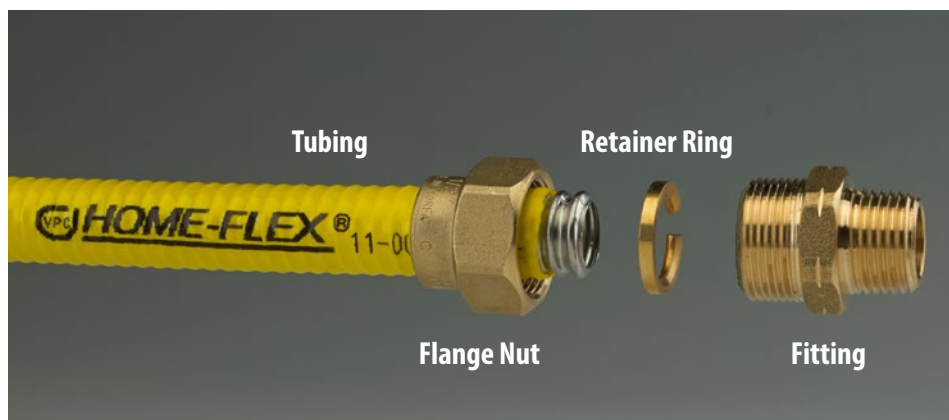


HOME-FLEX® CSST Fitting Assembly



HOME-FLEX® fittings achieve seal by compressing the tubing into the gasket. It is critical that the cut end of the tubing is clean of any burrs or jagged edges, and that there is no debris on the tubing or gasket. A seal is achieved with a good deal of force. In the absence of a torque wrench, the general guideline is to tighten with two wrenches (one holding the fitting in place, the other turning the flange nut counter-clockwise) until the nut will no longer turn and only 2-3 threads are showing.

1: Cut HOME-FLEX® tubing to length. Using a stainless steel rated tube cutter, cut the HOME-FLEX® tubing to the desired length, leaving at least 1 extra inch for placement of the fitting. Cut in the valley of the tubing and clean any burrs or jagged edges. Cut in full circular strokes in one direction, tightening gradually after each rotation. Be careful to not overtighten the roller as it could flatten the HOME-FLEX® tubing.

2: Remove tubing jacket to prepare for fitting assembly. Using a utility knife, strip the yellow pipe jacket back 2 valleys from the end of the tubing.

DO NOT USE A TUBE CUTTER FOR THIS TASK AS IT COULD DAMAGE THE TUBING.

3: Place flange nut over HOME-FLEX® tubing. Slide the HOME-FLEX® flange nut over the tubing with the threaded end pointing toward the end of the tubing. The flange should cover the yellow tubing jacket.

4: Place retainer ring on HOME-FLEX® tubing. Place the retainer ring in the first valley of the tubing. Being careful to not dent the tubing, clamp the ring in place by applying gentle pressure 360° around the ring. It should fit tightly and not easily spin around the tubing.

5: Install HOME-FLEX® fitting in destination (manifold, pipe system, fixed appliance, etc.). Make sure that the gasket inside the HOME-FLEX® fitting is secure on the socket. Apply a pipe sealant to the tapered (NPT) thread of the fitting and install it in the gas system.

6: Attach flange nut to the installed HOME-FLEX® fitting. Place the HOME-FLEX® flange nut onto the installed fitting. Hand tighten the fitting assembly from the nut-end being sure that only the nut turns (the fitting and tubing should not turn). Then tighten to the recommended torque value (80 ft·lb for 1/2", 95 ft·lb for 3/4" fittings) using a second wrench to hold the fitting in place (generally, tighten with force until the nut will no longer turn).

DO NOT use sealant on the parallel thread (gasket side) of the socket.

Troubleshooting Fitting Assembly and Correcting Leaks

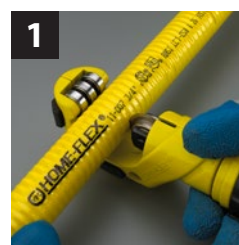
Step 1: Gradually tighten fitting until leak stops.

Step 2: If leak does not stop after reaching maximum torque, stop, open the assembly and check for:

- Proper fitting assembly.** Make sure the gasket is installed in the base of the parallel thread of the fitting. If it was not, install the gasket, repeat assembly steps, and test for leaks again. **Gaskets cannot be reused: if it was installed, replace it with a new gasket and continue to step 2b.**
- Obstructing material in assembly.** If dirt, shavings, jacket remnants, etc. are found, remove material and reassemble, checking for leaks again.
- Integrity of assembly pieces.** If the retainer ring or the gasket are cracked, misshapen or otherwise damaged, replace them and repeat assembly.



