



**FIGURE 2a:** Cast-in-place manhole adaptor for new manhole structure

**FIGURE 2b:** Detail of manhole adaptor connection for existing manhole structure

**TABLE 1:** Fabricated Fitting Sizes

BOSS Fitting Description	Nominal Pipe Diameter (mm)	Nominal Pipe Diameter (in)
HDPE corrugated manhole adaptor	100, 150, 200, 250, 300, 375, 450, 525, 600, 750, 900	4, 6, 8, 10, 12, 15, 18, 20, 24, 30, 36

Installation recommendations are outlined in Aqua Q Drawing No. HDPE-40102 **BOSS Stub Installation/Backfill Instructions**. Please contact an Aqua Q representative for further information.

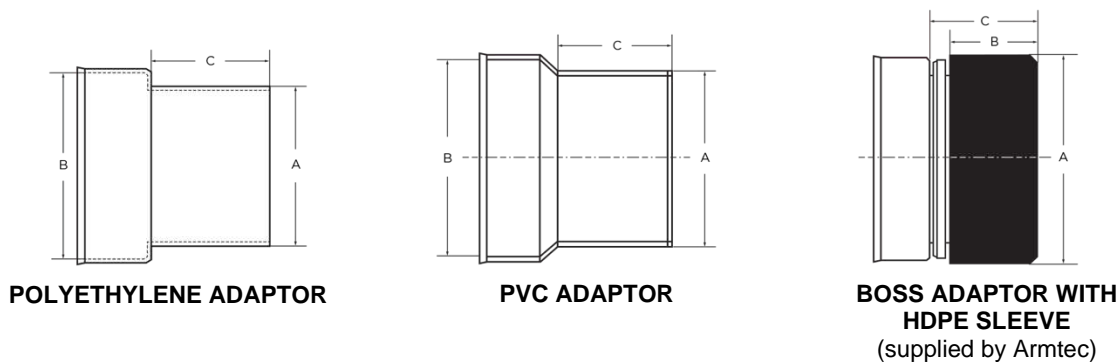
## WATERTIGHT PERFORMANCE

Manhole connection systems are also available from a variety of manufacturers for watertight service. These include compression connectors and grout-in connectors.

### 1. Compression Connector

A flexible compression connector provides a watertight seal between the pipe and the wall of the concrete structure. Pipe adaptors are required to provide a smooth outer pipe surface for a sealed connection to the structure. There are three types of adaptors available for BOSS HDPE pipe (**Figure 3**):

**FIGURE 3:** Pipe adaptors for BOSS HDPE pipe



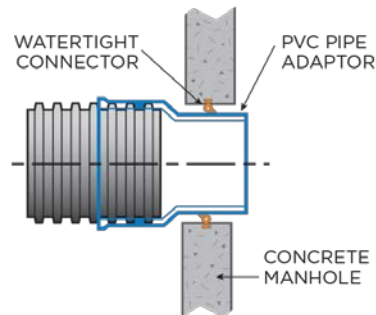
Each adaptor is available in a range of nominal pipe diameters. These are listed in Table 2. The BOSS pipe adaptor wrapped in an HDPE sleeve can also be used for connection of BOSS HDPE pipe to BOSS HDPE manholes.

**TABLE 2:** BOSS HDPE Pipe adaptor size availability

BOSS Fitting Description	Nominal Pipe Diameter (mm)	Nominal Pipe Diameter (in)
Polyethylene	450, 525, 600, 750, 900	18, 20, 24, 30, 36
PVC	100, 150, 200, 250, 300, 375, 450, 525, 600	4, 6, 8, 10, 12, 15, 18, 20, 24
BOSS HDPE Sleeve	525, 600, 750, 900	20, 24, 30, 36

The appropriate fitting is used in conjunction with a watertight connector which is cast in place to the concrete manhole or catch basin structure (**Figure 4**).

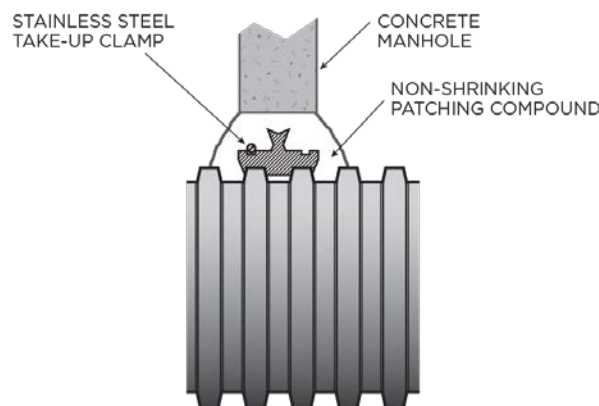
**FIGURE 4:** Compression connection



## 2. Gasket Connector

Gasket connectors are an alternative watertight connection option for BOSS HDPE pipe. A rubber gasket is compressed around the pipe circumference using stainless steel clamps, preventing infiltration and exfiltration between the gasket and the pipe. It is then either grouted into an existing structure (**Figure 5**), or has a new structure poured around it. When grouted, the HDPE Waterstop becomes a monolithic part of the manhole.

**FIGURE 5:** Gasket connection



Compression and gasket connectors for watertight service should be manufactured to meet or exceed all material and test requirements set forth in ASTM C923, ASTM C1478 and ASTM F2510. They should also meet the connector requirements of ASTM D2321 for installation of thermoplastic pipe. Refer to the applicable manufacturer's website for full installation instructions.

The governing standard for corrugated HDPE pipe-manhole connections is ASTM F2510/F2510M, "Standard Specifications for Resilient Connectors Between Reinforced Concrete Manhole Structures and Corrugated High Density Polyethylene Drainage Pipes". Performance requirements should be verified on a project by project basis. All adaptors, gaskets and flexible fittings (apart from BOSS HDPE manhole adaptors) are provided by other manufacturers. Fitting dimensions should be supplied to the manufacturer to ensure correct sizing for your pipe system.