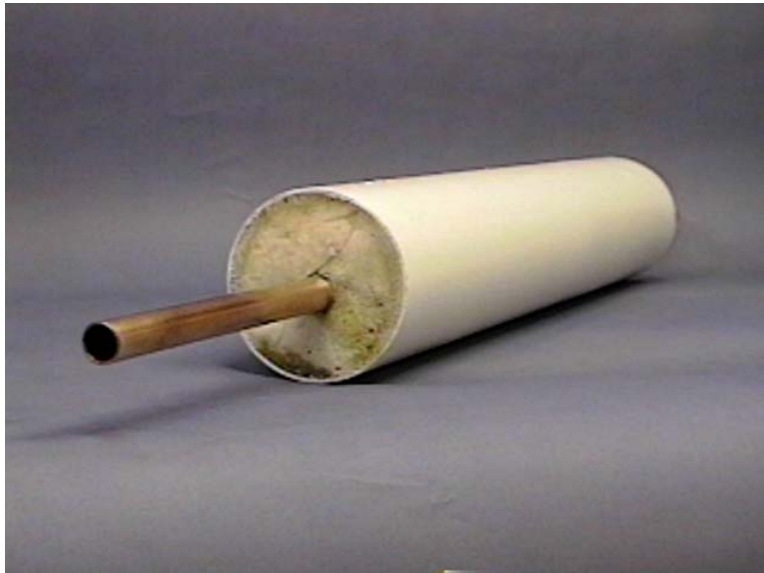


Pre-insulated and Jacketed Piping Systems

Series 'JFP'



Description and Specifications

Polypipe Pre-Insulated Piping System

Introduction

Polypipe pre-insulated piping systems consist of an assembly of conduit pipe, insulation and external jacket. These systems are designed and fabricated to facilitate and accelerate the installation of insulated piping networks.

All components are pre-insulated using high quality polyurethane foam insulation, and are available in several pipe materials as well as a variety of external jackets. These components combine to form a system that meets an extensive range of piping requirements for commercial, industrial and institutional applications.

The JFP system is ideally suited for use in food, beverage, pharmaceutical, chemical processing and others areas where cleanliness and appearance of insulated piping systems are a concern.

This system is characterized by simple, fast and effective installation that translates into a lower installed cost with high insulation efficiency, long-lasting protection and an attractive finished appearance.

Pipe Conduit

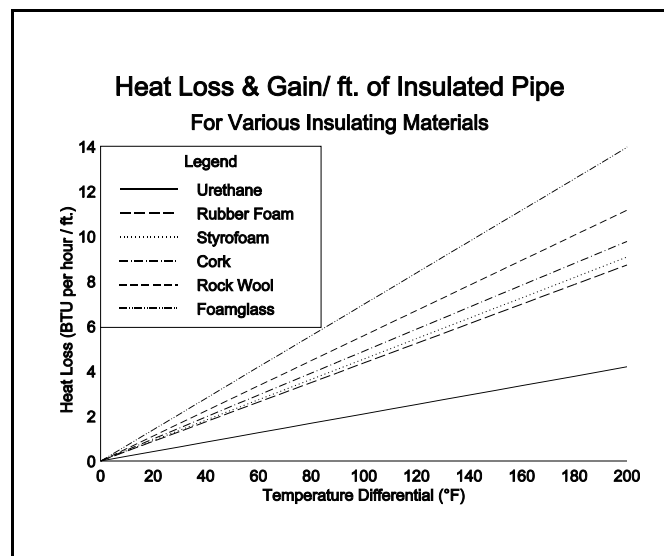
The internal carrier pipe, in which the fluid flow will be transferred is commonly available in copper, steel, stainless steel and many plastics. Other materials are available upon request.

Insulation

Polyurethane foam offers many advantages over other commercially available insulation materials, namely :

- C Lower heat transfer rate
- C Excellent fire retarding properties
- C Workability
- C Lightweight
- C Economy

The urethane foam is injected and cured between the inner carrier pipe and the jacket. This ensures a secure bond to both surfaces and a continuous application yielding superior insulating properties. A complete list of polyurethane's properties is made available on the specification sheet.



