



# 30XA080-350 Fixed Speed Air-Cooled Liquid Chillers 30XA140-350 Variable Speed Air-Cooled Liquid Chillers with Greenspeed® Intelligence Flooded Cooler Units Only Remote Cooler Accessory

## Installation Instructions

Part Numbers 00EFN900003000A, 00EFN900003100A

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### SAFETY CONSIDERATIONS

Installing, starting up, and servicing air-conditioning equipment can be hazardous due to system pressures, electrical components, and equipment location (such as a roof or elevated structure). Only trained, qualified installers and service technicians should install, start up, and service this equipment.

When installing this accessory, observe precautions in the literature, labels attached to the equipment, and any other safety precautions that apply.

- Follow all safety codes.
- Wear safety glasses and work gloves.
- Use care in handling and installing this accessory.
- Use quenching cloth for brazing and unbrazing operations. Have a fire extinguisher available.

#### **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.

### GENERAL

The remote cooler accessory allows for the indoor relocation of the cooler on 30XA080-350 units as another means of freeze protection. When the cooler is located in a heated space, an anti-freeze solution is not needed and the performance degradation associated with antifreeze solution can be avoided. Maximum separation of the 30XA base unit and cooler is limited to 50 lineal ft (15.25 m) or 75 equivalent ft (22 m) of piping. For more information, refer to the Carrier Piping Design manual.

The liquid and economizer lines between the exterior-installed unit and the remote, interior-installed cooler must have pressure relief devices installed in accordance with ASHRAE 15 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) and local codes.

Units to be modified for a remote cooler application must have the following options:

- Factory-installed suction service valve option.
- Condenser coil (one of the following types):
  - Aluminum fin and copper tube
  - Pre-coat aluminum fin and copper tube
  - E-coat aluminum fin and copper tube

- Copper fin and copper tube
- E-coat copper fin and copper tube

NOTE: The microchannel heat exchanger option CANNOT use the remote cooler accessory.

The application is limited to the following constraints:

- Operating chilled water temperature is between 40 and 55°F (4.4 and 12.8°C). When the remote cooler is applied, the cooler heaters will not function, so it is critical to maintain the water temperature above the freezing point at all times. If the water temperature falls below the freezing point, the cooler does not have protection to keep the water from freezing.
- The interior space temperature where the cooler will be installed must be maintained at a minimum of 50°F (10°C).
- Underground refrigerant piping is NOT permitted for this application.

See Table 1 for accessory package usage and see Table 2 for accessory package contents. In addition to the parts supplied with each accessory package, the following material must be field-supplied:

- Refrigerant grade liquid and suction line copper piping for 30XA080-120: circuits A and B and 30XA140,160: circuit B only (length determined by installation). See Tables 3 and 4 for piping sizes.
- Schedule 40 steel pipe for 30XA140,160: circuit A and 30XA180-350: circuits A and B (length determined by installation). See Tables 3 and 4 for pipe sizes.
- 350 psig pressure relief valves and fittings (2 per circuit)
- Suction line tubing insulation (length determined by installation)
- Economizer line tubing insulation (length determined by installation)
- 1/2 in. strain relief (2)
- Conduit (length determined by installation)
- ASME (American Society of Mechanical Engineers) B16.9 stub end (4 in. [102 mm]), Schedule 40 Steel (one needed for 30XA140,160, two needed for 30XA180-350)
- ASME B16.5 Class 600 pipe flange (4 in. [102 mm]) with field-modified extra mounting hole (one needed for 30XA260-300, two needed for 30XA325, 350)
- Flange mounting hardware
- Extra flange gaskets (if necessary)

#### **CAUTION**

The 30XA units use R-134a refrigerant. No other refrigerant may be used in this system. Suction tubing design pressure is 220 psig (1517 kPa). Economizer and liquid tubing design pressure is 350 psig (2413 kPa). Failure to use gage set, hoses, and recovery systems designed to handle R-134a refrigerant may result in personal injury and equipment damage. If unsure about equipment, consult the equipment manufacturer.

**Table 1 — Accessory Package Usage**

| 30XA UNIT SIZE                      | PACKAGE REQUIRED |
|-------------------------------------|------------------|
| 080,090,100,110,120,140,160,180,200 | 00EFN900003000A  |
| 220,240,260,280,300,325,350         | 00EFN900003100A  |

**Table 2 — Accessory Package Contents**

| ACCESSORY PACKAGE PART NO. | ITEM NO. | DESCRIPTION                                                           | PART NO.        | QTY           |
|----------------------------|----------|-----------------------------------------------------------------------|-----------------|---------------|
| 00EFN900003000A            | 1        | Economizer shutoff valve - 1 <sup>1</sup> / <sub>8</sub> in. (29 mm)  | 00PPG000023501A | 2             |
|                            | 2        | Liquid line shutoff valve - 1 <sup>3</sup> / <sub>8</sub> in. (35 mm) | EP71BA393       | 2             |
|                            | 3        | 5 Wire jacketed cable                                                 | RM02EJ200       | 200 ft (61 m) |
|                            | 4        | Cable assembly                                                        | 32GB404694      | 5             |
|                            | 5        | Junction box                                                          | HX30FZ001       | 2             |
|                            | 6        | Junction box cover                                                    | HX38ZZ001       | 2             |
|                            | 7        | M6 Screws                                                             | 00PPN500000302A | 8             |
|                            | 8        | Cooler pipe flange - 3 <sup>1</sup> / <sub>8</sub> in. (79 mm)        | 00PSN500091400A | 2             |
|                            | 11       | Loose pipe flange - 4 in. (102 mm)                                    | 00PSG000205100A | 2             |
|                            | 12       | Cooler flange O-ring                                                  | KK71EW256       | 4             |
|                            | 14       | Compressor flange gasket - 3 in. (76 mm)                              | 00PPG000011702A | 2             |
|                            | 15       | Compressor flange gasket - 4 in. (102 mm)                             | 00PPG000011703A | 4             |
|                            | 16       | Transducer wiring harness - 100 ft (30.5 m)                           | 00PSN500180500A | 2             |
| 00EFN900003100A            | 1        | Economizer shutoff valve - 1 <sup>1</sup> / <sub>8</sub> in. (29 mm)  | 00PPG000023501A | 2             |
|                            | 2        | Liquid line shutoff valve - 1 <sup>5</sup> / <sub>8</sub> in. (41 mm) | EP71BA463       | 2             |
|                            | 3        | 5 Wire jacketed cable                                                 | RM02EJ200       | 200 ft (61 m) |
|                            | 4        | Cable assembly                                                        | 32GB404694      | 5             |
|                            | 5        | Junction box                                                          | HX30FZ001       | 2             |
|                            | 6        | Junction box cover                                                    | HX38ZZ001       | 2             |
|                            | 7        | M6 Screws                                                             | 00PPN500000302A | 8             |
|                            | 8        | Cooler flange o-ring                                                  | KK71EW256       | 4             |
|                            | 9        | Compressor flange gasket - 4 in. (102 mm)                             | 00PPG000011703A | 4             |
|                            | 10       | Compressor flange gasket - 5 in. (127 mm)                             | 00PPG000011704A | 4             |
|                            | 11       | Loose pipe flange - 5 in. (127 mm)                                    | 00PSG000211900A | 2             |
|                            | 12       | Loose pipe flange - 4 in. (102 mm)                                    | 00PSG000205100A | 2             |
|                            | 14       | Transducer wire harness - 100 ft (30.5 m)                             | 00PSN500180500A | 2             |

Choose a space that can support the weight of the cooler and economizer with service clearances and area for refrigerant piping. Field-supplied piping must be limited to less than 50 lineal ft (15.25 m) or 75 equivalent ft (22 m) in length. Suction and liquid line risers must be limited to less than 15 ft (4.5 m) vertical riser elevation. Suction lines and economizer lines must be insulated to prevent condensation. Relocating the cooler introduces minimal line losses if correct piping practices are followed. Buried lines are not permitted.

The remote cooler system can be applied in three different configurations. See Fig. 1-3. In Fig. 1, the remote cooler and the outdoor unit are at the same elevation. The suction, liquid, and economizer lines run parallel between the cooler and the outdoor unit. In Fig. 2, the outdoor unit and remote cooler are at the same elevation, but the interconnecting piping has an elevation of up to 15 ft (4.5 m) above the base elevation of the cooler. This could be the result of running piping over a wall or through the ceiling in a building. In Fig. 3, the remote cooler is located below the outdoor unit. The interconnecting piping has an elevation of up to 15 ft (4.5 m) above the base elevation of the remote cooler. This could occur if the remote cooler is installed in a basement. Double suction risers are required on all installations. (See Fig. 12.)

NOTE: Unit 30XA refrigeration piping can be either copper tubing or steel tubing with flanged connections. All units

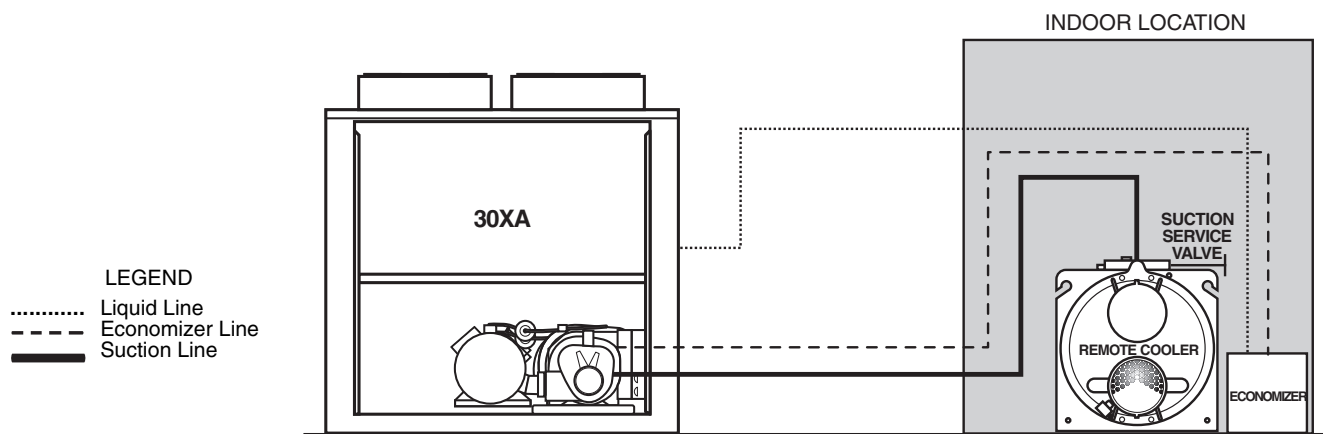
are factory charged with compressor oil to the required level. However, when the double riser is constructed with U-bends or street elbows, a substantial amount of oil can be trapped in the U-bend during prolonged minimum load operation. If this occurs, additional oil is needed to add to the system to prevent the oil level from dropping below the minimum level in the oil separator. Add 1 gallon of oil to each circuit. Refer to Controls, Start-up, Operation, Service, and Troubleshooting Guide for recommended oil type.

