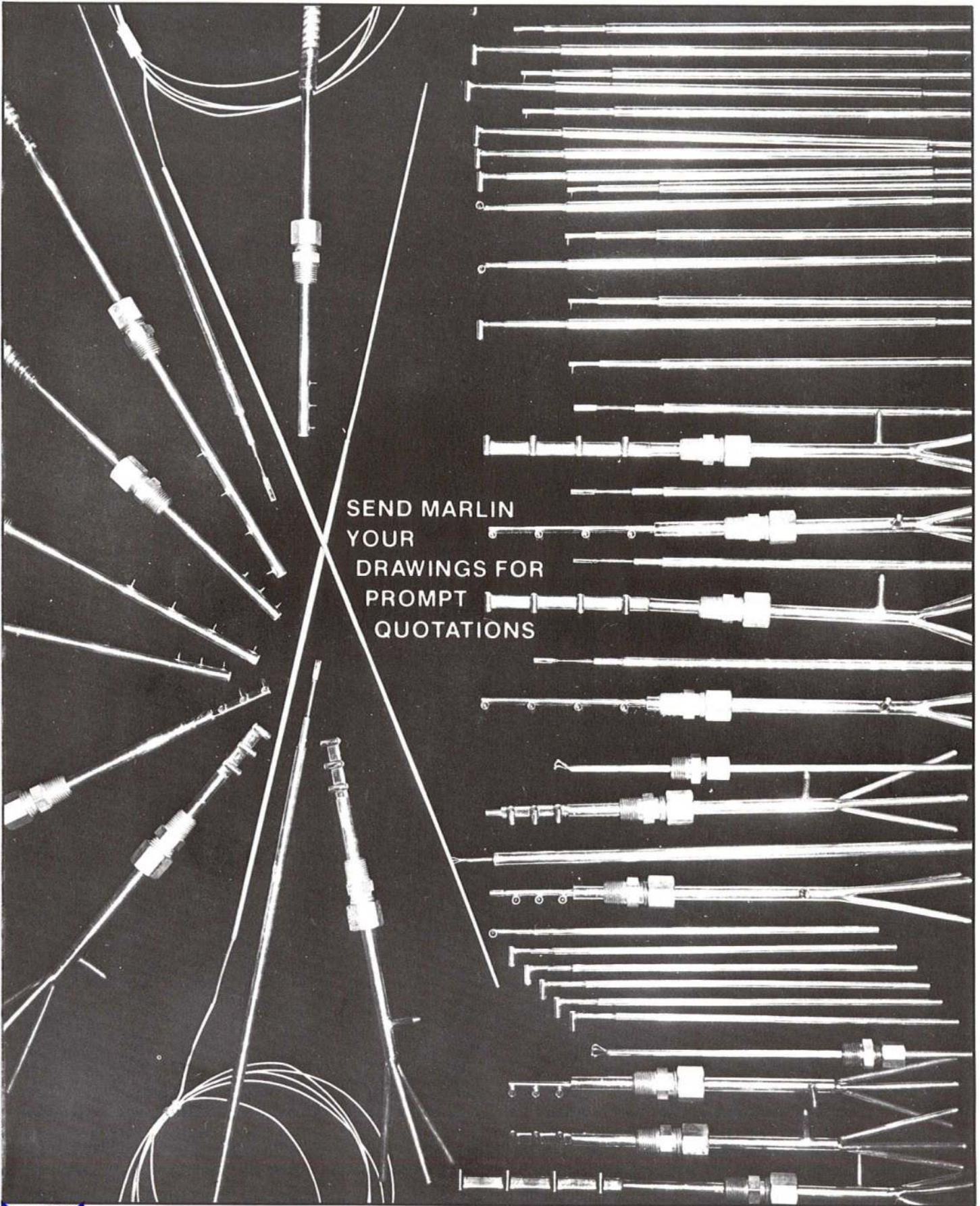


NOTICE:

Prices and availability are subject to change without notice.

Please contact Marlin Manufacturing before ordering for updated pricing.

