



# Installation Instructions

## CONTENTS

	Page
<b>GENERAL</b> .....	1
<b>SAFETY CONSIDERATIONS</b> .....	1
<b>INSTALLATION</b> .....	2-24
<b>Location</b> .....	2
<b>Step 1 — Inspect Shipment</b> .....	2
<b>Step 2 — Rig the Unit</b> .....	2
• 30HK,HL UNITS	
• 30HW UNITS	
<b>Step 3 — Place the Unit</b> .....	2
• 30HK,HL UNITS	
• 30HW UNITS	
<b>Step 4 — Check Compressor Mounting and Connections</b> .....	2
<b>Step 5 — Make Piping Connections</b> .....	13
• 30HK,HWC,HWS CONDENSER DESCRIPTION	
• 30HL,HWA SYSTEM CONDENSER	
• 30HWP CONDENSER DESCRIPTION	
• 30HK,HWC,HWS CONDENSER(S)	
• 30HWP CONDENSER	
• 30HK,HWP,HWC,HWS UNITS	
• COOLER DESCRIPTION	
• COOLER PIPING	
<b>Step 6 — Make Electrical Connections</b> .....	19
• FLOW SWITCH	
• CONTROL BOX, POWER SECTION	
• CONTROL BOX, CONTROLS SECTION	
• CONTROL BOX, FIELD CONTROL WIRING SECTION	
• UNBALANCED 3-PHASE SUPPLY VOLTAGE	

## GENERAL

These installation instructions cover the 30HK, HL, HWA, HWB, HWC, and HWS units with *ComfortLink* controls. The 30HL and HWA are condenserless units, and the 30HK, HWB, HWC, and HWS units are all fluid cooled. In addition, the 30HK and HWC units have a standard mechanically cleanable condenser and the 30HWS unit has a mechanically cleanable condenser specifically designed for seacoast applications.

## SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment (Fig. 1-3) can be hazardous due to system pressures, electrical components, and equipment location (roofs, elevated structures, etc.).

Only trained, qualified installers and service technicians should install, start up, and service this equipment.

When working on the equipment, observe precautions in the literature and on tags, stickers, and labels attached to the equipment.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling, rigging, and setting bulky equipment.

### ⚠ WARNING

Be sure all power to equipment is shut off before performing maintenance or service. There may be more than one disconnect. Tag all disconnects to alert others not to turn on power until work is completed.

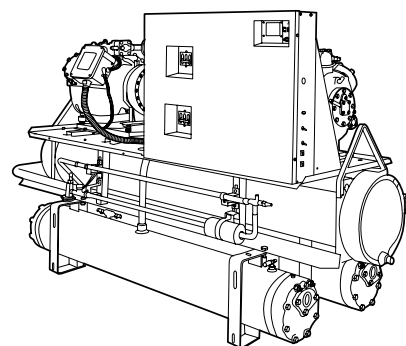


Fig. 1 — 30HK,HL Unit (30HK Shown)

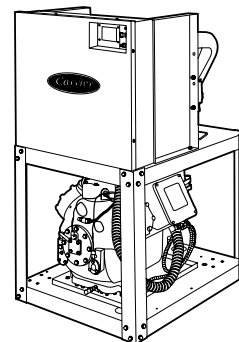


Fig. 2 — 30HWA,B Unit

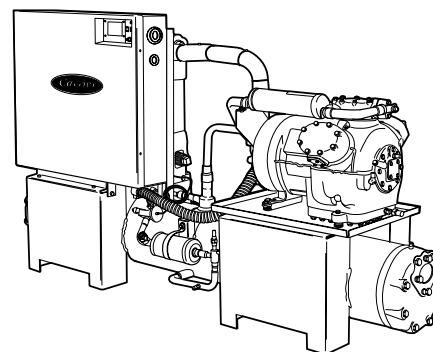


Fig. 3 — 30HWC,S Unit

## INSTALLATION

**Location** — Do not store units in an area exposed to weather because of sensitive control mechanisms and electronic devices. Locate unit indoors. See Fig. 4-9 for unit dimensional details.

Allow 36 in. (914 mm) in front of the unit for control box access door. Prior to installation determine which direction compressor will be removed, and leave 3 to 4 ft (914 to 1219 mm) clearance for removal.

On 30HK,HL units leave 7½ ft (2.3 m) (for 040 units) or 9 ft (2.7 m) (for 050,060 units) clearance on one side for cooler tube removal. Leave 2 ft (610 mm) clearance on the other side for making fluid connections to cooler and water connections to condenser. See Fig. 4-6.

On 30HWA,B units, leave 2 ft (610 mm) on one side for making fluid connections to cooler and water connections to condenser, accessing the thermostatic expansion valve (TXV), and replacing heat exchanger(s) if necessary. See Fig. 7 and 8.

On 30HWC,S units, leave 75 in. (1905 mm) on one side for condenser tube removal and 2 ft (610 mm) on the other side for making fluid connections to cooler and water connections to condenser, accessing the TXV, and replacing heat exchanger(s) if necessary. See Fig. 9.

The floor must be strong enough to support the unit operating weight (see Tables 1A-2B and Fig. 4-6 and 10). If necessary, add a supporting structure (steel beams or reinforced concrete slabs) to the floor to transfer weight to nearest beams.

Additional weights of factory-installed options (30HW only) are:

- Sound enclosure — 75 lb (34 kg)
- Hot gas bypass — 15 lb (6.8 kg)
- 80-amp non-fused disconnect — 15 lb (6.8 kg)
- 100-amp non-fused disconnect — 25 lb (11.3 kg)
- 200-amp non-fused disconnect — 70 lb (31.8 kg)

### ⚠ CAUTION

Be sure interconnecting piping and electrical conduits are suspended freely, and are not in contact with any adjacent walls. Be sure unit capillaries are not rubbing against anything.

**Step 1 — Inspect Shipment** — Inspect unit for damage or missing parts. If damaged, or if shipment is incomplete, file a claim immediately with the shipping company.

### Step 2 — Rig the Unit

30HK,HL UNITS — On each end of cooler, a steel loop is provided for the preferred method of lifting unit. *Use spreader bars to keep cables away from compressor enclosure and control box.* If unit is to be moved by forklift truck, use one of the following two methods:

1. From front or rear, lift under the cooler rails. Unit can be either on or off skid.
2. When moving from the ends, *leave unit on the skid.* Lift from under the skid.

If unit is to be dragged into final position, or moved on rollers, it is recommended that it be left on the skid. *When dragging or rolling, apply force only to the skid, not to the unit.* Lift from above, using the lifting angles provided, to remove unit from the skid.

### 30HW UNITS

NOTE: If accessory mobility package (Carrier part no. 30HW900008) is to be used, install this accessory after bringing unit into building and before moving the unit to its final location per installation instructions provided with the accessory.

**Units Equipped With Factory-Installed Unit Wheels** — This factory-installed option consists of 4 swivel-type wheels mounted to the legs of the unit. See Fig. 11. For units equipped with this option, leave the skid on until the unit is *in the building*. Once in the building, remove the skid, and wheel the unit to its final location.

NOTE: The wheels are equipped with a thumb-screw brake.

**Units Not Equipped With Factory-Installed Unit Wheels** — Do not remove the skid until the unit has been moved to its final location. The unit may be moved by means of rollers under the skid, a forklift truck, or rig and slings.

### Step 3 — Place the Unit

30HK,HL UNITS — When unit is in final position, remove skid, level the unit (using a level), and bolt the unit to floor or pad.

NOTE: *These units are not suitable for unprotected outdoor use.*

Carrier recommends that these units be located in the basement or on the ground floor. However, if it is necessary to locate the unit on an upper floor, be sure the structure has been designed to support the unit weight. If necessary, add structural support to floor. Also, be sure the surface for installation is level. Refer to Fig. 4-6 for space requirements and weight distribution.

Only electrical power connections, water connections for condenser, and fluid connections for cooler are required for 30HK installation. Installation of 30HL units varies only in field piping required for the remote condenser.

30HW UNITS — When the unit is in its final position, remove the skid (from units not equipped with factory-mounted wheels), or remove the wheels (if equipped). Remove ¾-in. wheel nuts to remove wheels from unit legs. Level the unit (using a level), and bolt the unit to the floor or pad.

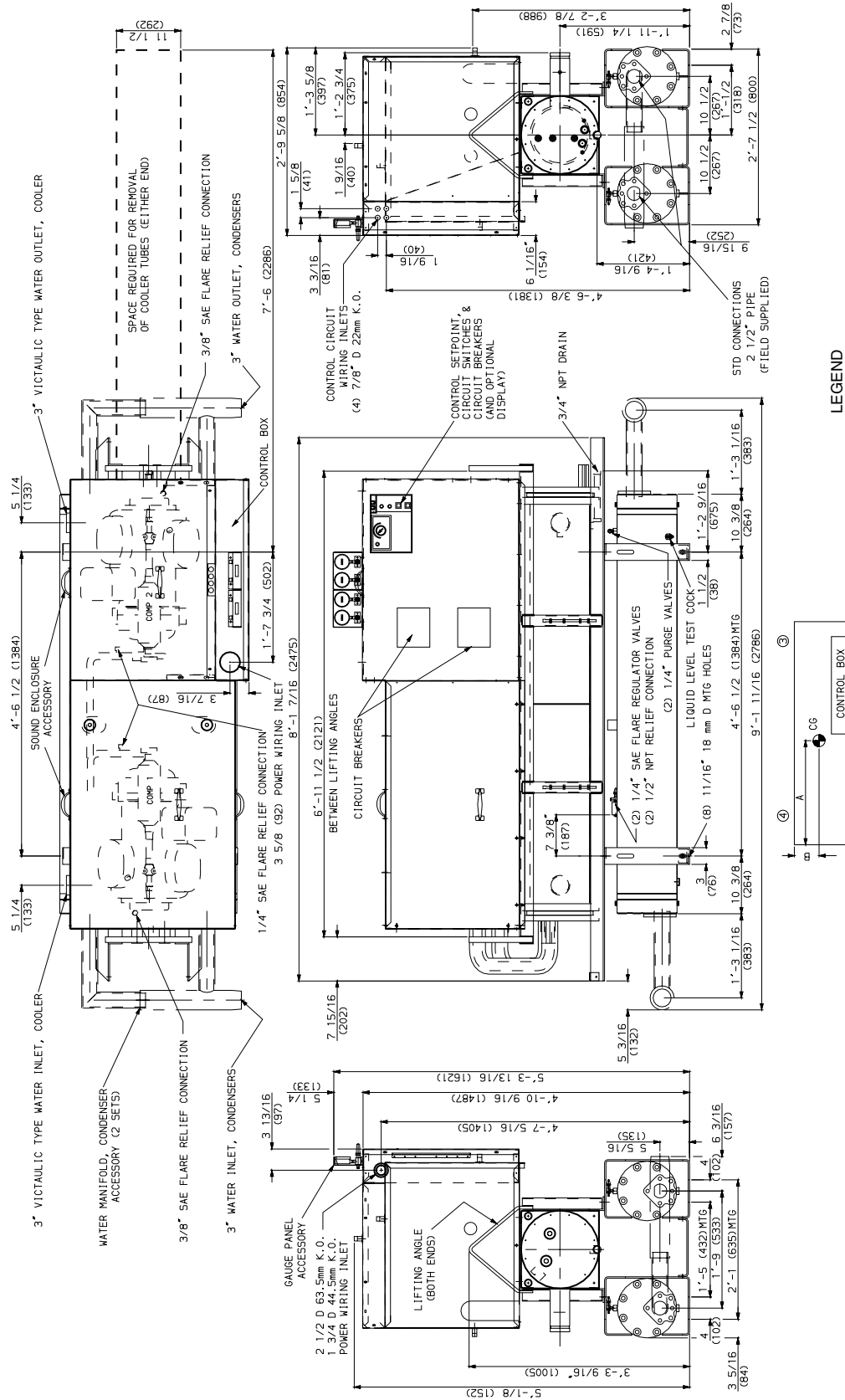
If unit is to be mounted on unit external vibration isolators, follow the mounting instructions included with the accessory vibration isolator (Carrier part numbers 30HW900-001 and -002).

### Step 4 — Check Compressor Mounting and Connections

As shipped, the compressor is held down by special self-locking nuts (Fig. 12). After unit is installed, loosen the self-locking nuts one at a time until compressor floats freely. Do not remove nuts, as they are self-locking and will hold their locked position.