**Table 3 — Refrigeration Piping and Connections Material (English)**

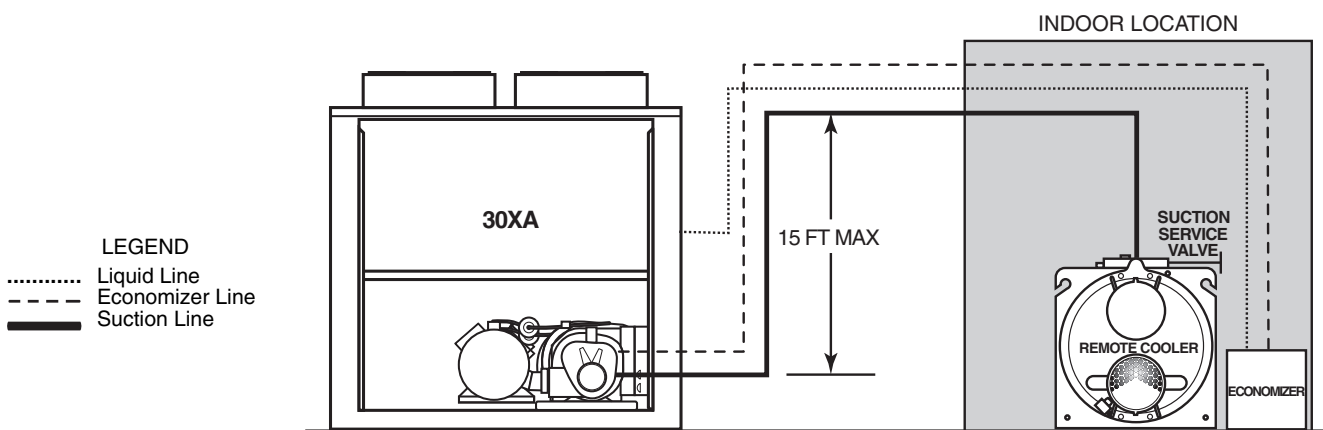
| PIPE SIZE (IN.)                                                                                                                                                                                                                                           | MATERIAL             |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <sup>5</sup> / <sub>8</sub> , <sup>7</sup> / <sub>8</sub> , 1 <sup>1</sup> / <sub>8</sub> , 1 <sup>3</sup> / <sub>8</sub> , 1 <sup>5</sup> / <sub>8</sub> , 2 <sup>1</sup> / <sub>8</sub> , 2 <sup>5</sup> / <sub>8</sub> , 3 <sup>1</sup> / <sub>8</sub> | Refrigeration copper |
| 2, 2 <sup>1</sup> / <sub>2</sub> , 3, 3 <sup>1</sup> / <sub>2</sub> , 4                                                                                                                                                                                   | Schedule 40 Steel    |

**Table 4 — Refrigeration Piping and Connections Material (SI)**

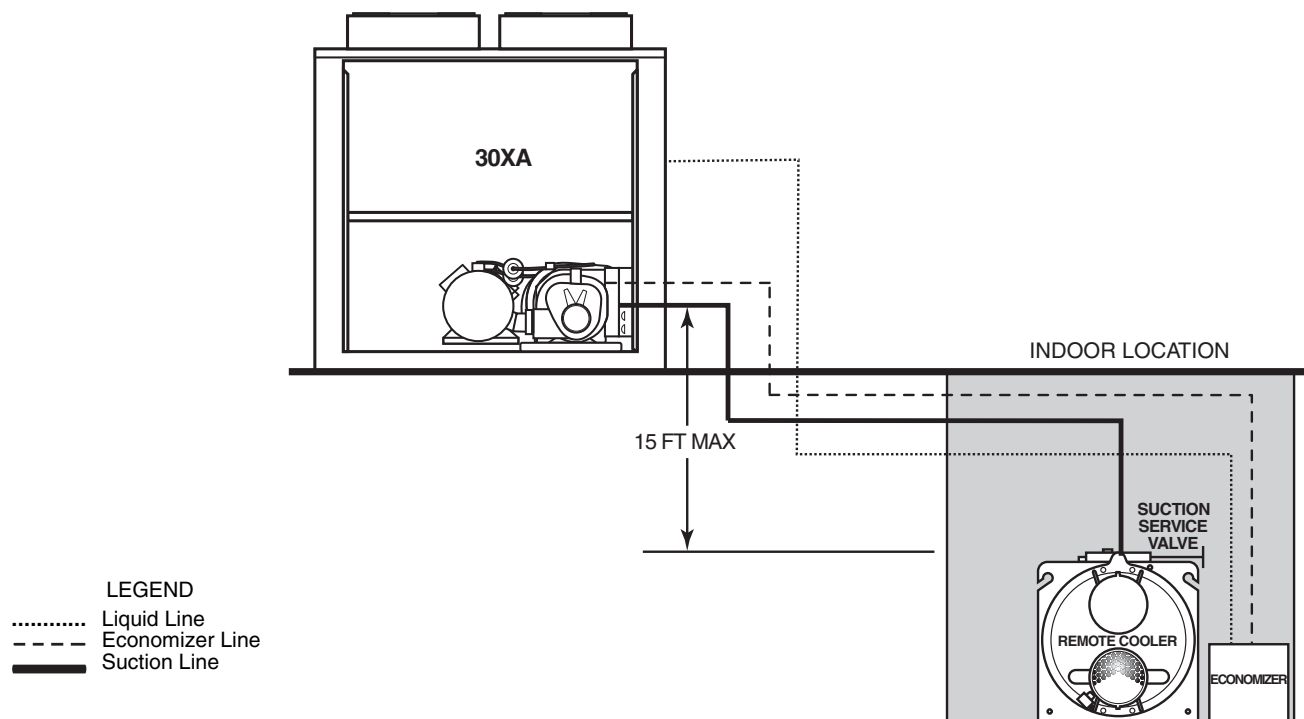
| PIPE SIZE (MM)                 | MATERIAL             |
|--------------------------------|----------------------|
| 16, 22, 29, 35, 41, 54, 67, 79 | Refrigeration copper |
| 51, 64, 76, 89, 102            | Schedule 40 Steel    |



**Fig. 1 — 30XA Unit and Cooler Level, Piping Parallel (Single Circuit Shown)**



**Fig. 2 — 30XA Unit and Cooler Level, Piping Elevated (Single Circuit Shown)**



**Fig. 3 — 30XA Unit with Cooler Located Below Unit (Single Circuit Shown)**

## INSTALLATION

### WARNING

Shut off all power to this equipment prior to installation. There may be more than one disconnect switch. Tag all disconnect locations to alert others not to restore power until work is completed. Failure to disconnect power from equipment prior to installation could result in serious personal injury or death.

1. Inspect package contents for missing or damaged parts. File a claim with the shipping agency if parts are damaged and notify your local Carrier representative if any item is missing.
2. Determine the new location for the cooler. Ensure that the new location supports the cooler and economizer weights and that there is enough room for service access and tube removal. See Tables 5 and 6 to determine refrigeration line sizes. See Table 7 for the cooler and economizer weights. See Fig. 4-9 for cooler and economizer dimensions, tube removal clearances, and service areas.
3. Open and tag all electrical disconnects.

### Step 1 — Remove Cooler and Economizers —

The cooler and economizers are accessible from the cooler side of the unit. To remove the cooler and economizers from the unit, complete the following steps:

1. Remove refrigerant from all circuits using standard refrigeration practices. Refer to unit nameplate or installation instructions for refrigerant quantities.
2. Disconnect the cooler heater wiring, and conduit if equipped. Remove wire from the load side of the cooler heater contactor and discard conduit. Be sure to plug conduit entrance to the control box.
3. Remove entering and leaving chilled water temperature thermistors. Make sure to label thermistors as they are removed. See Fig. 10.
4. Disconnect and label the chilled water flow switch cable from the chilled water flow switch located on the leaving water nozzle. See Fig. 10.
5. Disconnect the suction pressure transducer cables from the transducers. Make sure to label cables as they are removed. See Fig. 10.

NOTE: The suction pressure transducers (SPT) do not necessarily need to be removed. However, use care in protecting the SPTs throughout the removal and remote installation processes, as the SPTs are an important part of the remote installation.

6. Disconnect the electronic expansion valve (EXV) cables from the EXVs at each economizer. Make sure to label cables as they are removed. See Fig. 10.

NOTE: The 30XA080 units do not utilize an economizer. In this case, only the EXVs are present.

7. Unbolt the cooler suction flanges from the cooler. Temporary supports may be needed to support the suction pipes. See Fig. 10.
8. At each circuit's economizer, cut the liquid lines going to the economizer assembly before the manual shutoff valve (see Fig. 10, cut 1, circuits A and B). Cut the cooler liquid lines between the manual shutoff valve and the cooler (see Fig. 10, cut 2, circuits A and B). Cut the economizer lines between the manual shutoff valve and the sensors (see Fig. 10, cut 3, circuits A and B). Cut the copper suction pipe (see Fig. 10, cut 4, circuit B); steel suction piping can be disconnected by removing flange connection.
9. Remove the screws from the feet of each economizer. Save all of the screws. Remove the economizers by carefully sliding them out the cooler side of the unit.
10. Remove the screws from the cooler feet. Save all of the screws. Slide the cooler slightly to the left to clear the refrigerant tubing.
11. Remove the cooler by carefully sliding it out the cooler side of the unit.

