

+GF+ Contain-It

Secondary Containment Piping System



Installation Instructions

GEORGE FISCHER +GF+

Installation Instructions

Equipment Needed For Assembly

- Fine tooth saw and miter box or chop saw with fine tooth blade
- Tubing cutter with wheel designed for plastic pipe (solid pipe only)
- File or pocket knife for deburring
- Pipe clamp (for split pipe assembly)
- Hammer
- Electric or battery operated hand drill
- Counterbore drill bits
- Crossover hole drill bits
- Pneumatic adhesive injection gun (air supply not to exceed 73 psi inbound air pressure) with air regulator gauge and hose assembly (0-100 psi gauge range) or manual adhesive injection gun
- Flash light and mirror
- Hot box for cartridges and heat blanket wrap/hot air heater for split pipe (for low temperature applications)

Solid Pipe Preparation

1. Determine pipe length via typical on site measurements.
2. Cut pipe. **Square cuts are important.** Solid pipe may be cut with a tubing cutter designed for cutting plastic pipe.
3. Deburr pipe ends using a knife blade or file.
4. Wipe pipe end with a clean, dry cloth.
5. Prior to installing solid pipe, install centralizers on primary pipe.

Solid Pipe Installation

The exclusive use of solid Contain-It pipe may result in difficulty when joining the primary piping. Therefore, the installer should determine the ease with which the primary pipe fittings may be assembled within the Contain-It system. Pipe fittings must have enough room for the joining method.

There are two methods by which the primary pipe fittings will be accessible enough for proper installation. Both methods are illustrated on page 4.

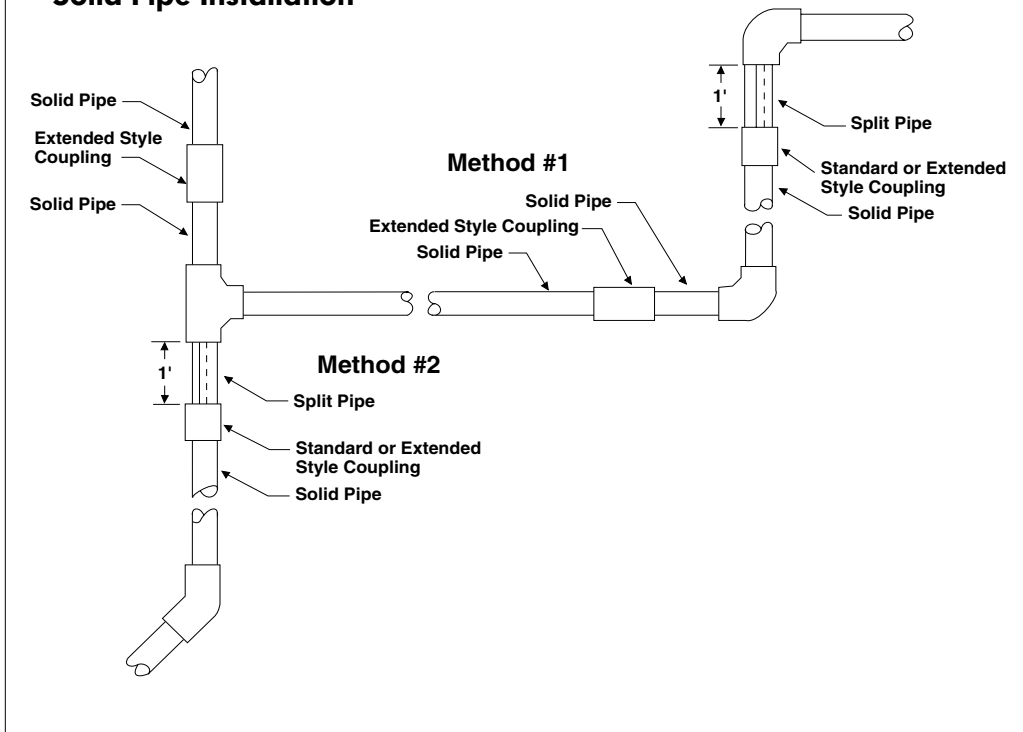
Method #1:

Utilizes solid pipe and at least one extended style coupling along a pipe run.

Method #2:

Utilizes split pipe with either a standard or extended style coupling along a pipe run.