**LEGEND**

- CG Center of Gravity
- COMP Compressor
- CONN Connection
- K.O. Knockout
- SAE Society of Automotive Engineers (U.S.A.)

**NOTES:**

- Standard unit shown with the sound enclosure accessory.
- Dimensions in ( ) are in millimeters and weights in ( ) are in kilograms.
- Allow 36" (914) clearance on all sides unless otherwise noted.

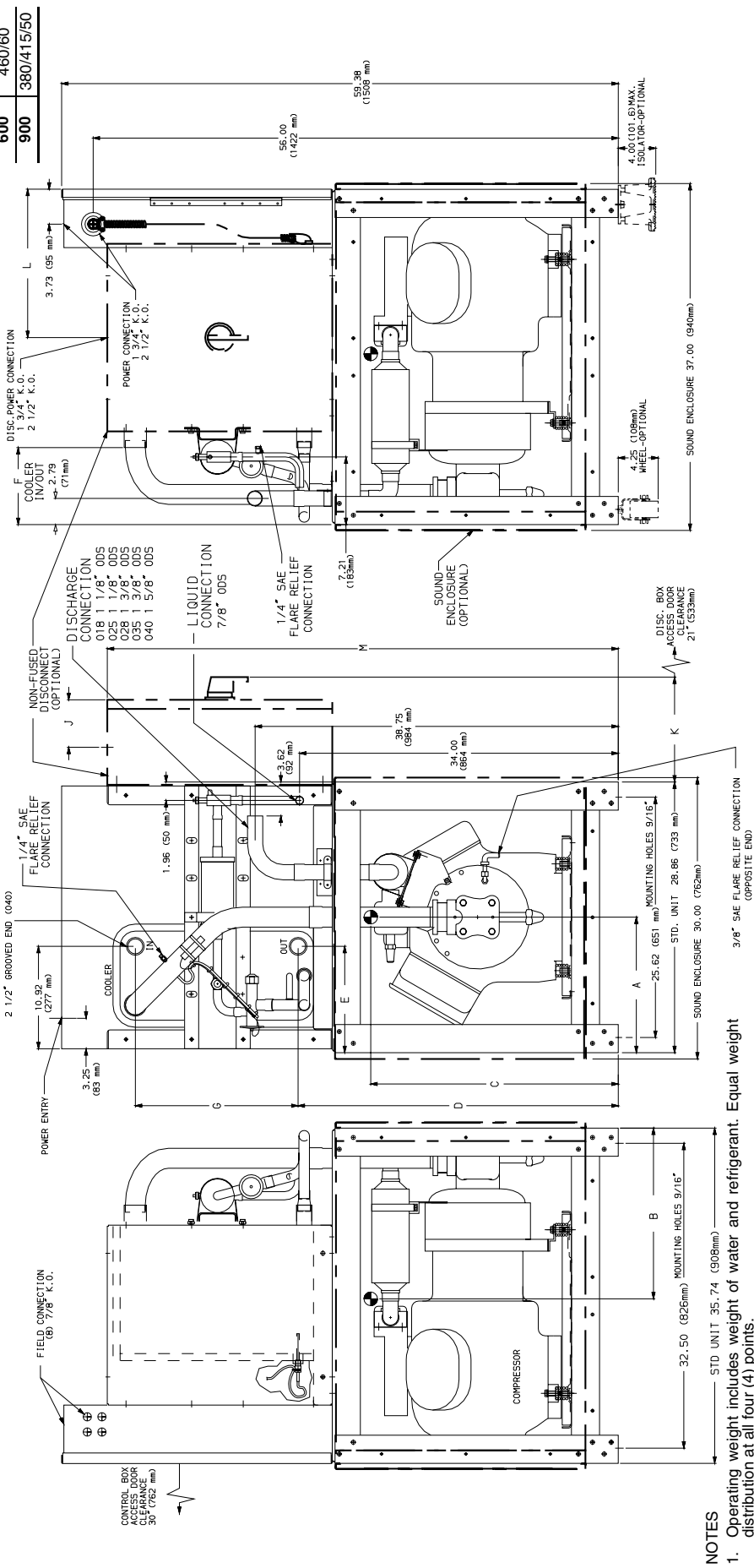
**STANDARD UNIT**

UNIT SIZE 30HL	WEIGHT DISTRIBUTION AT MOUNTING HOLES (SEE FIG. A FOR LOCATION)				DIMENSIONS	
	1	2	3	4	A	B
050 50 Hz	534 (242)	536 (243)	531 (241)	529 (240)	2130 (967)	
050 60 Hz	519 (235)	521 (236)	516 (234)	514 (233)	2070 (940)	10 1/2 (267)
060 50 Hz	550 (250)	551 (250)	545 (247)	544 (247)	2190 (994)	
060 60 Hz	534 (242)	536 (243)	531 (241)	529 (240)	2130 (967)	

**Fig. 6 — Dimensions, 30HL050,060 (Condenserless)**

UNIT	OPERATING WEIGHT — LB	DIMENSIONS — in.						
		A	B	C	D	E	F	G
30HWA018	740 (335 kg)	12.58 (320 mm)	19.20 (488 mm)	20.48 (520 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	17.95 (456 mm)
30HWA025	880 (399 kg)	12.82 (326 mm)	18.98 (482 mm)	20.57 (522 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	17.95 (456 mm)
30HWA028	960 (435 kg)	12.64 (321 mm)	18.31 (465 mm)	20.73 (527 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	17.95 (456 mm)
30HWA035	975 (442 kg)	12.87 (327 mm)	18.62 (473 mm)	20.81 (529 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	17.95 (456 mm)
30HWA040	1080 (490 kg)	12.66 (322 mm)	18.64 (473 mm)	21.30 (541 mm)	34.15 (867 mm)	11.34 (288 mm)	8.22 (209 mm)	17.36 (441 mm)

WATER CONNECTIONS (IN/OUT):  
 1 1/2" GROOVED END (018-035)  
 2 1/2" GROOVED END (040)



**LEGEND**  
 DISC — Disconnect  
 K.O. — Knockout

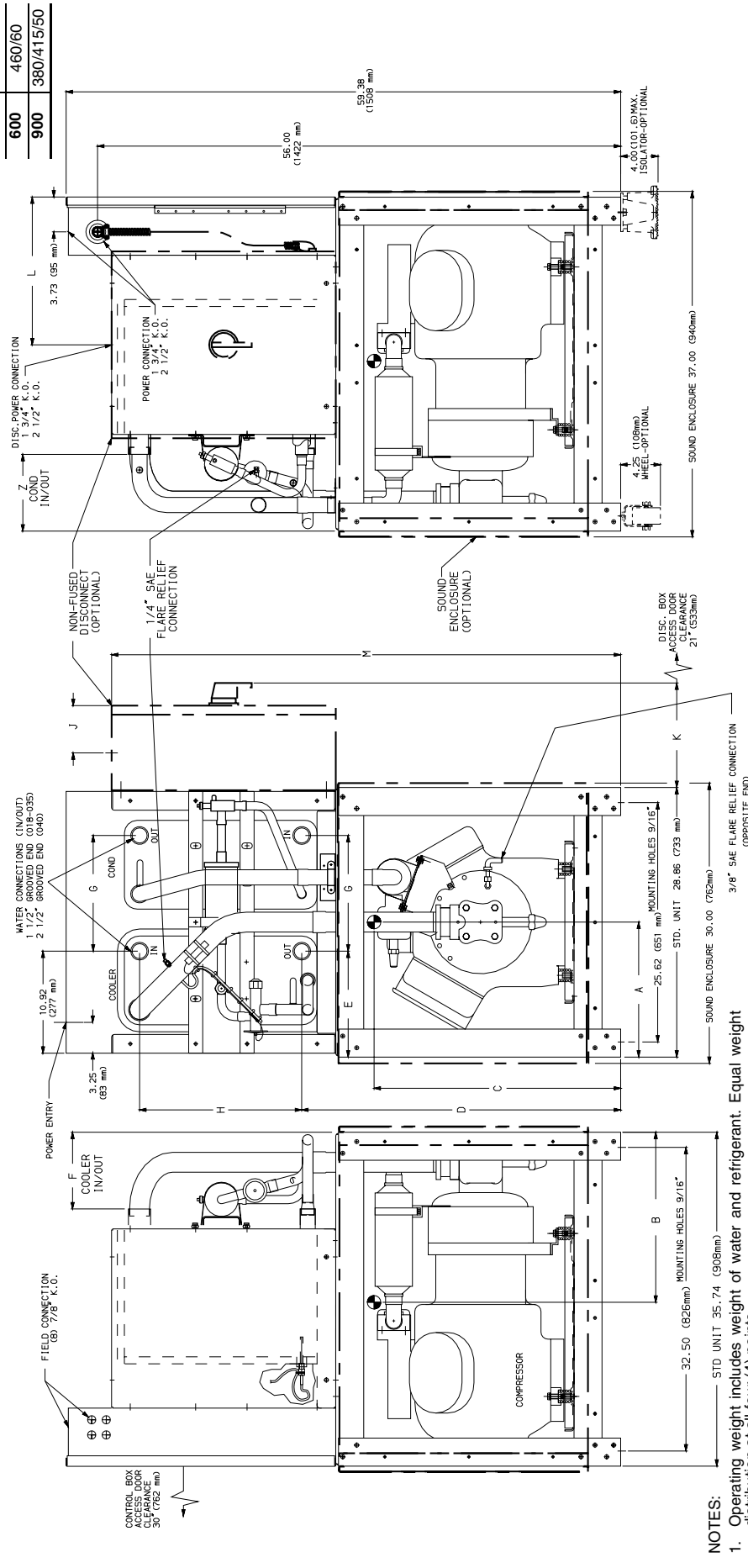
**Fig. 7 — Dimensions, 30HWA018-040 (Condenserless)**

- NOTES**
- Operating weight includes weight of water and refrigerant. Equal weight distribution at all four (4) points.
  - ⊕ denotes center of gravity.
  - denotes accessory or factory installed option.
  - Dimensions in ( ) are in millimeters and weights in ( ) are in kilograms.
  - Allow 36" (914) clearance on all sides unless otherwise noted.

UNIT	DIMENSIONS — in.										MODEL							
	A	B	C	D	E	F	G	H	J	K	L	M	30HWB 018	30HWB 025	30HWB 028	30HWB 035	30HWB 040	
80 AMP	13.14 (334 mm)	18.72 (475 mm)	22.02 (559 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	3.33 (85 mm)	2.98 (76 mm)	14.44 (367 mm)	46.50 (1181 mm)	100, 200 (600, 900)	100, 200 (600, 900)	100, 200 (600, 900)	100, 200 (600, 900)	100
100 AMP	13.22 (336 mm)	18.25 (464 mm)	22.10 (561 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	4.33 (110 mm)	4.98 (126 mm)	14.82 (376 mm)	47.50 (1207 mm)	500	500	500	—	200 600, 900
200 AMP	13.18 (335 mm)	17.71 (450 mm)	22.39 (569 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	7.46 (189 mm)	11.19 (284 mm)	15.82 (402 mm)	54.50 (1384 mm)	—	—	500	500	500

UNIT	DIMENSIONS — in.										MODEL							
	A	B	C	D	E	F	G	H	J	K	L	M	30HWB 018	30HWB 025	30HWB 028	30HWB 035	30HWB 040	
80 AMP	13.14 (334 mm)	18.72 (475 mm)	22.02 (559 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	3.33 (85 mm)	2.98 (76 mm)	14.44 (367 mm)	46.50 (1181 mm)	100, 200 (600, 900)	100, 200 (600, 900)	100, 200 (600, 900)	100, 200 (600, 900)	100
100 AMP	13.22 (336 mm)	18.25 (464 mm)	22.10 (561 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	4.33 (110 mm)	4.98 (126 mm)	14.82 (376 mm)	47.50 (1207 mm)	500	500	500	—	200 600, 900
200 AMP	13.18 (335 mm)	17.71 (450 mm)	22.39 (569 mm)	33.85 (860 mm)	11.72 (298 mm)	5.75 (146 mm)	12.29 (312 mm)	17.95 (456 mm)	9.28 (236 mm)	7.46 (189 mm)	11.19 (284 mm)	15.82 (402 mm)	54.50 (1384 mm)	—	—	500	500	500

MODEL	VOLT/Hz
100	575/60
200	380/60
500	208/230/60
600	460/60
900	380/415/50



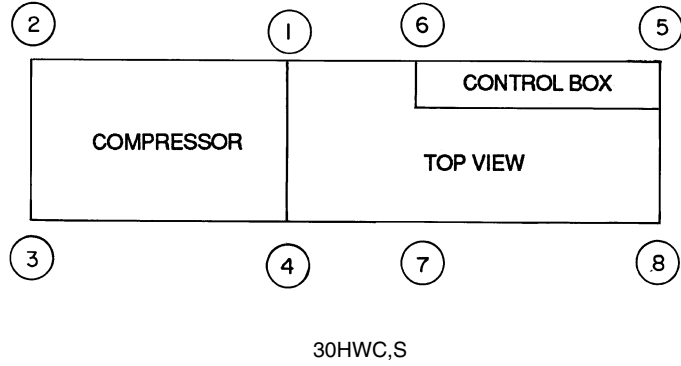
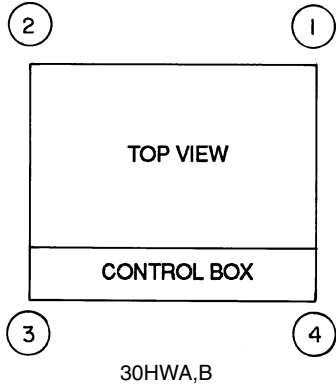
- NOTES:
1. Operating weight includes weight of water and refrigerant. Equal weight distribution at all four (4) points.
  2. ⊕ denotes center of gravity.
  3. --- denotes accessory or factory installed option.
  4. Dimensions in ( ) are in millimeters and weights in ( ) are in kilograms.
  5. Allow 36" (914) clearance on all sides unless otherwise noted.

