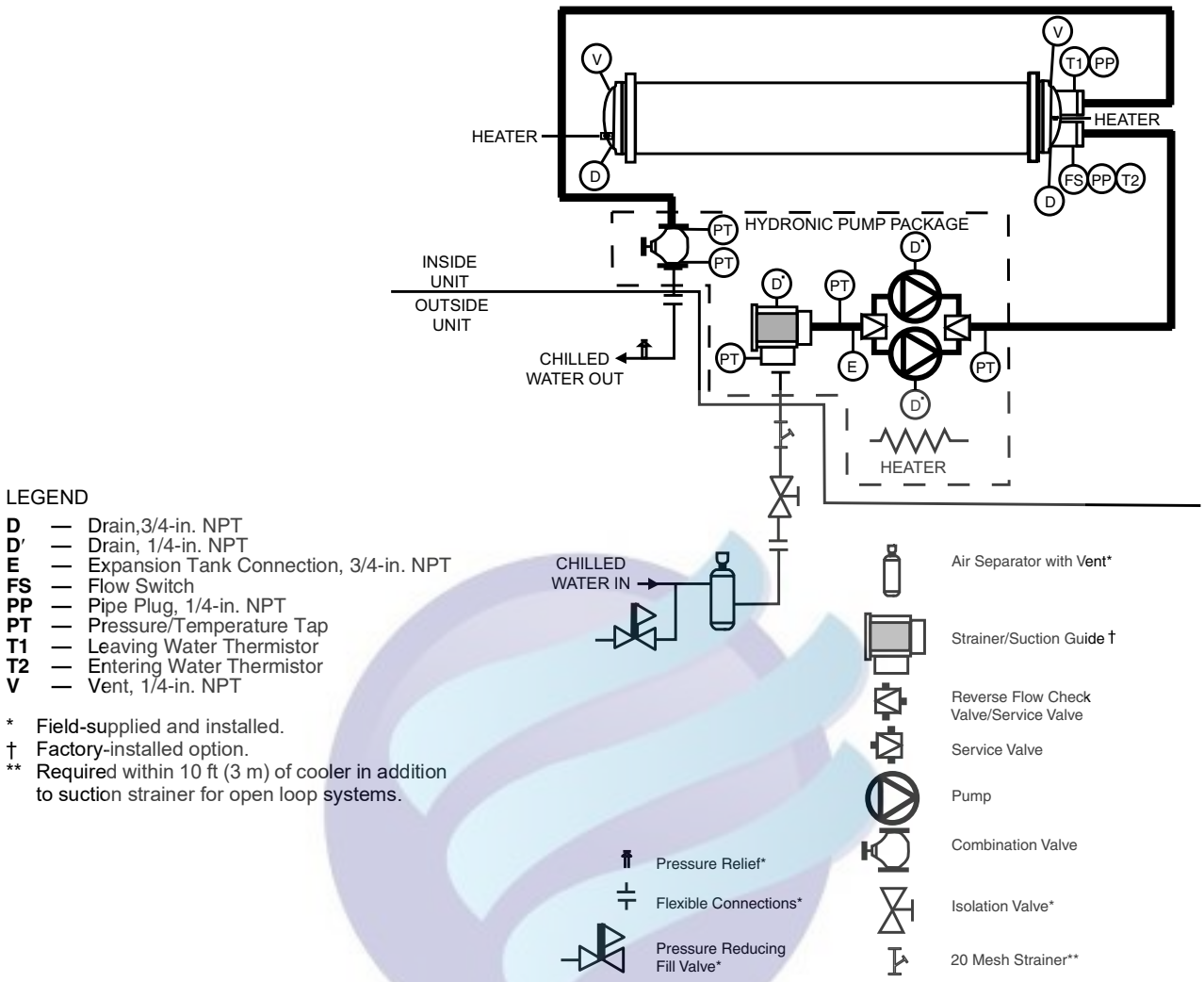


Fig. 47 — Typical Piping Diagram on 30XA Units with Hydronic Package — Dual Pumps (Flooded Cooler)

FLOODED COOLER UNITS

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

Flooded Cooler Air Separation

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

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

1. Install automatic air vents at all high points in the system. (If the 30XA unit is located at the high point of the system, a vent can be installed on the piping leaving the heat exchanger on the 1/4 in. NPT female port.)
2. Install an air separator in the water loop, at the place where the water is at higher temperatures and lower pressures — usually in the chilled water return piping. On a primary-secondary system, the highest temperature water is normally in the secondary loop, close to the decoupler. Preference should be given to that point on the system (Fig. 48). In-line or centrifugal air separators are readily available in the field.

If it is not possible to install air separators at the place of the highest temperature and lowest pressure, preference should be given to the points of highest temperature. It is important that the pipe be sized correctly so that free air can be moved to the point of separation. Generally, a water velocity of at least 2 feet per second (0.6 m per second) will keep free air entrained and prevent it from forming air pockets.

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

Flooded Cooler Units with Hydronic Pump Package

The 30XA090-160 units can be equipped with a factory-installed hydronic pump package consisting of a suction guide/strainer, pump, combination valve, internal piping and wiring connected at the factory.

The combination valve performs the following functions:

- drip-tight shut-off valve
- spring closure design with a non-slam check valve
- flow-throttling valve

When facing the cooler side of unit, the inlet (return) water connection is on the bottom. The outlet (supply) water connection is on the top. The inlet is connected to the suction guide/strainer of the pump via a Victaulic-type connection. The cooler supply has water-side Victaulic-type connections; follow connection directions as provided by the coupling manufacturer. Provide proper support for the piping. If accessory security grilles have been added, holes must be cut in the grilles for field piping and insulation.

A factory-supplied, insulated 45-degree elbow pipe and a Victaulic coupling are shipped with units ordered with a hydronic pump package. Before starting field piping, use the Victaulic coupling to connect this elbow pipe to the outlet of the combination valve.

The suction guide/strainer is shipped from the factory with a run-in screen. This screen is a temporary device used during the start-up/clean-up process of the chilled water circuit to prevent construction debris from damaging the pump or internal tubes of the cooler. After all debris has been removed or a maximum of 24 running hours the temporary screen must be removed. See the Start-Up, Controls, Operation and Troubleshooting guide for further information.

⚠ CAUTION

The suction guide/strainer is shipped from the factory with a run-in screen. This temporary screen must be removed after all debris has been removed or a maximum of 24 running hours. Failure to remove the temporary screen may result in damage to the pump or cooler.

NOTE: It is required that a 20 mesh field-supplied strainer be installed in the inlet piping to the cooler on open loop systems.

A 3/4 in. NPT fitting is installed in the inlet piping of the pump for connection to an expansion tank. Install the tank in accordance with the manufacturer's instructions. Figures 46 and 47 illustrate typical single and dual pump packages.

Three drain connections are provided and are located at leaving water (supply) end of cooler, pump volute, and the suction guide. See Fig. 2-23 for connection location. Insulate the drain piping (in the same manner as the chilled water piping) for at least 12 in. (305 mm) from the cooler.

Flooded Cooler Units without Hydronic Pump Package

When facing the cooler side of the unit, the inlet (return) water connection is on the bottom. It is required that a field-supplied strainer with a minimum size of 20 mesh be installed within 10 ft (3.05 m) of the cooler inlet to prevent debris from damaging internal tubes of the cooler. The outlet (supply) water connection is on the top. The cooler has water-side Victaulic-type connections; follow connection directions as provided by the coupling manufacturer. Provide proper support for the piping. If accessory security grilles have been added, holes must be cut in the grilles for field piping and insulation. See Fig. 49 for a typical piping diagram of a 30XA unit without a hydronic pump package.

A drain connection is located at the leaving water (supply) end of cooler. See Fig. 2-23 for connection location. Insulate the drain piping (in the same manner as the chilled water piping) for at least 12 in. (305 mm) from the unit.

Flooded Cooler 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 on the CCN Bus.

There are several advantages to this type of control:

- redundancy (multiple circuits)
- better low load control (lower tonnage capability)
- lower rigging lift weights (two machines rather than one large machine)
- chiller lead-lag operation (evens the wear between the two machines)

Flooded Cooler Dual Chiller Leaving Water Sensor

If the dual chiller algorithm is used, and the machines are installed in parallel, a dual chilled water sensor must be installed for each module. Install the well in the common leaving water header. See Fig. 50.

Flooded Cooler Parallel Dual Chiller Operation

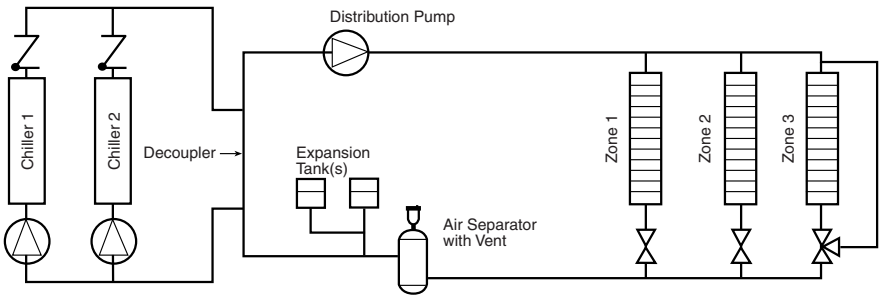
Parallel chiller operation is the recommended option for dual chiller control. In this case, each chiller must control its own dedicated pump or isolation valve. Balancing valves are recommended to ensure proper flow in each chiller. Two field-supplied and installed dual chiller leaving water temperature 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. See Fig. 50.

Flooded Cooler 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 arrangements to reduce the fluid-side pressure drop. Use the standard cooler pass arrangement for low flow, high cooler temperature rise applications.

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. See Fig. 51.



NOTE: Expansion tanks for 30XA hydronic kits must be installed for chillers piped in parallel in the primary water loop.

Fig. 48 — Typical Air Separator and Expansion Tank Location on Primary-Secondary Systems

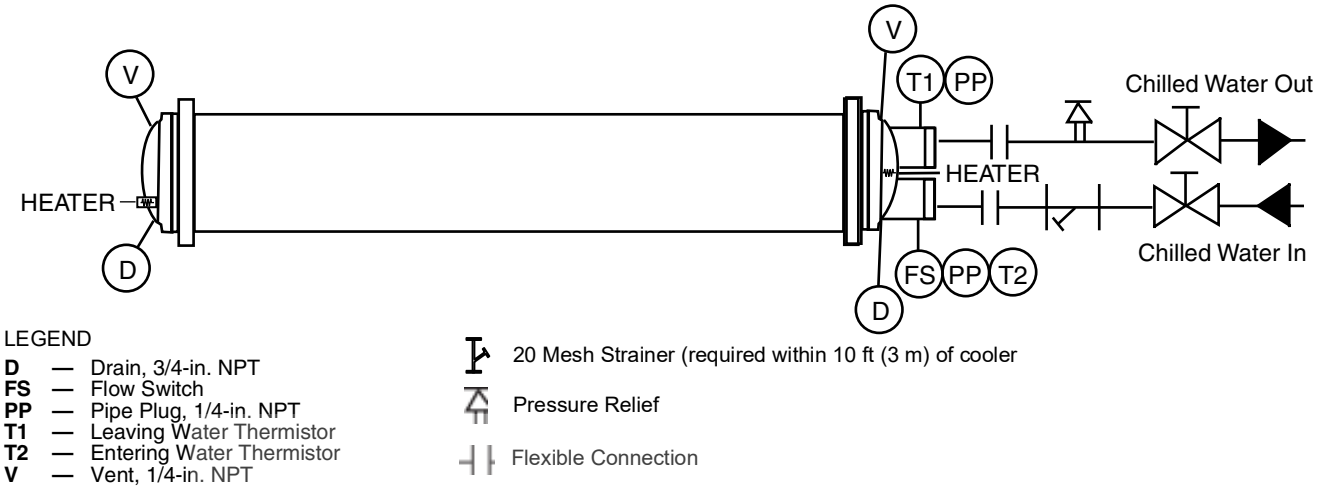


Fig. 49 — Typical Piping Diagram on 30XA Units without Hydronic Package (Flooded Cooler)

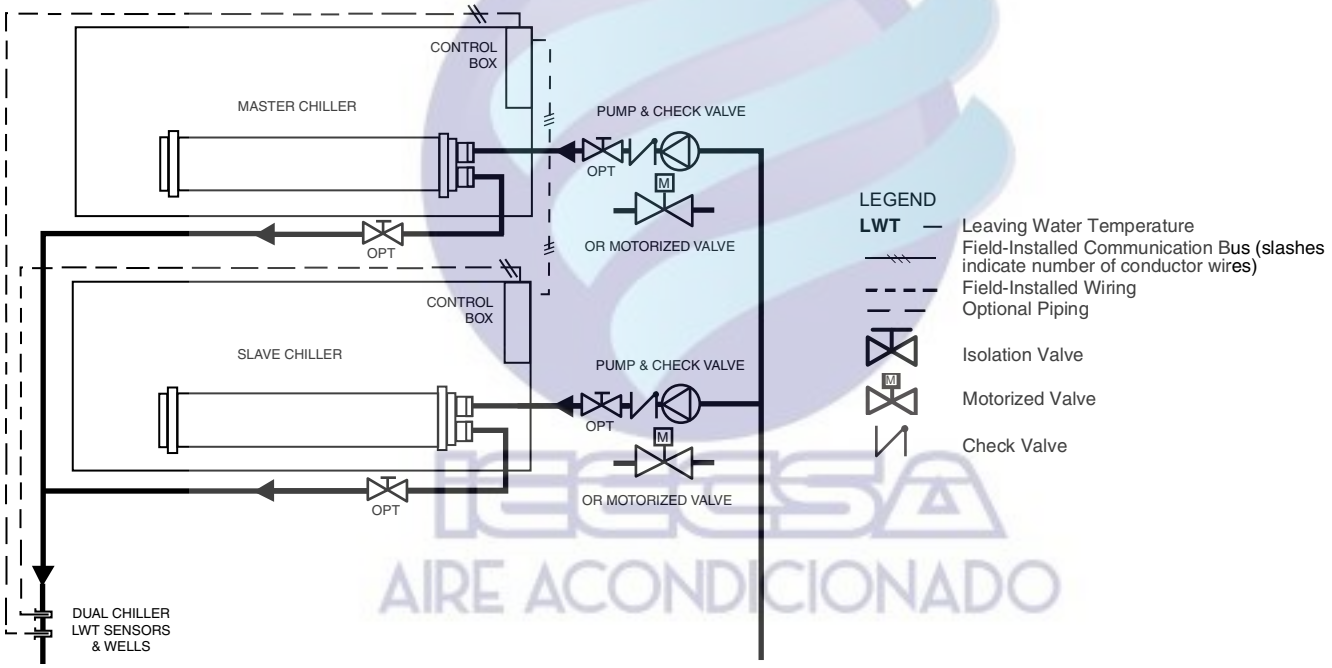


Fig. 50 — Parallel Dual Chiller Operation

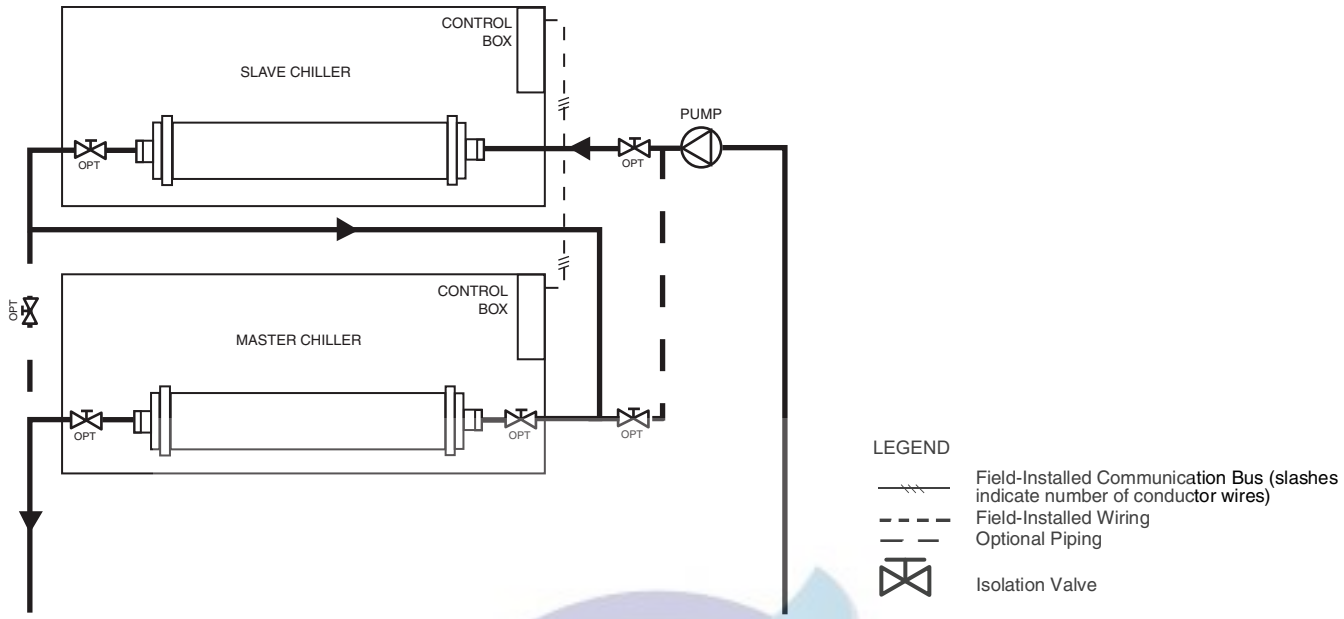


Fig. 51 — Series Dual Chiller Operation (Not Recommended for DX Cooler)

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

Flooded Cooler Cooler Pump Control

It is required that cooler pump control be utilized on all chillers unless the chilled water pump runs continuously or the chilled water system contains a suitable antifreeze solution. Control of dual external pumps requires installation of the external pump control accessory package (Part No. 00EFN900003200A).

⚠ CAUTION

Applications that utilize fresh water as the circulated fluid require that the circulating pump be controlled directly by the chiller. Operation with fresh water is not fail-safe should there be a loss of power to the chiller or to the circulating pump. Freeze damage due to power loss or disabling chiller pump control in fresh water systems will impair or otherwise negatively affect the warranty.

It is required that the chiller be electrically interlocked with the chilled water pump starter. The interlock should be wired to terminals TB5-1 and TB5-2. If cooler pump control is not utilized, it is also required that the cooler pump output be used as an override to the chilled water pump control circuit to provide additional freeze protection.

Refer to the control and power wiring schematic on page 114 for proper connection of the cooler pump (PMP1 and PMP2). The cooler pump output will remain energized for 30 seconds after all compressors stop due to an OFF command. In the event a freeze protection alarm is generated, the cooler pump output will be energized regardless of the cooler pump control software configuration. The cooler pump output is also energized anytime a compressor is started and when certain alarms are generated. A thermal flow sensor is factory installed in the entering fluid nozzle to prevent operation without flow through the cooler. The flow sensor is factory wired.

Proper software configuration of the cooler pump control parameters is required to prevent possible cooler freeze-up. Refer to the Controls, Start-Up, Operation, Service and Troubleshooting guide for more information.

Flooded Cooler Brine Units

For operating units with fluid temperatures less than 40°F (4.4°C), add sufficient inhibited glycol or other suitable corrosion-resistant antifreeze solution to prevent cooler freeze-up.

DX COOLER UNITS

NOTE: It is recommended for units with the hydronic package that an inlet isolation (shut-off) valve be placed exterior to the unit to allow removal and service of the entire pump assembly, if necessary. The hydronic package is supplied from the factory with a combination valve for isolation of leaving water. Also, if the unit is isolated with valves, a properly sized pressure relief valve is recommended and should be installed in the piping between the unit and the valves, following all applicable local codes. Typical piping diagrams are shown in Fig. 52-54.

DX Cooler Air Separation

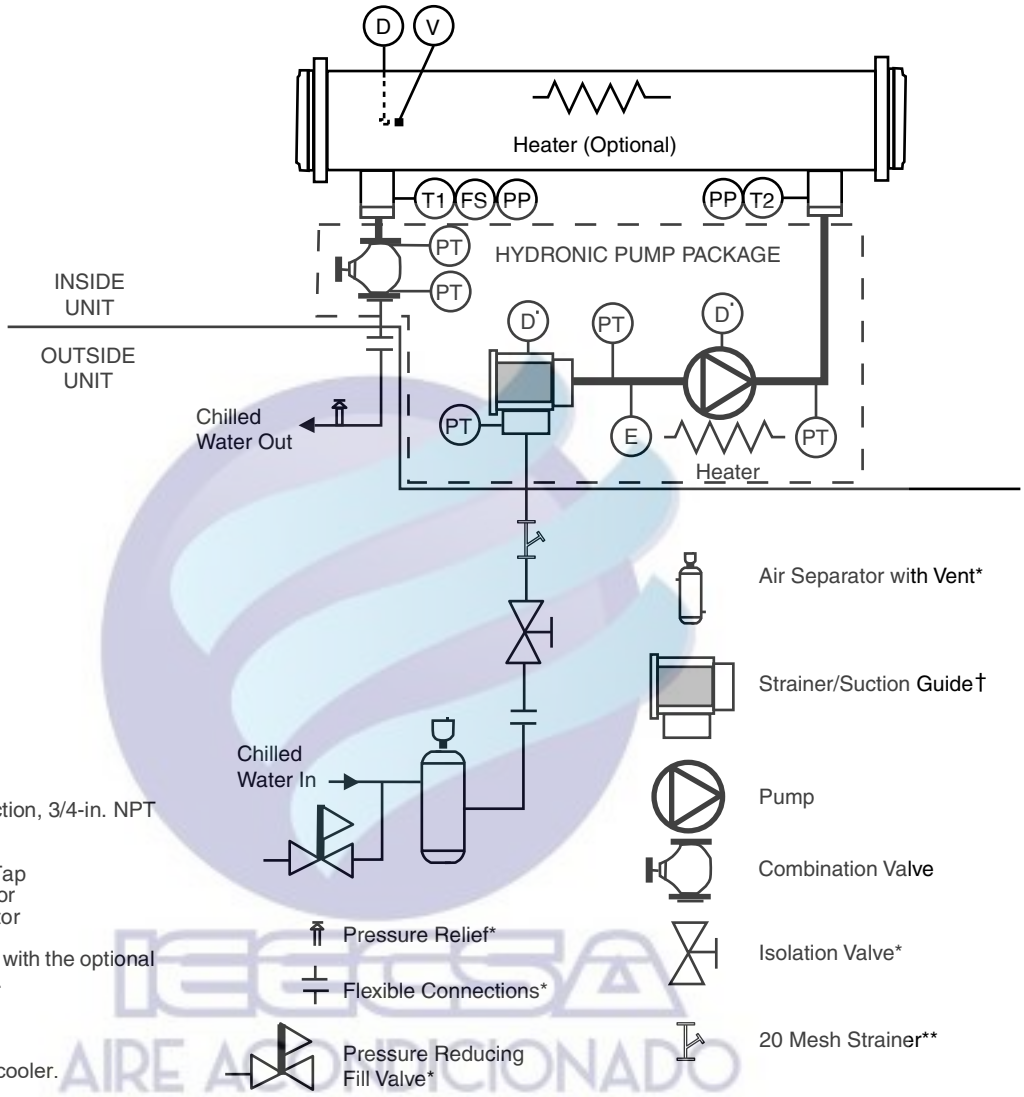
For proper system operation, it is essential that water loops be installed with proper means to manage air in the system. Free air in the system can cause noise, reduce terminal output, stop flow, or even cause pump failure due to pump cavitation. For closed systems, equipment should be provided to eliminate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

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

1. Install automatic air vents at all high points in the system. (If the 30XA unit is located at the high point of the system, a vent can be installed on the cooler shell on the 1/4 in. NPT female port.)
2. Install an air separator in the water loop, at the place where the water is at higher temperatures and lower pressures — usually in the chilled water return piping. On a primary-secondary system, the highest temperature water is normally in the secondary loop, close to the decoupler. Preference should be given to that point on the system (see Fig. 48). In-line or centrifugal air separators are readily available in the field.

