

# CERAMIC PROTECTION TUBES

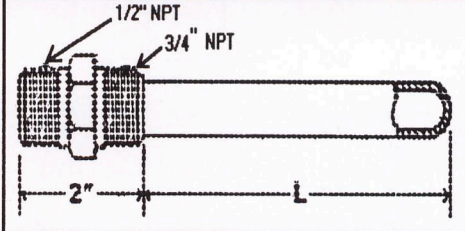
PROTECTION TUBES ARE USED TO PROTECT THE THERMOCOUPLE WIRES FROM HOSTILE ENVIRONMENTS AND MECHANICAL DAMAGE. CERAMIC AND SILICON CARBIDE TUBES ARE USED IN APPLICATIONS WHERE THE CONDITIONS USUALLY EXCEED THE MELTING POINTS OF COMMON METALS OR THE CUTTING ACTION OF CONCENTRATED DIRECT FLAME IMPINGEMENT ARE FACTORS. FOR HIGH TEMPERATURE APPLICATIONS, CAREFUL ATTENTION SHOULD BE CONSIDERED FOR THE PROPER MATERIAL SELECTION, SIZE AND CONSTRUCTION.

SILICON CARBIDE TUBES ARE POROUS AND HIGHLY REFRACTORY. TYPICALLY USED AS A SECONDARY PROTECTION TUBE, THEY ARE MODERATE IN COST AND HAVE A MAXIMUM OPERATING TEMPERATURE OF 3000 F..

CERAMIC PROTECTION TUBES ARE HIGH QUALITY NON-POROUS TUBES THAT REMAIN GAS TIGHT EVEN AT TEMPERATURES NEAR THEIR MELTING POINT. ALTHOUGH PREDOMINATELY USED AT HIGH TEMPERATURES WITH PLATINUM THERMOCOUPLES, THEY ARE ALSO USED WITH BASE METAL THERMOCOUPLES WHERE ATMOSPHERE AFFECT METAL TUBES. IT IS RECOMMENDED THAT PRE-HEATING THE TUBES TO 800 F. BE DONE TO RECOVER THERMAL SHOCK. MTI CERAMIC TUBES ARE AVAILABLE IN TWO TYPES OF MATERIAL:

**ALUMINA:** Very compatible for use with platinum type thermocouples. Alumina tubes in their purest forms have very good thermal shock characteristics and are virtually chemical resistant. Maximum operating temperature of 3500 F., in both oxidizing and reducing atmospheres.

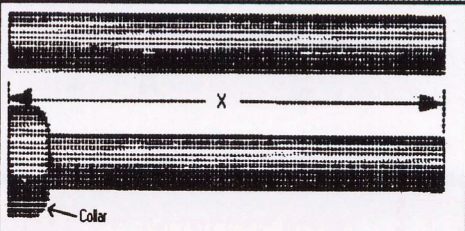
**MULLITE:** Recommended for types J, K, T, and E thermocouples, these tubes are impervious to air to 3000 F. and have a maximum operating temperature of 3100 F. (1200 C). These low cost ceramic tubes have good thermal shock and strength characteristics with a low rate of thermal expansion.

CERAMIC PROTECTION TUBES				(WITH FITTINGS)
PARTNUMBER		TUBE SIZE I.D. X O.D.	PROCESS THREAD	
ALUMINA	MULLITE			
1201 - (L)	1101 - (L)	1/4 X 3/8	3/4"	
1202 - (L)	1102 - (L)	3/8 X 1/2	3/4"	
1203 - (L)	1103 - (L)	7/16 X 11/16	3/4"	
1204 - (L)	1104 - (L)	9/16 X 3/4	3/4"	
1205 - (L)	1105 - (L)	5/8 X 7/8	1"	
1206 - (L)	1106 - (L)	3/4 X 1	1 1/4"	
1207 - (L)	1107 - (L)	1 X 11/4	1 1/2"	
1208 - (L)	1108 - (L)	1 1/2 X 1 3/4	2"	

**NOTES:**  
 STANDARD SIZES NORMALLY ORDERED ARE SHOWN.  
 PROCESS BUSHINGS ARE CARBON STEEL; HOWEVER, STAINLESS STEEL IS AVAILABLE.  
 FOR ORDERING TUBES WITHOUT FITTINGS, ADD PREFIX "NF" TO ORDER CODE.  
 I.E. NF1201 - 12"

**HOW TO ORDER**

SELECT THE PART NUMBER FROM THE TABLE AND REPLACE THE "L" DIMENSION WITH THE REQUIRED LENGTH IN INCHES

SILICON CARBIDE PROTECTION TUBES				
STYLE	PARTNUMBER	TUBE SIZE	LENGTH	
COLLAR PLAIN END	1350 - (L) 1390 - (L)	1" X 1 3/4" 1" X 1 3/4"	12" THRU 48" 12" THRU 48"	

CONSULT FACTORY FOR OTHER SIZES