LEGEND  
DISC. — Disconnect  
K.O. — Knockout

Fig. 8 — Dimensions, 30HWB018-040 (Fluid-Cooled)







WEIGHT DISTRIBUTION AT EACH MOUNTING HOLE — Lb (kg)

UNIT 30HW	MOUNTING HOLE NO.							
	1	2	3	4	5	6	7	8
A018		185 (83.9)					—	
A025		220 (99.8)					—	
A028		240 (108.9)					—	
A035		244 (110.7)					—	
A040		270 (122.5)					—	
B018		199 (90.3)					—	
B025		238 (108.0)					—	
B028		266 (120.7)					—	
B035		271 (122.9)					—	
B040		328 (148.9)					—	
C,S018		171 (77.6)				136 (61.7)		
C,S025		196 (88.9)				144 (65.3)		
C,S028		211 (99.7)				160 (72.6)		
C,S035		216 (98.0)				161 (73.0)		
C,S040		240 (108.9)				185 (83.9)		

Fig. 10 — Mounting Hole Weight Distribution; 30HW Units

**Table 1A — Physical Data; 30HK, HWB, HWC, and HWS Fluid-Cooled Units — English**

UNIT 30	HW-018*	HW-025*	HW-028*	HW-035*	HW-040*	HK040	HK050	HK060
<b>OPERATING WT (Approximate) — lb</b>	795	950	1065	1085	1310	—	—	—
HWB	1231	1358	1484	1508	1702	—	—	—
HWC,S	—	—	—	—	—	2830/2875†	3138/3340†	3340/3400†
HK	—	—	—	—	—	—	—	—
<b>REFRIGERANT — lb</b>	R-22							
HWB	12.5	15.0	17.5	18.5	23.2	—	—	—
HWC, S	35.0	37.0	42.0	42.0	47.0	—	—	—
HK — Ckt 1	—	—	—	—	—	35/40†	45/45†	45/45†
HK — Ckt 2	—	—	—	—	—	35/35†	35/45†	45/45†
<b>COMPRESSOR</b>								
Model No.	06DG537	06E2150**	06E7265	06E7175**	06E7299	06E2150	06E6175, 06E2150	06E6175
Nominal Hp	15	20	25	30	35	20 (each)	30, 20	30 (each)
Quantity	1	1	1	1	1	2	1 (each)	2
Cylinders Per Compressor	6	4	6	6	6	4 (each)	6, 4	6 (each)
Capacity Control — Standard								
No. of Steps	3	2	3	3	3	4	4	4
Minimum Step Capacity (%)	33	50	33	33	33	25	20††	33
Capacity Control — With Optional Hot Gas Bypass								
No. of Steps	4	3	4	4	4	5	5	5
Minimum Step Capacity (%)	10	10	10	10	10	10	10	10
Relief Valve Flow Rate — lb air/min	—	15.1	15.1	15.1	15.1	15.1	15.1	15.1
<b>COOLER</b>								
Part No.	LL01SB006	LL01SB007	LL01SB009	LL01SB009	LL01SC005	10HA400654	10HA400664	10HA400664
Dry Weight — lb	69	81	105	105	145	657	726	726
Fluid Side — psig	300	300	300	300	300	150	150	150
Refrigerant Side — psig	430	430	430	430	430	235	235	235
Net Fluid Volume — Gal. (includes nozzles)	1.4	1.6	2.1	2.1	3.3	13.1	15.2	15.2
Fluid Connections — in.	Grooved End							
Inlet	1½	1½	1½	1½	2½	3	3	3
Outlet	1½	1½	1½	1½	2½	3	3	3
<b>CONDENSER</b>								
<b>30HWB (Water Cooled)</b>								
Part No. LL01S-	D001	D002	D003	D004	E004	—	—	—
Dry Weight — lb	48	62	79	87	153	—	—	—
Water Side — psig	300	300	300	300	300	—	—	—
Refrigerant Side — psig	430	430	430	430	430	—	—	—
Net Water Volume — Gal. (includes nozzles)	0.9	1.2	1.6	1.8	3.3	—	—	—
Water Connections — in.	Grooved End							
Inlet	1½	1½	1½	1½	2½	—	—	—
Outlet	1½	1½	1½	1½	2½	—	—	—
<b>30HWC (Water Cooled)</b>								
Part No. 09RW-	400007	400007	400011	400011	400009	—	—	—
Dry Weight — lb	532	532	560	560	624	—	—	—
Water Side — psig	300	300	300	300	300	—	—	—
Refrigerant Side — psig	365	365	365	365	365	—	—	—
Net Water Volume — Gal.	2.6	2.6	4.0	4.0	7.3	—	—	—
Relief Valve Flow Rate — lb air/min	24.6	24.6	24.6	24.6	24.6	—	—	—
Water Connections — in.	Weld							
Inlet	2½	2½	2½	2½	2½	—	—	—
Outlet	2½	2½	2½	2½	2½	—	—	—
<b>30HWS (Water Cooled)</b>								
Part No. 09RW-	400017	400017	400019	400019	400018	—	—	—
Dry Weight — lb	532	532	560	560	624	—	—	—
Water Side — psig	300	300	300	300	300	—	—	—
Refrigerant Side — psig	335	335	335	335	335	—	—	—
Net Water Volume — Gal.	2.6	2.6	4.0	4.0	7.3	—	—	—
Relief Valve Flow Rate — lb air/min	22.6	22.6	22.6	22.6	22.6	—	—	—
Water Connections	Weld							
Inlet	2½	2½	2½	2½	2½	—	—	—
Outlet	2½	2½	2½	2½	2½	—	—	—
<b>30HK (Water Cooled)</b>								
Part No. 09RP-	—	—	—	—	—	022/022†	022/027†	027/027†
Dry Weight — lb	—	—	—	—	—	1000	1095	1190
Water Side — psig	—	—	—	—	—	250	250	250
Refrigerant Side — psig	—	—	—	—	—	385	385	385
Net Water Volume — Gal. (includes nozzles)	—	—	—	—	—	4.4/4.4†	4.4/5.2†	5.2/5.2†
Relief Valve Flow Rate — lb air/min	—	—	—	—	—	25.9	25.9	25.9
Water Connections — in.	Weld							
Inlet	—	—	—	—	—	2½	2½	2½
Outlet	—	—	—	—	—	2½	2½	2½

**LEGEND**

**ODS** — Outside Diameter, Sweat

\* Unless otherwise noted, data is for 30HWB, HWC, and HWS units.

† 60 Hz/50 Hz units.

\*\* For 025 50 Hz units, compressor number is 06E2250, for 035 50 Hz units compressor number is 06E7275.

†† With transfer switch set to compressor no. 2 position; 40% with transfer switch set to compressor no. 1 position.

**NOTES:**

1. Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.

2. 30HK, HWB, HWC, and HWS units are shipped with full operating charge.

**Table 1B — Physical Data; 30HK, HWB, HWC, and HWS Fluid-Cooled Units — SI**

UNIT 30	HW-018*	HW-025*	HW-028*	HW-035*	HW-040*	HK040	HK050	HK060
<b>OPERATING WT (Approximate) — kg</b>								
HWB	360	431	483	492	594	—	—	—
HWC,S	554	611	668	679	766	—	—	—
HK	—	—	—	—	—	1284/1305†	1424/1514†	1514/1542†
<b>REFRIGERANT — kg</b>								
						R-22		
HWB	5.7	6.8	7.9	8.4	10.5	—	—	—
HWC, S	15.9	16.8	19.1	19.1	21.3	—	—	—
HK — Ckt 1	—	—	—	—	—	15.9/18.1†	20.4/20.4†	20.4/20.4†
HK — Ckt 2	—	—	—	—	—	15.9/15.9†	15.9/20.4†	20.4/20.4†
<b>COMPRESSOR</b>								
Model No.	06DG537	06E2150**	06E7265	06E7175**	06E7299	06E2150	06E6175, 06E2150	06E6175
Nominal kW	11.1	14.9	18.7	22.4	26.1	14.9 (each)	22.4, 14.9	22.4 (each)
Quantity	1	1	1	1	1	2	1 (each)	2
Cylinders Per Compressor	6	4	6	6	6	4 (each)	6, 4	6 (each)
Capacity Control — Standard						4	4	4
No. of Steps	3	2	3	3	3			
Minimum Step Capacity (%)	33	50	33	33	33	25	20††	33
Capacity Control — With								
Hot Gas Bypass								
No. of Steps	4	3	4	4	4	5	5	5
Minimum Step Capacity (%)	10	10	10	10	10	10	10	10
Relief Valve Flow Rate — kg air/min	—	6.8	6.8	6.8	6.8	6.8	6.8	6.8
<b>COOLER</b>								
Part No.	LL01SB006	LL01SB007	LL01SB009	LL01SB009	LL01SC005	10HA400654	10HA400664	10HA400664
Dry Weight — kg	31.3	36.7	47.6	47.6	65.7	297	330	330
Fluid Side — kPa	2069	2069	2069	2069	2069	1034	1034	1034
Refrigerant Side — kPa	2965	2965	2965	2965	2965	1620	1620	1620
Net Fluid Volume — L (includes nozzles)	5.3	6.1	8.0	8.0	12.5	49.9	57.5	57.5
Fluid Connections — in.								
						Grooved End		
Inlet	1½	1½	1½	1½	2½	3	3	3
Outlet	1½	1½	1½	1½	2½	3	3	3
<b>CONDENSER</b>								
<b>30HWB (Water Cooled)</b>								
Part No. LL01S-	D001	D002	D003	D004	E004	—	—	—
Dry Weight — kg	21.8	28.1	35.8	39.5	69.4	—	—	—
Water Side — kPa	2069	2069	2069	2069	2069	—	—	—
Refrigerant Side — kPa	2965	2965	2965	2965	2965	—	—	—
Net Water Volume — L (includes nozzles)	3.4	4.5	6.1	6.8	12.5	—	—	—
Water Connections — in.								
						Grooved End		
Inlet	1½	1½	1½	1½	2½	—	—	—
Outlet	1½	1½	1½	1½	2½	—	—	—
<b>30HWC (Water Cooled)</b>								
Part No. 09RW-	400007	400007	400011	400011	400009	—	—	—
Dry Weight — kg	241	241	254	254	283	—	—	—
Water Side — kPa	2069	2069	2069	2069	2069	—	—	—
Refrigerant Side — kPa	2517	2517	2517	2517	2517	—	—	—
Net Water Volume — L	9.8	9.8	15.4	15.4	27.6	—	—	—
Relief Valve Flow Rate —kg air/min	11.2	11.2	11.2	11.2	11.2	—	—	—
Water Connections — in.								
						Weld		
Inlet	2½	2½	2½	2½	2½	—	—	—
Outlet	2½	2½	2½	2½	2½	—	—	—
<b>30HWS (Water Cooled)</b>								
Part No. 09RW-	400017	400017	400019	400019	400018	—	—	—
Dry Weight — kg	241	241	254	254	283	—	—	—
Water Side — kPa	2069	2069	2069	2069	2069	—	—	—
Refrigerant Side — kPa	2310	2310	2310	2310	2310	—	—	—
Net Water Volume — L	9.8	9.8	15.4	15.4	27.6	—	—	—
Relief Valve Flow Rate — kg air/min	10.3	10.3	10.3	10.3	10.3	—	—	—
Water Connections — in.								
						Weld		
Inlet	2½	2½	2½	2½	2½	—	—	—
Outlet	2½	2½	2½	2½	2½	—	—	—
<b>30HK (Water Cooled)</b>								
Part No. 09RP-	—	—	—	—	—	022/022†	022/027†	027/027†
Dry Weight — kg	—	—	—	—	—	454	497	540
Water Side — kPa	—	—	—	—	—	1724	1724	1724
Refrigerant Side — kPa	—	—	—	—	—	2655	2655	2655
Net Water Volume — L (includes nozzles)	—	—	—	—	—	17/17†	17/20†	20/20†
Relief Valve Flow Rate — kg air/min	—	—	—	—	—	11.7	11.7	11.7
Water Connections — in.								
						Weld		
Inlet	—	—	—	—	—	2½	2½	2½
Outlet	—	—	—	—	—	2½	2½	2½