### CAUTION

Because 30XA systems use polyolester oil, which can absorb moisture, it is important to minimize the amount of time that the refrigeration system is left exposed to the atmosphere. Minimizing the exposure time will reduce the amount of moisture that could possibly damage the unit. The removal instructions minimize the exposure time to prevent this type of damage. The remote installation instructions outline a dehydration process to counteract any exposure that might have occurred.

### CAUTION

Before installation of the field-supplied piping, the piping must be thoroughly cleaned and free of dirt, debris, oil, and welding residue. Presence of these objects will cause severe damage to the compressors or other components of the refrigeration system.

**Table 5 — Refrigeration Line Sizes (English)**

| 30XA<br>UNIT<br>SIZE | SUCTION LINE                  |                               | DOUBLE SUCTION RISERS         |                               |                               |                               | COOLER<br>LIQUID LINE         |                               | CONDENSER<br>LIQUID LINE      |                               | ECONOMIZER<br>LINE            |                               |
|----------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                      |                               |                               | CIRCUIT A                     |                               | CIRCUIT B                     |                               |                               |                               |                               |                               |                               |                               |
|                      | CIRCUIT A<br>(in.)            | CIRCUIT B<br>(in.)            | RISER A<br>(in.)              | RISER B<br>(in.)              | RISER A<br>(in.)              | RISER B<br>(in.)              | CIRCUIT A<br>(in.)            | CIRCUIT B<br>(in.)            | CIRCUIT A<br>(in.)            | CIRCUIT B<br>(in.)            | CIRCUIT A<br>(in.)            | CIRCUIT B<br>(in.)            |
| 080                  | 3 <sup>1</sup> / <sub>8</sub> | 3 <sup>1</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | —                             | —                             |
| 090                  | 3 <sup>1</sup> / <sub>8</sub> | 3 <sup>1</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 100                  | 3 <sup>1</sup> / <sub>8</sub> | 3 <sup>1</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 110                  | 3 <sup>1</sup> / <sub>8</sub> | 3 <sup>1</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 120                  | 3 <sup>1</sup> / <sub>8</sub> | 3 <sup>1</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 140                  | 4                             | 3 <sup>1</sup> / <sub>8</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 160                  | 4                             | 3 <sup>1</sup> / <sub>8</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>5</sup> / <sub>8</sub> | 2 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 7 <sup>7</sup> / <sub>8</sub> |
| 180                  | 4                             | 4                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 200                  | 4                             | 4                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 220                  | 4                             | 4                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 240                  | 4                             | 4                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 260                  | 4                             | 4                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 280                  | 4                             | 4                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 300                  | 4                             | 4                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 2                             | 3 <sup>1</sup> / <sub>2</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>3</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 325                  | 4                             | 4                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |
| 350                  | 4                             | 4                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 2 <sup>1</sup> / <sub>2</sub> | 3                             | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>5</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> | 1 <sup>1</sup> / <sub>8</sub> |

NOTE: See Fig.12.

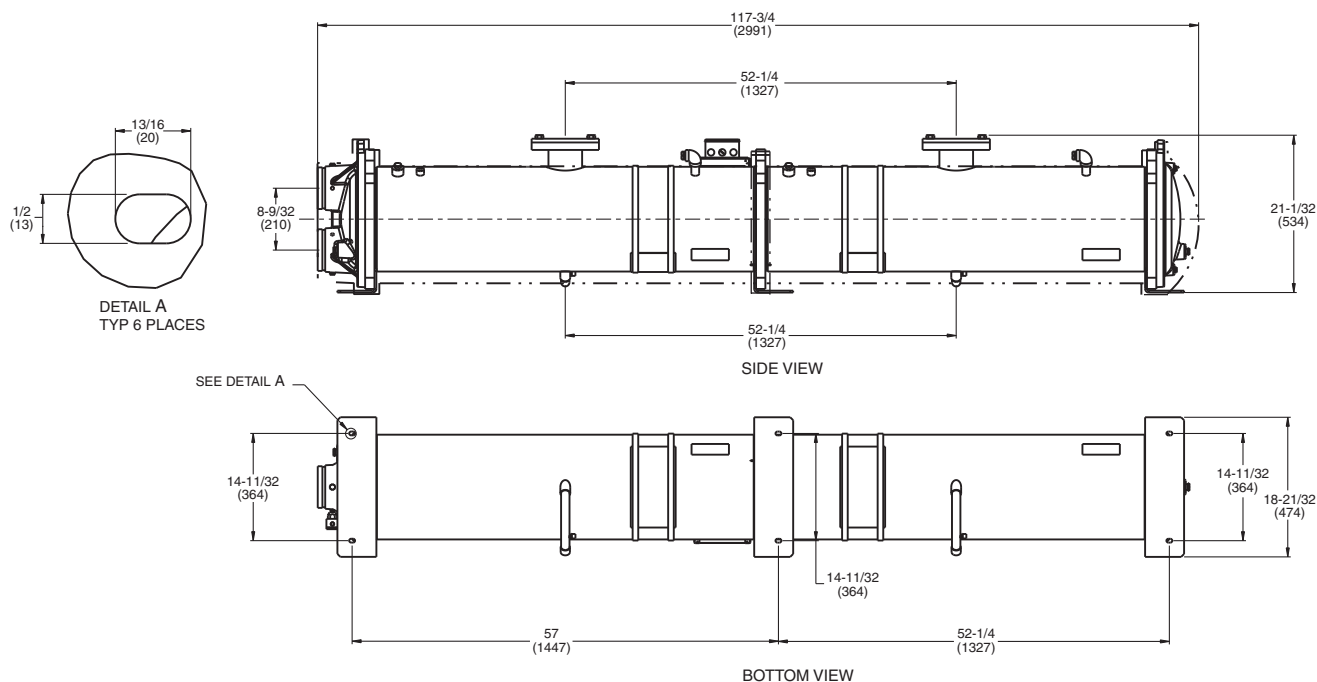
**Table 6 — Refrigeration Line Sizes (SI)**

| 30XA<br>UNIT<br>SIZE | SUCTION LINE      |                   | DOUBLE SUCTION RISERS |                 |                 |                 | COOLER<br>LIQUID LINE |                   | CONDENSER<br>LIQUID LINE |                   | ECONOMIZER<br>LINE |                   |
|----------------------|-------------------|-------------------|-----------------------|-----------------|-----------------|-----------------|-----------------------|-------------------|--------------------------|-------------------|--------------------|-------------------|
|                      |                   |                   | CIRCUIT A             |                 | CIRCUIT B       |                 |                       |                   |                          |                   |                    |                   |
|                      | CIRCUIT A<br>(mm) | CIRCUIT B<br>(mm) | RISER A<br>(mm)       | RISER B<br>(mm) | RISER A<br>(mm) | RISER B<br>(mm) | CIRCUIT A<br>(mm)     | CIRCUIT B<br>(mm) | CIRCUIT A<br>(mm)        | CIRCUIT B<br>(mm) | CIRCUIT A<br>(mm)  | CIRCUIT B<br>(mm) |
| 080                  | 79                | 79                | 41                    | 67              | 41              | 67              | 29                    | 29                | 29                       | 29                | —                  | —                 |
| 090                  | 79                | 79                | 41                    | 67              | 41              | 67              | 29                    | 29                | 29                       | 29                | 22                 | 22                |
| 100                  | 79                | 79                | 41                    | 67              | 41              | 67              | 29                    | 29                | 29                       | 29                | 22                 | 22                |
| 110                  | 79                | 79                | 41                    | 67              | 41              | 67              | 29                    | 29                | 29                       | 29                | 22                 | 22                |
| 120                  | 79                | 79                | 41                    | 67              | 41              | 67              | 29                    | 29                | 29                       | 29                | 22                 | 22                |
| 140                  | 102               | 79                | 51                    | 89              | 41              | 67              | 35                    | 29                | 35                       | 29                | 29                 | 22                |
| 160                  | 102               | 79                | 51                    | 89              | 41              | 67              | 35                    | 29                | 35                       | 29                | 29                 | 22                |
| 180                  | 102               | 102               | 51                    | 89              | 51              | 89              | 35                    | 35                | 35                       | 35                | 29                 | 29                |
| 200                  | 102               | 102               | 51                    | 89              | 51              | 89              | 35                    | 35                | 35                       | 35                | 29                 | 29                |
| 220                  | 102               | 102               | 51                    | 89              | 51              | 89              | 35                    | 35                | 35                       | 35                | 29                 | 29                |
| 240                  | 102               | 102               | 51                    | 89              | 51              | 89              | 35                    | 35                | 35                       | 35                | 29                 | 29                |
| 260                  | 102               | 102               | 64                    | 76              | 51              | 89              | 41                    | 35                | 41                       | 35                | 29                 | 29                |
| 280                  | 102               | 102               | 64                    | 76              | 51              | 89              | 41                    | 35                | 41                       | 35                | 29                 | 29                |
| 300                  | 102               | 102               | 64                    | 76              | 51              | 89              | 41                    | 35                | 41                       | 35                | 29                 | 29                |
| 325                  | 102               | 102               | 64                    | 76              | 64              | 76              | 41                    | 41                | 41                       | 41                | 29                 | 29                |
| 350                  | 102               | 102               | 64                    | 76              | 64              | 76              | 41                    | 41                | 41                       | 41                | 29                 | 29                |

NOTE: See Fig.12.

