HOME-FLEX™ UNDERGROUND

Submittal Data Sheet

Job or Customer:

Engineer: .....

Contractor: .....

Submitted by: ..... Date

Approved by: ..... Date

Order No: ..... Date

Specification: .....

< STANDARDS >

ASTM F1412
ASTM D4101
ASTM D635
ASTM D311

NSF 14

File No:
1103, 3455

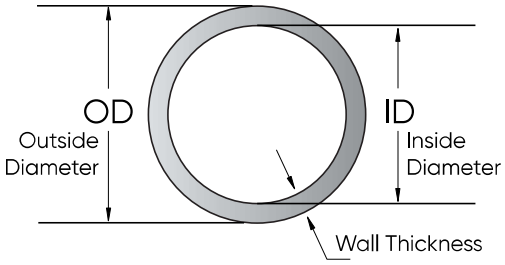
introduction

IPEX's HOME-FLEX UNDERGROUND mechanical joint system is the preferred solution for direct burial Natural Gas and Liquefied Petroleum gas applications. HOME-FLEX UNDERGROUND gas pipe is made from a Medium Density Polyethylene (MDPE) to iron pipe size (IPS), in accordance with ASTM D2513 Standard specification. Gas compression couplers, elbows and tees are made of Polypropylene (PP) to ASTM F1924 and D2513 standard. Transition Fittings and Risers are manufacture to ASTM F1973. All pipe and fittings are listed to NSF standard and NFPA.

PIPE AND FITTING AVAILABILITY

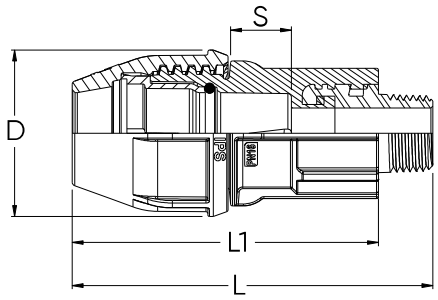
1/2" to 2" Pipe (100' to 500')	1/2" IPS to MIP Conversation fitting
1/2" to 1" Coupling	1/2" to 2" IPS x MIP Anodeless Service Riser (30" fix rise)
1/2" CTS x 1/2" IPS Coupling	Caution Tape (100', 250', 500' and 1000')
1/2" to 2" Elbow	Tracer Wire (100', 250', 500' and 1000')
1/2" to 2" Tee	Pressure Gauge (Pressure gauge with shredder valve)

DIMENSIONS



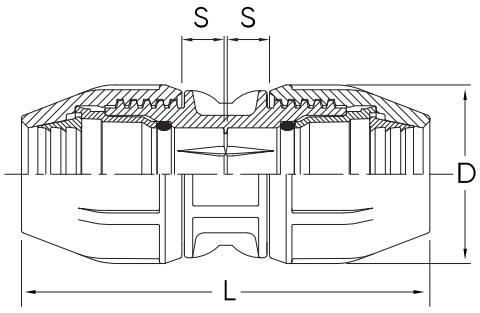
Pipe

Part Series	Size (IPS) (inches)	SDR	Dimensions (inches)			Min. Bend Radius
			Avg. O.D.	Approx. I.D.	Min. Wall Thickness	
221058/59/60	1/2	9.3	0.840	0.660	0.090	17.00
221061/62/63	3/4	11	1.050	0.860	0.095	26.25
221064/65/66	1	11	1.315	1.075	0.120	33.00
221067/68/69	1-1/4	11	1.660	1.358	0.151	41.50
221070/71/72	1-1/2	11	1.900	1.554	0.173	47.50
221073/74/75	2	11	2.375	1.943	0.216	59.40



Conversion Fitting

Part Series	Size (IPS) (inches)	SDR	Dimensions (inches)				Weight (lbs)
			S	D	L	L1	
221076	1/2	9.3	0.67	1.81	3.94	3.33	0.23
221077	3/4	11	0.81	2.13	4.41	3.74	0.34
221078	1	11	0.87	2.66	5.43	4.13	0.56

