



Insert Fittings



ENGINEERING GUIDE

Contact Spears® for any Information not found.



Insert Fittings Technical **Barbed Insert Fittings Overview**

The PVC Barbed-Insert Fitting of Choice



Engineered to provide positive grip and ease of installation. High quality and reliability have made Spears® insert fittings the preferred choice for irrigation and O.E.M. applications. A wide variety of PVC insert configurations and adapters are available for use with polyethylene pipe sizes 1/2" through 4", plus 6" & 8" Couplings and Adapters for lay-flat type irrigation hose. Special 3/8" barbed configurations in PVC and PP allow clamp-free connection to 1/2" I.D. polyethylene irrigation hose.

Superior Choice for Use with Polyethylene Pipe

Spears® PVC Insert Fittings are designed for use with either ASTM D 2104 Schedule 40 or D 2239 SDR pressure rated polyethylene pipe. Chemical and corrosion resistant, rigid PVC barbed inserts provide excellent grip with polyethylene materials.

Conform to ASTM D 2609

Spears® Insert Fittings are manufactured from high quality PVC materials to meet or exceed the applicable requirements of ASTM D 2609, Standard Specification for Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe.

Full Assortment of Configurations and Adapters

Spears® broad line of gray PVC Insert Fittings includes popular configurations of elbows, tees, couplings and crosses. Numerous male and female NPT threaded adapters, elbows and tees plus white PVC Schedule 40 solvent cement socket and spigot adapters allow easy connection of insert fittings to supply or distribution systems.

Clamp-Free Spiral Barb Irrigation Hose Insert Adapters

Specially designed nominal 3/8" barb configurations allow connection of pipe Insert Fittings to conventional 1/2" polyethylene irrigation hose. Special spiral barb allows "twist-on" connection of hose without need for clamping in open end irrigation applications.

NSF® Certified for Use with Potable Water

Spears® Insert Fittings are tested and Certified by the NSF International for use in potable water systems.



The information contained in this publication is based on current information and product design at the time of publication and is subject to change without notification. Our ongoing commitment to product improvement may result in some variation. No representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or results to be obtained therefrom. For verification of technical data or additional information not contained herein, please contact Spears® Technical Services Department [West Coast: (818) 364-1611 - East Coast: (678) 985-1263].

Installation Information

RECOMMENDATIONS FOR INSTALLERS AND USERS:

Plastic piping systems should be **ENGINEERED, INSTALLED, and OPERATED** in accordance with **ESTABLISHED DESIGN AND ENGINEERING STANDARDS AND PROCEDURES** for plastic piping systems. Suitability for the intended service application should be determined by the installer and/or user prior to installation of a plastic piping system. **PRIOR TO ASSEMBLY, all piping system components should be inspected for damage or irregularities. Mating components should be checked to assure that tolerances and engagements are compatible. Do not use any components that appear irregular or do not fit properly. Contact the appropriate manufacturer of the component product in question to determine usability. Consult all applicable codes and regulations for compliance prior to installation.**

SOLVENT WELD CONNECTIONS - Use quality solvent cements and primers formulated for the intended service application, pipe size and type of joint. While the pipe and fitting materials may be compatible with the intended medium, the solvent cement may not be. Consult the manufacturer for suitability of use. Read and follow the cement and primer manufacturers' applications and cure time instructions thoroughly. Be sure to use the correct size applicator.

THREADED CONNECTIONS - Use a quality grade thread sealant. **WARNING: SOME PIPE JOINT COMPOUNDS OR PTFE PASTES MAY CONTAIN SUBSTANCES THAT COULD CAUSE STRESS CRACKING TO PLASTIC.** Spears® Manufacturing Company recommends the use of Spears® which has been tested for compatibility with Spears® products. Please follow the sealant manufacturers' application/ installation instructions. Choice of an appropriate thread sealant other than those listed above is at the discretion of the installer. 1 to 2 turns beyond **FINGER TIGHT** is generally all that is required to make a sound plastic threaded connection. Unnecessary **OVERTIGHTENING** will cause **DAMAGE TO BOTH PIPE AND FITTING**.

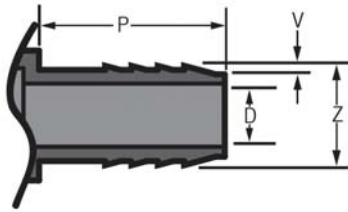
INSERT FITTING INSTALLATION - Pipe is cut to length with handsaw or knife. When installing flexible lines: (a) Snake line one foot or more per 100 lineal feet. (b) Cold water should be run through lines prior to backfilling to permit pipe to contract. (c) Care should be taken to prevent large and sharp-edged rocks from being in position to crush pipe. Insert fittings are used to join lengths of flexible pipe. Stainless steel clamps are first slipped over ends of pipe; fitting is inserted and steel clamps are tightened securely over barbs on fittings. **DO NOT** use oil or detergent on any fittings. Use plain water or soapy water as lubricant on fitting. For attachment to previously installed metallic systems or threaded fixtures, the insert adapter is utilized. Apply thread sealant to the threaded end of adapter and tighten into female connection. Steel clamp is then slipped over pipe end and pipe slipped over serrated end of insert adapter. Steel clamp is then positioned over serrations on insert adapter and securely tightened with a screwdriver.

SPIRAL BARB FITTING INSTALLATION - Spiral Barb fittings are designed for use with 1/2" (.490) polyethylene irrigation hose and do not require steel clamps. Install with a twisting motion to fully engage barbs.

"Lead Free" low lead certification - unless otherwise specified, all Spears® PVC & PP Insert Fittings specified here-in are certified by NSF International to ANSI/NSF® Standard 61, Annex G and is in compliance with California's Health & Safety Code Section 116825 (commonly known as AB1953) and Vermont Act 193. Weighted average lead content ≤0.25%.