**LEGEND**

ODS — Outside Diameter, Sweat

\* Unless otherwise noted, data is for 30HWB, HWC, and HWS units.  
 † 60 Hz/50 Hz units.  
 \*\* For 025 50 Hz units, compressor number is 06E2250, for 035 50 Hz units compressor number is 06E7275.  
 †† With transfer switch set to compressor no. 2 position; 40% with transfer switch set to compressor no. 1 position.

**NOTES:**

- Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.
- 30HK, HWB, HWC, and HWS units are shipped with full operating charge.

**Table 2A — Physical Data; 30HL, HWA, Condenserless Units — English**

UNIT 30	HWA018	HWA025	HWA028	HWA035	HWA040	HL050	HL060
<b>OPERATING WT (Approximate) — lb</b>	740	880	960	975	1080	2070/2130*	2130/2190*
<b>REFRIGERANT† — lb</b>	R-22						
	1.6	2.0	2.4	2.4	3.0	6.3/4.2**	5.3/5.3**
<b>COMPRESSOR</b>							
Model No.	06DG537	06E2250	06E7265	06E7275	06E7299	06E6275, 06E2250	06E6275
Nominal Hp	15	20	25	30	35	30, 20	30 (each)
Quantity	1	1	1	1	1	1 (each)	2
Cylinders Per Compressor	6	4	6	6	6	6,4	6
Capacity Control — Standard							
No. of Steps	3	2	3	3	3	4	4
Minimum Step Capacity (%)	33	50	33	33	33	20††	33
Capacity Control — With Optional							
Hot Gas Bypass							
No. of Steps	4	3	4	4	4	5	5
Minimum Step Capacity (%)	10	10	10	10	10	10	10
Relief Valve Flow Rate — lb air/min	—	15.1	15.1	15.1	15.1	15.1	15.1
<b>COOLER</b>							
Part No.	LL01SB006	LL01SB007	LL01SB009	LL01SB009	LL01SC005	10HA400654	10HA400664
Dry Weight — lb	69	81	105	105	145	726	726
Fluid Side — psig	300	300	300	300	300	150	150
Refrigerant Side — psig	430	430	430	430	430	235	235
Net Fluid Volume — Gal. (includes nozzles)	1.4	1.6	2.1	2.1	3.3	13.1	15.2
Fluid Connections — in.	Grooved End						
Inlet	1½	1½	1½	1½	2½	3	3
Outlet	1½	1½	1½	1½	2½	3	3
<b>CONDENSER CONNECTIONS</b>							
Refrigerant Connections — in.							
Liquid Line ODS	7/8	7/8	7/8	7/8	7/8	(2)7/8	(2)7/8
Discharge Line ODS	1½	1½	1¾	1¾	1¾	(2)1¾	(2)1¾

**LEGEND**

ODS — Outside Diameter, Sweat

\* 60 Hz/50 Hz units.

† 30HWA and HL units (condenserless) are shipped with a refrigerant holding charge. Approximate cooler operating charge is shown.

\*\* Ckt 1/Ckt 2.

†† With transfer switch set to compressor no. 2 position; 40% with transfer switch set to compressor no. 1 position.

NOTE: Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.

**Table 2B — Physical Data; 30HL, HWA, Condenserless Units — SI**

UNIT 30	HWA018	HWA025	HWA028	HWA035	HWA040	HL050	HL060
<b>OPERATING WT (Approximate) — kg</b>	335	399	435	442	490	940/967	967/994
<b>REFRIGERANT† — kg</b>	R-22						
	0.7	0.9	1.1	1.1	1.4	2.9/1.9**	2.4/2.4**
<b>COMPRESSOR</b>							
Model No.	06DG537	06E2250	06E7265	06E7275	06E7299	06E6275, 06E2250	06E6275
Nominal kW	11.2	14.9	18.7	22.4	26.1	22.4/14.9	22.4 (each)
Quantity	1	1	1	1	1	1 (each)	2
Cylinders Per Compressor	6	4	6	6	6	6,4	6
Capacity Control — Standard							
No. of Steps	3	2	3	3	3	4	4
Minimum Step Capacity (%)	33	50	33	33	33	20††	33
Capacity Control — With Optional							
Hot Gas Bypass							
No. of Steps	4	3	4	4	4	5	5
Minimum Step Capacity (%)	10	10	10	10	10	10	10
Relief Valve Flow Rate — kg air/min	—	6.8	6.8	6.8	6.8	6.8	6.8
<b>COOLER</b>							
Part No.	LL01SB006	LL01SB007	LL01SB009	LL01SB009	LL01SC005	10HA400654	10HA400664
Dry Weight — kg	31.3	36.7	47.6	47.6	65.7	330	330
Fluid Side — kPa	2069	2069	2069	2069	2069	1034	1034
Refrigerant Side — kPa	2965	2965	2965	2965	2965	1620	1620
Net Fluid Volume — L (includes nozzles)	5.3	6.1	8.0	8.0	12.5	49.9	57.5
Fluid Connections — in.	Grooved End						
Inlet	1½	1½	1½	1½	2½	3	3
Outlet	1½	1½	1½	1½	2½	3	3
<b>CONDENSER CONNECTIONS</b>							
Refrigerant Connections — in.						Ckt 1	Ckt 2
Liquid Line ODS	7/8	7/8	7/8	7/8	7/8	7/8	7/8
Discharge Line ODS	1½	1½	1¾	1¾	1¾	1¾	1¾

**LEGEND**

ODS — Outside Diameter, Sweat

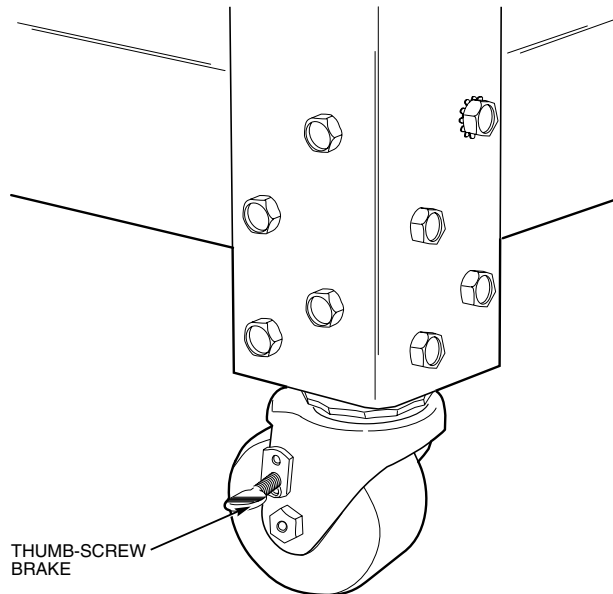
\* 60 Hz/50 Hz units.

† 30HWA and HL units (condenserless) are shipped with a refrigerant holding charge. Approximate cooler operating charge is shown.

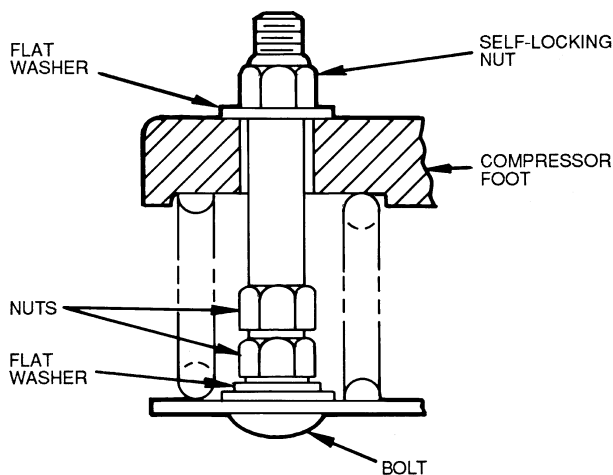
\*\* Ckt 1/Ckt 2.

†† With transfer switch set to compressor no. 2 position; 40% with transfer switch set to compressor no. 1 position.

NOTE: Operating weight includes refrigerant operating charge and weight of fluid in the heat exchangers.



**Fig. 11 — Factory-Installed Unit Wheels (4)**



**Fig. 12 — Compressor Mounting**

**Step 5 — Make Piping Connections** — See Fig. 13 and 14 for typical piping applications.

**30HK, HWC, HWS CONDENSER DESCRIPTION** — All 30HWC and HWS units use a shell-and-tube condenser with removable heads for easy tube servicing. Refrigerant is contained within the shell, and water flows through the tubes. The 30HK and HWC units use a steel shell condenser(s) with steel tube sheets and copper tubes. The 30HWS units are designed for seacoast applications and use a steel shell condenser with cupronickel tube sheets and tubes. In addition, the 30HWS water heads utilize “sacrificial” zinc anodes for condenser corrosion protection.

**IMPORTANT:** Inspect the zinc anodes every 3 months for deterioration and replace as needed. Galvanic protection of the condenser is lost if the anodes are not replaced prior to complete deterioration.

The number of tubes in the condensers varies depending on the unit size. The condensers have internal subcoolers which provide approximately 8 F (4.4 C) for 30HK, HL units or 13 F (7.2 C) for 30HW units subcooling at ARI (Air Conditioning and Refrigeration Institute, U.S.A.) rating conditions.

**30HL, HWA SYSTEM CONDENSER** — For detailed condenser piping installation instructions for 30HL and HWA systems, refer to separate instructions packaged with the remote condenser units.

Condenser refrigerant piping for 30HL and HWA units should be sized to minimize the amount of refrigerant required.

The 30HL and HWA units that use air-cooled evaporative condensers must have adequate means for head pressure control when operating below 60 F (15.6 C).

Carrier recommends that a field-supplied pressure relief device be installed after the muffler in each discharge line. Most local codes require the relief valve to be vented directly to the outdoors. The vent **must not** be smaller than the relief-valve outlet.

**30HWP CONDENSER DESCRIPTION** — All 30HWP units use a brazed-plate heat-exchanger-type condenser. These heat exchangers are made of embossed plates of acid-resistant stainless steel. Every other plate is reversed so that the ridges of the herringbone pattern intersect one another on adjacent plates, forming a lattice of contact points. These plates are vacuum-brazed together to form a compact and pressure-resistant heat exchanger.

After brazing, the impressions in the plates form 2 separate systems of channels where the refrigerant and water flows are counterflow. The number of plates varies depending on unit tonnage. The condensers provide approximately 14° to 18° F (8° to 10° C) liquid subcooling at the standard Air Conditioning and Refrigeration Institute (ARI) rating condition.