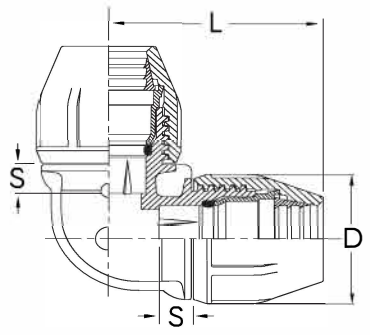


Coupling

Part Series	Size (IPS) (inches)	SDR	Dimensions (inches)			Weight (lbs)
			S	D	L	
250155	1/2	9.3	0.39	1.81	4.37	0.18
250156	3/4	11	0.43	2.13	4.69	0.29
250157	1	11	0.55	2.68	5.75	0.46
250159	1-1/4	10	0.71	3.23	7.17	0.93
250158	1-1/4	11	0.71	3.23	7.17	0.93
250160	1-1/2	11	0.94	3.78	8.07	1.30
250161	2	11	1.14	4.44	9.17	1.96

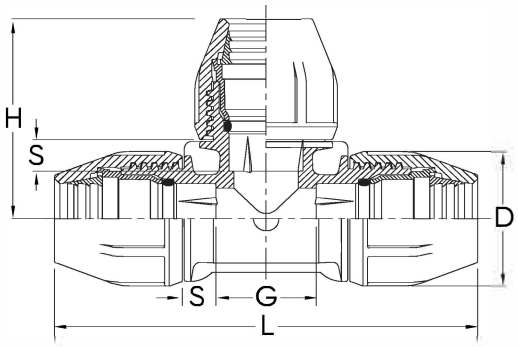
DIMENSIONS

Elbow



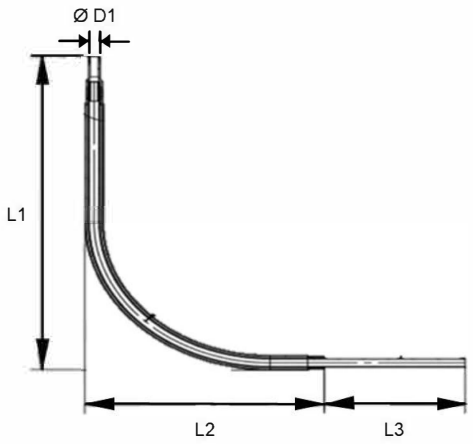
Part Series	Size (IPS) (inches)	SDR	Dimensions (inches)			Min. Bend Radius
			S	D	L	
250148	1/2	9.3	0.47	1.81	2.72	0.20
250149	3/4	11	0.51	2.13	3.23	0.33
250152	1	11	0.63	2.68	3.78	0.57
250151	1-1/4	10	0.79	3.23	4.41	0.99
250153	1-1/4	11	0.79	3.23	4.41	0.99
250148	1-1/2	11	0.83	3.78	4.84	1.48
250154	2	11	0.94	4.45	5.59	2.29

Tee



Part Series	Size (IPS) (inches)	SDR	Dimensions (inches)					Min. Bend Radius
			S	D	H	G	L	
250142	1/2	9.3	0.47	1.81	2.76	1.10	5.51	0.29
250143	3/4	11	0.51	2.13	3.19	1.54	6.34	0.49
250144	1	11	0.63	2.68	3.78	1.69	7.44	0.86
250146	1-1/4	10	0.79	3.23	4.41	1.89	8.78	1.46
250145	1-1/4	11	0.79	3.23	4.41	1.89	8.78	1.46
250168	1-1/2	11	0.83	3.78	4.88	2.17	9.65	2.16
250147	2	11	0.94	4.45	5.59	2.72	11.1	3.33

Riser



Size (IPS)	Part Number	Dimensions (inches)				Weight (Lbs)
		L1	L2	L3	Ø D1	
½" SDR 9.3, ¾" IPS Threads	251031	30	17	10.5	1.1	4
¾" SDR 11, ¾" IPS Threads	251026	30	17	10.5	1.1	5
1" SDR 11, 1" IPS Threads	251027	30	17	10.5	1.3	6
1-1/4" SDR 11, 1-1/4" IPS Threads	251028	30	26	10.5	1.7	9
1-1/2" SDR 11, 1-1/2" IPS Threads	251028	30	26	10.5	1.9	14
2" SDR 11, 2" IPS Threads	251030	30	33	10.5	2.4	28

FITTING ASSEMBLY

WARNING!