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions



**Dimensions of Insert Ends
ASTM D 2609**

Nominal Size in.	Insert Length "P" min.	Barb O.D. "Z" max. min.	Barb Depth "V" min.	Inside Diameter "D" min.
1/2	1-1/4	.665 .635	.015	.406
3/4	1-1/4	.865 .835	.015	.562
1	1-1/4	1.095 1.065	.020	.750
1-1/4	1-1/4	1.425 1.395	.025	.995
1-1/2	1-1/2	1.665 1.630	.030	1.125
2	1-1/2	2.125 2.085	.030	1.656
2-1/2	2	2.520 2.487	.030	2.062
3	2-1/8	3.125 3.086	.030	2.600
4	3	4.090 4.044	.030	3.525

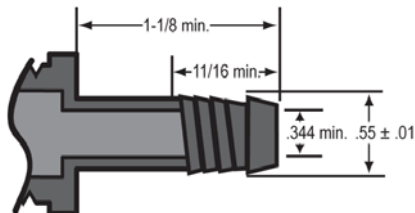
**Dimensions of Polyethylene Pipe
ASTM D 2104 and D 2239**

Nominal Size in.	Average I.D. in.	Tolerance in.
1/2	.622	+.010 - .010
3/4	.824	+.010 - .015
1	1.049	+.010 - .020
1-1/4	1.380	+.010 - .020
1-1/2	1.610	+.015 - .020
2	2.067	+.015 - .020
2-1/2	2.469	+.015 - .025
3	3.068	+.015 - .030
4	4.026	+.015 - .035

Insert Fittings Dimensions

- G** = (LAYING LENGTH) Intersection of center lines to insert bottom or thread bottom; 90° elbows, tees & crosses; ± 1/32 inch.
H = Intersection of center lines to end of insert or face of fitting; 90° elbows, tees & crosses; ± 1/32 inch.
L = Overall length of fittings; ± 1/16 inch.
N = (LAYING LENGTH) Insert bottom to insert bottom or thread bottom; couplings & straight adapters; ± 1/16 inch.

Dimensions of Spiral Barb Ends



STANDARDS & SPECIFICATIONS

• ASTM D 2609

Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe.



National Sanitation Foundation (NSF®)
Standard 14 Plastic Fittings for Potable Water.

• Material

Spears® Insert Fittings are produced from PVC Type 1, Minimum Cell Classification 12454. CPVC Minimum Cell Classification 23447.

It is the users responsibility to determine the suitability for the intended service application.

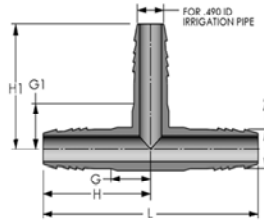
Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



Spiral Barb Tee - PVC

Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.

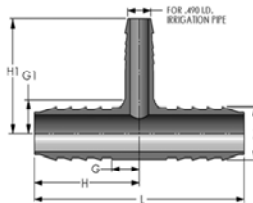


Part Number	Size	G	G1	H	H1	L	Z	Approx. Wt. (Lbs.)
1401-003	3/8	17/32	17/32	1-3/4	1-3/4	3-1/2	9/16	.03

Spiral Barb Tee - PVC

Insert x Insert x Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.

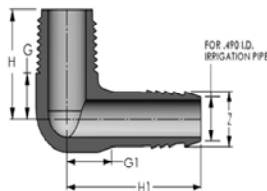


Part Number	Size	G	G1	H	H1	L	Z	Z1	Approx. Wt. (Lbs.)
1401-099	3/4X3/8	17/32	17/32	2- 1/32	1-27/32	4-1/16	27/32	9/16	.05
1401-129	1X3/8	11/16	21/32	2- 3/16	1-31/32	4-3/8	1-3/32	9/16	.08

Spiral Barb 90° EII - PP

Mipt x Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.



Part Number	Size	G	G1	H	H1	Z	Approx. Wt. (Lbs.)
1413-073	1/2X3/8	7/16	5/8	1- 1/8	1-13/16	9/16	.02
1413-099	3/4X3/8	1/2	23/32	1- 3/16	1-29/32	9/16	.03



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

Spiral Barb Coupling - PVC

Spiral Barb x Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.

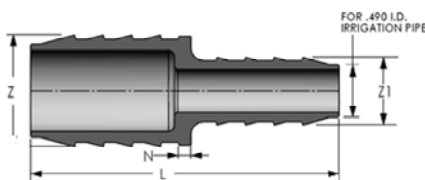


Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1429-003	3/8	2- 7/8	1/4	9/16	.01

Spiral Barb Coupling - PVC

Insert x Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.

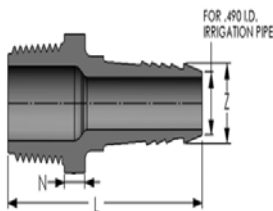


Part Number	Size	L	N	Z	Z1	Approx. Wt. (Lbs.)
1429-099	3/4X3/8	2-31/32	1/16	27/32	9/16	.02
1429-129	1X3/8	3- 3/32	3/16	1-3/32	9/16	.03

Spiral Barb Male Adapter - PP

Mipt x Spiral Barb

3/8" Spiral Barb accepts .490 Irrigation Pipe.



Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1436-073	1/2X3/8	2-3/8	1/4	9/16	.01
1436-099	3/4X3/8	2-3/8	1/4	9/16	.02

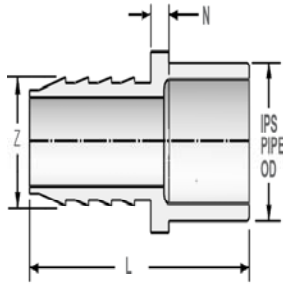
Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



Insert Adapter - PVC White

Insert x I.P.S. Spigot

Dimensions Also Applicable to
 460-XXXG PVC Gray Adapters



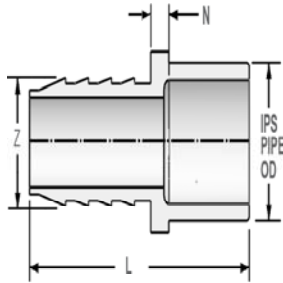
Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
460-005	1/2	2- 7/16	3/16	21/32	.02
460-007	3/4	2-23/32	5/32	27/32	.04
460-010	1	2- 9/16	1/16	1-3/32	.05
460-012	1-1/4	3- 1/32	9/32	1-13/32	.10
460-012N	1-1/4X1-1/4X1	3-1/32	9/32	1-13/32	.11
460-015	1-1/2	3-1/4	3/16	1-21/32	.11
460-020	2	3- 1/2	3/8	2-3/32	.20
460-030	3	4-9/16	13/32	3-3/32	.57
460-040	4	5-3/8	5/16	4-1/16	.72
460-131N	3/4X1X3/4	2- 7/8	1/4	27/32	.06
460-132N	1X1-1/4X1	3-1/32	9/32	1-3/32	.10
1432-060	6	8-1/4	1	6-3/32	1.74
1432-080*	8	9- 7/8	N/A	8-5/32	7.10