It may not be possible to install air separators at the place of the highest temperature and lowest pressure. In such cases, preference should be given to the points of highest temperature. It is important that the pipe be sized correctly so that free air can be moved to the point of separation. Generally, a water velocity of at least 2 feet per second (0.6 m per second) will keep free air entrained and prevent it from forming air pockets.

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



LEGEND

D — Drain,3/4-in. NPT
D′ — Drain, 1/4-in. NPT
E — Expansion Tank Connection, 3/4-in. NPT
FS — Flow Switch
PP — Pipe Plug, 1/4-in. NPT
PT — Pressure/Temperature Tap
T1 — Leaving Water Thermistor
T2 — Entering Water Thermistor
V — Vent, 1/4-in. NPT
– – – – Indicates items provided with the optional hydronic pump package.

* Field-supplied and installed.
† Factory-installed option.
** Required within 10 ft (3 m) of cooler.

Fig. 52 — Typical Piping Diagram on 30XA DX Cooler Units with Hydronic Package — Single Pump

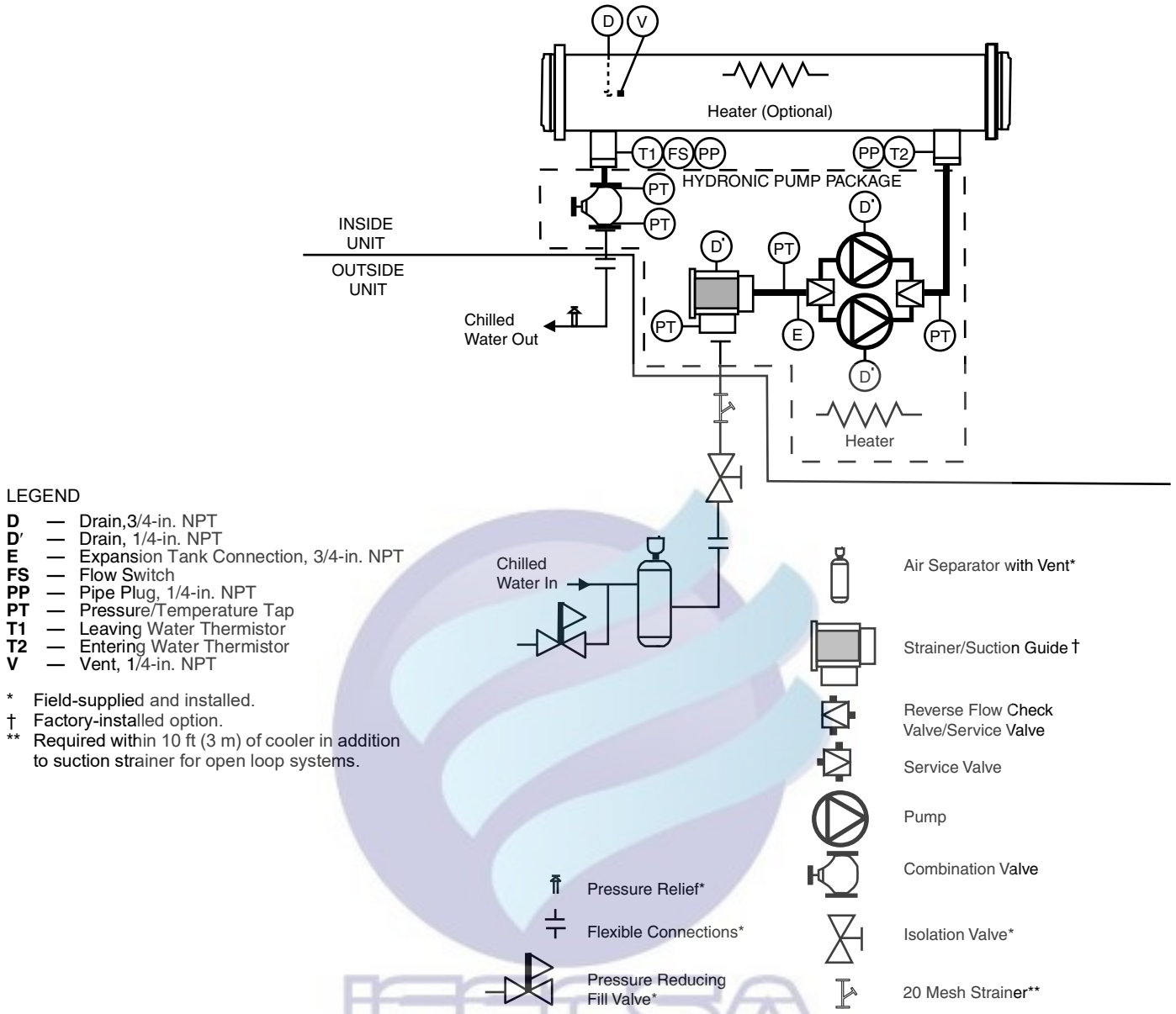


Fig. 53 — Typical Piping Diagram on 30XA DX Cooler Units with Hydronic Package — Dual Pumps

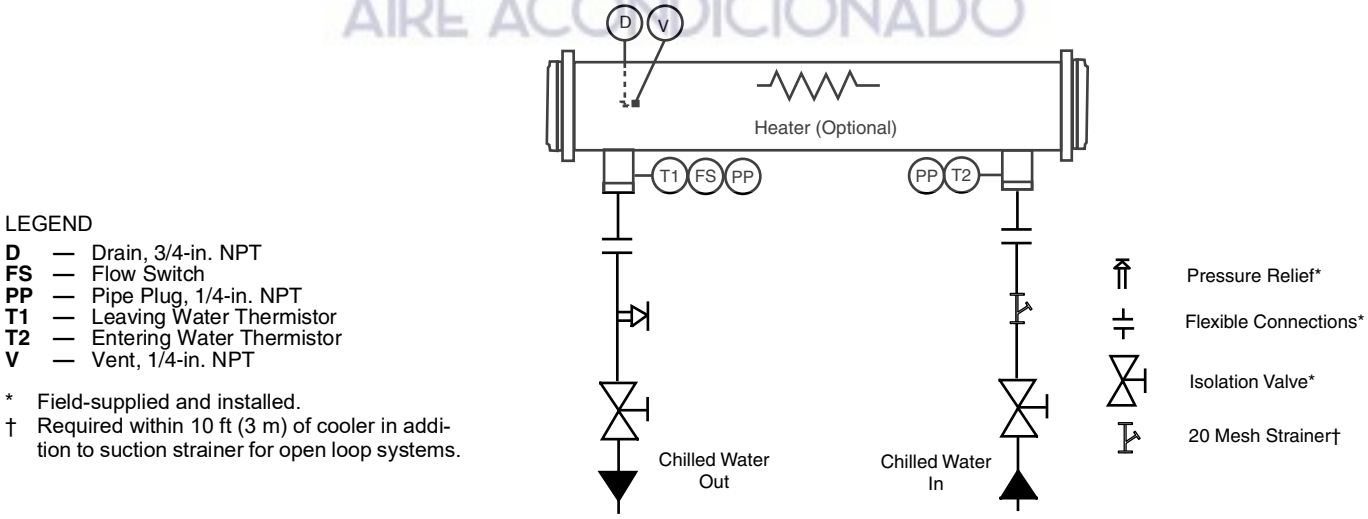


Fig. 54 — Typical Piping Diagram on 30XA082, 092,102,112,122,142,162,182, 202 without Hydronic Package

DX Cooler Units with Hydronic Pump Package

The 30XA092-162 units can be equipped with a factory-installed hydronic pump package consisting of a suction guide/strainer, pump, combination valve, internal piping and wiring connected at the factory.

The combination valve performs the following functions:

- drip-tight shut-off valve
- spring closure design with a non-slam check valve
- flow-throttling valve

When facing the cooler side of unit, the inlet (return) water connection is located on the right side of cooler. The outlet (supply) water connection is on the left side of cooler. The inlet is connected to the suction guide/strainer of the pump via a Victaulic-type connection. The cooler supply has water-side Victaulic-type connections (follow connection directions as provided by the coupling manufacturer). Provide proper support for the piping. If accessory security grilles have been added, holes must be cut in the grilles for field piping and insulation.

The combination valve is not installed during shipping and must be field installed during installation of the chiller. The valve is mounted internal to the unit to protect it during shipping. Remove the valve from its shipping location and mount it to the base frame using the 4 screws that supported the valve during shipping. The valve should be connected to the water outlet of the cooler using the Victaulic coupling which is provided (Fig. 55).

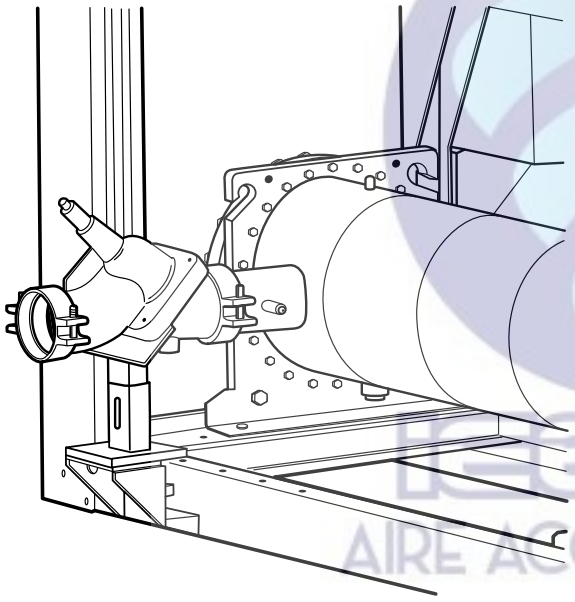


Fig. 55 — Balancing Valve

The suction guide/strainer is shipped from the factory with a run-in screen. This screen is a temporary device used during the start-up/clean-up process of the chilled water circuit to prevent construction debris from damaging the pump or internal tubes of the cooler. After all debris has been removed, or a maximum of 24 running hours, the temporary screen must be removed. See the Start-Up, Controls, Operation and Troubleshooting guide for further information.

⚠ CAUTION

The suction guide/strainer is shipped from the factory with a run-in screen. This temporary screen must be removed after all debris has been removed or a maximum of 24 running hours. Failure to remove the temporary screen may result in damage to the pump or cooler.

NOTE: It is required that a 20 mesh field-supplied strainer be installed in the inlet piping to the cooler on open loop systems.

A 3/4 in. NPT fitting is installed in the inlet piping of the pump for connection to an expansion tank. Install the tank in accordance with the manufacturer's instructions.

Figure 53 illustrates typical dual pump package.

Three drain connections are provided and are located at the bottom of the cooler shell located near water outlet, pump volute, and the suction guide. See Fig. 2-23 for connection location. Insulate the drain piping (in the same manner as the chilled water piping) for at least 12 in. (305 mm) from the cooler.

DX Cooler Units without Hydronic Pump Package

When facing the cooler side of the unit, the inlet (return) water connection is located on the right side of cooler. It is required that a field-supplied strainer with a minimum size of 20 mesh be installed within 10 ft (3.05 m) of the cooler inlet to prevent debris from damaging internal tubes of the cooler. The outlet (supply) water connection is on the left side of cooler. The cooler has water-side Victaulic-type connections (follow connection directions as provided by the coupling manufacturer). Provide proper support for the piping. If accessory security grilles have been added, holes must be cut in the grilles for field piping and insulation. See Fig. 49 for a typical piping diagram of a 30XA unit without a hydronic pump package.

A drain connection is located at the bottom of the cooler shell near the water outlet end of the cooler. See Fig. 2-23 for connection location. Insulate the drain piping (in the same manner as the chilled water piping) for at least 12 in. (305 mm) from the unit.

DX Cooler Dual Chiller Control

The *Comfort*Link controller allows two 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 two chillers on the CCN Bus.

There are several advantages to this type of control:

- redundancy (multiple circuits)
- better low load control, (lower tonnage capability)
- lower rigging lift weights (two machines rather than one large machine)
- chiller lead-lag operation (evens the wear between the two machines)

DX Cooler Dual Chiller Leaving Water Sensor

If the dual chiller algorithm is used, and the machines are installed in parallel, a dual chilled water sensor must be installed for each module. The Dual Chiller Leaving Water Sensor should be installed in a location that provides proper mixing to ensure proper temperature sensing. See Fig. 53.

DX Cooler 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 insure 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. See Fig. 53.

DX Cooler Series Dual Chiller Operation

Series chiller operation is an alternate method supported by the *Comfort*Link control system but is not recommended for DX applications. Certain applications with high temperature rise across the units may require that two chillers be connected in series.

DX Cooler Pump Control

It is recommended that cooler pump control be utilized on all chillers unless the chilled water pump runs continuously or the

chilled water system contains a suitable antifreeze solution. Control of dual external pumps requires installation of the external pump control accessory package (Part No. 00EFN900003200A).

⚠ CAUTION

Operation with fresh water is not fail-safe should there be a loss of power to the chiller or to the circulating pump. Freeze damage due to power loss or disabling chiller pump control in fresh water systems will impair or otherwise negatively affect the warranty.

If cooler pump control is not utilized, it is required that the chiller be electrically interlocked with the chilled water pump starter. The interlock should be wired to terminals TB5-1 and TB5-2. It is also recommended that the cooler pump output be used as an override to the chilled water pump control circuit to provide additional freeze protection.

Refer to the control and power wiring sections beginning on page 113 for proper connection of the cooler pump output (PMP1 and PMP2). The cooler pump output will remain energized for 30 seconds after all compressors stop due to an OFF command. In the event a freeze protection alarm is generated, the cooler pump output will be energized regardless of the cooler pump control software configuration. The cooler pump output is also energized anytime a compressor is started and when certain alarms are generated. A thermal flow sensor is factory installed in the leaving fluid nozzle to prevent operation without flow through the cooler. The flow sensor is factory wired.

Proper software configuration of the cooler pump control parameters is required to prevent possible cooler freeze-up. Refer to the Controls, Start-Up, Operation, Service and Troubleshooting guide for more information.

DX Cooler Brine Units

For operating units with fluid temperatures less than 40°F (4.4°C), add sufficient inhibited glycol or other suitable corrosion-resistant antifreeze solution to prevent cooler freeze-up.

PREPARATION FOR YEAR-ROUND OPERATION

In areas where the piping or unit is exposed to 32°F (0°C) or lower ambient temperatures, freeze-up protection is required using inhibited glycol or other suitable corrosion-resistant antifreeze solution and electric heater tapes. Heater tapes on piping should have a rating for area ambient temperatures and be covered with a suitable thickness of closed-cell insulation. Route power for the heater tapes from a separately fused disconnect. Mount the disconnect within sight from the unit per local or NEC (National Electric Code) codes. Identify disconnect at heater tape power source with a warning that power must not be turned off except when servicing unit.

IMPORTANT: Adding antifreeze solution is the only certain means of protecting the unit from freeze-up if heater fails or electrical power is interrupted or lost while temperatures are below 32°F (0°C).

A drain connection is located at the bottom of the cooler head or bottom of cooler shell. See Fig. 2-23 for connection location. Install shut-off valves to the drain line before filling the system with fluid.

Low Ambient Temperature Head Pressure Control

If the unit is equipped with the low ambient temperature head pressure control option, field-fabricated and field-installed wind baffles are required if the wind velocity is anticipated to be greater than 5 mph (8 km/h). Two different baffles may be required, facing the control box. Wind baffles should be constructed with minimum 18-gage galvanized sheet metal or other suitable corrosion-resistance material with cross breaks for strength. See Fig. 56. Use field-supplied screws to attach baffles to the corner posts of the machine. Be sure to hem or turn a flange on all edges to eliminate sharp edges on the baffles.

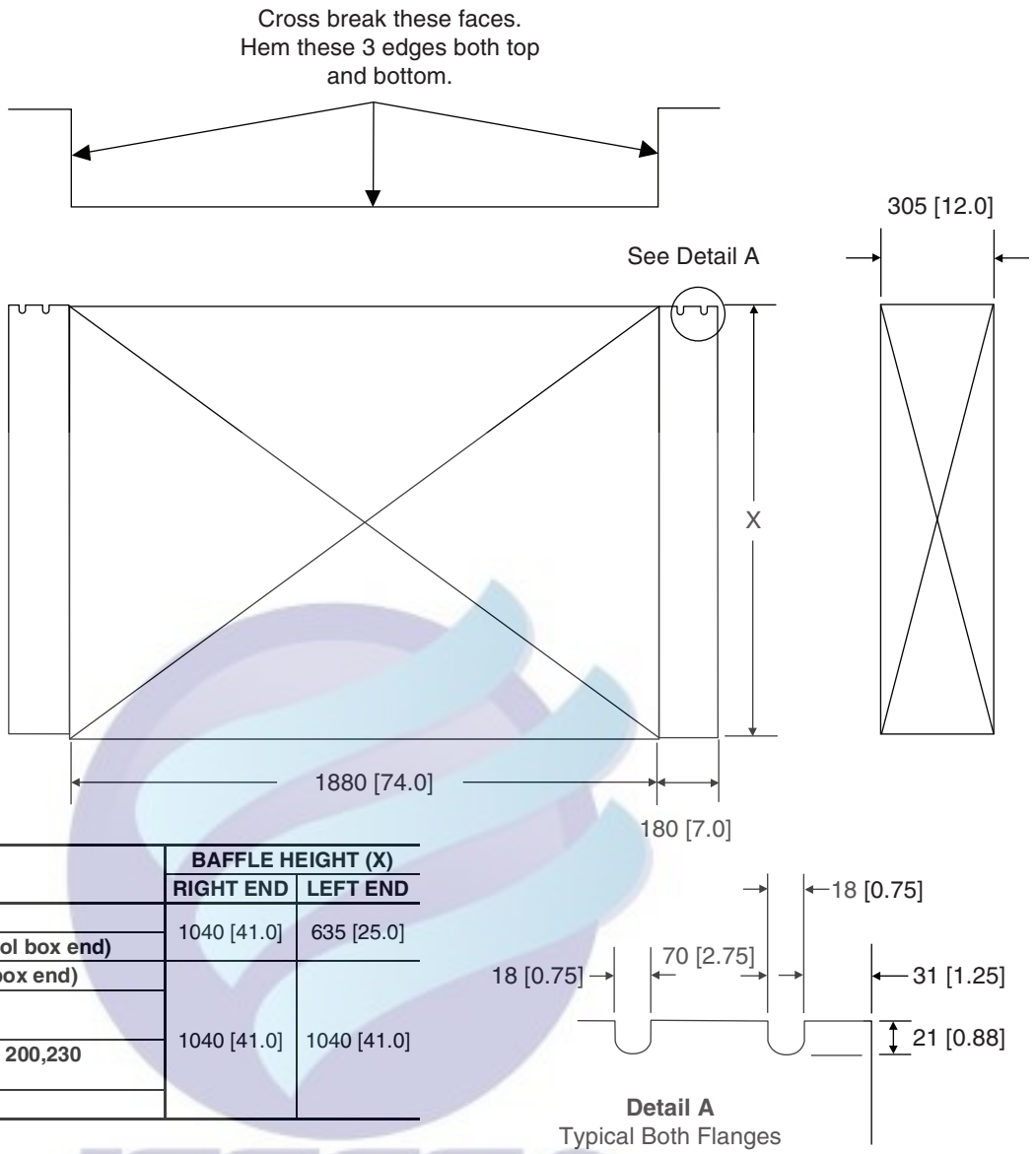
⚠ WARNING

Disconnect all power to the unit before performing maintenance or service. Electrical shock and personal injury could result.

⚠ CAUTION

To avoid damage to the refrigerant coils and electrical components, use extreme care when drilling screw holes and screwing in fasteners.

Mount the smaller height baffle on units with a control box located on the end of the unit. It is recommended that the upper notches be used for mounting the baffles. This reduces the risk of damaging the coil while drilling a mounting hole. Loosen the upper corner post bolts and slide the baffle under the bolt and washer. Tighten the bolt. Drill holes in the bottom of the flange of the baffle and mount with two screws to secure the bottom of the baffle to the corner post. Repeat the process for the opposite end. See Fig. 56.



POSITION	BAFFLE HEIGHT (X)	
	RIGHT END	LEFT END
30XA080-122 (Control box end)	1040 [41.0]	635 [25.0]
30XA142-202 200,230 Volt (Control box end)		
30XA080-122 (Opposite control box end)	1040 [41.0]	1040 [41.0]
30XA140-202 200,230 Volt (Opposite control box end)		
30XA140-202 All voltages except 200,230 (Both ends)		
30XA220-501 (Both ends)		

NOTES:
1. Material: 18 ga. Corrosion Resistant Sheet Metal.
2. Dimensions are in mm [inches].

Fig. 56 — Field-Fabricated and Field-Installed Wind Baffles

Step 4 — Fill the Chilled Water Loop

IMPORTANT: Before starting unit, be sure all air has been purged from the system.

⚠ CAUTION

In low ambient (below 32°F [0°C]) and/or low leaving fluid temperature applications (below 40°F [4.4°C]), a suitable antifreeze solution of the proper concentration for the specific operating conditions must be used as the fluid circulated through the cooler to prevent freezing and damage to the system. Failure to operate the system with an antifreeze solution of the proper concentration will impair or otherwise negatively affect the warranty should damage result from freezing.

The chilled water pump (if equipped) is rated for 150 psig (1034 kPa) duty. The maximum cooler water side pressure is 300 psig (2068 kPa). Check the pressure rating for all of the chilled water devices installed. Do not exceed the lowest pressure rated device.

WATER SYSTEM CLEANING

Proper water system cleaning is of vital importance. Excessive particulates in the water system can cause excessive pump seal wear, reduce or stop flow, and cause damage of other components.