Note: DO NOT use sealing solution on parallel thread (gasket end) of fitting assembly. Gaskets cannot be reused, and must be replaced if fitting assembly is disassembled. Not all fittings include an o-ring and it is not part of the gas sealing mechanism.



WARNING!

Improper installation or operation of the system may result in fire, explosion, or asphyxiation. Only the components provided or specified by Valencia Pipe Company for use with HOME-FLEX® or Alpha-FLEX™ as part of the fuel gas system are to be used in the installation. Use of components from other flexible gas piping systems other than those specified as part of the HOME-FLEX® or Alpha-FLEX™ systems is prohibited and may result in poor system performance and serious bodily injury or property damage.

While every effort has been made to prepare this document in accordance with all regional model codes in effect at its printing, Valencia Pipe Company cannot guarantee that the local administrative authority will accept the most recent version of these codes. It is the ultimate responsibility of the qualified installer to determine suitability and acceptance of any building component, including gas piping. Valencia Pipe Company, manufacturers of HOME-FLEX® CSST, assumes no responsibility for labor or material for installations made without prior determination of local code authority acceptance. HOME-FLEX® and the VPC logo are registered trademarks of Valencia Pipe Company, Inc. All rights reserved. 1608/B



HOME-FLEX® CSST Installation Practices & Guidelines

- HOME-FLEX® Corrugated Stainless Steel Tubing (CSST) flexible gas piping material must be installed by a Qualified Installer who has been certified in the use of the HOME-FLEX® or VPC Alpha-FLEX™ gas piping systems. Certification can be completed by reading the *HOME-FLEX® System Design and Installation Manual* and registering with Valencia Pipe Company to obtain a Qualified Installer Card by either mailing in the registration card at the back of the manual, or filling out the online form at homeflex.com. In submitting either the printed or online registration, you are asserting that you understand all aspects of the installation requirements and local plumbing, mechanical, electrical and/or building codes applicable at the locale where HOME-FLEX® is to be installed. If you do not understand all aspects of the installation requirements and local codes, locate a Qualified Installer in your area who does. You must presently possess, or attain prior to installing, a Qualified Installer Card to install HOME-FLEX® CSST.
- Only the components provided or specified by Valencia Pipe Company as part of the piping system are to be used in the installation. HOME-FLEX® components are interchangeable with VPC Alpha-FLEX™ components.
- Never use HOME-FLEX® flexible gas tubing or system components as a ground electrode or as a grounding path for appliances or electrical systems. HOME-FLEX® tubing and system components should never be in contact with electrical appliances or systems.
- HOME-FLEX® flexible gas tubing routed in a location which is concealed, constrained and within 3 inches of a potential threat must be protected against damage by protection devices listed in the *HOME-FLEX® System Design and Installation Manual*. Contact with sharp objects or harmful substances should be avoided.
- Tubing shall be protected from puncture threats, using striker plates or other devices as specified in the manual, at all points of penetration through studs, joists, plates or similar structures. The extent of protection is defined as follows:
 - At all points of penetration less than 2 inches (50.8mm) from any edge of a stud, joist, plate etc., a striker plate is required to provide protection at the area of support and within 5 inches (127mm) of each side (if appropriate) of the support.
 - At points of penetration 2 to 3 inches (50.8 to 76.2mm) from any edge of a stud, joist, plate, etc., a striker plate is required to provide protection throughout the area of support.
 - At points of penetration greater than 3 inches (76.2mm) from any edge of a stud, joist, plate etc., no protection is required.
 - Tubing routed horizontally through studs shall be protected from puncture threats between the studs using shielding devices specified.
- The width of the installed striker plate at the points of penetration through wall studs, floor joists, plates, sills, etc., shall be at least 1.5 times the outside diameter of the tubing.
- Open ends of the tubing are to be temporarily plugged or taped closed prior to installation to prevent entrance of dirt, dust or other debris.
- The protective yellow jacketing should be kept in place as much as possible to protect the tubing from corrosive threats. Contact with chemicals containing chlorides must be followed by a thorough rinse and wipe dry.
- Installation clearance holes for routing HOME-FLEX® are to be approximately ½-inch greater than the outer diameter (O.D.) of the tubing. Drilling of any structural member must be in conformance with the local building codes. Refer to the table at right for the recommended drill hole sizing.
- HOME-FLEX® shall be supported with non-metallic pipe straps, bands or hangers suitable for the size and weight of the tubing at intervals not to exceed those shown in the table. When supporting CSST tubing runs, the use of other conductive metallic systems such as metallic appliance vents, metallic ducting and piping, and electrical cables must be avoided.

