



30XV140-500 Remote Evaporator for AquaForce® Variable Speed Air-Cooled Liquid Chillers with Greenspeed® Intelligence

Installation Instructions

Part Numbers 30XV70001201, 30XV70001202, 30XV70001203, 30XV70001204,
30XV70001205

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SAFETY CONSIDERATIONS

Installing, starting up, and servicing this equipment can be hazardous due to system pressures, electrical components, and equipment location (roof, elevated structures, etc.). Only trained, qualified installers and service technicians should install, start up, and service this equipment.

When working on this equipment, observe precautions in the literature, on tags, stickers, and 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, rigging, and setting this equipment, and in handling all electrical components.

WARNING

Electrical shock can cause personal injury and death. Shut off all power to this equipment during installation and service. 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 evaporator accessory allows for the indoor relocation of the evaporator on 30XV140-500 units as another means of freeze protection. When the evaporator 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 30XV base unit and evaporator is limited to:

- Plate fin coils: 100 linear ft (30.48 m) or 150 equivalent ft (45.72 m) of piping.
- Microchannel coils: 65 linear ft (19.81 m) or 100 equivalent ft (30.48 m) of piping.

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

Engineers) and local codes. All inter-connecting refrigerant line pressure relief valves are field-supplied and installed.

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 evaporator is applied, the evaporator 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 evaporator does not have protection to keep the water from freezing. Note, the evaporators heaters are configured in the factory configuration in the controls. This is required for the automated discharge and suction valves to operate.
- The interior space temperature where the evaporator 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 content. In addition to the parts supplied with each accessory package, the following material must be field-supplied:

- Refrigerant grade liquid and economizer line copper piping for all sizes and circuits (length determined by installation). See Tables 3-4 for pipe sizes.
- Schedule 40 steel pipe for suction lines on all sizes and circuits (length determined by installation). Steel piping material shall be Pickled and Oiled (P&O) to help keep debris out of refrigerant system. Suction connections leaving evaporator and entering compressor are Victaulic. See Tables 5-6 for pipe sizes.
- Additional Victaulic clamps as needed for steel suction lines with Carrier approved refrigerant/oil duty (Neoprene) seals
- 350 psig pressure relief valves and fittings
- Suction line tubing insulation (length/size determined by installation)
- Economizer line tubing insulation (length/size determined by installation)
- 1/2 in. strain relief (2)
- 3/8 in. (10 mm) evaporator mounting hardware
- Conduit (length determined by installation)
- Loctite® 554
- Thermally conductive grease

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Table 1 — Accessory Package Usage

30XV UNIT SIZE	PACKAGE REQUIRED
140, 160, 180, 200	30XV70001201
225	30XV70001202
250, 275, 300, 325	30XV70001203
350	30XV70001204
400, 450, 500	30XV70001205

Table 2 — Accessory Package Contents

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
30XV70001201	1	Evaporator inlet valve - 1-5/8 in. (41 mm)	EP71BA463	2
	3	Liquid line shutoff valve - 1-3/8 in. (35 mm)	EP71BA393	2
	5	5 Wire jacketed cable	RM02EJ200	250 ft (76 m)
	6	Cable assembly	32GB404694	5
	7	Junction box	HX30FZ001	2
	8	Junction box cover	HX38ZZ001	2
	9	M6 Screws	00PPN500000302A	8
	10	2 Wire jacketed cable	RM02EJ115	250 ft (76 m)
	11	Flexible Victaulic coupling - 4 in. (102 mm)	CV66AP601	2
	13	Rigid Victaulic coupling - 4 in. (102 mm)	CV66AP665	2
	15	Victaulic suction valve - 4 in. (102 mm)	EC51XZ711	2
	17	Victaulic elbow - 4 in. (102 mm)	CV28AP551	2
	19	Pressure relief valve	EB51LZ221	2
	20	Evaporator mounting pad	00PSN500029000A	6
	21	Tube, Victaulic seal lubricant	PP80-35A	1 (4.5 oz)
	22	Strain relief connector – 1/2 in.	HW60EA001	4
	23	Remote Evaporator Instructions	30XV-18SI	1
	30	Core , Filter Drier	00PPN500001700A	2
	31	140-325T Remote Evaporator	2004075160	1
	32	Actuator	HF23BJ010	2
	33	Linkage	HF91BJ010	2
	34	Terminal Block	HY84EA001	2
	35	Terminal, Jumper	HY99EA001	2
	36	Circuit Breaker	HH83ZB009	1
	37	Conduit Assembly	2004065282	1
	38	Conduit Assembly	2004064642	1
	39	Wire Assembly	2004075156	2
	40	Strainer	KH12HN210	2

Table 2 — Accessory Package Contents (cont)

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
30XV70001202	1	Evaporator inlet valve - 1-5/8 in. (41 mm)	EP71BA463	2
	3	Liquid line shutoff valve - 1-5/8 in. (41 mm)	EP71BA463	1
	4	Liquid line shutoff valve - 1-3/8 in. (35 mm)	EP71BA393	1
	5	5 Wire jacketed cable	RM02EJ200	250 ft (76 m)
	6	Cable assembly	32GB404694	5
	7	Junction box	HX30FZ001	2
	8	Junction box cover	HX38ZZ001	2
	9	M6 Screws	00PPN500000302A	8
	10	2 Wire jacketed cable	RM02EJ115	250 ft (76 m)
	11	Flexible Victaulic coupling - 5 in. (127 mm)	CV66AP652	1
	12	Flexible Victaulic coupling - 4 in. (102 mm)	CV66AP601	1
	13	Rigid Victaulic coupling - 5 in. (127 mm)	CV66AP666	1
	14	Rigid Victaulic coupling - 4 in. (102 mm)	CV66AP665	1
	15	Victaulic suction valve - 5 in. (127 mm)	EC51XZ751	1
	16	Victaulic suction valve - 4 in. (102 mm)	EC51XZ711	1
	17	Victaulic elbow - 5 in. (127 mm)	CV28AP655	1
	18	Victaulic elbow - 4 in. (102 mm)	CV28AP551	1
	19	Pressure relief valve	EB51LZ221	2
	20	Evaporator mounting pad	00PSN500029000A	6
	21	Tube, Victaulic seal lubricant	PP80-35A	1 (4.5 oz)
	22	Strain relief connector – 1/2 in.	HW60EA001	4
	23	Remote Evaporator Instructions	30XV-18SI	1
	30	Core, Filter Drier	00PPN500001700A	3
	31	140-325T Evap I	2004075160	1
	32	Actuator	HF23BJ010	2
	33	Linkage	HF91BJ010	1
	34	Linkage	HF91BJ011	1
	35	Terminal Block	HY84EA001	2
	36	Terminal, Jumper	HY99EA001	2
	37	Circuit Breaker	HH83ZB009	1
	38	Conduit Assembly	2004065282	1
	39	Conduit Assembly	2004064642	1
	40	Wire Assembly	2004075156	2
	41	Strainer	KH12HN210	2

Table 2 — Accessory Package Contents (cont)

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
30XV70001203	1	Evaporator inlet valve - 1-5/8 in. (41 mm)	EP71BA463	2
	3	Liquid line shutoff valve - 1-5/8 in. (41 mm)	EP71BA463	2
	5	5 Wire jacketed cable	RM02EJ200	250 ft (76 m)
	6	Cable assembly	32GB404694	5
	7	Junction box	HX30FZ001	2
	8	Junction box cover	HX38ZZ001	2
	9	M6 Screws	00PPN500000302A	8
	10	2 Wire jacketed cable	RM02EJ115	250 ft (76 m)
	11	Flexible Victaulic coupling - 5 in. (127 mm)	CV66AP652	2
	13	Rigid Victaulic coupling - 5 in. (127 mm)	CV66AP666	2
	15	Victaulic suction valve - 5 in. (127 mm)	EC51XZ751	2
	17	Victaulic elbow - 5 in. (127 mm)	CV28AP655	2
	19	Pressure relief valve	EB51LZ221	2
	20	Evaporator mounting pad	00PSN500029000A	6
	21	Tube, Victaulic seal lubricant	PP80-35A	1 (4.5 oz)
	22	Strain relief connector – 1/2 in.	HW60EA001	4
	23	Instructions, Remote Evaporator	30XV-18SI	1
	24	Bag, Polythn	LF19MZ062	1
	25	Supply Material Spec	LF31-81	14 ft (4 m)
	26	Crepe Wadding	LF08PL040	40 ft (12 m)
	27	Wooden Box	30XV70001206	1
	28	Cardboard	30XV70001207	3
	29	Label,Barcode	30XV70001208	2
	30	Core, Filter Drier	00PPN500001700A	4
	31	140-325T Evap I	2004075160	1
	32	Actuator	HF23BJ010	2
	33	Linkage	HF91BJ011	2
	34	Terminal Block	HY84EA001	2
	35	Terminal, Jumper	HY99EA001	2
	36	Circuit Breaker	HH83ZB009	1
	37	Conduit Assembly	2004065282	1
	38	Conduit Assembly	2004064642	1
	39	Wire Assembly	2004075156	2
	40	Strainer	KH12HN210	2

Table 2 — Accessory Package Contents (cont)

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
30XV70001204	1	Evaporator inlet valve - 2-1/8 in. (54 mm)	EP71BA523	1
	2	Evaporator inlet valve - 1-5/8 in. (41 mm)	EP71BA463	1
	3	Liquid line shutoff valve - 2-1/8 in. (54 mm)	EP71BA523	1
	4	Liquid line shutoff valve - 1-5/8 in. (41 mm)	EP71BA463	1
	5	5 Wire jacketed cable	RM02EJ200	250 ft (76 m)
	6	Cable assembly	32GB404694	5
	7	Junction box	HX30FZ001	2
	8	Junction box cover	HX38ZZ001	2
	9	M6 Screws	00PPN500000302A	8
	10	2 Wire jacketed cable	RM02EJ115	250 ft (76 m)
	11	Flexible Victaulic coupling - 6 in. (152 mm)	CV66AP653	1
	12	Flexible Victaulic coupling - 5 in. (127 mm)	CV66AP652	1
	13	Rigid Victaulic coupling - 6 in. (152 mm)	CV66AP706	1
	14	Rigid Victaulic coupling - 5 in. (127 mm)	CV66AP666	1
	15	Victaulic suction valve - 6 in. (152 mm)	EC51XZ800	1
	16	Victaulic suction valve - 5 in. (127 mm)	EC51XZ751	1
	17	Victaulic elbow - 6 in. (152 mm)	CV28AP751	1
	18	Victaulic elbow - 5 in. (127 mm)	CV28AP655	1
	19	Pressure relief valve	EB51LZ221	2
	20	Evaporator mounting pad	00PSN500029000A	6
	21	Tube, Victaulic seal lubricant	PP80-35A	1 (4.5 oz)
	22	Strain relief connector – 1/2 in.	HW60EA001	4
	23	Instructions, Remote Evaporator	30XV-18SI	1
	24	Bag, Polthn	LF19MZ062	1
	25	Material Specification, Supply	LF31-81	14 ft (4 m)
	26	Crepe Wadding	LF08PL040	40 ft (12 m)
	27	Wooden Box	30XV70001206	1
	28	Cardboard	30XV70001207	3
	29	Label, Barcode	30XV70001208	2
	30	Core, Filter Drier	00PPN500001700A	4
	31	350-500T Evap I	2004075240	1
	32	Actuator	HF23BJ010	2
	33	Linkage	HF91BJ011	2
	34	Terminal Block	HY84EA001	2
	35	Terminal, Jumper	HY99EA001	2
	36	Circuit Breaker	HH83ZB009	1
	37	Conduit Assembly, Remote Evaporator	2004075157	1
	38	Conduit Assembly, Remote Evaporator	2004075158	1
	39	Wire Assembly Remote Evaporator	2004075159	4
	40	Strainer	KH12HN210	2

Table 2 — Accessory Package Contents (cont)