1. Install a temporary bypass around the chiller to avoid circulating dirty water and particulates into the pump package and chiller during the flush. Use a temporary circulating pump during the cleaning process. Also, be sure that there is capability to fully drain the system after cleaning. See Fig. 57.
2. Use a cleaning agent that is compatible with all system materials. Be especially careful if the system contains any galvanized or aluminum components. Both detergent-dispersant and alkaline-dispersant cleaning agents are available.
3. It is recommended to fill the system through a water meter. This provides a reference point for the future for loop volume readings, and it also establishes the correct quantity of cleaner needed in order to reach the required concentration.
4. Use a feeder/transfer pump to mix the solution and fill the system. Circulate the cleaning system for the length of time recommended by the cleaning agent manufacturer.

a. After cleaning, drain the cleaning fluid and flush the system with fresh water.
b. A slight amount of cleaning residue in the system can help keep the desired, slightly alkaline, water pH of 8 to 9. Avoid a pH greater than 10, since this will adversely affect pump seal components.
c. A side stream filter is recommended (Fig. 58) during the cleaning process. Filter side flow rate should be enough to filter the entire water volume every 3 to 4 hours. Change filters as often as necessary during the cleaning process.
d. Remove temporary bypass when cleaning is complete.

A suction guide with an internal strainer and a fine-mesh start-up strainer is standard on all 30XA units with factory-installed hydronic packages. The internal strainer allows removal of particulates from the chilled water loop. Using the combination valve and the field-installed isolation valve at the inlet, the strainer can be isolated from the chilled water loop to be cleaned.

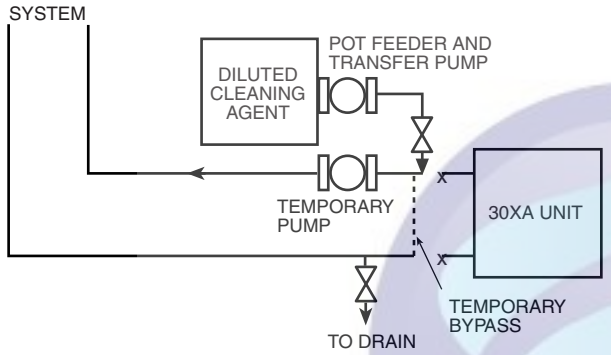


Fig. 57 — Typical Set Up for Cleaning Process

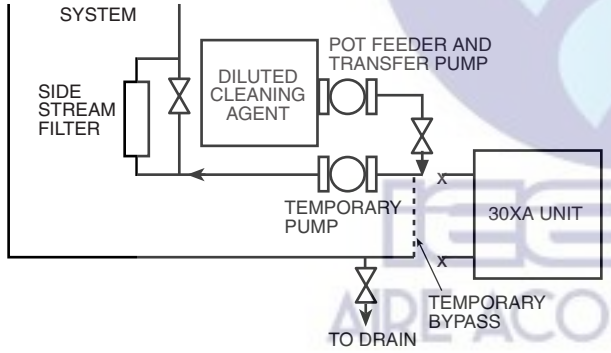


Fig. 58 — Cleaning Using a Side Stream Filter

Carrier's *Comfort*Link controls provided have a built-in feature to remind building owners or operators to clean the strainer at a preset time interval. Properly installed, cleaned and maintained systems will rarely need the strainer cleaned after the initial fill. This time interval is user-configurable.

Ideally, the chilled water loop will be cleaned before the unit is connected. If the run-in screen is left in the suction guide/strainer, it is recommended that Service Maintenance be set to alert the operator within 24 hours of start-up to ensure that the run-in screen in the suction guide/strainer is removed after 24 hours of operation.

NOTE: The suction guide/fine-mesh start-up strainer must be removed after the first 24 hours of operation. The internal strainer must remain in place.

To set the time for the parameter, go to ***Time Clock→MCFG→W.FIL*** in the handheld Navigator™ display. To set the time for the parameter with the Touch Pilot™ display, go to ***Main Menu→Service→MAINTCFG→wfilter_c***. Values for this item are input in days.

WATER TREATMENT

Fill the fluid loop with water (or brine) and a corrosion-resistant inhibitor suitable for the water of the area. Consult the local water treatment specialist for characteristics of system water and a recommended inhibitor for the cooler fluid loop.

Untreated or improperly treated water may result in corrosion, scaling, erosion, or algae. The services of a qualified water treatment specialist should be obtained to develop and monitor a treatment program.

⚠ CAUTION

Water must be within design flow limits, clean, and treated to ensure proper chiller performance and reduce the potential of tube damage due to corrosion, scaling, erosion, and algae. Carrier assumes no responsibility for chiller damage resulting from untreated or improperly treated water.

NOTE: Do not use automobile anti-freeze, or any other fluid that is not approved for heat exchanger duty. Only use appropriately inhibited glycols, concentrated to provide adequate protection for the temperature considered.

SYSTEM PRESSURIZATION

A proper initial cold fill pressure must be established before filling of the unit. The initial cold fill pressure is the pressure applied at the filling point to fill a system to its highest point, plus a minimum pressure at the top of the system (4 psig minimum [27.6 kPa]) to operate air vents and positively pressurize the system. The expansion tank is very important to system pressurization. The expansion tank serves several purposes:

1. Provides NPSHR (Net Positive Suction Head Required) for the pump to operate satisfactorily.
2. Sets system pressure.
3. Accommodates expansion/contraction of water due to temperature changes.
4. Acts as a pressure reference for the pump.

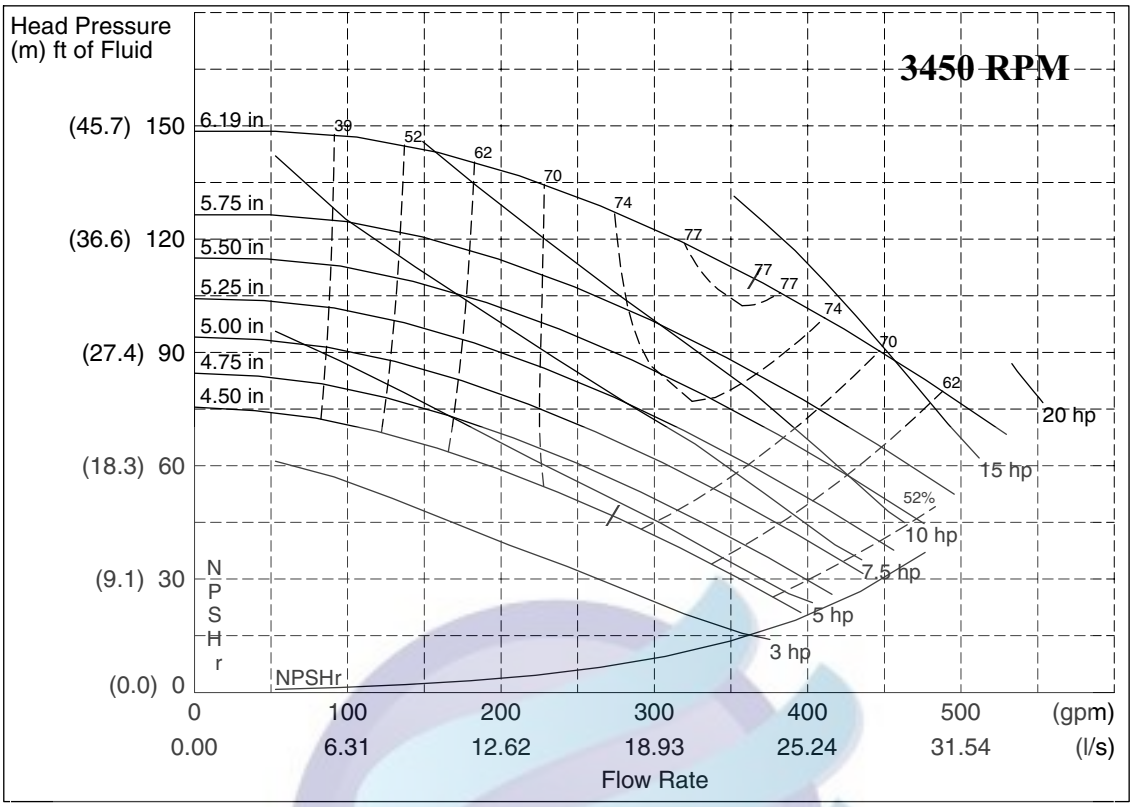
The expansion tank pressure must be set BEFORE the system is filled. Follow the manufacturer's recommendation for instructions on setting pressure in the expansion tank. NPSHR information is provided on the Pump Curves in Fig. 59 and 60 for units with factory-installed hydronic kits. See Table 11 for pump impeller sizes.

Once the system is pressurized, pressure at the connection point of the expansion tank to water piping will not change unless the water loop volume changes (either due to addition/subtraction of water or temperature expansion/contraction). The pressure at this point remains the same regardless whether the pump is running.

Since the expansion tank acts as a reference point for the pump, there cannot be two reference points (two expansion tanks) in a system, unless manifolded together. Where two or more 30XA chillers with the hydronic option are installed in parallel, there should not be more than one expansion tank in the system, unless manifolded together as seen in Fig. 48. It is permissible to install the expansion tank(s) in a portion of the return water line that is common to all pumps, providing that the tank is properly sized for combined system volume.

If the application involves two or more chillers in a primary-secondary system, a common place for mounting the expansion tank is in the chilled water return line, just before the decoupler. See Fig. 48 for placement of expansion tank in primary-secondary systems.

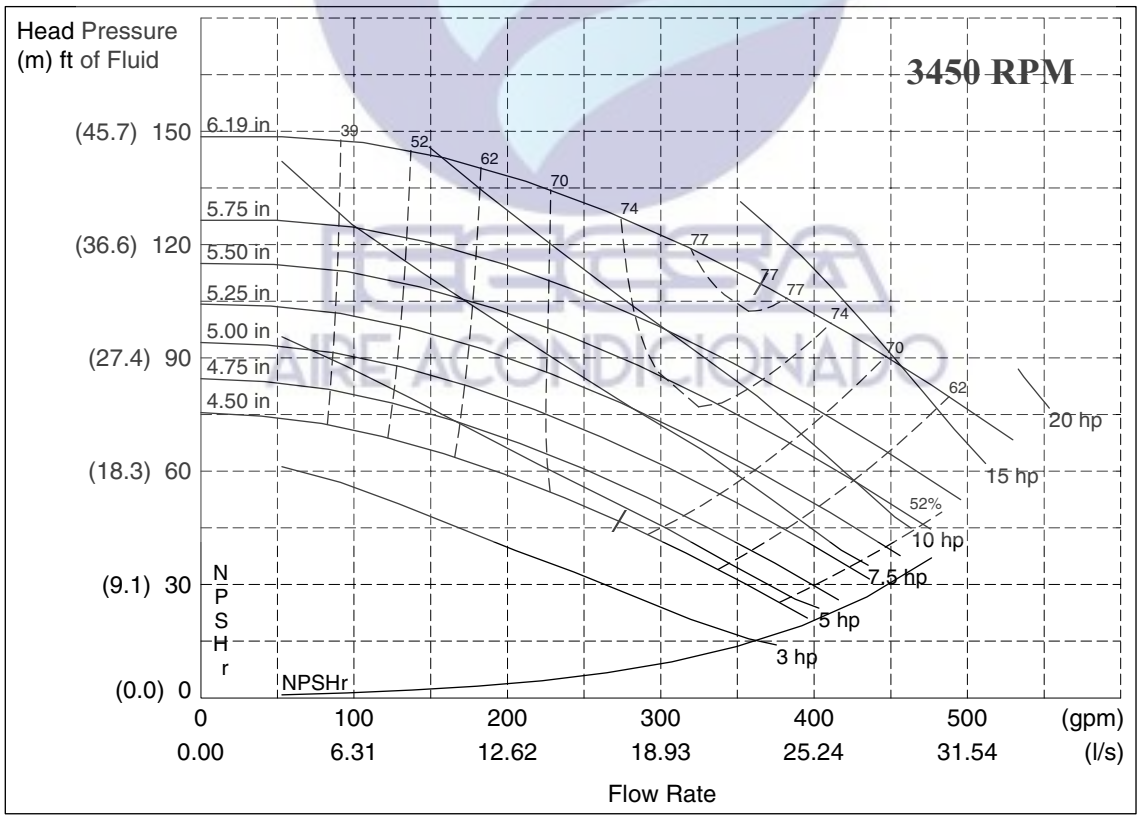
If a diaphragm expansion tank is utilized (a flexible diaphragm physically separates the water/air interface) it is not recommended to have any air in the water loop. See the section on air separation on page 100 for instructions on providing air separation equipment.



LEGEND

NPSHr — Net Positive Suction Head (Pressure) Required

Fig. 59 — Pump Curve I for Hydronic Package Single Pump (Fresh Water)



LEGEND

NPSHr — Net Positive Suction Head (Pressure) Required

Fig. 60 — Pump Curve II for Hydronic Package Dual Pump (Fresh Water)

Table 11 — Pump Impeller Sizes

30XA UNIT SIZE	PUMP Hp	SINGLE PUMP				DUAL PUMP			
		Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve	Option Code*	Rpm	Impeller Dia. (in.)	Pump Curve
090-162	5	1,G	3450	4.5	I	7,N	3450	4.5	II
	7.5	2,H	3450	5.0	I	8,P	3450	5.0	II
	10	3,J	3450	5.4	I	B,Q	3450	5.4	II
	15	4,K	3450	6.0	I	C,R	3450	6.0	II

* Option Code refers to the Hydronic Option (position 11) in the model number. See Fig. 1 for option identification.

FILLING THE SYSTEM

1. Initial fill of the chilled water system must accomplish three goals:
2. The entire piping system must be filled with water.
3. The pressure at the top of the system must be high enough to vent air from the system (usually 4 psig [27.6 kPa] is adequate for most vents).
4. The pressure at all points in the system must be high enough to prevent flashing in the piping or cavitation in the pump.

The pressure created by an operating pump affects system pressure at all points except one — the connection of the expansion tank to the system. This is the only location in the system where pump operation will not give erroneous pressure indications during the fill. Therefore, the best location to install the fill connection is close to the expansion tank. An air vent should be installed close by to help eliminate air that enters during the fill procedure.

When filling the system, ensure the following:

1. Remove temporary bypass piping and cleaning/flushing equipment.
2. Check to make sure all drain plugs are installed.

Normally, a closed system needs to be filled only once. The actual filling process is a fairly simple procedure. All air should be purged or vented from the system. Thorough venting at high points and circulation at room temperature for several hours is highly recommended.

NOTE: Local codes concerning backflow devices and other protection of the city water system should be consulted and followed to prevent contamination of the public water supply. This is critical when antifreeze is used in the system.

SET WATER FLOW RATE

Once the system is cleaned, pressurized, and filled, the flow rate through the chiller needs to be established. On units with the hydronic package, this can be accomplished by using the balancing valve. Follow the manufacturer's recommendations for setting the balancing valve. Local codes may prohibit restricting the amount of water using the balancing valve for a given motor horsepower. In this case, use the method listed in the Pump Modification/Trimming section. See below for the type of combination valve in 30XA units with the optional hydronic package.

30XA UNIT SIZE	SINGLE/DUAL PUMP
090-162	FTV-5 in.

NOTE: Carrier recommends a differential pressure gage when measuring pressures across the pumps or balancing valves. This provides for greater accuracy and reduces error build-up that often occurs when subtracting pressures made by different gages.

A rough estimate of water flow can also be obtained from the pressure gages across the 30XA heat exchanger.

The Controls, Start-Up Operation, Service, and Troubleshooting guide includes graphs that show the relationship between gpm and heat exchanger pressure drop. It should be noted that these curves are for fresh water and "clean" heat exchangers; they do not apply to heat exchangers with fouling. To read the chart, subtract the readings of the two pressure gages on the hydronic kit. Be sure to use the correct graph for the cooler option (standard, +1/-1 pass, DX cooler). This number is the pressure drop across the heat exchanger. Adjust the factory-installed balancing valve or external balancing valve (in units without hydronic package) until the correct pressure drop is obtained for the required flow. See Table 10.

PUMP MODIFICATION/TRIMMING

Since the pumps are constant speed, the only way to obtain greater flow with a given pump/impeller is to decrease system head. This will allow the pump to "ride" its curve to the right, resulting in increased flow. If greater flow is necessary, consider opening the combination valve. Also, verify that the strainer is clean, and that no unnecessary system resistance is present, such as partially closed isolation valves.

Once the combination valve is set, note the stem position. If later service work requires the valve to be closed, it will be easier to rebalance the system, if the original balance point is known.

Increasing system resistance by closing the balancing valve will force the pump to "ride" its curve to the left, resulting in less flow. Although this does reduce power consumption slightly, it may not be the desirable method of reducing the flow, especially if a large reduction is needed.

The other method for reducing flow on a constant speed pump is impeller trimming. The impellers in the pumps provided in the 30XA hydronic kit can be easily removed for this purpose. Refer to the vendor literature packet supplied with the hydronic package information on Seal Replacement in the Service section, and follow instructions for impeller removal and trimming. See Fig. 59 and 60 for pump envelope curve information. Trimming should only be done by a qualified machine shop that has experience in this operation. Contact your local Carrier representative for a recommended machine shop.

⚠ CAUTION

After trimming, the impeller MUST be balanced. Failure to balance trimmed impellers can result in excessive vibration, noise, and premature bearing failure.

Impeller trimming has the added benefit of maximum bhp (brake horsepower) savings, which can recover the cost incurred by performing the impeller trimming.

PUMP VFD

Pumps may be ordered with a variable frequency drive (VFD) for speed control.

SENSORLESS CONTROL (CLOSED LOOP), ACTIVE SETUP 1

The VFD provided with the pump from the factory is configured for sensorless control. Default set points are entered for the unit according to nominal tonnage of the unit. Table 12 shows the settings from the factory. For details on operating the drive display, see the pump installation and operation manual, and for more detailed information on the drive, see IVS 102 Operating Instructions. These manuals are supplied in the control box of the chiller.

Table 12 — Default Settings for Sensorless Control — Setup 1

SINGLE PUMP												
Unit Size (tons)				90,100,110,120				140,160			
Pump				4380 3x3x6				4380 3x3x6			
HP				5	7.5	10	15	5	7.5	10	15
Impeller Dia (inches)				4.5	5	5.4	6.1	4.5	5	5.4	6.1
20-21	Setpoint 1	Hd	ft wc	40	50	90	120	35	45	80	115
22-89	Flow at Design Point		gpm	250				340			
22-87	Press at No Flow Speed	40% Hd	ft wc	16	20	36	48	14	18	32	46

DUAL PUMP											
Unit Size (tons)				80,90,100,110,120				140,160			
Pump				4382 4x4x6				4382 4x4x6			
HP				5	7.5	10	15	5	7.5	10	15
Impeller Dia (inches)				4.5	5	5.4	6.1	4.5	5	5.4	6.1
20-21	Setpoint 1	Hd	ft wc	40	50	90	120	35	45	80	115
22-89	Flow at Design Point		gpm	250				340			
22-87	Press at No Flow Speed	40% Hd	ft wc	16	20	36	48	14	18	32	46

The following set points should be verified or modified for the actual installation.

Parameter 20-21 Setpoint, Hdesign, Ft-Wc

Parameter 22-89 Design Flow Setpoint, GPM

Parameter 22-87 Pressure at no-flow speed, Hmin, GPM (40% of design flow)

When changing set points, ensure values are within the pump curve for the pump provided with the unit.

Minimum speed for the pump is set at 50 Hz, Parameter 4-12. This may be changed as long as the corresponding flow rate meets the minimum flow requirement for the chiller.

REMOTE SENSOR (CLOSED LOOP), ACTIVE SETUP 2

The drive may be set up to use a remote sensor instead of sensorless pump control. For a remote sensor control change Active Setup on the drive from 1 to 2, Parameter 0-10. The drive will read a 0-10vdc or a 0/4-20 mA signal from the sensor. Switch S2-01 must be set to Off (default setting) for 0-10 vdc or On for 0/4-20 mA. The switch is located behind the display. The cover must be removed and the display will snap off to access this switch.

The set point is defined by Parameter 20-21, Setpoint 1. This is a percentage of the maximum signal from the sensor. The default is 80%.

REMOTE CONTROLLER (OPEN LOOP), ACTIVE SETUP 3

Drive may be controlled by external sources. For a remote control of the drive change Active Setup on the drive to 3, Parameter 0-10. An input signal can used to control the drive speed. Input signal may be 0-10 vdc or 0/4-20 mA. The setup is the same as a remote sensor.

A BACnet card is also included with the drive. For BACnet, use Setup 3. The communication settings are in section 8 of the drive parameters. See drive manual for details.

FREEZE PROTECTION

The 30XA units are provided with a flow switch to protect against freezing situations that occur from no water flow. While the flow switch is helpful in preventing freezing during no-flow situations, it does not protect the chiller in case of power failure during sub-freezing ambient temperatures, or in other cases where water temperature falls below the freezing mark. Appropriate concentrations of inhibited propylene or ethylene glycol or other suitable inhibited antifreeze solution should be considered for chiller protection where ambient temperatures are expected to fall below 32°F (0°C). Consult a local water treatment specialist on characteristics of the system water and add a recommended inhibitor to the chilled water. The Carrier warranty does not cover damage due to freezing.

If the pump will be subjected to freezing temperatures, steps must be taken to prevent freeze damage. If the pump will not be used during this time, it is recommended to drain the pump and hydronic package and backflush these components with inhibited glycol. Otherwise, a glycol-water solution should be considered as the heat transfer fluid. Drains are located on the pump(s) and suction guide/strainer for units with hydronic kits. Units without hydronic kits have a drain plug mounted on the bottom of the cooler head at each end of the cooler, or at the bottom of the shell.

NOTE: Do not use automobile anti-freeze, or any other fluid that is not approved for heat exchanger duty. Only use appropriately inhibited glycols, concentrated to provide adequate protection for the temperature considered.

Use an electric tape heater for the external piping, if unit will be exposed to freezing temperatures.

Ensure that power is available to the chiller at all times, even during the off-season, so that the pump and cooler heaters have power. Also make sure that the piping tape heaters have power.

On units with pump packages, a heater is supplied with the hydronic package that will protect this section from freezing in outdoor-air temperatures down to –20°F (–29°C), except in the case of a power failure. The Carrier warranty does not cover damage due to freezing.

Flooded cooler units only

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 the unit controls the chilled water pump and valves, allowing flow through the cooler, the unit is protected from freezing down to –20°F (–29°C). The Carrier warranty does not cover damage due to freezing.

DX cooler units only

Cooler heaters that will protect components down to –20°F (–29°C) can be ordered as a factory-installed option. It should be noted that these heaters will not protect the cooler from freezing in the event of a power failure. The Carrier warranty does not cover damage due to freezing.

PREPARATION FOR WINTER SHUTDOWN

If the unit is not operational during the winter months, at the end of cooling season complete the following steps.

⚠ CAUTION

Failure to remove power before draining heater equipped coolers and hydronic packages can result in heater tape and insulation damage.