**30HK, HWC, HWS CONDENSER(S)** — When facing the front of the unit, the condenser(s) is in the uninsulated shell(s) located across the bottom of the unit. The water connections are such that the water inlet is located on the left-hand side (30HK) or right-hand side (30HW) of the unit. The water inlet must **ALWAYS** be on the bottom of the condenser(s) to provide the proper subcooling. The water outlet is located on the right-hand side (30HK) or left-hand side (30HW) of the unit. The water connections can be reversed by rotating the heads and gaskets 180 degrees **ON BOTH ENDS OF THE CONDENSER(S)**.

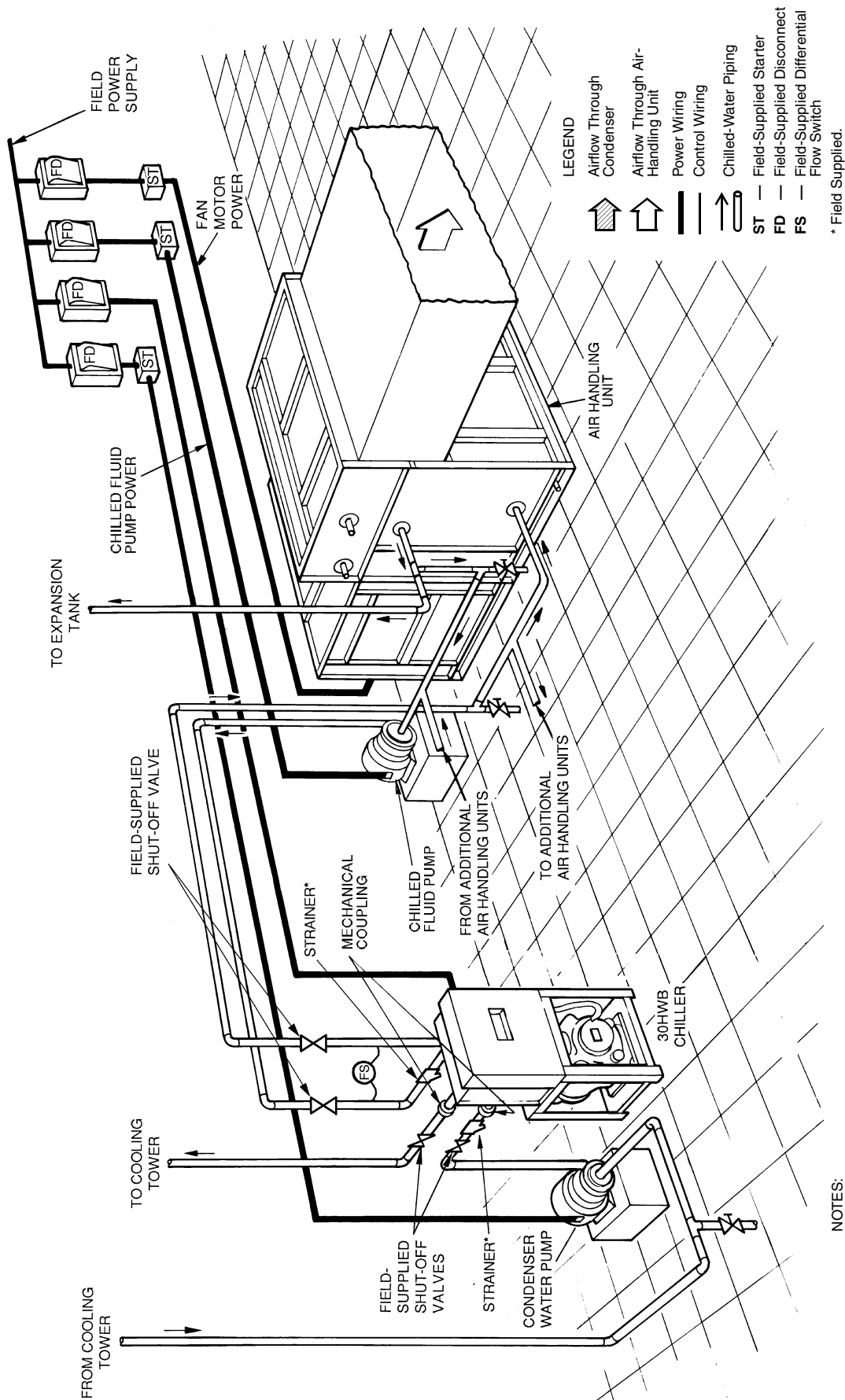
**IMPORTANT:** THE WATER INLET MUST ALWAYS BE ON THE CONDENSER HEAD(S) THAT HAS THE NOZZLE CONNECTION AT THE BOTTOM OF THE HEAD. Incorrect inlet connection will result in poor system performance due to incorrect subcooling.

The LIQUID-IN and LIQUID-OUT labels indicate water connections **AS SUPPLIED FROM THE FACTORY**.

For 30HK, HWC, HWS units, it is recommended that strainer with a minimum of 20 mesh be installed ahead of the condenser water inlet(s) to prevent debris from clogging or damaging the heat exchanger(s).

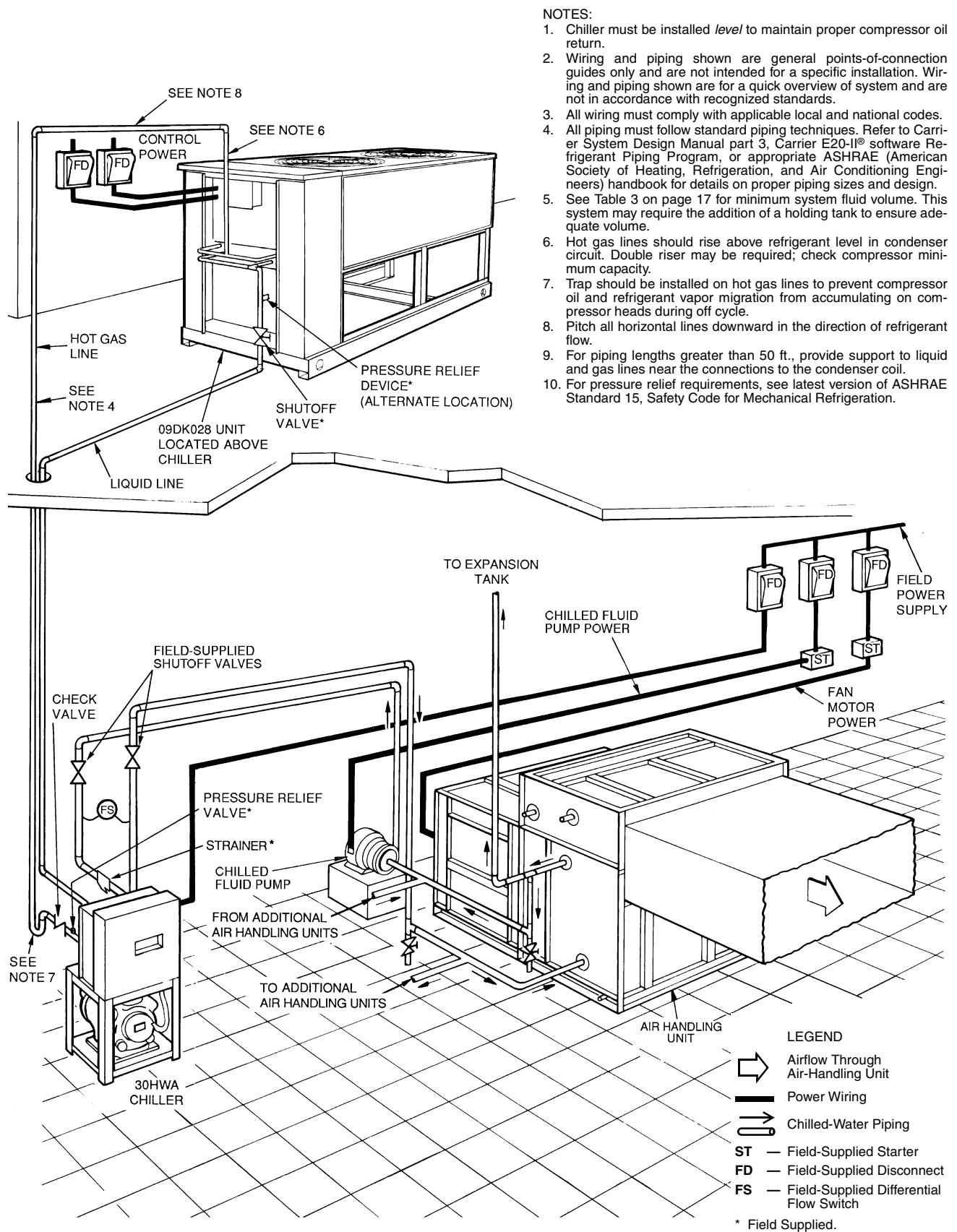
There is a pressure-relief device on the condenser(s) of all 30HK, HWC, and HWS units. Most local codes require that this relief be vented directly to the outdoors.

**NOTE:** The relief line **must not** be smaller than the relief valve outlet. Be sure to provide a way of draining and servicing the unit.



- NOTES:**
1. Chiller must be installed level to maintain proper compressor oil return.
  2. Wiring and piping shown are general points-of-connection guides only and are not intended for a specific installation. Wiring and piping shown are for a quick overview of system and are not in accordance with recognized standards.
  3. All wiring must comply with applicable local and national codes.
  4. All piping must follow standard piping techniques. Refer to Carrier System Design Manual or appropriate ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Equipment) handbook for details.
  5. See Table 3 on page 17 for minimum system fluid volume. This system may require the addition of a holding tank to ensure adequate volume.

**Fig. 13 — Typical Piping with Fluid-Cooled 30HWP Unit Shown**



**Fig. 14 — Typical Piping with Air-Cooled 30HWA with Remote 09DK Unit Shown**

**30HWB CONDENSER** — When facing the back of the unit, the condenser is the uninsulated heat exchanger located on the right-hand side. The water connections are on the right-hand side of the heat exchanger with the LIQUID-IN connection at the bottom, and the LIQUID-OUT connection at the top.

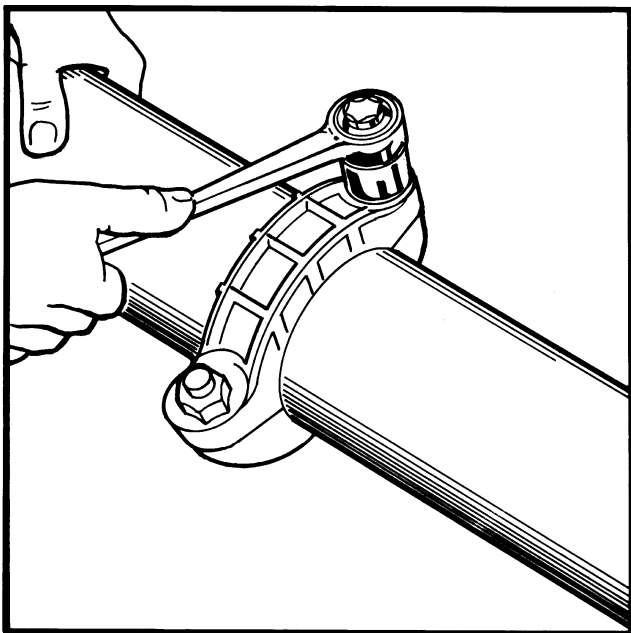
A strainer with a minimum of 40 mesh **must** be installed ahead of the condenser water inlet to prevent debris from clogging or damaging the heat exchanger.

To install the grooved end coupling (see Fig. 15):

1. Lubricate the gasket lips and stretch the gasket over the end of the pipe. Avoid twisting the gasket when installing.
2. Bring the pipe and heat exchanger coupling ends together into alignment. Slide the gasket so that it is centered over the ends. Apply a light film of lubricant to the gasket, or to the gasket recess of the coupling housing. Avoid twisting the gasket during installation.
3. Seat the coupling halves over the gasket and install the nuts and bolts. Tighten the nuts equally on both sides.
4. Alternately tighten the nuts with a wrench to draw the coupling halves together uniformly. The joint is now complete.

**30HK, HWB, HWC, HWS UNITS** — In order to minimize the water pressure drop in the system, use as few bends as possible in the field water piping, and run the lines as short as possible. Size the water lines according to the available pump pressure (not necessarily the connection size), especially on cooling tower applications. See Carrier System Design Manual, Part 3, Piping Design. See Fig. 16 for condenser pressure drops.