ACCESSORY PACKAGE PART NO.	ITEM NO.	DESCRIPTION	PART NO.	QTY
30XV70001205	1	Evaporator inlet valve - 2-1/8 in. (54 mm)	EP71BA523	2
	3	Liquid line shutoff valve - 2-1/8 in. (54 mm)	EP71BA523	2
	5	5 Wire jacketed cable	RM02EJ200	250 ft (76 m)
	6	Cable assembly	32GB404694	5
	7	Junction box	HX30FZ001	2
	8	Junction box cover	HX38ZZ001	2
	9	M6 Screws	00PPN500000302A	8
	10	2 Wire jacketed cable	RM02EJ115	250 ft (76 m)
	11	Flexible Victaulic coupling - 6 in. (152 mm)	CV66AP653	2
	13	Rigid Victaulic coupling - 6 in. (152 mm)	CV66AP706	2
	15	Victaulic suction valve - 6 in. (152 mm)	EC51XZ800	2
	17	Victaulic elbow - 6 in. (152 mm)	CV28AP751	2
	19	Pressure relief valve	EB51LZ221	2
	20	Evaporator mounting pad	00PSN500029000A	6
	21	Tube, Victaulic seal lubricant	PP80-35A	1 (4.5 oz)
	22	Strain relief connector – 1/2 in.	HW60EA001	4
	23	Instructions, Remote Evaporator	30XV-18SI	1
	24	Bag, polthn	LF19MZ062	1
	25	Material Specification, Supply	LF31-81	14 ft (4 m)
	26	Crepe Wadding	LF08PL040	40 ft (12 m)
	27	Wooden Box	30XV70001206	1
	28	Cardboard	30XV70001207	3
	29	Label, Barcode	30XV70001208	2
	30	Core, Filter Drier	00PPN500001700A	4
	31	Terminal Block	HY84EA001	2
	32	Terminal, Jumper	HY99EA001	2
	33	Circuit Breaker	HH83ZB009	1
	34	Conduit Assembly	2004065282	1
	35	Conduit Assembly	2004064642	1
	36	Wire Assembly	2004075156	2
	37	Strainer	KH12HN210	2

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

PIPE SIZE (in.)	MATERIAL
5/8, 7/8, 1-1/8, 1-3/8, 1-5/8, 2-1/8, 2-5/8, 3-1/8	Refrigeration copper
2-1/2, 3, 3-1/2, 4, 5, 6	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
64, 76, 89, 102, 127, 152	Schedule 40 Steel

Table 5 — Refrigeration Line Sizes (English)

30XV UNIT SIZE	SUCTION LINE		DOUBLE SUCTION RISERS				EVAPORATOR LIQUID LINE		CONDENSER LIQUID LINE		ECONOMIZER LINE	
			Circuit A		Circuit B							
	Circuit A (in.)	Circuit B (in.)	Riser A (in.)	Riser B (in.)	Riser A (in.)	Riser B (in.)	Circuit A (in.)	Circuit B (in.)	Circuit A (in.)	Circuit B (in.)	Circuit A (in.)	Circuit B (in.)
140	4	4	2-1/2	3-1/2	2-1/2	3-1/2	1-5/8	1-5/8	1-3/8	1-3/8	1-1/8	1-1/8
160	4	4	2-1/2	3-1/2	2-1/2	3-1/2	1-5/8	1-5/8	1-3/8	1-3/8	1-1/8	1-1/8
180	4	4	2-1/2	3-1/2	2-1/2	3-1/2	1-5/8	1-5/8	1-3/8	1-3/8	1-1/8	1-1/8
200	4	4	2-1/2	3-1/2	2-1/2	3-1/2	1-5/8	1-5/8	1-3/8	1-3/8	1-1/8	1-1/8
225	5	5	3	4	2-1/2	3-1/2	1-5/8	1-5/8	1-5/8	1-3/8	1-1/8	1-1/8
250	5	5	3	4	3	4	1-5/8	1-5/8	1-5/8	1-5/8	1-1/8	1-1/8
275	5	5	3	4	3	4	1-5/8	1-5/8	1-5/8	1-5/8	1-1/8	1-1/8
300	5	5	3	4	3	4	1-5/8	1-5/8	1-5/8	1-5/8	1-1/8	1-1/8
325	5	5	3	4	3	4	1-5/8	1-5/8	1-5/8	1-5/8	1-1/8	1-1/8
350	6	6	4	4	3	4	2-1/8	1-5/8	2-1/8	1-5/8	1-1/8	1-1/8
400	6	6	4	4	4	4	2-1/8	2-1/8	2-1/8	2-1/8	1-1/8	1-1/8
450	6	6	4	4	4	4	2-1/8	2-1/8	2-1/8	2-1/8	1-1/8	1-1/8
500	6	6	3-1/2	5	3-1/2	5	2-1/8	2-1/8	2-1/8	2-1/8	1-1/8	1-1/8

Table 6 — Refrigeration Line Sizes (SI)

30XV UNIT SIZE	SUCTION LINE		DOUBLE SUCTION RISERS				EVAPORATOR LIQUID LINE		CONDENSER LIQUID LINE		ECONOMIZER LINE	
			Circuit A		Circuit B							
	Circuit A (mm)	Circuit B (mm)	Riser A (mm)	Riser B (mm)	Riser A (mm)	Riser B (mm)	Circuit A (mm)	Circuit B (mm)	Circuit A (mm)	Circuit B (mm)	Circuit A (mm)	Circuit B (mm)
140	102	102	64	89	64	89	41.3	41.3	34.9	34.9	28.6	28.6
160	102	102	64	89	64	89	41.3	41.3	34.9	34.9	28.6	28.6
180	102	102	64	89	64	89	41.3	41.3	34.9	34.9	28.6	28.6
200	102	102	64	89	64	89	41.3	41.3	34.9	34.9	28.6	28.6
225	127	102	76	102	64	89	41.3	41.3	41.3	34.9	28.6	28.6
250	127	127	76	102	76	102	41.3	41.3	41.3	41.3	28.6	28.6
275	127	127	76	102	76	102	41.3	41.3	41.3	41.3	28.6	28.6
300	127	127	76	102	76	102	41.3	41.3	41.3	41.3	28.6	28.6
325	127	127	76	102	76	102	41.3	41.3	41.3	41.3	28.6	28.6
350	152	127	102	102	76	102	54.0	41.3	54.0	41.3	28.6	28.6
400	152	152	102	102	102	102	54.0	54.0	54.0	54.0	28.6	28.6
450	152	152	102	102	102	102	54.0	54.0	54.0	54.0	28.6	28.6
500	152	152	89	127	89	127	54.0	54.0	54.0	54.0	28.6	28.6

⚠ WARNING

The 30XV units use R-134a or R-513A 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 or R-513A refrigerant may result in personal injury and equipment damage. If unsure about equipment, consult the equipment manufacturer.

Choose a space that can support the weight of the evaporator and economizer with service clearances and area for refrigerant piping. For plate fin condenser coils, field-supplied piping must be limited to 100 linear ft (30.48 m) or 150 equivalent ft (45.72 m). For microchannel condenser coils, field piping must be limited to 65 linear ft (19.81 m) or 100 equivalent ft (30.48 m) in length. Suction and liquid line risers must be limited to less than 15 ft (4.57 m) vertical riser elevation. Slope horizontal lines in direction of flow to help with oil return. Suction lines and economizer lines must be insulated to prevent condensation. Relocating the evaporator introduces minimal line losses if correct piping practices are followed. Buried lines are not permitted.

The remote evaporator system can be applied in three different configurations. See Fig. 1-3. In Fig. 1, the remote evaporator and the outdoor unit are at the same elevation. The suction, liquid, and

economizer lines run parallel between the evaporator and the outdoor unit. In Fig. 2, the outdoor unit and remote evaporator are at the same elevation, but the interconnecting piping has an elevation of up to 15 ft (4.57 m) above the base elevation of the evaporator. This could be the result of running piping over a wall or through the ceiling in a building. In Fig. 3, the remote evaporator is located below the outdoor unit. The interconnecting piping has an elevation of up to 15 ft (4.57 m) above the base elevation of the remote evaporator. This could occur if the remote evaporator is installed in a basement. The evaporator may be mounted higher than the chiller, but the 15' maximum piping rise must be respected. Double suction risers are required on all 140-325 ton and 350 ton (Circuit B) installations. Riser is not required from suction line if it is not extended above the factory supplied 90 degree elbow. See Fig. 18.

NOTE: Unit 30XV refrigeration piping is copper tubing for liquid and economizer lines. Suction lines, evaporator and compressor connections are designed for steel tubing with Victaulic 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.

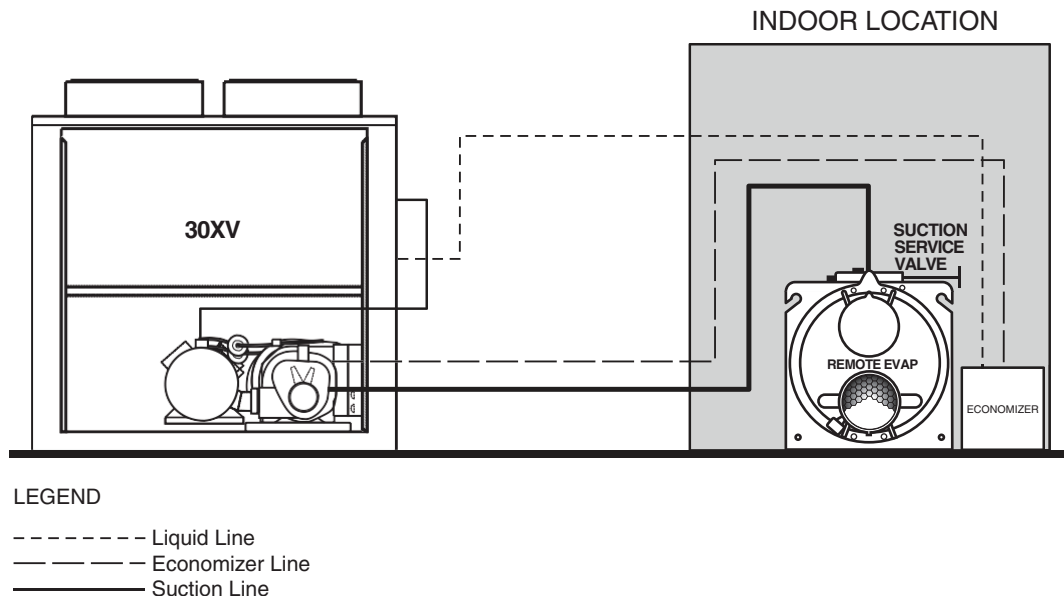


Fig. 1 — 30XV Unit and Evaporator Level, Piping Parallel (Single Circuit Shown)

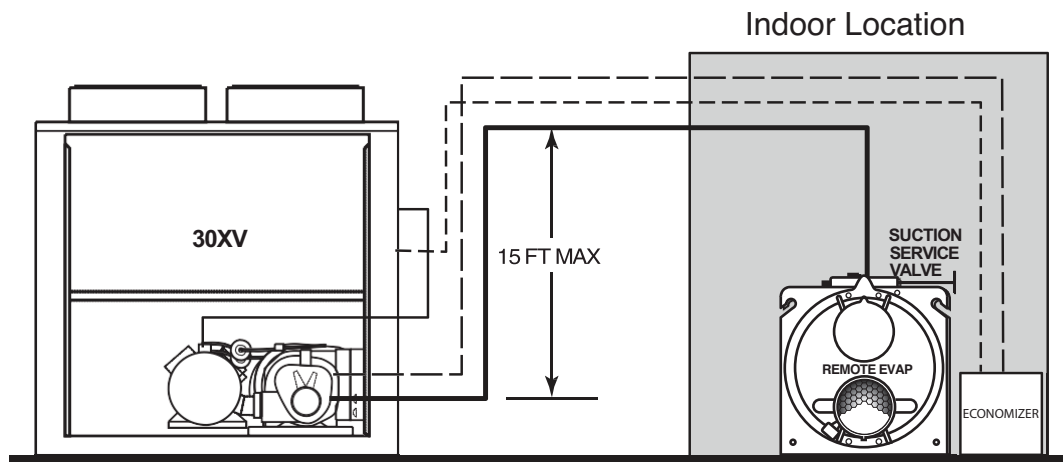


Fig. 2 — 30XV Unit and Evaporator Level, Piping Elevated (Single Circuit Shown)