Improper installation or operation of the system may result in fire, explosion, or asphyxiation. Only the components provided or specified by IPEX USA LLC for use with HOME-FLEXTM Underground or as part of the fuel gas system are to be used in the installation.

Step 1 Check contents

Each product package includes a fitting and a number of stiffeners to be used on each end of pipe being connected (i.e. 2 stiffeners for a Coupler or Elbow, 3 for a Tee).

Step 2 Cut the pipe square

There is no need to chamfer the pipe end. Ensure any burrs on the pipe are removed and the pipe is clean.

Step 3 Insert stiffeners

Insert the supplied stiffeners into each end of the pipe being connected.

Step 4 Push stiffener into pipe

Push the stiffener all the way into the pipe until the ridge is flush with the pipe end. This can be done by hand, or gently tapped in with a mallet if required.

WARNING!

Improper installation or operation of the system may result in fire, explosion, or asphyxiation. Only the components provided or specified by IPEX USA LLC for use with HOME-FLEXTM Underground or as part of the fuel gas system are to be used in the installation.

Step 5 Ensure 3 threads are showing on the fitting body

The fitting is supplied in a ready-to-use position. You do not need to disassemble the fitting prior to use. Always ensure three threads are exposed on the central body of the fitting prior to use.

Step 6 Insert the pipe into the fitting

Gently slide the pipe with stiffener into the fitting until it stops. No force is required to do this. Do not try to force the pipe further into the fitting.

Step 7 Tighten the fitting

While holding the end of the pipe into the fitting with gentle force, tighten the nut until the nut touches the flange on the central body of the fitting. Do not tighten further once the nut touches the flange as over tightening can damage the fitting. It is recommended that pliers are used to ensure that the nut is tight against the body of the fitting.

Step 8 Fitting is installed

The fitting is now fully installed and ready for use. Note nut position relative to the flange on the central body. Check for system leaks prior to backfilling.

PRESSURE AND LEAK TESTING

The HOME-FLEXTM Underground gas piping system must be pressure tested for leaks in accordance with all local codes. The system must pass the pressure / leak test and have passed inspection by the authority having jurisdiction (AHJ) before backfilling the trench. In the absence of a specific local code that specifies the pressure test, refer to the latest edition of the National Fuel Gas Code NFPA 54. A copy of this code can be purchased and downloaded from: catalog.nfpa.org/NFPA-54-C3324.aspx.

Be sure that the new installation is isolated from any existing piping and the meter or regulator supply prior to conducting a pressure / leak test. A typical pressure / leak test for a single family residence might consist of pressurizing the newly installed pipe and fitting system with air to 15 PSI:

- Watch the needle on the pressure gauge for 15 - 30 minutes.
- If there is no detectable loss of pressure, this indicates that the system holds pressure.

NFPA 54 specifies that the system should be tested at 1.5 times the intended system operating pressure, but never less than 3 PSI. Long duration pressure / leak tests are not ideal, because the change of air temperature in the piping system will affect the reading on the pressure gauge. For each 10°F reduction in air temp, anticipate a 1.9% reduction in air pressure due to the cooling and contraction of the air in the pipe.

Troubleshooting Fitting Assembly and Correcting Leaks

If a leak is detected, check the following:

Step 1: Ensure that all yellow nuts on the fitting are tight up against the black body of the fitting. If they are and leak persists, go to step 2.

