

ProPoly™

Underground Gas Distribution System

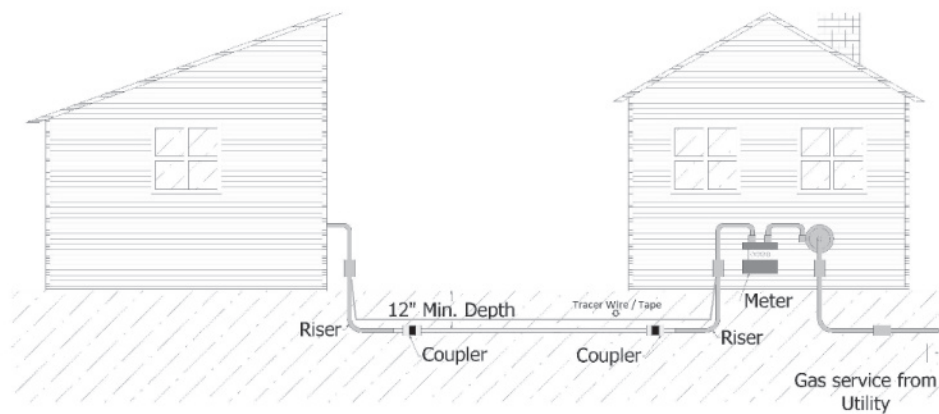
System Design & Installation Guide



Is proud to introduce

ProPoly Underground Gas Distribution System

Direct Burial MDPE Gas Piping that is approved for use with both Natural and LP (Propane)



Technical Assistance:
877-798-6291

March, 2022
PEIM-01PP

Introduction

Pro-Poly™ Underground Gas Distribution System must be installed by a trained installer who meets the following criteria:

1. Installer must meet all qualifications required by the state and/or local administrative authority administering the provisions of the code where the gas piping is installed.
2. An installer must also be trained in the use of Pro-Poly™ Underground Gas Distribution System. Training for Pro-Flex, LLC's Pro-Poly™ system can be completed by reading Pro-Flex® LLC's Pro-Poly™ Underground Gas Distribution System Installation/Training Guide and registering with Pro-Flex, LLC to obtain a Qualified Installer Card by either mailing in the registration card from the back of the guide or registering online at www.proflexcsst.com. In submitting either the printed or online registration, you are affirming that you understand all aspects of the installation requirements and local plumbing, mechanical, electrical, and/or applicable building codes. If you do not understand all requirements and local codes, contact a Trained Installer. You must presently possess or obtain prior to installation, a Pro-Poly™ Trained Installer Card.

The installation shall be made in accordance with local codes, or, in the absence of local codes, in accordance with the National Fuel Gas Code [ANSI Z223.1 / NFPA 54]; the Liquefied Petroleum Gas Code [NFPA 58]; Natural Gas and Propane Installation Code [CSA B149.1]; the International Fuel Gas Code [IFGC], or the Uniform Plumbing Code [UPC]. In addition, ASTM D2774 [Standard Practice for Underground Installation of Thermoplastic Pressure Piping] and the installation instructions as prescribed by Pro-Flex, LLC must be followed.

Special attention must be given to the proper design, installation, testing and use of the gas piping. Sound engineering principles and practices must be exercised as well as diligent adherence to proper installation procedures. All installed systems must pass customary installation inspections by the administrative authority prior to being placed in service.

- ⚠ *When a conflict exists between this guide and local code requirements; the local codes shall take precedence.*
- ⚠ *Improper installation or operation of the gas piping system may result in fire, explosion or asphyxiation.*
- ⚠ *Only components provided or specified by Pro-Flex, LLC as part of the Pro-Poly™ Underground Gas Distribution System are to be used in the installation.*
- ⚠ *The installation instructions and practices outlined in this training guide only applies to the use of Pro-Poly™ Underground Gas Distribution System. Pro-Flex, LLC assumes no responsibility for installations made with other manufacturer's gas piping systems.*
- ⚠ *While every effort has been made to prepare this document with all regional model codes in effect at its printing, Pro-Flex, LLC cannot guarantee that the local administrative authority will accept the most recent version of these codes. It is the ultimate responsibility of the installer to determine the suitability and acceptance of any building components including gas piping. Pro-Flex, LLC, manufacturer of Pro-Poly™ Underground Gas Distribution System, assumes no responsibility for labor or material for installations made without prior determination of local code authority acceptance.*



WARNING! THIS PRODUCT IS FOR UNDERGROUND USE ONLY



Always call 811 prior to digging



User Warnings

The installation of **Pro-Poly™ Underground Gas Distribution System** must be performed by an installer who has been trained in the use of the **Pro-Poly™** system. The installer must also meet all qualifications required by the state and/or local administrative authority administering the provision of the code where gas piping is installed.

This Installation/Training Guide provides the installer with general guidance when designing and installing underground fuel gas piping systems using **Pro-Poly™ Underground Gas Distribution System**. This guide must be used in conjunction with all local building codes. Local requirements will take precedence in the event there is a conflict between this guide and the local codes. The installation shall be made in accordance with local codes, or, in the absence of local codes, in accordance with: the National Fuel Gas Code [ANSI Z223.1/NFPA 54], the Liquefied Petroleum Gas Code [NFPA 58], the International Fuel Gas Code [IFGC], the Uniform Plumbing Code [UPC], ASTM D2744 [Standard Practice for Underground Installation of Thermoplastic Pressure Piping] and the Pro-Poly™ Installation Guide.