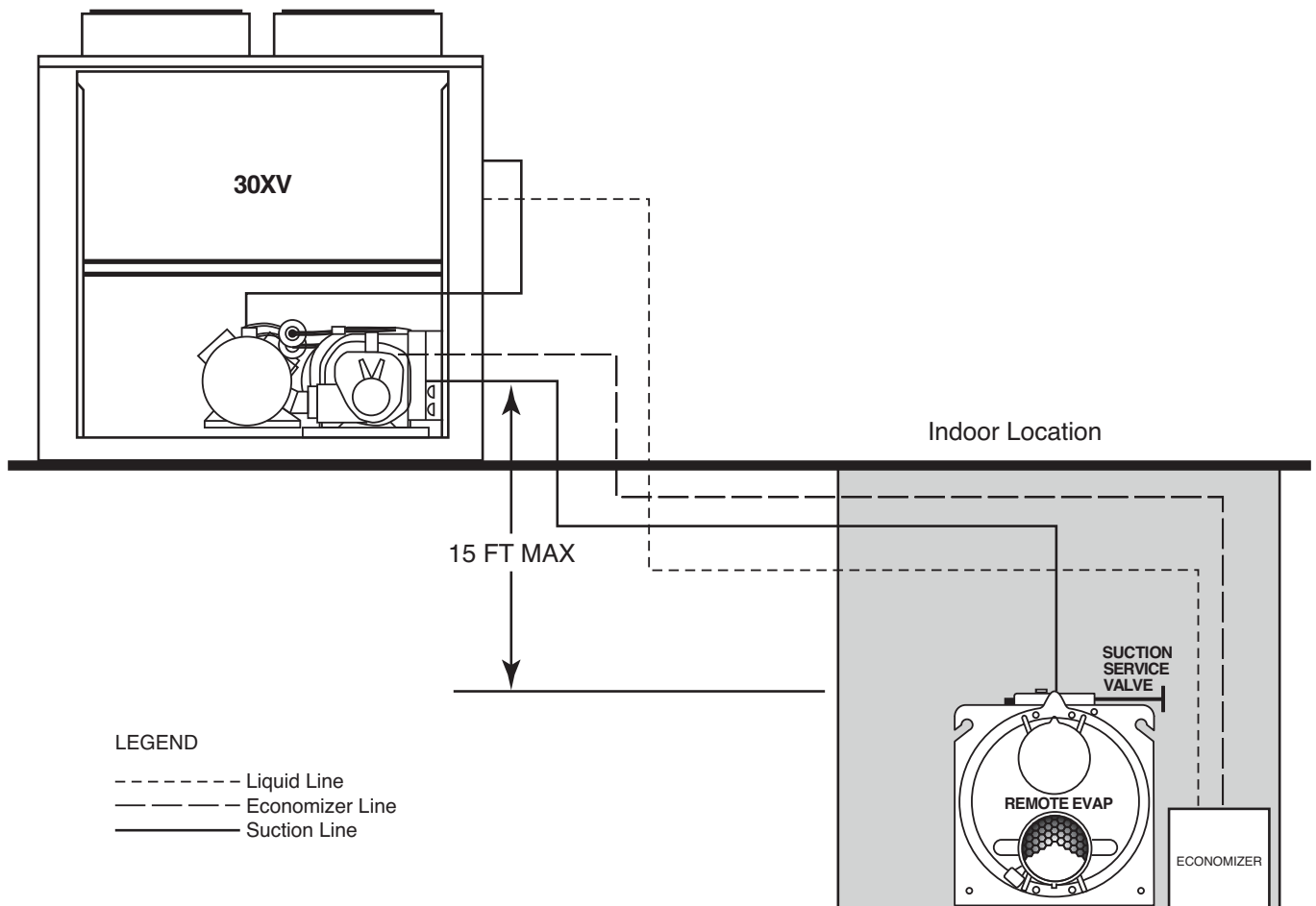


Fig. 3 — 30XV Unit with Evaporator Located Below Unit (Single Circuit Shown)

INSTALLATION

WARNING

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

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 evaporator and economizers. Ensure that the new location supports the evaporator 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 evaporator and economizers weights and Table 8 for evaporator dimensions. See Fig. 4-12 for evaporator and economizers dimensions, tube removal clearances, and service areas.

NOTE: Some evaporator inlet lines extend below the mounting feet. Take care during handling and installation to not damage these tubes.

3. Open and tag all electrical disconnects.

Step 1 — Remove Evaporator and/or Economizers

REMOVE FACTORY REFRIGERANT CHARGED EVAPORATOR AND ECONOMIZERS

If the chiller includes the factory-installed evaporator, it must be removed for relocation. The economizers are also shipped with the chiller and located on the compressor sides of the unit. To remove the evaporator and economizers from the unit, complete the following steps:

1. Remove refrigerant charge from both circuits using standard refrigeration practices. Refer to unit nameplate or installation instructions for refrigerant quantities.
2. Disconnect the evaporator heater wiring, and conduit if equipped.
3. The entering and leaving chilled water temperature thermistors are shipped with the chiller. Locate and remove these as they will need to be extended in length later in the process and installed in the evaporator water heads. Make sure to label thermistors as they are removed. See Fig. 13.
4. Disconnect and label the chilled water flow switch cable from the chilled water flow switch located on the leaving water nozzle. The cable will need to be extended in length later in the process and installed in the evaporator water head leaving water nozzle. See Fig. 13.
5. Remove suction transducer from top suction side of compressor. These are green in color. They will be placed on the evaporator in a later step.

NOTE: Most pressure transducers and thermistors will not be removed. However, use care in protecting the unit pressure transducers and thermistors throughout the removal and remote installation process.

6. Disconnect both electronic expansion valve (EXV) cables from the EXVs at each economizer. The cables will need to be extended in length later in the process. Make sure to label cables as they are removed. See Fig. 14.
7. At each circuit's economizer, cut the main liquid line going to the economizer assembly before the manual shutoff valve (see Fig. 15, cut 1, circuits A and B). For 350-500T units,

Circuit A has a 90 degree bend at the valve. For this circuit, cut the line after the bend in the horizontal section. Cut the line going from economizer to evaporator from the main EXV outlet. (see Fig. 15, cut 2, circuits A and B). Cut the economizer outlet line between the manual shutoff valve and the sensors (see Fig. 15, cut 3, circuits A and B).

8. For each circuit, remove the Victaulic clamps, elbow, service valve and suction line at the evaporator and compressor. Temporary supports may be needed for the suction line.
9. Remove the screws from the mounting feet of the evaporator and each economizer. Save all of the screws. Carefully remove the evaporator from the chiller. Remove the economizers by carefully lifting them out of each side of the unit.

REMOVE FACTORY NITROGEN-CHARGED ECONOMIZERS

If the chiller was ordered with a separately shipped evaporator, the economizers (located on the compressor sides of the unit) must be removed and relocated with the evaporator. To remove the economizers from the unit, complete the following steps:

1. Remove nitrogen charge from both circuits using standard refrigeration practices. Each circuit will contain less than 50 psig nitrogen charge.
2. The entering and leaving chilled water temperature thermistors and the chilled water flow switch connector are shipped with the chiller. Locate these as they will need to be extended in length later in the process and installed in the evaporator water heads. Make sure to label thermistors as they are removed. The separately shipped evaporator will have the thermistor wells and chilled water flow switch already installed. See Fig. 13.

NOTE: Most pressure transducers and thermistors will not be removed. However, use care in protecting the unit pressure transducers and thermistors throughout the removal and remote installation process.

3. Disconnect both electronic expansion valve (EXV) cables from the EXVs at each economizer. The cables will need to be extended in length later in the process. Make sure to label cables as they are removed. See Fig. 14.
4. At each circuit's economizer, cut the main liquid line going to the economizer assembly before the manual shutoff valve (see Fig. 16, cut 1, circuits A and B). Remove the bypass line going from the main EXV outlet at the economizer to compressor suction. The copper line will need to be cut after the main EXV outlet. Two Victaulic clamps will need to be removed at the compressor suction. (see Fig. 16, cut 2, circuits A and B). The bypass lines are for shipping purposes only and will not be used as part of the installation. Cut the economizer outlet line between the manual shutoff valve and the sensors (see Fig. 16, cut 3, circuits A and B).
5. Remove the screws from the mounting feet of each economizer. Save all of the screws. Remove the economizers by carefully lifting them out of each side of the unit.

CAUTION

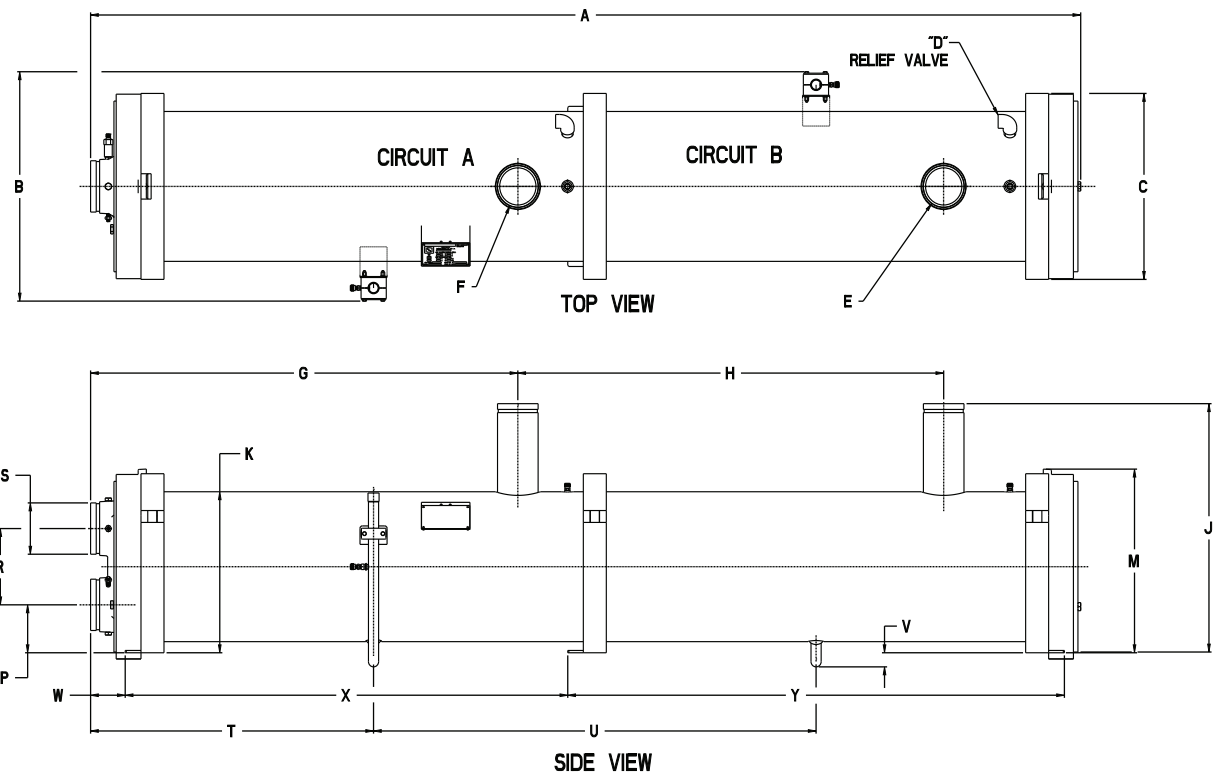
The 30XV systems use polyolester oil which will absorb moisture. It is important to minimize the amount of time that the refrigeration system is left exposed to the atmosphere. Minimizing the exposure time will reduce the amount of moisture that could possibly damage the unit. The removal instructions 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.

Table 7 — Evaporator and Economizer Weights

30XV UNIT SIZE	EVAPORATOR OPERATING WEIGHT		ECONOMIZER WEIGHT			
			Circuit A		Circuit B	
	lb	kg	lb	kg	lb	kg
140	1338	607	91	41.3	91	41.3
160	1525	692	91	41.3	91	41.3
180	1597	724	91	41.3	91	41.3
200	1826	828	91	41.3	91	41.3
225	1948	884	106	48.1	91	41.3
250	2397	1087	106	48.1	106	48.1
275	2450	1111	106	48.1	106	48.1
300	2513	1140	106	48.1	106	48.1
325	2585	1173	106	48.1	106	48.1
350	3299	1496	103	46.7	106	48.1
400	3373	1530	103	46.7	103	46.7
450	4221	1915	103	46.7	103	46.7
500	4337	1967	103	46.7	103	46.7

