

Technical Bulletin

SUBJECT: Compression Connections with Solid Brass Cone Design

DATE: January 9, 2009

Tapered sleeve compression connections as defined per SAE J512 (Figure 1) are commonly used in the plumbing industry. As defined by SAE, these types of connections are designed for general use of annealed copper alloy tubing. Brass Craft Manufacturing designs and manufactures compression connections based on this standard.

SAE J512 Standard Tapered Sleeve Connection

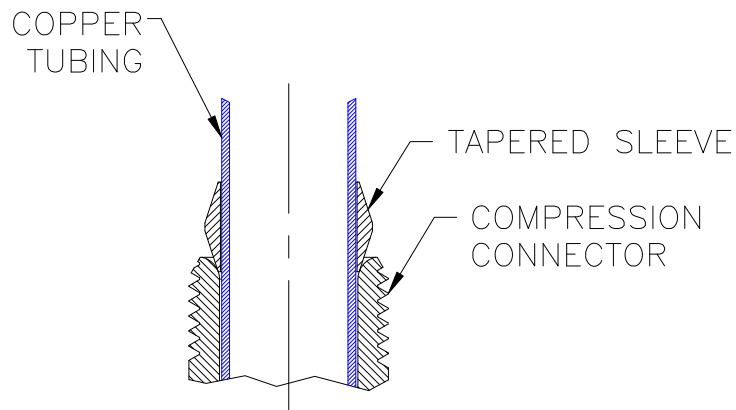


FIGURE 1

Suppliers of plumbing components design connections in accordance with the SAE J512 standard. However, there are some companies that design the connection using solid brass cone design (Figure 2) to mate with the compression connector. Over tightening of these connections using the solid cone design can result in stress cracking failures or stress corrosion cracking (SCC).

Non-Standard Solid Brass Cone Connection

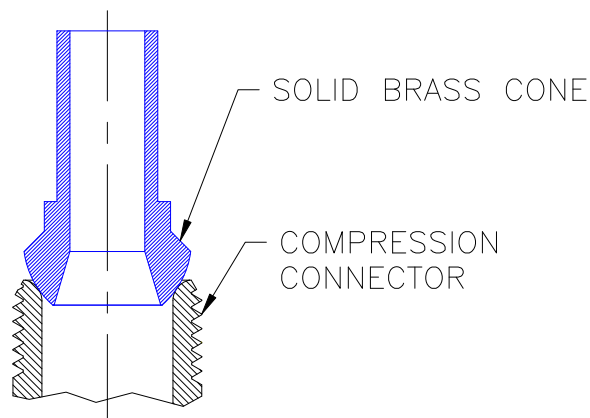


FIGURE 2

The stress distribution between a tapered sleeve design and solid brass cone design is different in comparison to a tapered sleeve design that is applied against a regular cut copper tube and tapered sleeve design. This design compresses the sleeve and tube as the sleeve is forced into the compression connector resulting in limited stresses applied to the connector. The solid brass cone design does not allow for any compression of the cone surface as its being forced into the compression connector resulting in higher stresses being induced into the compression connector.

As a result, these stresses create a condition that is more susceptible to stress failures or stress corrosion cracking (SCC) if over tightened or improperly installed. Based on this information, brass cone connections are not recommended by BrassCraft. Brass Craft recommends that compression connections be made with tapered sleeves or with connections that use flat rubber seal technology.