Special attention must be given to the proper design, installation, testing and use of the gas piping system. Sound engineering principles and practices must be exercised, as well as diligent adherence to the proper installation procedures. ***All installed systems must pass customary installation inspections by the administrative authority prior to being placed in service. In addition, call 811 at least 3 days prior to digging.***



WARNING!

Improper installation or operation of the system may result in fire, explosion or asphyxiation. Only the components provided or specified by Pro-Flex, LLC, for use as part of the fuel gas system are to be used in the installation. Use of components from other gas piping systems other than those specified as part of the Pro-Flex system is prohibited and may result in poor performance and serious bodily injury or property damage

Code Compliances:

- NFPA 54 /ANSI Z223.1 - National Fuel Gas Code
- ICC - International Fuel Gas Code
- ICC - International Mechanical Code
- ICC - International Building Code
- IAPMO - Uniform Plumbing Code
- IAPMO - Uniform Mechanical code

Limitations of this Guide

While every effort has been made to prepare this document in accordance with all regional model codes in effect at its printing, Pro-Flex, LLC, cannot guarantee that the local administrative authority will accept the most recent version of these codes. *It is the ultimate responsibility of the trained installer to determine suitability and acceptance of any building components including gas piping. Pro-Flex, LLC, manufacturer of Pro-Poly Underground Gas Distribution System assumes no responsibility for labor or material for installations made without prior determination of local code authority acceptance.*


Prohibited Installation Practices


- ⚠ **DO NOT** install Pro-Poly Underground Products in above ground installations.
- ⚠ **DO NOT** install Pro-Poly Underground Products inside buildings.
- ⚠ **DO NOT** encase Pro-Poly Underground Products inside concrete.
- ⚠ **DO NOT** connect Pro-Poly Underground fittings to poly gas pipes other than the specified size [*including SDR*] marked on the fitting.


Description of System and Components


Pro-Poly™ Underground Gas Pipe


<i>Direct Burial MDPE Gas Pipe complies with ASTM D2513 suitable for Natural Gas or LP (Propane) Gas</i>	Part Number	Pipe Size	SDR	Length (FEET)
	PECTS-12500	1/2" CTS		500
	PEIPS-34100	3/4"	11	100
	PEIPS-34150	3/4"	11	150
	PEIPS-34500	3/4"	11	500
	PEIPS-01100	1"	11	100
	PEIPS-01150	1"	11	150
	PEIPS-01500	1"	11	500
	PEIPS-0114100	1 1/4"	11	100
	PEIPS-0114150	1 1/4"	11	150
	PEIPS-0114500	1 1/4"	11	500
	PEIPS-015150	1 1/2"	11	150
	PEIPS-015500	1 1/2"	11	500
	PEIPS-02200	2"	11	200

	Coupling Fitting <ul style="list-style-type: none"> • Joins 2 MDPE Gas Pipes of the same size • Complies with ASTM F1924-12 [Category 1 Fittings] • Suitable for Natural Gas or LP Gas installations <ul style="list-style-type: none"> • Maximim Operating Pressure: 125 PSIG • Operating Temperature Range: -20° F - 180° F 	Part Number	Pipe Size	SDR
		PECP-34	3/4"	11
		PECP-01	1"	11
		PECP-0114	1 1/4"	11
		PECP-015	1 1/2"	11
		PECP-02	2"	11

	Elbow Fitting <ul style="list-style-type: none"> • Joins 2 MDPE Gas Pipes of the same size [at a right angle] • Complies with ASTM F1924-12 [Category 1 Fittings] <ul style="list-style-type: none"> • Suitable for Natural Gas or LP Gas • Maximim Operating Pressure: 125 PSIG • Operating Temperature Range: -20° F - 180° F 	Part Number	Pipe Size	SDR
		PEEL-34	3/4"	11
		PEEL-01	1"	11
		PEEL-0114	1 1/4"	11
		PEEL-015	1 1/2"	11
		PEEL-02	2"	11

	Tee Fitting <ul style="list-style-type: none"> • Joins 3 MDPE Gas Pipes of the same size • Complies with ASTM F1924-12 [Category 1 Fittings] <ul style="list-style-type: none"> • Suitable for Natural Gas or LP Gas • Maximim Operating Pressure: 125 PSIG • Operating Temperature Range: -20° F - 180° F 	Part Number	Pipe Size	SDR
		PETE-34	3/4"	11
		PETE-01	1"	11
		PETE-0114	1 1/4"	11
		PETE-015	1 1/2"	11
		PETE-02	2"	11

	Transition Fitting <ul style="list-style-type: none"> • Transitions between Steel and MDPE Gas Pipe <ul style="list-style-type: none"> • Requires the use of a Coupling Fitting • Complies with ASTM F1973 for use with ASTM D2513 Gas Pipe <ul style="list-style-type: none"> • Suitable for Natural Gas or LP Gas • Maximim Operating Pressure: 125 PSIG • Operating Temperature Range: -20° F - 180° F 	Part Number	Pipe Size	SDR
		PETR-34	3/4"	11
		PETR-01	1"	11
		PETR-0114	1 1/4"	11
		PETR-015	1 1/2"	11
		PETR-02	2"	11