1. If the cooler will not be drained, do not shut off power disconnect during off-season shutdown. If cooler is drained, open the circuit breaker for the heater, CB-13 or shut off power during off-season shutdown.
2. Draining the fluid from the system is highly recommended. If the unit is equipped with a hydronic package, there are additional drains in the pump housing and strainer that must be opened to allow for all of the water to drain.
3. Isolate the cooler from the rest of the system with water shutoff valves.
4. Replace the drain plug and completely fill the cooler with a mixture of water and a suitable corrosion-inhibited antifreeze solution such as propylene glycol. The concentration should be adequate to provide freeze protection to 15°F (8.3°C) below the expected low ambient temperature conditions. Antifreeze can be added through the vent on top of the cooler head for flooded units or the vent on the top of the cooler shell for DX units. If the unit has a hydronic pump package, the pump must be treated in the same manner.
5. Leave the cooler filled with the antifreeze solution for the winter, or drain if desired. Be sure to deenergize heaters (if installed) as explained in Step 1 to prevent damage if the cooler is drained. Use an approved method of disposal when removing antifreeze solution.

At the beginning of the next cooling season, be sure that there is refrigerant pressure on each circuit before refilling cooler, add recommended inhibitor, and reset the CB-HT (circuit breaker heater) (if opened) or restore power.

Step 5 — Make Electrical Connections

⚠ WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed.

POWER SUPPLY

The electrical characteristics of the available power supply must agree with the unit nameplate rating. Supply voltage must be within the limits shown. See Tables 13-18 for electrical and configuration data.

FIELD POWER CONNECTIONS (SEE FIG. 61)

All power wiring must comply with applicable local and national codes. Install field-supplied, branch circuit fused disconnect(s) of a type that can be locked off or open. Disconnect(s) must be located within sight and readily accessible from the unit in compliance with NEC Article 440-14 (U.S.A.). See Tables 13-18 for unit electrical data.

IMPORTANT: The 30XA units have a factory-installed option available for a non-fused disconnect for unit power supply. If the unit is equipped with this option, all field power wiring should be made to the non-fused disconnect since no terminal blocks are supplied.

Maximum wire size that the unit terminal block or non-fused disconnect will accept is 500 kcmil.

POWER WIRING

All power wiring must comply with applicable local and national codes. Install field-supplied branch circuit fused disconnect per NEC of a type that can be locked OFF or OPEN. Disconnect must be within sight and readily accessible from the unit in compliance with NEC Article 440-14. In the power box, 7/8 in. holes are provided for power entry. The holes will need to be enlarged to accept the appropriate conduit. NEC also requires all conduits from a conditioned space to the power box(es) be sealed to prevent airflow and moisture into the control box.

The 30XA units require 1 or 2 power supplies, depending on the unit and circuit voltage. See Tables 13-16 for chiller electrical data. Cooler and pump heaters, if factory-installed, are wired in the control circuit. Heaters on chillers with the optional control transformer will be capable of operation only when the main power supply to the chiller is on. On chillers with separate control power, the heaters are capable of operation whenever the control power is supplied.

FIELD CONTROL POWER CONNECTIONS

Field control power connections are shown in Fig. 61. All units require 115-1-60 control circuit power, unless the control transformer option is installed.

Terminals TB5-1 and TB5-2 are provided for field installation of a chilled water (fluid) pump interlock (CWPI). The chilled water (fluid) flow sensor (CWFS) is factory installed. These devices are to be installed in series. Contacts must be rated for dry-circuit applications capable of handling a 24-vac at 50 mA load.

An accessory remote on-off switch can be wired into TB5-9 and TB5-10. Contacts must be rated for dry-circuit applications capable of handling a 24-vac at 50 mA load.

⚠ CAUTION

Do not use interlocks or other safety device contacts connected between TB5-9 and TB5-10 as remote on-off. Connection of safeties or other interlocks between these 2 terminals will result in an electrical bypass if the ENABLE-OFF-REMOTE contact switch is in the ENABLE position. If remote on-off unit control is required, a field-supplied relay must be installed in the unit control box and wired as shown in Fig. 61. Failure to wire the remote on-off as recommended may result in tube freeze damage.

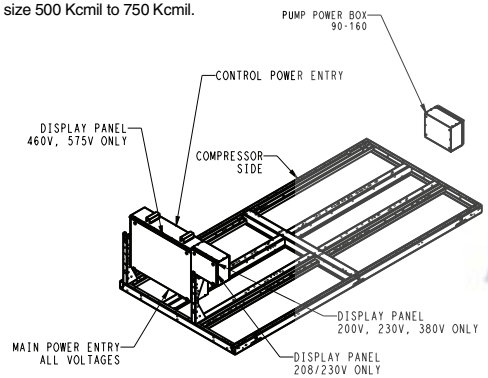
Terminals 11 and 13 of TB5 are for control of the chilled water pump 1 (PMP1) starter. Terminals 13 and 15 of TB5 are for control of the chilled water pump 2 (PMP2) starter.

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 the terminal block is #4 AWG to 500 kcmil.
   Incoming wire size range of non-fused disconnect with MCA up to 599.9 amps is 3/0 to 500 kcmil.
   Incoming wire size range of non-fused disconnect with MCA from 600 to 799.99 amps is 1/0 to 500 kcmil.
   Incoming wire size range of non-fused disconnect with MCA from 800 to 1199.99 amps is 250 to 500 kcmil.
   For clearance between multiple units, refer to product data.
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 (PMP 1) starter. Terminals 13 and 15 of TB5 are for control of chilled water pump 2 (PMP 2) starter. The maximum load allowed for the chilled water pump relay is 5 VA sealed, 10 VA inrush at 24 V. Field power supply is not required.
6. For control of chilled water pumps, a set of normally open contaces 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 A alarm relay. The maximum load allowed for the alarm relay is 10 VA sealed, 25 VA inrush at 24V. 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.
9. Terminal blocks TB5 and TB6 are located in the display panel box for all units. Refer to the certified dimensional drawing for each unit to get the exact locations.
10. Refer to certified dimensional drawings for exact locations of the main power and control power entrance locations.
11. J3-24 and 25 of EMM board are for run relay and shutdown relay. The maximum load allowed for the run and shutdown relay is 10 VA sealed, 25 VA inrush at 24V.
12. Apply torque to main incoming power lug connection:
    a. Apply torque 275 in.-lb, 375 in.-lb, and 500 in.-lb for internal socket size lug 5/16, 3/8, and 1/2 inch respectively.
    b. For external drive hex head bolt with box lug on bus bar, apply torque 180 in.-lb for wire 1/0 AWG and 250 in.-lb for wire 2/0 AWG. Apply torque 325 in.-lb for wire size 250 Kcmil to 350 Kcmil and 375 in.-lb for wire size 500 Kcmil to 750 Kcmil.

LEGEND

A	—	Alarm
EMM	—	Energy Management
HSCCR	—	High Short Circuit Current Rating
MLV	—	Minimum Load Valve
NEC	—	National Electric Code
PMP	—	Chilled Water Pump
PMPI	—	Chilled Water Pump Interlock
PVFD	—	Chilled Water Pump VFD
SCCR	—	Short Circuit Current Rating
TB	—	Terminal Block



080-122 UNIT SIZE

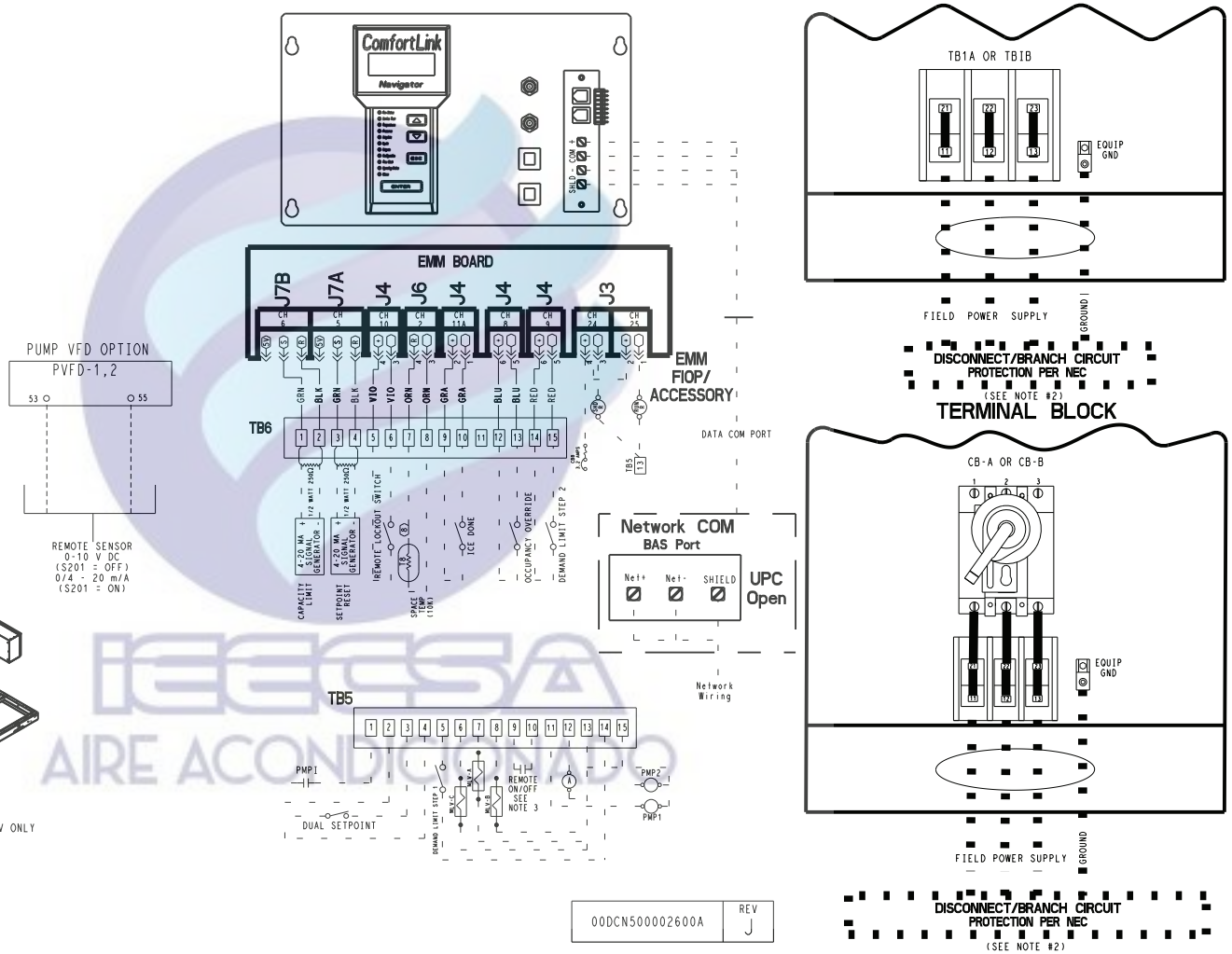


Fig. 61 — Control and Power Wiring Schematic

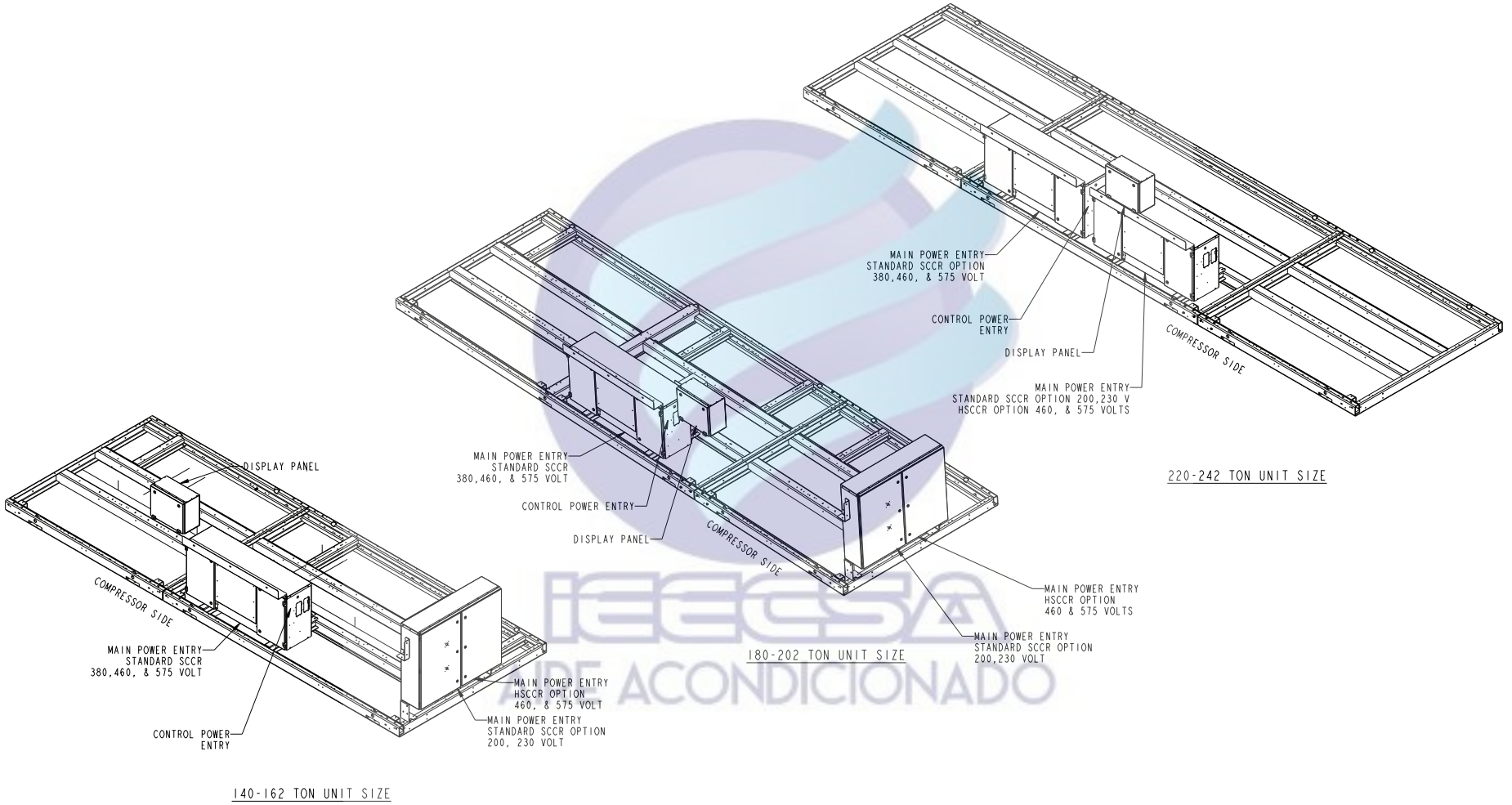


Fig. 61 — Control and Power Wiring Schematic (cont)

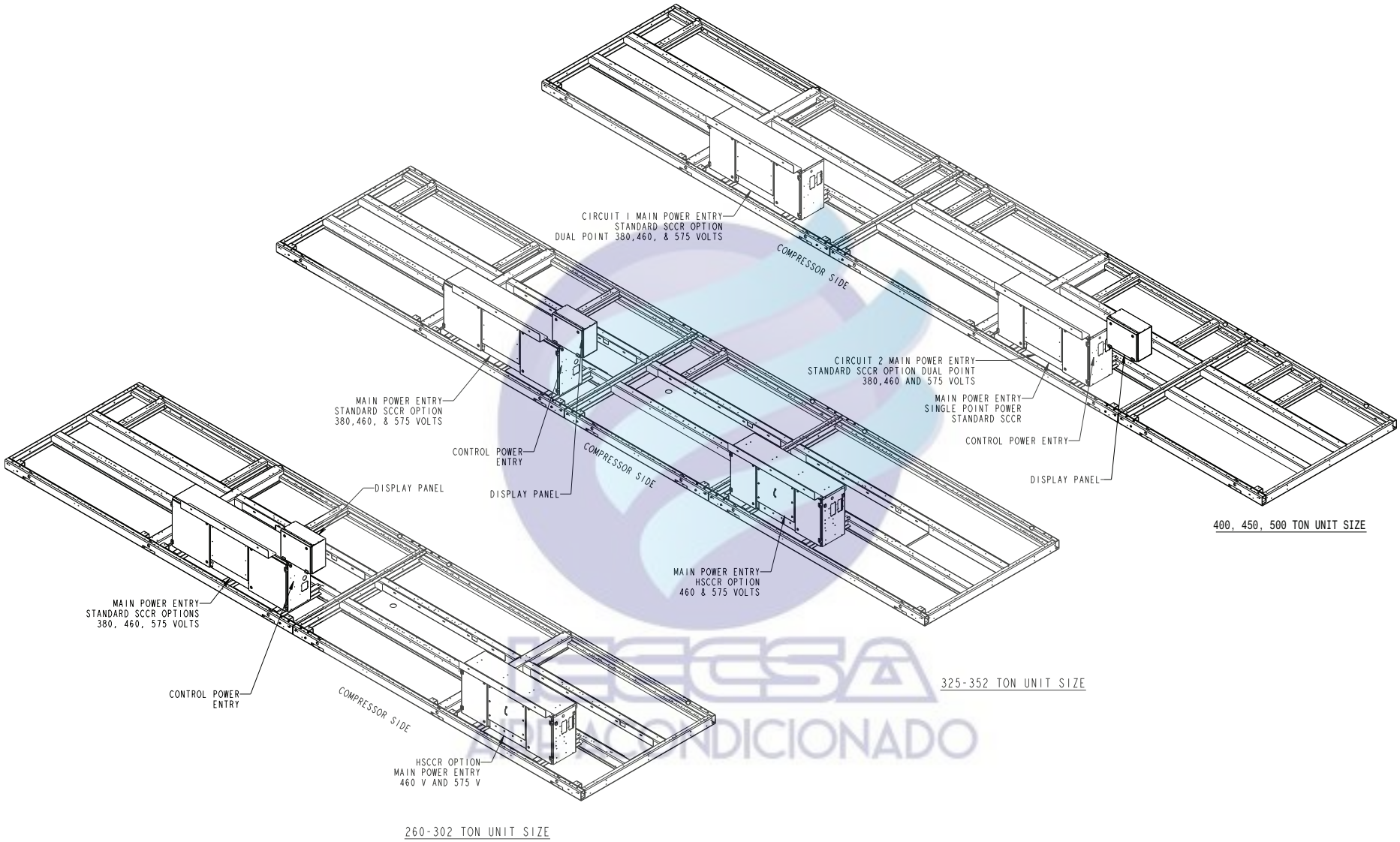


Fig. 61 — Control and Power Wiring Schematic (cont)

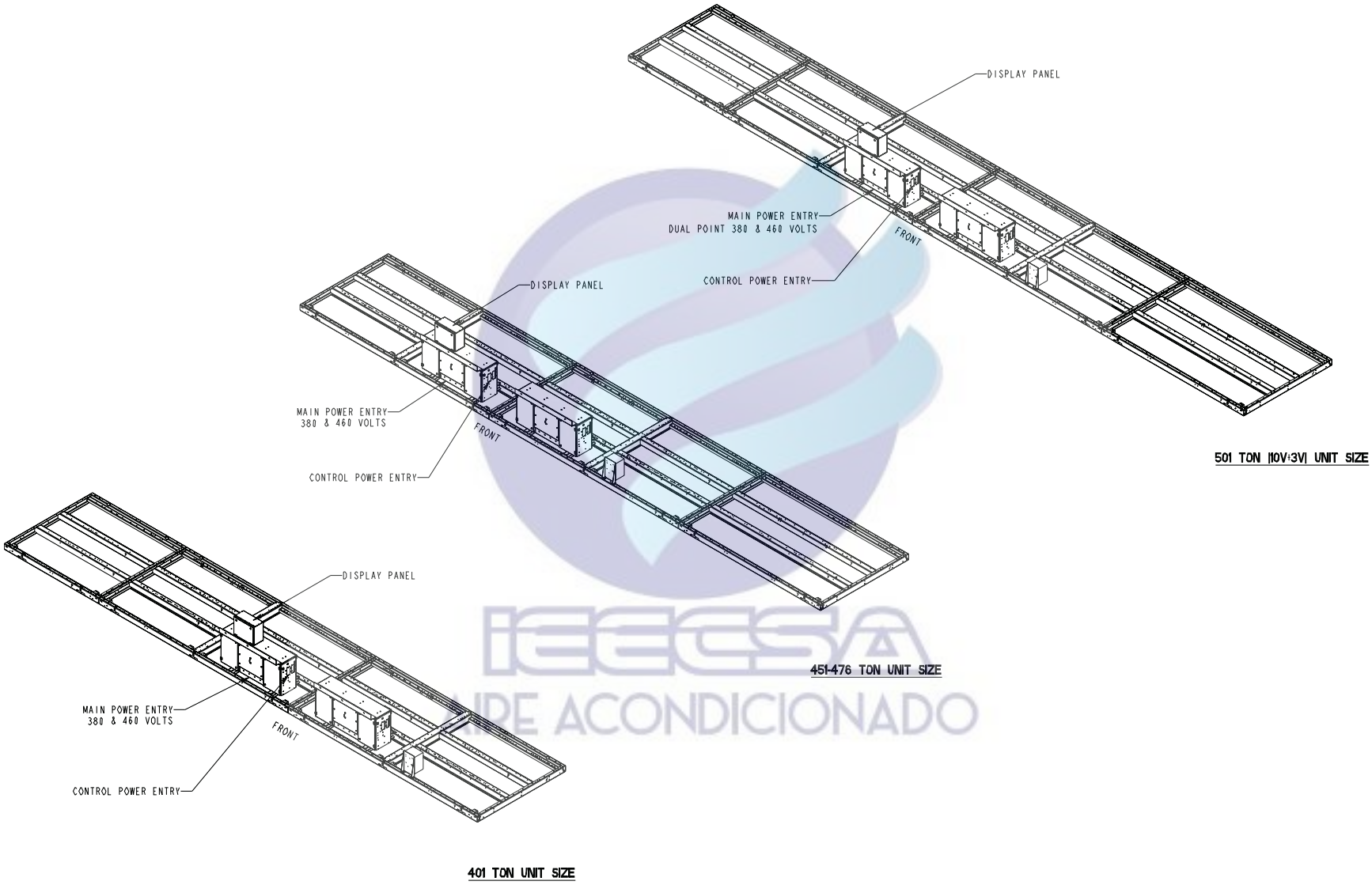


Fig. 61 — Control and Power Wiring Schematic (cont)

