

Technical Note

TN 5.10 Integral Bell Transition for HDPE Pipe

ADS offers a variety of joints to the market place. Corrugated HDPE pipe can be cut at any corrugation allowing a great degree of flexibility in making field cuts. Plain end pipe can be connected using split couplers, cleated bell-bell couplers, or bell end couplers and gaskets. The standard pipe joint ADS offers is the Integral Bell (IB) joint which requires field cuts when transitioning to plain end pipe, fittings or other materials.

ADS N-12® IB pipe has an integral bell which maintains a constant pipe outside diameter (OD). This constant OD eliminates the need for bell holes and makes it easier to maintain line and grade during installation. The gasketed bell and spigot design, with an elastomeric rubber gasket meeting ASTM F477, is intended for soil-tight (ST) or watertight (WT), gravity-flow storm sewer applications, as defined in ASTM F 2306 and ASTM D 3212.

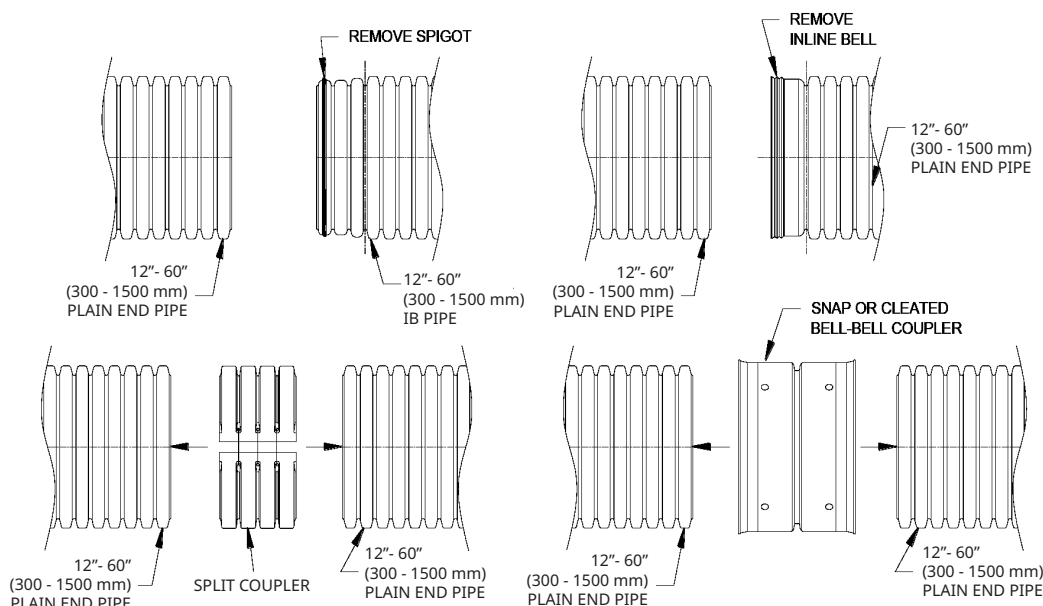
Connections for Integral Bell Pipe

With the variety of couplers available, connecting to existing pipe runs or to fabricated fittings may necessitate a transition to other ADS joints. ADS fittings come as either plain end or bell end; which makes it necessary to transition from an IB joint to either a plain end connection or a bell end connection. This technical note will give guidance in selecting the proper method of making these connections.

Integral Bell Pipe to Plain End Pipe (Plain End Pipe/Fitting Connections)

Remove the bell or spigot end of the pipe. The spigot end on 12" - 60" (300 - 1500 mm) pipe will have mini or reduced-size corrugations; for smaller diameter pipe, 4" - 10" (100 - 250 mm), there will be no mini corrugations to remove. Utilize a split coupler or cleated bell-bell coupler (snap coupler) to make the connection. Refer to Figure 1 for common configurations. This connection is considered soil-tight in most embedment soil conditions.

Figure 1: Integral Bell Pipe to Plain End Pipe Connection



Integral Bell Pipe to a Welded Bell (Welded Bell End Pipe/Fitting Connections)

To connect pipe or fittings, which already have a welded bell, remove the mini corrugations from the spigot end of pipe or the IB bell from the bell end. The welded bell can be identified easily compared to the integral bell, because a weld seam will be present where the bell and corrugations meet. In addition to the weld seam, the OD of the welded bell is slightly larger than the OD of the adjacent corrugations. Refer to the pictures in Figure 2. Once the mini corrugations or IB bell have been removed, install a valley gasket (12"- 36" [300 - 900 mm]) or saddle gasket (42"- 60" [1050 - 1500 mm]) provided by ADS. Valley gaskets are to be placed in the valley behind the first corrugation crown. Saddle gaskets are placed on the crown of the first corrugation. Lettering printed on the gasket will face the joining bell. Lube gasket and the inside of the welded bell, be sure to lube the bells leading edge, and insert the spigot into the welded bell. This connection is considered soil-tight or watertight based on the type of gasket used. Consult an ADS representative to ensure the correct gasket is ordered to meet connection performance requirements.