	Rigid Riser <ul style="list-style-type: none"> • Required when bringing MDPE Gas Pipe above ground. <ul style="list-style-type: none"> • Requires the use of a Coupling Fitting • Complies with ASTM F1973 • Complies with ASTM D2513 - Category 1 Specifications <ul style="list-style-type: none"> • Suitable for Natural Gas or LP Gas • Maximim Operating Pressure: 125 PSIG • Operating Temperature Range: -20° F - 180° F 	Part Number	Pipe Size	SDR
		PERSR-34	3/4"	11
		PERSR-01	1"	11
		PERSR-0114	1 1/4"	11
		PERSR-015	1 1/2"	11
		PERSR-02	2"	11

System Configuration and Sizing

Prior to piping installation, refer to building plans or prepare a sketch *[this may be required by the local authority having jurisdiction for permitting purposes]* showing the location of the appliances, the various appliance load demands, point of delivery [gas meter or 2nd stage LP regulator] and planned piping routes. Appliance load demand data can be obtained from the manufacturer's name-plate located on each appliance, or provided to the system designer by the builder/contractor.

Determine local piping restrictions prior to installing the underground piping system. Confirm that the AHJ [local authority having jurisdiction] has accepted the use of medium density polyethylene [MDPE listed to ASTM D2513] gas piping and fittings listed to ASTM F1924. MDPE has been accepted by most major code bodies, but state and/or local adoptions of these codes often lag behind.

Determine metered supply pressure.

- Natural Gas- check with local gas utility to determine pressure supplied by the meter.
- Liquefied Petroleum Gas [LP Gas – also called Propane]-check with LP supplier to determine pressure supplied by the first and second stage regulators.

Informational Notes:

- *Natural gas pressures- typical natural gas appliances require 5 inches of water column [inches of water column is a measurement of pressure that uses a different scale to more accurately measure low pressure gas – i.e. ¼ psi = 6.921 inches of water column]. In the past, standard low pressure was typically provided at 6-7 inches of water column by the meter [and still is in many places] thus allowing for a 1" WC pressure drop. With the popularity of on demand water heaters, commercial type cook stoves, and gas appliances in general, many utilities now provide 2 psi of pressure from the outlet of the meter. Because there is no national standard for meter outlet pressures, it is critical to contact the utility to determine the pressure. Please note that when the outlet pressure of the meter is 2psi a line pressure regulator such as the PFMR series [Maxitrol 325 series] offered by Pro-Flex, LLC must be placed in the piping system upstream from the connection of a manifold or appliance.*
- *LP gas- check with both the AHJ and LP supplier for their acceptance of MDPE piping.*

Determine the total capacity needed for all appliances. The capacity tables within this guide or any approved MDPE capacity tables should be used to determine pipe sizes necessary to meet BTUH input load requirements.

With respect to gas pipe sizing, the intent of all model codes is to ensure there is sufficient gas volume and gas pressure supplied to the appliance for proper operation. Language from the International Fuel Gas Code clearly illustrates this point.

"Allowable Pressure Drop- *The design pressure loss on any piping system under maximum probable flow conditions, from the point of delivery to the inlet connection of the equipment, shall be such that supply pressure at the equipment is greater than the minimum required for proper equipment operation."*

➤ Important Considerations:

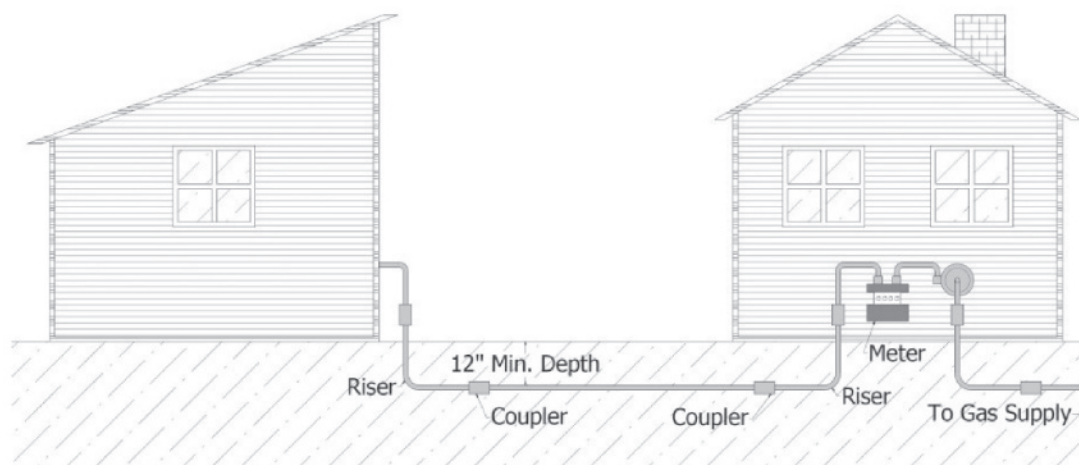
- *All existing pipe sizes within a gas piping system should be evaluated and confirmed to be adequate to handle the additional load when adding additional appliances.*
- *Allowable pressure drop along any particular run may be dictated by local code restrictions.*
- *Call 811 at least 3 days prior to digging.*

