



**Weed
Instrument**

Temperature, Pressure, and Fiber Optic Technology

Nuclear Qualified Thermocouple Assemblies

- **Suitable for a wide range of applications**
- **Qualified to withstand radiation levels of 300 Mrads T.I.D.**
- **Capable of withstanding 20G acceleration in the horizontal and vertical plane from 1 to 33 Hz**
- **Also Available for Non-Safety Related Applications**



Weed's nuclear grade thermocouples are precise temperature measuring devices made of the highest quality materials available. All thermocouples are checked against standard temperature millivolt curves to assure that they are within the accuracy limits of ANSI MC96.1. All thermocouples are metal sheathed, magnesium oxide insulated and are designed for extended life at high temperatures or severe vibration and thermal shock. They have been environmentally qualified to IEEE 323-1974/1983 and seismically qualified to IEEE 344-1975/1987 and NUREG 0588, qualifying them for use as 1E equipment for nuclear power generating stations. These same models can be ordered for non-safety related applications. They will offer the same reliability and construction as the qualified versions except without the certification.

Custom configurations are available, consult factory with details and requirements.

Thermocouple Specifications

TYPE J

IRON•CONSTANTAN

For use in an atmosphere deficient of oxygen since the iron oxidizes rapidly above +1000°F. Rust may occur in moist or low temperature applications.

TYPE K

CHROMEL•ALUMEL

Low oxidation rate makes this thermocouple ideal for use in free oxygen atmosphere.

TYPE T

COPPER•CONSTANTAN

Especially adaptable to the sub-zero temperature range. High resistance against rust and corrosion. High degree of precision. Used in oxidizing or reducing atmospheres.

TYPE E

CHROMEL•CONSTANTAN

For use in inert, oxidizing or reducing atmospheres. Often used for computer applications due to their wide temperature range.

INSULATION

Magnesium oxide is standard. Minimum insulation resistance wire to wire or wire to sheath is 100 Megohms at 100 VDC.

CONFIGURATIONS

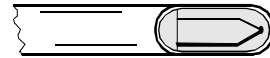
- Grounded or ungrounded
- Single or dual
- Welded fitting, spring loaded, or no fitting
- Others upon request

DIAMETERS

Standard diameters are .125", .187" and .250".



*Grounded Junction—
The junction of a grounded thermocouple is welded to the protective sheath giving faster response than the ungrounded junction type.*



*Ungrounded Junction—
The welded wire thermocouple is physically insulated from the thermocouple sheath by MgO powder.*

Type	Temperature Range		Limits of Error			
	°F	°C	Standard (Note 1)		Special (Note 2)	
J	32 to 530	0 to 277	±4°F		±2°F	
	530 to 1400	277 to 760	±3/4%		±3/8%	
K	32 to 530	0 to 277	±4°F		±2°F	
	530 to 2300	277 to 1260	±3/4%		±3/8%	
T	-75 to 200	-59 to 93	±1-1/2°F		±3/4°F	
	200 to 700	93 to 371	±3/4%		±3/8%	
E	32 to 600	0 to 316	±3°F		±2-1/4°F	
	600 to 1600	316 to 871	±1/2 %		±3/8%	

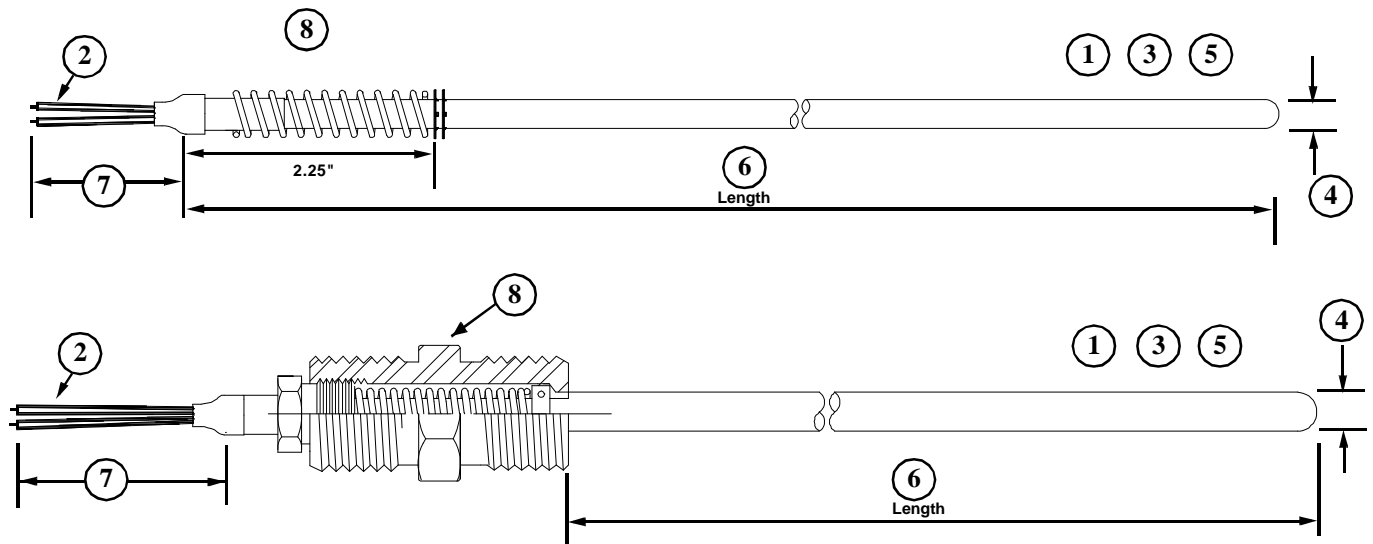
Note 1: To determine the limit of error in°C, multiply the limit of error in °F by 5/9.