N = Nesting

* Fabricated

Insert Adapter - CPVC

Insert x I.P.S. Spigot



Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
460-005C	1/2	2-7/16	3/16	21/32	.02
460-007C	3/4	2-23/32	5/32	27/32	.04
460-010C	1	2-9/16	1/16	1-3/32	.05
460-015C	1-1/2	3-1/4	3/16	1-21/32	.15
460-020C	2	3-1/2	3/8	2-3/32	.20
460-030C	3	4-9/16	13/32	3-3/32	.58



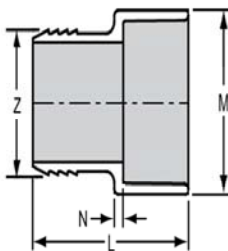
Insert Fittings Technical

Barbed Insert Fittings Weights & Dimensions

Insert Adapter - PVC White

Insert x Socket

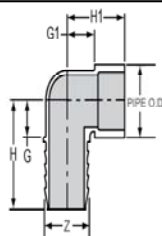
Dimensions Also Applicable to
474-XXXG PVC Gray Adapters



Part Number	Size	L	M	N	Z	Approx. Wt. (Lbs.)
474-005	1/2	2- 3/8	1- 1/8	5/32	21/32	.03
474-007	3/4	2- 7/16	1-13/32	5/32	27/32	.04
474-010	1	2-9/16	1- 5/8	3/16	1-3/32	.07
474-012	1-1/4	2-11/16	2-5/32	5/32	1-13/32	.10
474-015	1-1/2	3- 1/16	2-5/16	5/16	1-21/32	.13
474-020	2	3	2-13/16	3/16	2-3/32	.16
474-030	3	4- 3/4	4-1/32	9/32	3-3/32	.50
474-040	4	5-21/32	5-1/16	5/16	4-1/16	.81

Insert Adapter 90° EII - PVC White

Insert x I.P.S. Spigot

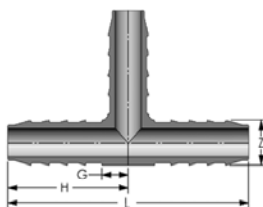


Part Number	Size	G	G1	H	H1	Z	Approx. Wt. (Lbs.)
460A-015	1-1/2	1-1/16	1-1/16	2-13/16	2-3/16	1-21/32	.16

Tee - PVC

Insert x Insert x Insert

Dimensions Also Applicable to
1401-XXXC CPVC Inserts



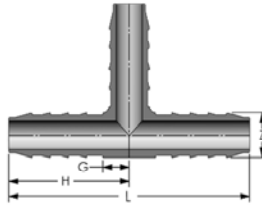
Part Number	Size	G	H	L	Z	Approx. Wt. (Lbs.)
1401-005	1/2	7/16	1-29/32	3-13/16	21/32	.03
1401-007	3/4	19/32	2-3/32	4-3/16	27/32	.06
1401-010	1	11/16	2-7/32	4-15/32	1-3/32	.10
1401-012	1-1/4	27/32	2-11/32	4-11/16	1-13/32	.15
1401-015	1-1/2	15/16	2-11/16	5-3/8	1-21/32	.22
1401-020	2	1-5/16	3-3/8	6-3/4	2-3/32	.42

Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



Tee - CPVC

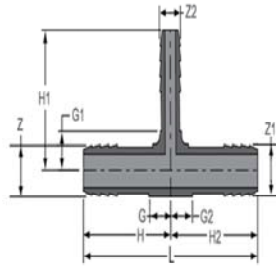
Insert x Insert x Insert



Part Number	Size	G	H	L	Approx. Wt. (Lbs.)
1401-005C	1/2	7/16	1-29/32	3-13/16	.03

Tee, Reducing - PVC

Insert x Insert x Insert



Part Number	Size	G	G1	H	H1	L	Z	Z1	Z2	Approx. Wt. (Lbs.)
1401-074	1/2X3/4	21/32	9/16	2- 5/32	2- 1/16	4- 5/16	21/32	21/32	27/32	.05
1401-094	3/4X1/2X1/2	9/16	9/16	2- 1/16	2- 1/16	4-1/8	27/32	21/32	21/32	.05
1401-101	3/4X1/2	17/32	17/32	2- 1/32	2- 1/32	4- 1/16	27/32	27/32	21/32	.05
1401-102	3/4X1	5/8	11/16	2-1/8	2-3/16	4- 1/4	27/32	27/32	1-3/32	.07
1401-124	1X3/4X1/2	9/16	9/16	2- 1/16	2- 1/16	4-1/8	1-3/32	27/32	21/32	.06
1401-125	1X3/4X3/4	9/16	21/32	2-1/16	2-5/32	4-1/8	1-3/32	27/32	27/32	.07
1401-130	1X1/2	13/32	5/8	1-29/32	2-1/8	3-13/16	1-3/32	1-3/32	21/32	.07
1401-131	1X3/4	9/16	21/32	2-1/32	2-1/8	4-1/16	1-3/32	1-3/32	27/32	.08
1401-132	1X1-1/4	13/16	21/32	2-5/16	2-5/32	4-5/8	1-3/32	1-3/32	1-13/32	.11
1401-156	1-1/4X1X1/2	9/16	23/32	2- 1/16	2-7/32	4-1/8	1-13/32	1-3/32	21/32	.10
1401-157	1-1/4X1X3/4	21/32	23/32	2-5/32	2-7/32	4-5/16	1-13/32	1-3/32	27/32	.11
1401-158	1-1/4X1X1	3/4	3/4	2- 1/4	2-1/4	4-1/2	1-13/32	1-3/32	1-3/32	.13
1401-166	1-1/4X1/2	9/16	23/32	2- 1/16	2- 7/32	4- 1/8	1-13/32	1-13/32	21/32	.08
1401-167	1-1/4X3/4	27/32	13/16	2-11/32	2-5/16	4-11/16	1-13/32	1-13/32	27/32	.13
1401-168	1-1/4X1	11/16	11/16	2-3/16	2-3/16	4-3/8	1-13/32	13/32	1-3/32	.13
1401-169	1-1/4X1-1/2	31/32	13/16	2-15/32	2-9/16	4-15/16	1-13/32	1-13/32	1-21/32	.17
1401-201	1-1/2X1-1/4X3/4	21/32	1-3/32	2-13/32	2- 9/16	4- 9/16	1-21/32	1-13/32	27/32	.15
1401-202	1-1/2X1-1/4X1	3/4	1-3/32	2-1/2	2-9/16	4-3/4	1-21/32	1-13/32	1-3/32	.16
1401-203	1-1/2X1-1/4X1-1/4	15/16	1- 1/16	2-7/16	2- 9/16	5- 1/8	1-21/32	1-13/32	1-13/32	.18
1401-209	1-1/2X1/2	9/16	1-1/16	2-5/16	2-9/16	4-5/8	1-21/32	1-21/32	21/32	.15
1401-210	1-1/2X3/4	21/32	1-1/16	2-13/32	2-9/16	4-13/16	1-21/32	1-21/32	27/32	.15
1401-211	1-1/2X1	3/4	1-1/16	2-1/2	2-9/16	5	1-21/32	1-21/32	1-3/32	.17
1401-212	1-1/2X1-1/4	15/16	1-3/32	2-11/16	2-19/32	5- 3/8	1-21/32	1-21/32	1-13/32	.19
1401-241	2X1-1/2X1-1/2	1-1/16	1-5/16	2-13/16	3-1/16	5- 5/8	2-3/32	1-21/32	1-21/32	.26
1401-247	2X1/2	9/16	1- 5/16	2-5/16	2-13/16	4-5/8	2-3/32	2-3/32	21/32	.20
1401-248	2X3/4	21/32	1-5/16	2-13/32	2-13/16	4-13/16	2-3/32	2-3/32	27/32	.21
1401-249	2X1	3/4	1-5/16	2- 1/2	2-13/16	5	2-3/32	2-3/32	1-3/32	.22
1401-250	2X1-1/4	15/16	1-5/16	2-11/16	2-13/16	5-3/8	2-3/32	2-3/32	1-13/32	.25
1401-251	2X1-1/2	1-1/16	1-5/16	2-13/16	3-1/16	5-5/8	2-3/32	2-3/32	1-21/32	.26
1401-338 ¹	3X2	3-3/4	3-9/16	6-5/32	5-5/16	12-5/16	3-3/32	3-3/32	2-3/32	2.39



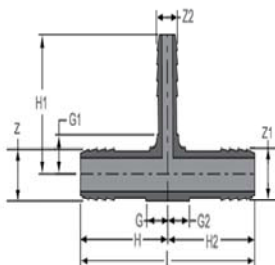
Insert Fittings Technical

Barbed Insert Fittings Weights & Dimensions

Tee, Reducing - PVC

Insert x Insert x Insert

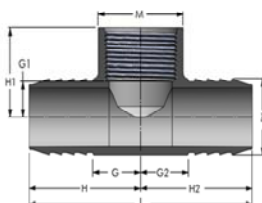
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¹ Assembled molded components

Tee - PVC

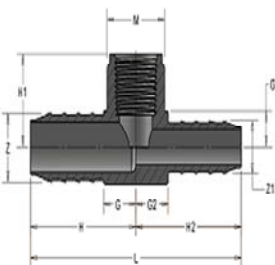
Insert x Insert x Fipt



Part Number	Size	G	G1	H	H1	H2	L	M	Z	Approx. Wt. (Lbs.)
1402-005	1/2	17/32	5/16	2-1/32	1-1/32	2-5/32	4-1/16	1	21/32	.04
1402-007	3/4	21/32	13/32	2-5/32	1-1/8	2-5/32	4-5/16	1-1/4	27/32	.07
1402-010	1	13/16	17/32	2-5/16	1-7/16	2-5/16	4-5/8	1-17/32	1-3/32	.12
1402-012	1-1/4	1-1/8	21/32	2-5/8	1-11/16	2-5/8	5-1/4	2-3/32	1-13/32	.21
1402-015	1-1/2	1-1/4	25/32	3	1-13/16	3	6	2-11/32	1-21/32	.27
1402-020	2	1-1/2	1	3-1/8	2-1/16	3-1/8	6-1/4	2-27/32	2-3/32	.41

Tee, Reducing - PVC

Insert x Insert x Fipt



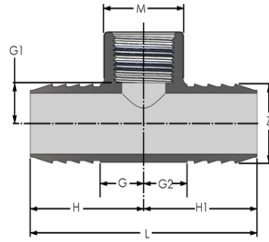
Part Number	Size	G	G1	G2	H	H1	L	M	Z	Z1	Approx. Wt. (Lbs.)
1402-094	3/4X1/2X1/2	21/32	13/32	21/32	2-5/32	1-5/32	4-5/16	1-3/16	27/32	21/32	.07
1402-101	3/4X1/2	17/32	13/32	17/32	2-1/32	1-1/8	4-1/16	1-3/16	27/32	27/32	.05
1402-124	1X3/4X1/2	23/32	17/32	23/32	2-7/32	1-1/4	4-7/16	1-3/16	1-3/32	27/32	.10
1402-125	1X3/4X3/4	27/32	1/2	23/32	2-11/32	1-9/32	4-11/16	1-13/32	1-3/32	27/32	.11
1402-130	1X1/2	17/32	1/2	17/32	2-1/32	1-7/32	4-1/16	1	1-3/32	1-3/32	.07
1402-131	1X3/4	21/32	1/2	21/32	2-5/32	1-1/4	4-9/32	1-1/4	1-3/32	1-3/32	.09
1402-156	1-1/4X1X1/2	21/32	21/32	21/32	2-5/32	1-13/32	4-5/16	1-3/16	1-13/32	1-3/32	.13
1402-157	1-1/4X1X3/4	25/32	21/32	25/32	2-9/32	1-7/16	4-9/16	1-7/16	1-13/32	1-3/32	.15
1402-166	1-1/4X1/2	21/32	21/32	21/32	2-5/32	1-7/16	4-5/16	1-1/8	1-13/32	1-13/32	.13
1402-167	1-1/4X3/4	27/32	21/32	27/32	2-9/32	1-7/16	4-9/16	1-13/32	1-13/32	1-13/32	.14
1402-168	1-1/4X1	15/16	23/32	15/16	2-7/16	1-5/8	4-7/8	1-5/8	1-13/32	1-13/32	.17

Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



Tee, Special Reinforced Reducing - PVC

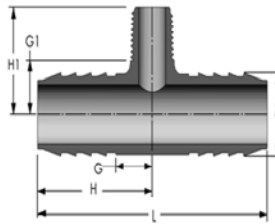
Insert x Insert x SR Fipt



Part Number	Size	G	G1	G2	H	H1	H2	L	M	Z	Approx. Wt. (Lbs.)
1402-168SR	1-1/4X1	17/32	5/16	17/32	2-7/16	1-5/8	2-7/16	4-7/8	1-23/32	1-13/32	.19

Tee, Reducing - PVC

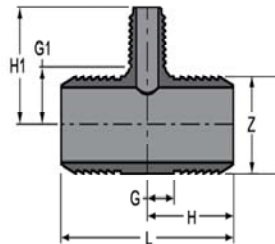
Insert x Insert x Mipt



Part Number	Size	G	G1	H	H1	L	Z	Approx. Wt. (Lbs.)
1403-130	1X1X1/2	11/16	23/32	2-3/16	1-3/8	4-3/8	1-3/32	.08
1403-131	1X1X3/4	11/16	23/32	2-3/16	1-3/8	4-3/8	1-3/32	.09

Tee - PVC

Insert x Insert x Mipt



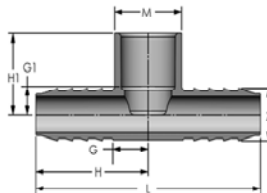
Part Number	Size	G	G1	H	H1	L	Z	Approx. Wt. (Lbs.)
1403-005	1/2	9/16	5/8	2- 1/16	1-5/16	4-1/8	21/32	.04
1403-007	3/4	5/8	13/16	2- 5/32	1- 7/16	4- 5/16	27/32	.06
1403-010	1	11/16	11/16	2- 3/16	1- 5/8	4- 3/8	1-3/32	.09
1403-012	1-1/4	15/16	1- 1/16	2- 7/16	2- 1/16	4- 7/8	1-13/32	.16
1403-015	1-1/2	1-1/16	1-5/32	2-13/16	2- 3/16	5- 5/8	1-21/32	.22
1403-020	2	1-5/16	1-7/16	3-1/16	2-1/2	6-1/8	2-3/32	.31



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

Tee - PVC

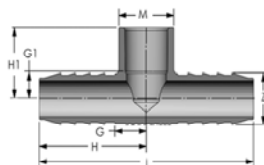
Insert x Insert x Socket



Part Number	Size	G	G1	H	H1	L	M	Z	Approx. Wt. (Lbs.)
1404-007	3/4	11/16	13/32	2-3/16	1-5/16	4-3/8	1-5/16	27/32	.07
1404-010	1	1	1/2	2- 1/2	1-15/32	5	1-21/32	1-3/32	.14

Tee, Reducing - PVC

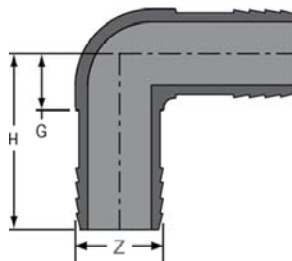
Insert x Insert x Socket



Part Number	Size	G	G1	H	H1	L	M	Z	Approx. Wt. (Lbs.)
1404-101	3/4X1/2	5/8	7/16	2-1/8	1-3/16	4-1/4	1-3/32	27/32	.06
1404-102	3/4X3/4X1	27/32	13/32	2-11/32	1-17/32	4-11/16	1-5/8	27/32	.10

90° EII - PVC

Insert x Insert



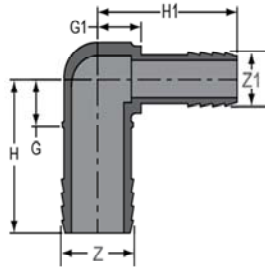
Part Number	Size	G	H	Z	Approx. Wt. (Lbs.)
1406-005	1/2	7/16	1-15/16	21/32	.02
1406-007	3/4	17/32	2-1/32	27/32	.04
1406-010	1	11/16	2- 3/16	1-3/32	.07
1406-012	1-1/4	27/32	2-11/32	1-13/32	.11
1406-015	1-1/2	15/16	2-11/16	1-21/32	.16
1406-020	2	1- 3/16	2-15/16	2-3/32	.23
1406-025	2-1/2	1-5/8	3-13/16	2-1/2	.46
1406-040 ¹	4	4-25/32	7-13/16	4-1/16	3.17

Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



90° EII, Reducing - PVC

Insert x Insert

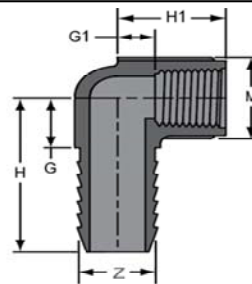


Part Number	Size	G	G1	H	H1	Z	Z1	Approx. Wt. (Lbs.)
1406-101	3/4X1/2	9/16	9/16	2-1/16	2- 1/16	27/32	21/32	.03
1406-131	1X3/4	11/16	21/32	2-3/16	2-5/32	1-3/32	27/32	.06
1406-168	1-1/4X1	3/4	3/4	2- 1/4	2- 1/4	1-13/32	1-3/32	.10
1406-212	1-1/2X1-1/4	15/16	25/32	2-11/16	2- 9/32	1-21/32	1-13/32	.14
1406-251	2X1-1/2	1-1/16	1	2-13/16	2-3/4	2-3/32	1-21/32	.20