Table 8 — Remote Evaporator Dimensions

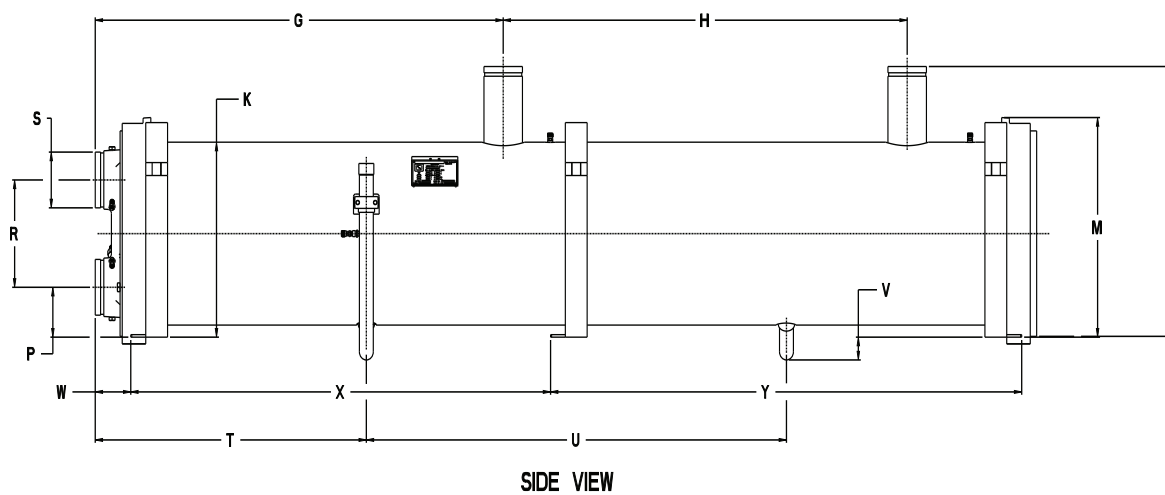
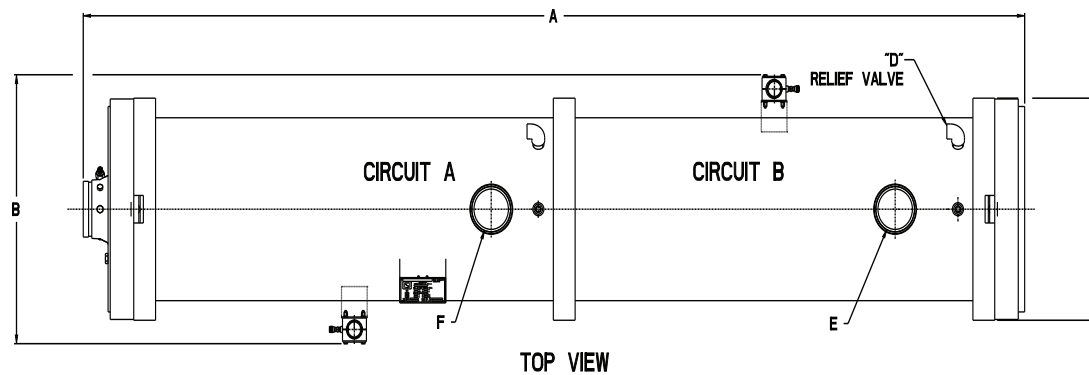
REMOTE EVAPORATOR	FIGURE NUMBER
30XV80002402, 30XV80002404	Fig. 4
30XV80003202, 30XV80002404	Fig. 5
30XV80000106, 30XV80000107, 30XV80000108, 30XV80000110	Fig. 6
30XV80002006, 30XV80002007, 30XV80002008, 30XV80002009, 30XV80002010	Fig. 7
30XV80003602, 30XV80003604, 30XV80003606	Fig. 8
30XV80002802, 30XV80002806	Fig. 9



Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80002402 (140M, 140H, 160S)	109-13/16 [2789]	24-7/8 [632]	20-3/16 [512]	3/4 NPT	Ø4-1/2 [114]	Ø4-1/2 [114]	47-3/8 [1203]	47-1/4 [1200]	26-15/16 [684]	17-7/16 [443]	19-15/16 [506]	5-3/16 [132]	8-1/4 [210]	Ø5-9/16 [141]	31-3/8 [797]	49-1/16 [1247]	1-1/2 [39]	3-13/16 [98]	49-1/16 [1247]	55-1/16 [1399]
30XV80002404 (140S)	109-13/16 [2789]	24-7/8 [632]	20-3/16 [512]	3/4 NPT	Ø4-1/2 [114]	Ø4-1/2 [114]	47-3/8 [1203]	47-1/4 [1200]	26-15/16 [684]	17-7/16 [443]	19-15/16 [506]	5-3/16 [132]	8-1/4 [210]	Ø5-9/16 [141]	31-3/8 [797]	49-1/16 [1247]	1-1/2 [39]	3-13/16 [98]	49-1/16 [1247]	55-1/16 [1399]

NOTE: Units are shown in inches [mm].

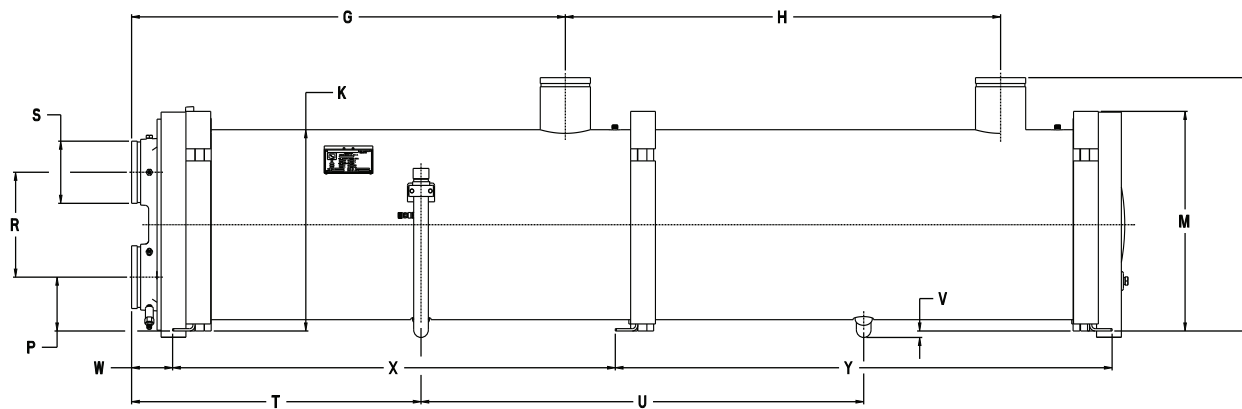
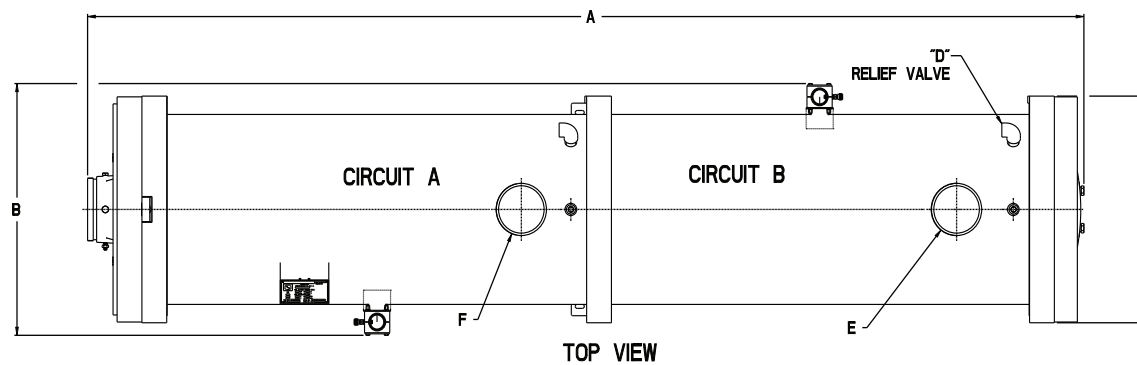
Fig. 4 — 30XV80002402 and 30XV80002404 Evaporator Dimensions



Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80003202 (180M, 180H, 200S)	110-1/16 [2795]	26-13/16 [682]	22-3/16 [563]	3/4 NPT	Ø4-1/2 [114]	Ø4-1/2 [114]	47-11/16 [1211]	47-1/4 [1200]	26-15/16 [684]	19-7/16 [494]	21-15/16 [557]	5 [126]	10-11/16 [272]	Ø5-9/16 [141]	3-11/16 [805]	49-1/16 [1247]	2-1/4 [58]	4-1/8 [106]	49-1/16 [1247]	55-1/16 [1399]
30XV80002404 (160M, 160H, 180S)	110-1/16 [2795]	26-13/16 [682]	22-3/16 [563]	3/4 NPT	Ø4-1/2 [114]	Ø4-1/2 [114]	47-11/16 [1211]	47-1/4 [1200]	26-15/16 [684]	19-7/16 [494]	21-15/16 [557]	5 [126]	10-11/16 [272]	Ø5-9/16 [141]	3-11/16 [805]	49-1/16 [1247]	2-1/4 [58]	4-1/8 [106]	49-1/16 [1247]	55-1/16 [1399]

NOTE: Units are shown in inches [mm].

Fig. 5 — 30XV80003202 and 30XV80002404 Evaporator Dimensions

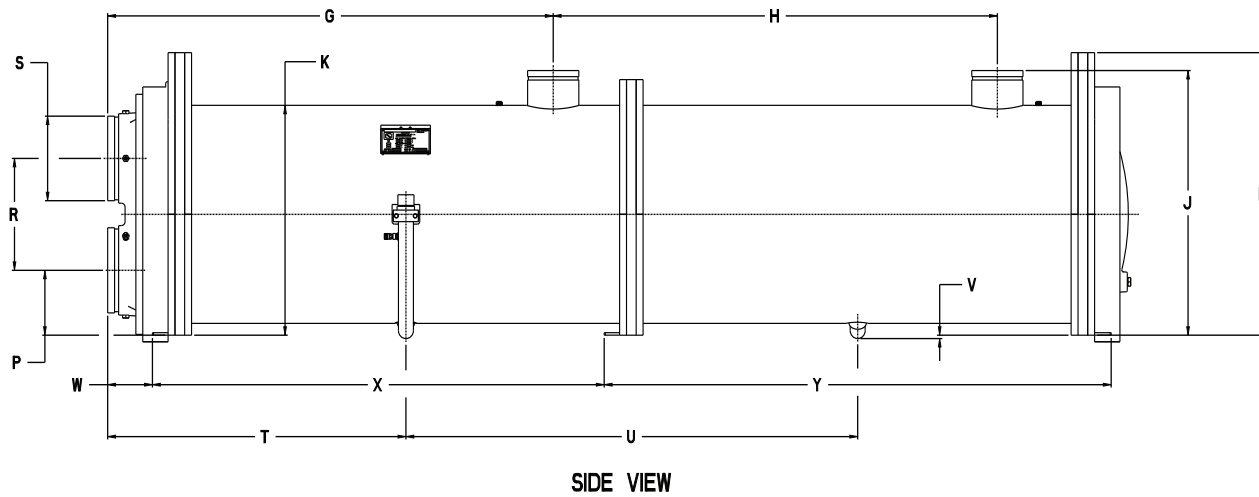
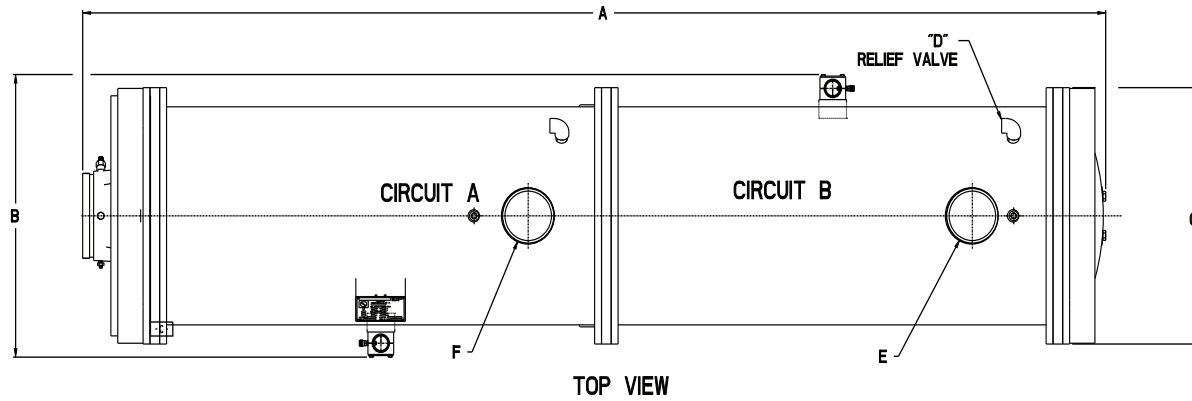


SIDE VIEW

Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80000106 (250S)	11-7/16 [2805]	26-13/16 [682]	24-3/16 [614]	3/4 NPT	Ø5-5/8 [141]	Ø5-5/8 [141]	48-1/16 [1221]	48-1/4 [1226]	27 [686]	21-7/16 [545]	23-7/16 [595]	5-3/4 [146]	11-3/16 [284]	Ø6-5/8 [168]	32-1/16 [813]	49-1/16 [1247]	11/16 [18]	4-9/16 [116]	49-1/16 [1247]	55-1/16 [1399]
30XV80000107 (225S)	11-7/16 [2805]	26-13/16 [682]	24-3/16 [614]	3/4 NPT	Ø4-1/2 [114]	Ø5-5/8 [141]	48-1/16 [1221]	47-1/4 [1200]	27 [686]	21-7/16 [545]	23-7/16 [595]	5-11/16 [144]	11-3/16 [284]	Ø6-5/8 [168]	36-7/8 [937]	49-1/16 [1247]	1-7/16 [37]	4-9/16 [116]	58-11/16 [1490]	45-1/2 [1155]
30XV80000108 (200M, 200H)	11-7/16 [2805]	26-13/16 [682]	24-3/16 [614]	3/4 NPT	Ø4-1/2 [114]	Ø4-1/2 [114]	48-1/16 [1221]	47-1/4 [1200]	27 [686]	21-7/16 [545]	23-7/16 [595]	5-11/16 [144]	11-3/16 [284]	Ø6-5/8 [168]	32-1/16 [813]	49-1/16 [1247]	11/16 [18]	4-9/16 [116]	49-1/16 [1247]	55-1/16 [1399]
30XV80000110 (225M, 225H)	11-7/16 [2805]	26-13/16 [682]	24-3/16 [614]	3/4 NPT	Ø4-1/2 [114]	Ø5-5/8 [141]	48-1/16 [1221]	47-1/4 [1200]	27 [686]	21-7/16 [545]	23-7/16 [595]	5-11/16 [144]	11-3/16 [284]	Ø6-5/8 [168]	36-7/8 [937]	49-1/16 [1247]	1-7/16 [37]	4-9/16 [116]	58-11/16 [1490]	45-1/2 [1155]

NOTE: Units are shown in inches [mm].