Reference Data for Proper Sizing

Pressure Conversion Factors	Fuel Gas Information	Natural Gas	LP Gas
1/4 psi = 6.921 in. w.c. [approx. 7 in. w.c.]	BTU per Cubic Foot	1000	2516
1/2 psi = 13.842 in. w.c. [approx. 14 in. w.c.]			
1 psi = 27.684 in. w.c. [approx. 28 in. w.c.]			
2 psi = 55.368 in. w.c. [approx. 56 in. w.c.]			
5 psi = 138.42 in. w.c. [approx. 40 in. w.c.]	Specific Gravity	0.6	1.52
Note: To determine the CFH of Natural Gas, divide BTU load by 1000. To determine CFH of LP, divide the BTU load by 2516.			

Sizing Methods and Examples

Natural Gas System (Low Pressure) Gas Supply from House to Garage

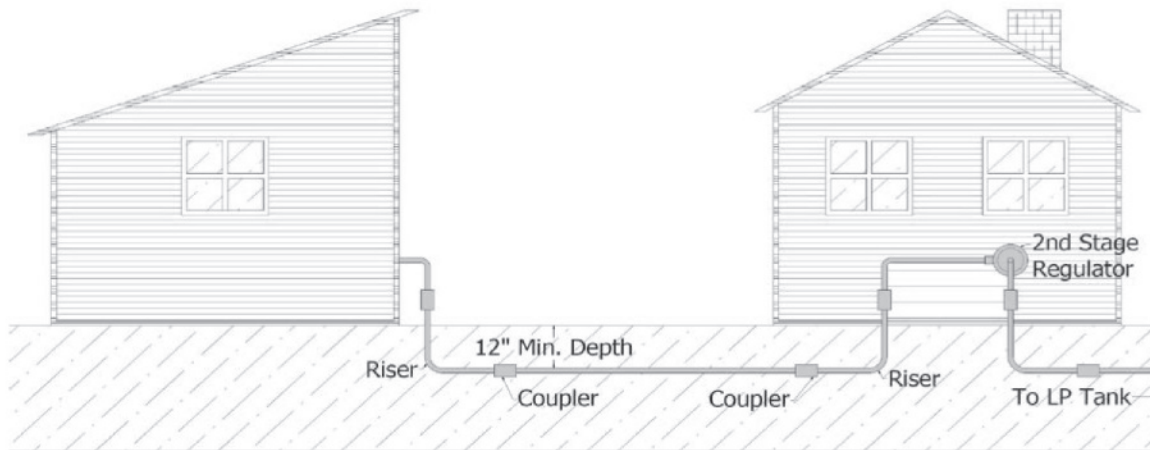


Low Pressure [Less than or equal to 2.0 psi Natural Gas]

In this scenario, an underground polyethylene gas line is being ran from the low pressure outlet of the meter to a detached garage, outbuilding, or appliance that requires a natural gas outlet.

1. Call at least 3 days prior to digging to have any underground utilities marked prior to digging.
2. Determine length of gas piping from connection point at meter outlet to riser outlet at the outbuilding or appliance. Include the distance required to connect the riser to the gas piping system near the meter. This connection must be made using rigid pipe or CSST that is at least the same size as the PE pipe size.
3. Determine the number and type of Pro-Poly™ fittings that are required in the system. Add the equivalent number of feet from the Fitting Adjustment Table on page 11 of this guide to the number of feet calculated above.
4. Determine the appropriate sizing table based on meter outlet pressure and allowable pressure drop. Find the nearest length that is equal to or greater than the length calculated in step 3 above. Follow the row across until the number of BTU's provided is equal to or greater than the required BTU's required for this run- check the column header for required pipe diameter.

2 psi or less LP Gas Second-Stage Regulator
to Garage, Outbuilding, or Appliance

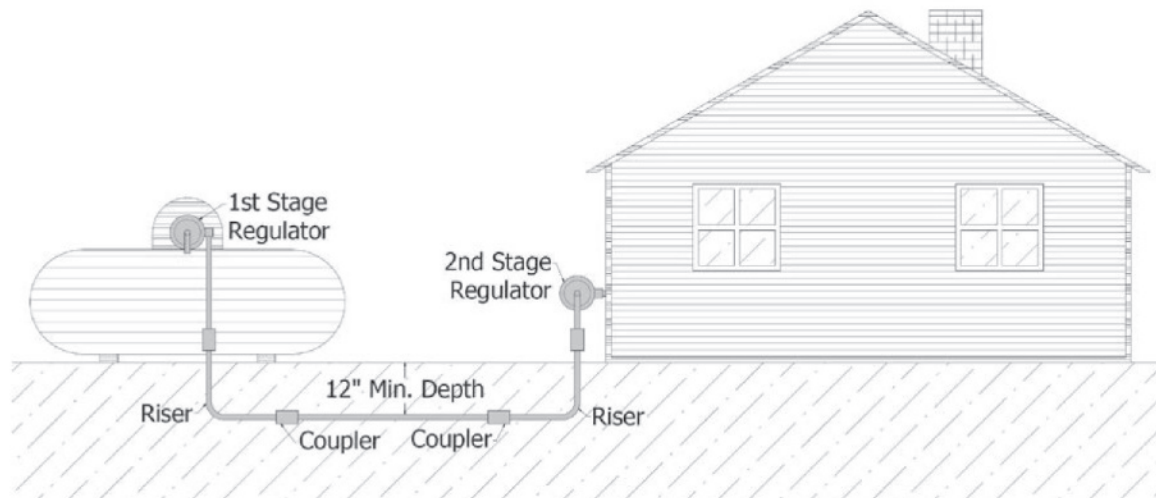


Low Pressure [Less than or equal to 2.0 psi] LP Gas

In this scenario, an underground polyethylene gas line is being run from the outlet of the second-stage regulator to a detached garage, outbuilding, or appliance that requires an LP gas outlet.