90° EII - PVC

Insert x Fipt

Dimensions Also Applicable to 1407-XXXX CPVC Inserts

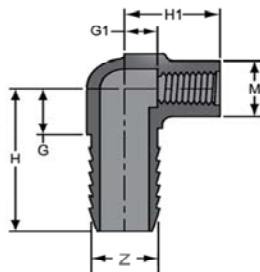


Part Number	Size	G	G1	H	H1	M	Z	Approx. Wt. (Lbs.)
1407-005	1/2	21/32	5/16	2-5/32	1-1/32	1-1/8	21/32	.04
1407-007	3/4	3/4	13/32	2- 1/4	1-1/8	1-3/8	27/32	.06
1407-010	1	29/32	1/2	2-13/32	1-13/32	1-11/16	2-3/32	.10
1407-012	1-1/4	1-1/8	23/32	2-5/8	1- 3/4	2-1/8	1-13/32	.17
1407-015	1-1/2	1-1/4	27/32	3	1-7/8	2-3/8	1-21/32	.23
1407-020	2	1-1/2	1-3/32	3-1/8	2-5/32	2-7/8	2-3/32	.35

90° EII, Reducing - PVC

Insert x Fipt

Dimensions Also Applicable to 1407-XXXX CPVC Inserts



Part Number	Size	G	G1	H	H1	M	Z	Approx. Wt. (Lbs.)
1407-074	1/2X3/4	13/16	13/32	2- 5/16	1- 1/8	1-3/8	21/32	.05
1407-101	3/4X1/2	11/16	7/16	2-3/16	1- 5/32	1-1/8	27/32	.05
1407-130	1X1/2	11/16	17/32	2- 3/16	1- 1/4	1-1/8	1-3/32	.07
1407-131	1X3/4	27/32	9/16	2-11/32	1- 5/16	1-3/8	1-3/32	.09
1407-166	1-1/4X1/2	21/32	11/16	2- 5/32	1-13/32	1-3/16	1-13/32	.09
1407-167	1-1/4X3/4	25/32	15/16	2- 9/32	1-23/32	1-13/32	1-13/32	.10
1407-168	1-1/4X1	29/32	21/32	2-13/32	1-21/32	1-11/16	1-13/32	.13

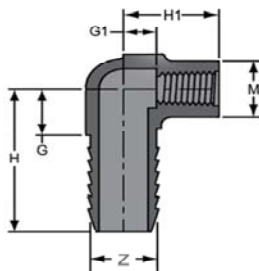


Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

90° EII, Reducing - PVC

Insert x Fipt

Dimensions Also Applicable to 1407-XXXX CPVC Inserts



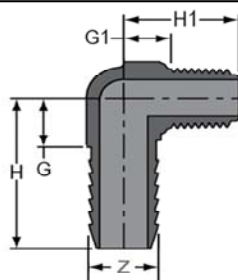
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Part Number	Size	G	G1	H	H1	M	Z	Approx. Wt. (Lbs.)
1407-211	1-1/2X1	15/16	25/32	2-11/16	1-25/32	1-23/32	1-21/32	.17
1407-212	1-1/2X1-1/4	1- 1/8	25/32	2- 7/8	1-25/32	2-3/32	1-21/32	.20
1407-251	2X1-1/2	1-1/4	1	3	2- 1/32	2-11/32	2-3/32	.29

90° EII - PVC

Insert x Mipt

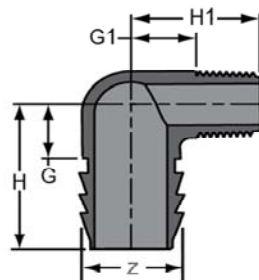
Dimensions Also Applicable to 1413-XXXX CPVC Inserts



Part Number	Size	G	G1	H	H1	Z	Approx. Wt. (Lbs.)
1413-005	1/2	1/2	9/16	2	1-3/16	21/32	.02
1413-007	3/4	17/32	21/32	2-1/32	1- 9/32	27/32	.04
1413-010	1	11/16	23/32	2- 3/16	1-19/32	1-3/32	.07
1413-012	1-1/4	27/32	31/32	2-11/32	1-7/8	1-13/32	.11
1413-015	1-1/2	15/16	1- 3/32	2-25/32	2-1/8	1-21/32	.17
1413-020	2	1-5/16	1-13/32	3-1/16	2-1/2	2-3/32	.24

90° EII Reducing - PVC

Insert x Mipt



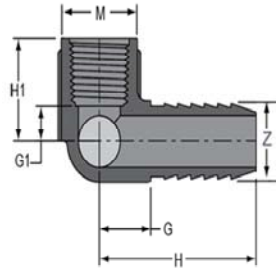
Part Number	Size	G	G1	H	H1	Approx. Wt. (Lbs.)
1413-055	3/8X3/4	15/32	3/4	1-5/16	1-7/16	.02
1413-101	3/4X1/2	17/32	17/32	2-1/32	1- 7/32	.03
1413-130	1X1/2	23/32	23/32	2- 3/16	1-3/8	.05
1413-131	1X3/4	11/16	11/16	2-3/16	1-13/32	.06

Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



90° Side Outlet EII - PVC

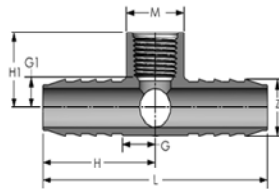
Insert x Insert x Fipt



Part Number	Size	G	G1	H	H1	M	Z	Approx. Wt. (Lbs.)
1414-101	3/4X3/4X1/2	5/8	13/32	2- 1/8	1- 1/8	1-3/32	27/32	.06
1414-130	1X1X1/2	11/16	9/16	2- 3/16	1- 1/4	1-5/16	1-3/32	.09
1414-131	1X3/4	25/32	1/2	2- 9/32	1-7/32	1-5/16	1-3/32	.10

Side Outlet Tee - PVC

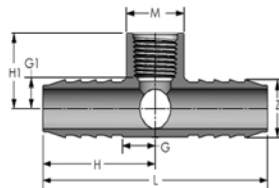
Insert x Insert x Insert x Fipt



Part Number	Size	G	G1	H	H1	L	M	Z	Approx. Wt. (Lbs.)
1416-007	3/4X3/4	3/4	13/32	2-1/4	1-1/8	4-1/2	1-5/16	27/32	.08