Jacket

The most common jacket material is white PVC. PVC is an ideal jacketing material due to its water and corrosion resistance, durability, lightweight, neat appearance and simplicity of installation. Many of its properties are outlined on the specification sheet.

The nominal wall thickness of the most common PVC jacket sizes are shown below :

OD(inches)	3.125	4.125	6.22	8.25
thick.(mils)	100	125	125	125

Other jacket materials available are high density extruded polyethylene (black), fibre reinforced plastic and spiral wound metal. Specifications are available on request.

Fittings

PVC fittings are available in three formats:

- < Pre-insulated, type 'PI'
- < Rigid PVC, type 'RP'
- < Wrap-around PVC, type 'WA'

Pre-insulated fittings are well suited for pre-fabricated piping systems to be later mounted in the required location. They require the minimum of on-site installation work.

Rigid and wrap-around PVC fittings are installed directly on the bare pipe connection and insulated on-site using canned polyurethane foam kits. They require the proper preparation and installation to produce a clean and efficient finished fitting. A complete procedure is profiled later in this document.



Preparation and Installation of Pipe Joints

Following this step-by-step procedure will yield the best results for an attractive, clean and efficient piping installation.

Step 1.

Join pre-insulated pipe sections or pre-insulated fitting sections as illustrated below.

Note: For couplings; slide coupling sleeve over one of the pipe sections before joining pipes or pre-insulated fittings.

If one or more of these sections has been trimmed, make sure exposed dimension between the pipe end and the jacket corresponds with the coupling dimension.

Step 2.

For non-insulated fittings

Apply glue to the ends of the pipe jacket and to the fitting seams.

Install fitting in place. Glue set time is approximately 15 minutes.

If joint is to be insulated immediately with foam-in-place polyurethane, use hose clamps to restrain fitting while injecting insulation.

For pre-insulated fittings

After joining sections, apply glue to the ends of the pipe and/or fitting jacket and to the coupling sleeve.

Slide coupling sleeve over joint while centering the coupling on the joint.

If coupling joint is to be insulated immediately with foam-in-place polyurethane, use hose clamps to restrain it while injecting insulation. If preformed half sections of polyurethane foam are being used for straight joints, hose clamps are not required.

Step 3.

For foam-in-place only

Note : Some instant foams require moisture to cure properly. If necessary, spray water inside the fitting before injecting foam.

Shake instant-foam can vigorously. Hold upside down to inject.

Inject foam (approximately one half can per joint) in the discharge opening provided in the fitting using a swirling motion in all directions.

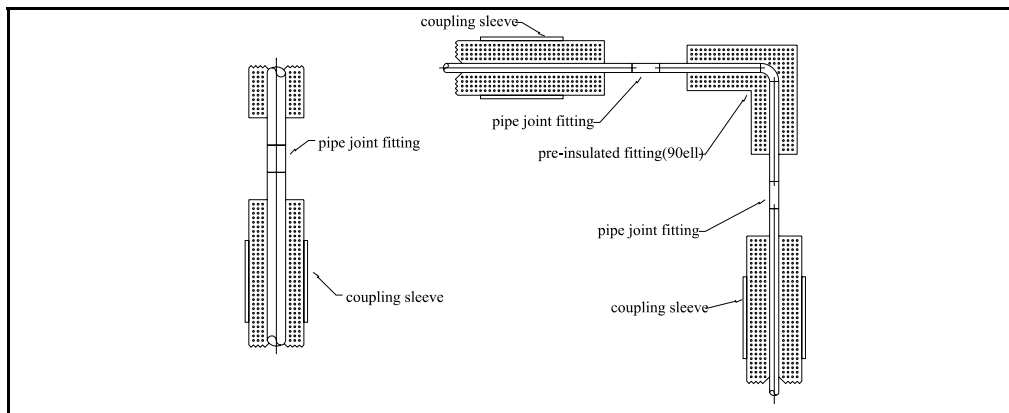
Allow foam to set for approximately 15 minutes (set time depends on surrounding temperature).