Solid Pipe Installation

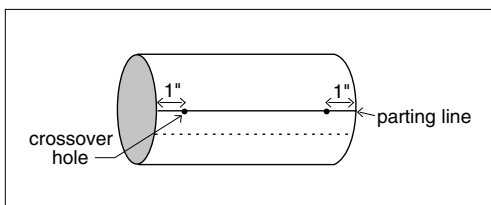


Split Pipe Preparation

1. Determine pipe length via typical on site measurements.
2. Cut pipe. **Square cuts are important.** Split pipe requires the use of a saw and miter box or a chop saw with a fine tooth blade.
3. Deburr pipe ends using a knife blade or file.
4. When using split pipe, a parting seam can be seen (and felt) where the pipe separates. **When cutting any split pipe for preparation/ installation in the field, a crossover hole has to be drilled into this seam, on the cut end, and located within the bonding channel of the fitting.**

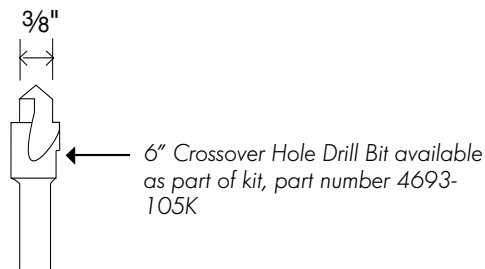
These locations are:

- **For most fittings** — the crossover hole must be drilled 1" from each end of the pipe length.



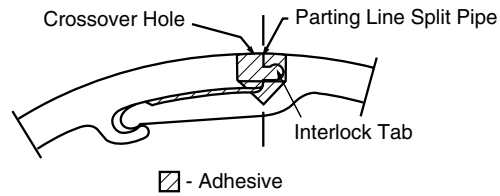
- **For extended style couplings** — based upon varying pipe insertions, the location of the crossover hole is to be determined so that it is located within the bonding channel of the fitting.

Note: The crossover hole drill bit for 6" split pipe is identified by a flat surface ground on one side of the bit as shown below.



5. The failure to properly drill crossover holes when using split pipe will result in leaks during a pressure test. If you are not completely sure of this procedure, **STOP IMMEDIATELY** and contact George Fischer Technical Service Department at (800) 854-4090.

6. Inspect the crossover hole for complete removal of the interlocking tab and any obstructions that may affect adhesive flow.



7. Prior to assembling split pipe, install centralizers on primary pipe (refer to page 16 of Contain-It Technical Manual).
8. Snap split pipe together for its full length using the pipe clamp (see below for more information) to insure full interlock of the tongue and groove seam.
9. Wipe pipe end with a clean, dry cloth.

Pipe Clamp Usage Instructions

Normally Contain-It split pipe can be hand assembled by pressing the halves together. However, in some cases, additional force may be required to fully engage the Contain-It split pipe seam. The Contain-It pipe clamp provides the additional force for assembling split four inch and six inch pipe.

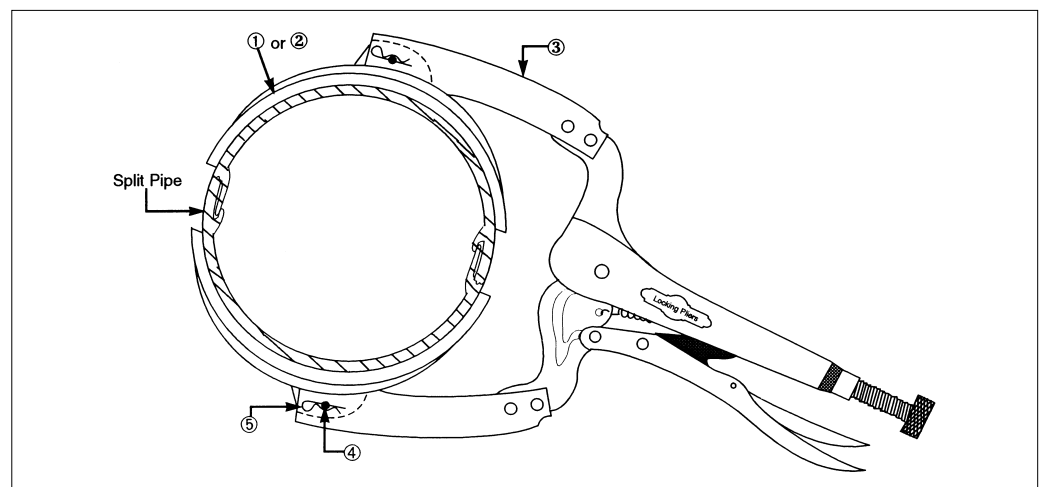
Assembling Clamp Halves

Four inch and six inch clamp halves are furnished and are readily interchangeable by following this procedure:

