

Fire Rated Hose Assemblies

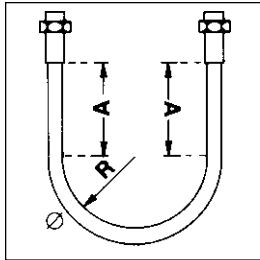
For Water Source Heat Pumps



Application

Select the proper hose length to allow the slack required between connection points, to insure that the minimum bend radius is not exceeded. Exceeding the minimum bend radius can cause the hose to collapse, thus reducing the water flow rate, and/or damage the hose wall construction. A minimum bend radius specification of 4" (102mm) means that the shortest distance between sections of bent hose can be not less than 8" (208mm).

Figure 1.



To calculate the proper length to be used, refer to Figure 1. Dimension A should be two times the hose internal diameter. The radius of curvature R should be at least four times the hose outer diameter.

Figure 2. Typical floor vertical unit

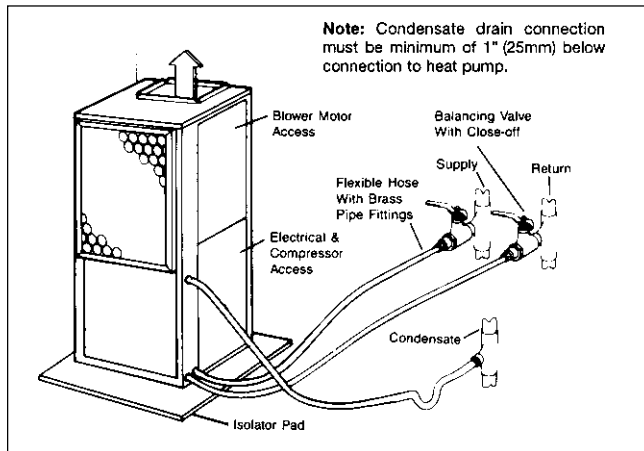


Figure 3. Typical horizontal unit

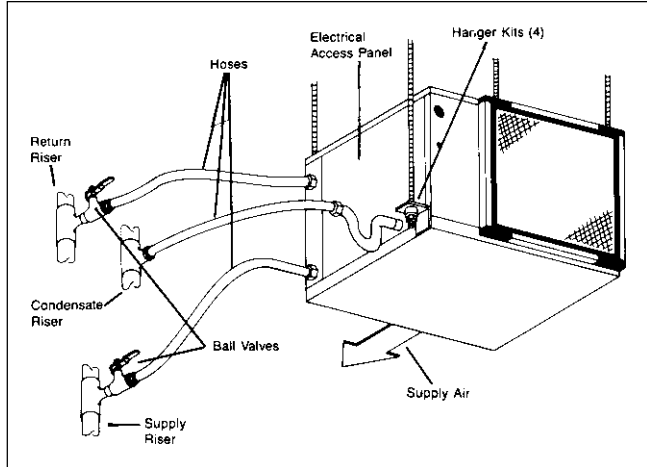
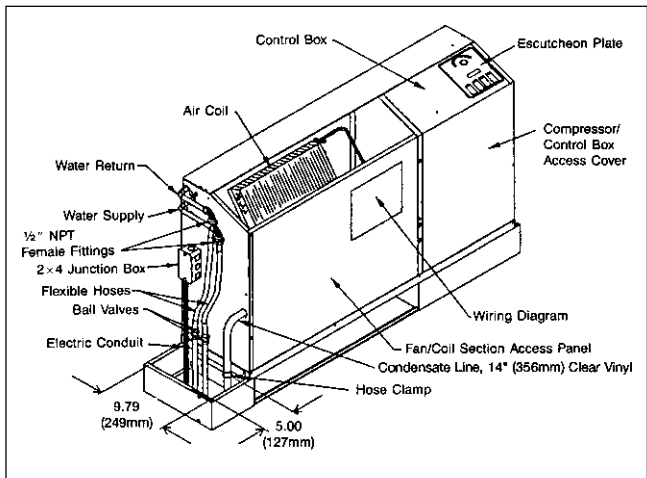


Figure 4. Typical console (left-hand piping shown)



Installation Instructions

General

Hose assemblies must be installed properly and checked regularly. Improper installation of hose assemblies can cause failure, or reduce service life. Because water leaks could cause severe damage to ceiling tile, carpet, furniture, etc., it is extremely important that the following installation instructions be strictly followed to ensure that water leaks will not occur.