Table 13 — 30XA080-500 Electrical Data, Single Point (Standard Condenser Fan Motors)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					7.5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL				WD	XL			
080, 082	230-60	207	253	6	315.5	400	484.2	1170.2	350	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6	347.6	450	549.6	1338.6	400	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6	157.7	200	242.1	585.1	175	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6	121.2	150	191.9	465.9	150	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6	183.5	250	289.7	704.7	225	—	—	—	—	—	—	—	—	—	—	115	40
090, 092	230-60	207	253	8	334.0	450	499.1	1185.1	400	350.0	450	515.1	1201.1	400	357.2	450	522.3	1208.3	400	115	40
	200-60	187	220	8	368.0	500	566.0	1355.0	450	385.7	500	583.7	1372.7	450	393.6	500	591.7	1380.7	450	115	40
	460-60	414	506	8	167.0	225	249.6	592.6	200	175.0	225	257.6	600.6	200	178.6	225	261.2	604.2	200	115	40
	575-60	518	633	8	128.5	175	197.8	471.8	150	134.9	175	204.2	478.2	150	137.7	175	207.0	481.0	150	115	40
	380-60	342	418	8	194.5	250	298.6	713.6	225	204.2	250	308.3	723.3	225	208.6	250	312.6	727.6	250	115	40
100, 102	230-60	207	253	8	364.6	500	536.7	1278.7	400	380.6	500	552.7	1294.7	450	387.8	500	559.9	1301.9	450	115	40
	200-60	187	220	8	401.3	500	607.8	1461.8	450	419.0	500	625.5	1479.5	500	427.0	500	633.5	1487.5	500	115	40
	460-60	414	506	8	182.3	250	268.4	639.4	200	190.3	250	276.4	647.4	225	193.9	250	280.0	651.0	225	115	40
	575-60	518	633	8	139.5	175	211.7	508.7	175	145.9	175	218.1	515.1	175	148.8	200	220.9	517.9	175	115	40
	380-60	342	418	8	212.7	250	321.7	770.7	250	222.4	300	331.3	780.3	250	226.7	300	335.7	784.7	250	115	40
110, 112	230-60	207	253	8	405.7	500	536.7	—	450	421.7	500	552.7	—	500	428.9	600	559.9	—	500	115	40
	200-60	187	220	8	446.2	600	607.8	—	500	463.9	600	625.5	—	600	471.9	600	633.5	—	600	115	40
	460-60	414	506	8	202.4	250	268.4	639.4	225	210.4	250	276.4	647.4	250	214.0	300	280.0	651.0	250	115	40
	575-60	518	633	8	155.5	200	211.7	508.7	175	161.9	225	218.1	515.1	200	164.8	225	220.9	517.9	200	115	40
	380-60	342	418	8	236.4	300	321.7	770.7	300	246.1	300	331.3	780.3	300	250.4	350	335.7	784.7	300	115	40
120, 122	230-60	207	253	8	438.6	600	569.6	—	500	454.6	600	585.6	—	500	461.8	600	592.8	—	600	115	40
	200-60	187	220	8	482.2	600	643.8	—	600	499.9	600	661.5	—	600	507.8	600	669.4	—	600	115	40
	460-60	414	506	8	218.4	300	284.4	655.4	250	226.4	300	292.4	663.4	250	230.0	300	296.0	667.0	300	115	40
	575-60	518	633	8	168.4	225	224.5	521.5	200	174.8	225	230.9	527.9	200	177.7	225	233.8	530.8	200	115	40
	380-60	342	418	8	255.3	350	340.6	789.6	300	265.0	350	350.3	799.3	300	269.4	350	354.7	803.7	300	115	40
140, 142	230-60	207	253	10	534.7	800	796.7	—	700	550.7	800	812.7	—	700	557.9	800	819.9	—	700	115	40
	200-60	187	220	10	588.5	800	906.1	—	700	606.2	800	923.8	—	700	614.1	800	931.8	—	700	115	40
	460-60	414	506	10	267.3	400	398.4	1030.4	350	275.3	400	406.4	1038.4	350	278.9	400	410.0	1042.0	350	115	40
	575-60	518	633	10	205.0	300	315.5	821.5	250	211.4	300	321.9	827.9	250	214.3	300	324.7	830.7	250	115	40
	380-60	342	418	10	311.2	450	478.9	1243.9	350	320.9	450	488.6	1253.6	400	325.3	450	493.0	1258.0	400	115	40
160, 162	230-60	207	253	10	621.1	800	997.6	—	700	637.1	800	1013.6	—	800	644.3	800	1020.8	—	800	115	40
	200-60	187	220	10	682.8	1000	1136.1	—	800	700.5	1000	1153.8	—	800	708.5	1000	1161.7	—	800	115	40
	460-60	414	506	10	309.7	450	498.4	1306.4	350	317.7	450	506.4	1314.4	400	321.3	450	510.0	1318.0	400	115	40
	575-60	518	633	10	238.1	350	396.3	1042.3	300	244.5	350	402.7	1048.7	300	247.4	350	405.6	1051.6	300	115	40
	380-60	342	418	10	361.1	500	598.9	1577.9	450	370.8	500	608.6	1587.6	450	375.2	500	612.9	1591.9	450	115	40
180, 182	230-60	207	253	12	673.2	800	935.2	—	800	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	740.9	1000	1058.5	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	336.6	450	467.6	1099.6	400	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	258.3	350	368.8	874.8	300	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	391.5	500	559.2	1324.2	450	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	12	769.6	1000	1146.0	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	846.0	1000	1299.2	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	383.9	500	572.6	1380.6	450	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	294.8	400	453.0	1099.0	350	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	447.2	600	685.0	1664.0	500	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	13	850.2	1200	1152.0	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	935.1	1200	1305.9	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	424.7	600	575.6	1383.6	500	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	326.3	450	455.4	1101.4	400	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	494.5	700	688.6	1667.6	600	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	13	910.0	1200	1211.8	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	1001.1	1200	1371.8	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	455.0	600	605.9	1413.9	600	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	349.6	450	478.7	1124.7	400	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	529.5	700	723.5	1702.5	600	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	15	516.5	700	777.6	1999.6	600	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	15	396.4	500	616.2	1594.2	450	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	15	600.2	800	933.9	2412.9	700	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	16	549.7	800	810.9	2032.9	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	422.1	600	641.9	1619.9	500	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	638.7	800	972.4	2451.4	800	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	16	610.9	800	810.9	2032.9	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	468.7	600	641.9	1619.9	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	710.3	1000	972.4	2451.4	800	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	18	624.3	800	885.5	2107.5	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	479.1	600	698.9	1676.9	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	724.7	1000	1058.4	2537.4	800	—	—	—	—	—	—	—	—	—	—	115	60

Table 13 — 30XA080-500 Electrical Data, Single Point (Standard Condenser Fan Motors)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					7.5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL				WD	XL			
350, 352	460-60	414	506	18	685.5	800	885.5	2107.5	800	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	525.7	700	698.9	1676.9	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	796.3	1000	1058.4	2537.4	1000	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.
10. Standard condenser fan motors are not used with sizes 30XA-401, 451, 476, and 501. These sizes use high ambient temperature condenser fans.

Table 13 — 30XA080-500 Electrical Data, Single Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	10 HP PUMP, 3450 RPM					15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
080, 082	230-60	207	253	6	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	6	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	6	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	6	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	6	—	—	—	—	—	—	—	—	—	—	115	40
090, 092	230-60	207	253	8	364.4	450	529.5	1215.5	400	379.0	500	544.1	1230.1	450	115	40
	200-60	187	220	8	401.6	500	599.6	1388.6	450	417.7	500	615.8	1404.8	500	115	40
	460-60	414	506	8	182.2	225	264.8	607.8	200	189.5	250	272.1	615.1	225	115	40
	575-60	518	633	8	140.6	175	209.9	483.9	175	146.5	175	215.8	489.8	175	115	40
	380-60	342	418	8	212.9	250	317.0	732.0	250	221.8	250	325.8	740.8	250	115	40
100, 102	230-60	207	253	8	395.0	500	567.1	1309.1	450	409.6	500	581.7	1323.7	450	115	40
	200-60	187	220	8	434.9	500	641.5	1495.5	500	451.1	600	657.6	1511.6	500	115	40
	460-60	414	506	8	197.5	250	283.6	654.6	225	204.8	250	290.9	661.9	225	115	40
	575-60	518	633	8	151.7	200	223.8	520.8	175	157.5	200	229.7	526.7	175	115	40
	380-60	342	418	8	231.1	300	340.1	789.1	300	239.9	300	348.9	797.9	300	115	40
110, 112	230-60	207	253	8	436.1	600	567.1	—	500	450.7	600	581.7	—	500	115	40
	200-60	187	220	8	479.9	600	641.5	—	600	496.0	600	657.6	—	600	115	40
	460-60	414	506	8	217.6	300	283.6	654.6	250	224.9	300	290.9	661.9	250	115	40
	575-60	518	633	8	167.7	225	223.8	520.8	200	173.5	225	229.7	526.7	200	115	40
	380-60	342	418	8	254.8	350	340.1	789.1	300	263.6	350	348.9	797.9	300	115	40
120, 122	230-60	207	253	8	469.0	600	600.0	—	600	483.6	600	614.6	—	600	115	40
	200-60	187	220	8	515.8	700	677.4	—	600	531.9	700	693.5	—	600	115	40
	460-60	414	506	8	233.6	300	299.6	670.6	300	240.9	300	306.9	677.9	300	115	40
	575-60	518	633	8	180.5	225	236.7	533.7	200	186.4	250	242.5	539.5	225	115	40
	380-60	342	418	8	273.7	350	359.0	808.0	300	282.6	350	367.9	816.9	350	115	40
140, 142	230-60	207	253	10	565.1	800	827.1	—	700	579.7	800	841.7	—	700	115	40
	200-60	187	220	10	622.1	800	939.7	—	700	638.2	800	955.9	—	800	115	40
	460-60	414	506	10	282.5	400	413.6	1045.6	350	289.8	400	420.9	1052.9	350	115	40
	575-60	518	633	10	217.1	300	327.6	833.6	250	223.0	300	333.5	839.5	250	115	40
	380-60	342	418	10	329.6	450	497.3	1262.3	400	338.5	450	506.2	1271.2	400	115	40
160, 162	230-60	207	253	10	651.5	800	1028.0	—	800	666.1	800	1042.6	—	800	115	40
	200-60	187	220	10	716.4	1000	1169.7	—	1000	732.6	1000	1185.8	—	1000	115	40
	460-60	414	506	10	324.9	450	513.6	1321.6	400	332.2	450	520.9	1328.9	400	115	40
	575-60	518	633	10	250.2	350	408.5	1054.5	300	256.1	350	414.3	1060.3	300	115	40
	380-60	342	418	10	379.5	500	617.3	1596.3	450	388.4	500	626.1	1605.1	450	115	40
180, 182	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	15	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	15	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	15	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	60

Table 13 — 30XA080-500 Electrical Data, Single Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	10 HP PUMP, 3450 RPM					15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
350, 352	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.
10. Standard condenser fan motors are not used with sizes 30XA-401, 451, 476, and 501. These sizes use high ambient temperature condenser fans.

Table 14 — 30XA080-500 Electrical Data, Dual Point (Standard Condenser Fan Motors)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
080, 082	230-60	207	253	3/3	173.3/173.3	250/ 250	342.0/342.0	1028.0/1028.0	225/225	—	—	—	—	—	115	40
	200-60	187	220	3/3	190.9/190.9	300/ 300	392.9/392.9	1181.9/1181.9	250/250	—	—	—	—	—	115	40
	460-60	414	506	3/3	86.6/ 86.6	125/ 125	171.0/171.0	514.0/ 514.0	110/110	—	—	—	—	—	115	40
	575-60	518	633	3/3	66.5/ 66.5	110/ 110	137.2/137.2	411.2/ 411.2	80/ 80	—	—	—	—	—	115	40
	380-60	342	418	3/3	100.7/100.7	150/ 150	206.9/206.9	621.9/ 621.9	125/125	—	—	—	—	—	115	40
090, 092	230-60	207	253	4/4	182.9/182.9	300/ 300	348.0/348.0	1034.0/1034.0	225/225	182.9/198.9	300/300	348.0/364.0	1034.0/1050.0	225/250	115	40
	200-60	187	220	4/4	201.5/201.5	300/ 300	399.5/399.5	1188.5/1188.5	250/250	201.5/219.2	300/350	399.5/417.2	1188.5/1206.2	250/300	115	40
	460-60	414	506	4/4	91.4/ 91.4	150/ 150	174.0/174.0	517.0/ 517.0	110/110	91.4/ 99.4	150/150	174.0/182.0	517.0/ 525.0	110/125	115	40
	575-60	518	633	4/4	70.3/ 70.3	110/ 110	139.6/139.6	413.6/ 413.6	90/ 90	70.3/ 76.7	110/125	139.6/146.0	413.6/ 420.0	90/ 90	115	40
	380-60	342	418	4/4	106.5/106.5	175/ 175	210.5/210.5	625.5/ 625.5	125/125	106.5/116.1	175/175	210.5/220.2	625.5/ 635.2	125/150	115	40
100, 102	230-60	207	253	4/4	199.9/199.9	300/ 300	372.0/372.0	1114.0/1114.0	250/250	199.9/215.9	300/350	372.0/388.0	1114.0/1130.0	250/300	115	40
	200-60	187	220	4/4	220.0/220.0	350/ 350	426.5/426.5	1280.5/1280.5	300/300	220.0/237.7	350/350	426.5/444.2	1280.5/1298.2	300/300	115	40
	460-60	414	506	4/4	99.9/ 99.9	150/ 150	186.0/186.0	557.0/ 557.0	125/125	99.9/107.9	150/175	186.0/194.0	557.0/ 565.0	125/150	115	40
	575-60	518	633	4/4	76.4/ 76.4	125/ 125	148.6/148.6	445.6/ 445.6	90/ 90	76.4/ 82.8	125/125	148.6/155.0	445.6/ 452.0	90/100	115	40
	380-60	342	418	4/4	116.5/116.5	175/ 175	225.5/225.5	674.5/ 674.5	150/150	116.5/126.2	175/200	225.5/235.2	674.5/ 684.2	150/150	115	40
110, 112	230-60	207	253	4/4	241.0/199.9	400/ 300	372.0/372.0	—	300/250	241.0/215.9	400/350	372.0 /388.0	—	300/300	115	40
	200-60	187	220	4/4	264.9/220.0	450/ 350	426.5/426.5	—	350/300	264.9/237.7	450/350	426.5/444.2	—	350/300	115	40
	460-60	414	506	4/4	120.0/ 99.9	200/ 150	186.0/186.0	557.0/557.0	150/125	120.0/107.9	200/175	186.0/194.0	557.0/ 565.0	150/150	115	40
	575-60	518	633	4/4	92.5/ 76.4	150/ 125	148.6/148.6	445.6/445.6	110/ 90	92.5/ 82.8	150/125	148.6/155.0	445.6/ 452.0	110/100	115	40
	380-60	342	418	4/4	140.2/116.5	225/ 175	225.5/225.5	674.5/674.5	175/150	140.2/126.2	225/200	225.5/235.2	674.5/ 684.2	175/150	115	40
120, 122	230-60	207	253	4/4	241.0/241.0	400/ 400	372.0/372.0	—	300/300	241.0/257.0	400/400	372.0/388.0	—	300/350	115	40
	200-60	187	220	4/4	264.9/264.9	450/ 450	426.5/426.5	—	350/350	264.9/282.6	450/450	426.5/444.2	—	350/350	115	40
	460-60	414	506	4/4	120.0/120.0	200/ 200	186.0/186.0	557.0/557.0	150/150	120.0/128.0	200/200	186.0/194.0	557.0/ 565.0	150/150	115	40
	575-60	518	633	4/4	92.5/ 92.5	150/ 150	148.6/148.6	445.6/445.6	110/110	92.5/ 98.9	150/150	148.6/155.0	445.6/ 452.0	110/125	115	40
	380-60	342	418	4/4	140.2/140.2	225/ 225	225.5/225.5	674.5/674.5	175/175	140.2/149.9	225/250	225.5/235.2	674.5/ 684.2	175/200	115	40
140, 142	230-60	207	253	6/4	370.0/199.9	600/ 300	632.0/372.0	—	450/250	370.0/215.9	600/350	632.0/388.0	—	450/300	115	40
	200-60	187	220	6/4	407.2/220.0	700/ 350	724.8/426.5	—	500/300	407.2/237.7	700/350	724.8/444.2	—	500/300	115	40
	460-60	414	506	6/4	185.0/ 99.9	300/ 150	316.0/186.0	948.0/557.0	225/125	185.0/107.9	300/175	316.0/194.0	948.0/ 565.0	225/150	115	40
	575-60	518	633	6/4	141.9/ 76.4	225/ 125	252.4/148.6	758.4/445.6	175/ 90	141.9/ 82.8	225/125	252.4/155.0	758.4/ 452.0	175/100	115	40
	380-60	342	418	6/4	215.1/116.5	350/ 175	382.8/225.5	1147.8/674.5	300/150	215.1/126.2	350/200	382.8/235.2	1147.8/ 684.2	300/150	115	40
160, 162	230-60	207	253	6/4	423.5/241.0	700/ 400	800.0/372.0	—	600/300	423.5/257.0	700/400	800.0/388.0	—	600/350	115	40
	200-60	187	220	6/4	465.6/264.9	800/ 450	918.8/426.5	—	600/350	465.6/282.6	800/450	918.8/444.2	—	600/350	115	40
	460-60	414	506	6/4	211.3/120.0	350/ 200	400.0/186.0	1208.0/557.0	250/150	211.3/128.0	350/200	400.0/194.0	1208.0/ 565.0	250/150	115	40
	575-60	518	633	6/4	162.2/ 92.5	250/ 150	320.4/148.6	966.4/445.6	200/110	162.2/ 98.9	250/150	320.4/155.0	966.4/ 452.0	200/125	115	40
	380-60	342	418	6/4	246.0/140.2	400/ 225	483.8/225.5	1462.8/674.5	300/175	246.0/149.9	400/250	483.8/235.2	1462.8/ 684.2	300/200	115	40
180, 182	230-60	207	253	6/6	370.0/370.0	600/ 600	632.0/632.0	—	450/450	—	—	—	—	—	115	60
	200-60	187	220	6/6	407.2/407.2	700/ 700	724.8/724.8	—	500/500	—	—	—	—	—	115	60
	460-60	414	506	6/6	185.0/185.0	300/ 300	316.0/316.0	948.0/ 948.0	225/225	—	—	—	—	—	115	60
	575-60	518	633	6/6	141.9/141.9	225/ 225	252.4/252.4	758.4/ 758.4	175/175	—	—	—	—	—	115	60
	380-60	342	418	6/6	215.1/215.1	350/ 350	382.8/382.8	1147.8/1147.8	300/300	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	423.5/423.5	700/ 700	800.0/800.0	—	600/600	—	—	—	—	—	115	60
	200-60	187	220	6/6	465.6/465.6	800/ 800	918.8/918.8	—	600/600	—	—	—	—	—	115	60
	460-60	414	506	6/6	211.3/211.3	350/ 350	400.0/400.0	1208.0/1208.0	250/250	—	—	—	—	—	115	60
	575-60	518	633	6/6	162.2/162.2	250/ 250	320.4/320.4	966.4/ 966.4	200/200	—	—	—	—	—	115	60
	380-60	342	418	6/6	246.0/246.0	400/ 400	483.8/483.8	1462.8/1462.8	300/300	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	504.2/423.5	800/ 700	806.0/800.0	—	600/600	—	—	—	—	—	115	60
	200-60	187	220	7/6	554.7/465.6	800/ 800	925.4/918.8	—	700/600	—	—	—	—	—	115	60
	460-60	414	506	7/6	252.1/211.3	400/ 350	403.0/400.0	1211.0/1208.0	300/250	—	—	—	—	—	115	60
	575-60	518	633	7/6	193.7/162.2	300/ 250	322.8/320.4	968.8/ 966.4	250/200	—	—	—	—	—	115	60
	380-60	342	418	7/6	293.3/246.0	500/ 400	487.4/483.8	1466.4/1462.8	350/300	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	504.2/498.2	800/ 800	806.0/800.0	—	600/600	—	—	—	—	—	115	60
	200-60	187	220	7/6	554.7/548.0	800/ 800	925.4/918.8	—	700/700	—	—	—	—	—	115	60
	460-60	414	506	7/6	252.1/249.1	400/ 400	403.0/400.0	1211.0/1208.0	300/300	—	—	—	—	—	115	60
	575-60	518	633	7/6	193.7/191.3	300/ 300	322.8/320.4	968.8/ 966.4	250/250	—	—	—	—	—	115	60
	380-60	342	418	7/6	293.3/289.7	500/ 500	487.4/483.8	1466.4/1462.8	350/350	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	343.9/211.3	500/ 350	605.0/400.0	1827.0/1208.0	450/250	—	—	—	—	—	115	60
	575-60	518	633	9/6	263.8/162.2	450/ 250	483.6/320.4	1461.6/ 966.4	350/200	—	—	—	—	—	115	60
	380-60	342	418	9/6	399.0/246.0	600/ 400	732.7/483.8	2211.7/1462.8	500/300	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	343.9/252.1	500/ 400	605.0/403.0	1827.0/1211.0	450/300	—	—	—	—	—	115	60
	575-60	518	633	9/7	263.8/193.7	450/ 300	483.6/322.8	1461.6/ 968.8	350/250	—	—	—	—	—	115	60
	380-60	342	418	9/7	399.0/293.3	600/ 500	732.7/487.4	2211.7/1466.4	500/350	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	408.0/249.1	700/ 400	608.0/400.0	1830.0/1208.0	500/300	—	—	—	—	—	115	60
	575-60	518	633	10/6	312.8/191.3	500/ 300	486.0/320.4	1464.0/ 966.4	400/250	—	—	—	—	—	115	60
	380-60	342	418	10/6	474.2/289.7	800/ 500	736.3/483.8	2215.3/1462.8	600/350	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	343.9/343.9	500/ 500	605.0/605.0	1827.0/1827.0	450/450	—	—	—	—	—	115	60
	575-60	518	633	9/9	263.8/263.8	450/ 450	483.6/483.6	1461.6/1461.6	350/350	—	—	—	—	—	115	60
	380-60	342	418	9/9	399.0/399.0	600/ 600	732.7/732.7	2211.7/2211.7	500/500	—	—	—	—	—	115	60
350, 352	460-60	414	506	9/9	405.0/343.9	700/ 500	605.0/605.0	1827.0/1827.0	500/450	—	—	—	—	—	115	60
	575-60	518	633	9/9	310.4/263.8	500/ 450	483.6/483.6	1461.6/1461.6	400/350	—	—	—	—	—	115	60
	380-60	342	418	9/9	470.5/399.0	800/ 600	732.7/732.7	2211.7/2211.7	600/500	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.
10. Standard condenser fan motors are not used with sizes 30XA-401, 451, 476, and 501. These sizes use high ambient temperature condenser fans.