Step 2: Loosen the yellow nut and remove the pipe from the fitting.

a) Examine the inside of the fittings to make sure it is free of dirt or any debris that will interfere with the outside of the pipe making a seal against the inside of the fitting.

b) Make sure that the outside of the pipe is clean and smooth.

c) Reassemble the pipe into the fitting follow the assembly instructions and check for leaks.

Long Form Specification

This specification sheet covers manufacturer's requirements for a Medium Density Polyethylene (MDPE) pipe and associated compression fittings for use in direct burial Natural Gas and Liquified Petroleum gas piping systems. The pipe and fittings meet or exceed all applicable ASTM, NSF, UPC, NFPA and IAPMO standards.

Material

HOME-FLEX Underground gas pipe is Medium Density Polyethylene (MDPE) gas pipe. It is also referred to as PE or poly gas pipe. It is made in accordance with the ASTM D2513 standard. It is approved for direct burial into the ground in accordance with the local plumbing code at the installation location. It is flexible, lightweight, easy to work with and easy to install. HOME-FLEX Underground PE gas pipe is iron pipe size (IPS). It is approved for use with Natural Gas or LP gas. It is never to be installed in a building or house. It is never to be installed under a building or house. It is never to be installed above grade.

HOME-FLEX Underground fittings are approved for direct burial. They can be installed without the need for special tools or equipment. HOME-FLEX Underground fittings are constructed of plastic and they are a compression type fitting. Once installed, they can be removed and reinstalled.

HOME-FLEX Underground couplers, elbows and tees are approved to the ASTM F1924 and D2513 standard. They may be used with any brand of properly sized ASTM D2513 Yellow Poly Gas Pipe. These fittings are sized for IPS Poly Gas Pipe in ½" (SDR 9.3), ¾" (SDR 11), 1" (SDR 11), 1¼" (SDR 11), 1½" (SDR 11) and 2" (SDR 11) diameters. They are approved for use with Natural Gas or LP Gas. You must verify that your local jurisdiction allows the use of F1924 fittings prior to performing your installation. The Transition Fittings and Risers are approved to ASTM F1973. HOME-FLEX Underground gas pipe is approved ASTM D2513.

Marking

HOME-FLEX Underground pipe is marked as prescribed in ASTM D2513. The marking includes the following: HOME-FLEX Underground, NSF, UPC, IPS, dimension ratio, IPEX, IPEX model number, material designation code, elevated temperature code, ASTM standard, date of manufacture, manufacturer's lot number, no regrind, ASTM F2896 bar code and foot mark.

HOME-FLEX Underground fittings are marked with the name HOME-FLEX Underground and the applicable ASTM standard.

Installation and Testing

Installation and testing shall be in accordance with the contract drawings, the manufacturer's recommendations and the local plumbing codes. The entire system shall be installed free of stress and in proper alignment. Horizontal supports shall provide a wide bearing area and be free of burrs or sharp edges. Support spacings shall be in accordance with the manufacturer's recommendations and local plumbing codes. Improper installation or operation of the gas piping system may result in fire, explosion or asphyxiation. Only components provided or specified by IPEX USA LLC as part of the HOME-FLEXTM Underground Gas Distribution System are to be used in the installation.

Sample Specification

All natural gas and liquified petroleum yellow polyethylene gas pipe in sizes 1/2" to 2" IPS shall be made with MDPE composite pipe conforming to ASTM D2513 and NSF/ANSI 14 Certified. All natural gas and liquified petroleum gas fittings in sizes ½" to 2" shall be Polypropylene and shall conform to the dimensional and physical requirements of ASTM F1924-12 Category 1 fittings.

All pipe, fittings and accessories shall be Home-Flex Underground as manufactured by IPEX.

About IPEX by Aliaxis

As leading suppliers of thermoplastic piping systems, IPEX by Aliaxis provides our customers with some of the world's largest and most comprehensive product lines. All IPEX by Aliaxis products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX by Aliaxis products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, ABS, and PEX pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

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