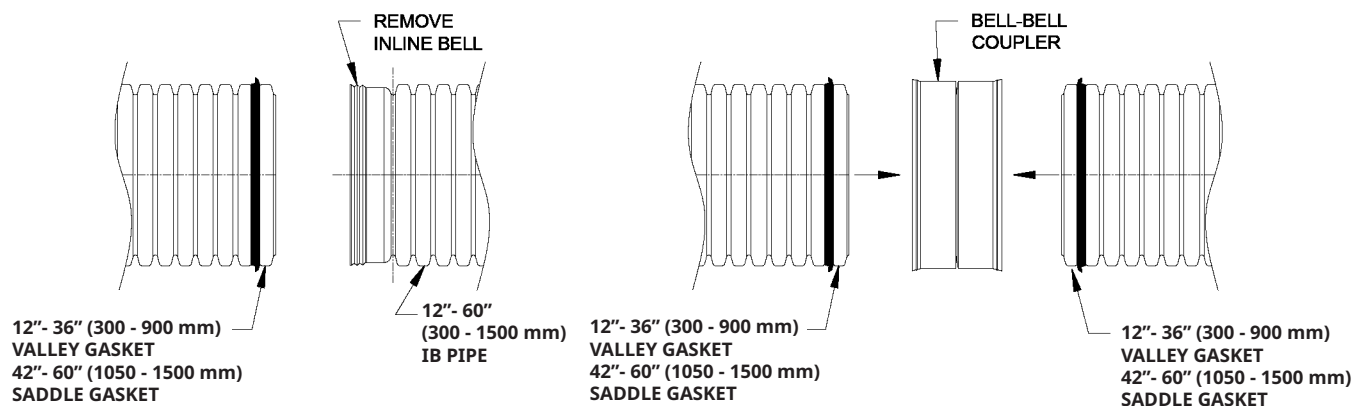
Figure 2: Welded Bell Connection



Integral Bell Pipe to Bell-Bell Coupler Connection

Some field modification will require the use of a bell-bell coupler in conjunction with a valley or saddle gasket. This field joint configuration follows very similarly to that described above for welded bell pipe/fitting connections. Remove the inline bell, spigot and/or the appropriate number of corrugations needed to make the connection and install a valley gasket (12" - 36" [300 mm - 900 mm]) or saddle gasket (42" - 60" [1050 mm - 1500 mm]) provided by ADS. Valley gaskets are to be placed in the valley behind the first corrugation crown. Saddle gaskets are placed on the crown of the first corrugation. Lettering printed on the gasket will face the joining bell. The joint will now consist of two pipes/fittings which each have a valley or saddle gasket installed as shown in Figure 3. Lubricate the interior and leading edge of a bell-bell coupler and the valley/saddle gaskets. Connect the pipes by inserting the valley/saddle gasket end of the pipes into the bell-bell coupler. This connection is considered soil-tight or watertight based on the type of gasket used. Consult an ADS representative to ensure the correct bell-bell coupler with accompanying gasket is ordered to meet connection performance requirements. If a non-gasketed connection is allowed, a split coupler or cleated bell-bell coupler (snap coupler) can be used in place of the bell-bell coupler for a soil-tight joint.

Figure 3: Bell-Bell Coupler Connection



Vent Tube Sealing

The manufacturing process of corrugated plastic pipe requires the release of hot air from inside the corrugations in order to properly form the corrugations. This hot air is allowed to escape from the corrugations during the extrusion process via vent tubes that run the length of the pipe. Vent tubes become exposed when the pipe is cut in the field to install a fitting, connect to a manhole, or otherwise adjust the length of a pipe run. Exposed vent tubes may result in a leak path, and therefore is recommended that they be sealed. It is important that these vent tubes be sealed whenever the pipe is cut in the field. Please see Technical Note 5.16: *Methods for Sealing Vent Tubes* for instructions on sealing the vent tubes.



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