Table 14 — 30XA080-500 Electrical Data, Dual Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	7.5 HP PUMP, 3450 RPM					10 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
080, 082	230-60	207	253	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	200-60	187	220	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	460-60	414	506	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	575-60	518	633	3/3	—	—	—	—	—	—	—	—	—	—	115	40
	380-60	342	418	3/3	—	—	—	—	—	—	—	—	—	—	115	40
090, 092	230-60	207	253	4/4	182.9/206.1	300/300	348.0/371.2	1034.0/1057.2	225/250	182.9/213.3	300/300	348.0/378.4	1034.0/1064.4	225/250	115	40
	200-60	187	220	4/4	201.5/227.1	300/350	399.5/425.2	1188.5/1214.2	250/300	201.5/235.1	300/350	399.5/433.2	1188.5/1222.2	250/300	115	40
	460-60	414	506	4/4	91.4/103.0	150/150	174.0/185.6	517.0/ 528.6	110/125	91.4/106.6	150/150	174.0/189.2	517.0/ 532.2	110/125	115	40
	575-60	518	633	4/4	70.3/ 79.6	110/125	139.6/148.9	413.6/ 422.9	90/100	70.3/ 82.5	110/125	139.6/151.8	413.6/ 425.8	90/100	115	40
	380-60	342	418	4/4	106.5/120.5	175/175	210.5/224.6	625.5/ 639.6	125/150	106.5/124.9	175/175	210.5/228.9	625.5/ 643.9	125/150	115	40
100, 102	230-60	207	253	4/4	199.9/223.1	300/350	372.0/395.2	1114.0/1137.2	250/300	199.9/230.3	300/350	372.0/402.4	1114.0/1144.4	250/300	115	40
	200-60	187	220	4/4	220.0/245.7	350/400	426.5/452.2	1280.5/1306.2	300/300	220.0/253.6	350/400	426.5/460.2	1280.5/1314.2	300/300	115	40
	460-60	414	506	4/4	99.9/111.5	150/175	186.0/197.6	557.0/ 568.6	125/150	99.9/115.1	150/175	186.0/201.2	557.0/ 572.2	125/150	115	40
	575-60	518	633	4/4	76.4/ 85.7	125/125	148.6/157.9	445.6/ 454.9	90/100	76.4/ 88.6	125/125	148.6/160.8	445.6/ 457.8	90/110	115	40
	380-60	342	418	4/4	116.5/130.6	175/200	225.5/239.6	674.5/ 688.6	150/175	116.5/134.9	175/200	225.5/243.9	674.5/ 692.9	150/175	115	40
110, 112	230-60	207	253	4/4	241.0/223.1	400/350	372.0/395.2	—	300/300	241.0/230.3	400/350	372.0/402.4	—	300/300	115	40
	200-60	187	220	4/4	264.9/245.7	450/400	426.5/452.2	—	350/300	264.9/253.6	450/400	426.5/460.2	—	350/300	115	40
	460-60	414	506	4/4	120.0/111.5	200/175	186.0/197.6	557.0/ 568.6	150/150	120.0/115.1	200/175	186.0/201.2	557.0/ 572.2	150/150	115	40
	575-60	518	633	4/4	92.5/ 85.7	150/125	148.6/157.9	445.6/ 454.9	110/100	92.5/ 88.6	150/125	148.6/160.8	445.6/ 457.8	110/110	115	40
	380-60	342	418	4/4	140.2/130.6	225/200	225.5/239.6	674.5/ 688.6	175/175	140.2/134.9	225/200	225.5/243.9	674.5/ 692.9	175/175	115	40
120, 122	230-60	207	253	4/4	241.0/264.2	400/400	372.0/395.2	—	300/350	241.0/271.4	400/400	372.0/402.4	—	300/350	115	40
	200-60	187	220	4/4	264.9/290.6	450/450	426.5/452.2	—	350/350	264.9/298.5	450/450	426.5/460.2	—	350/350	115	40
	460-60	414	506	4/4	120.0/131.6	200/200	186.0/197.6	557.0/ 568.6	150/175	120.0/135.2	200/200	186.0/201.2	557.0/ 572.2	150/175	115	40
	575-60	518	633	4/4	92.5/101.8	150/150	148.6/157.9	445.6/ 454.9	110/125	92.5/104.6	150/150	148.6/160.8	445.6/ 457.8	110/125	115	40
	380-60	342	418	4/4	140.2/154.3	225/250	225.5/239.6	674.5/ 688.6	175/200	140.2/158.6	225/250	225.5/243.9	674.5/ 692.9	175/200	115	40
140, 142	230-60	207	253	6/4	370.0/223.1	600/350	632.0/395.2	—	450/300	370.0/230.3	600/350	632.0/402.4	—	450/300	115	40
	200-60	187	220	6/4	407.2/245.7	700/400	724.8/452.2	—	500/300	407.2/253.6	700/400	724.8/460.2	—	500/300	115	40
	460-60	414	506	6/4	185.0/111.5	300/175	316.0/197.6	948.0/ 568.6	225/150	185.0/115.1	300/175	316.0/201.2	948.0/ 572.2	225/150	115	40
	575-60	518	633	6/4	141.9/ 85.7	225/125	252.4/157.9	758.4/ 454.9	175/100	141.9/ 88.6	225/125	252.4/160.8	758.4/ 457.8	175/110	115	40
	380-60	342	418	6/4	215.1/130.6	350/200	382.8/239.6	1147.8/ 688.6	300/175	215.1/134.9	350/200	382.8/243.9	1147.8/ 692.9	300/175	115	40
160, 162	230-60	207	253	6/4	423.5/264.2	700/400	800.0/395.2	—	600/350	423.5/271.4	700/400	800.0/402.4	—	600/350	115	40
	200-60	187	220	6/4	465.6/290.6	800/450	918.8/452.2	—	600/350	465.6/298.5	800/450	918.8/460.2	—	600/350	115	40
	460-60	414	506	6/4	211.3/131.6	350/200	400.0/197.6	1208.0/ 568.6	250/175	211.3/135.2	350/200	400.0/201.2	1208.0/ 572.2	250/175	115	40
	575-60	518	633	6/4	162.2/101.8	250/150	320.4/157.9	966.4/ 454.9	200/125	162.2/104.6	250/150	320.4/160.8	966.4/ 457.8	200/125	115	40
	380-60	342	418	6/4	246.0/154.3	400/250	483.8/239.6	1462.8/ 688.6	300/200	246.0/158.6	400/250	483.8/243.9	1462.8/ 692.9	300/200	115	40
180, 182	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/6	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/7	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/7	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	10/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	10/6	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	60

Table 14 — 30XA080-500 Electrical Data, Dual Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	7.5 HP PUMP, 3450 RPM					10 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
350, 352	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.
10. Standard condenser fan motors are not used with sizes 30XA-401, 451, 476, and 501. These sizes use high ambient temperature condenser fans.

Table 14 — 30XA080-500 Electrical Data, Dual Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL			
080, 082	230-60	207	253	3/3	—	—	—	—	—	115	40
	200-60	187	220	3/3	—	—	—	—	—	115	40
	460-60	414	506	3/3	—	—	—	—	—	115	40
	575-60	518	633	3/3	—	—	—	—	—	115	40
	380-60	342	418	3/3	—	—	—	—	—	115	40
090, 092	230-60	207	253	4/4	182.9/227.9	300/350	348.0/393.0	1034.0/1079.0	225/300	115	40
	200-60	187	220	4/4	201.5/251.2	300/350	399.5/449.3	1188.5/1238.3	250/300	115	40
	460-60	414	506	4/4	91.4/113.9	150/175	174.0/196.5	517.0/ 539.5	110/150	115	40
	575-60	518	633	4/4	70.3/ 88.3	110/125	139.6/157.6	413.6/ 431.6	90/110	115	40
	380-60	342	418	4/4	106.5/133.7	175/200	210.5/237.8	625.5/ 652.8	125/175	115	40
100, 102	230-60	207	253	4/4	199.9/244.9	300/350	372.0/417.0	1114.0/1159.0	250/300	115	40
	200-60	187	220	4/4	220.0/269.8	350/400	426.5/476.3	1280.5/1330.3	300/350	115	40
	460-60	414	506	4/4	99.9/122.4	150/175	186.0/208.5	557.0/ 579.5	125/150	115	40
	575-60	518	633	4/4	76.4/ 94.4	125/125	148.6/166.6	445.6/ 463.6	90/110	115	40
	380-60	342	418	4/4	116.5/143.8	175/225	225.5/252.8	674.5/ 701.8	150/175	115	40
110, 112	230-60	207	253	4/4	241.0/244.9	400/350	372.0/417.0	—	300/300	115	40
	200-60	187	220	4/4	264.9/269.8	450/400	426.5/476.3	—	350/350	115	40
	460-60	414	506	4/4	120.0/122.4	200/175	186.0/208.5	557.0/ 579.5	150/150	115	40
	575-60	518	633	4/4	92.5/ 94.4	150/125	148.6/166.6	445.6/ 463.6	110/110	115	40
	380-60	342	418	4/4	140.2/143.8	225/225	225.5/252.8	674.5/ 701.8	175/175	115	40
120, 122	230-60	207	253	4/4	241.0/286.0	400/450	372.0/417.0	—	300/350	115	40
	200-60	187	220	4/4	264.9/314.7	450/500	426.5/476.3	—	350/400	115	40
	460-60	414	506	4/4	120.0/142.5	200/225	186.0/208.5	557.0/ 579.5	150/175	115	40
	575-60	518	633	4/4	92.5/110.5	150/175	148.6/166.6	445.6/ 463.6	110/150	115	40
	380-60	342	418	4/4	140.2/167.5	225/250	225.5/252.8	674.5/ 701.8	175/200	115	40
140, 142	230-60	207	253	6/4	370.0/244.9	600/350	632.0/417.0	—	450/300	115	40
	200-60	187	220	6/4	407.2/269.8	700/400	724.8/476.3	—	500/350	115	40
	460-60	414	506	6/4	185.0/122.4	300/175	316.0/208.5	948.0/ 579.5	225/150	115	40
	575-60	518	633	6/4	141.9/ 94.4	225/125	252.4/166.6	758.4/ 463.6	175/110	115	40
	380-60	342	418	6/4	215.1/143.8	350/225	382.8/252.8	1147.8/ 701.8	300/175	115	40
160, 162	230-60	207	253	6/4	423.5/286.0	700/450	800.0/417.0	—	600/350	115	40
	200-60	187	220	6/4	465.6/314.7	800/500	918.8/476.3	—	600/400	115	40
	460-60	414	506	6/4	211.3/142.5	350/225	400.0/208.5	1208.0/ 579.5	250/175	115	40
	575-60	518	633	6/4	162.2/110.5	250/175	320.4/166.6	966.4/ 463.6	200/150	115	40
	380-60	342	418	6/4	246.0/167.5	400/250	483.8/252.8	1462.8/ 701.8	300/200	115	40
180, 182	230-60	207	253	6/6	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	—	—	—	—	—	115	60
	575-60	518	633	9/6	—	—	—	—	—	115	60
	380-60	342	418	9/6	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	—	—	—	—	—	115	60
	575-60	518	633	9/7	—	—	—	—	—	115	60
	380-60	342	418	9/7	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	—	—	—	—	—	115	60
	575-60	518	633	10/6	—	—	—	—	—	115	60
	380-60	342	418	10/6	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	115	60

Table 14 — 30XA080-500 Electrical Data, Dual Point (Standard Condenser Fan Motors) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL			
350, 352	460-60	414	506	9/9	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.
10. Standard condenser fan motors are not used with sizes 30XA-401, 451, 476, and 501. These sizes use high ambient temperature condenser fans.

Table 15 — 30XA140-501 Electrical Data, Single Point (High Ambient Option)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					7.5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL				WD	XL			
140, 142	230-60	207	253	10	562.0	800	838.9	—	700	578.0	800	854.9	—	700	585.2	800	862.1	—	700	115	40
	200-60	187	220	10	618.8	800	952.8	—	700	636.5	800	970.5	—	800	644.4	800	978.5	—	800	115	40
	460-60	414	506	10	281.0	400	419.5	1051.5	350	289.0	400	427.5	1059.5	350	292.6	400	431.1	1063.1	350	115	40
	575-60	518	633	10	216.3	300	332.5	838.5	250	222.7	300	338.9	844.9	250	225.6	300	341.8	847.8	250	115	40
	380-60	342	418	10	328.3	450	504.6	1269.6	400	338.0	450	514.3	1279.3	400	342.3	450	518.7	1283.7	400	115	40
160, 162	230-60	207	253	10	642.7	800	1036.7	—	800	658.7	800	1052.7	—	800	665.9	800	1059.9	—	800	115	40
	200-60	187	220	10	706.9	1000	1179.4	—	800	724.5	1000	1197.1	—	1000	732.5	1000	1205.0	—	1000	115	40
	460-60	414	506	10	320.5	450	518.0	1326.0	400	328.5	450	526.0	1334.0	400	332.1	450	529.6	1337.6	400	115	40
	575-60	518	633	10	247.2	350	412.1	1058.1	300	253.6	350	418.5	1064.5	300	256.5	350	421.4	1067.4	300	115	40
	380-60	342	418	10	374.9	500	622.8	1601.8	450	384.6	500	632.5	1611.5	450	388.9	500	636.8	1615.8	450	115	40
180, 182	230-60	207	253	12	703.9	800	980.8	—	800	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	775.0	1000	1109.1	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	351.9	450	490.4	1122.4	400	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	271.1	350	387.3	893.3	300	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	410.8	500	587.2	1352.2	450	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	12	795.6	1000	1189.6	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	875.0	1200	1347.5	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	396.9	500	594.4	1402.4	450	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	305.8	400	470.7	1116.7	350	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	463.8	600	711.7	1690.7	600	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	13	876.7	1200	1200.4	—	1000	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	964.6	1200	1359.4	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	438.0	600	599.8	1407.8	500	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	337.6	450	475.0	1121.0	400	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	511.5	700	718.3	1697.3	600	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	13	933.0	1200	1256.7	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	1026.7	1200	1421.6	—	1200	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	466.5	600	628.3	1436.3	600	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	359.5	450	497.0	1143.0	400	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	544.4	700	751.2	1730.2	600	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	15	529.1	700	806.6	2028.6	600	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	15	407.4	500	639.7	1617.7	500	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	15	616.7	800	969.3	2448.3	700	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	16	563.0	800	840.5	2062.5	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	433.6	600	665.9	1643.9	500	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	656.2	800	1008.8	2487.8	800	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	16	619.6	800	840.5	2062.5	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	476.7	600	665.9	1643.9	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	722.3	1000	1008.8	2487.8	1000	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	18	638.1	800	915.6	2137.6	700	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	491.2	600	723.5	1701.5	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	743.0	1000	1095.6	2574.6	1000	—	—	—	—	—	—	—	—	—	—	115	60
350, 352	460-60	414	506	18	694.6	800	915.6	2137.6	800	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	534.2	700	723.5	1701.5	600	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	809.1	1000	1095.6	2574.6	1000	—	—	—	—	—	—	—	—	—	—	115	60
401	460-60	414	506	20	853.6	1200	1018.6	2299.6	1000	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	20	671.6	800	802.6	1825.6	800	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	20	1017.7	1200	1219.6	2773.6	1200	—	—	—	—	—	—	—	—	—	—	115	60
451	460-60	414	506	22	864.4	1200	1029.4	2310.4	1000	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	22	680.2	800	811.2	1834.2	800	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	22	1030.8	1200	1232.7	2786.7	1200	—	—	—	—	—	—	—	—	—	—	115	60
476	460-60	414	506	22	861.5	1200	1055.4	2336.4	1000	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	22	687.2	800	840.5	1863.5	800	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	22	1046.2	1200	1280.1	2834.1	1200	—	—	—	—	—	—	—	—	—	—	115	60
501	460-60	414	506	26	912.9	1200	1077.9	2358.9	1200	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	26	729.1	1000	860.1	1883.1	1000	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.

Table 15 — 30XA140-501 Electrical Data, Single Point (High Ambient Option) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	10 HP PUMP, 3450 RPM					15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
140, 142	230-60	207	253	10	592.4	800	869.3	—	700	607.0	800	883.9	—	700	115	40
	200-60	187	220	10	652.4	800	986.5	—	800	668.6	800	1002.6	—	800	115	40
	460-60	414	506	10	296.2	400	434.7	1066.7	350	303.5	400	442.0	1074.0	350	115	40
	575-60	518	633	10	228.4	300	344.6	850.6	300	234.3	300	350.5	856.5	300	115	40
	380-60	342	418	10	346.7	450	523.0	1288.0	400	355.5	500	531.9	1296.9	400	115	40
160, 162	230-60	207	253	10	673.1	800	1067.1	—	800	687.7	800	1081.7	—	800	115	40
	200-60	187	220	10	740.5	1000	1213.0	—	1000	756.6	1000	1229.1	—	1000	115	40
	460-60	414	506	10	335.7	450	533.2	1341.2	400	343.0	450	540.5	1348.5	400	115	40
	575-60	518	633	10	259.4	350	424.3	1070.3	300	265.2	350	430.1	1076.1	300	115	40
	380-60	342	418	10	393.3	500	641.2	1620.2	450	402.1	500	650.0	1629.0	450	115	40
180, 182	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	12	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	12	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	12	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	12	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	12	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	13	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	13	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	13	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	15	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	15	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	15	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	16	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	16	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	16	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	60
350, 352	460-60	414	506	18	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	18	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	18	—	—	—	—	—	—	—	—	—	—	115	60
401	460-60	414	506	20	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	20	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	20	—	—	—	—	—	—	—	—	—	—	115	60
451	460-60	414	506	22	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	22	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	22	—	—	—	—	—	—	—	—	—	—	115	60
476	460-60	414	506	22	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	22	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	22	—	—	—	—	—	—	—	—	—	—	115	60
501	460-60	414	506	26	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	26	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	26	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.

Table 16 — 30XA140-501 Electrical Data, Dual Point (High Ambient Option)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	NO HYDRONIC PACKAGE					5 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
140, 142	230-60	207	253	6/4	383.8/211.9	600/ 300	660.8/391.2	—	450/250	383.8/227.9	600/350	660.8/407.2	—	450/300	115	40
	200-60	187	220	6/4	422.6/233.3	700/ 350	756.7/447.8	—	500/300	422.6/251.0	700/350	756.7/465.5	—	500/300	115	40
	460-60	414	506	6/4	191.9/105.9	300/ 150	330.4/195.6	962.4/ 566.6	225/125	191.9/113.9	300/175	330.4/203.6	962.4/574.6	225/150	115	40
	575-60	518	633	6/4	147.7/ 81.4	225/ 125	263.9/156.3	769.9/ 453.3	175/100	147.7/ 87.8	225/125	263.9/162.7	769.9/459.7	175/110	115	40
	380-60	342	418	6/4	223.9/124.0	350/ 200	400.2/237.1	1165.2/ 686.1	300/150	223.9/133.7	350/200	400.2/246.8	1165.2/695.8	300/175	115	40
160, 162	230-60	207	253	6/4	434.8/249.1	700/ 400	828.8/391.2	—	600/300	434.8/265.1	700/400	828.8/407.2	—	600/350	115	40
	200-60	187	220	6/4	478.1/273.9	800/ 450	950.7/447.8	—	600/350	478.1/291.6	800/450	950.7/465.5	—	600/350	115	40
	460-60	414	506	6/4	216.9/124.1	350/ 200	414.4/195.6	1222.4/ 566.6	300/150	216.9/132.1	350/200	414.4/203.6	1222.4/574.6	300/175	115	40
	575-60	518	633	6/4	167.0/ 95.9	250/ 150	331.9/156.3	977.9/ 453.3	200/125	167.0/102.3	250/150	331.9/162.7	977.9/459.7	200/125	115	40
	380-60	342	418	6/4	253.3/145.4	400/ 225	501.2/237.1	1480.2/ 686.1	300/175	253.3/155.1	400/250	501.2/246.8	1480.2/695.8	300/200	115	40
180, 182	230-60	207	253	6/6	383.8/383.8	600/ 600	660.8/660.8	—	450/450	—	—	—	—	—	115	60
	200-60	187	220	6/6	422.6/422.6	700/ 700	756.7/756.7	—	500/500	—	—	—	—	—	115	60
	460-60	414	506	6/6	191.9/191.9	300/ 300	330.4/330.4	962.4/ 962.4	225/225	—	—	—	—	—	115	60
	575-60	518	633	6/6	147.7/147.7	225/ 225	263.9/263.9	769.9/ 769.9	175/175	—	—	—	—	—	115	60
	380-60	342	418	6/6	223.9/223.9	350/ 350	400.2/400.2	1165.2/1165.2	300/300	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	434.8/434.8	700/ 700	828.8/828.8	—	600/600	—	—	—	—	—	115	60
	200-60	187	220	6/6	478.1/478.1	800/ 800	950.7/950.7	—	600/600	—	—	—	—	—	115	60
	460-60	414	506	6/6	216.9/216.9	350/ 350	414.4/414.4	1222.4/1222.4	300/300	—	—	—	—	—	115	60
	575-60	518	633	6/6	167.0/167.0	250/ 250	331.9/331.9	977.9/ 977.9	200/200	—	—	—	—	—	115	60
	380-60	342	418	6/6	253.3/253.3	400/ 400	501.2/501.2	1480.2/1480.2	300/300	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	515.9/434.8	800/ 700	839.6/828.8	—	700/600	—	—	—	—	—	115	60
	200-60	187	220	7/6	567.8/478.1	800/ 800	962.6/950.7	—	700/600	—	—	—	—	—	115	60
	460-60	414	506	7/6	258.0/216.9	400/ 350	419.8/414.4	1227.8/1222.4	350/300	—	—	—	—	—	115	60
	575-60	518	633	7/6	198.8/167.0	300/ 250	336.2/331.9	982.2/ 977.9	250/200	—	—	—	—	—	115	60
	380-60	342	418	7/6	301.0/253.3	500/ 400	507.8/501.2	1486.8/1480.2	400/300	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	515.9/505.1	800/ 800	839.6/828.8	—	700/600	—	—	—	—	—	115	60
	200-60	187	220	7/6	567.8/555.8	800/ 800	962.6/950.7	—	700/700	—	—	—	—	—	115	60
	460-60	414	506	7/6	258.0/252.6	400/ 400	419.8/414.4	1227.8/1222.4	350/300	—	—	—	—	—	115	60
	575-60	518	633	7/6	198.8/194.5	300/ 300	336.2/331.9	982.2/ 977.9	250/250	—	—	—	—	—	115	60
	380-60	342	418	7/6	301.0/294.5	500/ 450	507.8/501.2	1486.8/1480.2	400/350	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	349.1/216.9	500/ 350	626.6/414.4	1848.6/1222.4	450/300	—	—	—	—	—	115	60
	575-60	518	633	9/6	268.6/167.0	450/ 250	500.9/331.9	1478.9/ 977.9	350/200	—	—	—	—	—	115	60
	380-60	342	418	9/6	406.2/253.3	600/ 400	758.8/501.2	2237.8/1480.2	500/300	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	349.1/258.0	500/ 400	626.6/419.8	1848.6/1227.8	450/350	—	—	—	—	—	115	60
	575-60	518	633	9/7	268.6/198.8	450/ 300	500.9/336.2	1478.9/ 982.2	350/250	—	—	—	—	—	115	60
	380-60	342	418	9/7	406.2/301.0	600/ 500	758.8/507.8	2237.8/1486.8	500/400	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	411.0/252.6	600/ 400	632.0/414.4	1854.0/1222.4	500/300	—	—	—	—	—	115	60
	575-60	518	633	10/6	315.9/194.5	500/ 300	505.2/331.9	1483.2/ 977.9	400/250	—	—	—	—	—	115	60
	380-60	342	418	10/6	478.9/294.5	800/ 450	765.4/501.2	2244.4/1480.2	600/350	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	349.1/349.1	500/ 500	626.6/626.6	1848.6/1848.6	450/450	—	—	—	—	—	115	60
	575-60	518	633	9/9	268.6/268.6	450/ 450	500.9/500.9	1478.9/1478.9	350/350	—	—	—	—	—	115	60
	380-60	342	418	9/9	406.2/406.2	600/ 600	758.8/758.8	2237.8/2237.8	500/500	—	—	—	—	—	115	60
350, 352	460-60	414	506	9/9	405.6/349.1	600/ 500	626.6/626.6	1848.6/1848.6	500/450	—	—	—	—	—	115	60
	575-60	518	633	9/9	311.6/268.6	500/ 450	500.9/500.9	1478.9/1478.9	400/350	—	—	—	—	—	115	60
	380-60	342	418	9/9	472.4/406.2	800/ 600	758.8/758.8	2237.8/2237.8	600/500	—	—	—	—	—	115	60
401	460-60	414	506	11/9	448.9/405.6	700/ 600	684.4/626.6	1965.4/1848.6	600/500	—	—	—	—	—	115	60
	575-60	518	633	11/9	356.9/311.6	600/ 500	545.5/500.9	1568.5/1478.9	450/400	—	—	—	—	—	115	60
	380-60	342	418	11/9	544.8/472.4	800/ 800	829.9/758.8	2383.9/2237.8	700/600	—	—	—	—	—	115	60
451	460-60	414	506	13/9	530.2/405.6	800/ 600	695.2/626.6	1976.2/1848.6	700/500	—	—	—	—	—	115	60
	575-60	518	633	13/9	423.2/311.6	700/ 500	554.2/500.9	1577.2/1478.9	500/400	—	—	—	—	—	115	60
	380-60	342	418	13/9	641.1/472.4	1000/ 800	843.0/758.8	2397.0/2237.8	800/600	—	—	—	—	—	115	60
476	460-60	414	506	11/11	490.5/448.9	800/ 700	684.4/684.4	1965.4/1965.4	600/600	—	—	—	—	—	115	60
	575-60	518	633	11/11	392.1/356.9	600/ 600	545.5/545.5	1568.5/1568.5	500/450	—	—	—	—	—	115	60
	380-60	342	418	11/11	596.0/544.8	1000/ 800	829.9/829.9	2383.9/2383.9	800/700	—	—	—	—	—	115	60
501	460-60	414	506	14/12	535.6/495.9	800/ 800	700.6/689.8	1981.6/1970.8	700/600	—	—	—	—	—	115	60
	575-60	518	633	14/12	427.5/396.5	700/ 600	558.5/549.8	1581.5/1572.8	600/500	—	—	—	—	—	115	60
	380-60	342	418	14/12	647.6/602.6	1000/1000	849.5/836.4	2403.5/2390.4	800/800	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.