Set water regulating valve to maintain design head pressure. Do not adjust to compensate for high head pressures caused by fouled condenser tubes, excess refrigerant, or the presence of noncondensables. Due to changes in water temperature, it may be necessary to adjust the valve seasonally. After adjusting for design head pressure, shut unit down. The water regulating valve should shut off the flow of water in a few minutes. If it does not, raise head pressure setting. Make sure that the capillary tube from each water regulating valve is connected to the proper condenser purge valve.



**Fig. 15 — Installed Coupling Fastening Grooved Pipe Ends**

Provide a means for draining the system in the winter (if not used) and for maintenance.

Accessory steel manifold packages for inlet and outlet condenser water are available for 30HK units. Each manifold is furnished in 2 sections, to be field welded as shown in Fig. 4 and 5. Manifolds should not be used where regulating valves are required because separate valves must be used on each condenser circuit.

### **⚠ CAUTION**

Retighten all condenser head bolts before filling system with water. Torque bolts to a maximum of 40 to 45 ft-lb.

Water leaving the condenser is under pressure and should not be connected directly into sewer lines. Check local codes. A  $\frac{3}{8}$ -in. drain plug is located in the head at each condenser end.

### **COOLER DESCRIPTION**

**30HK, HL Units** — The cooler is a direct-expansion type with removable heads and is partitioned for multi-pass refrigerant flow. Fluid flow across the tube bundle is directed by baffles designed for minimum fluid-pressure drop. The tubes have integral internal fins for maximum heat transfer efficiency.

Viewed from unit front, the return chilled fluid enters at the left end of the cooler and leaves at the right end. The sensing bulb for the factory-supplied fluid temperature controller is in the leaving-fluid nozzle; the leaving-fluid temperature being the control point.

The cooler is insulated with a flexible, closed-cell plastic foam insulation of suitable thickness. Water vapor cannot penetrate the cellular structure to condense either within cells or on the cooler shell. Thus, the insulation itself is a vapor barrier. Because of the toughness of insulation, a protective sheet metal covering is not necessary.

Special modification may be necessary for brine chillers. Contact your Carrier representative for details. For calcium or sodium chloride brines, it is important that the proper inhibitors be carefully selected for protection of the copper tubes. Refer to the publications of the Calcium Institute or the Mutual Chemical Division of Allied Chemical Corporation for information on corrosion control for calcium or sodium chloride systems.

**30HW Units** — All 30HW units use a brazed-plate heat-exchanger type cooler. The heat exchanger is constructed essentially the same as the brazed-plate condenser used on 30HWB units. See 30HWB Condenser Description section on page 13 for more details. Similar to the condenser, the cooler can only be chemically cleaned.

**COOLER PIPING** — Plan cooler fluid piping for minimum number of changes in elevation, and for the fewest number of bends possible. Install manual or automatic vent valve at high points in the line. Maintain system pressure by using a pressure tank or a combination of relief and reducing valves.

A strainer with a minimum of 40 mesh must be installed ahead of the cooler fluid inlet to prevent debris from clogging or damaging the heat exchanger.

See Carrier System Design Manual, Part 3, Piping Design, for chilled fluid piping details.



The cooler fluid inlet and outlet connections are grooved-end. On 30HW units, the fluid enters at the top connection and leaves at the bottom connection. Procedures for making the grooved-end connections are the same as for the 30HWB condensers. See 30HWB Condenser section on page 16 for more details.

Run the pump for 10 minutes, then clean the strainer before starting the unit.

A cooler flow switch must be field-installed on all units. This should be a differential pressure switch that is installed between the cooler fluid inlet and outlet. The switch should be set to open when the cooler fluid flow drops below the values shown in Table 3. Use the cooler water pressure drop curves (Fig. 16) to determine correct setting for each unit size. Use Carrier accessory flow switch, part number HR81LG005 for fluid/ambient temperatures above 32° F (0° C) and waterside system pressures less than 150 psi ( kPa). If the system will be winterized, this switch is acceptable for winter ambients. Use HR81LG010 for fluid/ambient temperatures to -65° F (-53° C) and waterside system pressures to 300 psi ( kPa). See Table 3 for minimum flow rates and loop volumes.

See Step 6 — Make Electrical Connections. See Fig. 17 and 18 for flow switch wiring details.

**30HK, HL Units** — The thermistors used to sense entering and leaving fluid temperature are factory-installed in the cooler entering and leaving fluid nozzles.

**30HW Units** — The thermistor used for sensing entering fluid temperature is factory-supplied and wired, but must be field-installed. A thermistor well is also provided. Install the well in the entering fluid piping so that the end of the well is in the path

of the fluid flow. Apply thermal grease to the end of the thermistor, install in the well, and secure thermistor to well body.

**Table 3 — Minimum Cooler and Condenser Flow Rates Minimum Loop Volume**

UNIT SIZE	COOLER		CONDENSER*		MINIMUM COOLER LOOP VOLUME†	
	Gal/Min	L/s	Gal/Min	L/s	Gal.	L
30HK040	56.0	3.5	67	4.23	120	454.2
30HK,HL050	68.0	4.3	76	4.79	148	560.2
30HK,HL060	68.0	4.3	83	5.24	174	658.6
30HW018	22.5	1.4	22.5	1.4	44	167
30HW025	30.0	1.9	30.0	1.9	59	223
30HW028	37.5	2.4	37.5	2.4	76	288
30HW035	45.0	2.8	45.0	2.8	85	322
30HW040	57.0	3.6	57.0	3.6	113	428

**LEGEND**

**ARI** — Air Conditioning and Refrigeration Institute

**N** — Liters per kW

**V** — Gallons per ton

\*30HK, HWB, HWC and HWS only.

†Minimum system fluid volumes.

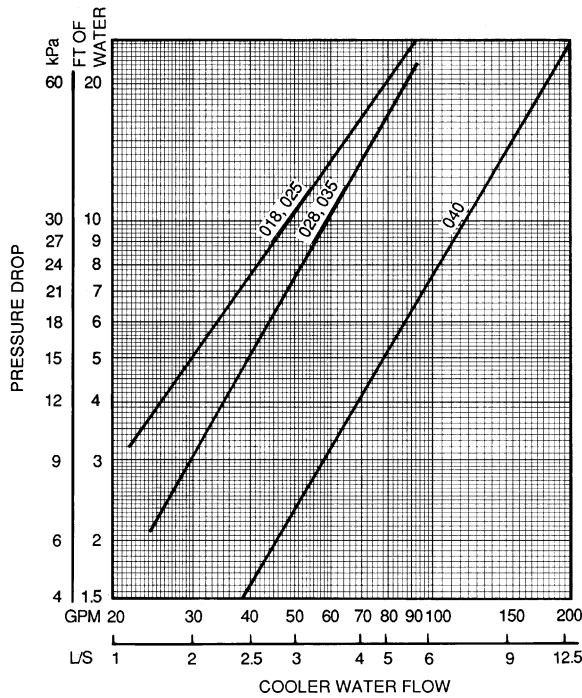
**NOTE:**

Gallons = V x ARI capacity in tons.

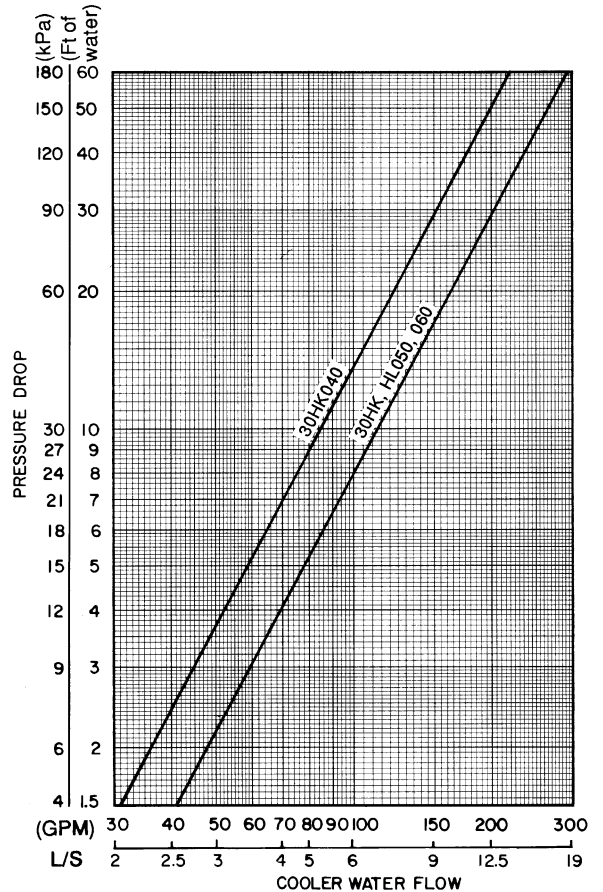
Liters = N x ARI capacity in kW.

APPLICATION	V	N
Normal Air Conditioning	3	3.25
Process Type Cooling	6 to 10	6.5 to 10.8
Low Ambient Operation	6 to 10	6.5 to 10.8

**COOLER PRESSURE DROP — 30HW UNITS**

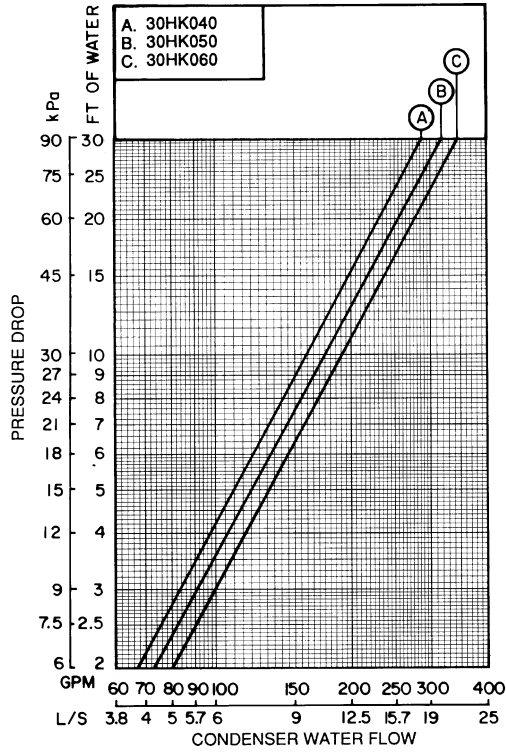


**COOLER PRESSURE DROP — 30HK, HL UNITS**

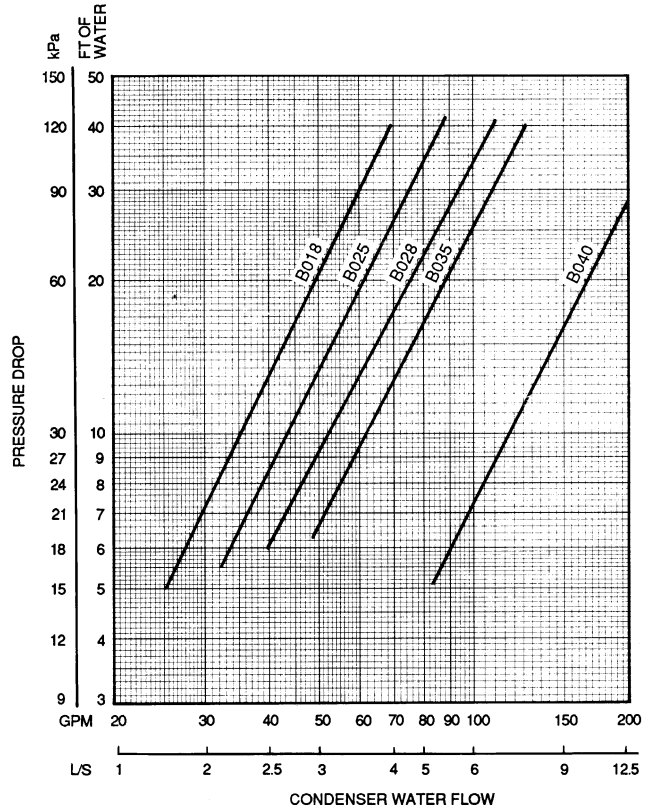


**Fig. 16 — Cooler and Condenser Water Pressure Drop**

CONDENSER PRESSURE DROP — 30HK UNITS



CONDENSER PRESSURE DROP — 30HWB UNITS



CONDENSER PRESSURE DROP — 30HWC AND 30HWS UNITS

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

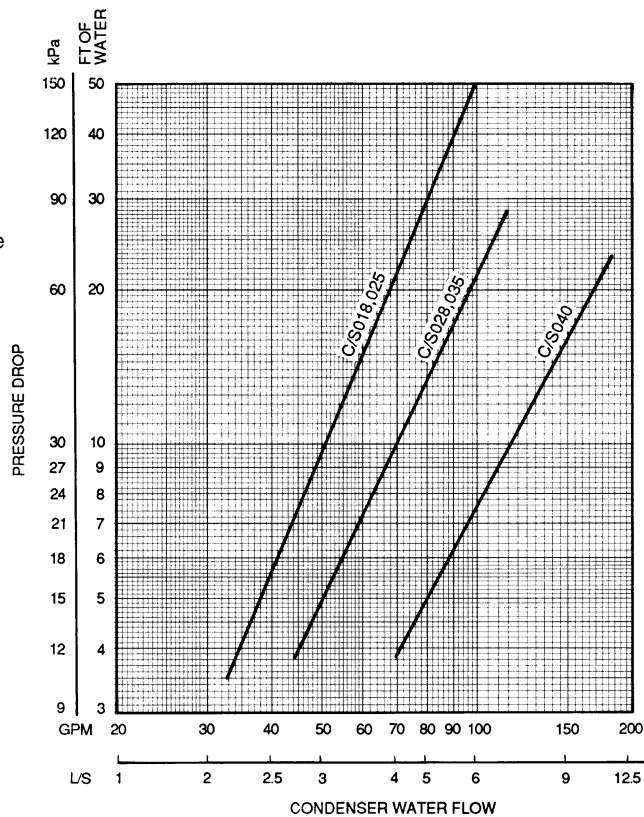


Fig. 16 — Cooler and Condenser Water Pressure Drop (cont)

