

ETF WEST LLC
Division of Energy Task Force LLC

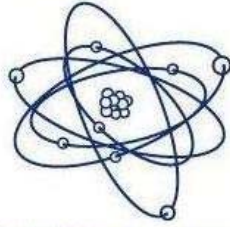
Pre-insulated pipe

7700 W Olive Ave - Peoria, AZ - 85345 - 623-878-4377 - 623-878-6683

ETF-MT Product Submittal

Pre-insulated piping system designed for above ground or direct buried Chilled Water and all other 45° to 120° medium temperature systems.

- Carrier Pipe:** Schedule 40/80 PVC conforming to ASTM D2241
- 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
- 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
- End Seal:** Mastic is factory applied to insulation ends
- Insulation of Straight Joints:** After hydro testing, the PVC sleeve is slid in place and sealed with pressure sensitive tape. Polyurethane foam is then mixed and poured into the annular space and sealed watertight
- Fittings:** All fittings are contractor supplied; field welded and insulated utilizing ETF fitting insulation kits. Fitting kits consisting of mitered sleeve matching the thickness of jacket, poured foam and pressure sensitive tape
- 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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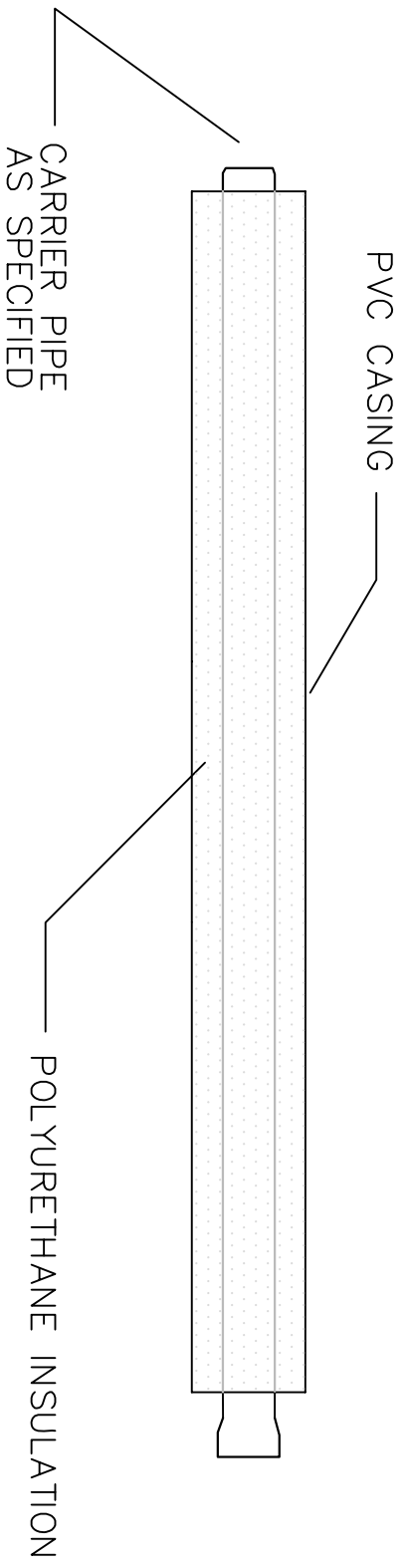
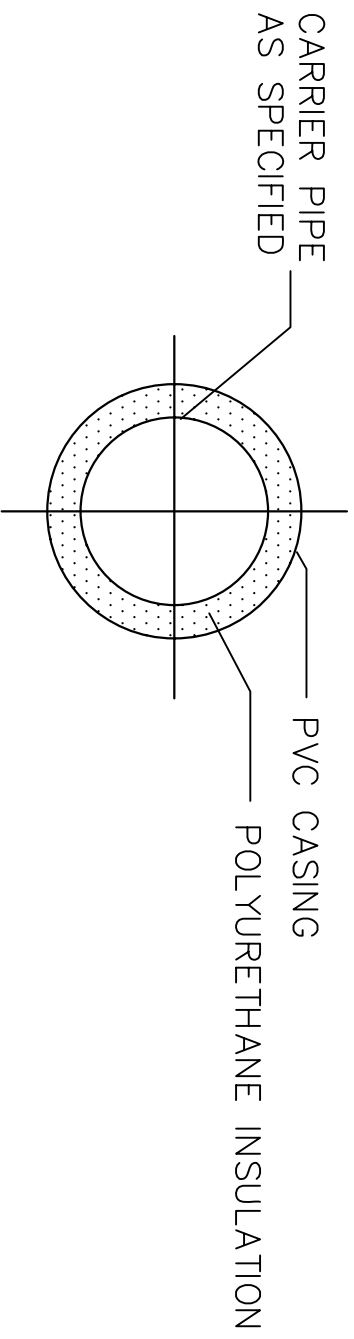
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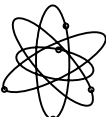
Table 1: Specified Carrier Pipe / PVC Jacket