No responsibility can be assumed by McQuay International or the manufacturers or assemblers of the hose assemblies, if proper installation and maintenance are not carried out.

During Storage:

Avoid storage near sources of ozone; i.e., electric motors, fluorescent lamps. If possible, store in places sheltered from light and from possible damage. It is recommended to leave them in their factory packaging before use.

- 1. Bend Radius** specifications are for hoses above 40°F (5°C). If hose assemblies have been in storage at temperatures below 40°F (5°C), and/or installed in temperatures below 40°F (5°C), the hose will be stiffer than normal. Under these conditions, the minimum

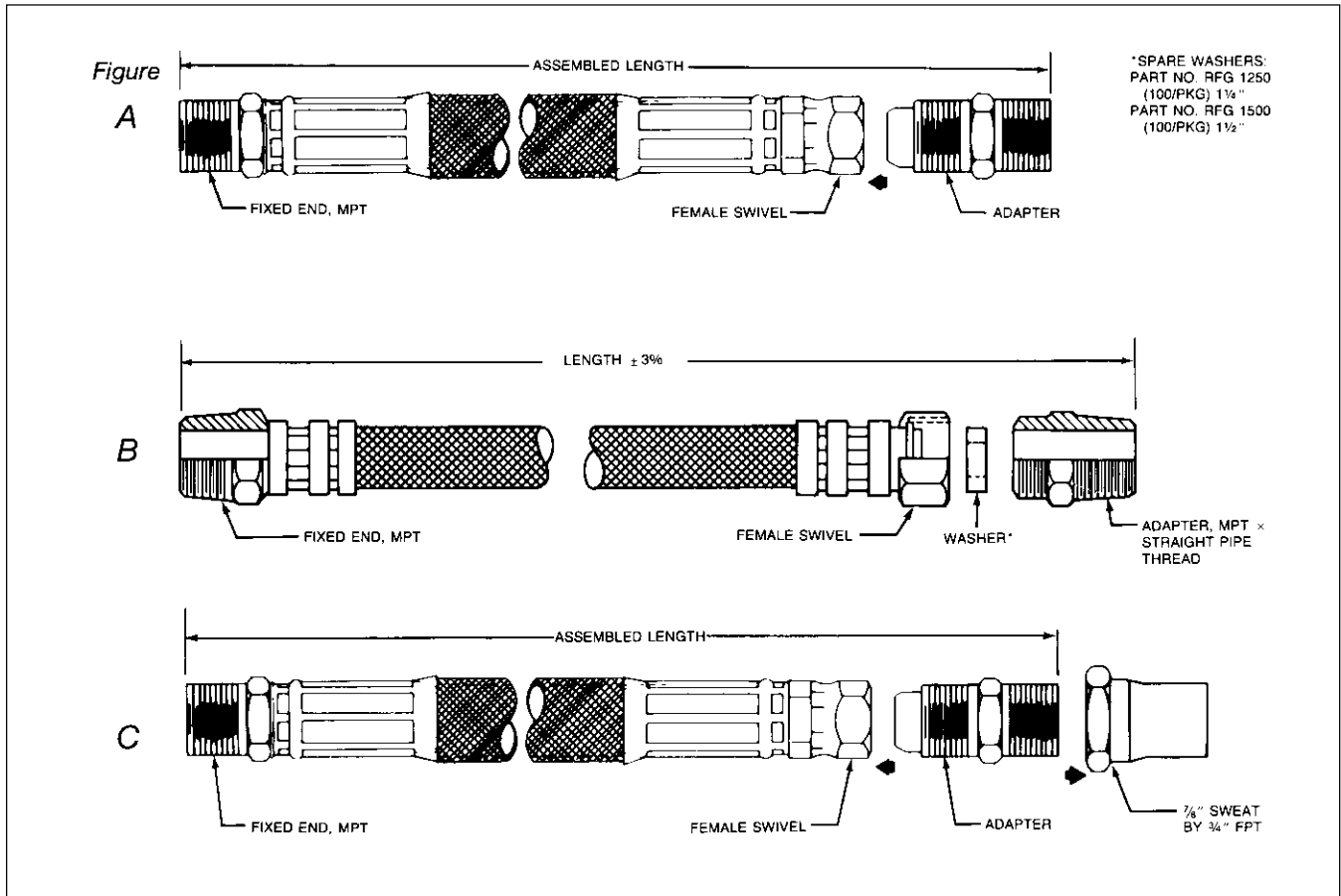
specified bend radius should be increased by 50%, and extreme care taken not to collapse the hose.

