



**Franklin Fueling Systems**

# Flexible and Ducted Entry Boots (FEB, FDB, DEB & DDB)

## Installation Instructions



**Warning** Follow all federal, state and local laws governing the installation, testing and inspection of this product and its associated systems. When no other regulations apply, follow NFPA codes 30, 30A and 70 from the National Fire Protection Association. Failure to follow these codes could result in severe injury, death, serious property damage, environmental contamination and/or system degradation.



**Caution** The part described in this document is one element of a system. All components of this system should be installed according to the manufacturer's specifications so that the system's integrity is not compromised. Test the complete system after installation according to all pertinent local, state and federal laws to ensure its proper operation. Failure to properly verify operation could lead to environmental contamination.

**Note:** When installing pipe into entry boots, piping must be less than 15 degrees from perpendicular to the sump walls or the APT warranty will be voided. Entry angles in excess of 15 degrees from perpendicular can cause excessive stress, which may damage entry boots.

**Note:** Do not install pipe entries into the bottom of any APT sump.

**Note:** Flexible and ducted entry boots are designed to seal to the flat walls of our sumps, but will work on rounded sumps with a diameter of 36" (91.5 cm) or greater.

**Note:** During piping installation, ensure that the scuff guard is trimmed back to the sump wall because, if the boots will not seal correctly to the scuff guard layer, system integrity could be compromised.

### Preparing Entry Holes - Adhesive Template

**Note:** The following procedures are the same for all APT sumps.

1. Remove the protective covering from the adhesive backed drilling template and apply the template to the sump wall in the required location.

**Note:** Position the template so that the hole locations do not align straight up and down.



2. Using a 5/16" (8 mm) drill bit, drill out the set of mounting holes that apply to your entry boot.



3. Use a hole saw to drill out the pipe entry hole.

Number of Studs	Hole Saw Diameter
4	2" (5 cm)
8	3½" (9 cm)
10	5½" (14 cm)



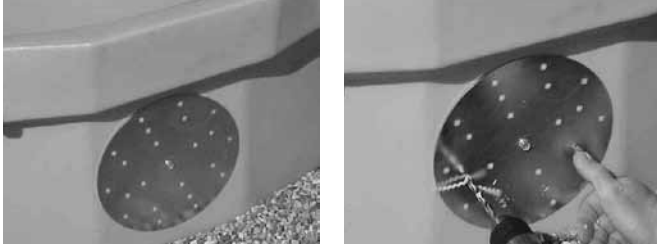
Manual #	Revision	Date	Changes from Previous Revision
771-102-00	8	Dec, 2010	Added Torque Specifications

**Note:** FEB-300-R requires a 4" (10 cm) hole saw.

- Remove the paper template from the sump wall so that the entry boot seals properly against the sump.
- De-burr all holes to remove any rough edges, and proceed to Step 6 in the following section - Completing Boot Installation.

### **Preparing Entry Holes - Steel Drill Template**

- Attach the steel drill template to the sump in the required location. Secure it with the self-tapping screw in the center hole of the drill template.



- Next, rotate the steel template so that the hole locations do not align straight up and down. Use a 5/16" (8 mm) drill bit to drill out the first mounting hole that applies to your entry boot. Insert the wooden dowel in the hole to prevent the template from rotating freely.
- Use a 5/16" (8 mm) drill bit to drill out the other mounting holes that apply to your entry boot. Remove the dowel and unscrew the steel template from the sump.



- Use a hole saw to drill out the pipe entry hole. Center the hole saw on the center screw mark.

Number of Studs	Hole Saw Diameter
4	2" (5 cm)
8	3½" (9 cm)
10	5½" (14 cm)

**Note:** FEB-300-R requires a 4" (10 cm) hole saw.



- De-burr all holes to remove any rough edges, and proceed to Step 6 in the following section.

### **Completing Boot Installation**

- From outside of the sump base, insert the backer plate/stud assembly. Tap in with a rubber or plastic mallet if required.

**Note:** APT recommends using Bostik 1100 or equivalent marine grade urethane sealant as a precautionary sealant between the sump wall and the backer plate/stud assembly.



- Place the entry boot over the studs, making sure that the boot faces the inside of the sump as shown.



- Add the compression plate and hex nuts.



- Using a 7/16" socket, tighten all of the nuts using a cross pattern until the boot is sealed. Torque the nuts until they are tight, but do not over-torque them.

**Note:** After tightening the entry boot in place, proceed with installing the system as described in the manufacturer's instructions. After all piping connections have been made, tighten all of the band clamps to seal the entry boots onto the piping jacket and ducting as necessary.

## Entry Boot Torque Specifications

Correct installation of entry boots is critical to a proper installation. Excessive torque on the fastening nuts may cause the bolts to pull away from the backer plate hindering the boot's ability to seal to the sump wall.

When installing pipe into entry boots, piping must not be more than 15 degrees from perpendicular to the sump walls or the APT warranty will be voided. Entry angles in excess of 15 degrees from perpendicular can cause excessive stress, which may damage entry boots. Flexible and ducted entry boots are designed to seal to the flat walls of our sumps, but will work on rounded sumps with a diameter of 36" (91.5 cm) or greater.

Note: Do not install pipe entries into the bottom of any APT sump.

Follow the guidelines below.

Application	Torque (Inch-Pounds)	Torque (N-m)
<b>Boot Fastening Nuts</b>		
HDPE without Permthane	60	7
Fiberglass without Permthane	75	9
HDPE with Permthane	55	6
Fiberglass with Permthane	55	6
<b>Band Clamp</b>		
Flexible Side	25	3
Ducted Side	20	2



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