

**MATERIAL  
SPECIFICATION  
SHEET**

**PAL Insert Fittings for CANPEX™ UVPlus™, CANPEX™ Ultra™, CANPEX™ OXY Barrier SDR-9 Cross-Linked Polyethylene (PEX), VIPERT™ Potable and VIPERT™ Radiant Oxy Barrier SDR-9 Polyethylene of Raised Temperature (PE-RT)**

**SCOPE:**

This product specification designates the requirements for PAL insert fittings and copper crimp rings with black markings to be used as connections for CANPEX™ UV Plus™, CANPEX™ Ultra™, CANPEX™ OXY Barrier SDR-9 Cross-Linked Polyethylene (PEX), VIPERT™ Potable and VIPERT™ Radiant Oxy Barrier SDR-9 Polyethylene of Raised Temperature (PE-RT) tubing in 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), ASTM F2623 (PE-RT Tubing) and ASTM F2769 PE-RT (PE-RT Tubing for Potable Water 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 copper crimp rings with black markings are manufactured from UNS C10200 or UNS C12200 copper alloy. Rings are annealed to 35-45 Rockwell15T scale for ease of crimping.

**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. The rings are marked with "CB" and "PEX" for easy identification for use with CTS SDR-9 PEX or CTS SDR-9 PE-RT Tubing.

**RECOMMENDED USES:**

PAL insert fittings and 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 and potable water distribution systems and hydronic radiant heating systems with VIPERT series PE-RT tubing meeting the requirements of ASTM F2769 for potable water applications and ASTM F2623 for hydronic radiant heating systems. 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 CBsupplies 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 @ yield, %	D 638	6.7	6.7
Tensile Elongation @ break, %	D 638	50	50
Flexural Strength @ yield, (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 <sup>2</sup> /hr/°F	0.31 W/m-°C



## PAL Insert Fittings for CANPEX™ Series SDR-9 Tubing and VIPERT™ Series SDR-9 Tubing

### QUALITY ASSURANCE

When the product is marked with the ASTM F877 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.

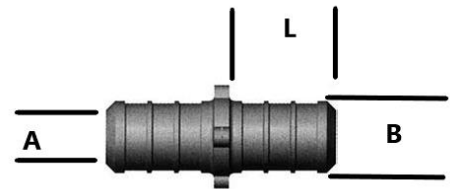
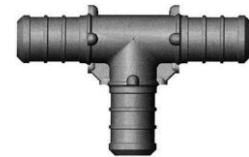
### PRESSURE DROP TABLE FOR PAL INSERT FITTINGS

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.



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