- 2. Pipe Dope or Teflon® Tape** is not necessary if thread sealant is applied to hose assemblies by the manufacturer. If pipe dope is preferred in lieu of tape, use only a small amount on the **male pipe threads only** of fitting adapters. Care must be taken to avoid letting any sealant reach the flared surfaces of the joint.
- 3. Do not overtorque fittings.** The maximum torque without damage to the fitting is 30 foot pounds (41 Nm). If a torque wrench is not available, use as a "rule of thumb" finger-tight plus one-quarter turn. Use two wrenches to tighten the union: one to hold the line and one for simultaneous tightening of the nut.
- 4. Do not twist hose** to avoid damage to the hose wall. Sharp bends, kinking, or twisting of the connector during installation must be avoided. These conditions result in reduced flow capacities and shorter service life. Failure to observe these factors during installation voids the warranty.

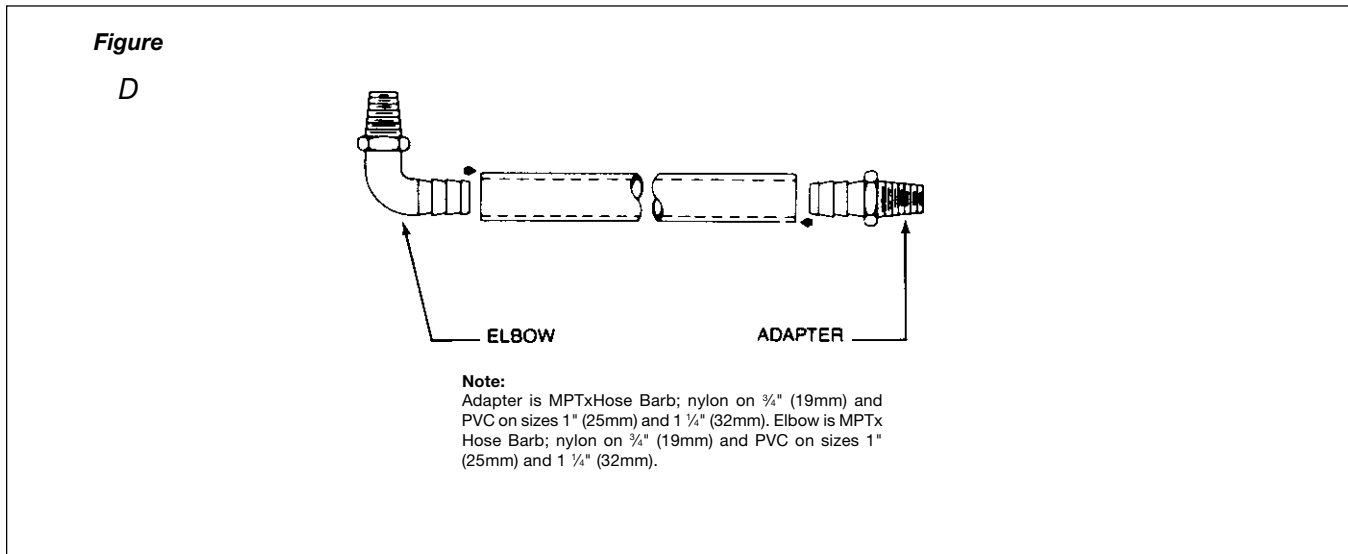
*Teflon is a registered trademark of E.I. du Pont

Hose assemblies

Fire rated supply or return hoses (order 2 per unit)



Condensate hoses



Condensate hose

3/4" (19mm) for unit sizes 007 through 060, 1" (25mm) for unit sizes 070 through 120 and 7 through 12, 1 1/4" (32mm) for unit sizes 15 through 27. Select an additional hose for this purpose, as required.