1. Call 811 at least 3 days prior to digging to have any underground utilities marked prior to digging.
2. Determine length of gas piping from connection point at second stage regulator outlet to riser outlet at the outbuilding or appliance. Include the distance required to connect the riser to the gas piping system near the meter. This connection must be made using rigid pipe or CSST that is at least the same size as the PE pipe size.
3. Determine the number and type of Pro-Poly[™] fittings that are required in the system. Add the equivalent number of feet from the Fitting Adjustment Table on page 11 of this guide to the number of feet calculated above.
4. Determine the appropriate sizing table based on meter outlet pressure and allowable pressure drop. Find the nearest length that is equal to or greater than the length calculated in step above. Follow the row across until the number of BTU's provided is equal to or greater than the required BTU's required for this run- check the column header for required pipe diameter.

LP System (10 PSI) - Tank to House



10 psi – First-Stage Regulator to Second-Stage Regulator

In this scenario, an underground polyethylene gas line is being run from the outlet of the First-Stage Regulator to the Second-Stage Regulator.

1. Call 811 at least 3 days prior to digging to have any underground utilities marked prior to digging.
2. Determine length of gas piping from connection point of riser near first-stage regulator outlet to riser outlet at the second stage-regulator. LP provider will make connection from first stage regulator to riser.
3. Determine the number and type of Pro-Poly™ fittings that are required in the system. Add the equivalent number of feet from the Fitting Adjustment Table on page 11 of this guide to the number of feet calculated above.
4. Use the 10 psi chart for LP Gas. Find the nearest length that is equal to or greater than the length calculated in step 3 above. Follow the row across until the number of BTU's provided is equal to or greater than the required BTU's required for this run - check the column header for required pipe diameter.

Pro-Poly Sizing Tables

Table 1					
Gas :	Natural		Specific Gravity:		0.60
Gas Pressure:	Less than 2 psi		Pressure Drop:		0.3 in. w.c.
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
10'	305	551	955	1,440	2,590
20'	210	379	656	991	1,780
30'	169	304	527	796	1,430
40'	144	260	451	681	1,220
50'	128	231	400	604	1,080
60'	116	209	362	547	983
70'	107	192	333	503	904
80'	99	179	310	468	841
90'	93	168	291	439	789
100'	88	159	275	415	745
125'	78	141	243	368	661
150'	71	127	221	333	598
175'	65	117	203	306	551
200'	60	109	189	285	512
250'	54	97	167	253	454
300'	48	88	152	229	411
350'	45	81	139	211	378
400'	42	75	130	196	352
450'	39	70	122	184	330
500'	37	66	115	174	312

Table 2					
Gas :	Natural		Specific Gravity:		0.60
Gas Pressure:	Less than 2 psi		Pressure Drop:		0.5 in. w.c.
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
10'	403	726	1,260	1,900	3,410
20'	277	499	865	1,310	2,350
30'	222	401	695	1,050	1,880
40'	190	343	594	898	1,610
50'	169	304	527	796	1,430
60'	153	276	477	721	1,300
70'	140	254	439	663	1,190
80'	131	236	409	617	1,110
90'	123	221	383	579	1,040
100'	116	209	362	547	983
125'	103	185	321	485	871
150'	93	168	291	439	789
175'	86	154	268	404	726
200'	80	144	249	376	675
250'	71	127	221	333	598
300'	64	115	200	302	542
350'	59	106	184	278	499
400'	55	99	171	258	464
450'	51	93	160	242	435
500'	48	88	152	229	411