Recommended Routing Holes for Installation of HOME-FLEX® Tubing

Tubing Size	Drill Hole Size
½" (13 mm)	1⅜" (35 mm)
¾" (19 mm)	1½" (38 mm)
1" (25 mm)	1¾" (45 mm)

Recommended Horizontal and Vertical Support Spacing

Tubing Size	Horizontal Support Spacing	Vertical Support Spacing
½" (13 mm)	6 ft.	10 ft.
¾" (19 mm)	8 ft. (USA) 6 ft. (CAN)	
1" (25 mm)		

- Undue stress or strain on the tubing and fittings should be avoided. Also avoid sharp bends, stretching, kinking or twisting of the CSST tubing.

Recommended Minimum Bend Radius

Tubing Size	Absolute Minimum Bend Radius	Recommended Min. Bend Radius
½" (13 mm)	1¼" (32 mm)	3" (75 mm)
¾" (19 mm)	1⅝" (42 mm)	
1" (25 mm)	2" (51 mm)	5" (125 mm)

- Sizing of HOME-FLEX® CSST must be performed using the capacity tables found in the *HOME-FLEX® System Design and Installation Manual* or online at www.homeflex.com.
- HOME-FLEX® CSST must not be connected directly to moveable appliances. Connections to moveable appliances such as ranges and clothes dryers should be accomplished with a HOME-FLEX® Flexible Appliance Connector, or similar device.
- Regulators are suitable for multi-poise mounting. When using a vent limiting device, the regulator must be mounted in a horizontal upright position. For outdoor venting, the vent line must be at least the same size as the vent connection and no longer than 30 feet before upsizing. When mounting a regulator outdoors, remove vent limiting device and position regulator inverted with open port down.
- A manifold assembly utilizing a pounds-to-inches regulator shall include a shut-off valve ahead of the regulator and be installed in an accessible location so that the regulator can be inspected, maintained and serviced.
- Buried or embedded tubing: HOME-FLEX® shall not be buried directly in the ground or directly embedded in concrete (i.e.: patio slabs, foundations and walkways). When it is necessary to bury or embed CSST, the tubing shall be routed inside a non-metallic, watertight conduit that has an inside diameter at least ½-inch greater than the O.D. of the CSST. Conduit installed outdoors shall be sealed at any exposed end to prevent water form entering. No mechanical joint fittings are permitted within the conduit. Note: CSST must be buried in accordance with all local building codes.
- HOME-FLEX® flexible gas piping systems must be pressure tested for leaks during rough construction in accordance with all local codes. In the absence of local requirements, test in accordance with Part 4 of the NFPA *National Fuel Gas Code*, ANSI Z223.1, and/or CSA B149.1. For a 'one-part' pressure-test, the regulator should be removed from the system. For a 'two-part' test, the regulator should be isolated from downstream test pressures.
- Installation alongside of a structure: When installed along the outside of a structure (between the ground and height of 6 ft) in an exposed condition, HOME-FLEX® tubing shall be protected from mechanical damage inside a protective hosing, conduit, or chase. A conduit or chase is not required if the tubing is installed in a location where the CSST will not be subject to mechanical damage.
- Direct meter hook-ups: Refer to the installations and illustrations shown in the *HOME-FLEX® System Design and Installation Manual*. CSST shall not be used as a means of support for the gas meter. Also check with your local code official or authority having jurisdiction on meter hook-ups. Some restrictions may apply. Local code requirements will always take precedence.
- Manual gas valves listed as complying with IAS U.S. Requirement 3-88 and/or CR910 and not listed as complying with ASME B 16.33 and/or CGA 3.11 shall not be installed outdoors.
- Where it is necessary to install HOME-FLEX® through sheet metal enclosures (such as fireplaces), the tubing shall be routed or supported to prevent physical contact with the enclosure. If direct contact cannot be avoided, the CSST tubing must be protected by rubber grommets, bushings, HOME-FLEX® Flexible Protective Conduit, PVC tape, thermal contraction sleeve material, or a minimum of four wraps of 10mil duct tape, to ensure that no physical contact will be made between the metal and CSST tubing that could cause mechanical wear.
- In accordance with the NFPA 54 Section 7, Valencia Pipe Company requires proper bonding of the HOME-FLEX® gas piping system to the structure's electrical grounding system. This must be performed by a qualified person recognized by the local jurisdiction as capable of performing such work. These requirements are for all HOME-FLEX® CSST installations.

HOME-FLEX®

Scan the QR code below to complete HOME-FLEX® certification and learn more about HOME-FLEX® and other VPC products.



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