1. Remove both hair pin cotters (5) from the clevis pins.
2. Remove the clevis pins (4).
3. Remove clamp halves (1 or 2) from the locking pliers.
4. Insert appropriate clamp halves with clevis pin hole facing forward in the locking pliers arm as shown in the drawing. The clevis pin hole (5) should be positioned forward on the clamp half, so that the tab does not extend past the pliers (3).
5. Replace clevis pins and hair pin cotters.
6. To adjust the pipe clamp, open the locking pliers and **position pipe all the way back in the clamp jaws** with pipe seams centered in the jaw openings. Close the locking pliers and adjust screw until clamp fits firmly on the pipe. Open locking pliers and tighten adjusting screw one to one and one half turns. This adjustment should provide sufficient force to press the pipe halves together.

Using the Pipe Clamp

The pipe clamp is now ready for use. Position the pipe clamp, as shown in the drawing, with the pipe seams centered in the jaw openings. Close the locking pliers to exert force suitable to fully engage the split pipe seam. Repeat this operation along the pipe barrel until total engagement is achieved.



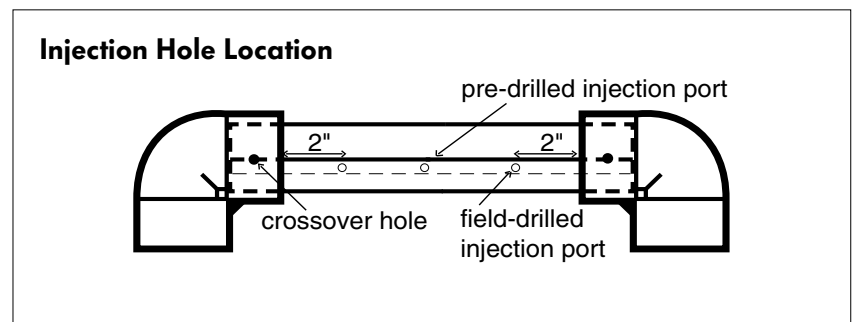
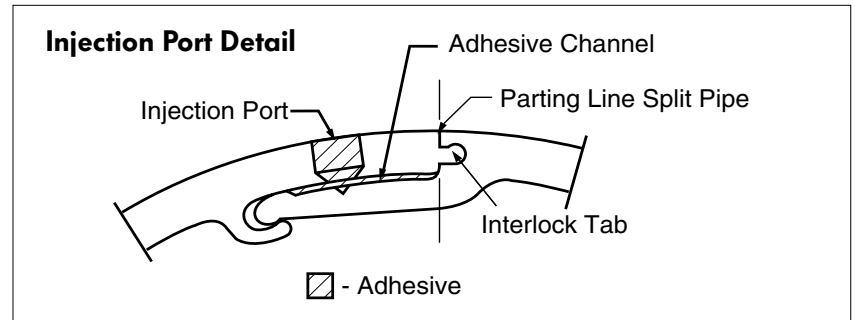
Split Fitting Assembly

1. Assemble fitting halves over pipe with the inter-locking fitting surfaces accurately aligned.
 2. Install fitting clips on all locators and tap them into place.
- **For most fittings** — make sure that the pipe is bottomed out in the socket.
 - **For extended style couplings** — make sure each pipe is inserted beyond the minimum depth mark on the fitting. A maximum space of 5 1/2" may exist between pipe ends.

Note: If split pipe is used with the extended style coupling, it is important that the crossover holes do not align with the bonding channel of the fitting.

Preparation For Injection

If split pipe is being used, check to see if the predrilled injection ports on the pipe are located close to each fitting. If not, drill new injection ports within 2" of each fitting along the middle of the adhesive channel of the split pipe.