**Step 6 — Make Electrical Connections —** All field wiring must comply with local code requirements. Electrical data for the complete unit and for the compressors is shown in Tables 4A – 5B. See Fig. 17 and 18 for field wiring connections. A field-supplied branch circuit disconnect switch that can be locked in either OPEN or OFF position **must** be installed.

Control circuit power is 24 v and 115 v on all units. Factory-installed control transformer (TRAN 3) uses line voltage for 208/230-, 460-, and 575-v units. Field line neutral is required for 380-3-60 and 400-3-50 units. All control transformers are factory-installed and wired. The 380-3-60 units are available only for the 30HW series.

Inside the control box are terminals for field power and ground (earth) wiring, as well as a terminal for a neutral wire when needed (380-3-60 and 400-3-50 units only). A ground wire must be installed with each field power supply. Compressors are wired standard from the factory for across-the-line start. As a factory-installed option, all 025-060 sizes are available wired for part-wind start (special order option on 30HK, HL units).

Refer to Tables 4A – 5B for electrical data.

**FLOW SWITCH —** A cooler flow switch is required for all units, and must be field-installed. The Carrier flow switch accessory (part number HR81LG005 or HR81LG010), is available for this purpose. Flow switch wiring terminals are located in the field wiring compartment of the control box. The flow switch should be wired between terminals TB5-1 and TB5-2 for all units.

**CONTROL BOX, POWER SECTION —** The electrical power supply is brought in through the top left-hand side of the control box. The knockout accepts up to a 3-in. (76 mm) conduit for 30HK, HL units, and a 1<sup>3</sup>/<sub>4</sub>- to 2<sup>1</sup>/<sub>2</sub>-in. (44 to 64 mm) conduit for 30HW units. Pressure-lug connections on the terminal blocks are suitable for copper, copper-clad aluminum, or aluminum conductors.

The control box power section contains the following components:

- power terminal block
- compressor circuit breaker(s)
- compressor contactor(s)
- high-voltage transformer
- control-circuit breakers for 24-v circuits
- control-circuit ON-OFF switch
- unit Enable/Off/Remote contact switch
- unit Alarm/Alert indicator light
- ground lug
- neutral terminal (380-3-60 and 400-3-50 units)

**CONTROL BOX, CONTROLS SECTION —** The control box controls section contains the following components:

- Main Base Board (MBB)
- control relay(s)

- quickset set point as standard leaving water temperature control
- optional Scrolling Marquee display
- optional Energy Management module

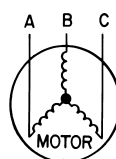
**CONTROL BOX, FIELD CONTROL WIRING SECTION —** Inside this section are two 10-terminals low-voltage, field-wiring terminal strips. All low-voltage field-wiring connections are made to these terminal blocks. There are <sup>3</sup>/<sub>4</sub>-in. (19 mm) knockouts provided for field wiring in this section. Connections for chilled fluid flow switch, chilled fluid pump interlock, condenser pump interlock, remote alarm output, and ground current sensor accessory are made at these locations. See Fig. 17 and 18 for specific location of connections.

**UNBALANCED 3-PHASE SUPPLY VOLTAGE —** *Never operate a compressor where a phase imbalance in the supply voltage is greater than 2%.* Use the following formula to determine the percent voltage imbalance:

% Voltage Imbalance =

$$100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 240-3-60.



AB = 243 v  
BC = 236 v  
AC = 238 v

$$\begin{aligned} \text{Average Voltage} &= \frac{243 + 236 + 238}{3} \\ &= 239 \text{ v} \end{aligned}$$

Determine maximum deviation from average voltage:

$$\text{(AB)} \ 243 - 239 = 4 \text{ v}$$

$$\text{(BC)} \ 239 - 236 = 3 \text{ v}$$

$$\text{(AC)} \ 239 - 238 = 1 \text{ v}$$

Maximum deviation is 4 v.

Determine percent voltage imbalance:

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{4}{239} \\ &= 1.7\% \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

**IMPORTANT:** If the supply voltage phase imbalance is more than 2%, contact your local utility company immediately.

**Table 4A — Electrical Data — 30HK040-060, 30HWB,C,S018-040 Fluid-Cooled Units**

UNIT	SIZE	UNIT VOLTAGE			MCA	MOCP	ICF	Rec Fuse Size
		Nominal V-Hz (3 Phase)	Supplied					
			Min.	Max.				
30HK	040	208/230-60	187	253	128.3	175	340.0	150
		460-60	414	506	58.5	80	168.0	70
		575-60	518	633	54.0	70	122.0	70
		380/415-50	342	440	71.0	100	249.0	90
	050	208/230-60	187	253	160.8	225	503.0	200
		460-60	414	506	74.8	110	249.0	90
		575-60	518	633	72.8	110	188.0	90
		380/415-50	342	440	81.0	110	259.0	100
	060	208/230-60	187	253	186.8	250	529.0	225
460-60		414	506	87.8	125	262.0	100	
575-60		518	633	87.8	125	203.0	100	
380/415-50		342	440	130.5	175	403.0	150	
30HWB,C,S	018	208/230-60	187	253	61.3	110	266.0	80
		460-60	414	506	28.8	50	120.0	35
		575-60	518	633	23.8	40	96.0	30
		380-60	418	342	35.0	60	145.0	45
		380/415-50	342	440	33.8	60	115.0	45
	025	208/230-60	187	253	71.3	125	283.0	90
		460-60	414	506	33.8	60	142.0	45
		575-60	518	633	27.5	45	98.0	35
		380-60	418	342	42.5	70	157.0	60
		380/415-50	342	440	37.5	60	173.0	50
	028	208/230-60	187	253	88.8	150	446.0	110
		460-60	414	506	43.8	70	223.0	60
		575-60	518	633	35.0	60	164.0	45
		380-60	418	342	53.8	90	247.0	70
		380/415-50	342	440	53.8	90	223.0	70
	035	208/230-60	187	253	101.3	175	446.0	125
		460-60	414	506	47.5	80	223.0	60
		575-60	518	633	38.8	60	164.0	50
		380-60	418	342	58.8	100	247.0	80
		380/415-50	342	440	53.8	90	253.0	70
040	208/230-60	187	253	145.0	250	690.0	175	
	460-60	414	506	68.8	110	345.0	90	
	575-60	518	633	55.0	90	276.0	70	
	380-60	418	342	83.8	150	382.0	110	
	380/415-50	342	440	77.5	125	345.0	100	

**Table 4B — Electrical Data — 30HWA018-040, 30HL050,060 Condenserless Units**

UNIT	SIZE	UNIT VOLTAGE			MCA	MOCP	ICF	Rec Fuse Size
		Nominal V-Hz (3 Phase)	Supplied					
			Min.	Max.				
30HWA	018	208/230-60	187	253	71.3	125	266.0	90
		460-60	414	506	33.8	60	120.0	45
		575-60	518	633	27.5	45	96.0	35
		380-60	418	342	40.0	70	145.0	50
		380/415-50	342	440	33.8	80	115.0	45
	025	208/230-60	187	253	78.8	125	345.0	100
		460-60	414	506	37.5	60	173.0	50
		575-60	518	633	30.0	50	120.0	40
		380-60	418	342	46.3	80	191.0	60
		380/415-50	342	440	37.5	60	173.0	50
	028	208/230-60	187	253	106.3	175	446.0	150
		460-60	414	506	53.8	90	223.0	70
		575-60	518	633	41.3	70	164.0	50
		380-60	418	342	60.0	100	247.0	80
		380/415-50	342	440	53.8	90	223.0	70
	035	208/230-60	187	253	118.8	200	506.0	150
		460-60	414	506	53.8	90	253.0	70
		575-60	518	633	43.8	70	176.0	60
		380-60	418	342	66.3	110	280.0	80
		380/415-50	342	440	53.8	90	253.0	70
040	208/230-60	187	253	166.3	300	690.0	200	
	460-60	414	506	77.5	125	345.0	100	
	575-60	518	633	62.5	110	276.0	80	
	380-60	418	342	95.0	150	382.0	125	
	380/415-50	342	440	77.5	125	345.0	100	
30HL	050	208/230-60	187	253	190.0	250	571.0	225
		460-60	414	506	84.0	125	282.0	100
		575-60	518	633	74.5	110	203.0	90
		380/415-50	342	440	99.0	125	297.0	125
	060	208/230-60	187	253	225.0	300	606.0	300
		460-60	414	506	99.0	125	297.0	125
		575-60	518	633	85.5	110	214.0	100
		380-60	418	342	137.3	175	406.0	175
		380/415-50	342	440	137.3	175	406.0	175

**Table 5A — Compressor Electrical Data — 30HK040-060, 30HWB,C,S018-040 Fluid-Cooled Units**

UNIT	SIZE	NOMINAL V-Hz (3 Phase)	COMPRESSOR NUMBER					
			A1			B1		
			RLA	LRA - XL	LRA - PW	RLA	LRA - XL	LRA - PW
30HK	040	208/230-60	57.0	283.0	—	57.0	283.0	—
		460-60	26.0	142.0	—	26.0	142.0	—
		575-60	24.0	98.0	—	24.0	98.0	—
		380/415-50	36.0	223.0	—	26.0	142.0	—
	050	208/230-60	83.0	446.0	—	57.0	283.0	—
		460-60	39.0	223.0	—	26.0	142.0	—
		575-60	39.0	164.0	—	24.0	88.0	—
		380/415-50	36.0	223.0	—	36.0	223.0	—
	060	208/230-60	83.0	446.0	—	83.0	446.0	—
		460-60	39.0	223.0	—	39.0	223.0	—
		575-60	39.0	164.0	—	39.0	164.0	—
		380/415-50	58.0	345.0	—	58.0	345.0	—
30HWB,C,S	018	208/230-60	49.0	266.0	—	—	—	—
		460-60	28.0	145.0	—	—	—	—
		575-60	23.0	120.0	—	—	—	—
		380-60	19.0	96.0	—	—	—	—
		380/415-50	27.0	115.0	—	—	—	—
	025	208/230-60	57.0	283.0	170.0	—	—	—
		460-60	34.0	142.0	85.0	—	—	—
		575-60	27.0	142.0	85.0	—	—	—
		380-60	22.0	98.0	59.0	—	—	—
		380/415-50	30.0	173.0	104.0	—	—	—
	028	208/230-60	71.0	446.0	268.0	—	—	—
		460-60	43.0	223.0	134.0	—	—	—
		575-60	35.0	223.0	134.0	—	—	—
		380-60	28.0	164.0	98.0	—	—	—
		380/415-50	43.0	223.0	134.0	—	—	—
	035	208/230-60	81.0	446.0	268.0	—	—	—
		460-60	47.0	223.0	134.0	—	—	—
		575-60	38.0	223.0	134.0	—	—	—
		380-60	31.0	164.0	98.0	—	—	—
		380/415-50	43.0	253.0	152.0	—	—	—
040	208/230-60	116.0	690.0	414.0	—	—	—	
	460-60	67.0	345.0	207.0	—	—	—	
	575-60	55.0	345.0	207.0	—	—	—	
	380-60	44.0	276.0	165.0	—	—	—	
	380/415-50	62.0	345.0	207.0	—	—	—	

**LEGEND AND NOTES FOR TABLES 4A TO 5B**

**LEGEND**

- ICF** — Maximum instantaneous current flow during starting. For single-compressor units, ICF is the compressor LRA. For multiple compressor units, ICF equals RLA of the smallest compressor plus LRA of the largest.
- LRA** — Locked rotor amps. First value is for part-wind start. Larger value is the full LRA.
- MCA** — Minimum circuit amps (for wire sizing). Complies with NEC, Section 430-24.
- MOCP** — Maximum Overcurrent Protective Device Amps
- NEC** — National Electrical Code (U.S.A.)
- PW** — Part Wind
- Rec Fuse** — Recommended dual element fuse amps (150% of compressor RLA). Size up to the next standard fuse size.
- RLA** — Rated load amps
- XL** — Across-the-line

\*Supply Range — Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed range limits.