**Table 7 — Cooler and Economizer Weights**

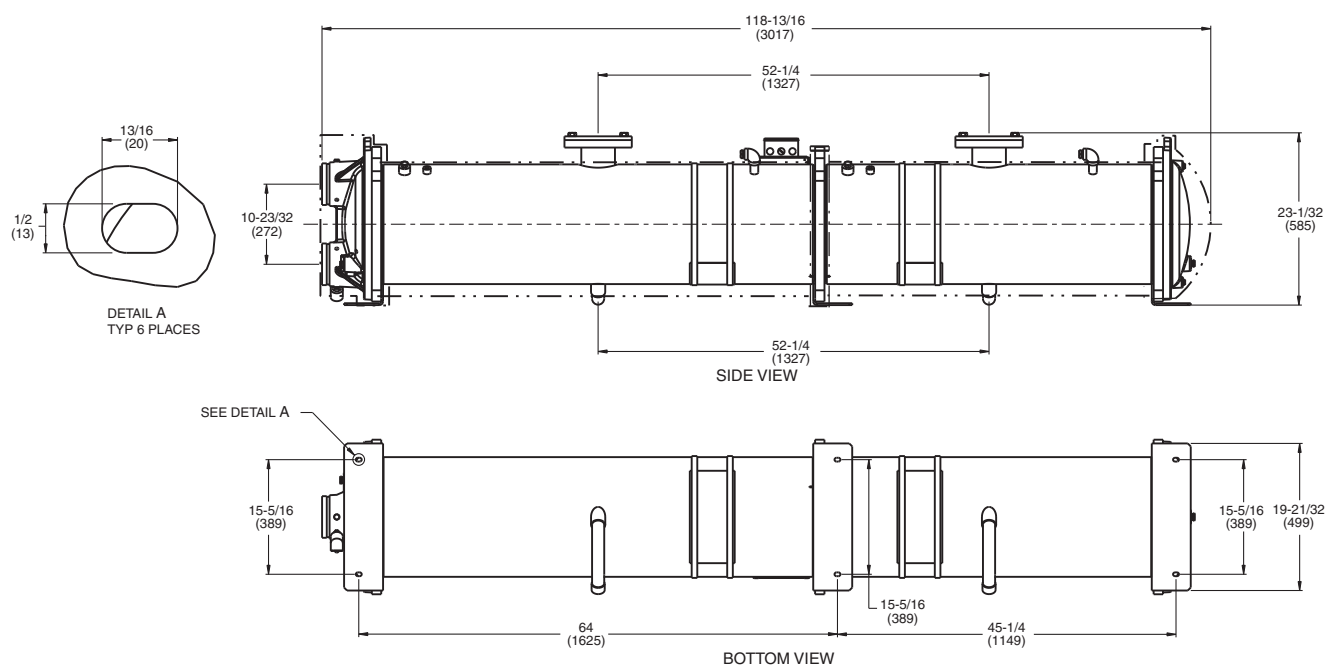
| 30XA<br>UNIT<br>SIZE | STANDARD<br>WEIGHT |      | OPERATING<br>WEIGHT |      | COOLER OPERATING<br>WEIGHT |      | ECONOMIZER WEIGHT |    |           |    |
|----------------------|--------------------|------|---------------------|------|----------------------------|------|-------------------|----|-----------|----|
|                      |                    |      |                     |      |                            |      | CIRCUIT A         |    | CIRCUIT B |    |
|                      | lb                 | kg   | lb                  | kg   | lb                         | kg   | lb                | kg | lb        | kg |
| 080                  | 1197               | 543  | 1277                | 579  | 1277                       | 580  | —                 | —  | —         | —  |
| 090                  | 1230               | 558  | 1323                | 600  | 1323                       | 601  | 45                | 20 | 45        | 20 |
| 100                  | 1254               | 569  | 1323                | 600  | 1323                       | 601  | 45                | 20 | 45        | 20 |
| 110                  | 1281               | 581  | 1357                | 616  | 1357                       | 617  | 45                | 20 | 45        | 20 |
| 120                  | 1490               | 676  | 1396                | 633  | 1396                       | 634  | 45                | 20 | 45        | 20 |
| 140                  | 1508               | 684  | 1622                | 736  | 1622                       | 737  | 45                | 20 | 55        | 25 |
| 160                  | 1520               | 689  | 1665                | 755  | 1665                       | 757  | 45                | 20 | 55        | 25 |
| 180                  | 1691               | 767  | 1860                | 844  | 1860                       | 845  | 55                | 25 | 55        | 25 |
| 200                  | 1733               | 786  | 1920                | 871  | 1920                       | 872  | 55                | 25 | 55        | 25 |
| 220                  | 1776               | 806  | 1980                | 898  | 1980                       | 900  | 55                | 25 | 60        | 27 |
| 240                  | 1812               | 822  | 2031                | 921  | 2031                       | 923  | 60                | 27 | 60        | 27 |
| 260                  | 2023               | 918  | 2261                | 1026 | 2261                       | 1027 | 55                | 25 | 70        | 32 |
| 280                  | 2068               | 938  | 2321                | 1053 | 2321                       | 1055 | 60                | 27 | 70        | 32 |
| 300                  | 2131               | 967  | 2411                | 1094 | 2411                       | 1095 | 60                | 27 | 75        | 34 |
| 325                  | 2164               | 982  | 2458                | 1115 | 2458                       | 1117 | 70                | 32 | 70        | 32 |
| 350                  | 2210               | 1002 | 2523                | 1144 | 2523                       | 1146 | 70                | 32 | 75        | 34 |



**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) is 109 in. (2769 mm).

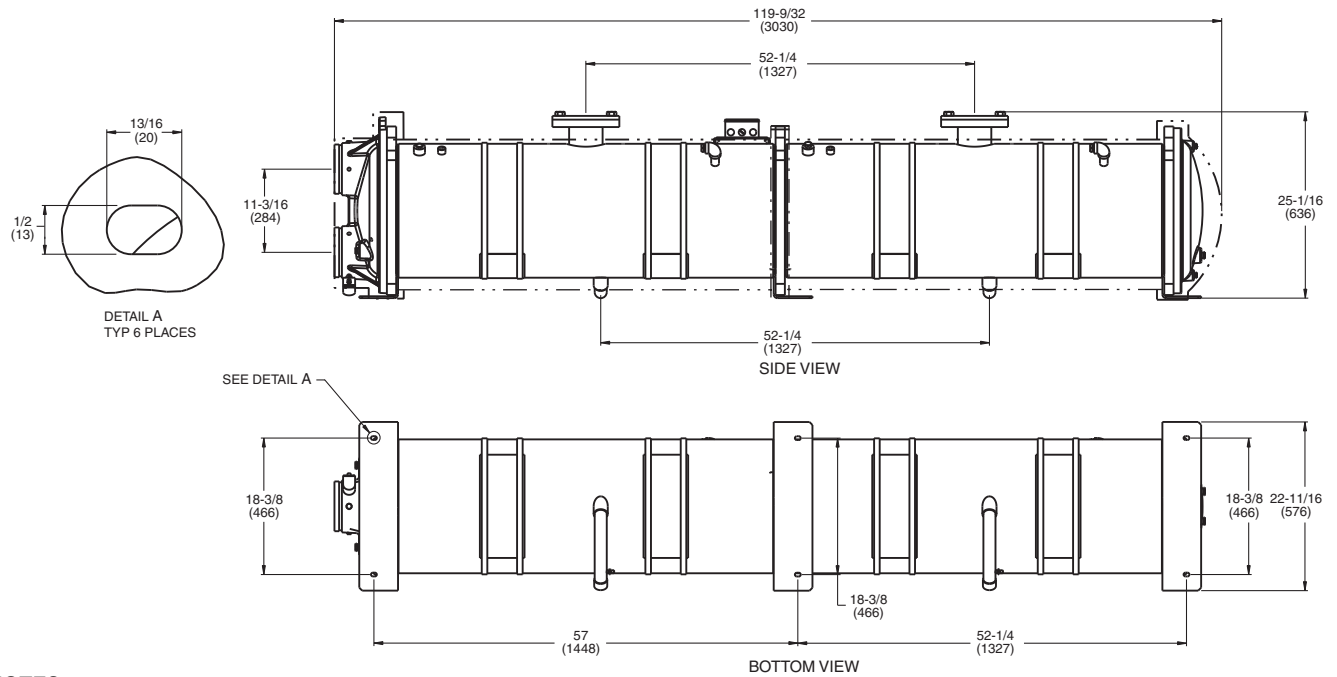
**Fig. 4 — 30XA080-120 Cooler Dimensions**



**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) is 109 in. (2769 mm).
4. Cooler relief valves not shown.

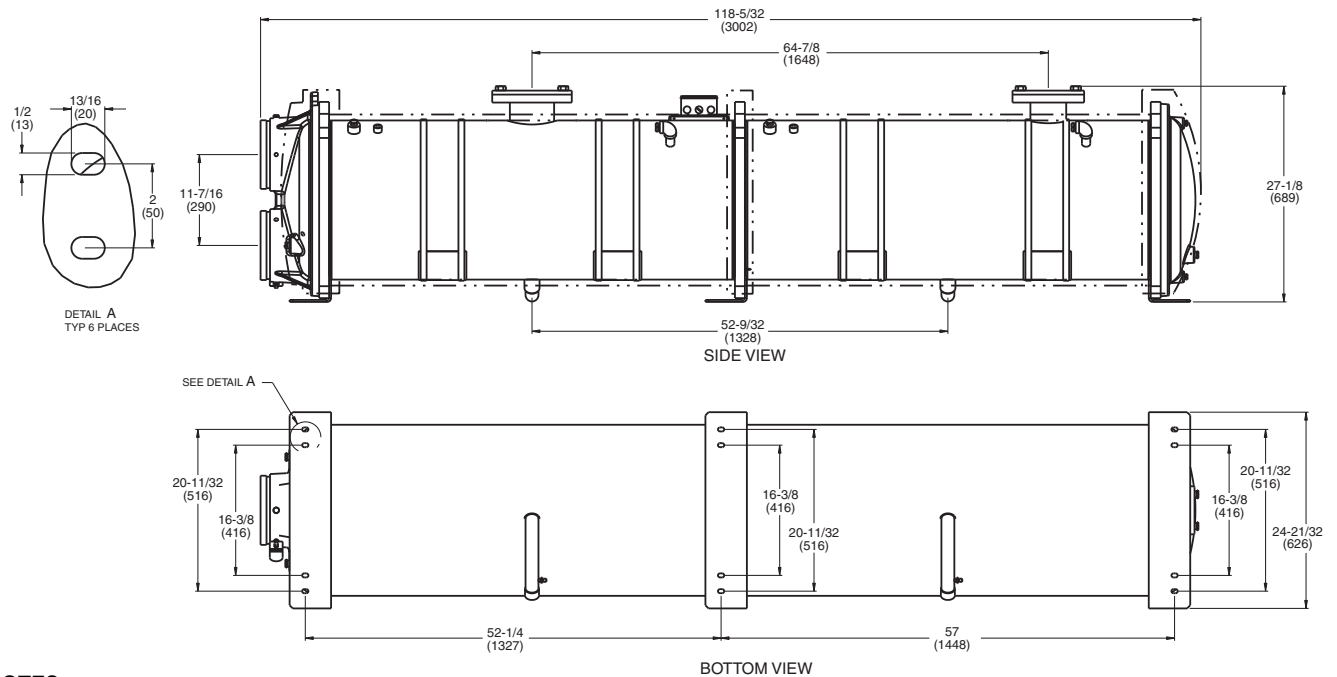
**Fig. 5 — 30XA140, 160 Cooler Dimensions**



**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) for 30XA180, 200 is 109<sup>3</sup>/<sub>8</sub> in. (2779 mm).
4. Recommended cooler tube removal area (either end) for 30XA220, 240 is 108<sup>5</sup>/<sub>8</sub> in. (2758 mm).
5. Cooler relief valves not shown.
6. Standard Pass cooler shown above. One cooler nozzle will be located on both end of the cooler for single pass and three pass cooler.

