

SECTION 23 23 00 - REFRIGERANT PIPING

PART I - GENERAL

1.1

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Fittings and flanged unions shall be cast brass or wrought copper refrigeration type fittings. Cast fittings shall be internally tinned before use.
- B. Vibration eliminators shall be located in the piping. Sizes above 3" shall be the stainless steel type designed to restrict freedom of movement in three dimensions.
- C. With multiple evaporator and/or compressor units, piping connections shall be arranged to prevent gravity flow of oil or liquid refrigerant into the compressor.
- D. Hot gas and suction velocities shall be not less than 500 fpm in horizontal lines and 1000 fpm in vertical lines. Where capacity control is used, double pipe risers and oil traps should be used to avoid dropping below 1000 fpm in vertical lines. In sizing suction lines, it is generally desirable to limit the pressure drop to one (1) psi.

2.2 REFRIGERANT PIPING

- A. All refrigerant piping shall be Type "L" ACR hard copper with long radius fittings. The composition of the solder depends on the location in the system:
 - 1. For pipe runs and joints (copper to copper), Staz-Silv or Silfos, a solder composition with 15% silver (BCUP-S) shall be used.
 - 2. Where dissimilar metals are joined, such as copper to brass or copper to steel, Staz-Silv or "easy-flow", a solder composition with 45% silver (BAg-1) shall be used.
 - 3. Where auxiliary components, such as expansion valves are involved, Staz-brite (soft solder) with tin and 4% silver shall be used so parts can be readily changed as needed.
- B. When soldering, a nitrogen bleed shall be used to keep pipe and fitting from being oxidized.

PART 3 - EXECUTION

3.1 DEHYDRATION AND AIR REMOVAL

- A. Refrigeration systems shall be thoroughly dehydrated and evacuated before charging with refrigerant. Systems shall be evacuated with a vacuum pump to an absolute pressure of not less than 500 microns mercury. Dryer cartridges shall be replaced until all water has been removed. These processes shall be described in the specifications in the greatest possible detail so no question can exist regarding the efficiency of air and water removal required.

END OF SECTION 23 23 00

This section of the *U of I Facilities Standards* establishes minimum requirements only.
It should not be used as a complete specification.