Table 16 — 30XA140-501 Electrical Data, Dual Point (High Ambient Option) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	7.5 HP PUMP, 3450 RPM					10 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL				WD	XL			
140, 142	230-60	207	253	6/4	383.8/235.1	600/350	660.8/414.4	—	450/300	383.8/242.3	600/350	660.8/421.6	—	450/300	115	40
	200-60	187	220	6/4	422.6/259.0	700/400	756.7/473.4	—	500/300	422.6/266.9	700/400	756.7/481.4	—	500/350	115	40
	460-60	414	506	6/4	191.9/117.5	300/175	330.4/207.2	962.4/578.2	225/150	191.9/121.1	300/175	330.4/210.8	962.4/581.8	225/150	115	40
	575-60	518	633	6/4	147.7/ 90.7	225/125	263.9/165.6	769.9 /462.6	175/110	147.7/ 93.5	225/125	263.9/168.4	769.9/465.4	175/110	115	40
	380-60	342	418	6/4	223.9/138.0	350/200	400.2/251.2	1165.2/700.2	300/175	223.9/142.4	350/200	400.2/255.5	1165.2/704.5	300/175	115	40
160, 162	230-60	207	253	6/4	434.8/272.3	700/400	828.8/414.4	—	600/350	434.8/279.5	700/400	828.8/421.6	—	600/350	115	40
	200-60	187	220	6/4	478.1/299.6	800/450	950.7/473.4	—	600/350	478.1/307.6	800/450	950.7/481.4	—	600/400	115	40
	460-60	414	506	6/4	216.9/135.7	350/200	414.4/207.2	1222.4/578.2	300/175	216.9/139.3	350/200	414.4/210.8	1222.4/581.8	300/175	115	40
	575-60	518	633	6/4	167.0/105.2	250/150	331.9/165.6	977.9/462.6	200/125	167.0/108.1	250/150	331.9/168.4	977.9/465.4	200/125	115	40
	380-60	342	418	6/4	253.3/159.5	400/250	501.2/251.2	1480.2/700.2	300/200	253.3/163.8	400/250	501.2/255.5	1480.2/704.5	300/200	115	40
180, 182	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/6	—	—	—	—	—	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/7	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/7	—	—	—	—	—	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	10/6	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	10/6	—	—	—	—	—	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	60
350, 352	460-60	414	506	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	—	—	—	—	—	115	60
401	460-60	414	506	11/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	11/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	11/9	—	—	—	—	—	—	—	—	—	—	115	60
451	460-60	414	506	13/9	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	13/9	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	13/9	—	—	—	—	—	—	—	—	—	—	115	60
476	460-60	414	506	11/11	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	11/11	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	11/11	—	—	—	—	—	—	—	—	—	—	115	60
501	460-60	414	506	14/12	—	—	—	—	—	—	—	—	—	—	115	60
	575-60	518	633	14/12	—	—	—	—	—	—	—	—	—	—	115	60
	380-60	342	418	14/12	—	—	—	—	—	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.

Table 16 — 30XA140-501 Electrical Data, Dual Point (High Ambient Option) (cont)

UNIT 30XA	UNIT VOLTAGE			NUMBER OF COND FANS	15 HP PUMP, 3450 RPM					CONTROL CIRCUIT	
	V-Hz (3 Ph)	Supplied			MCA	MOCP	ICF		Rec Fuse Size	Voltage 1 PH, 60 Hz	MCA and MOCP
		Min	Max				WD	XL			
140, 142	230-60	207	253	6/4	383.8/256.9	600/350	660.8/436.2	—	450/300	115	40
	200-60	187	220	6/4	422.6/283.1	700/400	756.7/497.5	—	500/350	115	40
	460-60	414	506	6/4	191.9/128.4	300/175	330.4/218.1	962.4/589.1	225/150	115	40
	575-60	518	633	6/4	147.7/ 99.4	225/150	263.9/174.3	769.9/471.3	175/125	115	40
	380-60	342	418	6/4	223.9/151.2	350/225	400.2/264.4	1165.2/713.4	300/175	115	40
160, 162	230-60	207	253	6/4	434.8/294.1	700/450	828.8/436.2	—	600/350	115	40
	200-60	187	220	6/4	478.1/323.7	800/500	950.7/497.5	—	600/400	115	40
	460-60	414	506	6/4	216.9/146.6	350/225	414.4/218.1	1222.4/589.1	300/175	115	40
	575-60	518	633	6/4	167.0/113.9	250/175	331.9/174.3	977.9/471.3	200/150	115	40
	380-60	342	418	6/4	253.3/172.7	400/250	501.2/264.4	1480.2/713.4	300/200	115	40
180, 182	230-60	207	253	6/6	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	115	60
200, 202	230-60	207	253	6/6	—	—	—	—	—	115	60
	200-60	187	220	6/6	—	—	—	—	—	115	60
	460-60	414	506	6/6	—	—	—	—	—	115	60
	575-60	518	633	6/6	—	—	—	—	—	115	60
	380-60	342	418	6/6	—	—	—	—	—	115	60
220, 222	230-60	207	253	7/6	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	115	60
240, 242	230-60	207	253	7/6	—	—	—	—	—	115	60
	200-60	187	220	7/6	—	—	—	—	—	115	60
	460-60	414	506	7/6	—	—	—	—	—	115	60
	575-60	518	633	7/6	—	—	—	—	—	115	60
	380-60	342	418	7/6	—	—	—	—	—	115	60
260, 262	460-60	414	506	9/6	—	—	—	—	—	115	60
	575-60	518	633	9/6	—	—	—	—	—	115	60
	380-60	342	418	9/6	—	—	—	—	—	115	60
280, 282	460-60	414	506	9/7	—	—	—	—	—	115	60
	575-60	518	633	9/7	—	—	—	—	—	115	60
	380-60	342	418	9/7	—	—	—	—	—	115	60
300, 302	460-60	414	506	10/6	—	—	—	—	—	115	60
	575-60	518	633	10/6	—	—	—	—	—	115	60
	380-60	342	418	10/6	—	—	—	—	—	115	60
325, 327	460-60	414	506	9/9	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	115	60
350, 352	460-60	414	506	9/9	—	—	—	—	—	115	60
	575-60	518	633	9/9	—	—	—	—	—	115	60
	380-60	342	418	9/9	—	—	—	—	—	115	60
401	460-60	414	506	11/9	—	—	—	—	—	115	60
	575-60	518	633	11/9	—	—	—	—	—	115	60
	380-60	342	418	11/9	—	—	—	—	—	115	60
451	460-60	414	506	13/9	—	—	—	—	—	115	60
	575-60	518	633	13/9	—	—	—	—	—	115	60
	380-60	342	418	13/9	—	—	—	—	—	115	60
476	460-60	414	506	11/11	—	—	—	—	—	115	60
	575-60	518	633	11/11	—	—	—	—	—	115	60
	380-60	342	418	11/11	—	—	—	—	—	115	60
501	460-60	414	506	14/12	—	—	—	—	—	115	60
	575-60	518	633	14/12	—	—	—	—	—	115	60
	380-60	342	418	14/12	—	—	—	—	—	115	60

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 control 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.
4. For MCA between 381 and 760 amps, 6 conductors are required.
5. For MCA between 761 and 1140 amps, 9 conductors are required.
6. For MCA between 1141 and 1520 amps, 12 conductors are required.
7. Calculation of conductors required is based on 75 C copper wire.
8. 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.
9. Data provided circuit A/circuit B where there are two circuits.

Table 17 — Compressor and Fan Electrical Data

30XA UNIT SIZE	UNIT VOLTAGE V-Hz (3 Ph, 60 Hz)	NUMBER OF COND FANS*	CONDENSER FANS		COMPRESSOR											
					A				B				C			
					LRA (All Units)		RLA		LRA (All Units)		RLA		LRA (All Units)		RLA	
			FLA													
			High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)
080/082	200	3/3	11.9	6.6	1162	373	—	136.8	1162	373	—	136.8	—	—	—	—
	230	3/3	10.8	6.0	1010	324	—	124.2	1010	324	—	124.2	—	—	—	—
	380	3/3	6.5	3.6	611	196	—	71.9	611	196	—	71.9	—	—	—	—
	460	3/3	5.4	3.0	505	162	—	62.1	505	162	—	62.1	—	—	—	—
	575	3/3	4.3	2.4	404	130	—	47.5	404	130	—	47.5	—	—	—	—
090/092	200	4/4	11.9	6.6	1162	373	—	140.0	1162	373	—	140.0	—	—	—	—
	230	4/4	10.8	6.0	1010	324	—	127.1	1010	324	—	127.1	—	—	—	—
	380	4/4	6.5	3.6	611	196	—	73.5	611	196	—	73.5	—	—	—	—
	460	4/4	5.4	3.0	505	162	—	63.6	505	162	—	63.6	—	—	—	—
	575	4/4	4.3	2.4	404	130	—	48.6	404	130	—	48.6	—	—	—	—
100/102	200	4/4	11.9	6.6	1254	400	—	154.8	1254	400	—	154.8	—	—	—	—
	230	4/4	10.8	6.0	1090	348	—	140.7	1090	348	—	140.7	—	—	—	—
	380	4/4	6.5	3.6	660	211	—	81.6	660	211	—	81.6	—	—	—	—
	460	4/4	5.4	3.0	545	174	—	70.4	545	174	—	70.4	—	—	—	—
	575	4/4	4.3	2.4	436	139	—	53.5	436	139	—	53.5	—	—	—	—
110/112	200	4/4	11.9	6.6	1254	400	—	190.7	1254	400	—	154.8	—	—	—	—
	230	4/4	10.8	6.0	1090	348	—	173.6	1090	348	—	140.7	—	—	—	—
	380	4/4	6.5	3.6	660	211	—	100.6	660	211	—	81.6	—	—	—	—
	460	4/4	5.4	3.0	545	174	—	86.4	545	174	—	70.4	—	—	—	—
	575	4/4	4.3	2.4	436	139	—	66.3	436	139	—	53.5	—	—	—	—
120/122	200	4/4	11.9	6.6	1254	400	—	190.7	1254	400	—	190.7	—	—	—	—
	230	4/4	10.8	6.0	1090	348	—	173.6	1090	348	—	173.6	—	—	—	—
	380	4/4	6.5	3.6	660	211	—	100.6	660	211	—	100.6	—	—	—	—
	460	4/4	5.4	3.0	545	174	—	86.4	545	174	—	86.4	—	—	—	—
	575	4/4	4.3	2.4	436	139	—	66.3	436	139	—	66.3	—	—	—	—
140/142	200	6/4	11.9	6.6	2139	685	280.8	293.9	1254	400	148.4	154.8	—	—	—	—
	230	6/4	10.8	6.0	1860	596	255.2	267.2	1090	348	134.9	140.7	—	—	—	—
	380	6/4	6.5	3.6	1126	361	147.7	154.6	660	211	78.3	81.6	—	—	—	—
	460	6/4	5.4	3.0	930	298	127.6	133.6	545	174	67.5	70.4	—	—	—	—
	575	6/4	4.3	2.4	744	238	97.5	102.0	436	139	51.3	53.5	—	—	—	—
160/162	200	6/4	11.9	6.6	2737	879	325.2	340.6	1254	400	180.9	190.7	—	—	—	—
	230	6/4	10.8	6.0	2380	764	296.0	310.0	1090	348	164.7	173.6	—	—	—	—
	380	6/4	6.5	3.6	1441	462	171.3	179.4	660	211	95.4	100.6	—	—	—	—
	460	6/4	5.4	3.0	1190	382	147.6	154.6	545	174	82.0	86.4	—	—	—	—
	575	6/4	4.3	2.4	952	306	112.9	118.2	436	139	62.9	66.3	—	—	—	—
180/182	200	6/6	11.9	6.6	2139	685	280.8	293.9	2139	685	280.8	293.9	—	—	—	—
	230	6/6	10.8	6.0	1860	596	255.2	267.2	1860	596	255.2	267.2	—	—	—	—
	380	6/6	6.5	3.6	1126	361	147.7	154.6	1126	361	147.7	154.6	—	—	—	—
	460	6/6	5.4	3.0	930	298	127.6	133.6	930	298	127.6	133.6	—	—	—	—
	575	6/6	4.3	2.4	744	238	97.5	102.0	744	238	97.5	102.0	—	—	—	—
200/202	200	6/6	11.9	6.6	2737	879	325.2	340.6	2737	879	325.2	340.6	—	—	—	—
	230	6/6	10.8	6.0	2380	764	296.0	310.0	2380	764	296.0	310.0	—	—	—	—
	380	6/6	6.5	3.6	1441	462	171.3	179.4	1441	462	171.3	179.4	—	—	—	—
	460	6/6	5.4	3.0	1190	382	147.6	154.6	1190	382	147.6	154.6	—	—	—	—
	575	6/6	4.3	2.4	952	306	112.9	118.2	952	306	112.9	118.2	—	—	—	—
220/222	200	7/6	11.9	6.6	2737	879	387.3	406.6	2737	879	325.2	340.6	—	—	—	—
	230	7/6	10.8	6.0	2380	764	352.3	369.8	2380	764	296.0	310.0	—	—	—	—
	380	7/6	6.5	3.6	1441	462	204.2	214.3	1441	462	171.3	179.4	—	—	—	—
	460	7/6	5.4	3.0	1190	382	176.1	184.9	1190	382	147.6	154.6	—	—	—	—
	575	7/6	4.3	2.4	952	306	134.8	141.5	952	306	112.9	118.2	—	—	—	—
240/242	200	7/6	11.9	6.6	2737	879	387.3	406.6	2737	879	387.3	406.6	—	—	—	—
	230	7/6	10.8	6.0	2380	764	352.3	369.8	2380	764	352.3	369.8	—	—	—	—
	380	7/6	6.5	3.6	1441	462	204.2	214.3	1441	462	204.2	214.3	—	—	—	—
	460	7/6	5.5	3.0	1190	382	176.1	184.9	1190	382	176.1	184.9	—	—	—	—
	575	7/6	4.3	2.4	952	306	134.8	141.5	952	306	134.8	141.5	—	—	—	—
260/262	380	9/6	6.5	3.6	2179	700	277.9	293.0	1441	462	171.3	179.4	—	—	—	—
	460	9/6	5.4	3.0	1800	578	240.4	253.5	1190	382	147.6	154.6	—	—	—	—
	575	9/6	4.3	2.4	1440	462	183.7	193.7	952	306	112.9	118.2	—	—	—	—
280/282	380	9/7	6.5	3.6	2179	700	277.9	293.0	1441	462	204.2	214.3	—	—	—	—
	460	9/7	5.4	3.0	1800	578	240.4	253.5	1190	382	176.1	184.9	—	—	—	—
	575	9/7	4.3	2.4	1440	462	183.7	193.7	952	306	134.8	141.5	—	—	—	—
300/302	380	10/6	6.5	3.6	2179	700	330.8	350.3	1441	462	204.2	214.3	—	—	—	—
	460	10/6	5.4	3.0	1800	578	285.6	302.4	1190	382	176.1	184.9	—	—	—	—
	575	10/6	4.3	2.4	1440	462	218.2	231.0	952	306	134.8	141.5	—	—	—	—
325/327	380	9/9	6.5	3.6	2179	700	277.9	293.0	2179	700	277.9	293.0	—	—	—	—
	460	9/9	5.4	3.0	1800	578	240.4	253.5	1800	578	240.4	253.5	—	—	—	—
	575	9/9	4.3	2.4	1440	462	183.7	193.7	1440	462	183.7	193.7	—	—	—	—

Table 17 — Compressor and Fan Electrical Data

30XA UNIT SIZE	UNIT VOLTAGE V-Hz (3 Ph, 60 Hz)	NUMBER OF COND FANS*	CONDENSER FANS		COMPRESSOR											
					A				B				C			
					LRA (All Units)		RLA		LRA (All Units)		RLA		LRA (All Units)		RLA	
			FLA													
			High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)	XL	WD	High Ambient Temp Cond. Fans (1140 rpm)	Standard Cond. Fans (850 rpm)
350/352	380	9/9	6.5	3.6	2179	700	330.8	350.3	2179	700	277.9	293.0	—	—	—	—
	460	9/9	5.4	3.0	1800	578	285.6	302.4	1800	578	240.4	253.5	—	—	—	—
	575	9/9	4.3	2.4	1440	462	218.2	231.0	1440	462	183.7	193.7	—	—	—	—
401	380	11/9	6.5	—	2312	758	449.8	—	2179	700	418.9	—	—	—	—	—
	460	11/9	5.4	—	1906	625	371.0	—	1800	578	346.3	—	—	—	—	—
	575	11/9	4.3	—	1521	498	294.8	—	1440	462	275.0	—	—	—	—	—
451	380	13/9	6.5	—	2312	758	529.4	—	2179	700	403.9	—	—	—	—	—
	460	13/9	5.4	—	1906	625	438.2	—	1800	578	346.3	—	—	—	—	—
	575	13/9	4.3	—	1521	498	349.5	—	1440	462	266.4	—	—	—	—	—
476	380	11/11	6.5	—	2312	756	490.8	—	2312	758	449.8	—	—	—	—	—
	460	11/11	5.4	—	1906	625	404.3	—	1906	625	371.0	—	—	—	—	—
	575	11/11	4.3	—	1521	498	323.0	—	1521	498	294.8	—	—	—	—	—
501	380	14/12	6.5	—	2312	758	535.9	—	2312	758	497.3	—	—	—	—	—
	460	14/12	5.4	—	1906	625	443.6	—	1906	625	409.7	—	—	—	—	—
	575	14/12	4.3	—	1521	498	353.8	—	1521	498	327.3	—	—	—	—	—

LEGEND

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

*Quantity of fan motors for incoming power supply Circuit 1/Circuit 2.

NOTES:
1. For 30XA080-352, 401, 451, and 476 units with dual power supply, main power supply 1 uses refrigerant circuit A components to calculate MCA and MOCP. Main power supply 2 uses refrigerant circuit B components to calculate MCA and MOCP.
2. 30XA400, 450, and 500 units have dual power supply. Main power supply 1 uses refrigerant circuit C components to calculate MCA and MOCP. Main power supply 2 uses refrigerant circuit A and B components to calculate MCA and MOCP.
3.

Table 18 — Pump Electrical Data

PUMP HP	UNIT VOLTAGE V-Hz (3 Ph)	HYDRONIC SYSTEM (SINGLE OR DUAL) FLA (Each)	30XA UNIT SIZE
5	230-60	11.6	090-162
	200-60	12.6	
	460-60	5.8	
	575-60	4.6	
	380-60	7.0	
7.5	230-60	17.4	090-162
	200-60	18.5	
	460-60	8.7	
	575-60	7.0	
	380-60	10.4	
10	230-60	23.0	090-162
	200-60	25.0	
	460-60	11.5	
	575-60	9.2	
	380-60	14.0	
15	230-60	34.0	090-162
	200-60	36.7	
	460-60	17.0	
	575-60	14.0	
	380-60	21.0	

FLA — Full Load Amps

CCN COMMUNICATION BUS WIRING

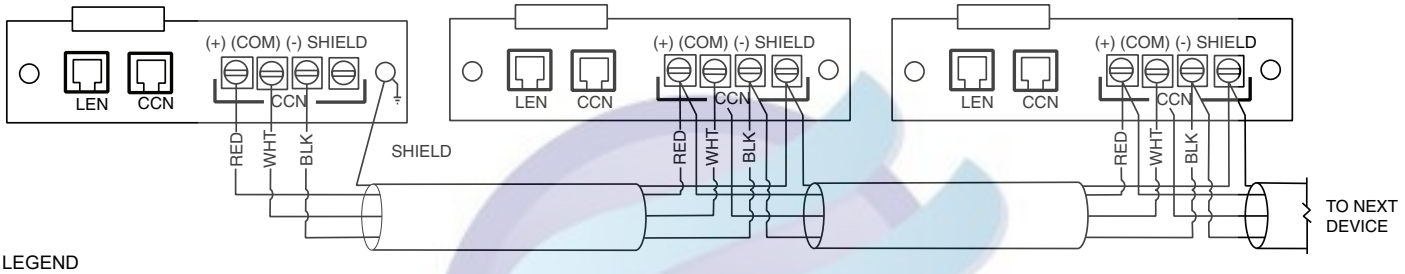
The communication bus wiring is a shielded, 3-conductor cable with drain wire and is field supplied and installed in the field.