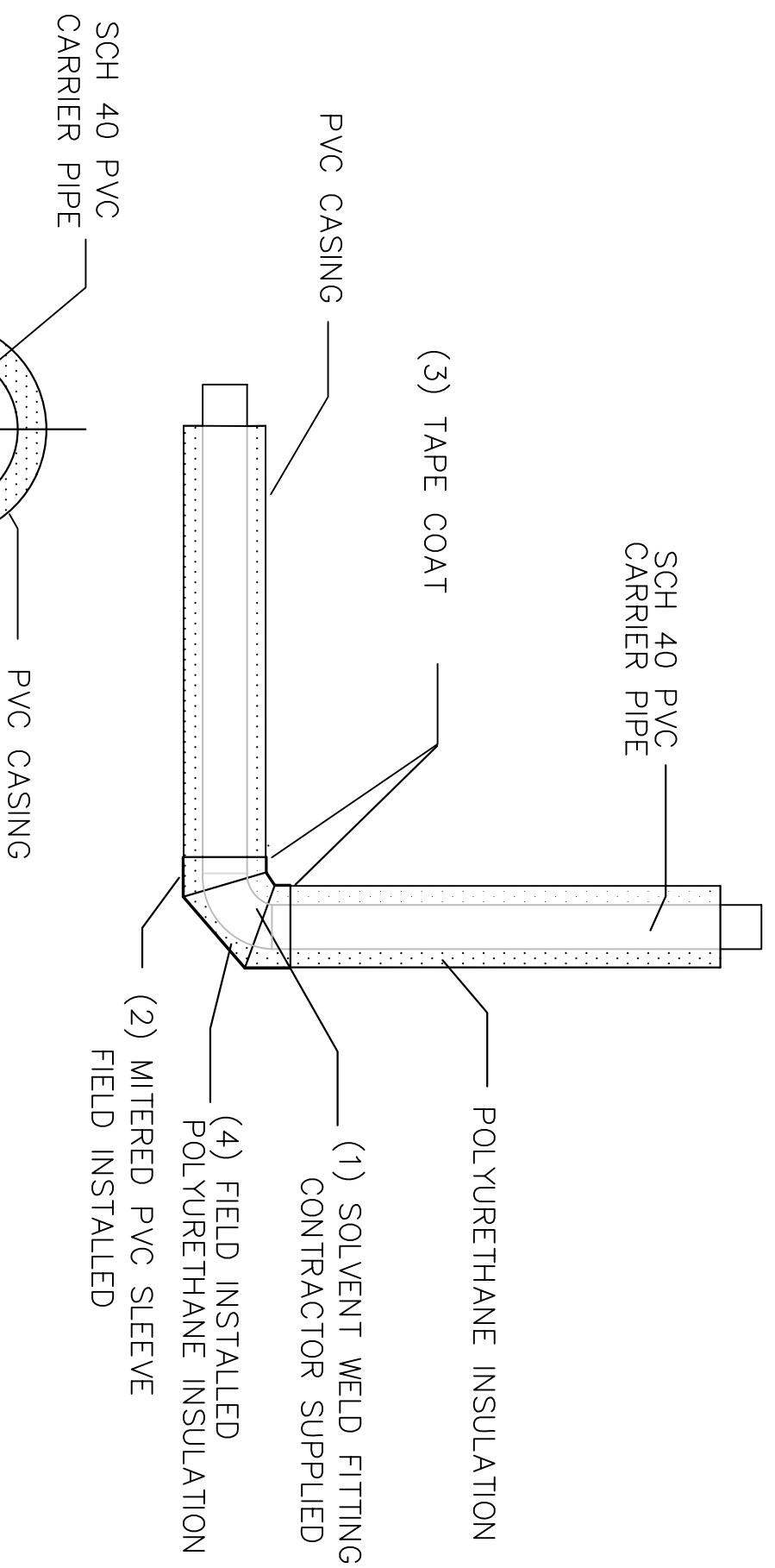
Nominal Pipe Size	Minimum Insulation Thickness	Nominal Jacket Size	Jacket Thickness
1/2"	1.62	4.0	60 mils
3/4"	1.41	4.0	60 mils
1"	1.37	4.0	60 mils
1 1/4"	1.17	4.0	60 mils
1 1/2"	1.15	4.0	60 mils
2"	1.81	6.0	70 mils
2 1/2"	1.56	6.0	70 mils
3"	1.25	6.0	70 mils
4"	1.75	8.0	80 mils
5"	2.22	10.0	100 mils
6"	1.68	10.0	100 mils
8"	1.68	12.0	120 mils

ETF LLC WARRANTY

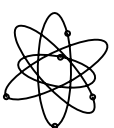
ETF LLC warrants its products only to the extent that it will replace those proved to have manufactured defects, within a one-year period from date of delivery. ETF must be provided an opportunity to inspect an alleged defective product and the installation application. This warranty does not provide 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.