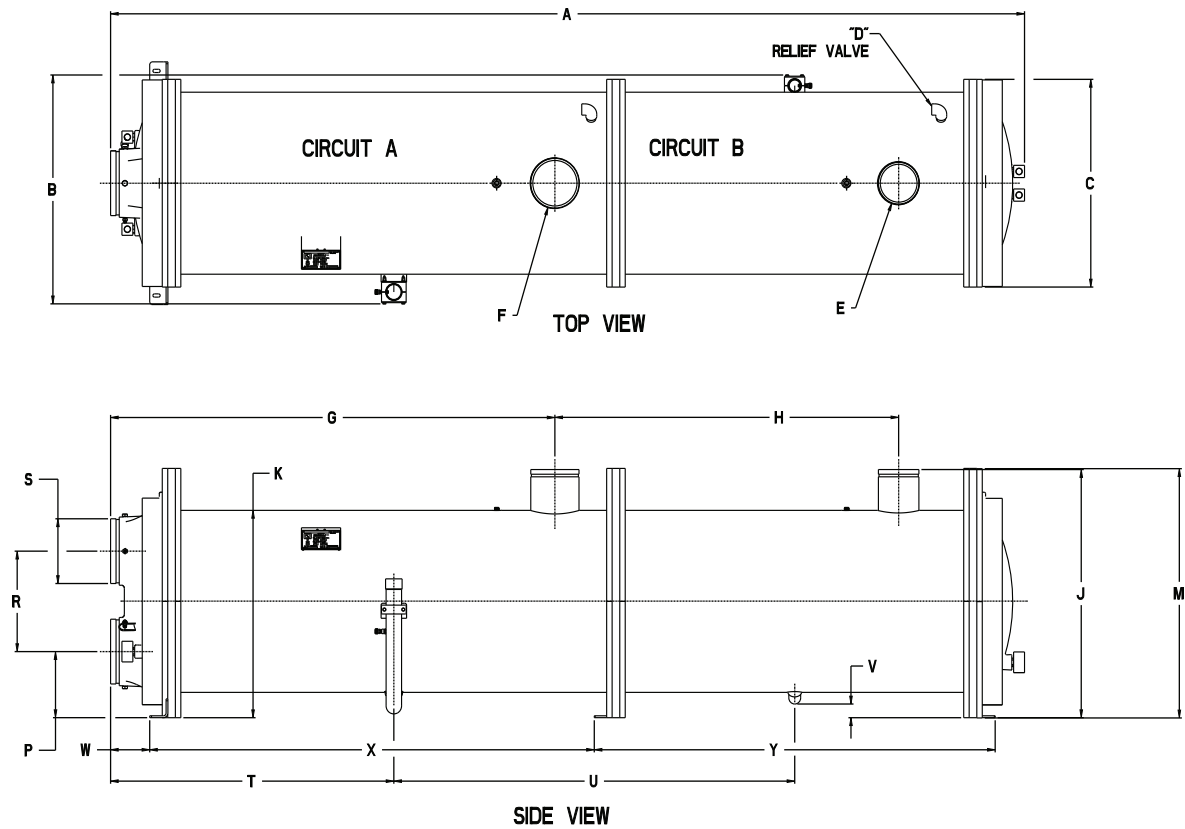
Fig. 6 — 30XV80000106, 30XV80000107, 30XV80000108, and 30XV80000110 Evaporator Dimensions



Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80002006 (250M, 250H, 275S)	111-1/8 [2823]	28-13/16 [732]	26-3/16 [664]	3/4 NPT	Ø5-5/8 [141]	Ø5-5/8 [141]	48-3/8 [1229]	48-1/4 [1226]	27 [686]	27-7/16 [596]	28-13/16 [732]	6-5/8 [146]	11-7/16 [290]	Ø8-5/8 [219]	32-3/8 [823]	49-1/16 [1247]	3/8 [9]	4-7/8 [124]	49-1/16 [1247]	55-1/16 [1339]
30XV80002007 (275, 275H, 300S)	111-1/8 [2823]	28-13/16 [732]	26-3/16 [664]	3/4 NPT	Ø5-5/8 [141]	Ø5-5/8 [141]	48-3/8 [1229]	48-1/4 [1226]	27 [686]	27-7/16 [596]	28-13/16 [732]	6-5/8 [146]	11-7/16 [290]	Ø8-5/8 [219]	32-3/8 [823]	49-1/16 [1247]	3/8 [9]	4-7/8 [124]	49-1/16 [1247]	55-1/16 [1339]
30XV80002008 (300M, 300H, 325S)	111-1/8 [2823]	28-13/16 [732]	26-3/16 [664]	3/4 NPT	Ø5-5/8 [141]	Ø5-5/8 [141]	48-3/8 [1229]	48-1/4 [1226]	27 [686]	27-7/16 [596]	28-13/16 [732]	6-5/8 [146]	11-7/16 [290]	Ø8-5/8 [219]	32-3/8 [823]	49-1/16 [1247]	3/8 [9]	4-7/8 [124]	49-1/16 [1247]	55-1/16 [1339]
30XV80002009 (325M, 325H)	111-1/8 [2823]	28-13/16 [732]	26-3/16 [664]	3/4 NPT	Ø5-5/8 [141]	Ø5-5/8 [141]	48-3/8 [1229]	48-1/4 [1226]	27 [686]	27-7/16 [596]	28-13/16 [732]	6-5/8 [146]	11-7/16 [290]	Ø8-5/8 [219]	32-3/8 [823]	49-1/16 [1247]	3/8 [9]	4-7/8 [124]	49-1/16 [1247]	55-1/16 [1339]
30XV80002010 (350S)	123-1/8 [3128]	28-1/16 [713]	26-3/16 [664]	3/4 NPT	Ø5-5/8 [141]	Ø6-5/8 [168]	60-1/2 [1536]	47-1/4 [1200]	33-3/16 [843]	27-7/16 [596]	28-13/16 [732]	6-9/16 [166]	11-7/16 [290]	Ø8-5/8 [219]	38-3/8 [975]	55-1/16 [1399]	3/8 [9]	4-7/8 [124]	61-1/16 [1551]	55-1/16 [1339]

NOTE: Units are shown in inches [mm].

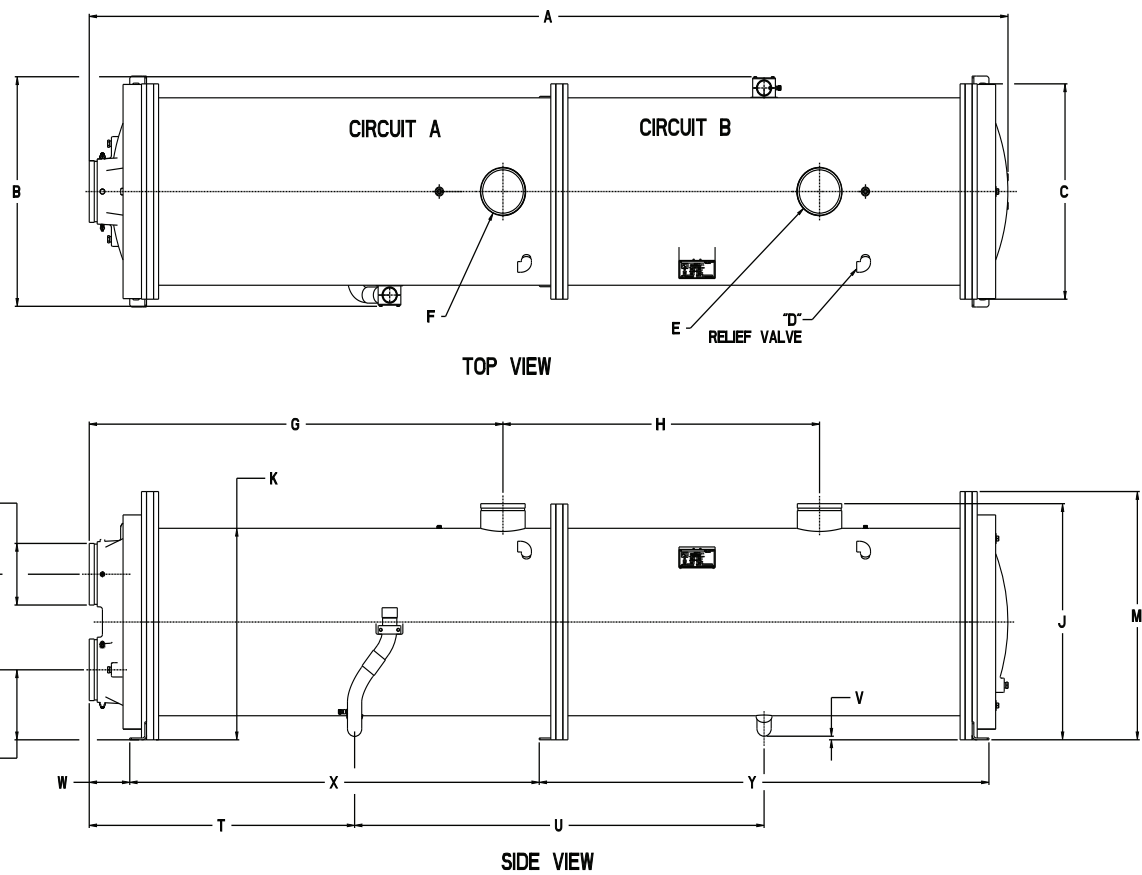
Fig. 7 — 30XV80002006, 30XV80002007, 30XV80002008, 30XV80002009, and 30XV80002010 Evaporator Dimensions



Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80003602 (350M, 350H)	125-9/16 [3189]	30-1/2 [775]	27-11/16 [703]	3/4 NPT	Ø5-5/8 [141]	Ø6-5/8 [168]	61-1/16 [1550]	47-1/4 [1200]	33-1/16 [840]	27-5/8 [702]	33-3/16 [844]	8-13/16 [224]	13-3/8 [340]	Ø8-5/8 [219]	38-15/16 [988]	55-1/16 [1399]	1-13/16 [46]	5-3/8 [137]	61-1/16 [1551]	55-1/16 [1399]
30XV80003604 (400S)	137-9/16 [3494]	32-1/8 [817]	27-11/16 [703]	3/4 NPT	Ø6-5/8 [168]	Ø6-5/8 [168]	61-1/16 [1550]	47-1/4 [1200]	33-1/16 [840]	27-5/8 [702]	33-3/16 [844]	8-13/16 [224]	13-3/8 [340]	Ø8-5/8 [219]	38-15/16 [988]	55-1/16 [1399]	1-9/16 [40]	5-3/8 [137]	61-1/16 [1551]	67-1/16 [1704]
30XV80003606 (400M, 400H, 450S)	137-9/16 [3494]	32-1/8 [817]	27-11/16 [703]	3/4 NPT	Ø6-5/8 [168]	Ø6-5/8 [168]	61-1/16 [1550]	47-1/4 [1200]	33-1/16 [840]	27-5/8 [702]	33-3/16 [844]	8-13/16 [224]	13-3/8 [340]	Ø8-5/8 [219]	38-15/16 [988]	55-1/16 [1399]	1-9/16 [40]	5-3/8 [137]	61-1/16 [1551]	67-1/16 [1704]

NOTE: Units are shown in inches [mm].