SENSORS
CUSTOM FABRICATION



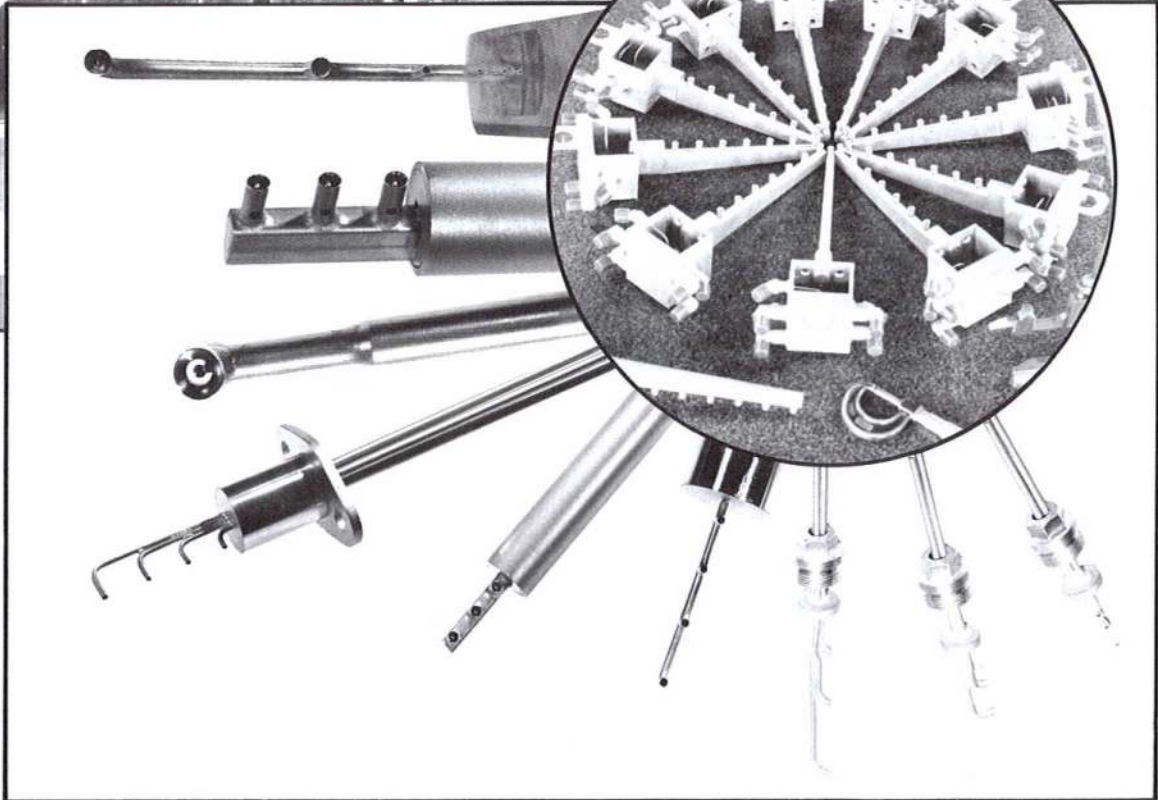
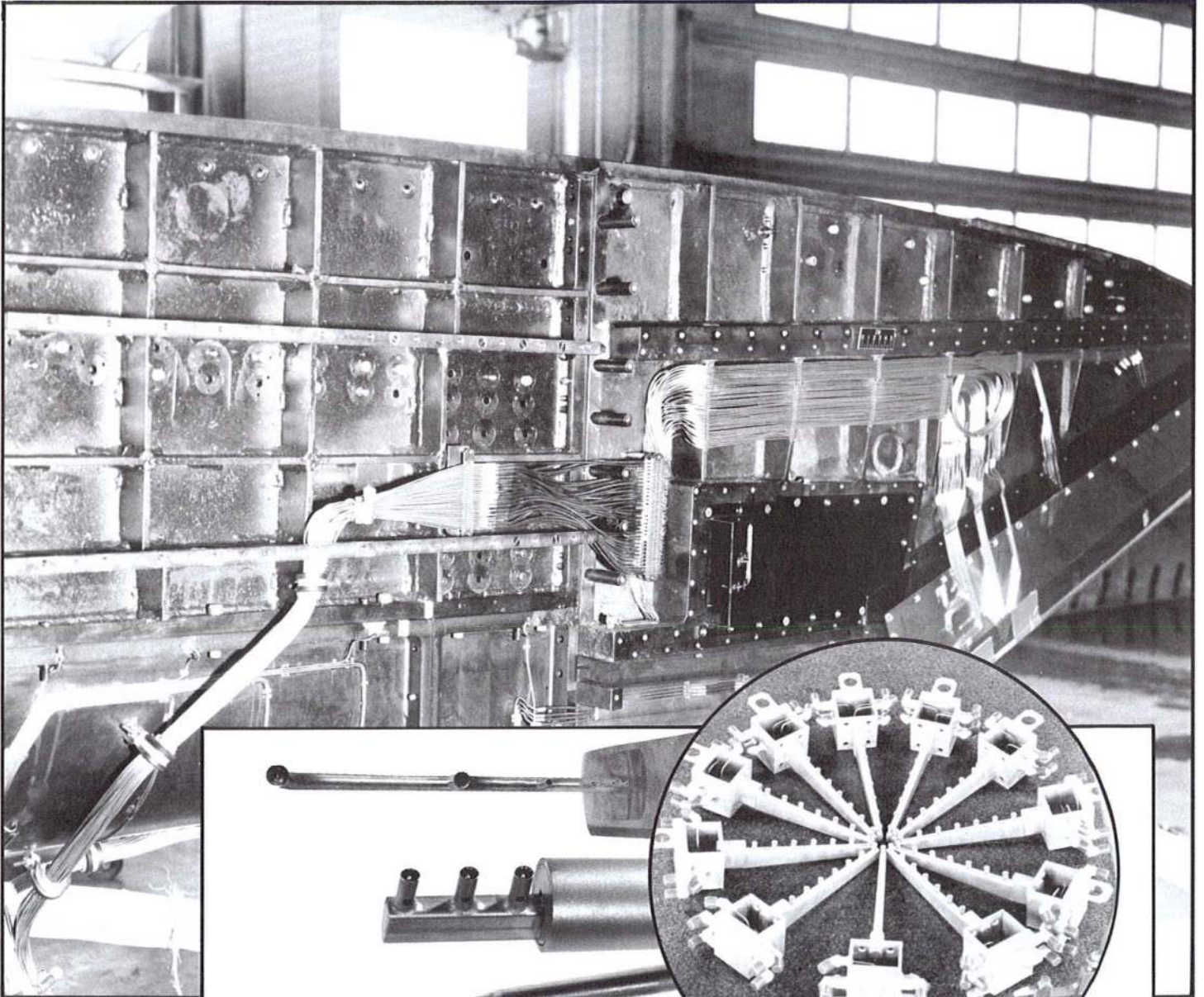
SEND MARLIN
YOUR
DRAWINGS FOR
PROMPT
QUOTATIONS



