

Application Note 2026: Guidelines for Alternative Piping Materials & Piping Components

Author **Joe Vaughan** | Manager – Application Support

Contributor **Gary Nettinger** | Director – OEM Solutions & Applications

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1. Introduction

This Application Note provides an overview related to the application of alternative piping material and alternative pipe fittings other than traditional copper flare or sweat fittings on a system with CITY MULTI and M&P equipment.

Regardless of the type of piping materials, it is always the responsibility of the installing contractor to meet the minimum criteria outlined herein, otherwise Mitsubishi Electric cannot approve the use of alternative piping material or fittings.

2. Copper Piping

Mitsubishi Electric recommends the use of traditional annealed / ACR copper refrigerant piping whenever possible. This position is in line with the proven reliability that copper piping has been applied to over a very wide spectrum of refrigeration and air conditioning applications.

Mitsubishi Electric does, however, recognize that some circumstances require the use of alternative piping or connection approaches such as aluminum piping or other industry approved piping connections/techniques such as compression type fittings (ex: Reflok, LokRing, ZoomLock, or other similar compression type fittings).

3. Conditions for Using Alternative Piping Materials & Compression Fittings

The use of refrigerant piping other than the piping or connections supplied by Mitsubishi Electric ARE ACCEPTABLE for use on Mitsubishi Electric HVAC products providing all of the following criteria are met:

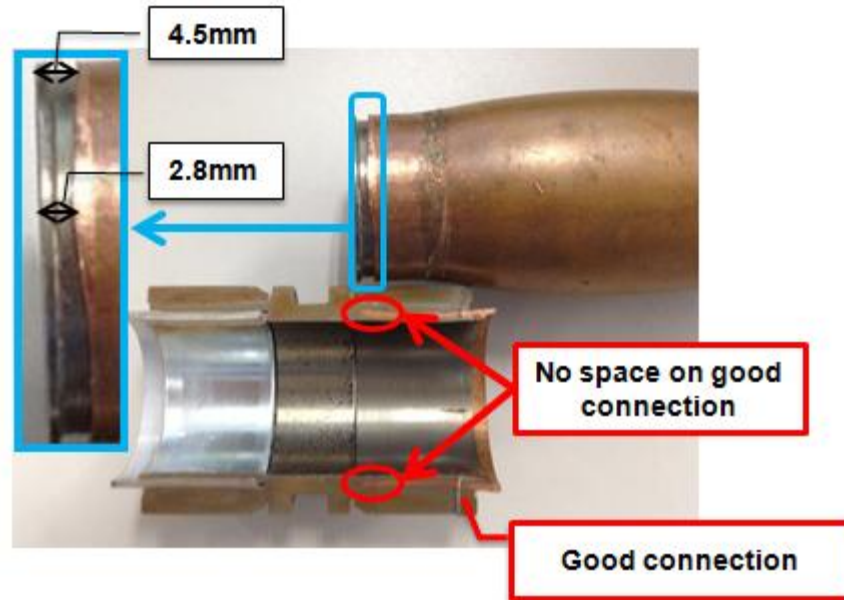
- a. The installing contractor is fully trained and qualified by the manufacturer of the alternative piping components to install the selected refrigerant piping and piping connections.
- b. All manufacturers' guidelines related to piping or components are strictly followed.
- c. Galvanic Corrosion Protection must be followed. See section 4.
- d. The "Burst Pressure" of the aluminum piping or joint must be at least three times that of the system design pressure which is 602 PSIG resulting in a Burst Pressure of 1806 PSI or greater.

- e. Piping may not contain any oil film, either inert or trace products from manufacturing, as this could result in contamination and damage to the system, especially the compressor.
- f. The installer assumes responsibility for the quality and reliability of piping and piping connections. No direct flare connections to equipment are allowed.
- g. Correctly sized expansion loops should be utilized based on the type of the piping material used.
- h. If the system requires twinning, a Mitsubishi Electric twinning kit must be used. This includes outdoor and indoor systems.
- i. All of the installed piping, including any alternative/compression type fittings if used, complies with all standards and codes, local and national. This includes ASHRAE 15 Safety Standard for Refrigerant Systems. Piping and fittings shall meet ASME standards for refrigerant piping.
- j. All aluminum refrigerant piping shall be constructed of alloy 3003 or 6061 and be seamless, as defined by ASME.

4. Galvanic Corrosion Protection Guidelines

Electrochemical corrosion otherwise known as “Galvanic Corrosion” occurs when aluminum and copper pipe come into contact with each other, creating an electrolyte. Therefore, it is imperative to comply with the following points when installing aluminum piping.

1. The dielectric coated joint as provided by the piping manufacturer is to be used at all times when joining Aluminum to Copper.
2. An insulator must entirely cover the joining point in order to prevent water from either accumulating or condensing. The reason for this is that galvanic corrosion can conduct across the accumulated water.



5. Liability

It is always the responsibility of the installation contractor to ensure that refrigerant piping best practices are carried out when installing piping and to follow the guidelines provided by the manufacturer of the piping.

Mitsubishi Electric US, Inc. is not responsible for the following, regardless of the material used for piping and components:

- A) Malfunctions in the system as a result of installation of the piping, including poor workmanship and/or poor refrigeration practices carried out by the installing contractor.
- B) Malfunctions in the system as a result of a installing contractors piping joints and piping.
- C) Issues due to pipe size selection of any piping, copper, aluminum, or other materials.

6. Warranty

The use of alternative piping materials and piping compression type fittings will not void the warranty for CITY MULTI, provided all the guidelines in this Application Note are followed.