Side Outlet Tee, Reducing - PVC

Insert x Insert x Insert x Fipt



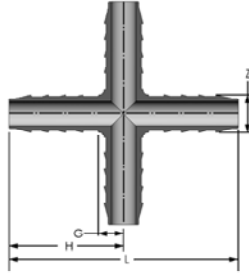
Part Number	Size	G	G1	H	H1	L	M	Z	Approx. Wt. (Lbs.)
1416-101	3/4X1/2	5/8	13/32	2-1/8	1-1/8	4-1/4	1-3/32	27/32	.08
1416-130	1X1/2	11/16	1/2	2-3/16	1-7/32	4-3/8	1-3/32	1-3/32	.11
1416-131	1X3/4	23/32	1/2	2- 7/32	1-7/32	4- 7/16	1-5/16	1-3/32	.11



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

Cross - PVC

Insert

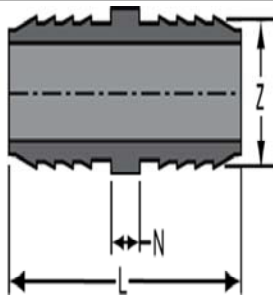


Part Number	Size	G	H	L	Z	Approx. Wt. (Lbs.)
1420-005	1/2	13/32	1-29/32	3-13/16	21/32	.05
1420-007	3/4	17/32	2-1/32	4-1/16	27/32	.07
1420-010	1	11/16	2- 3/16	4- 3/8	1-3/32	.12

Coupling - PVC

Insert x Insert

Dimensions Also Applicable to
1429-XXXX CPVC Inserts

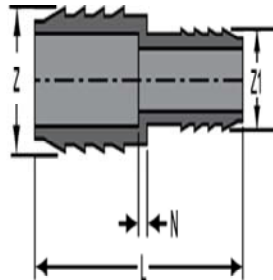


Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1429-005	1/2	3- 1/8	1/8	21/32	.02
1429-007	3/4	3- 1/16	1/16	27/32	.03
1429-010	1	3- 3/16	3/16	1-3/32	.05
1429-012	1-1/4	3- 3/16	3/16	1-13/32	.08
1429-015	1-1/2	3-19/32	3/32	1-21/32	.10
1429-020	2	3-9/16	1/16	2-3/32	.12
1429-025	2-1/2	4-19/32	1/4	2-1/2	.23
1429-030	3	4-3/4	1/4	3-3/32	.30
1429-040	4	6-7/16	3/8	4-1/16	.59
1429-060	6	8-5/8	13/32	6-3/32	1.73
1429-080*	8	9- 7/8	7/32	8-5/32	7.10

* Fabricated

Coupling, Reducer - PVC

Insert x Insert



Part Number	Size	L	N	Z	Z1	Approx. Wt. (Lbs.)
1429-101	3/4X1/2	3-1/16	1/16	27/32	21/32	.02
1429-130	1X1/2	3- 1/8	1/8	1-3/32	21/32	.04
1429-131	1X3/4	3-1/4	1/4	1-3/32	27/32	.04

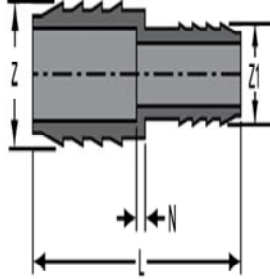
Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



Coupling, Reducer - PVC

Insert x Insert

(Continued)

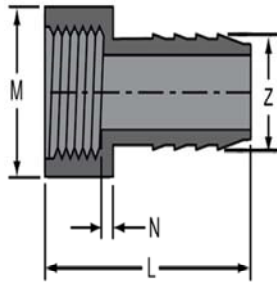


Part Number	Size	L	N	Z	Z1	Approx. Wt. (Lbs.)
1429-1315	1X7/8	3- 1/4	1/4	1-3/32	15/16	.05
1429-167	1-1/4X3/4	3- 1/8	1/8	1-13/32	27/32	.05
1429-168	1-1/4X1	3- 1/16	1/16	1-13/32	1-3/32	.06
1429-210	1-1/2X3/4	3- 3/8	1/8	1-21/32	27/32	.08
1429-211	1-1/2X1	3-5/16	1/16	1-21/32	1-3/32	.07
1429-212	1-1/2X1-1/4	3-3/8	1/8	1-21/32	1-13/32	.09
1429-249	2X1	3- 3/8	1/8	2-3/32	1-3/32	.11
1429-250	2X1-1/4	3-3/8	3/16	2-3/32	1-13/32	.13
1429-251	2X1-1/2	3- 5/8	1/8	2-3/32	1-21/32	.13
1429-291	2-1/2X1-1/2	4	1/8	2-1/2	1-21/32	.17
1429-422	4X3	5-17/32	1/4	4-1/16	3-3/32	.50
1429-532	6X4	8-7/8	2-1/8	6-3/32	4-1/16	1.54

Female Adapter - PVC

Fipt x Insert

Dimensions Also Applicable to
 1435-XXXC CPVC Adapters



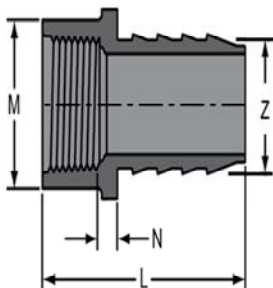
Part Number	Size	L	M	N	Z	Approx. Wt. (Lbs.)
1435-005	1/2	2-3/8	1- 3/16	3/16	21/32	.03
1435-007	3/4	2- 7/16	1-13/32	9/32	27/32	.05
1435-010	1	2- 9/16	1-21/32	3/16	1-3/32	.08
1435-012	1-1/4	2-11/16	2- 5/32	5/32	1-13/32	.11
1435-015	1-1/2	3- 1/16	2- 5/16	5/16	1-21/32	.15
1435-020	2	3	2-13/16	3/16	2-3/32	.19



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

Female Adapter, Reducing - PVC

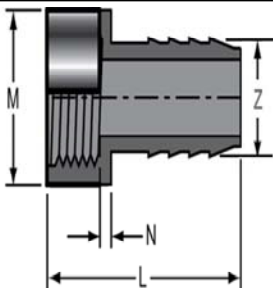
Fipt x Insert



Part Number	Size	L	M	N	Z	Approx. Wt. (Lbs.)
1435-074	1/2X3/4	2-3/8	1-3/32	5/32	27/32	.03
1435-101	3/4X1/2	2-3/8	1-5/16	5/32	21/32	.04
1435-102	3/4X1	2-3/8	1-5/16	5/32	1-3/32	.05
1435-131	1X3/4	2-9/16	1-5/8	3/16	27/32	.07