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207
C-1

(216) 941-6200

**SENSORS
CUSTOM FABRICATION**



**SEND MARLIN
YOUR DRAWINGS
FOR PROMPT
QUOTATIONS**



**MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200
FAX: (216) 941-6207**

Marlin Marlin Marlin Marlin Marlin Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Platinum Resistance Thermometers

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

Marlin

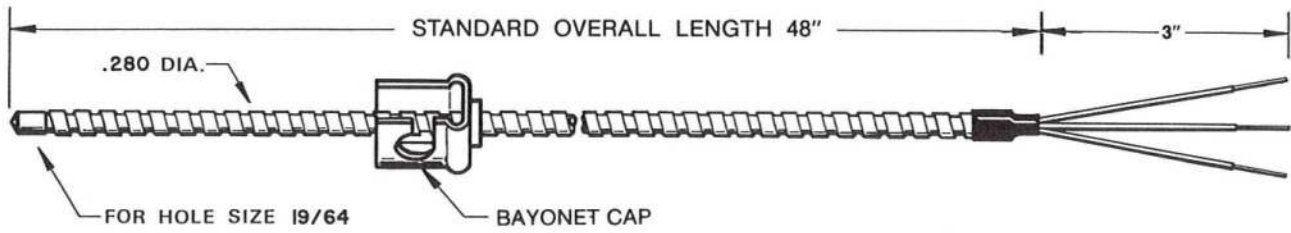
Marlin

Marlin

Since 1952
Marlin

MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200
FAX: (216) 941-6207

SENSORS PRT's — PLATINUM RESISTANCE THERMOMETERS



DESCRIPTION					Marlin Part No.	Price \$/Ea.
Probe Diameter	Sheath Mat'l.	Ref. Ohms @°C	Tolerance Class	Circuit Type		
0.280"	304SS	100	0.1%	3 WIRE	M649-48	\$75.