The system elements are connected to the communication bus in a daisy chain arrangement. The positive pin of each system element communication connector must be wired to the positive pins of the system elements on either side of it. This is also required for the negative and signal ground pins of each system element. Wiring connections for CCN (Carrier Comfort Network) should be made at TB (terminal block) 3. Consult the CCN Contractor's Manual for further information. See Fig. 62.

NOTE: Conductors and drain wire must be 20 AWG (American Wire Gage) minimum stranded, tinned copper. Individual conductors must be insulated with PVC, PVC/nylon, vinyl, Teflon[1], or polyethylene. An aluminum/polyester 100% foil shield and an outer jacket of PVC, PVC/nylon, chrome vinyl, or Teflon with a minimum operating temperature range of –4°F (–20°C) to 140°F (60°C) is required. See Table 19 for a list of manufacturers that produce CCN bus wiring that meet these requirements.

It is important when connecting to a CCN communication bus that a color coding scheme be used for the entire network to simplify the installation. It is recommended that red be used for the signal positive, black for the signal negative, and white for the signal ground. Use a similar scheme for cables containing different colored wires. At each system element, the shields of its communication bus cables must be tied together. If the communication bus is entirely within one building, the resulting continuous shield must be connected to a ground at one point only. If the communication bus cable exits from one building and enters another, the shields must be connected to grounds at the lightning suppressor in each building where the cable enters or exits the building (one point per building only).

1. Teflon is a registered trademark of DuPont.



LEGEND

CCN — Carrier Comfort Network®
LEN — Local Equipment Network

Fig. 62 — TB3 — CCN Wiring

Table 19 — CCN Communication Bus Wiring

MANUFACTURER	PART NUMBER	
	Regular Wiring	Plenum Wiring
Alpha	1895	—
American	A21451	A48301
Belden	8205	884421
Columbia	D6451	—
Manhatten	M13402	M64430
Quabik	6130	—

To connect the unit to the network:

1. Turn off power to the control box.
2. Cut the CCN wire and strip the ends of the red (+), white (ground), and black (–) conductors. Substitute appropriate colors for different colored cables.
3. Connect the red wire to (+) terminal on TB3 of the plug, the white wire to COM terminal, and the black wire to the (–) terminal.
4. The RJ14 CCN connector on TB3 can also be used, but is only intended for temporary connection (for example, a laptop computer running service tool).

IMPORTANT: A shorted CCN bus cable will prevent some routines from running and may prevent the unit from starting. If abnormal conditions occur, disconnect the machine from the CCN. If conditions return to normal, check the CCN connector and cable. Run new cable if necessary. A short in one section of the bus can cause problems with all system elements on the bus.

NON-CCN COMMUNICATION WIRING

The 30XA units offer several non-CCN translators. Refer to the separate installation instructions for additional wiring steps.

FIELD CONTROL OPTION WIRING

Install field control wiring options. Some options, such as 4 to 20 mA demand limit that requires the energy management module, may require that accessories be installed first (if not factory installed) for terminal connections.

DUAL CHILLER LEAVING WATER SENSOR

If the dual chiller algorithm is used and the machines are installed in parallel, an additional chilled water sensor must be installed for each chiller. Install the wells in the common leaving water header. See Fig. 63. DO NOT relocate the chiller's leaving water thermistors. They must remain in place for the unit to operate properly.

The thermistor well is a 1/4 in. NPT fitting for securing the well in the piping. The piping must be drilled and tapped for the well. Select a location that will allow for removal of the thermistor without any restrictions.

Once the well is inserted, install the thermistors. Insert the thermistor into the well until the O-ring reaches the well body. Use the nut on the thermistor to secure the thermistor in place. Once the thermistor is in place, it is recommended that a thermistor wire loop be made and secured with a wire tie to the chilled water pipe. See Fig. 63.

For dual chiller control a CCN bus must be connected between the two modules (Fig. 62). See the Carrier Comfort Network Communication Bus Wiring section for additional information.

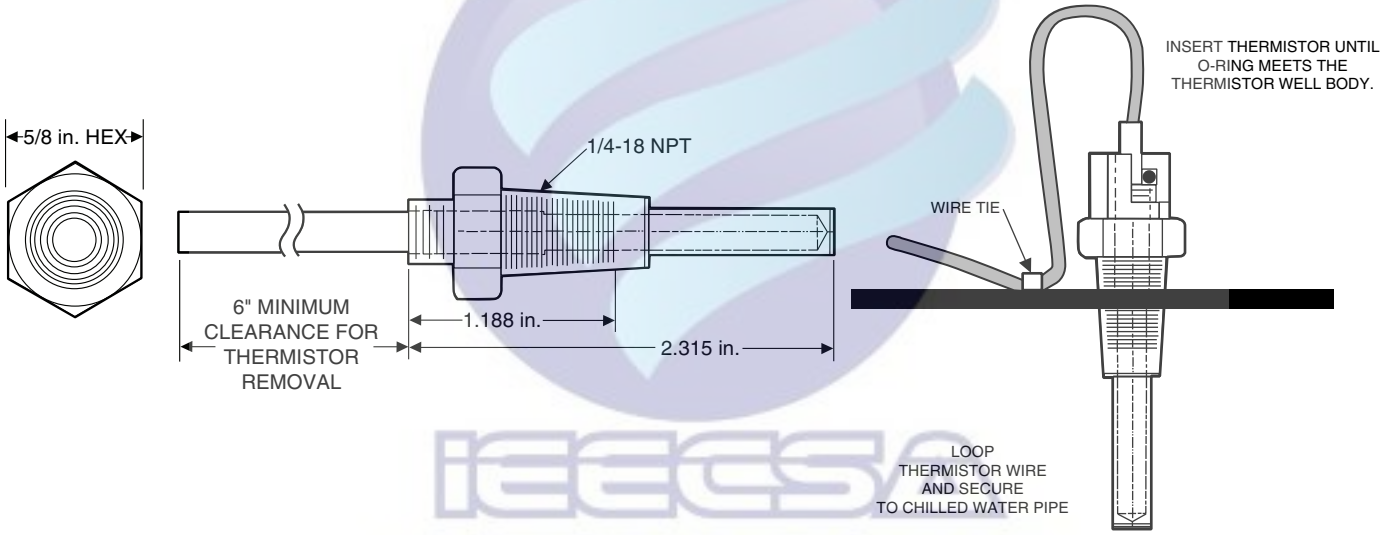


Fig. 63 — Dual Chiller Accessory Kit Leaving Water Thermistor and Well (Part No. 00EFN900044000A)

Step 6 — Install Accessories

A number of accessories are available to provide the following optional features (for details, refer to the Controls and Troubleshooting guide shipped with the unit).

ENERGY MANAGEMENT MODULE

The energy management module is used for any of the following types of temperature reset, demand limit and ice features:

- 4 to 20 mA inputs for cooling set point reset and capacity limit (requires field-supplied 4 to 20 mA generator)
- 0 to 10 v output for percentage total capacity running
- 24 v discrete outputs for shutdown and running relays
- 10k space temperature input

Discrete inputs for occupancy override, demand limit switch 2 (step 1 demand limit is wired to the base board, requires field-supplied dry contacts), remote lockout switch and ice done switch (requires field-supplied dry contacts).

REMOTE ENHANCED DISPLAY

For applications where remote monitoring of equipment is required; the remote enhanced display (or Touch Pilot display) provides an indoor display, capable of monitoring any equipment on the Carrier Comfort Network® (CCN) bus. A CCN bus is required.

LOW AMBIENT TEMPERATURE OPERATION

If outdoor ambient operating temperatures below 32°F (0°C) are expected, refer to separate installation instructions for low-ambient operation using the low ambient temperature head pressure control accessory.

MINIMUM LOAD ACCESSORY

Contact your local Carrier representative for more details if a minimum load accessory is required for a specific application. For installation details, refer to separate installation instructions supplied with the accessory package.

UNIT SECURITY/PROTECTION ACCESSORIES

For applications with unique security and/or protection requirements, several options are available for unit protection. Security grilles and hail guards are available. Contact a local Carrier representative for more details. For installation details, refer to separate installation instructions supplied with the accessory package.

COMMUNICATION ACCESSORIES

A number of communication options are available to meet any requirement. Contact your local Carrier representative for more details. For installation details, refer to separate installation instructions supplied with the accessory package.

SERVICE OPTIONS

Two accessories are available to aid in servicing 30XA units: a ground fault convenience outlet (GFI-CO) and a remote service port.

The GFI-CO is a convenience outlet with a 4-amp GFI receptacle.

The remote service port is housed in a weather-proof enclosure with a communication port to plug in the Navigator™ device.

Contact your local Carrier representative for more details. For installation details, refer to separate installation instructions supplied with each accessory package.

Step 7 — Leak Test Unit

The 30XA units are shipped with a complete operating charge of R-134a (see Tables 1-8) and should be under sufficient pressure to conduct a leak test.

IMPORTANT: These units are designed for use with R-134a only. DO NOT USE ANY OTHER refrigerant in these units.

Perform a leak test to ensure that leaks have not developed during unit shipment. Dehydration of the system is not required unless the entire refrigerant charge has been lost. There are several O-ring face seal fittings utilized in the oil line piping. If a leak is detected at any of these fittings, open the system and inspect the O-ring surface for foreign matter or damage. Do not reuse O-rings. Repair any leak found following good refrigeration practice.

⚠ CAUTION

DO NOT OVERTIGHTEN THESE FITTINGS. Overtightening will result in O-ring damage.

Step 8 — Refrigerant Charging

DEHYDRATION

Refer to Carrier Standard Service Techniques Manual, Chapter 1, Refrigerants, Sections 6 and 7 for details. Do not use compressor to evacuate system.

REFRIGERANT CHARGE

IMPORTANT: These units are designed for use with R-134a only. DO NOT USE ANY OTHER refrigerant in these units.

The liquid charging method is recommended for complete charging or when additional charge is required.

⚠ CAUTION

When charging, circulate water through the cooler at all times to prevent freezing. Freezing damage is considered abuse and may void the Carrier warranty.

⚠ CAUTION

DO NOT OVERCHARGE system. Overcharging results in higher discharge pressure with higher cooling fluid consumption, possible compressor damage, and higher power consumption.

The 30XA units are shipped from the factory with a full charge of R-134a. The unit should not need to be charged at installation unless a leak was detected in Step 7 — Leak Test Unit section. If dehydration and recharging is necessary, use industry standard practices or refer to Carrier Standard Service Techniques Manual as required.

Step 9 — Optional BACnet[1] Communication Wiring

The BACnet communication option uses the UPC Open controller. The controller communicates using BACnet on an MS/TP network segment communicationi-s at 9600 bps, 19.2 kbps, 38.4 kbps, or 76.8 kbps. The UPC Open controller is mounted in a separate enclosure below the main control box.

Wire the controllers on an MS/TP network segment in a daisy-chain configuration. Wire specifications for the cable are 22 AWG (American Wire Gage) or 24 AWG, low-capacitance, twisted, stranded, shielded copper wire. The maximum length is 2000 ft.

Install a BT485 terminator on the first and last controller on a network segment to add bias and prevent signal distortions due to echoing. See Fig. 64-66.

To wire the UPC Open controller to the BAS network:

1. Pull the screw terminal connector from the controller's BAS Port.
2. Check the communications wiring for shorts and grounds.
3. Connect the communications wiring to the BAS port's screw terminals labeled Net +, Net -, and Shield.

NOTE: Use the same polarity throughout the network segment.

4. Insert the power screw terminal connector into the UPC Open controller's power terminals if they are not currently connected.
5. Verify communication with the network by viewing a module status report. To perform a module status report using the BACview keypad/display unit, press and hold the "FN" key then press the "." key.

To install a BT485 terminator, push the BT485 on to the BT485 connector located near the BACnet connector.

NOTE: The BT485 terminator has no polarity associated with it.

To order a BT485 terminator, consult Commercial Products i-Vu® Open Control System Master Prices.

MS/TP WIRING RECOMMENDATIONS

Recommendations are shown in Tables 20 and 21. The wire jacket and UL temperature rating specifications list two acceptable alternatives. The Halar[2] specification has a higher temperature rating and a tougher outer jacket than the SmokeGard[3] specification, and it is appropriate for use in applications where the user is concerned about abrasion. The Halar jacket is also less likely to crack in extremely low temperatures.

NOTE: Use the specified type of wire and cable for maximum signal integrity.

1. BACnet is a trademark of ASHRAE.
2. Halar is a registered trademark of Solvay Plastics.
3. SmokeGard is a trademark of AlphaGary-Mexichem Corp.

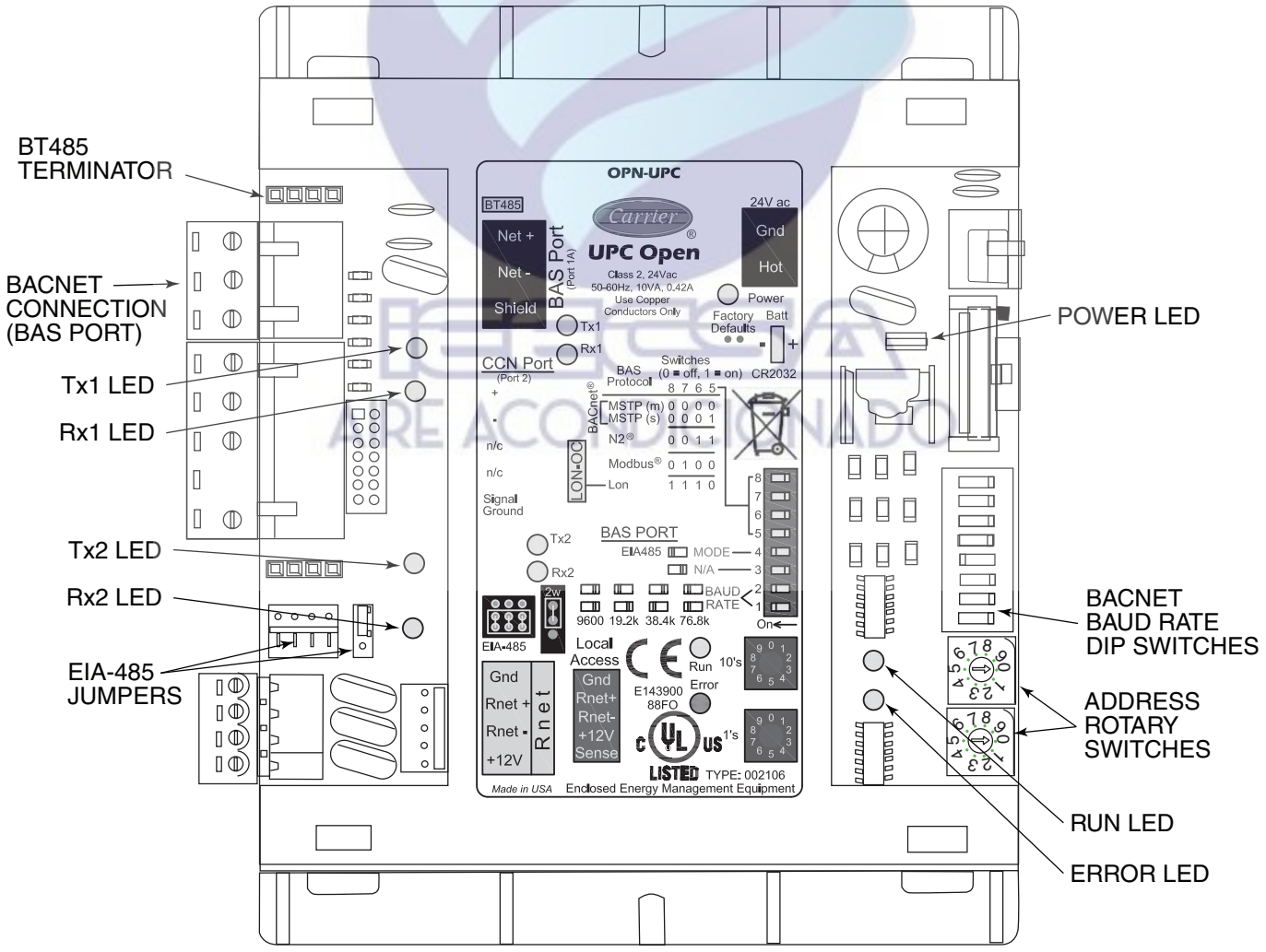


Fig. 64 — UPC Open Controller

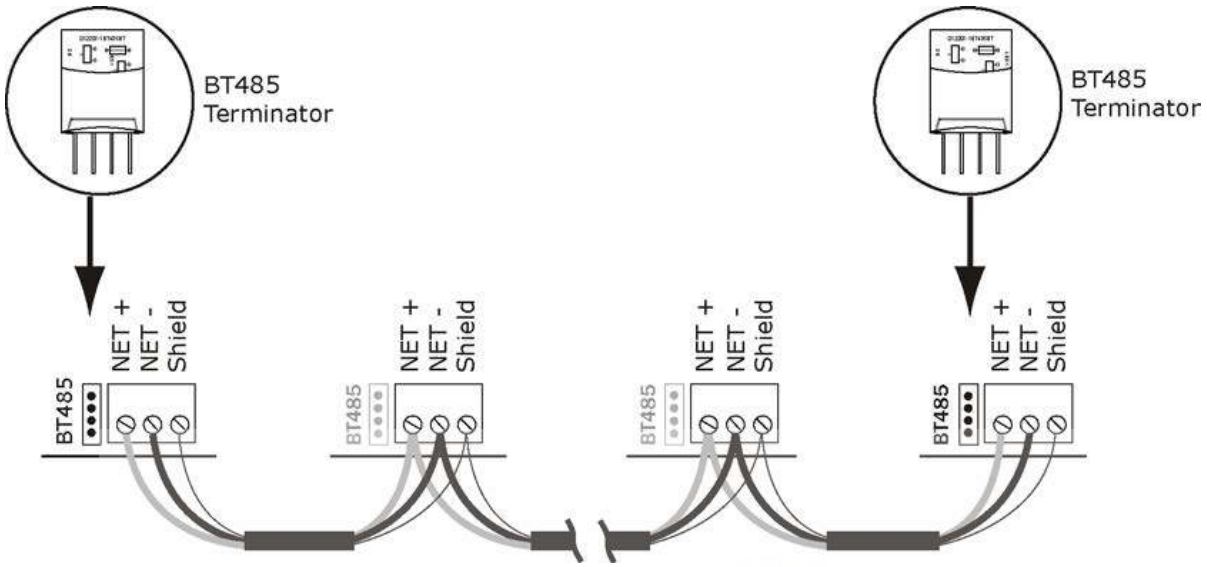


Fig. 65 — Network Wiring

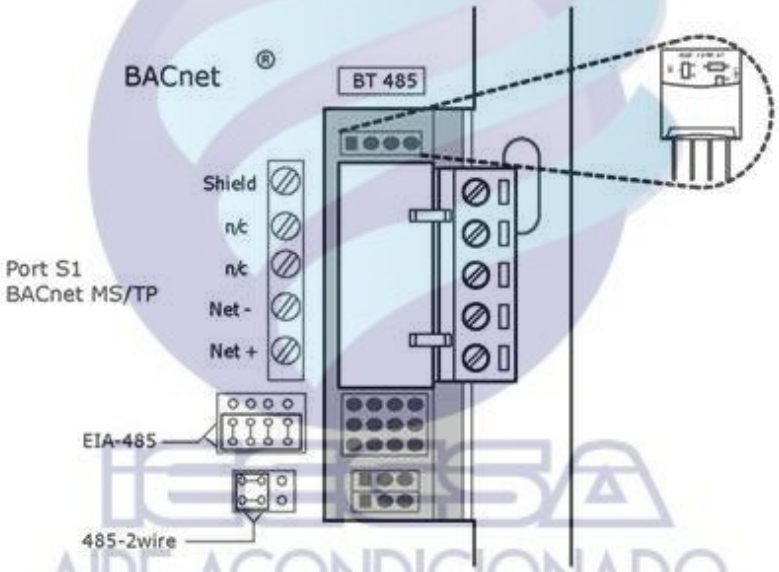


Fig. 66 — BT485 Terminator Installation

Table 20 — MS/TP Wiring Recommendations

SPECIFICATION	RECOMMMENDATION
Cable	Single twisted pair, low capacitance, CL2P, 22 AWG (7x30), TC foam FEP, plenum rated cable
Conductor	22 or 24 AWG stranded copper (tin plated)
Insulation	Foamed FEP 0.015 in. (0.381 mm) wall 0.060 in. (1.524 mm) O.D.
Color Code	Black/White
Twist Lay	2 in. (50.8 mm) lay on pair 6 twists/foot (20 twists/meter) nominal
Shielding	Aluminum/Mylar shield with 24 AWG TC drain wire
Jacket	SmokeGard Jacket (SmokeGard PVC) 0.021 in. (0.5334 mm) wall 0.175 in. (4.445 mm) O.D. Halar Jacket (E-CTFE) 0.010 in. (0.254 mm) wall 0.144 in. (3.6576 mm) O.D.
DC Resistance	15.2 Ohms/1000 feet (50 Ohms/km) nominal
Capacitance	12.5 pF/ft (41 pF/meter) nominal conductor to conductor
Characteristic Impedance	100 Ohms nominal
Weight	12 lb/1000 feet (17.9 kg/km)
UL Temperature Rating	SmokeGard 167°F (75°C), Halar -40 to 302°F (-40 to 150°C)
Voltage	300 Vac, power limited
Listing	UL: NEC CL2P, or better

LEGEND

AWG — American Wire Gage
CL2P — Class 2 Plenum Cable
DC — Direct Current
FEP — Fluorinated Ethylene Polymer
NEC — National Electrical Code
O.D. — Outside Diameter
TC — Tinned Copper
UL — Underwriters Laboratories

Table 21 — Open System Wiring Specifications and Recommended Vendors

WIRING SPECIFICATIONS		RECOMMENDED VENDORS AND PART NUMBERS			
Wire Type	**Description**	**Connect Air International**	**Belden**	**RMCORP**	**Contractors Wire and Cable**
MS/TP Network (RS-485)	22 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W221P-22227	—	25160PV	CLP0520LC
	24 AWG, single twisted shielded pair, low capacitance, CL2P, TC foam FEP, plenum rated. See MS/TP Installation Guide for specifications.	W241P-2000F	82841	25120-OR	—
Rnet	4 conductor, unshielded, CMP, 18 AWG, plenum rated.	W184C-2099BLB	6302UE	21450	CLP0442

LEGEND

AWG — American Wire Gage
CL2P — Class 2 Plenum Cable
CMP — Communications Plenum Rated
FEP — Fluorinated Ethylene Polymer
TC — Tinned Copper