Installation of Line Set Kit, HS-0231, and HS-2150 Quick Connect Coupling Kits

⚠ WARNING

1. See the instruction manual provided with the icemaker for equipment installation. If an instruction manual is not available, visit our Web site at www.hoshizakiamerica.com or contact Hoshizaki Technical Support at 1-800-233-1940.
2. The icemaker and condenser or condensing unit must be installed in accordance with applicable national, state, and local codes and regulations.
3. Failure to install the equipment within these guidelines may adversely affect safety, performance, component life, and warranty coverage.
4. Installation of remote condenser or condensing units must be performed by properly trained and EPA-certified service personnel.
5. The icemaker, remote condenser or condensing unit, and line set must contain the same type of refrigerant. Mixing of refrigerants will result in improper operation and possible damage to the equipment.

1. Line Set

- **KM, KMD, KMH, KML, F, and FD Units (URC Remote Condenser Units Without a Compressor):** The maximum line set length for the standard refrigerant charge is 66 feet. With additional refrigerant, (and increase in tube size on some models) the maximum line length is 100 feet. For correct size and lengths, see the table below. For charge adjustments on line sets longer than 66 feet, see **"4. Refrigerant Charge (Line Set Exceeding 66 Feet)."**
- **KMS Units (SRK Remote Condensing Units With a Compressor):** The maximum line set length is 66 feet and no line set changes or refrigerant charge adjustment is necessary.
- **FS Units (SRC Remote Condensing Units With a Compressor):** The maximum line set length is 55 feet and no line set changes or refrigerant charge adjustment is necessary.

Line Set Size and Length for URC Remote Condenser Units

Model	Liquid Line (up to 66 ft)	Discharge Line (up to 66 ft)	Liquid Line (66 ft to 100 ft)	Discharge Line (66 ft to 100 ft)	Factory Line Set Lengths (ft)	Maximum Line Set Length (ft)
KM-515/650, F-1001, FD-1001	1/4" OD	3/8" OD	3/8" OD	1/2" OD	20, 35, and 55	100
KM-901/1301/1340, KMD-700/850/901, KML-631, F-1500	3/8" OD	1/2" OD	3/8" OD	1/2" OD		
KM-1601/1900/2000/2100/2400, KMH-1900/2000, F-2000	3/8" OD	5/8" OD	3/8" OD	5/8" OD		

Line Set Size and Length for SRK and SRC Remote Condensing Units

Model	Liquid Line	Suction Line	Factory Line Set Lengths (ft)	Maximum Line Set Length (ft)
KMS-750/1401	1/2" OD	5/8" OD	20, 35, and 55	66
FS-1001	1/4" OD	5/8" OD		55

- **All Units:** The maximum vertical distance between the icemaker and remote condenser unit or remote condensing unit is 33 ft. The maximum distance below the icemaker for remote condenser unit or remote condensing unit is 10 ft. These distances are measured fitting to fitting.
- **KMS and FS Units:** If the vertical distance between the SRK or SRC remote condensing unit and the icemaker is greater than 20 feet (not to exceed 33 feet), an oil-trap (5/8" OD tubing) must be installed in the suction line. The oil-trap must be located halfway between the icemaker and remote condensing unit. This ensures sufficient oil return to the compressor. See Fig. 1.

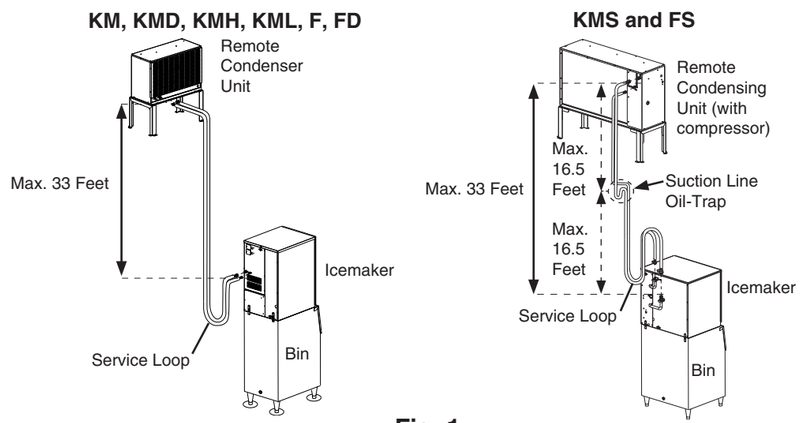

Fig. 1

2. Factory Line Set Installation

1. Route the appropriate factory line set. See the tables in **"1. Line Set."**
   Factory line sets are precharged and do not need to be evacuated. If the line set is too long or too short, see **"2a. Factory Line Set Modification."**
   Leave a service loop behind the icemaker to allow the icemaker to be pulled out for service. See Fig. 1.