†Contact your local Carrier representative for part-wind details.

**NOTES:**

1. All units have one field power terminal block.
2. Maximum incoming wire size:
  - a. 350 kcmil for unit sizes 040-060; 208/230-3-60 and 380/415-3-50 voltages.
  - b. 2/0 for all other unit sizes; all voltages.
3. Any field modification of factory wiring must be in compliance with all applicable codes. Field-installed power wires must be rated 75 C minimum.
4. Use copper, copper-clad aluminum, or aluminum conductors for field wiring.
5. For all units, control circuit power supply is 115-v single phase for 50- and 60-Hz units. Control power is supplied by the factory-installed control transformer. Additional control circuit power is not required.
6. Across-the-line start is standard on all units. Part-wind start is available as a factory-installed option on 025-060 sizes (not available on 018 size; special order option on 30HK,HL units).
7. Crankcase and cooler heaters are wired into the control circuit so they are always operable as long as the control circuit power supply disconnect is on, even if any safety device is open, and the unit ON/OFF switch is in the OFF position.



(30HK, HL, HWA, HWB, HWC 60 Hz Only)



(30HK, HL, HWA, HWB, HWC 60 Hz Only)

**Table 5B — Electrical Data — 30HL050-060, 30HWA018-040 Condenserless Units**

UNIT	SIZE	NOMINAL V-Hz (3 Phase)	COMPRESSOR NUMBER					
			A1			B1		
			RLA	LRA - XL	LRA - PW	RLA	LRA - XL	LRA - PW
30HL	050	208/230-60	100.0	506.0	—	65.0	315.0	—
		460-60	44.0	253.0	—	29.0	173.0	—
		575-60	38.0	176.0	—	27.0	128.0	—
		380/415-50	44.0	253.0	—	44.0	253.0	—
	060	208/230-60	100.0	506.0	—	100.0	506.0	—
		460-60	44.0	253.0	—	44.0	253.0	—
30HWA	018	208/230-60	57.0	266.0	—	—	—	—
		460-60	32.0	145.0	—	—	—	—
		575-60	27.0	120.0	—	—	—	—
		380-60	22.0	96.0	—	—	—	—
		380/415-50	27.0	115.0	—	—	—	—
	025	208/230-60	63.0	345.0	207.0	—	—	—
		460-60	37.0	173.0	104.0	—	—	—
		575-60	30.0	173.0	104.0	—	—	—
		380-60	24.0	120.0	72.0	—	—	—
		380/415-50	30.0	173.0	104.0	—	—	—
	028	208/230-60	85.0	446.0	268.0	—	—	—
		460-60	48.0	223.0	134.0	—	—	—
		575-60	43.0	223.0	134.0	—	—	—
		380-60	33.0	164.0	98.0	—	—	—
		380/415-50	43.0	223.0	134.0	—	—	—
	035	208/230-60	95.0	506.0	304.0	—	—	—
		460-60	53.0	253.0	152.0	—	—	—
		575-60	43.0	253.0	152.0	—	—	—
		380-60	35.0	176.0	106.0	—	—	—
		380/415-50	43.0	253.0	152.0	—	—	—
	040	208/230-60	133.0	690.0	414.0	—	—	—
		460-60	76.0	345.0	207.0	—	—	—
		575-60	62.0	345.0	207.0	—	—	—
		380-60	50.0	276.0	165.0	—	—	—
380/415-50		62.0	345.0	207.0	—	—	—	

**LEGEND AND NOTES FOR TABLES 4A TO 5B**

LEGEND

- ICF** — Maximum instantaneous current flow during starting. For single-compressor units, ICF is the compressor LRA. For multiple compressor units, ICF equals RLA of the smallest compressor plus LRA of the largest.
- LRA** — Locked rotor amps. First value is for part-wind start. Larger value is the full LRA.
- MCA** — Minimum circuit amps (for wire sizing). Complies with NEC, Section 430-24.
- MOCP** — Maximum Overcurrent Protective Device Amps
- NEC** — National Electrical Code (U.S.A.)
- PW** — Part Wind
- Rec Fuse Size** — Recommended dual element fuse amps (150% of compressor RLA). Size up to the next standard fuse size.
- RLA** — Rated load amps
- XL** — Across-the-line

\*Supply Range — Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed range limits.

†Contact your local Carrier representative for part-wind details.

NOTES:

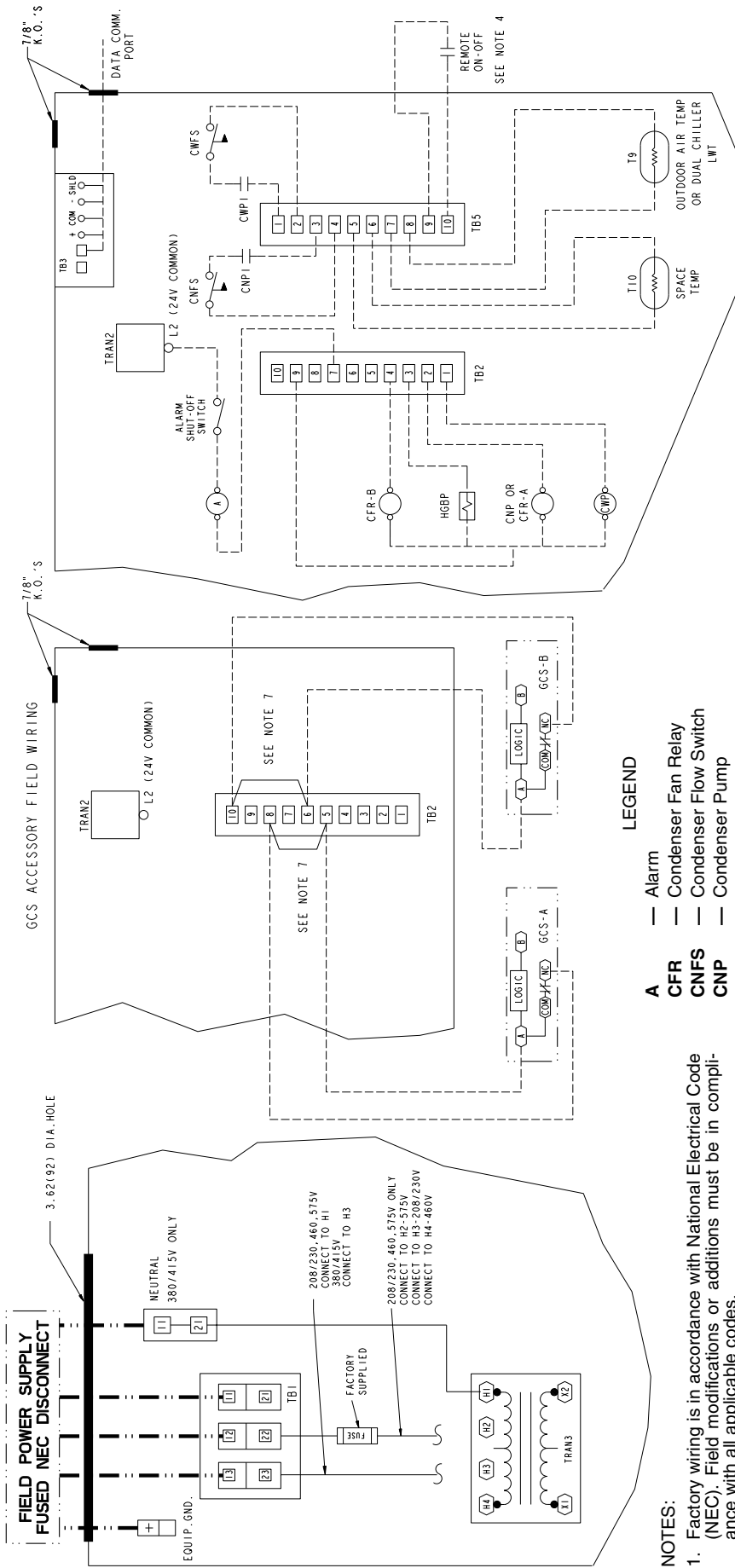
1. All units have one field power terminal block.
2. Maximum incoming wire size:
  - a. 350 kcmil for unit sizes 040-060; 208/230-3-60 and 380/415-3-50 voltages.
  - b. 2/0 for all other unit sizes; all voltages.
3. Any field modification of factory wiring must be in compliance with all applicable codes. Field-installed power wires must be rated 75 C minimum.
4. Use copper, copper-clad aluminum, or aluminum conductors for field wiring.
5. For all units, control circuit power supply is 115-v single phase for 50- and 60-Hz units. Control power is supplied by the factory-installed control transformer. Additional control circuit power is not required.
6. Across-the-line start is standard on all units. Part-wind start is available as a factory-installed option on 025-060 sizes (not available on 018 size; special order option on 30HK,HL units).
7. Crankcase and cooler heaters are wired into the control circuit so they are always operable as long as the control circuit power supply disconnect is on, even if any safety device is open, and the unit ON/OFF switch is in the OFF position.



(30HK, HL, HWA, HWB, HWC 60 Hz Only)



(30HK, HL, HWA, HWB, HWC 60 Hz Only)



- NOTES:**
1. Factory wiring is in accordance with National Electrical Code (NEC). Field modifications or additions must be in compliance with all applicable codes.
  2. Wiring for main field power supply must be rated 75°C minimum. Use copper, copper-clad aluminum, or aluminum conductors for all units.
  3. Control power is factory supplied. TRAN3 primary voltage is 230V for 208/230-3-60 and 380/415-3-50 units. TRAN3 primary voltage is 460V for 460-3-60 and 575V for 575-3-60. TRAN3 secondary voltage is 115V for all units.
  4. Terminals 9 and 10 of TB5 are for field connection for remote On-Off control. The contacts must be rated for dry circuit application capable of reliably switching a 5VDC, .5MA. load. The maximum load allowed for the remote alarm relay circuit is 15 VA sealed, 30 VA inrush at 24 volt.
  5. The maximum load allowed for the condenser fan, condenser pump, or cooler pump relays is 15 VA sealed, 30 VA inrush each at 115 volt.
  6. For GCS accessory, remove jumper wire from TB2, terminals 5/8 for compressor A1 and from terminals 6/10 for compressor B1.

**LEGEND**

- A** — Alarm
  - CFR** — Condenser Fan Relay
  - CFRS** — Condenser Flow Switch
  - CNP** — Condenser Pump
  - CNPI** — Cond. Pump Interlock
  - CWFS** — Chilled Water Flow Switch
  - CWP** — Chilled Water Pump
  - CWPI** — Chilled Water Pump Interlock
  - GCS** — Ground Current Sensing
  - HGB** — Hot Gas Bypass
  - LWT** — Leaving Water Temperature
  - TB** — Terminal Block
  - TRAN** — Transformer
- Field Power Wiring
  - - -** Field Control Wiring
  - Factory-Installed Wiring
  - - -** Field-Installed Device

**Fig. 17 — Field Wiring Diagram, 30HK, HL Units**