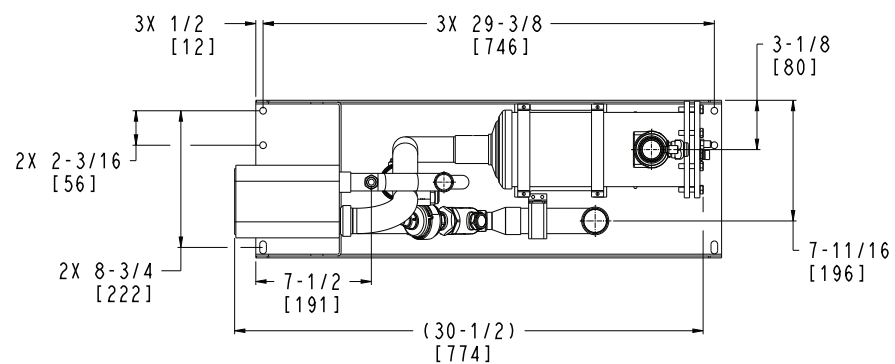
Fig. 8 — 30XV80003602, 30XV80003604, and 30XV80003606 Evaporator Dimensions



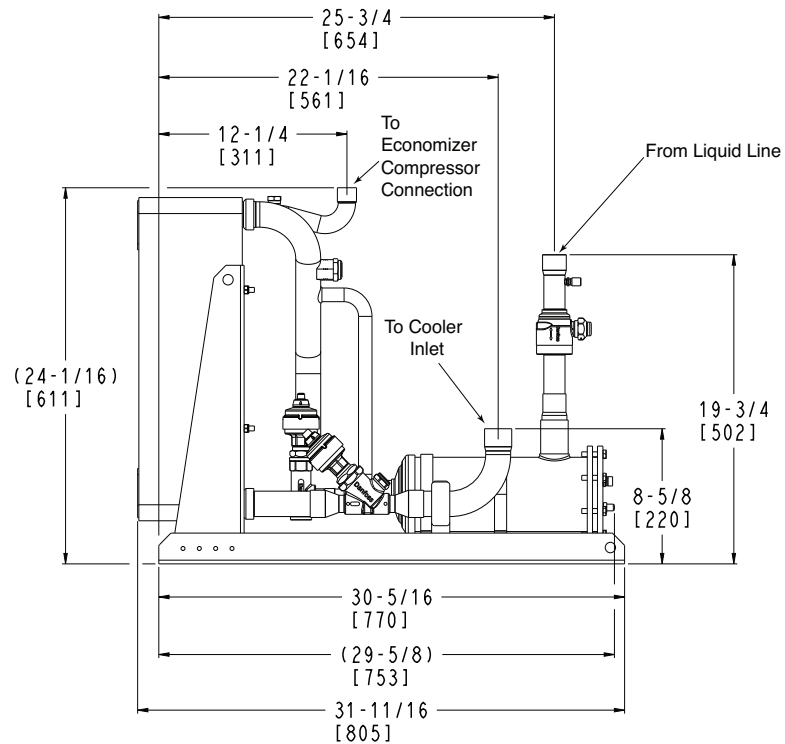
Evaporator	A	B	C	D	E	F	G	H	J	K	M	P	R	S	T	U	V	W	X	Y
30XV80002802 [450M, 450H, 500S]	137-1/16 [3481]	32-1/8 [817]	30-3/16 [766]	3/4 NPT	Ø6-5/8 [168]	Ø6-5/8 [168]	61-11/16 [1567]	47-1/4 [1200]	33-1/16 [840]	29-5/8 [752]	34-3/4 [883]	9-13/16 [249]	13-3/8 [340]	Ø8-5/8 [219]	39-5/8 [1005]	61-1/16 [1551]	1/2 [13]	6-1/16 [154]	61-1/16 [1551]	67-1/16 [1704]
30XV80002806 [500M]	158-1/16 [4014]	32-1/8 [817]	30-3/16 [766]	3/4 NPT	Ø6-5/8 [168]	Ø6-5/8 [168]	61-11/16 [1567]	47-1/4 [1200]	33-1/16 [840]	29-5/8 [752]	34-3/4 [883]	9-13/16 [249]	13-3/8 [340]	Ø8-5/8 [219]	44-13/16 [1139]	71-9/16 [1818]	2-7/16 [62]	6-1/16 [154]	71-9/16 [1818]	77-9/16 [1970]

NOTE: Units are shown in inches [mm].

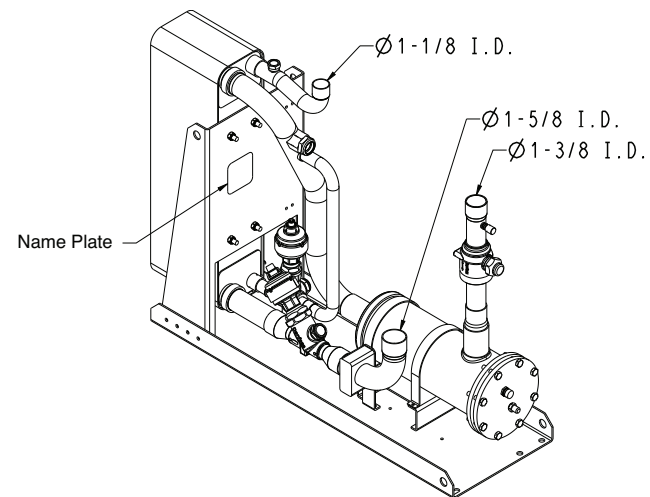
Fig. 9 — 30XV80002802 and 30XV80002806 Evaporator Dimensions



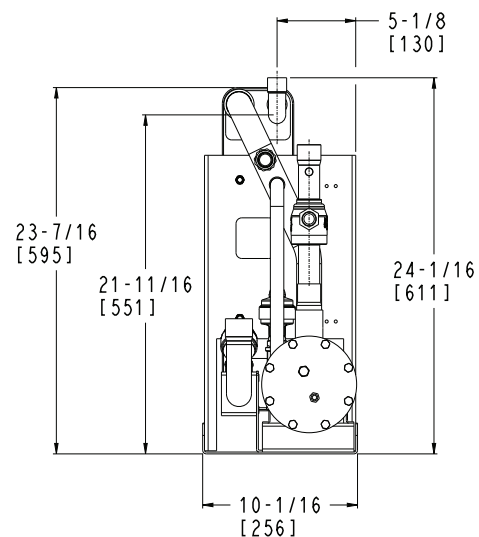
TOP VIEW



SIDE VIEW



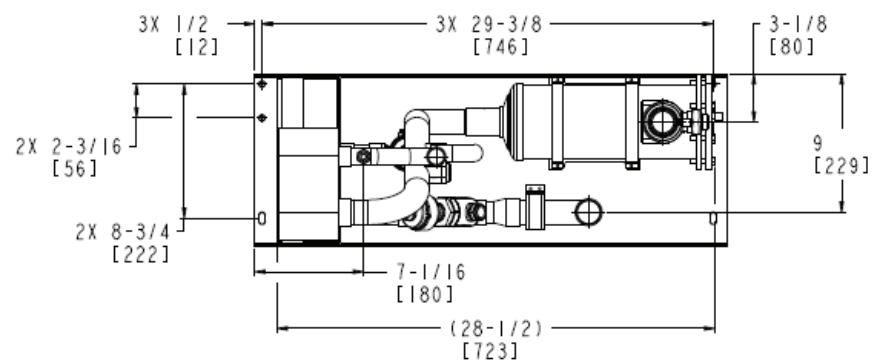
Name Plate

 $\varnothing 1\frac{1}{8}$ I.D. $\varnothing 1\frac{5}{8}$ I.D. $\varnothing 1\frac{3}{8}$ I.D.

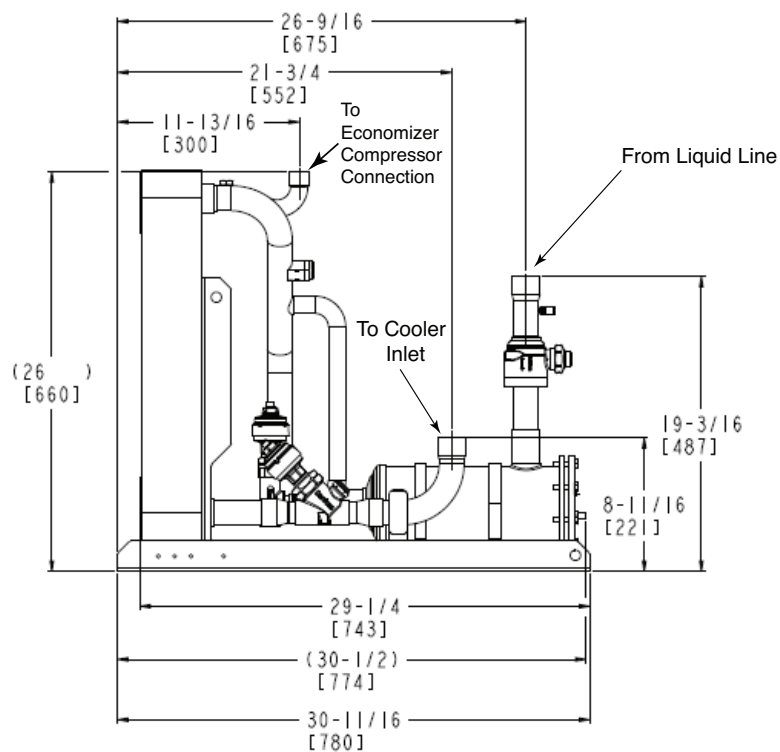
FRONT VIEW

NOTE: Units are shown in inches [mm].

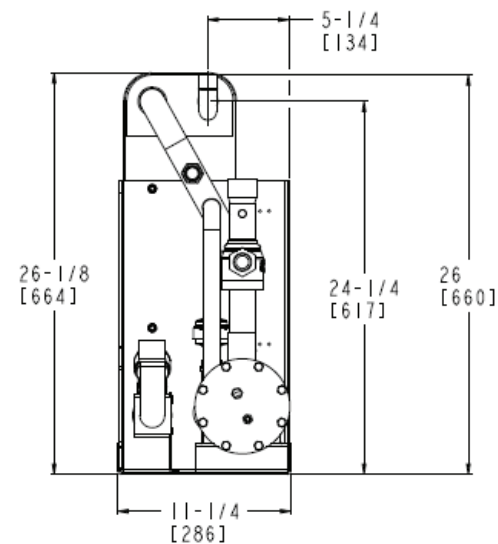
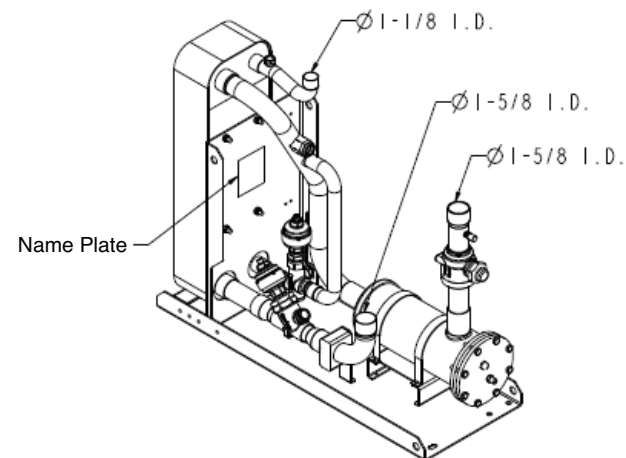
Fig. 10 — 30XV140-200 Circuits A/B, 225 Circuit B Economizer Dimensions



TOP VIEW



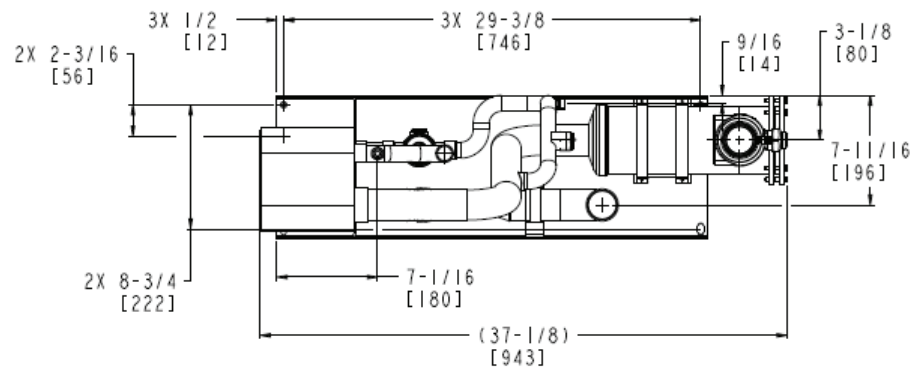
SIDE VIEW



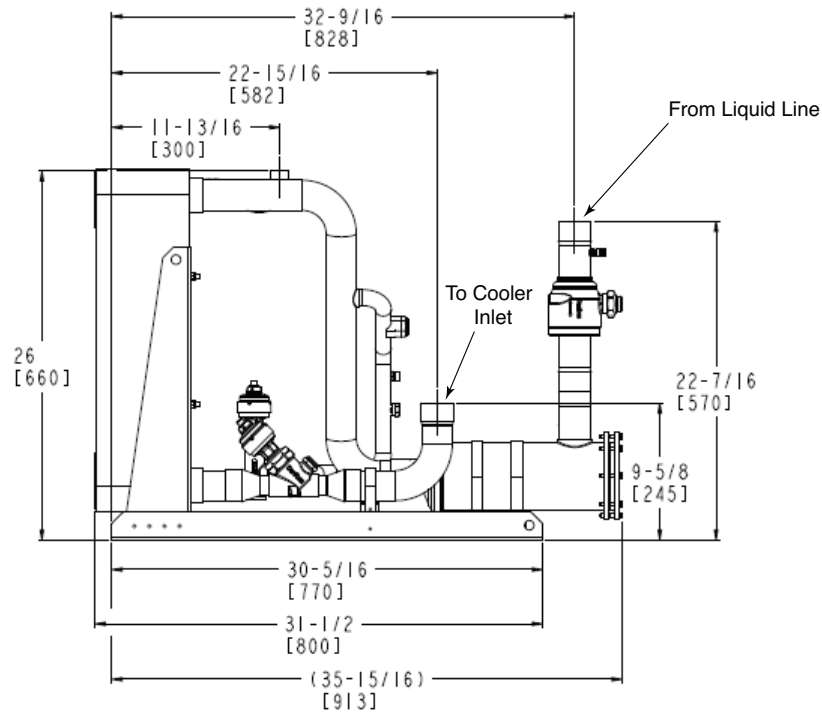
FRONT VIEW

NOTE: Units are shown in inches [mm].