Note: The additional injection ports will allow proper adhesive flow through the crossover holes. The proper drill bits for this operation are:

4" dia. — Part No. 4693-104

6" dia. — available as part of kit,
Part No. 4693-105K

Instructions For Pneumatic Injection Gun

Caution: Read Before Using Product

- ALWAYS WEAR SAFETY GLASSES WHEN OPERATING DISPENSER.
- READ INSTRUCTIONS ON CARTRIDGE DISPENSER.
- ALWAYS AIM DISPENSER AT PARTS, NEVER AT PEOPLE.
- DO NOT EXCEED 73 PSI INBOUND AIR PRESSURE.

Instructions For Use

1. Connect air supply to injection gun. Set the regulator to 30 psi.
2. Load cartridge into the injection gun by grasping the large tube and inserting the small tube into the injection gun until it snaps in place. The tab between the tubes and the cartridge nut will slide into the grooved metal plate of the injection gun.
3. Remove the nut from the end of the cartridge. This will also remove the plug. Separate the plug from the nut and set the nut aside.
4. Assemble the mixing tip and the nut and attach to the end of the cartridge.
5. Dispense a tablespoon of the adhesive by pressing the trigger and observe that both components of the adhesive are flowing easily and the color and consistency is white and smooth. Release the trigger and press the red button at the back of the handle to stop the flow (the red button releases pressure on the pistons that push out the adhesives).
6. Check proper gun operation and adhesive flow by pressing the trigger. The adhesive should flow easily and the color and consistency should be white and smooth. Release the trigger and press the red button behind the handle to stop the flow. During injection, if adhesive is flowing into the Contain-It secondary pipe or

out of the seams of the Contain-It tongue and groove system, back off the pressure about 5 psi at a time until the situation improves.

7. When finished or when the cartridge is empty, press the red button on the back of the injection gun handle. This will retract the pistons.
8. To remove the cartridge, press the black button on the bottom of the cartridge housing. Grasp the large tube and remove the cartridge from the injection gun.
9. Store partial cartridges with a used tip in place. When reusing a cartridge, the mixing tip must be replaced.

Instructions For Manual Injection Gun

Caution: Read Before Using Product

- ALWAYS WEAR SAFETY GLASSES WHEN OPERATING DISPENSER.
- READ INSTRUCTIONS ON CARTRIDGE DISPENSER.
- ALWAYS AIM DISPENSER AT PARTS, NEVER AT PEOPLE.

Instructions For Use

1. Push the rear lever forward and pull back on the plunger located at the back end of the gun as far as it will allow.
2. Load cartridge into the injection gun by grasping the large tube and inserting the small tube into the injection gun until it snaps in place. The tab between the tubes and the cartridge nut will slide into the grooved metal plate of the injection gun. At this time it is necessary to select the ratio by turning the indicator, located on the side of the gun, to 10:1.
3. Remove the nut from the end of the cartridge. This will also remove the plug. Separate the plug from the nut and set the nut aside.
4. Assemble the mixing tip and the nut and attach to the end of the cartridge.

5. Adhesive flow will begin after pumping the gun trigger several times. Dispense a tablespoon of the adhesive. The adhesive should flow easily and the color and consistency should be white and smooth. Push the rear lever to stop adhesive run-on.
6. When finished, push the rear lever, pull back on the plunger and remove the adhesive cartridge.
7. Store partial cartridges with a used tip in place. When reusing a cartridge, the mixing tip must be replaced.

Cold Weather Instructions

Use of Two Part Adhesive

It is very important that prior to use, the adhesive be brought up or cooled down to 73°F (23°C). At this temperature, the adhesive has its best flow viscosity and the cure cycle is promoted. Above 80°F (27°C) the flow viscosity turns thin. You may have to reduce the pressure of the injection gun to adjust for the easier flow or better keep it in an air-conditioned room until use.

To cure at low temperatures, a heat blanket is available from Bylin Heating Systems of El Dorado Hills, CA. For information call (916) 933-6666 and refer to BHS Part No. HTB-6505. The following table provides guidelines for ambient temperature conditions versus cure times.

Cure Time with Adhesive at 73°F (23°C)

Ambient Temperature	Cure Time (approx.)*
73°F (23°C) (Plus)	6 hours
30°F (0°C)	18 hours
Below 30°F (0°C)	Elevate joint and split pipe temperature above 30°F via heat blankets or hot air heater.