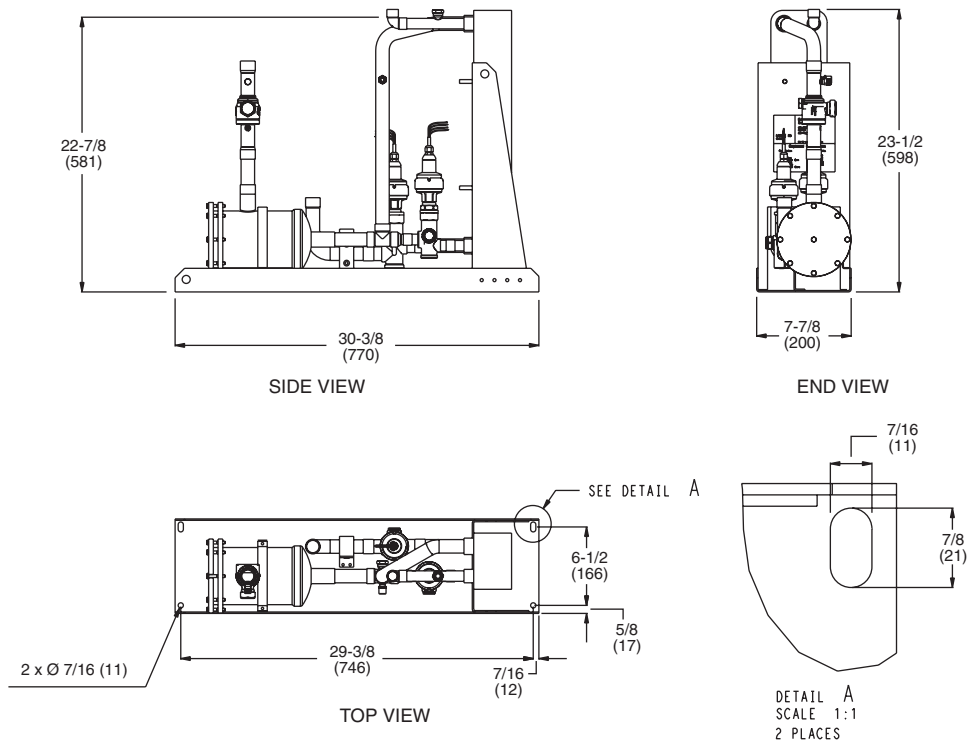
**Fig. 6 — 30XA180-240 Cooler Dimensions**



**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the cooler is 36 in. (914 mm).
3. Recommended cooler tube removal area (either end) for 30XA260-300 is 188<sup>3</sup>/<sub>8</sub> in. (4784 mm).
4. Recommended cooler tube removal area (either end) for 30XA325, 350 is 232<sup>1</sup>/<sub>32</sub> in. (5910 mm).
5. Cooler relief valves not shown.
6. Standard Pass cooler shown above. One cooler nozzle will be located on both end of the cooler for single pass and three pass cooler.

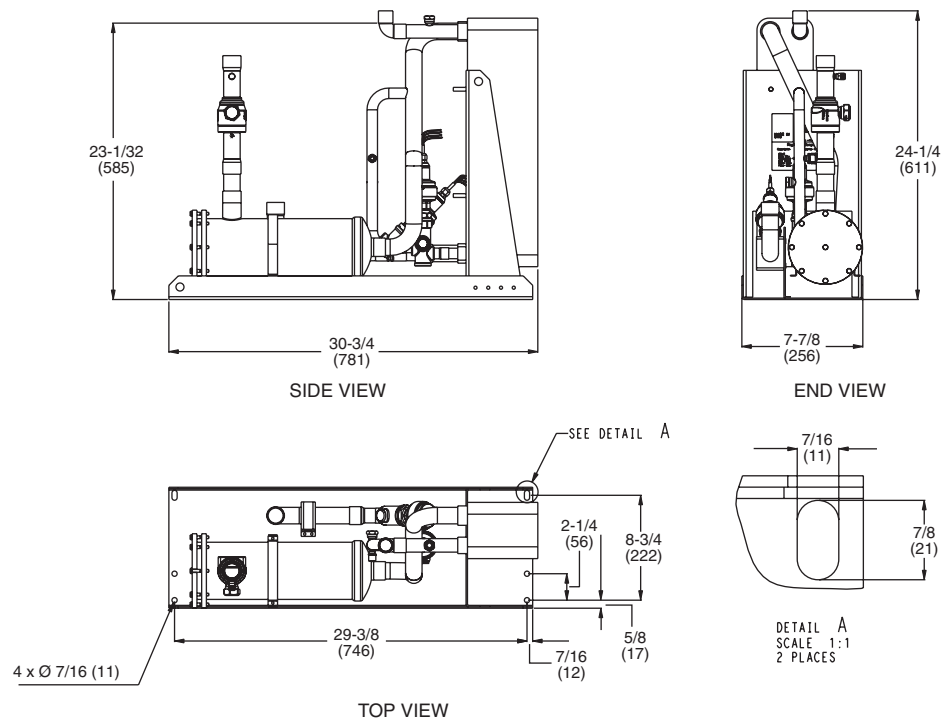
**Fig. 7 — 30XA260-350 Cooler Dimensions**



**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the economizer is 36 in. (914 mm).
3. Fusible plugs not shown.
4. Figure is for economizer dimensions only.

**Fig. 8 — 30XA090-160 Economizer Dimensions**

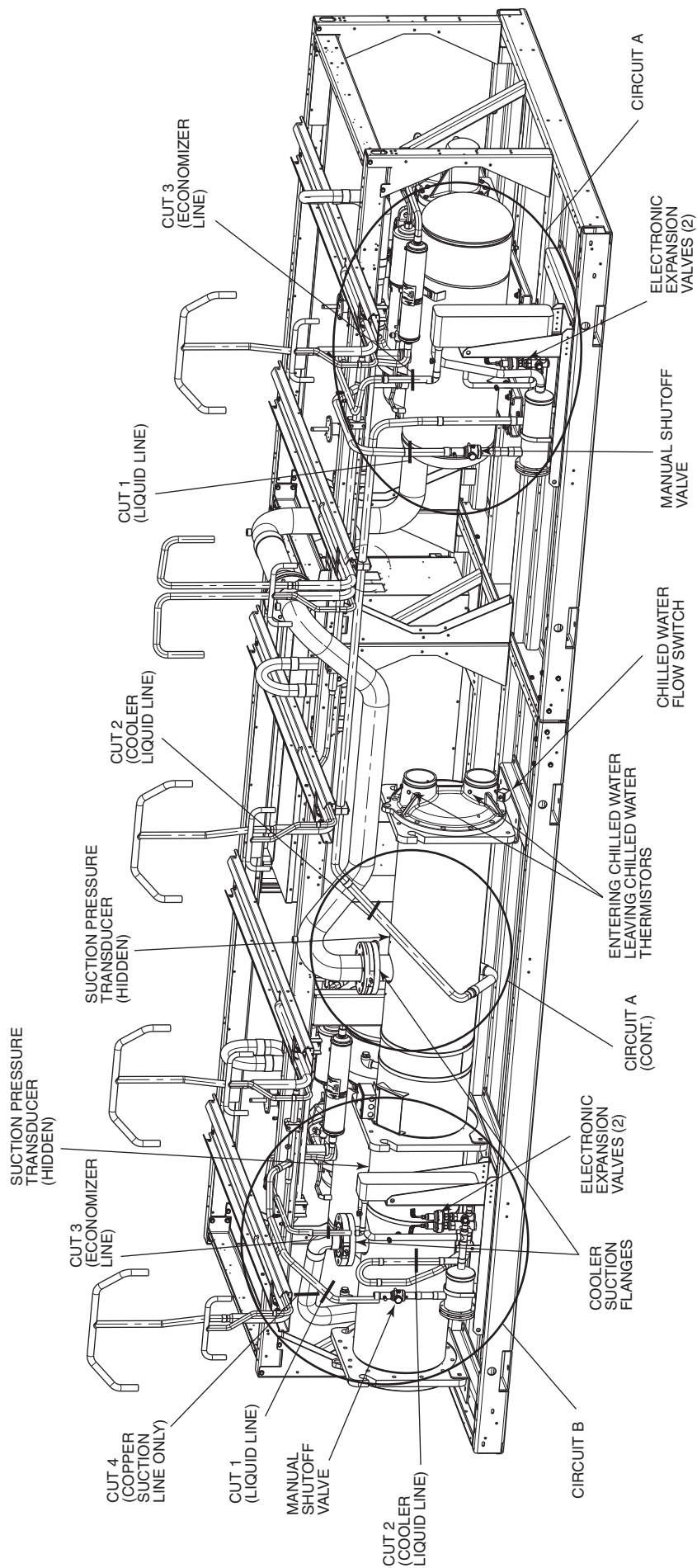


**NOTES:**

1. Measurements are shown in inches (millimeters).
2. Recommended service clearance around the economizer is 36 in. (914 mm).
3. Fusible plugs not shown.
4. Figure is for economizer dimensions only.