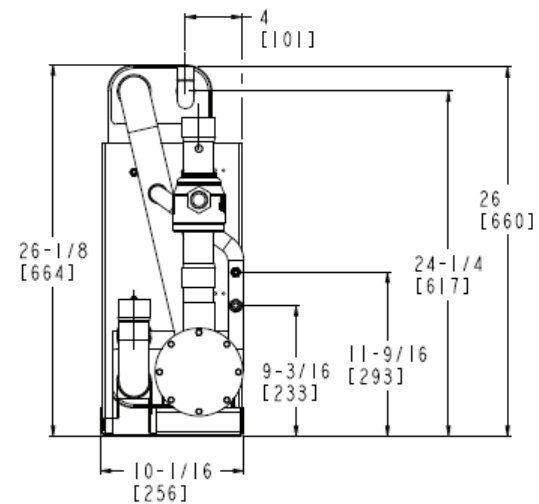
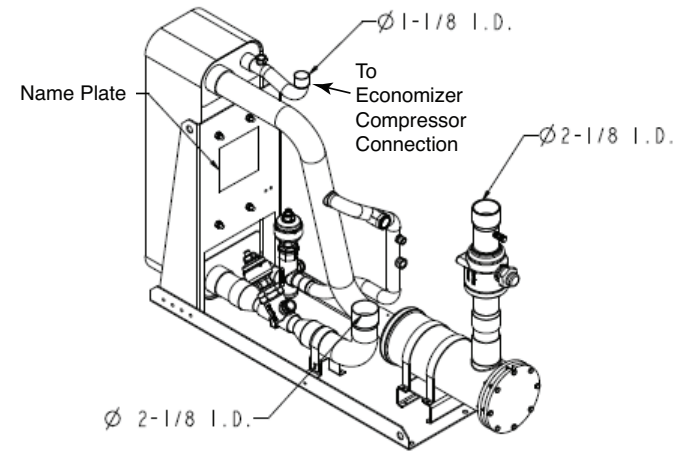
Fig. 11 — 30XV225 Circuit A, 250-325 Circuits A/B, 350 Circuit B Economizer Dimensions



TOP VIEW



SIDE VIEW



FRONT VIEW

NOTE: Units are shown in inches [mm].

Fig. 12 — 30XV350 Circuit A, 400-500 Circuits A/B Economizer Dimensions

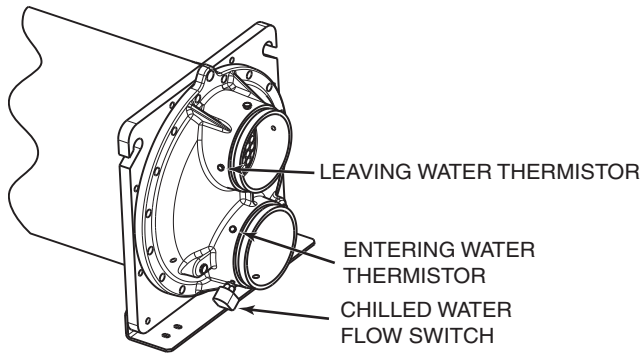


Fig. 13 — Thermistor and Switch Locations

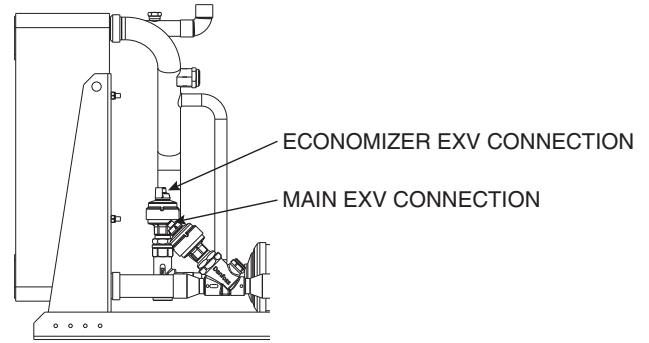


Fig. 14 — EXV Cable Locations

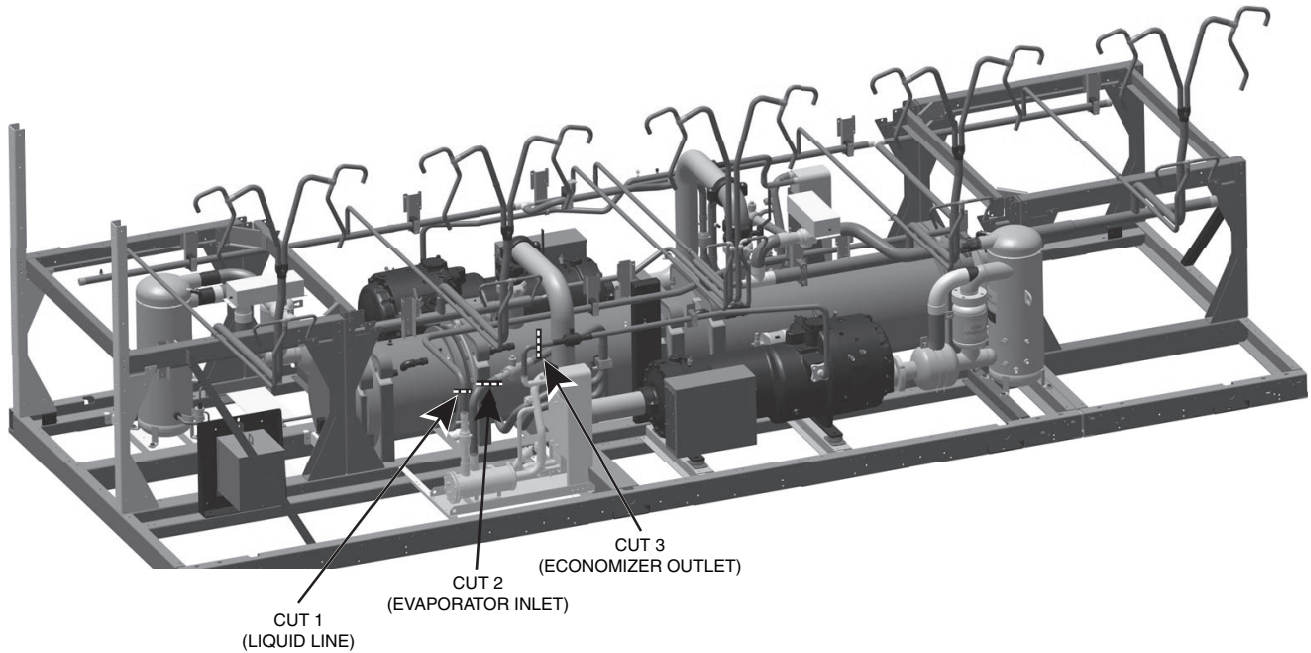


Fig. 15 — 30XV Evaporator and Economizer Cut Locations

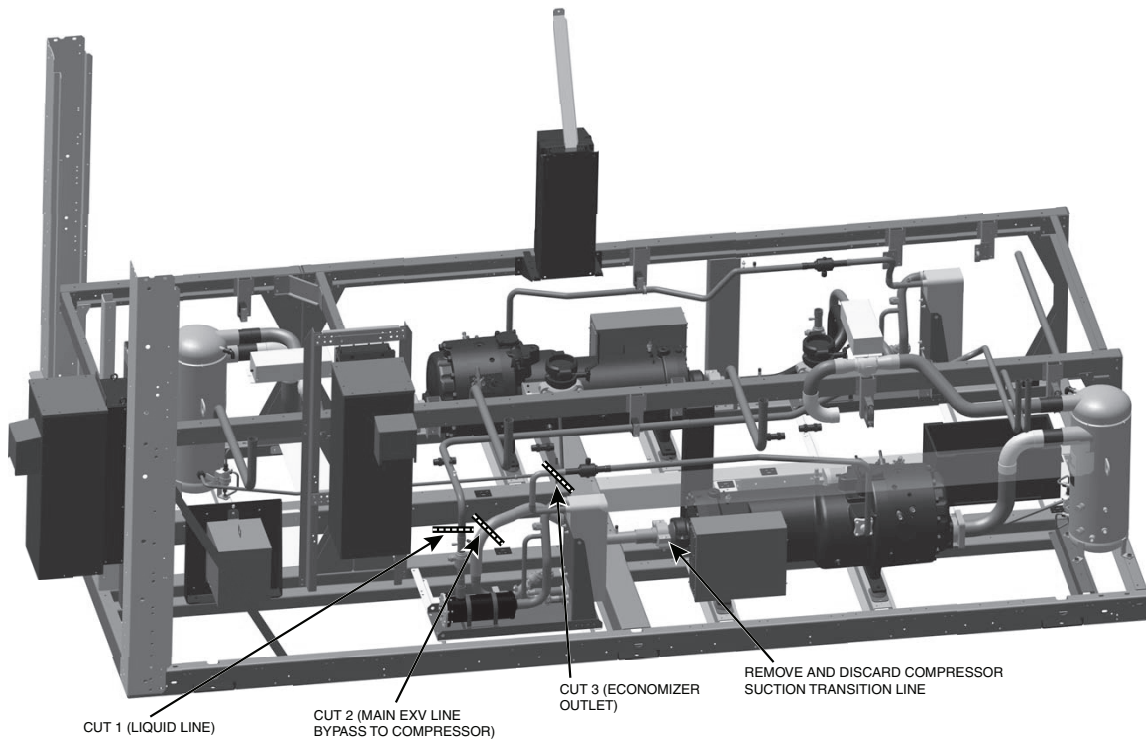


Fig. 16 — 30XV Economizer Cut Locations

Step 2 — Install Remote Evaporator and Economizers

Install the evaporator and economizers in a remote location by following the procedure outlined below.

NOTE: Throughout the remote evaporator and economizers installation steps, the five accessory package part no. (30XV70001201 through 30XV70001205) have been shortened to 1201 through 1205. 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.

⚠ CAUTION

RISK OF DAMAGE: Liquid inlet lines on some evaporators extend below the bottom of the tube sheets and mounting feet. Take care in handling to avoid damaging these tubes. Remote location mounting must account for this tubing. See Fig. 4-12 for details.

1. After removing evaporator from the base unit or crate, strip back the insulation on the evaporator tube sheets (if required) and use the two large holes in the top corners for lifting.
2. Transport evaporator and economizer assemblies to the new location and secure them into position. Keep the economizer assemblies as close to the evaporator as possible. Also, ensure there is sufficient room to install and remove evaporator tubes from either end of the evaporator. Use the accessory-supplied pads (1201 through 1205: Item 20) under each evaporator mounting foot. See Fig. 4-12 for tube removal clearances.

NOTE: Some evaporator inlet lines extend below the mounting feet. Take care during handling and installation to not damage these tubes.