Injection of Split Pipe

1. **Always inject split pipe first.** Insert the mixing tip into the injection port closest to the fitting. The adhesive should flow easily through the adhesive channel. When the adhesive fills the crossover hole, close the valve.
2. Repeat Step #1 for the other side of the split pipe.
3. Repeat Step #1 for both sides of the other end of the pipe.
4. Move along the pipe to the next injection port and inject adhesive until it fills the bonding channel one-half the distance to the next injection port.
5. Repeat Step #4 until the channels on both sides of the pipe are completely filled with adhesive.

Injection of Split Fittings

1. Insert the mixing tip into a pre-drilled injection port around the fitting socket and open the valve handle. Allow the adhesive to flow until it reaches one-half the distance to the next injection port before closing the valve. Continue until the bonding channel is completely filled with adhesive.
2. All split fittings except the standard couplings have additional injection ports in the flange area. After completely filling the bonding channels along the fittings sockets, insert the mixing tip into the injection port in the flange area and completely fill the flange area with adhesive.

Note: If work is being done at temperatures below 50°F (10°C), the adhesive should be brought up to 73°F (23°C) to insure the best possible flow viscosity and to promote the chemical reaction necessary for bond strength. It may be necessary to use a hot box to achieve and maintain the 73°F (23°C) temperature.

***Note:** Before pressure testing, check the adhesive at the last of the injection ports to be injected in order to insure that the adhesive has cured. If the adhesive is soft, lengthen the cure time until it hardens.

Containment of Flanged Systems

Research and Development has determined which size primary flanged systems will fit inside Contain-It. The chart below will be very helpful when recommending our system for this application. Custom centralizers will be necessary. Call for availability and price.

Installation of One Piece Fittings

One piece Contain-It PVC fittings are not designed for injection. To install, simply apply a bead of adhesive to the pipe end and approximately 1" inside the fittings socket and join by inserting the pipe.

Contain-It Size	Primary Pipe Nominal Diameter	Flange OD
4"	1/2	3.520
6"	3/4	3.900
	1	4.270
	1 1/4	4.656
	1 1/2	5.032

Installation of Drainage Patterns*

***Note:** For installation of 4" Fuseal, please contact George Fischer Technical Service Department at (800) 854-4090.

Injection molded drainage patterns which are available for Contain-It and primary drainage systems minimize the need for fabricated fittings. This off-the-shelf capability improves availability and speeds construction. In addition, flow characteristics are improved with injection molded primary drainage fittings.

However, due to differences in laying lengths, only certain primary fittings will fit inside similar Contain-It configurations. The chart below indicates which George Fischer drainage patterns fit inside split Contain-It fittings.

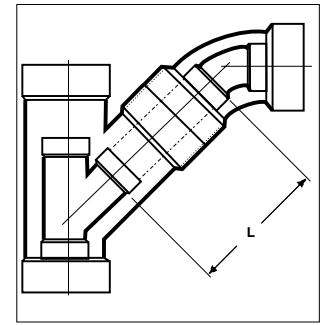
The Long Turn Tee Wyes listed are the only ones that will fit inside Contain-It fittings. If other Long Turn Tee Wyes or combinations are required, they must be assembled from Wyes and 1/8 Bends. The following diagram and chart give guidance on the assembly of primary and Contain-It drainage combinations. Contain-It requires a short section of pipe, the length of which is twice the socket depth of the fittings. The primary Wye and 1/8 Bend require a longer section of pipe. The chart lists the primary pipe lengths required for various configurations.

Combination Contain-It Wye and 1/8 bends

George Fischer Drainage Patterns	Contain-It
1 1/2" and 2" Straight and Reducing Sanitary Tees	4" Tee (4601-040)
1 1/2" Long Turn Tee Wye	
1 1/2" and 2" Wye	4" Wye (4683-040)
1 1/2", 2" and 3" Straight and Reducing Sanitary Tees	6" Tee (4601-060)
1 1/2" and 2" Long Turn Tee Wye	
1 1/2", 2" and 3" Straight and Reducing Wyes	6" Wye (4683-060)