CAUTION

1. Ensure that there are no traps and no kinks in the line set.
2. Do not coil extra line set.

2. Connect the refrigerant lines to the appropriate male fittings.
   - **KM, KMD, KMH, KML, F, and FD Application:** Connect the refrigerant lines to the remote condenser unit first and then to the icemaker.
   - **KMS and FS Application**: Connect the refrigerant lines to the icemaker first and then to the remote condensing unit.

   Make a proper connection as follows:
   a. Remove the protective covers from the male fitting and female coupling.
   b. Apply Polyol Ester (POE) refrigerant oil or Parker Super O Lube (provided with the line set) to the entire male fitting, including O-ring, diaphragm, and threads before making the connection. See Fig. 2.

CAUTION

Do not use thread sealant on the fittings. Use POE refrigerant oil or Parker Super O Lube only.

   c. Make sure the male fitting and female coupling are properly aligned, then start the connection by hand to ensure that it is not cross threaded.
   d. Tighten the connection with a wrench until it is tight. At this point, the nut has covered most of the threads on the male fitting.
   e. Mark a reference line on the female coupling and the equipment panel. Using a backup wrench on the back of the female coupling, tighten the six-sided nut of the female coupling an additional 1/6 turn. See Fig. 3.
3. If you lengthened the line set as outlined in "**2a. Factory Line Set Modification**" and it exceeds 66 feet, see "**4. Refrigerant Charge (Line Set Exceeding 66 Feet)**" for proper charging of the unit.

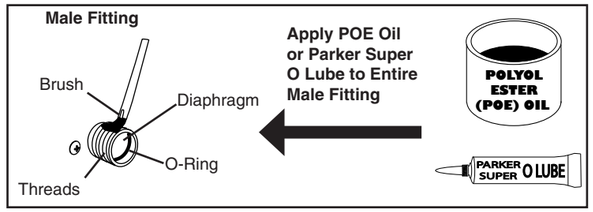

Fig. 2

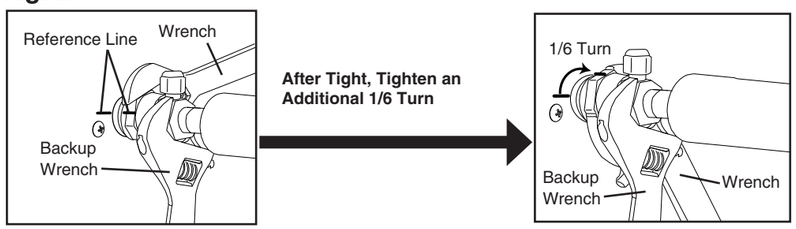

Fig. 3

2a. Factory Line Set Modification

1. Recover the line set charge through the Schrader access ports on the Parker quick connect couplings and store it in an approved container. Do not discharge the refrigerant into the atmosphere. Remove the extra line set length or add extra tubing. When adding extra tubing, insulate the additional copper tubes separately. Braze the connections.
2. Use an electronic leak detector or soap bubbles to check for leaks. Add a trace of refrigerant to the lines through the Schrader access ports on the Parker quick connect couplings (if using an electronic leak detector), and then raise the pressure using nitrogen gas (140 PSIG). **WARNING! DO NOT use R-404A as a mixture with pressurized air for leak testing**.
3. Evacuate through the Schrader access ports on the Parker quick connect couplings and charge with refrigerant vapor of the same type of refrigerant as the icemaker and condenser or condensing unit to a pressure of 15 to 30 PSIG. Go to step 2 in **"2. Factory Line Set Installation."**

3. Field Fabricated Line Set Installation

1. Route the appropriate size tubing. See the tables in "**1. Line Set.**"
   Leave a service loop behind the icemaker to allow the icemaker to be pulled out for service. See Fig. 1.