3. At the new evaporator location, install the accessory-supplied evaporator inlet shutoff valves (1201 through 1203, 1205: Item 1, 1204: Items 1,2) between the economizer main EXV outlet and evaporator inlet. See Fig. 17.
4. Install the accessory-supplied liquid line shutoff valves (1201, 1203, 1205: Item 3, 1202, 1204: Items 3,4) on each circuit's liquid lines at the 30XV base unit. See Fig. 17.
5. Using field-supplied copper piping and fittings, complete the remainder of liquid, evaporator inlet and economizer piping. All lines should be free of dirt, debris, burrs, and moisture. See Fig. 17.
6. Install the economizer line strainer, (1201, 1203, 1204: Item 40; 1202: Item 41); 1205: Item 37) in the economizer line near the compressor. Horizontal economizer line piping should slope in the direction of flow to aid in oil return.
7. At the new evaporator location, install the accessory-supplied pressure relief valves in each circuit (1201 through 1205: Item 19). Use field supplied Loctite 554 to seal the pressure relief valve threads. See Fig. 18.
8. At the new evaporator location, install the accessory-supplied evaporator Victaulic suction valves and elbows in each circuit (1201, 1203, 1205: Items 15 and 17, 1202, 1204: Items 15-18) at the evaporator suction nozzle. Install the valve directly to the evaporator outlet and elbow to the valve using the accessory-supplied Victaulic clamps. Use rigid clamps for valve to evaporator nozzle (1201, 1203, 1205: Item 13, 1202, 1204: Items 13,14). Use flexible clamps for valve to elbow (1201, 1203, 1205: Item 11, 1202, 1204: Items 11,12). Apply a thin layer of lubricant (1201 through 1205: Item 21) to outside surfaces of all Victaulic seals before tightening. All

horizontal suction line piping should slope in the direction of flow to aid in oil return. See Fig. 18.

9. Following good piping practices, install additional field-supplied steel suction line piping in the required length to connect the Victaulic suction elbows to the compressors in the 30XV base unit. See Fig. 19 for double suction riser construction detail. See Fig. 20 for Victaulic groove dimensional requirements for suction valve, elbow and compressor connections.

⚠ CAUTION

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

10. 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 evaporator, 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.

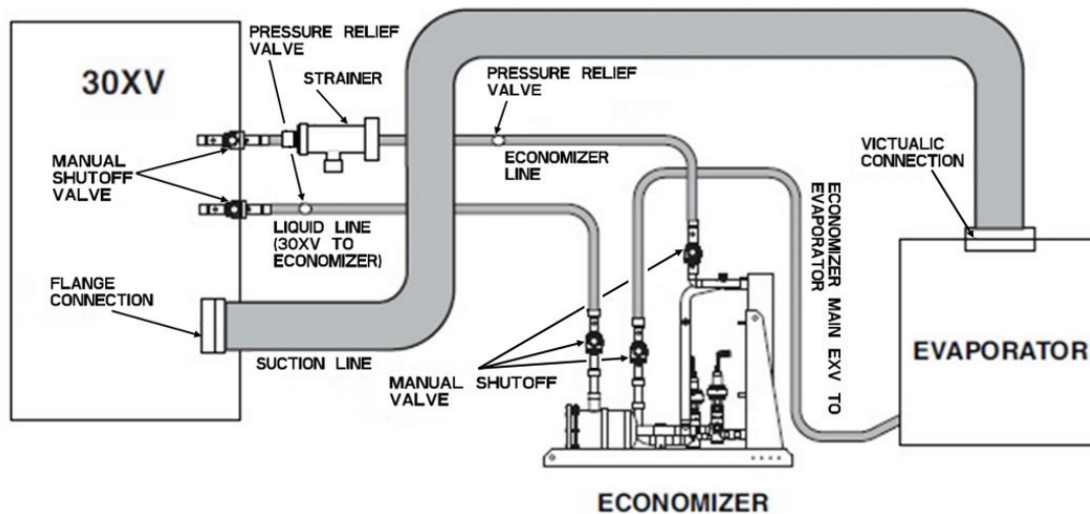
By following this dehydration procedure, the amount of moisture present in the system will be minimized, and the factory-supplied filter driers will provide adequate moisture protection. It is highly recommended that the filter drier cores be replaced after 24 hours of operation. This is to ensure that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

11. After setup is leak tested and deep dehydration vacuum is completed, install field-supplied insulation on main suction lines, evaporator inlet lines and economizer lines between the economizer and the 30XV unit. If necessary, reinstall the insulation on the evaporator head.
12. Install actuator, Item 32, and linkage, Item 33 to the suction valve at the evaporator. Reference instructions included with the linkage.
13. To reconnect the main and economizer EXV cables, use the accessory-supplied cable assemblies (1201 through 1205: Items 5,6). Four cables are needed. Additional wiring (Item 5) is supplied in case extension cables (Item 6) are not long enough. Take one cable assembly, and label both ends with "EXV-A" for the circuit A main EXV. 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.
Plug one side of the electrical connectors of the EXV labeled cables into their corresponding EXV plugs. Run the cables to the 30XV base unit, and connect the other side of the cable connectors into their corresponding EXV leads. Coil excess cables and wire tie in a convenient location.
14. To reconnect the flow switch cable, use the accessory-supplied cable assembly (1201 through 1205: Items 5,6). 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.

15. Using accessory-supplied M6 screws (1201 through 1205: Item 9), install the accessory-supplied junction box (1201 through 1205: Item 7) 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 accessory-supplied strain relief connector (1201 through 1205: Item 22) at the knockout hole. If using field-supplied conduit to provide mechanical protection to the thermistor wires between the evaporator and the 30XV base unit, remove another knockout.



NOTE: All shaded piping is field supplied and installed.

Fig. 17 — Line Piping and Connections (1 Circuit Shown)

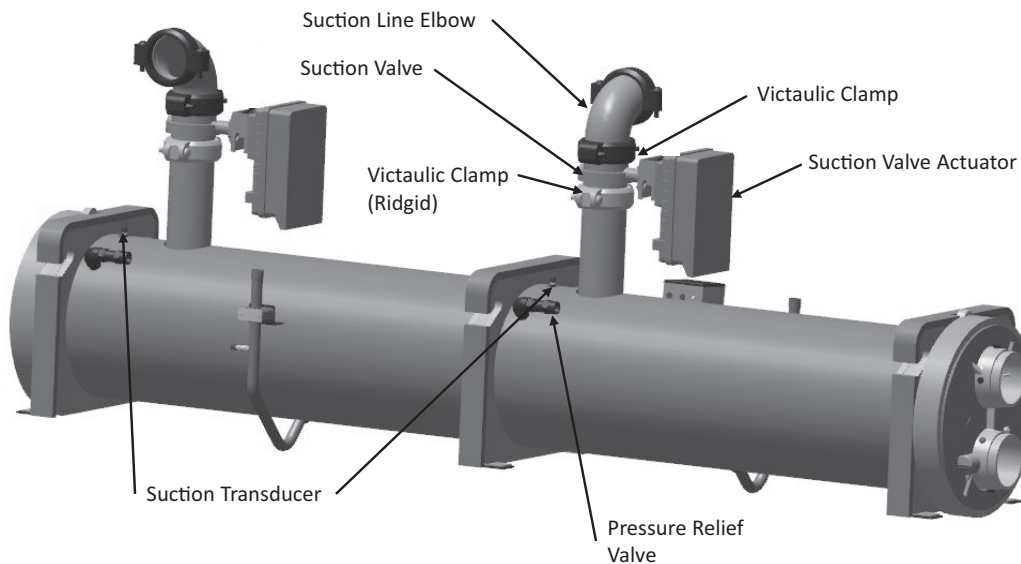
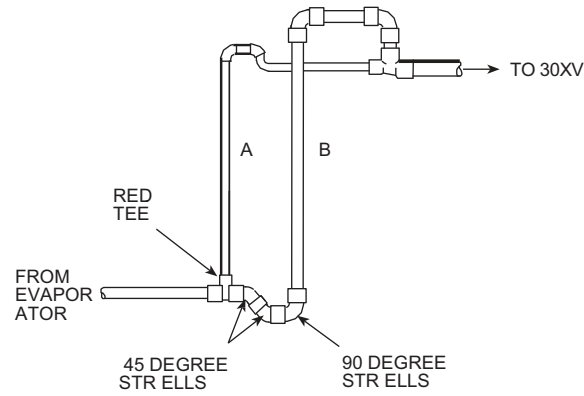


Fig. 18 — Victaulic Piping at Evaporator and Pressure Relief Valves



LEGEND

RED. TEE — Reducing Tee
STR ELLS — Street Elbows

Fig. 19 — Double Suction Riser Construction Detail

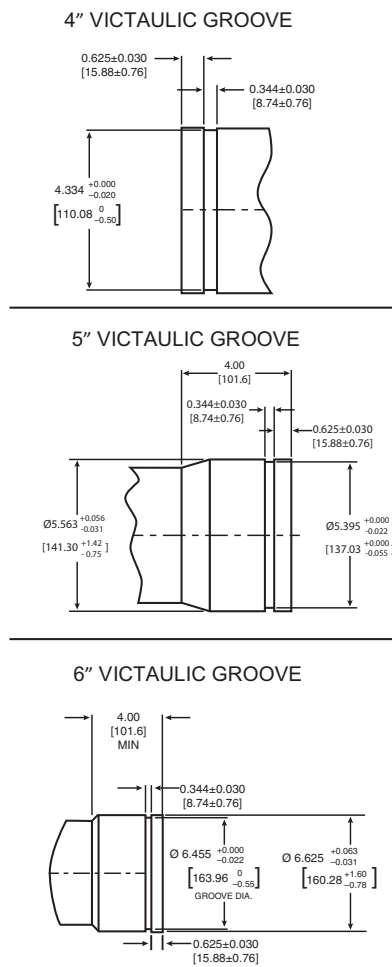


Fig. 20 — Victaulic Suction Groove Requirements

16. 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. 21.
17. 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.
18. Use the accessory-supplied 2-wire jacketed cable (1201 through 1205: Item 10) to connect the thermistor leads in the installed junction box to the evaporator location. Cut the cable as required for the two sensors.
19. Select one jacketed cable and strip back the jacket on both ends to expose the two wires. Label both ends of each wire "EWT." Repeat the process with the other cable by labeling both ends "LWT." See Fig. 22.
20. Run one end of each accessory-supplied 2-wire jacketed cables 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.
21. Run the other end of each accessory-supplied 2-wire jacketed cables back to the evaporator. Splice the labeled jacketed cable wires to the matching thermistors. If a second junction box is necessary at the evaporator location, use the second accessory-supplied junction box (1201 through 1205: Item 7).
22. Install the accessory-supplied junction box covers to protect the junction box wiring (1201 through 1205: Item 8).
23. Apply field-supplied thermally conductive grease and install the thermistors in the correct evaporator wells.
24. Install suction pressure transducers, removed from compressor, on schrader valve on top of evaporator. Use cable, Item 6, to connect to plug at compressor suction area.
25. Control Panel Wiring
 - a. Add terminal blocks, Item 1, to TB4-4.
 - b. Add terminal block jumper, Item 2, to connect added terminal blocks to existing TB4-4.
 - c. Replace circuit breaker CB6 with new breaker, Item 3.
 - d. For 30XV140 - 325 size chillers only, locate the ISO RLY A and B in the low voltage control panel. Move wire connection from terminal 3 to terminal 7 and remove wire from terminal 4. Do this to both relays.
 - e. Connect conduit, (1201, 1203, 1204: Item 37; 1202: Item 38; 1205: Item 34) for circuit A and (1201, 1203, 1204: Item 38; 1202: Item 39; 1205: Item 35) for circuit B, to terminal block and isolation valve relay by circuit to chiller control panel. See suction valve wiring diagram Fig 23 for reference. Conduit assembly has wires labeled to assist with connections.
 - f. Connect conduits in previous step to suction valve actuators at evaporator and wire per diagram and labels on conduit assembly.
 - g. Connect red wire, Item 6, to TB4-4 and the common terminal on the isolation valve relay. See diagram Fig 23. On the 30XV350 - 500 size chillers, there are two wires per relay.
26. Charge the unit to the amount of refrigerant as specified on the 30XV 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. In service test confirm operation of suction service valve and discharge valve. Confirm controls actuate correct circuit and check actual valve position from the valve stem.
28. Verify that water temperature sensors read correctly, expansion valves open/close and chilled water flow switch closes with flow applied. Verify full unit operation.

30XV



Table 9 — Additional Refrigerant Charges Required^a

LINE SIZE		LIQUID LINE lb (kg) OF R-134a REFRIGERANT PER FOOT (305 mm)		SUCTION LINE lb (kg) OF R-134a REFRIGERANT PER FOOT (305 mm)	
in.	mm	lb	kg	lb	kg
1-1/8	29	0.41	0.186	—	—
1-3/8	35	0.63	0.285	—	—
1-5/8	41	0.89	0.403	—	—
2-1/8	54	1.55	0.702	—	—
2-1/2	64	—	—	0.03	0.0153
3	76	—	—	0.05	0.0236
3-1/2	89	—	—	0.07	0.0315
4	102	—	—	0.09	0.0408
5	127	—	—	0.14	0.0638
6	152	—	—	0.20	0.0922

NOTE(S):

a. Table applies to R-134a and R-513A refrigerants.