Table 3					
Gas :	Natural		Specific Gravity: 0.60		
Gas Pressure:	2.0 psi		Pressure Drop: 1.0 psi		
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
10'	3,720	6,710	11,600	17,600	31,600
20'	2,560	4,610	7,990	12,100	21,700
30'	2,050	3,710	6,420	9,690	17,400
40'	1,760	3,170	5,490	8,300	14,900
50'	1,560	2,810	4,870	7,350	13,200
60'	1,410	2,550	4,410	6,660	12,000
70'	1,300	2,340	4,060	6,130	11,000
80'	1,210	2,180	3,780	5,700	10,200
90'	1,130	2,050	3,540	5,350	9,610
100'	1,070	1,930	3,350	5,050	9,080
125'	949	1,710	2,970	4,480	8,050
150'	860	1,550	2,690	4,060	7,290
175'	791	1,430	2,470	3,730	6,710
200'	736	1,330	2,300	3,470	6,240
250'	652	1,180	2,040	3,080	5,530
300'	591	1,070	1,850	2,790	5,010
350'	544	981	1,700	2,570	4,610
400'	506	913	1,580	2,390	4,290
450'	475	856	1,480	2,240	4,020
500'	448	809	1,400	2,120	3,800
550'	426	768	1,330	2,010	3,610
600'	406	733	1,270	1,920	3,440
650'	389	702	1,220	1,840	3,300
700'	374	674	1,170	1,760	3,170
750'	360	649	1,130	1,700	3,050
800'	348	627	1,090	1,640	2,950
850'	336	607	1,050	1,590	2,850
900'	326	588	1,020	1,540	2,770
950'	317	572	990	1,500	2,690
1000'	308	556	963	1,450	2,610
1100'	293	528	915	1,380	2,480
1200'	279	504	873	1,320	2,370
1300'	267	482	836	1,260	2,270
1400'	257	463	803	1,210	2,180
1500'	247	446	773	1,170	2,100
1600'	239	431	747	1,130	2,030
1700'	231	417	723	1,090	1,960
1800'	224	404	701	1,060	1,900
1900'	218	393	680	1,030	1,850
2000'	212	382	662	1,000	1,800

Table 4					
Gas :	Undiluted Propane [LP]		Specific Gravity: 1.52		
Gas Pressure:	11 in. w.c.		Pressure Drop: 0.5 in. w.c.		
INTENDED USE: PE Pipe Sizing Between Integral Second-Stage Regulator at Tank or Second-Stage (Low-Pressure) Regulator and Building.					
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
10'	680	1,230	2,130	3,210	5,770
20'	468	844	1,460	2,210	3,970
30'	375	677	1,170	1,770	3,180
40'	321	580	1,000	1,520	2,730
50'	285	514	890	1,340	2,420
60'	258	466	807	1,220	2,190
70'	237	428	742	1,120	2,010
80'	221	398	690	1,040	1,870
90'	207	374	648	978	1,760
100'	196	353	612	924	1,660
125'	173	313	542	819	1,470
150'	157	284	491	742	1,330
175'	145	261	452	683	1,230
200'	135	243	420	635	1,140
250'	119	215	373	563	1,010
300'	108	195	338	510	916
350'	99	179	311	469	843
400'	92	167	289	436	784
450'	87	157	271	409	736
500'	82	148	256	387	695

Table 5					
Gas :	Undiluted Propane [LP]		Specific Gravity: 1.52		
Gas Pressure:	2.0 psi		Pressure Drop: 1.0 psi		
INTENDED USE: PE Pipe Sizing Between 2 psi Service Regulator and Line Pressure Regulator.					
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
10'	6,260	11,300	19,600	29,500	53,100
20'	4,300	7,760	13,400	20,300	36,500
30'	3,450	6,230	10,800	16,300	29,300
40'	2,690	5,330	9,240	14,000	25,100
50'	2,620	4,730	8,190	12,400	22,200
60'	2,370	4,280	7,420	11,200	20,100
70'	2,180	3,940	6,830	10,300	18,500
80'	2,030	3,670	6,350	9,590	17,200
90'	1,910	3,440	5,960	9,000	16,200
100'	1,800	3,250	5,630	8,500	15,300
125'	1,600	2,880	4,990	7,530	13,500
150'	1,450	2,610	4,520	6,830	12,300
175'	1,330	2,400	4,160	6,280	11,300
200'	1,240	2,230	3,870	5,840	10,500
250'	1,100	1,980	3,430	5,180	9,300
300'	994	1,790	3,110	4,690	8,430
350'	914	1,650	2,860	4,320	7,760
400'	851	1,530	2,660	4,020	7,220
450'	798	1,440	2,500	3,770	6,770
500'	754	1,360	2,360	3,560	6,390
550'	716	1,290	2,240	3,380	6,070
600'	683	1,230	2,140	3,220	5,790
650'	654	1,180	2,040	3,090	5,550
700'	628	1,130	1,960	2,970	5,330
750'	605	1,090	1,890	2,860	5,140
800'	585	1,050	1,830	2,760	4,960
850'	566	1,020	1,770	2,670	4,800
900'	549	990	1,710	2,590	4,650
950'	533	961	1,670	2,520	4,520
1000'	518	935	1,620	2,450	4,400
1100'	492	888	1,540	2,320	4,170
1200'	470	847	1,470	2,220	3,980
1300'	450	811	1,410	2,120	3,810
1400'	432	779	1,350	2,040	3,660
1500'	416	751	1,300	1,960	3,530
1600'	402	725	1,260	1,900	3,410
1700'	389	702	1,220	1,840	3,300
1800'	377	680	1,180	1,780	3,200
1900'	366	661	1,140	1,730	3,110
2000'	356	643	1,110	1,680	3,020

