

Tubing Selection

Proper selection, handling and installation of tubing are essential for reliable tubing system performance. While Brennan Industries is not a tubing manufacturer or supplier, we must stress the importance of carefully selecting high-quality tubing. Proper tubing selection is necessary to ensure safe and leak-free systems. Brennan Industries is happy to assist in tubing selection upon request.

Tubing selection is based on the material, hardness, wall thickness and surface finish. The ASTM specifications for various tubes cover material, hardness and wall thickness. They do not give details on the surface finish.

Tubing Hardness

Tubing must always be softer than the fitting material. To achieve leak-free connections, it is important to use the recommended tubing hardness as explained in the Tubing Specifications section, leak-free connections will be achieved.

The biggest misunderstanding about tubing hardness is in the area of stainless steel tubing. Brennan's Stainless Steel Double-Ferrule Tube Fittings have been tested successfully with tubing hardness up to RB 90, the maximum hardness allowable under ASTM A 213 and A 269.

Although such tubing hardnesses are permissible and Brennan's Double-Ferrule Tube Fittings will perform satisfactorily on them, they will not provide the maximum advantage and performance for tubes with hardnesses above RB 80. It is suggested that, when purchasing stainless steel tubes to ASTM A 213/A 269, you specify that the hardness of the tubes should not exceed RB 80.

The best results are obtained where the stainless steel tubing hardness is in the range RB 70-74. Such tubing lowers installation costs because it is more easily bent and installed.

Tubing installers should perform the full 1-1/4 turn after snug-tightening to ensure proper joints. This will provide the best performance and is especially true in the case of harder tubing where higher torque is required.

RB 80 maximum hardness is a suggestion and not a restriction against the use of harder tubing. However, if the tubing hardness exceeds RB 90, special fittings should be considered.

Tubing Wall Thickness

The allowable pressure rating of tubing for the wide range of wall thickness is calculated from "S" values as specified by ANSI Code B 31.1. The range of tubing wall thicknesses varies from 0.028" to 0.109" in the inch OD series. These wall thicknesses are generally preferred for tube sizes up to 1". For higher tube sizes, these wall thicknesses may be increased to 0.125 and 0.167".

Upon request, Brennan Industries will provide working pressure ratings as per ANSI Code B31.1 for various wall thicknesses in the above-mentioned ranges for inch size tubing.