CAUTION

1. Ensure that there are no traps and no kinks in the line set.
2. Do not coil extra line set. Fabricate the line set to the proper length.

2. Insulate the two copper tubes separately.
3. Install the Parker quick connect couplings on each end. **CAUTION! Before brazing, remove the Schrader valve core from the access port. When brazing, protect the coupling by using a wet cloth to prevent the coupling from overheating.**
   a. Braze the appropriate Parker quick connect coupling to each end of the copper tubes. Use reducing couplings if necessary. When a 1/2" discharge line is required when using the HS-2150 kit, remove the 5/8" female expansion section of the 5/8" tube, debur the 5/8" tube. Insert the 1/2" tubing inside the 5/8" tube, remove the Schrader valve core and braze.

Coupling	Qty.	HS Kit	
3/8" to 1/4" Reducer Couplings	2	HS-2150 (KM, KMD, KMH, KML, F, FD, FS)	-
5/8" to 3/8" Reducer Couplings	2		
3/8" Elbow	1		
3/8" Straight Coupling	1		
3/8" 90° Coupling	1		
5/8" Elbow	1		
5/8" Straight Coupling	1		HS-0231 (KMS)
5/8" 90° Coupling	1		
1/2" Straight Coupling	1	-	
1/2" 90° Coupling	1		

   b. Allow the coupling to cool, then replace the Schrader valve core.
   c. Use an electronic leak detector or soap bubbles to check for leaks. Add a trace of refrigerant to the lines through the Schrader access ports on the Parker quick connect couplings (if using an electronic leak detector), and then raise the pressure using nitrogen gas (140 PSIG). **WARNING! DO NOT use R-404A as a mixture with pressurized air for leak testing**.
   d. Evacuate through the Schrader access ports on the Parker quick connect couplings and charge with refrigerant of the same type of refrigerant as the icemaker and condenser or condensing unit to a pressure of 15 to 30 PSIG.
4. Connect the refrigerant lines to the appropriate male fittings.
   - **KM, KMD, KMH, KML, F, and FD Application:** Connect the line set fittings to the remote condenser unit first and then to the icemaker.
   - **KMS and FS Application:** Connect the line set fittings to the icemaker first and then to the remote condensing unit.

   Make a proper connection as follows:
   a. Remove the protective covers from the male fitting and female coupling.
   b. Apply Polyol Ester (POE) refrigerant oil or Parker Super O Lube (provided with the kit) to the entire male fitting, including O-ring, diaphragm, and threads before making the connection. See Fig. 2.

CAUTION

Do not use thread sealant on the fittings. Use POE refrigerant oil or Parker Super O Lube only.

   c. Make sure the male fitting and female coupling are properly aligned, then start the connection by hand to ensure that it is not cross threaded.
   d. Tighten the connection with a wrench until it is tight. At this point, the nut has covered most of the threads on the male fitting.
   e. Mark a reference line on the female coupling and the equipment panel. Using a backup wrench on the back of the female coupling, tighten the six-sided nut of the female coupling an additional 1/6 turn. See Fig. 3.
5. If the line set exceeds 66 feet, see **"4. Refrigerant Charge (Line Set Exceeding 66 Feet)"** for proper charging of the unit.

4. Refrigerant Charge (Line Set Exceeding 66 Feet)

Confirm line set sizes, see the tables in "**1. Line Set.**"

CAUTION

- Always check the unit nameplate for the correct refrigerant type.
- Confirm that all three components (icemaker, condenser or condensing unit, and line set) all have the same type of refrigerant.
- After weighing in the additional charge, mark the unit's nameplate to show the new correct total refrigerant charge.

- **1/4" L.L. and 3/8" D.L. Line Set:** Increase the line set sizes to 3/8" OD L.L. and 1/2" OD D.L. for the entire run. Add 16.5 oz. of R-404A to the system to compensate for the larger diameter line sizes, then add .4 oz. of R-404A for each foot over 66 feet to a maximum of 100 feet.
- **3/8" L.L. and 1/2" D.L. and 3/8" L.L. and 5/8" D.L. Line Set:** Add .4 oz. of R-404A for each foot over 66 feet to a maximum of 100 feet.

Hoshizaki Technical Support is available at 1-800-233-1940 for recommendations.