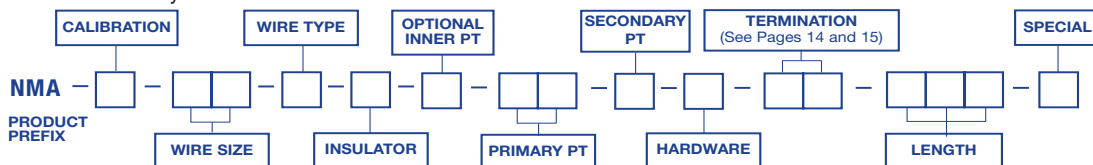


Noble Metal Thermocouples

NOBLE METAL ASSEMBLIES (NMA)

Cleveland Electric Laboratories manufactures a complete line of standard, high temperature thermocouples. A variety of configurations is available to meet rigorous, high temperature applications. Wire calibration and gauge, as well as all components, should be carefully chosen to provide optimum performance in every application. Use the Specification Codes below to assemble a complete Ordering Number, or consult the factory for assistance.



SPECIFICATIONS/CODES

CALIBRATION	WIRE SIZE (Dia. In inches)	WIRE TYPE	INSULATOR	OPTIONAL INNER P/T	PRIMARY P/T
S - Pt-Pt 10% Rh R - Pt-Pt 13% Rh B - Pt 6% Rh-Pt 30% Rh C - W 5% Re-W 26% Re F - Platinel G - Gold L - Silver	30 - .010 28 - .013 27 - .014 26 - .016 24 - .020 23 - .023 22 - .025 21 - .028 20 - .032 18 - .040 15 - .060 14 - .064 XX - Other	1 - Standard 2 - Reference Grade 3 - Fibro Grade	2 - .125 OD Mullite 4 - .187 OD Mullite A - .187 OD Mullite w/Collar 6 - .250 OD Mullite C - .250 OD Mullite w/Collar 3 - .125 OD Alumina 5 - .187 OD Alumina B - .187 OD Alumina w/Collar 7 - .250 OD Alumina D - .250 OD Alumina w/Collar E - 1/16" OD Spaghetti U - Special Insulator M - .156 Alumina w/Collar N - .200 Alumina	0 - No Inner Tube 3 - 5mm x 7mm Mullite 1 - 1/4" x 3/8" Mullite 4 - 5mm x 7mm Alumina 2 - 1/4" x 3/8" Alumina 5 - 5mm x 8mm Alumina 6 - 3/16" X 1/4" Alumina	M9 - 1/8" x 3/16" OD Mullite M2 - 3/16" x 1/4" OD Mullite M5 - 5mm x 7mm Alumina M8 - 1/4" x 3/8" OD Mullite M3 - 3/8" x 1/2" OD Mullite M6 - 7/16" x 11/16" OD Mullite MF - 11/16" Mullite 3/4 Hex 3/4 SS MH - 11/16" Mullite w/1/2 x 3/4 Ftg. MN - 11/16" Mullite w/3/4 Nipple MS - 11/16" Mullite w/356 Slv. M4 - 1/2" x 3/4" OD Mullite M1 - 3/4" x 1" OD Mullite M7 - 1" x 1-1/4" Mullite A9 - 1/8" x 3/16" Alumina A2 - 3/16" x 1/4" OD Alumina A0 - 3/16" x 5/16" OD Alumina A5 - 5mm x 7mm Alumina A8 - 1/4" x 3/8" OD Alumina AA - 5/16" x 7/16" Alumina A3 - 3/8" x 1/2" OD Alumina A6 - 7/16" x 11/16" OD Alumina AF - 11/16" Alumina. 3/4 Hex 3/4 SS AH - 11/16" Alumina. w/1/2 x 3/4 Ftg. AN - 11/16" Alumina w/3/4 Nipple AS - 11/16" Alumina w/356 Slv. A4 - 1/2" x 3/4" OD Alumina A1 - 3/4" x 1" OD Alumina A7 - 1" x 1-1/4" Alumina I4 - 1/4" OD Inconel Tubing I5 - 3/16" OD Inconel Tubing H3 - Hexaloy HM - 3/8" x 11/16" Halcis "R" HL - 5/16" x 5/8" Halcis "R"
SECONDARY P/T		HARDWARE	LENGTH (In inches)	SPECIAL	
0 - No Secondary 2 - Silicon Carbide w/o Collar 3 - 1/2" NPT Inconel 4 - 3/4" NPT Inconel 5 - 1" NPT Inconel 6 - 1/4" x 3/8" Mullite 7 - 7/16" x 11/16" Mullite 8 - 1/2" x 3/4" Mullite 9 - 3/4" x 1" Mullite A - 1" x 1-1/4" Mullite B - 1/4" x 3/8" Alumina C - 7/16" x 11/16" Alumina D - 1/2" x 3/4" Alumina E - 3/4" x 1" Alumina F - 1" x 1-1/4" Alumina G - LT-1 Metal Ceramic H - 1/4" NPT Inconel J - 1/2" 446SS K - 3/4 309 L - 3/4" NPT 446SS M - 3/4" NPT 310SS S - Silicon Carbide w/Collar T - 3/4" 253 Alloy U - 3/8" NPT Inconel W - 1/2" 253 Alloy X - 3/4" NPT 304		0 - No Hardware 1 - Support Casting Assembly 2 - Weatherproof Cover 3 - 1" Coupling 4 - Adjustable Flange 5 - Split Flange 6 - St. Hex Bush/Alloy Sleeve 7 - Hex Bushing 1" NPT 8 - 3/4" Hex 3/4" Fitting 9 - 3/4" x 1" St. Hex Fitting A - Alloy Sleeve B - 1/2" X Close Nipple C - Close Nipple E - Hex Bushing, 3/4" NPT F - W/P Cover w/Flange H - 1/2" Hex 1/2" Fitting P - 3/4" x 1-1/4" Hex Bushing Q - 1" x 1-1/2" Hex Busing R - 1/2" x 3/4" St. Hex Fitting T - Tapered Plug W - 1-1/2" Hex Bushing X - 1/2" NPT Hex Bushing	Specify from 000" to 999"	0 - None C - Lot Certification (Std.) D - Dual Element E - Individual Certification F - Evacuate & Backfill H - Effective Length X - Special (Consult Factory)	

EXAMPLE ORDERING NUMBERS

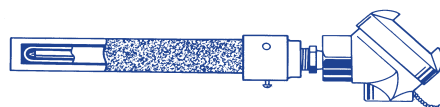
** CEL Identification only-none established. Nickel .8% Cobalt/Nickel 18% Moly Nobel Metal Assembly (NMA) Specifications/Codes

PLATINUM THERMOCOUPLE ASSEMBLIES WITH GENERIC DESCRIPTION AND ORDERING



Type S, .020" dia. assembly 7/16" x 11/16" Alumina tube, 356 brass sleeve, open terminal head, 18" long.

NMA - S - 24 - 1 - 2 - 0 - A S - 0 - 0 - B 1 - 0 1 8 - 0



Type R, .020" dia. assembly 7/16" x 11/16" Alumina primary tube with 1/2 x 3/4 steel fitting inside a silicon carbide tube with a weatherproof cover and cast iron head, 24" long.

NMA - S - 24 - 1 - 3 - 0 - A H - 2 - 2 - C 2 - 0 2 4 - 0