**Fig. 9 — 30XA180-350 Economizer Dimensions**





NOTES:

1. 30XA80-120T circuit A and B use copper piping.
2. 30XA140-160 circuit A use steel piping and Circuit B use copper piping.
3. 30XA180-350 circuit A and B use steel piping.

**Fig. 10 — Typical Cooler Piping-Cooler Side View (30XA140, 160 Shown)**

## Step 2 — Install Remote Cooler and Economizers

— Install the cooler and economizers in a remote location by following this procedure:

NOTE: Throughout the remote cooler and economizers installation steps, the two accessory package part no. (00EFN900003000A, 00EFN900003100A) have been shortened to 3000A and 3100A. When a specific part is referred to in each accessory's package, the package no. is mentioned followed by the item no. For item no. identification and accessory package contents, refer to Table 2.

1. After removing the cooler from the base unit, strip back the insulation on the cooler tube sheets (if required) and use the two large holes in the top corners for lifting.
2. Transport the cooler and economizer assemblies to the new location and secure them into position. Keep the economizer assemblies as close to the cooler as possible. Also, ensure there is sufficient room to install and remove cooler tubes from either end of the cooler. See Fig. 4-7 for tube removal clearances.

NOTE: The 30XA080 units do not utilize an economizer. In this case, keep the EXV as close to the cooler as possible.

3. Install the accessory-supplied economizer shutoff valves (3000A or 3100A: Item 1) and liquid line shutoff valves (3000A or 3100A: Item 2) on the two economizer lines and liquid lines at circuits A and B on the 30XA base unit. See Fig. 11.
4. At the new cooler location, connect the field-supplied cooler liquid line piping between the factory-installed manual shutoff valve at the two economizer assemblies and at the cooler. See Fig. 11.
5. Following good piping practices, install additional field-supplied liquid and economizer line piping in the required length to reconnect the two economizer assemblies to the 30XA base unit. See Fig. 12 for double suction riser construction detail.

### CAUTION

Do NOT close both manual shutoff valves in one liquid line. Pressure can build up in the trapped area. To avoid the possibility of personal injury or property damage, the new liquid lines between the manual shutoff valves must each have field-supplied and installed pressure relief valves.

6. For 30XA080-120: all circuits and 30XA140,160: circuit B, cut the suction pipe (copper) at the 30XA base unit and discard (see Fig. 10, cut 4, circuit B). Following good piping practices, install field-supplied copper suction line piping from the 30XA base unit to the cooler. Use the accessory-supplied cooler pipe flange (3000A: Item 8), cooler flange O-ring (3000A: Item 12), and loose pipe flange (3000A: Item 11) to connect the field-supplied copper suction line piping at the cooler. See Fig. 13.

NOTE: The original flanges on the cooler and cut from the 30XA base unit may still be usable. However, Carrier recommends replacement, and has provided necessary parts in the accessory kit for replacing both the cooler pipe flange and the suction flange. When the extended piping is installed, these flanges should be replaced.

7. For 30XA140,160: circuit A and 30XA180-350: all circuits, unbolt (DO NOT CUT) the portion of the steel suction pipes that connected the cooler to the first victaulic clamp on the 30XA base unit and discard. See Fig. 14. Refer to Table 8 for parts required (field-supplied or accessory-supplied) to make new connections at the cooler and the 30XA base unit with the field-supplied steel suction line. See Fig 15. Follow good piping practices to install field-supplied steel suction line piping

between the cooler and the first victaulic clamp at the 30XA base unit.

When field-supplied flanges and gaskets are used, an extra M16 mounting hole must be drilled and tapped to connect a mounting bracket at the 30XA base unit. See Fig. 14 and 15 for mounting bracket placement. See Fig. 16 for mounting hole locations.

If additional gaskets are needed for installation, they must be  $\frac{1}{16}$  in. non-asbestos fiber with synthetic rubber binder compressed gasket sheet. An extra mounting hole also needs to be field modified for any additional gaskets. See Fig. 16 for mounting hole locations. Field-supplied mounting nuts and bolts are also needed for field-supplied gaskets.

8. Install pressure relief refrigerant vent piping. The cooler is factory equipped with relief valves. There is one relief valve per circuit on the evaporator. Make the vent connection to the low side relief valve by installing a male NPT to copper OD braze adapter. Braze a 90-degree short-radius elbow to the adapter. This will allow enough space to make vent connections to the elbow. Two additional fusible plugs are located on the economizer assembly, if equipped, for each circuit. See Fig. 8 and 9 for location of temperature relief devices on the economizer assembly.

Refer to base unit installation instructions for connection size information. Vent relief devices to the outdoors in accordance with ANSI/ASHRAE (American National Standards Institute/American Society of Heating, Refrigeration, and Air-Conditioning Engineers) 15 Safety Code for Mechanical Refrigeration (latest edition) and all other applicable codes.

### DANGER

Refrigerant discharged into confined spaces can displace oxygen and cause asphyxiation.

The flow area of discharge piping routed from more than one relief valve, or more than one heat exchanger, must be greater than the sum of the outlet areas of all relief valves that are expected to discharge simultaneously. All relief valves within a machinery room that are exposed to refrigerant may discharge simultaneously in the event of a fire. Discharge piping should lead to the point of final release as directly as possible with consideration of pressure drop in all sections downstream of the relief valves.

Provide a pipe plug in the vent piping near outlet side of each relief device for leak testing. Provide pipe fittings that allow vent piping to be disconnected periodically for inspection of valve mechanism. Piping to relief devices must not apply stress to the device. Adequately support piping.

Cover the outdoor vent with a rain cap and place a condensation drain at the low point in the vent piping to prevent water build-up on the atmospheric side of the relief device.

9. All of the piping connections are now complete. Leak test the unit and then pull a deep dehydration vacuum. Connect the vacuum pump to the high-flow access fitting at the bottom of the cooler, the liquid line service valves, and the economizer line service valves. For best results, it is recommended that a vacuum of at least 500 microns (0.5 mm Hg) be obtained. To perform a standing vacuum rise test, observe the rate-of-rise of the vacuum in the system. If the vacuum rises by more than 50 microns in a 30-minute time period, then continue the dehydration process until the standing vacuum requirement is met. This will ensure a dry system.

By following this dehydration procedure, the amount of moisture present in the system will be minimized, and the factory-supplied filter driers will provide adequate moisture protection. It is highly recommended that the filter drier cores be replaced after 24 hours of operation. This is to ensure that any foreign debris that is captured during start-up is removed from the system. Additional moisture removal capacity is also provided.

10. After setup is leak tested and deep dehydration vacuum is completed, install field-supplied suction and economizer line insulation between the economizer and the unit. If necessary, reinstall the insulation on the cooler head.
11. To reconnect the EXV cables, use the accessory-supplied cable assemblies (3000A or 3100A: Item 4). Two cables are needed for the 30XA080 unit, and four cables are needed for 30XA090-350 units. Take one cable assembly, and label both ends with "EXV-A" for the circuit A main EXV. Then label another three cable assemblies the same way with "EXV-B", "ECEXV-A", "ECEXV-B" for the circuit B main EXV, circuit A economizer EXV, and circuit B economizer EXV, respectively (economizer ECEXV does not apply to 30XA080 units).  
Plug one side of the electrical connectors of the EXV labeled cables into their corresponding EXV plugs. Run the cables to the 30XA base unit, and plug the other side of the cable connectors into their corresponding EXV leads. Coil excess cables and wire tie in a convenient location.
12. To reconnect the flow switch cable, use the accessory-supplied cable assembly (3000A or 3100A: Item 4). Take one cable assembly and label both ends with "CWFS." Plug one side of the electrical connector of the labeled cable into the flow switch plug. Run the cable to the base unit, and plug the other side of the cable connector into the flow switch lead. Coil excess cables and wire tie in a convenient location.
13. Using the accessory-supplied M6 screws (3000A or 3100A: Item 7), install the accessory-supplied junction box (3000A or 3100A: Item 5) at the desired location where the entering and leaving water thermistor cables can be conveniently spliced. One or two knockouts can be used. Follow all local codes. Remove one knockout from the junction box and install the field-supplied strain relief at the knockout hole. If using field-supplied conduit to provide mechanical protection to the thermistor wires between the cooler and the 30XA base unit, remove another knockout.
14. To reconnect the thermistors, locate the entering water thermistor and leaving water thermistor and cut both leads where they can be spliced in the installed junction box. Cut, strip, and label both sides of the entering water thermistor lead "EWT." Cut, strip, and label the leaving water thermistor lead the same way, with "LWT" on both sides. See Fig. 17.
15. Run the labeled thermistor leads connected to the unit into the installed junction box and tighten the field-supplied strain relief. Strip back the lead jackets to expose the two wires in each lead.
16. Take one of the accessory-supplied 5-wire jacketed cables (3000A or 3100A: Item 3) to connect the thermistor leads in the installed junction box to the cooler location. Each wire in the jacketed cable is a different color. Cut the cable into two pieces so that each has a maximum length of 100 ft (30.5 m).

