Ceramic Protection Tubes Application Data

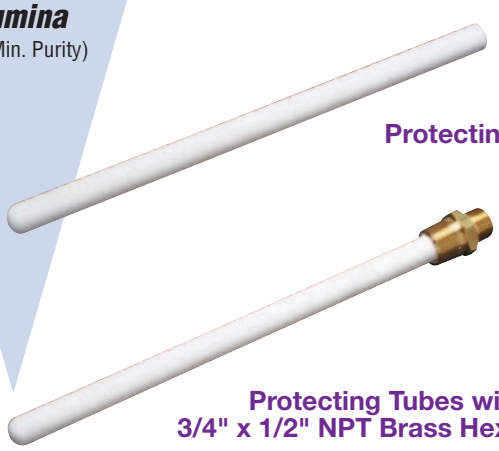
Ceramic Protection Tubes are used in applications where contamination from hostile environments or the cutting action of concentrated and direct flame impingement are factors. Such conditions usually require a noble metal thermocouple such as platinum and platinum alloys.

When selecting assemblies using ceramic components, the expected maximum temperatures must be considered. At elevated temperatures, some ceramic materials go through a glass phase. As silica is a prime contaminant of platinum, alumina protecting tubes and insulators are recommended for temperatures exceeding 2000°F (1093°C).

Material	Maximum Operating Temperature	Thermal Shock Characteristics	Maximum Available Length (in)	Typical Applications	Remarks
Alumina (99.7%)	3100°F (1700°C)	Fair (preheating to 900°F [482°C] recommended)	84	Iron, Barium, crown glass; non-ferrous metals; gas-tight protection for noble metal thermocouples in excess of 2400°F (1316°C)	Sags at 2900°F (1593°C) Prevents dry hydrogen penetration
Porcelain (Mullite)	2550°F (1400°C)	Poor (preheating to 900°F [482°C] recommended)	84	Non-ferrous metals; gas-tight protection for noble metal thermocouples to 2400°F (1316°C)	Sags at 2550°F (1400°C) Prone to attack by halogen gases; some penetration of dry hydrogen. Contains silica.

Alumina
(99% Min. Purity)

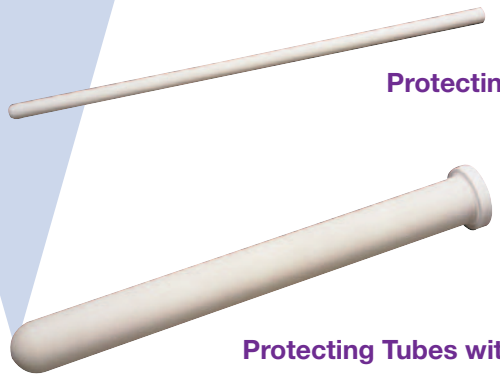
Protecting Tubes



Protecting Tubes with 3/4" x 1/2" NPT Brass Hex Fitting

Porcelain

Protecting Tubes



Protecting Tubes with Collar

Part Number	I.D. x O.D.†	Construction	Length
APT-101-☐	¼" × ⅜"	Plain End	12" thru 48" in 6" increments
APT-102-☐	7/16" × 11/16"	Plain End	12" thru 60" in 6" increments
APT-103-☐	¾" × 1"	Plain End	12" thru 72" in 6" increments
APT-104-☐	1" × 1¼"	Plain End	12" thru 72" in 6" increments
APT-105-☐	¼" × ⅜"	With Hex Fitting	12" thru 48" in 6" increments
APT-106-☐	7/16" × 11/16"	With Hex Fitting	12" thru 60" in 6" increments

Part Number	I.D. x O.D.†	Construction	Length
PPT-101-☐	¼" × ⅜"	Plain End	12" through 84" inch 6" increments
PPT-102-☐	7/16" × 11/16"	Plain End	
PPT-103-☐	¾" × 1"	Plain End	
PPT-104-☐	1" × 1¼"	Plain End	
PPT-105-☐	¼" × ⅜"	w/ Collar Approx. 5/16" × ¾"	
PPT-106-☐	7/16" × 11/16"	w/ Collar Approx. 5/16" × 1 1/16"	
PPT-107-☐	¾" × 1"	w/ Collar Approx. 5/16" × 1⅜"	
PPT-108-☐	1" × 1¼"	w/ Collar Approx. 5/16" × 1⅝"	
PPT-109-☐	¼" × ⅜"	w/Hex Fitting	
PPT-110-☐	7/16" × 11/16"	w/Hex Fitting	

Ordering Information

Complete the Part Number with 3 digits indicating length in whole inches.

Example: = APT-105-012 is 12" long and PPT-107-048 is 48" long.

†Dimensional tolerance:
Up to 1" Dia. ±5% or .025", whichever is greater
Over 1" Dia. ±4% or .050", whichever is greater

⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov.