

Energy Task Force

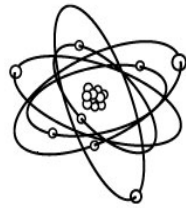
Pre-insulated Pipe

2475 Clark St • Apopka, FL 32703 • 407-523-3770 • 407-523-3722

ETF-MT Product Specification Chilled Water

Pre-insulated piping system to be provided by ETF LLC

- Carrier Pipe:** Gasketed Bell and Spigot PVC Class 160/200/C900/C905
- Insulation:** Polyurethane foam: K Factor 0.14, Density 2.0 to 3.0 PCF, 90-95% closed cell conforming to mil spec –1-24172 and ASTM-C-591 completely filling the annular space between carrier pipe and jacket. Maximum service temperature of 250°
- Jacketing Material:** High impact seamless polyvinyl chloride (PVC) class 12454 B compound conforming to ASTM 1784 Type 1, Grade 1. For jacket thickness see attached schedule
- Fittings:** All fittings shall be un-insulated and thrust blocked in concrete. The sizing and design of the thrust blocks are to be determined by the design engineer.
- End Seal:** Mastic material factory applied to insulation ends.
- Insulation of Straight Joints:** Joints are not insulated to allow for expansion and contraction of the gasketed joint. Straight joints to be covered with a PVC sleeve and sealed watertight using butyl backed tapecoat.
- Backfilling:** Underground systems shall be buried in a trench of not less than 24 inches deeper than the top of the pipe jacket and not less than 18 inches wider than the combined O.D. of all piping systems. Base of trench shall have 6" of sand, gravel or clean fill. Prior to pressure testing the system ensure that 75% of the pipe between joints is covered with at least 1 foot cover per 100 PSI of test pressure, also properly thrust blocked. To meet H-20 highway loadings, there must be 24 inches from top of jacket to grade of the compacted fill.



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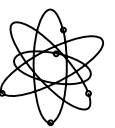
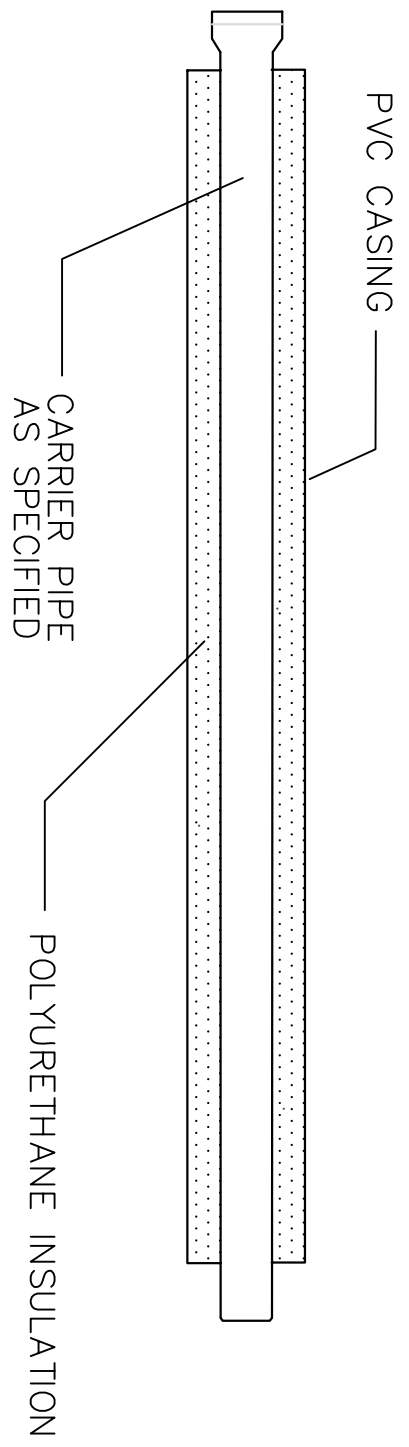
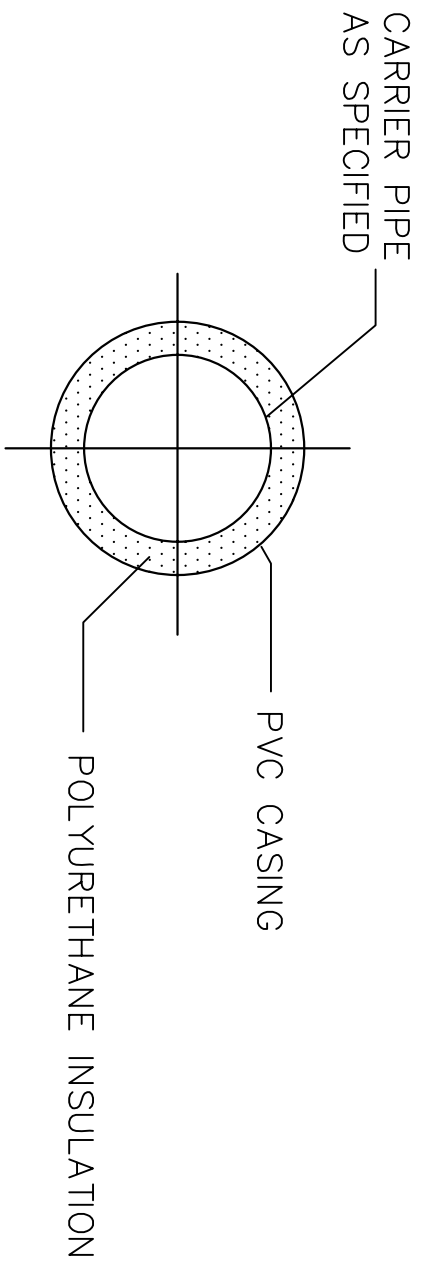
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Table 1: Specified Carrier Pipe / PVC Jacket

Nominal Pipe Size	Minimum Insulation Thickness	Nominal Jacket Size	Jacket Thickness
2"	1.81	6.0	70 mils
2 ½"	1.56	6.0	70 mils
3"	1.25	6.0	70 mils
4"	1.75	8.0	80 mils
6"	1.68	10.0	100 mils
8"	1.68	12.0	120 mils
10"	1.64	14.0	140 mils
12"	1.46	16.0	160 mils

ETF LLC WARRANTY

ETF LLC warrants its products only to the extent that it will replace those proved to have manufactured defects, within a one-year period from date of delivery. ETF must be provided an opportunity to inspect an alleged defective product and the installation application. This warranty does not provide for the expenses incurred for removal, re-installation or consequential damages arising from the defective material. There is no warranty other than that described above, and no one is authorized to issue any other warranty related to ETF LLC products.

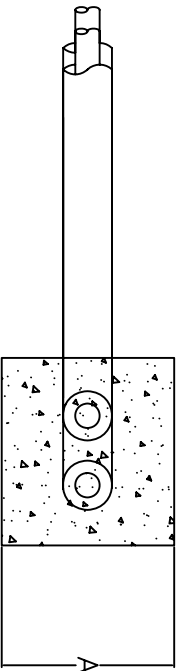


ETF WEST LLC
PRE-INSULATED PIPE

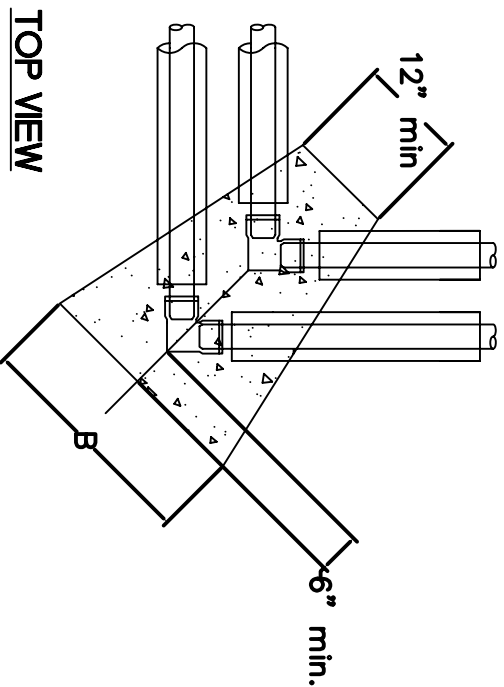
7700 WEST OLIVE AVE. - PEORIA, AZ 85345 - 623-878-4377 - 623-878-6683

SCALE	SDR-26 PVC PIPE	DRAWN BY
NTS	20' LENGTHS	LG
DATE	8/2/04	DWG #

THRUST BLOCK DETAILS



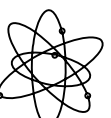
SIDE VIEW



TOP VIEW

- NOTES:
1. THRUST BLOCK SIZING IS BASED ON A TEST PRESSURE OF 150psi, AND SOIL BEARING LOAD OF 1,500 LB/SQ.FT.
 2. ETF-CHW ARE PRE-INSULATED, SLIP JOINT, CHILLED WATER PIPES MANUFACTURED BY THE ETF WEST.
 3. ALL THRUST BLOCK AND ANCHOR CONCRETE TO BE 3000 PSI MINIMUM.

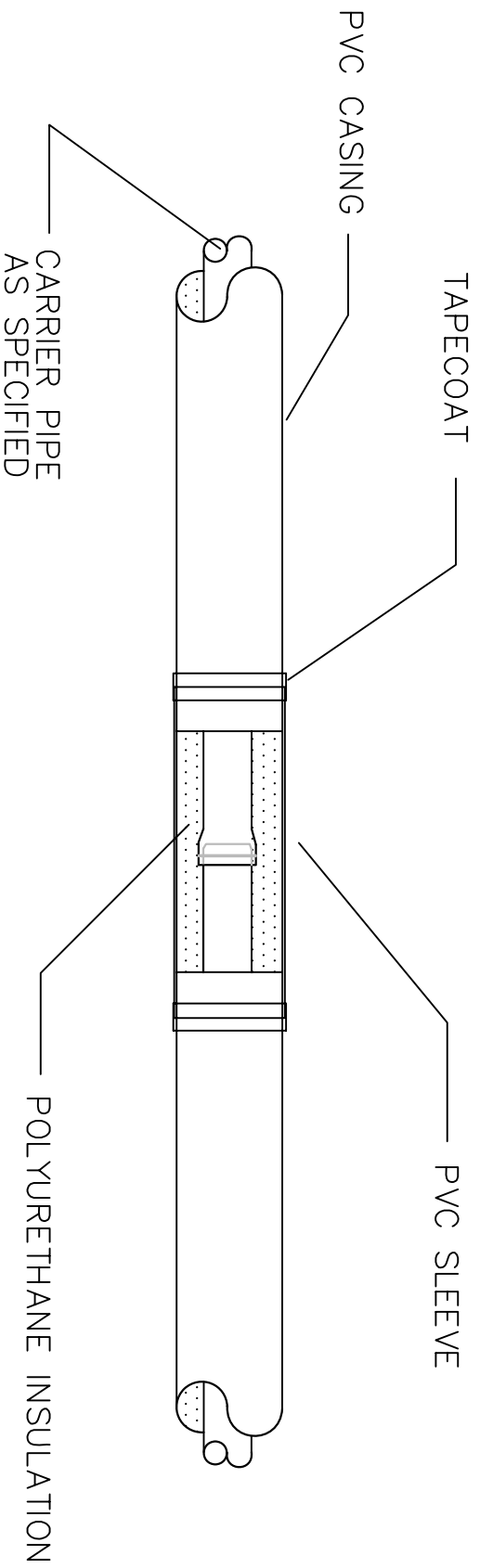
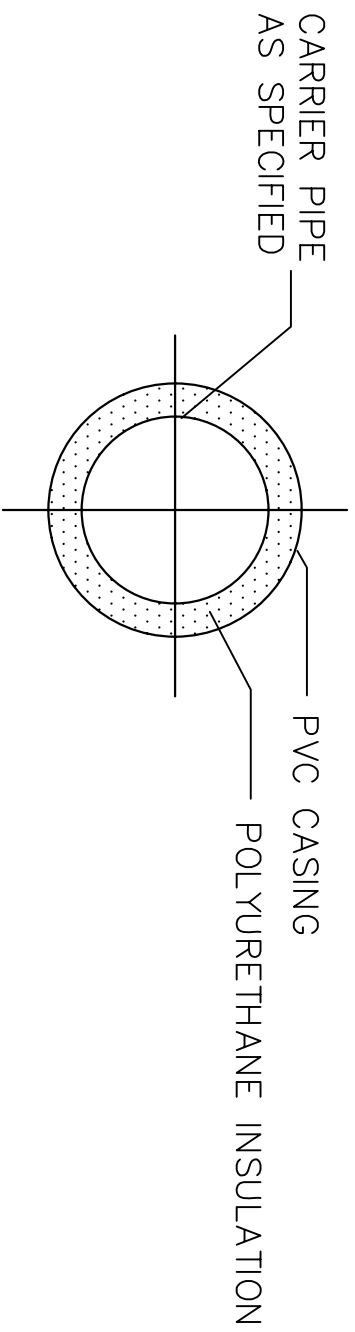
PIPE SIZE	DIMENSIONS	
	A	B
2" - 4"	1' - 10"	2' - 0"
6"	1' - 10"	4' - 3"
8"	2' - 0"	7' - 3"



ETF WEST LLC
PRE-INSULATED PIPE

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SCALE NTS	90 DEGREE ELBOW THRUST BLOCK	DRAWN BY LG
DATE 8/2/04		DWG #



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SCALE NTS

DATE 8/2/04

FIELD JOINT DETAIL

DRAWN BY LG

DWG #