17. Select one jacketed cable and strip back the jacket on both ends to expose the five wires. Pick any two wires and label both ends of each wire "EWT." Pick another pair of wires and label both ends "LWT." The fifth wire is not used. See Fig. 18.
18. Run one end of the accessory-supplied 5-wire jacketed cable into the installed junction box and splice the identically labeled thermistor leads. Solder the splices and insulate them to prevent shorting. Tighten the field-supplied strain relief for the cables.
19. Run the other end of the accessory-supplied 5-wire jacketed cables back to the cooler. Splice the labeled jacketed cable wires to the matching thermistors. If a second junction box is necessary at the cooler location, use the second accessory-supplied junction box (3000A or 3100A: Item 5).
20. Reinstall the thermistors in the correct cooler wells.
21. To reconnect the suction pressure transducers (SPT), locate the SPT plugs for circuits A and B, and cut the leads where they can be conveniently spliced in the installed junction box at the 30XA base unit. Label the leads "SPTA" for the circuit A lead, and "SPTB" for the circuit B lead.
22. Take the two pieces of accessory-supplied transducer wire harness (3000A: Item 16 or 3100A: Item 14). One side of the harness is a plug and the other side is three wires in red, black, and green. Label both sides of one harness "SPTA," and label the other harness "SPTB." Remove one knockout from an installed junction box and install a field-supplied strain relief valve at the knockout hole. If using field-supplied conduit to provide mechanical protection to the transducer wires between the cooler and the 30XA base unit, remove another knockout.
23. Run the labeled transducer leads connected to the unit into the installed junction box at the 30XA base unit and tighten the field-supplied strain relief. Strip back the lead jackets to expose the three wires, black, red, and white.
24. Run the lead end of accessory-supplied transducer wire harnesses into the junction box and splice the identically labeled leads. The red wire should go with red wire, the black wire with the black wire, and the white wire with the green wire. Solder the splices and insulate them to prevent shorting. Tighten the field-supplied strain relief for the cables and secure the accessory-supplied junction box cover (3000A or 3100A: Item 6) with accessory-supplied M6 screws.
25. Run the plug end of the accessory-supplied transducer wire harness back to the cooler. Connect the "SPTA" plug into the circuit A transducer. Connect the "SPTB" plug into the circuit B transducer. See Fig. 17.
26. Charge the unit to the amount of refrigerant as specified on the 30XA base unit nameplate. Because of longer field-installed liquid, economizer, and suction lines, additional charge is needed. Refer to Table 9 to calculate the additional charge for each circuit and then add it to the nameplate charge. Additional charge for the economizer line is NOT required.
27. Perform all pre-start-up and start-up procedures specified in the unit operation instructions. Follow the checklist provided with the unit operation instructions.
28. Verify unit operation.

**Table 8 — Materials Required for Steel Piping Flange Connections**

| UNIT SIZE  | COOLER PIPE FLANGE CONNECTION                                                                                                                                             |                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            | CIRCUIT A                                                                                                                                                                 | CIRCUIT B                                                                                                                                                               |
| <b>140</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11)   | N/A*                                                                                                                                                                    |
| <b>160</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11)   | N/A*                                                                                                                                                                    |
| <b>180</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11)   | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11) |
| <b>200</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11)   | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3000A: Item 15), Loose Pipe Flange<br>(3000A: Item 11) |
| <b>220</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 12)  |
| <b>240</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)  |
| <b>260</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 12)  |
| <b>280</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)  |
| <b>300</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in.<br>(102 mm)<br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)   |
| <b>325</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)    | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)  |
| <b>350</b> | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9),<br>Loose Pipe Flange<br>(3100A: Item 11) | Field supplied:<br>ASME B16.9 Stub End 4 in. (102 mm)<br><br>Accessory supplied:<br>Compressor Flange Gasket<br>(3100A: Item 9), Loose Pipe Flange<br>(3100A: Item 11)  |

**LEGEND**

**3000A** — Accessory Package Part No. 00EFN900003000A (30XA080-200)

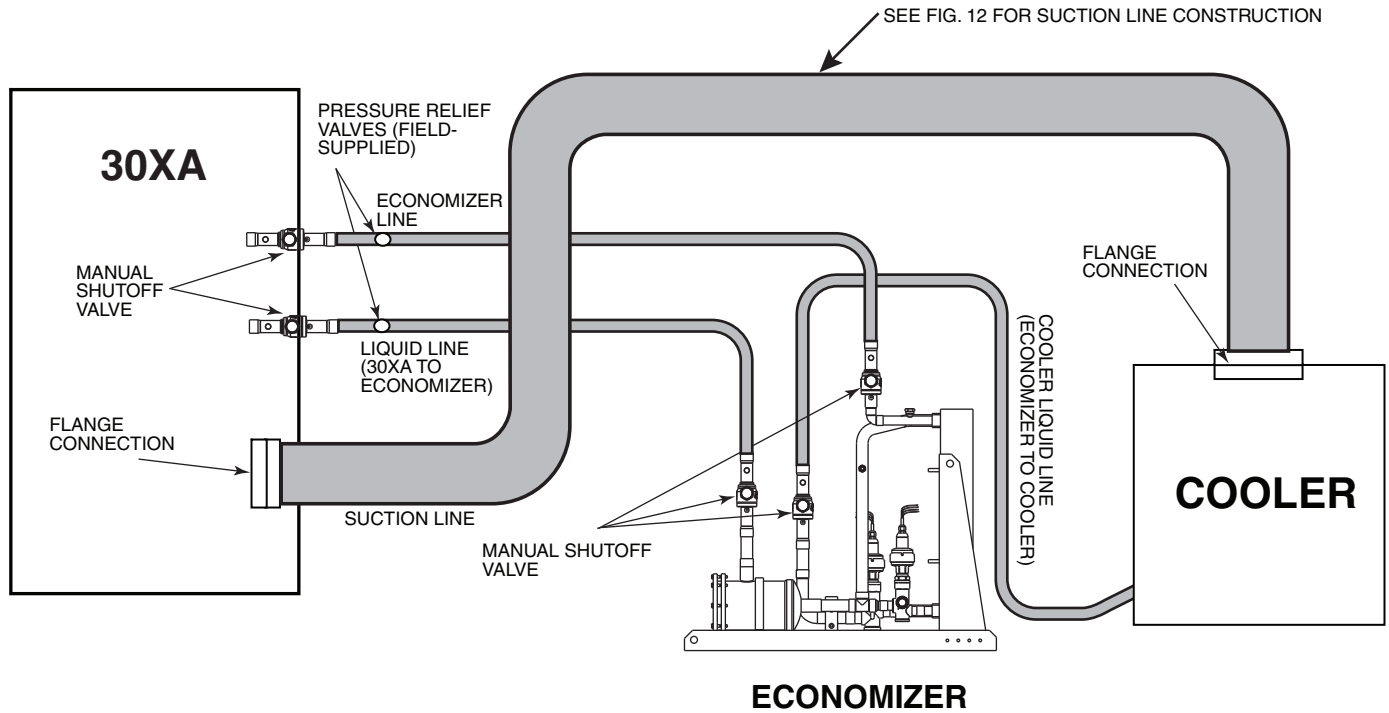
**3100A** — Accessory Package Part No. 00EFN900003100A (30XA220-350)

**Item** — Item No. (See Table 2)

\*Copper connection.

**Table 9 — Additional Refrigerant Charges Required**

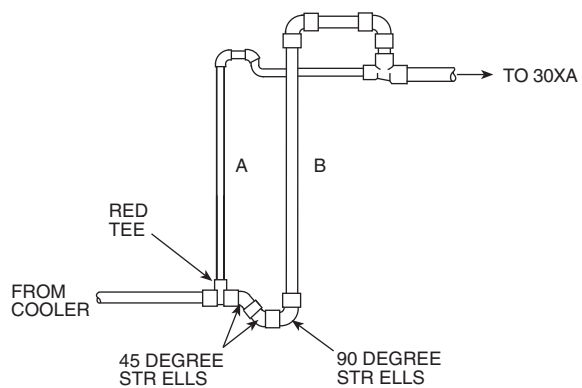
| LINE SIZE |     | LIQUID LINE<br>LB (KG) OF<br>R-134a REFRIGERANT<br>PER FOOT (305 MM)<br>AT 100°F |        | SUCTION LINE<br>LB (KG) OF<br>R-134a REFRIGERANT<br>PER FOOT (305 MM)<br>AT 40°F |        |
|-----------|-----|----------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------|--------|
| IN.       | MM  | LB                                                                               | KG     | LB                                                                               | KG     |
| 1 1/8     | 29  | 0.41                                                                             | 0.186  | —                                                                                | —      |
| 1 3/8     | 35  | 0.64                                                                             | 0.2903 | —                                                                                | —      |
| 1 5/8     | 41  | 0.89                                                                             | 0.4037 | —                                                                                | —      |
| 3 1/8     | 79  | —                                                                                | —      | 0.05                                                                             | 0.0227 |
| 4         | 102 | —                                                                                | —      | 0.09                                                                             | 0.0408 |



**NOTE:**

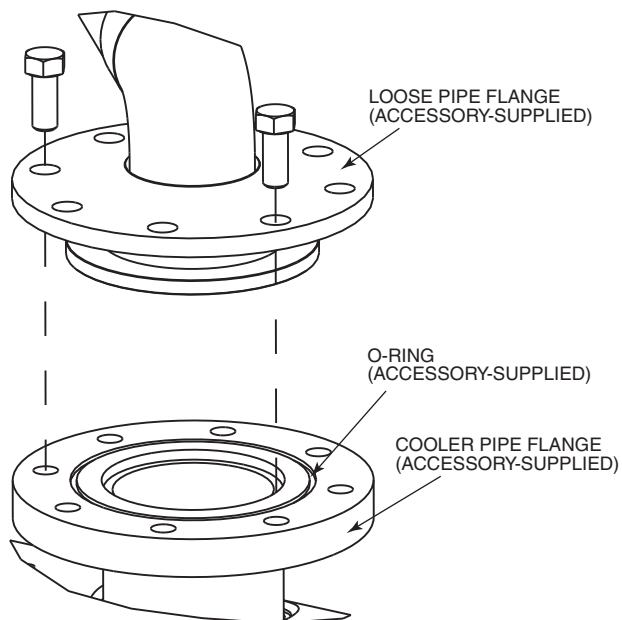
1. All shaded piping is field supplied and installed.
2. Single suction line shown as a reference, double suction rise should be constructed as shown in Fig. 12.