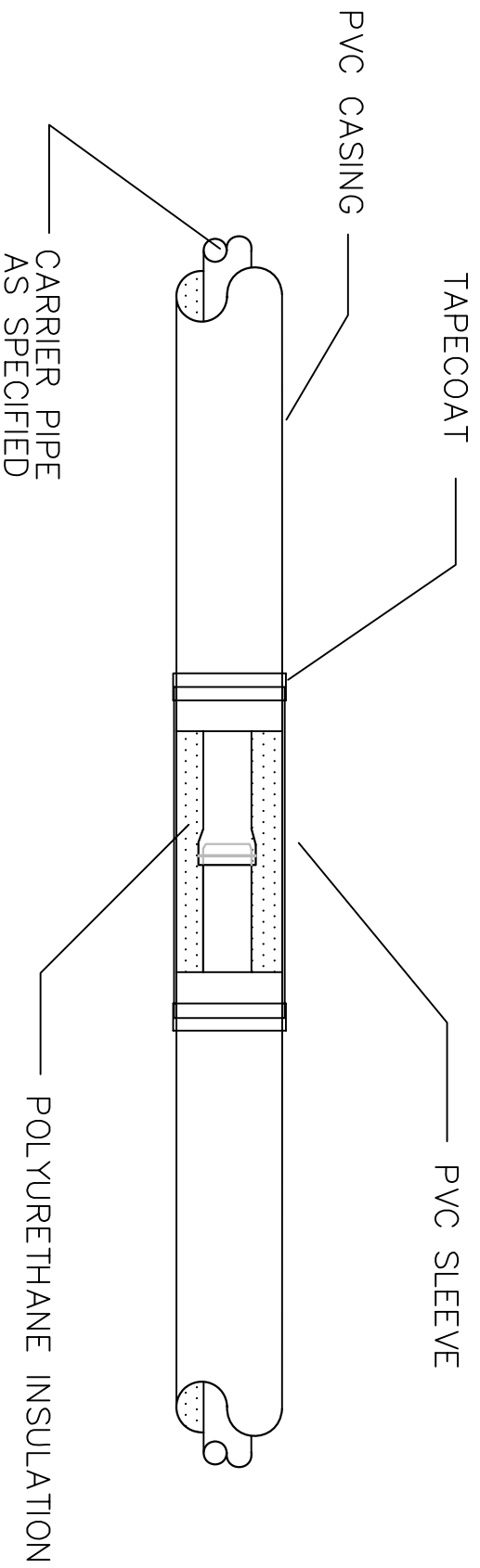
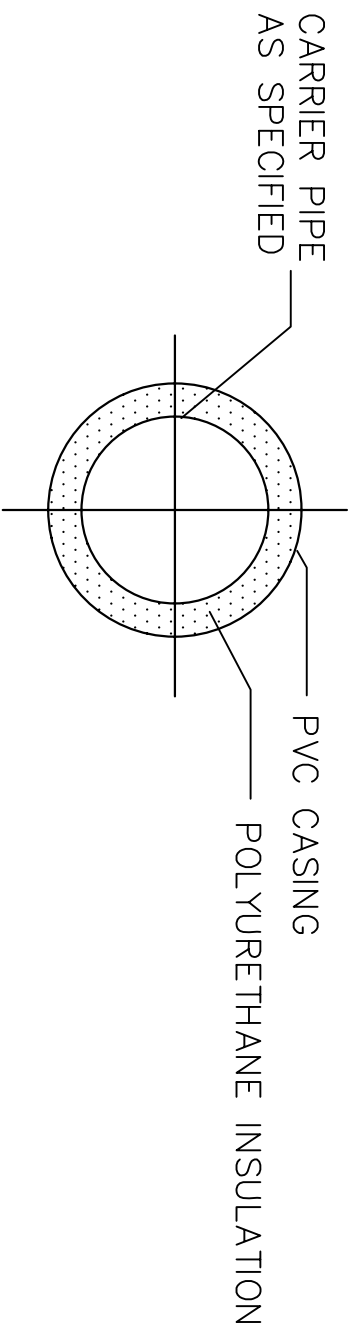


 <p>ETF WEST LLC PRE-INSULATED PIPE</p>		
<p>7700 WEST OLIVE AVE - PEORIA, AZ 85345 - 623-878-4377 - 623-878-6683</p>		
SCALE	SCH 40/80 PVC	DRAWN BY
NTS		LG
DATE		DWG #
8/2/04		



POLYURETHANE INSULATION

 <p>ETF WEST LLC PRE-INSULATED PIPE</p>		<p>7700 WEST OLIVE AVE - PEORIA, AZ 85345 - 623-878-4377 - 623-878-6683</p>
SCALE	NTS	<p>90/45 DEGREE ELBOW KIT</p>
DATE	8/2/04	
DRAWN BY		LG
DWG #		



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SCALE NTS

DATE 8/2/04

FIELD JOINT DETAIL

DRAWN BY LG

DWG #