Female Adapter, Special Reinforced - PVC

SR Fipt x Insert

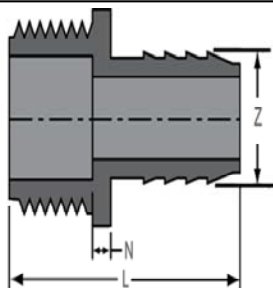


Part Number	Size	L	M	N	Z	Approx. Wt. (Lbs.)
1435-005SR	1/2	2-3/8	1-3/16	1/4	21/32	.05
1435-007SR	3/4	2- 7/16	1-3/8	9/32	27/32	.06
1435-010SR	1	2-5/8	1-23/32	9/32	1-3/32	.10

Male Adapter - PVC

Mipt x Insert

Dimensions Also Applicable to
1436-XXXX CPVC Inserts



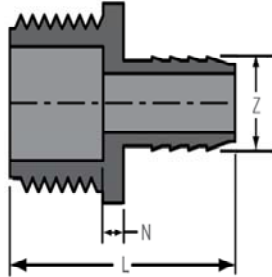
Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1436-002	1/4	1-19/32	5/32	15/32	.00
1436-005	1/2	2-7/16	1/4	21/32	.02
1436-007	3/4	2- 7/16	1/4	27/32	.03
1436-010	1	2- 5/8	1/4	1-3/32	.06
1436-012	1-1/4	2-21/32	1/4	1-13/32	.08
1436-015	1-1/2	2-31/32	5/16	1-21/32	.11
1436-020	2	3-1/16	3/8	2-3/32	.16
1436-025	2-1/2	4-1/16	3/8	2-1/2	.32
1436-030	3	4-9/32	3/8	3-3/32	.46
1436-040	4	5-7/16	3/8	4-1/16	.82

Insert Fittings Technical
Barbed Insert Fittings Weights & Dimensions



**Male Adapter,
Reducing - PVC**

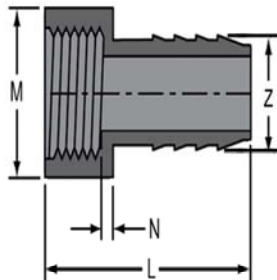
Mipt x Insert



Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1436-074	1/2X3/4	2- 5/16	1/8	27/32	.02
1436-075	1/2X1	2- 5/8	1/4	1-3/32	.04
1436-101	3/4X1/2	2- 5/16	1/8	21/32	.02
1436-102	3/4X1	2- 9/16	1/4		.03
1436-131	1X3/4	2- 9/16	3/16	27/32	.04
1436-132	1X1-1/4	2- 5/8	1/4	1-13/32	.07
1436-133	1X1-1/2	3	9/32	1-21/32	.10
1436-167	1-1/4X3/4	2-11/16	9/32	27/32	.07
1436-168	1-1/4X1	2-25/32	9/32	1-3/32	.08
1436-169	1-1/4X1-1/2	3-1/32	9/32	1-21/32	.10
1436-211	1-1/2X1	2-13/16	5/16	1-3/32	.11
1436-212	1-1/2X1-1/4	2-27/32	11/32	1-13/32	.11
1436-213	1-1/2X2	3- 3/32	5/16	2-3/32	.13
1436-251	2X1-1/2	3-3/16	3/8	1-21/32	.17

Female Hose Adapter - PVC

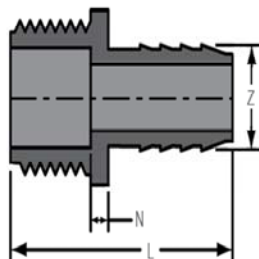
Female Hose Thread x Insert



Part Number	Size	L	M	N	Z	Approx. Wt. (Lbs.)
1435-007FHT	3/4	2- 7/16	1-13/32	9/32	27/32	.04

Male Hose Adapter - PVC

Male Hose Thread x Insert



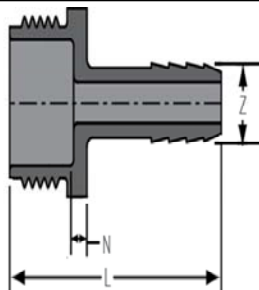
Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1436-007MHT	3/4	2- 3/8	7/32	27/32	.03



Insert Fittings Technical Barbed Insert Fittings Weights & Dimensions

Male Hose Adapter, Reducing - PVC

Male Hose Thread x Insert

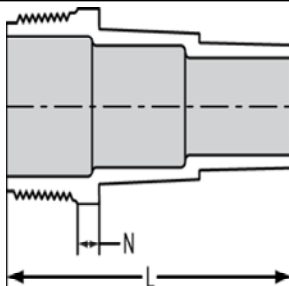


Part Number	Size	L	N	Z	Approx. Wt. (Lbs.)
1436-101MHT	3/4X1/2	2- 3/8	7/32	21/32	.04
1436-102MHT	3/4X1	2-3/8	3/16	1-3/32	.04

Pool Adapter - PVC

Mipt x Hose ID

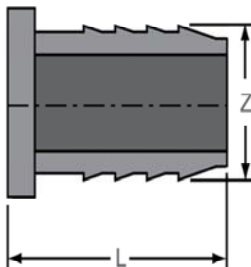
Dimensions Also Applicable to
1436-XXXX PP Adapters



Part Number	Size	L	N	Approx. Wt. (Lbs.)
1436-204	1-1/2X1-1/2X1-1/4	4-1/16	5/16	.14

Plug - PVC

Insert



Part Number	Size	L	Z	Approx. Wt. (Lbs.)
1449-005	1/2	1-9/32	21/32	.01
1449-007	3/4	1-19/32	27/32	.01
1449-010	1	1-5/8	1-3/32	.02
1449-012	1-1/4	1- 5/8	1-13/32	.05
1449-015	1-1/2	1-7/8	1-21/32	.06
1449-020	2	1-7/8	2-3/32	.10