**Fig. 11 — Line Piping and Connections (1 Circuit Shown)**

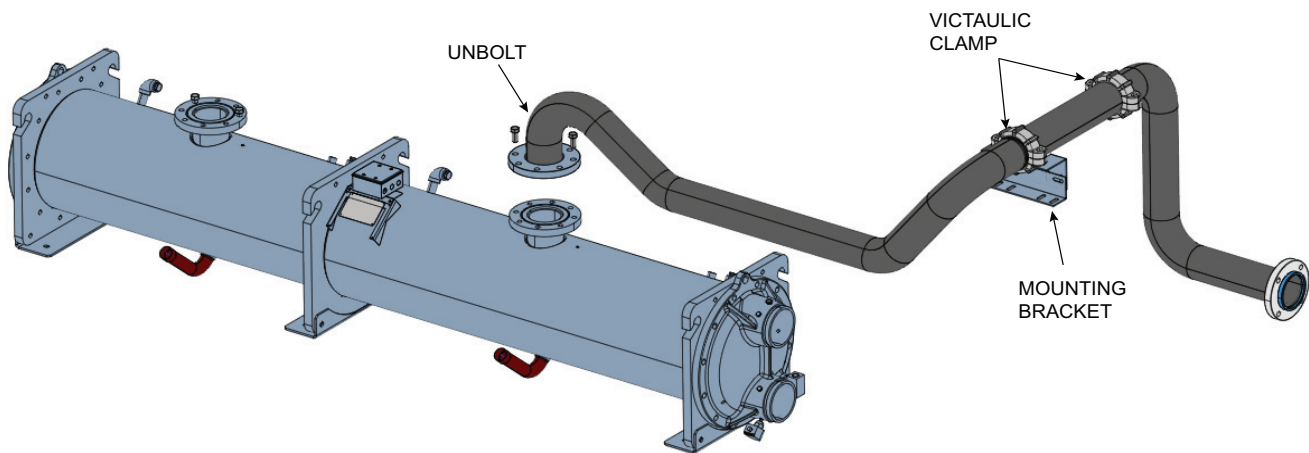


**LEGEND**  
**RED. TEE** — Reducing Tee  
**STR ELLS** — Street Elbows

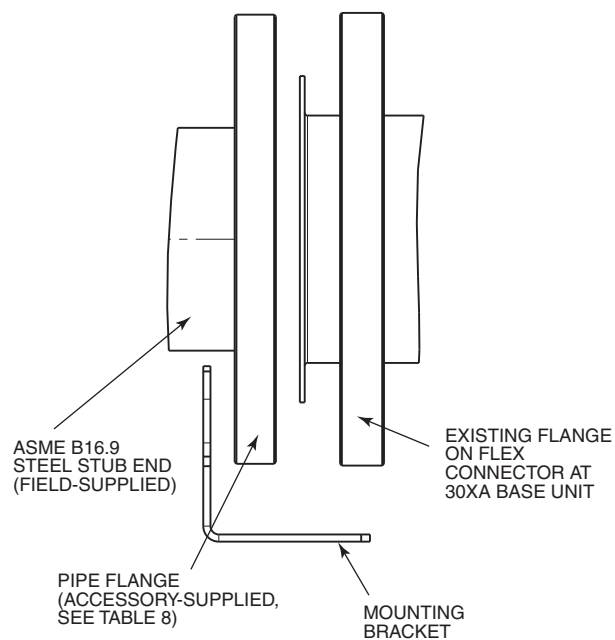
**Fig. 12 — Double Suction Riser Construction Detail**



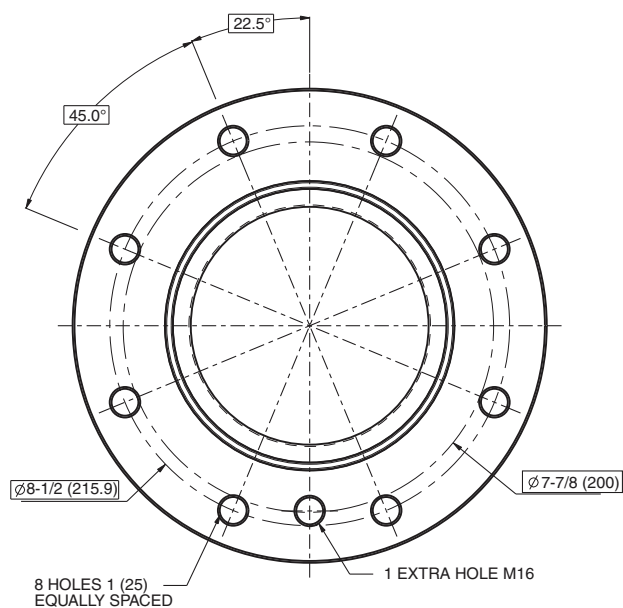
**Fig. 13 — Connect Copper Suction Line at the Cooler (30XA080-120: All Circuits and 30XA140,160: Circuit B)**



**Fig. 14 — Unbolt Portion Between Cooler and First Victaulic Clamp (30XA140, 160: Circuit A and 30XA180-350: All Circuits)**



**Fig. 15 — Connect Steel Suction Line at the 30XA Base Unit (Shown) and Cooler (30XA140, 160: Circuit A and 30XA180-350: All Circuits)**

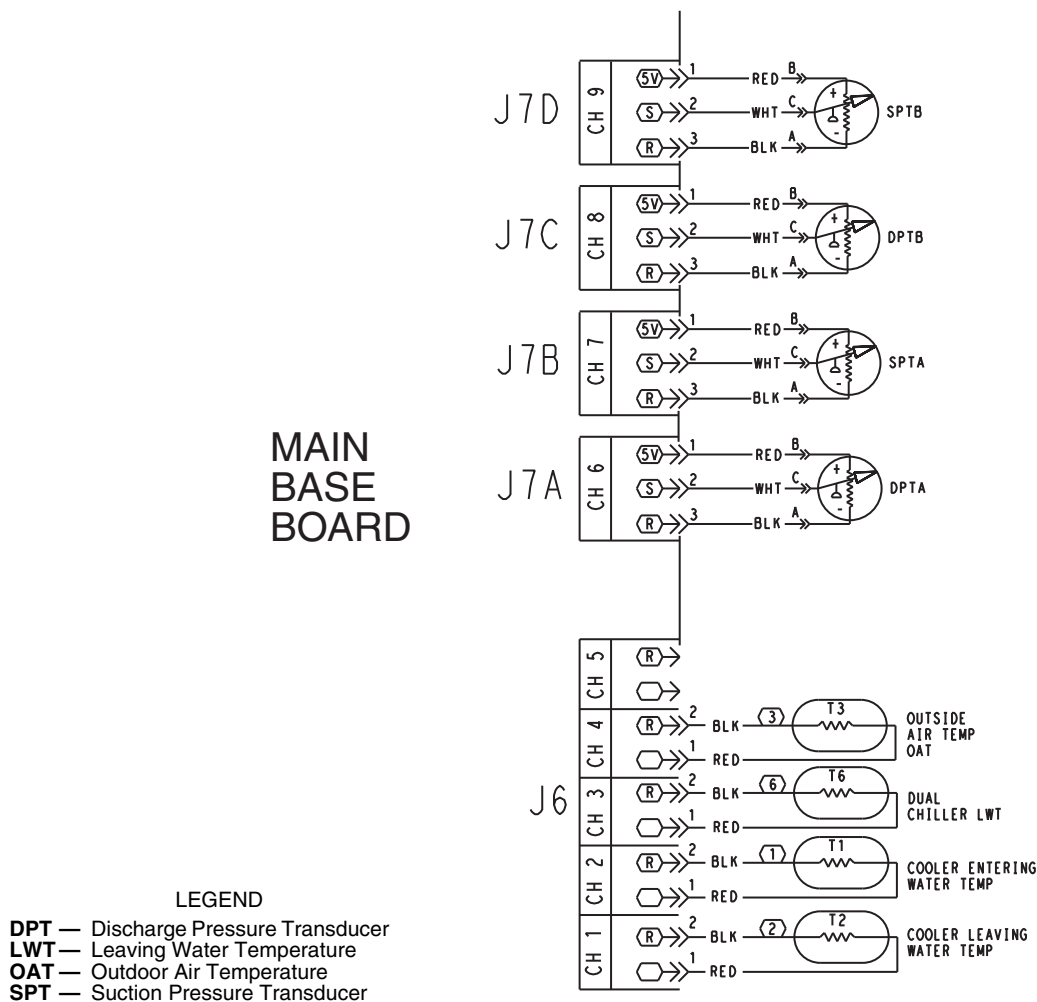


**NOTES:**

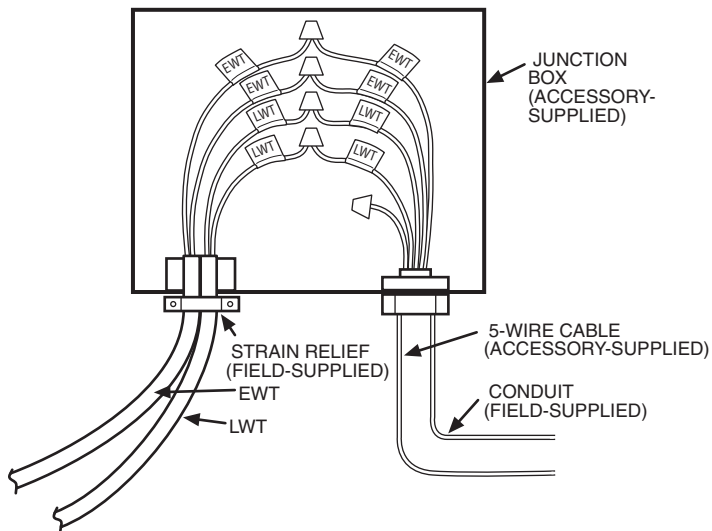
1. Measurements are shown in inches (millimeters).
2. Accessory-supplied flanges and gaskets connecting to the flex connector: extra hole has been factory-drilled and tapped. See Table 2 (3000A: Item 14 and 15 and 3100A: Item 9 and 10).
3. Field-supplied flanges and gaskets connecting to the flex connector: extra hole must be field-drilled and tapped (M16).
4. The extra hole allows a bolt to slide through and mount the flanges and gaskets of the suction line on a mounting bracket at the 30XA base unit. See Fig. 14 and 15.

**Fig. 16 — Flange and Gasket Mounting Locations**





**Fig. 17 — Thermistor Connections**



**Fig. 18 — Typical Junction Box Connections  
(EWT and LWT Thermistors Shown)**