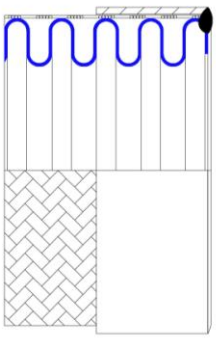
4.8 Attachment Methods

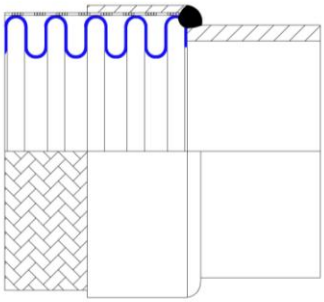
Fittings are typically welded or brazed onto the ends of the metal hose. The most common welding methods are explained and illustrated below. With all assembly types, care should be taken to select the most appropriate method for the application's requirements and to maximize the live length of the hose assembly.

Direct Attachment Method

The Direct Attachment Method has two steps. First, the hose, braid, and braid sleeve are welded together. This step is referred to as the "Cap Weld" (see below). The fitting is then welded onto the Cap Weld. This step is referred to as the "Attachment Weld" (see below).



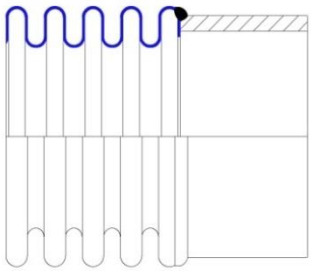
Cap Weld



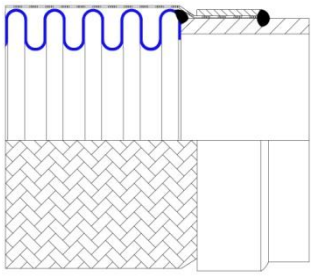
Attachment Weld

Braid-Over (Neck Down) Attachment Method

This is also a two step process with the first step being to weld the fitting to the unbraided hose. The braid is then pulled over that attachment joint and the braid and braid sleeve are welded directly onto the fitting.



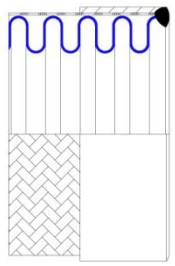
Hose to Fitting Weld



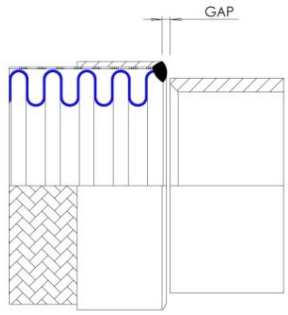
Braid Attachment Weld

Smooth-Transition (ST) Attachment Method

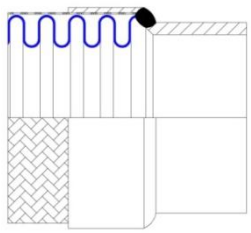
Special fabrication techniques may be used to make a smooth transition between the hose ID and the fitting ID, free of crevices that could entrap contaminants. A smooth transition may be accomplished by either a direct attachment (See Figures A, B, and C) or with a braid-over attachment (See Figures D and E). With either method, care should be taken when attaching the fitting to the hose to avoid creating cavities (see Figure F).



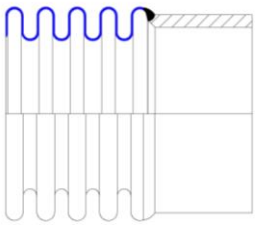
A
ST - Cap Weld



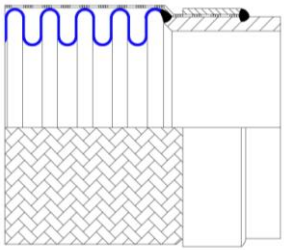
B
ST - Fitting Spacing



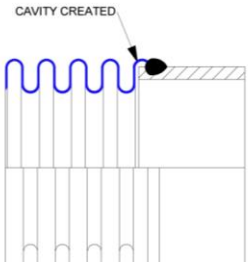
C
ST - Attachment Weld



D
ST - Hose to Fitting Weld



E
ST - Braid Attachment Weld



F
Incorrect Fit-Up

Attachment Components

Braid Sleeves

Braid sleeves must be used at each end of a braided hose assembly. Braid sleeves can serve two functions: (1) to hold the braid tightly in place during fabrication; and (2) to protect the underlying corrugations from excess flexing. Ideally, braid sleeves should cover approximately three corrugations. They shall not be less than 3/8” long and are not required to be longer than 1”.

Pipe Spacers

Pipe spacers may be used for flanged or similar assemblies, when braid-over construction is used, or when flange bolts may interfere with the hose’s outside diameter.