Table 6					
Gas :	Undiluted Propane [LP]		Specific Gravity:		1.52
Gas Pressure:	10.0 psi		Pressure Drop:		1.0 psi
INTENDED USE: PE Pipe Sizing Between First-Stage Regulator and Second-Stage[Low-Pressure] Regulator.					
IPS Pipe Size	3/4"	1"	1-1/4"	1-1/2"	2"
SDR	11	11	11	11	11
Pipe Length [feet]	Capacity in CUBIC FEET per HOUR				
30'	4,292	7,744	13,416	20,260	36,402
40'	3,673	6,628	11,482	17,340	31,155
50'	3,256	5,874	10,176	15,368	27,612
60'	2,950	5,322	9,220	13,924	25,019
70'	2,714	4,896	8,483	12,810	23,017
80'	2,525	4,555	7,891	11,918	21,413
90'	2,369	4,274	7,404	11,182	20,091
100'	2,238	4,037	6,994	10,562	18,978
125'	1,983	3,578	6,199	9,361	16,820
150'	1,797	3,242	5,616	8,482	15,240
175'	1,653	2,983	5,167	7,803	14,020
200'	1,539	2,775	4,807	7,259	13,043
225'	1,443	2,603	4,510	6,811	12,238
250'	1,363	2,459	4,260	6,434	11,560
275'	1,294	2,336	4,046	6,111	10,979
300'	1,235	2,228	3,860	5,830	10,474
350'	1,136	2,050	3,551	5,363	9,636
400'	1,057	1,907	3,304	4,989	8,965
450'	992	1,789	3,100	4,681	8,411
500'	937	1,690	2,928	4,422	7,945
600'	849	1,531	2,653	4,007	7,199
700'	781	1,409	2,441	3,686	6,623
800'	726	1,311	2,271	3,429	6,161
900'	682	1,230	2,131	3,217	5,781
1000'	644	1,162	2,012	3,039	5,461
1500'	517	933	1,616	2,441	4,385
2000'	443	798	1,383	2,089	3,753

Fitting Adjustment Chart		
Length to add to each run to compensate for each fitting		
Fitting	Pipe Size	Add
Coupler	3/4"	2.2'
	1'	2.9'
	1 1/4"	3.5'
	1 1/2"	4.2'
	2"	3.4'
Elbow	3/4"	4.4'
	1'	5.7'
	1 1/4"	6.9'
	1 1/2"	8.2'
	2"	8.3'
Tee [in Line Flow]	3/4"	2.9'
	1'	3.7'
	1 1/4"	4.5'
	1 1/2"	5.3'
	2"	4.8'
Tee [Line to Branch Flow]	3/4"	5.3'
	1'	6.8'
	1 1/4"	8.4'
	1 1/2"	9.9'
	2"	10.4'

ProPoly underground gas piping systems

Prepare the Pipe

1



Cut the pipe square using a plastic pipe cutting tool such as the ProPoly Pipe Cutter.

2



Insert a stiffener into the end of the pipe.

3



Select the proper measurement from the chart to the right. Measure from the stiffener (in the end of the pipe) and place a witness mark on the pipe. This mark will be visible when the fitting is installed to the proper depth.

Pipe Size	Measure
1/2" CTS	1 13/16"
3/4" IPS	2 1/16"
1" IPS	2 1/16"
1 1/4" IPS	3"
1 1/2" IPS	TBD
2" IPS	5 3/8"

Fitting Installation

Preferred Method

Completely loosen, but do not remove nut from the fitting body.



Insert the pipe through the nut and into the fitting body and the o-ring until it comes to a complete stop.



Hand tighten then use a spanner wrench or oil filter pliers to completely tighten the nut.



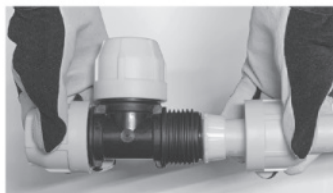
Alternate Method



Unscrew the nut, split ring, thrust ring, and the o-ring from the fitting body.



Insert the pipe into the nut, split ring, thrust ring, and the o-ring.



Insert the pipe into the fitting body until it reaches a complete stop. Push the o-ring and the thrust ring inside the fitting body.



Hand tighten then use a spanner wrench or oil filter pliers to completely tighten the nut.

ProPoly underground gas piping systems

Installation Practices & Guidelines



1. Pro-Poly Underground pipe and fittings must be installed in accordance with the Installation Practices & Guidelines outlined in this document as well as all local plumbing, mechanical, electrical and/or building codes and laws applicable at the locale where Pro-Poly Underground 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. Customers may apply for a Qualified Installer card, which may be required by some jurisdictions, online at: www.proflexcsst.com
2. Only the components provided or specified by Pro-Flex LLC as part of the piping system are to be used in the installation.
3. Never use Pro-Poly Underground products in above ground applications.
4. Never use Pro-Poly Underground products inside buildings.
5. Never encase Pro-Poly Underground products in concrete
6. Do not use Pro-Poly Underground pipe fittings to connect poly gas pipes other than the specified size as marked on the fitting.
7. Underground gas piping must be installed with sufficient clearance from any other underground structure to avoid contact, to allow maintenance, and to protect against damage from proximity to other structures. In addition, underground plastic piping shall be installed with sufficient clearance, or shall be insulated from any source of heat so as to prevent heat from impairing the serviceability and reliability of the pipe.
8. Ensure that correct stiffener is used with the correct sized pipe (part numbers are marked on stiffener)
9. Ensure the sizing on the fitting nut matches the sizing on the pipe being connected.
10. The fitting is supplied assembled and ready to use. If the fitting is disassembled, ensure all nut components are present and in the correct orientation as pictured in Figure 1.
11. When installing PE pipe care must be taken to avoid inducing excessive stresses to the pipe and fittings.
12. Excessive bending of plastic piping systems, particularly at joints, can exceed stress limits and result in failure. Pipe, when joined with fittings, shall be laid as true to line as possible, while taking into consideration that common PE gas pipe may expand or contract 1 inch for every 10° F of temperature change per each 100 foot section of pipe. Grading and backfilling must be carried out carefully to prevent uneven settlement and therefore excessive bending. Please refer to ASTM D2774 for additional information on backfilling.
13. The use of damaged pipe where the joint is being made must be avoided. If there is a cut or groove in the pipe that section should be cut out. Sealing performance can be affected by scored or damaged pipe, so caution should be taken if present on the pipe.
14. The Pro-Poly Underground® gas piping system must be pressure tested for leaks in accordance with all local codes.