Combination Contain-It Wye and 1/8 bends

George Fischer Drainage Patterns	"L" Primary Pipe Length	Contain-It Combination
1/8 Bend combined with: 2" Wye 2" x 2" x 1 1/2" Wye 1 1/2" Wye	6" 6 3/4" 7 1/2"	4" Wye + 1/8 Bend (socket to socket) (4683-040 + 4617-040) 4" length of 4" pipe
1/8 Bend combined with: 3" Wye 3" x 3" x 2" Wye 2" Wye 2" x 2" x 1 1/2" Wye 1 1/2" Wye	9" 10 1/4" 10 1/2" 11 3/4" 12 1/4"	6" Wye + 1/8 Bend (socket to socket) (4683-060 + 4617-060) 5 1/2" length of 6" pipe



Contain-It is assembled socket to socket with a short piece of pipe. The primary is joined with a short piece of pipe, defined as "L" in the chart.

Installation Time Estimate

To provide a guide for estimating Contain-it installations, the following assembly and adhesive injection times are provided.

The following two charts (shown at right) show the time required to inject adhesive into split pipe and fittings (at 60 psi inject pressure with the Pneumatic Gun).

Assembly and Injection Time Per Fitting

Part	Number	Time
4" Contain-It Tee	4601-040	3 minutes
4" Contain-It Coupling	4629-040	2 minutes
6" Contain-It Tee	4601-060	4 1/2 minutes
6" Contain-It Coupling	4629-060	2 1/2 minutes

4" Split Pipe and Fittings

Part	Time
4" Split Pipe	44 seconds per linear foot
4" Split Fitting	30 seconds per socket
4" Split Tee (3 sockets)	1 1/2 minutes

6" Split Pipe and Fittings

Part	Time
6" Split Pipe	1 minute per linear foot
6" Split Fitting	80 seconds per socket
6" Split Tee (3 sockets)	4 minutes

Adhesive Requirements

Contain-It Cartridge	Fittings/Pipe	# of Sockets/Tube
1 cartridge	4" fittings	14
1 cartridge	6" fittings	10
1 cartridge	4" pipe	20 ft. length, both sides
1 cartridge	6" pipe	10 ft. length, both sides

Adhesive Requirements Calculation

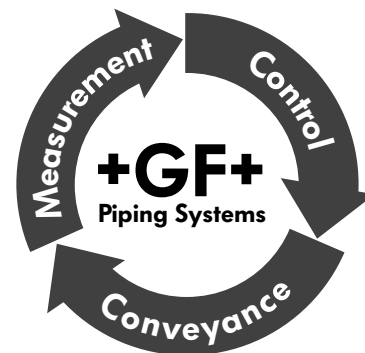
This table is designed to assist in the accurate determination of the number of adhesive cartridges required for a specific project.

<u>Fittings</u>	
Quantity of 4" Tees and Wyes _____	x 3 = _____
Quantity of 4" Fittings (other than tees and wyes)	x 2 = _____
_____ /14 = _____	
Quantity of 6" Tees and Wyes _____	x 3 = _____
Quantity of 6" Fittings (other than tees and wyes)	x 2 = _____
_____ /10 = (+) _____	
<u>Split Pipe</u>	
_____ Feet 4" Split Pipe/20 = (+) _____	(1 cartridge will fill 20 ft., both sides)
_____ Feet 6" Split Pipe/10 = (+) _____	(1 cartridge will fill 10 ft., both sides)
.	
TOTAL CARTRIDGES _____	

George Fischer Product Lines

Piping Systems (Conveyance)

SYGEF® PVDF & SYGEF® HP PVDF (metric)
Beta Polypropylene & PP-n Natural Polypropylene (metric)
+GF+ Schedule 40 PVC
+GF+ Hi-Strength Schedule 80 PVC and CPVC
+GF+ PPro-Seal Natural Polypropylene
+GF+ Fuseal™ Corrosive Waste System
+GF+ Contain-It Secondary Containment
Fusion Technologies (BCF, IR, socket & electro fusion)



Measurement & Control Products

Manual & Actuated Valves
Solenoid Valves
Pressure Regulating Valves
+GF+ SIGNET Flow, Level and Analytical Instrumentation
Rotameters

Custom Products

Custom Specialty Components and Assemblies
Semifinished Products
CALORPLAST Heat Exchangers

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*includes North, Central, and South America