

Tips for Selecting Matched Components and Line Sets

For an air conditioning or heat pump system to provide proper comfort, efficiency and operation, it is very important for all the components to be matched and sized properly. Below are a few tips for selecting matching components and line sets your system:

1) When purchasing an air conditioner or heat pump, it is critical that it be matched with an appropriate evaporator coil or air handler (which has an evaporator coil built in). Evaporator coils are sized based on their capacity in tons and the SEER rating (efficiency) of the system. Typically, the higher the SEER rating or tonnage of the system, the larger the evaporator coil needs to be. It is vital that the air conditioner or heat pump be matched with a properly sized evaporator coil. An improperly sized coil, particularly one that is too small, can lead to the failure of the compressor after just a few seasons of operation.

When purchasing a new 13 SEER air conditioner or heat pump you will typically purchase an evaporator coil with the matching tonnage rating. However, when purchasing a system with a SEER rating higher than 13, it is often necessary to purchase an evaporator coil with a higher tonnage rating than that of the air conditioner or heat pump. Use the manufacturer's specification sheet to identify the correct match for your condenser. Similarly, do not match a new condenser with an older evaporator coil designed for a lower SEER system. Even if that coil has the same tonnage rating as the new system, it will not be the proper size for a 13 SEER or higher system.

2) When purchasing refrigeration lines, measure the length of line set needed to connect your outdoor condenser to the indoor forced air equipment. Based on that length, the correct size diameter line set can be selected which will ensure your system meets the listed SEER rating and capacity. Once you have accurately measured the length needed, use our chart below to find the diameter best for your system.

3) When feeding a new line set through the wall, it is typically easier to feed the lines "out" from the inside of the home rather than "in" from the outside. This will also minimize any damage to the suction line insulation when feeding it through the wall. It is always advisable to slowly roll the lines open to avoid putting crimps in the copper. If you encounter a tight radius bend, cut the suction line and braze a 90° or 45° fitting to avoid kinking the flexible tube. The installation DVD includes more tips on running line sets.

4) When sweating the line set to the equipment or fittings use an oxygen/acetylene torch (preferred since it is hottest) or MAPP gas torch and high silver content brazing rods to achieve a proper brazed connection. Propane gas or MAP/PRO torches should *not* be used, since they will not generate enough heat to make a good connection. When brazing pipes into air conditioning condenser or heat pump, first tie a wet rag around the service valves to dissipate heat. If this isn't done, there are small rubber O-rings in the valves which can melt and cause refrigerant leaks. If you aren't familiar with using a torch, for your safety have your air conditioning contractor perform this task for you. Wear proper eye and hand protection when operating a torch.

5) Once all of the line set connections have been brazed, a vacuum must be pulled on the system to evacuate the lines. The manufacturer's installation instructions describe the system evacuation process. If your system operates on R22, then by law you must have an HVAC technician do this part of the job for you.

If you have any questions, please feel free to contact us and one of our consultants will be happy to assist you.

Recommended Interconnecting Tubing (Ft)								
Cold Unit Tons	0-25		26-50		51-75		76-150	
	Line Diameter (In. OD)							
	Suct	Liq	Suct	Liq	Suct	Liq	Suct	Liq
1 1/2	3/4	3/8	3/4	3/8	3/4	3/8	7/8	3/8
2	3/4	3/8	3/4	3/8	3/4	3/8	7/8	3/8
2 1/2	3/4	3/8	3/4	3/8	7/8	3/8	7/8	3/8
3	3/4	3/8	7/8	3/8	1 1/8	3/8	1 1/8	3/8
3 1/2	7/8	3/8	1 1/8	3/8	1 1/8	3/8	1 1/8	3/8
4	7/8	3/8	1 1/8	3/8	1 1/8	3/8	1 1/8	3/8
5	7/8	3/8	1 1/8	3/8	1 1/8	3/8	1 1/8	3/8