WARNING!

Improper installation or operation of the system may result in fire, explosion, or asphyxiation. Only the components provided or specified by Pro-Flex LLC for use with Pro-Poly or 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 Pro-Poly systems is prohibited and may result in poor system performance and serious bodily injury or property damage.

Troubleshooting Fitting Assembly and Correcting Leaks

Check for 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.

Note: It is not necessary to remove the yellow nut completely off of the fitting. If this occurs use the diagram above to reassemble the fitting properly.

Pro-Poly Underground Gas Distribution



LIMITED ONE YEAR WARRANTY

Pro-Flex LLC hereby provides this limited one-year warranty that its Pro-Poly Underground® products will be free from any defect of workmanship and material for a period of one year beginning from the date of proof of purchase. If any of the Pro-Poly Underground® Products are determined to be defective by Pro-Flex LLC, the measure of the damage is limited to the price of the defective goods only. No reimbursement for labor or expense required to repair the defective goods, or occasioned by them, will be allowed. Pro-Flex LLC shall have no liability whatsoever under this warranty for any amount in excess of the price paid for the Pro-Poly Underground® Product.

Should any defect of the Pro-Poly Underground® Product be claimed, the proposed defective Pro-Poly Underground® Product must be returned to Pro-Flex LLC within the limited warranty period of one year from the date of the product's purchase. The obligation of Pro-Flex LLC under this limited warranty is: Pro-Flex LLC, at its sole discretion, may replace the defective Pro-Poly Underground® Product; repair the defective Pro-Poly Underground® Product; or refund the purchase price paid for the Pro-Poly Underground® Product following receipt by Pro-Flex LLC of proof of purchase of its Pro-Poly Underground® Product.

This limited one-year warranty shall not apply to any part or parts of the Pro-Poly Underground® Products if it has been installed, altered, repaired or misused, through negligence or otherwise, in a way that in the opinion of Pro-Flex LLC affects the reliability of, or detracts from, the performance of the product. Nor does this limited warranty cover replacements or repairs necessitated by loss or damage resulting from any cause beyond the control of Pro-Flex LLC, including but not limited to acts of God, acts of government, floods or fires.

In order for the Pro-Flex LLC limited warranty to apply; the Pro-Poly Underground® Product installation must have been performed strictly in accordance with local plumbing and/or building codes, and in accordance with the Pro-Poly Underground® Installation Practices and Guidelines by a Qualified Installer as determined by the governing authority at the installation location.

The foregoing is provided in lieu of any other warranties (expressed, implied or statutory) and Pro-Flex LLC neither assumes nor authorizes any person to assume for Pro-Flex LLC any other obligation or liability in connection with the sales of its products. This Pro-Flex LLC limited one year warranty implies no warranty of merchantability or fitness for a particular purpose and is hereby disclaimed and excluded from the Pro-Flex LLC limited warranty. Pro-Flex LLC also reserves the right to repair or replace any defective part of the Pro-Poly Underground® Product that is determined by Pro-Flex LLC to have a defect during the limited warranty period.



[illegible]

Please visit our website: www.ProFlexCSST.com or to register to become a qualified installer or fill out and mail the card below.

Please fill in all blanks to verify you have read and understand all aspects of the installation/training guide and for warranty activation.

PP-_____

I, _____, Trained Installer, have read the Pro-Flex® LLC
please PRINT your name above

Installation Training Guide and understand all aspects of installation for **Pro-Poly™ Underground Gas Distribution System**, local plumbing and/or building codes in accordance set forth.

Signed this day _____,

signature of Qualified Installer	_____	please PRINT your name above	_____
Contractors Company Name:	_____		_____
Address:	_____		_____
City, State, Zip:	_____		_____
Phone Number:	() _____		_____
Email:	_____		_____

NOTE: Return above postcard to: PRO-FLEX, LLC,
[877] 798-6291 501 S. State Road 341 Hillsboro, IN 47949

Pro-Poly Underground Gas Distribution System
TRAINED INSTALLER CARD PP--_____

I, _____
date: _____
have read the installation/training guide and understand the Pro-Poly Underground Gas Distribution Systems. I am a qualified installer per my local authority. This qualification expires 2 years after date signed.

To be shown to the wholesaler when making purchases
of PRO-POLY UNDERGROUND GAS DISTRIBUTION SYSTEM

To: ***Pro-Flex, LLC***
501 S. State Road 341
Hillsboro, IN 47949