Sizing

Match the MPT hose size to the same FPT connection size on the unit. Generally the sizes are:

- 1/2 to 1 1/2 Tons = 1/2"
- 2 To 4 Tons = 3/4"
- 5 tons = 1"
- 6 To 10 Tons = 1 1/4"
- 12 1/2 to 25 Tons = 1 1/2"

Fire Rated Hoses

Application	Fig.	Part Number	Nominal Length	Actual Hose Length (Assembled)	Elbow	Max. Recom. Working Press.	Minimum Burst Press.	Minimum Bend Radius
Console Units								
½" MPT Supply and Return,	A	0061269011	9" (227mm)	12" (305mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	2½" (64mm)
	A	0061269007	12" (305mm)	14¾" (375mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	2½" (64mm)
	A	0061269008	18" (457mm)	20¾" (527mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	2½" (64mm)
Horizontal and Vertical Units								
½" MPT Supply & Return Sizes 007-019	A	0061269001	24" (610mm)	26¾" (679mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	2½" (64mm)
	A	0061269002	36" (914mm)	38¾" (984mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	2½" (64mm)
¾" MPT Supply & Return Sizes 024-048	A	0061269003	24" (610mm)	27⅞" (689mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	4" (102mm)
	A	0061269004	36" (914mm)	39⅞" (994mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	4" (102mm)
1" MPT Supply & Return Sizes 060	A	0061269005	24" (610mm)	28¾" (730mm)	None	500 psig (3447 kPa)	2000 psig (13789 kPa)	5½" (140mm)
	A	0061269006	36" (914mm)	40¾" (1035mm)	None	500 psig (3447 kPa)	2000 psig (13789 kPa)	5½" (140mm)
1¼" MPT Supply & Return Sizes 070-120,7-12	B	0061269012	24" (610mm)	24" (610mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	10" (254mm)
	B	0061269013	36" (914mm)	36" (914mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	10" (254mm)
1½" MPT Supply & Return Sizes 15-27	B	0060993004	24" (610mm)	24" (610mm)	None	175 psig (1207 kPa)	700 psig (1207 kPa)	9" (227mm)
	B	0060993002	36" (914mm)	36" (914mm)	None	175 psig (1207 kPa)	700 psig (1207 kPa)	9" (227mm)
Condensate								
¾" (19mm) Condensate Sizes 007-120	C	0061300001	24" (610mm)	27⅞" (689mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	4" (102mm)
	C	0061300002	36" (914mm)	39⅞" (994mm)	None	300 psig (2068 kPa)	1200 psig (8274 kPa)	4" (102mm)
1" (25mm) Condensate Sizes 7-12	A	0061269005	24" (610mm)	28¾" (730mm)	None	500 psig (3447 kPa)	2000 psig (13789 kPa)	5½" (140mm)
	A	0061269006	36" (914mm)	40¾" (1035mm)	None	500 psig (3447 kPa)	2000 psig (13789 kPa)	5½" (140mm)

Rubber Hoses

Application	Fig.	Part Number	Nominal Length	Actual Hose Length (Assembled)	Elbow	Max. Recom. Working Press.	Minimum Burst Press.	Minimum Bend Radius
Condensate								
¾" (19mm) Condensate Sizes 007-060	D	0060687701	30" (762mm)	30" (762mm)	¾" MPT	25 psig (177 kPa)	75 psig (517 kPa)	6" (152mm)
1" (25mm) Condensate Sizes 070-120, 7-12	D	0002025507	30" (762mm)	30" (762mm)	1" MPT	25 psig (177 kPa)	75 psig (517 kPa)	8" (203mm)
1¼" (32mm) Condensate Sizes 16-27	D	0002025508	38" (965mm)	38" (965mm)	1¼" MPT	25 psig (177 kPa)	75 psig (517 kPa)	9" (229mm)

Fire rated hose construction

½", ¾", 1", and 1¼": The inner core, or tube, of thermoplastic rubber is bonded to a high tensile galvanized steel wire outer braid suitable for water temperatures between -40°F (-40°C) and 200°F (93°C). The fittings are plated steel with thread sealant.

1½": The inner core, or tube, is a nontoxic synthetic polymer suitable for water temperatures between 58°F (-158°C) and 2308°F (1108°C). The tube has an outer braided covering of stainless steel. The fittings are brass.

Fire rating

½", ¾", 1", and 1¼": Product is fire retardant and tested UL 94 with VO rating.

1½": Product is fire retardant and tested to ASTM-84, 812a and will not exceed the following:

- Flame Spread - 25
- Fuel Contribution - 25
- Smoke Density - 50

Suggestions for proper installation

Since hose may change in length from +2% to -4% under the surge of high pressure, it is necessary to provide sufficient slack for expansion and contraction (see Figure 5).

Where the radius falls below the required minimum, an angle adapter should be used as shown in Figure 6 to avoid sharp bends in hose.

