

Installing Connecting Bands

During the construction of a corrugated steel pipe system, care must be given to the assembly of joints to control both infiltration and exfiltration. Both processes will have an effect upon backfill materials since soil particle migration can occur. This is particularly true when fine grained soils (fine sands and silts) are present in the backfill material. When necessary, a gasket, a geotextile wrap or both can also be used to control infiltration of fines.

Bands are put into position at the end of one section of pipe with the band open to receive the next section. The next section is brought against or to within 1 inch (25 millimeters) of the first section. After checking to see that connecting parts of both band and pipe sections match and the interior of bands and exterior of pipe are free of dirt, stones, etc., bolts are inserted and tightened.

To speed the coupling operation, especially for large diameter structures, a cinching device will help draw the band up tight. Special coupling devices can be used to fit over the connecting bands and quickly draw them together. Advantage of these devices is that they permit faster hand-tightening of the bolts, so that a wrench is needed only for final tightening.

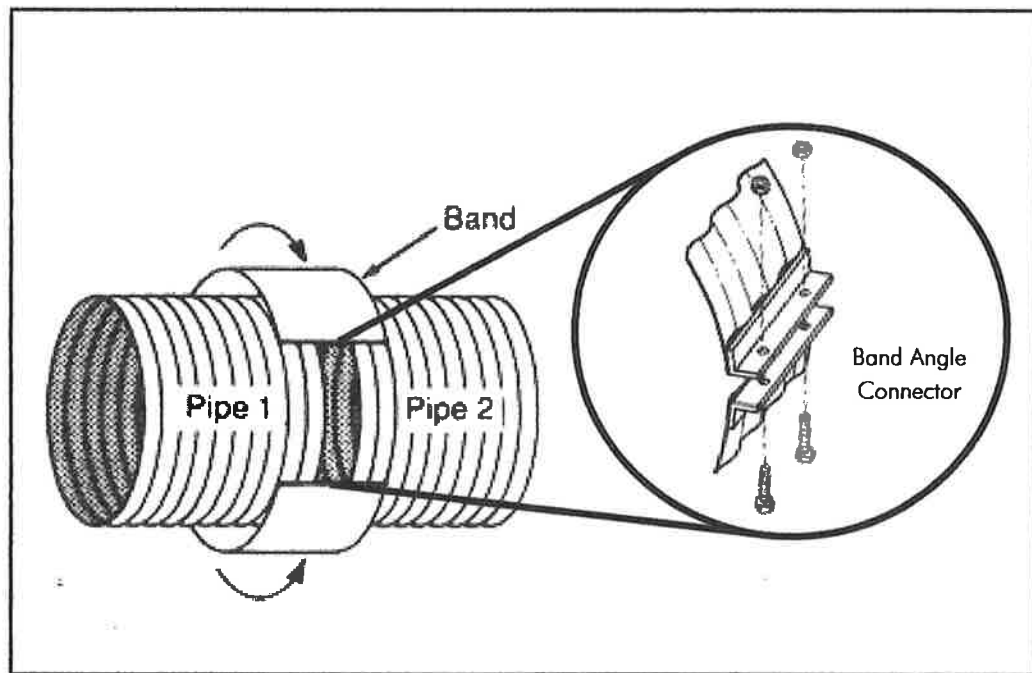


Figure 7. Typical connecting band is wrapped around the joint and drawn together.

PIPE ASSEMBLY

Unloading and handling

Pipe must never be dumped directly from a truck bed while unloading.

Although corrugated steel drainage structures withstand normal handling they should be handled with reasonable care. Dragging the pipe at any time may damage the coatings. Also avoid striking rocks or hard objects when lowering pipe into trenches. Sometimes pipes are bundled together on the truck with steel straps. Do not cut the steel strapping around the bundles until the bundles have been placed on level ground, blocked or secured and will not be moved again as a unit.

Since corrugated steel pipes are relatively light weight, they can be handled with lighter equipment. Use of slings to support pipe while lifting is recommended to properly handle the pipe.

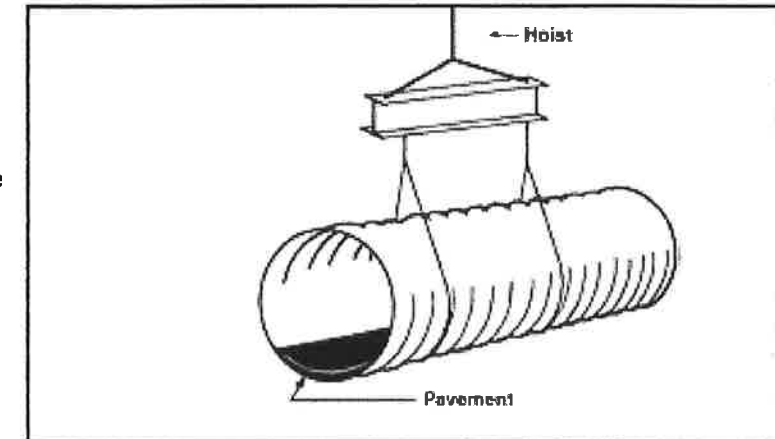


Figure 6. Handling a section of large diameter pipe with sling.

Connecting Bands

The usual method of joining two or more lengths of factory-made pipe or pipe arch is with the use of steel connecting bands, which engage the ends of each pipe section by overlapping each pipe section equally. The connecting bands, or couplers, are generally classified as standard or gasketed. Standard systems are intended to control the infiltration of soil into the pipe for most applications. Where these bands do not provide adequate soil infiltration control, a geotextile wrap around the exterior of the joining system and adjacent pipe will inhibit the movement of fine particles. Gasketed systems are used for limiting the flow of water in or out of the pipe through the coupling system. They may also be required for very fine soils. In rare cases, a leakage test may be required in the plant to qualify gasketed systems for a particular application (see ASTM A760).

One piece bands are used for installations of 12"-48" diameter pipe. "Two-piece" bands are used on 54"-90" diameter pipe. "Rods and Lugs" are used on levees, aerial sewers and similar installations where bands that provide tighter and stronger joints are essential.

Standard couplers (bands) and their method of installation, are illustrated in Figures 7 to 9. Specially fabricated bolted, welded or riveted connectors can be supplied for use in special or unusual conditions. If the pipe ends have been match marked by the fabricator, then they must be installed in the proper sequence.