

FLO SAFE, INC.

THE COMPLETE CONTAINMENT PIPING SOLUTION

Important Installation Information

Follow these guidelines and instructions to insure proper installation. If these instructions are followed exactly the installation of the leak detection port or the drain or vent port will be easy and simple. The Flo Safe™ ports are precision designed and engineered.

1. If hydrostatic or pneumatic testing is required, it must be done prior to the installation of the Flo Safe™ ports.
2. Flo Safe™ ports (saddles and clamping wedges) are made from top quality PVC materials but they must receive the same handling care as for any other PVC pipe and fittings to prevent physical damage.
3. Be sure the Flo Safe™ pipe and ports are clean and free from any dirt, sand or anything that might cause excessive tension on the saddle when the wedge is driven on. The outlet of the port should be placed at twelve o'clock if possible, otherwise at either three or nine o'clock. **The port should never be placed with outlet at six o'clock.**
4. The wedge is designed to slide half-way on the saddle without force. If the wedge has to be forced on to start, something is wrong. **Never force the wedge past the end of the saddle guide.**
5. Once the leak detection port is properly placed on the Flo Safe™ containment pipe, bore a 3/4" hole into the pipe. The leak detection probe should be positioned to lie at the bottom of the containment pipe.
6. The hole should be plugged up around the cable after the probe is positioned. Flo Safe, Inc. recommends 3M Intermesant Foam as a sealant. However, other options are available. Keep in mind the probe has to be removable if there is a leak.
7. Flo Safe, Inc. warranties its products against defective materials and workmanship, **not against improper installation procedures.**

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PIPE CENTRALIZER SPACING

Flo Safe™ pipe centralizers prevent abrasion of the outside wall of the carrier pipe and the inside wall of the containment pipe, when thermal expansion and the contraction occur. They also allow for the insertion of leak detection cables and probes and the interstitial space between the two pipes. Spacing of the centralizers will vary, dependent upon the weight and diameter of the carrier pipe. The following recommendations are for plastic carrier pipe:

4" FLO SAFE

<u>CARRIER PIPE SIZE</u>	<u>SPACE BETWEEN CENTRALIZERS</u>
3/4	4.5 FEET
1"	4.5 FEET
1-1/2	5.0 FEET
2"	6.0 FEET

6" FLO SAFE

<u>CARRIER PIPE SIZE</u>	<u>SPACE BETWEEN CENTRALIZERS</u>
2"	6.0 FEET
3"	7.0 FEET
4"	8.0 FEET

Centralizers should be placed approximately 3 feet from a fitting connection. Consult Flo Safe, Inc. for recommendations on other carrier piping materials.

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ABOVE AND BELOW GROUND INSTALLATION INSTRUCTIONS

ABOVE GROUND

Care must be taken in handling and storing Flo Safe™ pipe and fittings. Outdoor storage and exposure to sun and heat should be avoided. Above ground, outside installations must be protected. Consult the factory for advice on appropriate methods.

Flo Safe™ must be properly supported, when installed above ground. Support from pipe hangers with wide, flat surfaces, typically used with plastic pipe. This will prevent damage to the containment pipe. Spacing of the hangers will depend upon the diameter and combined weight of the carrier and containment pipe. Recommended hanger spacing for Flo Safe™ with plastic carrier pipe is as follows.

4" Flo Safe™

<u>CARRIER PIPE SIZE</u>	<u>HANGER SPACING</u>
3/4	9.0 FEET
1"	9.0 FEET
1.5"	8.5 FEET
2"	8.0 FEET

6" Flo Safe™

<u>CARRIER PIPE</u>	<u>SIZE HANGER SPACING</u>
2"	11.0 FEET
3"	10.0 FEET
4"	9.0 FEET

The above hanger spacing recommendations are based on ambient external temperatures. Consult Flo Safe, Inc. for recommendations at higher temperatures, as well as heavier carrier pipe (metal & fiberglass).

BELOW GROUND

Proper backfilling procedures are very important to the below ground installation of Flo Safe™. Care must be taken to provide firm support and compacting. This becomes more important when the installation is deeper than ten feet. Additional consideration must be given to the width of the trench. Normal engineering and installation guidelines, which are used for any thermoplastic piping systems, would apply to Flo Safe™ as well.

Installation Instructions

Flo-Safe G (Gasketed)

Secondary Containment Piping System

————— Packaging —————

Flo-Safe G fittings are individually packaged in plastic bags. The two half fittings are shipped with gaskets installed and held together by the pressure bands. Pre-cut assembly rods are included in the plastic bags also. No field lubrication of the fitting gasket is required. The bags should not be opened until it is time to install the fitting, in order to keep the gasket surface clean and prevent loss of parts.

————— Pre-Assembly —————

Pipe spacers should be clipped onto the carrier (inner) pipe, approximately every three feet from a fitting connection. The spacers need to be installed before the containment (outer) pipe. It is helpful to lay out the system, cut and dry fit the carrier piping. The containment piping and all non-split fittings, such as terminating couplings, must be installed prior to joining the carrier piping. The containment piping can be cut shorter than the carrier pipe because of the deep sockets of the Flo-Safe G fittings. Consult the Flo-Safe, Inc. fitting dimensional drawings for socket depth. This will allow sufficient space for joining the carrier pipe. If an error in calculation should occur, causing the containment pipe to be cut too short, this may be remedied by using the two piece Flo-Safe G coupling. Cut the length of containment pipe in half and reassemble the the pipe with the two lengths joined by the coupling. The ends of the containment pipe must be cut squarely and made free of burrs and sharp edges. The pipe ends should be inspected for any cuts or grooves on the surface. Sandpaper should be used to smooth pipe ends. Any grease or fording debris must be cleaned from the end surface. For underground applications, we recommend that the plastic sheet be placed

under the area where the fittings will be installed, to help keep the gasket surfaces clean.

————— Assembly —————

Remove the pressure bands from the fittings. Loosen the bands and slide them over the ends of the containment pipes to be connected. Assemble the half fittings on the pipe, making certain that the pipe is aligned with



Slide the bands over the ends of the fitting. It may be necessary to further loosen the bands to get them on the fitting. Alternatively, tighten the bands until the fitting halves are joined on the pipe. Do not overtighten. Clamp the split fitting joining tool onto the fitting hinges and tap the appropriate pin size into place. NOTE: The tees need to have the long, backside pin installed before the bands are assembled. Be sure to use the proper tool size for installing the pins. (P90000 for 4" and P90001 for 6"). Do not overtighten tool or hinge damage will occur.



After all pins are installed, tighten pressure bands to approximately 60in./lbs. torque.



Any non-split fittings, assembled earlier, should also be tightened to approximately 60in./lbs.

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Complete Containment
Piping Solutions

Testing

Flo-Safe G's unique design allows for complete hydrostatic testing of the carrier fittings. After testing the carrier piping, the containment fittings should be assembled and the containment piping tested to insure proper joining. Remember, as a containment system, the testing is merely to verify the joining integrity should a leak occur. Flo-Safe should only be tested to 5 psi pressure if air tested, and only with Flo-Safe G testing equipment.



Air tests at 5 psi should not exceed one hour in duration. Severe damage and danger to the installer could result if higher pressures are used. Check all containment piping joints with soap solution while under pressure. If it's necessary to test for a longer period, Flo-Safe, Inc. recommends hydrostatic testing. Extended testing should not exceed four hours. It is necessary to restrain all piping equipment and ambient temperature should be considered.

Flo-Safe G is to be tested as a complete system. If other products are substituted for Flo-Safe G components, such as pipe and fittings, the system may fail and product warranty will be voided.