Avoid sharp twist or bend in hose by using proper angle adapters (see Figure 7).

Figure 5.

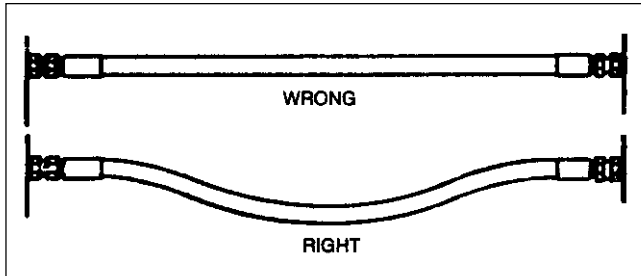


Figure 6.

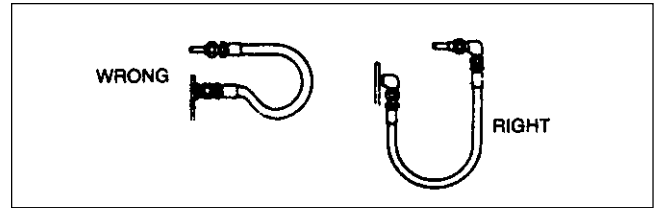
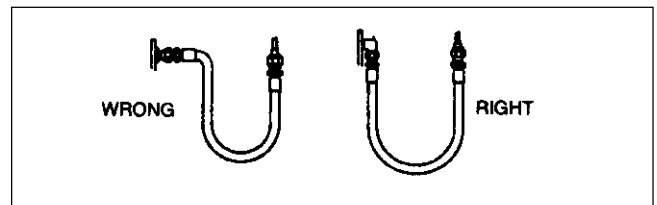


Figure 7.



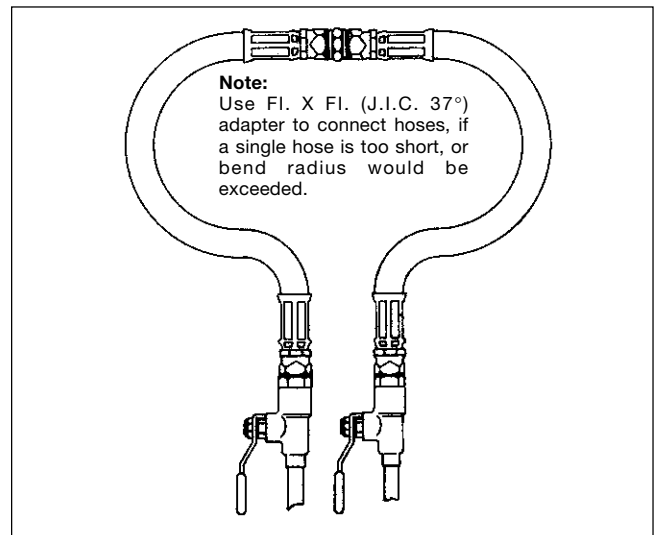
Maintenance inspection

- Hose assemblies from McQuay International have been especially selected for the system application. Properly installed, they will provide a long life of trouble-free service.
- McQuay has no reports of hose failures due to age, but good engineering practice precludes the assumption that hoses will last indefinitely. **Hoses should be inspected periodically.** Usually, the most convenient time to perform a hose inspection is when the air filters are serviced on the conditioner. It is recommended that each hose should be inspected at system commissioning, after six months of service and annually thereafter, in conjunction with normal conditioner servicing.
- Inspection Guide:**
 - Make sure the minimum bend radius was adhered to by the installer (see installation instructions.)
 - Look for cracks, cuts, bulges or soft spots in the outside cover of the hose body. Replace any hose with these unusual signs.
 - Look for small water leaks at the hose clamp or fitting. If a leak is detected here, replace the hose. Do not attempt to repair it.
 - Caution:** Careless introduction of chemicals into the loop water system may cause damage to the hose rubber, or stress corrosion cracks in the fittings. Consult a water treatment specialist in your area before chemicals are introduced.

Cleaning and flushing the system

- Do follow** the cleaning and flushing specifications found in the water source heat pump installation manual. Note that chemicals are not required. Some chemicals could cause the hose to fail.
- Do not** damage the hose by exceeding the bend radius during flushing. If one hose is not long enough to short circuit the supply and return, use both hoses with a flare x flare (J.I.C. 37°) adapter as shown.

Figure 8. Temporary connection for system flushing



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