Note 2: Applies only to standard wire gauges

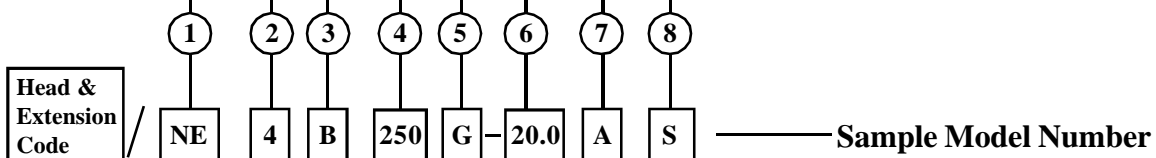
Standard Color Coding of Thermocouples

Type	Positive	Negative
J	White	Red
K	Yellow	Red
T	Blue	Red
E	Purple	Red

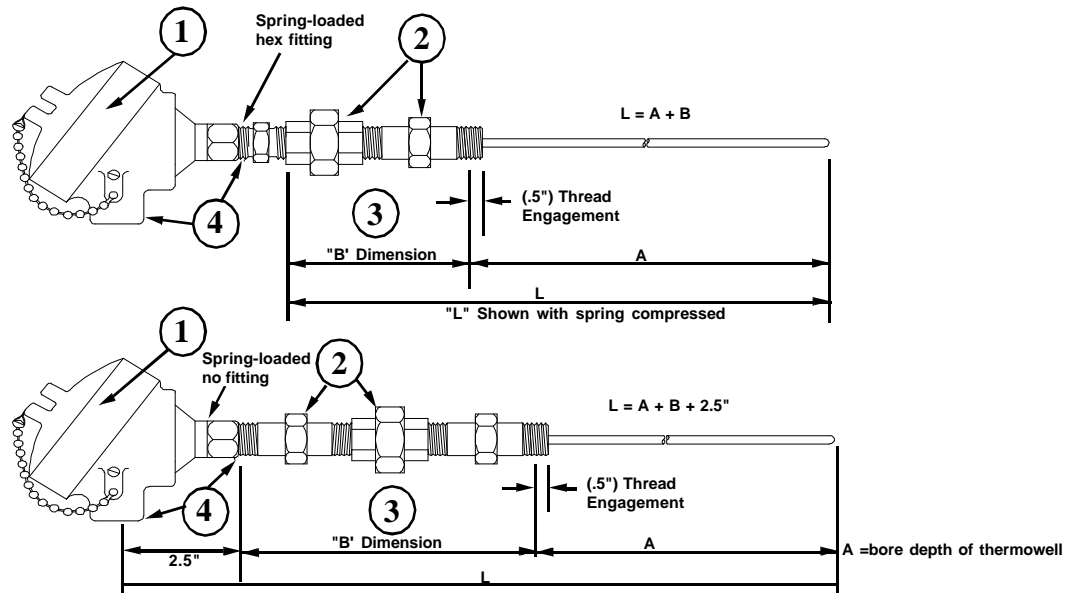
Ordering Information - Sensor



1. Thermocouple Type	
NE	Chromel - Constantan
NJ	Iron - Constantan
NK	Chromel - Alumel
NT	Copper - Constantan
2. Style - Number of Wires/Sensing Elements	
2	2 wire (single)
4	4 wire (dual)
3. Sheath Material	
B	316 S.S. Standard
X	Custom - consult factory with special requirements
4. Sheath Outside Diameter in Inches	
250	.250" Standard
000	Custom - consult factory with special requirements
5. Junction Type	
G	Grounded
U	Ungrounded
B	Exposed
6. Sheath Length in Inches	
xx.x	Specify Length to Nearest .1"
7. Lead Wire Length in Inches	
A	2.5" - Standard with Head
Z (x)	Specify in Inches
8. Fittings	
S	Spring-loaded with no fitting
2	1/2" NPT - Welded fitting
3	1/2" NPT - Hex spring-loaded fitting
4	No spring-loading, no welded fittings
5	Consult factory for other options



Ordering Information - Head & Extension



1. Head Style & Material	
1	Cast Iron
2	Aluminum
8	Stainless Steel
2. Extension Style & Material	
A	Direct Assembly - (with welded or spring-loaded hex fitting only)
D	Nipple/Union/Nipple Ext. - 316 Stainless Steel 3.5" min.
F	Nipple Ext. - 316 Stainless Steel
J	Union/Nipple Ext. - 316 Stainless Steel 3" min.
3. Extension Length ("B" Dimension)	
00	0" (Direct Assembly & Close Nipple Only)
10	1" (Nipple Extension Only)
20	2" (Nipple Extension Only)
35	3.5"
40	4"
50	5" (Maximum with Qualified Sensor using welded or spring-loaded hex fitting)
60	6" (Maximum with all other qualified assemblies)
Other - Specify Length	
4. Head Connection (Instr. x Conduit)	
A	1/2" NPT x 1/2" NPT
D	1/2" NPT x 3/4" NPT

1 -
 2 -
 3 -
 4 -
 1 -
 A -
 00 -
 A -
 Sample Model Number



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