If using a two part foaming system, simply measure the correct amounts of liquid resin and equal amount of catalyst. Stir together till creamy and pour into fitting just as foam begins to expand.

Step 4.

Clean off excess foam wherever it has leaked and remove hose clamps installed during step 2. Apply glue to perimeter of discharge hole in fitting and to plug. Install plug.





Specifications

Physical Properties of Polyurethane Foam Insulation

K factor (BTU-in/hr/ft. ² /°F)	0.11 to 0.13
Core density (lbs./ft. ³)	2.5 to 3.5
Compressive strength (psi)	28 to 35 parallel 16 to 18 perpendicular
Tensile strength (psi)	28 to 45
Shear strength (psi)	20 to 22
Closed cell cellularity (%)	92 to 98
Water absorption (lbs./ft. ³)	0.4 to 0.6
Flammability	self-extinguishing



Physical Properties of Rigid PVC Jacket

Specific gravity	1.37
Durometer hardness (Shore "D")	75 to 81
Tensile strength (psi)	7,400
Modulus of elasticity (psi)	400,000 in tension
Compressive strength (psi)	8,600
Flexural strength (psi)	13,600
Maximum pressure	22 psig
Heat distortion temperature (°F)	158 @ 264 psi
Moisture absorption (%)	less than 0.04
Flammability	self-extinguishing
Colour	white

Designations

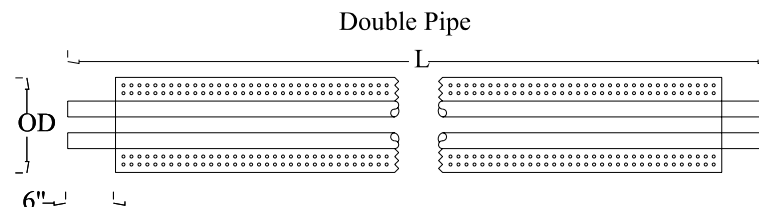
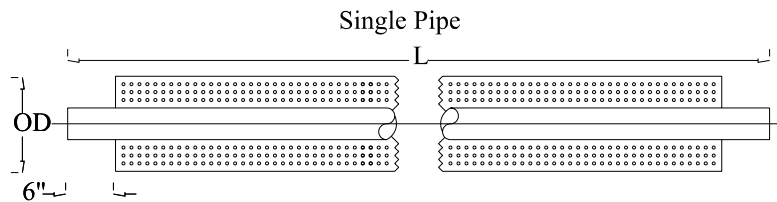
for nominal 6" diameter	PPVC12454BF10
for nominal 8" diameter	PPVC12454BB13



Polypipe Pre-Insulated Piping System - Dimensional Data

For copper inner pipe c/w PVC jacket

Net Insulation Thickness (inches)					
Nominal Pipe Size	Outside Diameter of Jacketed Pipe (nominal), OD (inches)				Pipe Length, L (feet)
	3"	4"	6"	8"	
1/2" single	1.18	1.69	2.68	3.68	12 or 20
3/4" single	1.06	1.56	2.56	3.50	12 or 20
3/4" double	NA	0.69	1.69	2.68	12 or 20
1" single	0.93	1.43	2.43	3.43	12 or 20
1" double	NA	NA	1.31	2.31	12 or 20
1.5" single	0.69	1.18	2.18	3.18	12 or 20
1.5" double with 1"	NA	NA	1.06	2.06	12 or 20
1.5" double	NA	NA	0.81	1.81	12 or 20
2" single	NA	0.93	1.93	2.93	12 or 20
3" single	NA	NA	1.43	2.43	12 or 20

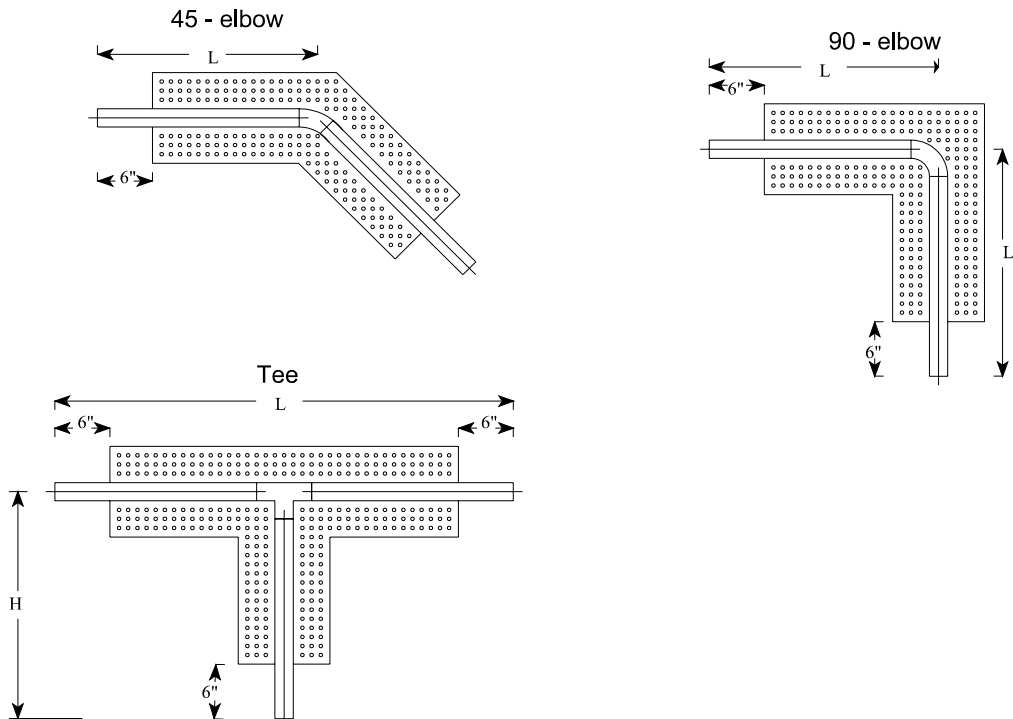




Polypipe Pre-Insulated Fittings - Dimensional Data

Available in PVC only

Nominal Pipe Size (inches)	Dimension 'L' (inches)		Dimension 'H' (inches)
	Elbows	Tees	Tees only
1/2"	14	28	14
3/4"	14	28	14
1"	14	28	14
1.5"	14	28	14
2"	14	28	14
3"	14	28	14
Larger than 3"	Dimensions available on request		





Ordering Information

Use the following order specification system to facilitate processing and delivery of your JFP piping components, or for further information please contact us at (514) 956-9491 or Fax to (514) 956-9412 or e-mail us at info@cryotronix.com

Series	Material (pipe #1)	Size (pipe #1)	Material (pipe #2)	Size (pipe #2)	Jacket Type	Jacket OD	Connections
JFP-	A = Aluminum K = Copper "K" L = Copper "L" B = Black steel G = Galv. steel S = Stainless 304 T = Stainless 316 X = Custom	04 = 1/4" 08 = 1/2" 12 = 3/4" 16 = 1" 24 = 1½" 32 = 2" 99 = Custom	Z = None A = Aluminum K = Copper "K" L = Copper "L" B = Black steel G = Galv. steel S = Stainless 304 T = Stainless 316 X = Custom	00 = None 04 = 1/4" 08 = 1/2" 12 = 3/4" 16 = 1" 24 = 1½" 32 = 2" 99 = Custom	A = HDPE black B = HDPE white C = PVC white D = Galv. steel E = Corr. alum. X = Custom	32 = 2" 48 = 3" 64 = 4" 96 = 6" 128=8" 00 = Custom	0 = 12 ft. 1 = 20 ft. A = NPT. B = Weld C = Ell45 PI D = Tee PI E = Ell90 PI Q = Cap WA R = Ell45 WA S = SleeveWA U = Tee WA V= Ell90 WA W=Sleeve RP X=Tee RP Y=Ell90 RP
<p>All systems are available in standard 12 or 20 ft. pipe lengths, covered with a 11 or 19 ft. jacket respectively and having 6" of exposed pipe at each end. Medical copper pipe is only available in 12ft. lengths with 11 ft. of jacket and 6" of exposed pipe at each end. Some types are subject to minimum order restrictions.</p>							