



MATERIAL SPECIFICATION SHEET



PAL Insert Fittings for CANPEX™, CANPEX™ ULTRA and CANPEX™ OXY Barrier SDR-9 Cross-Linked Polyethylene (PEX)

SCOPE:

This product specification designates the requirements for PAL insert fittings and black copper crimp rings to be used as connections for CANPEX, CANPEX *ULTRA*, CANPEX *OXY* Barrier tubing in 3/8", 1/2", 3/4" and 1" sizes. The connections are assembled with a full-circle crimp tool designed specifically for this purpose. These fittings are approved for use with ASTM Standard F876/F877 (PEX tubing/PEX Distribution Systems).

MATERIALS:

All PAL insert fittings are manufactured from a polysulfone/polyphenylsulfone blended polymer (Acudel). The material is listed with NSF International for potable water contact. PAL insert fittings exhibit excellent resistance to the corrosive effects of water and are well suited for hot water applications.

The black copper crimp rings are manufactured from UNS C10200 or UNS C12200 copper alloy. Rings are annealed to 35-45 Rockwell15T scale for ease of crimping. The black coating is not a paint but a surface treatment which does not add to the dimensions of the ring.

MARKING & CERTIFICATION:

Fittings are marked with F 877 and/or F 2159 ASTM Standards and the NSF-pw mark indicating third party certification by NSF International. NSF conducts random on-site inspections of the manufacturing facilities and independently tests PAL insert fittings for compliance with performance and toxicological standards. Rings are marked with SDR-9 and/or PEX and manufacturer's mark.

RECOMMENDED USES:

PAL insert fittings and black, copper crimp rings are intended and recommended for use in potable water distribution systems and hydronic radiant heating systems with CANPEX series PEX tubing meeting the requirements of ASTM F876. Maximum design temperature and pressure ratings are 160 psi @ 73°F and 100 psi @ 180°F. For information on other hot and cold applications not listed here, consult with your Vanguard representative.

MATERIAL PROPERTIES:

Property	ASTM Test Method	English Units	SI Units
Specific Gravity	D 792	1.28	1.28
Melt Flow, g/10min.	D 1238	12	12
Water Absorption. % in 24 hrs.	D 570	0.3	.3
Tensile Strength @ Yield	D 638	11,200 psi	77 MPa
Tensile Modulus (psi MPa)	D 638	387,000 psi	2.67 GPa
Tensile Elongation @ yeild, %	D 638	6.7	6.7
Tensile Elongation @ break, %	D 638	50	50
Flexural Strength @ yeild, (psi MPa)	D 790	19,500 psi	134 MPa
Flexural Modulus, (psi, GPa)	D 790	2402,000 psi	2.77 GPa
Izod Impact (Notched)	D 256	2.0 ft-lb/in	105 J/m
Heat Deflection Temp. @264 psi (1.8 MPa)	D 648	387°F	197°C
Thermal Conductivity	C 177	2.1 Btu-in/ft ² /hr/°F	0.31 W/m-°C

PAL Insert Fittings for CANPEX™ Series SDR-9 Tubing

QUALITY ASSURANCE

When the product is marked with the ASTM F 877 and/ or F2159 designation, it affirms that the product was manufactured, inspected, sampled and tested in accordance with these specifications and has been found to meet the specified requirements.

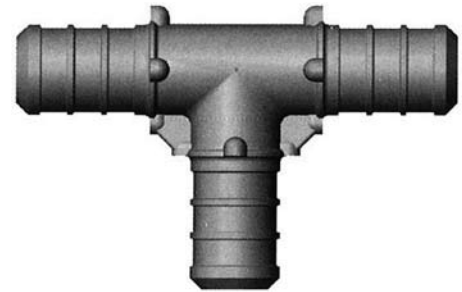
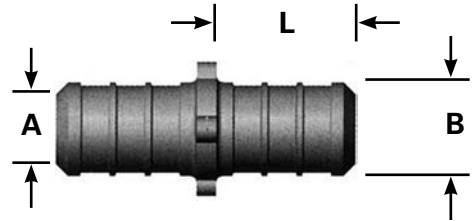
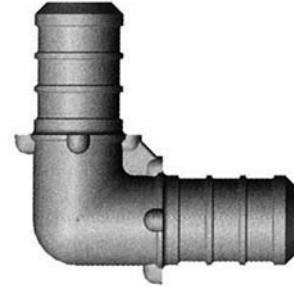
PRESSURE DROP TABLE FOR PAL INSERT FITTINGS

Expressed in equivalent length of tubing in feet.

Size	Coupling	Elbow	Tee Run	Tee Branch
1/2"	7.1	16.5	7.2	17.9
3/4"	4.8	17.4	6.6	17.7
1"	4.5	18.0	6.0	17.0

TYPICAL FITTING INSERT DIMENSIONS

Size	A	B	L
1/2"	.320	.473 ± .003	.700-.710
3/4"	.462	.668 ± .003	.700-.710
1"	.610	.856 ± .003	.850-.870



NSF-pw

NSF International
Performance and
Health Effects
(Standards 14 & 61)



ULC/UL S101/UL263 Listed
for Fire Resistant & Firestop
Products & Systems.



NSF certified to
CSA B137.5



IAPMO Certified



Warnock Hersey
Certified to
CSA B137.5

Note: All fittings may not be
listed with each organization
shown.