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1 - 9	Net
10 - 24	.95
25 - 49	.85
100 - 199	.80
200+	.75

Quantity (Feet)	Discount Factor
1 - 999	Net*
1M - 2999	.90
3M - 4999	.85
5M - 9999	.80
10M+	.75

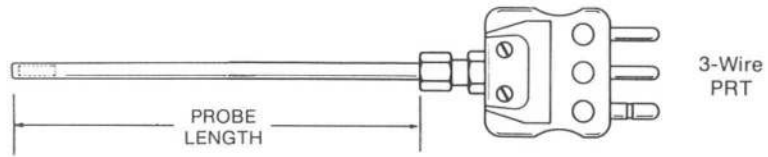
PRT Extension Wire Color Code: White, Red, Red

*Respooling charge of \$10. for less than 1000 ft.

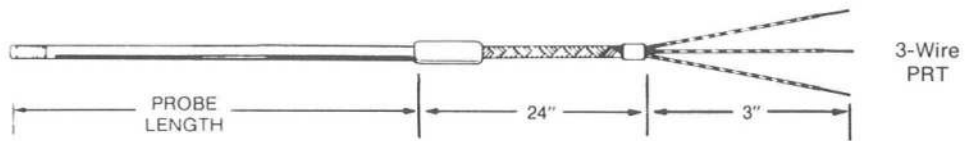
Insulation	Ga.	Code	*Price per MFT	Solid/ Stranded	Nominal Size	Insulation Temp. Rating
(Tinned Copper 3 Conductor) Extruded Teflon FEP Triplex-Twisted Tinned Copper Overbraid Extruded Teflon Jacket	24	3CUF-24-E80E	\$600.	Stranded	.130	400° F (204° C)
(Nickel/Copper 1 Conductors) Glass Wrap Single	22 22	1CUF-22-W010-RED 1CUF-22-W010-WHITE	200. 200.	Stranded Stranded	.040 .040	842° F (450° C)
(Nickel/Copper 3 Conductors) Glass Wrap Triplex-Twisted Braided Jacket	22	3CUF-22-WG80	650.	Stranded	.090	842° F (450° C)
W/SS Protective Overbraid	22	3CUF-22-WG81	945.	Stranded	.110	



SENSORS PRT's — PLATINUM RESISTANCE THERMOMETERS



DESCRIPTION					Marlin Part No.	Price \$/Ea.
Probe Diameter	Sheath Mat'l.	Ref. Ohms @°C	Tolerance Class	Probe Length		
0.250"	316SS	100	0.1%	12"	M244-12	\$75.
				18"	M244-18	77.
				24"	M244-24	79.



DESCRIPTION					Marlin Part No.	Price \$/Ea.
Probe Diameter	Sheath Mat'l.	Ref. Ohms @°C	Tolerance Class	Probe Length		
0.250"	316SS	100	0.1%	12"	M445-12	\$77.
				18"	M445-18	79.
				24"	M445-24	81.

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1 - 9	Net
10 - 24	.95
25 - 49	.85
100 - 199	.80
200+	.75



GENERAL INSTALLATION

PARAMETERS:

Handling:

There are many variations of PRT's and PRT assemblies. Even though some may appear to have heavy duty protecting tubes or thermowells, the internal parts can be delicate. Care in handling is a must to insure the sensor integrity. DO NOT DROP. PRT's are carefully packed at the factory. Inspect the package when receiving for indications of shipping damage. If shipping damage is noticed report it immediately to the shipping company and make the necessary reports. Marlin ships on a FOB factory basis therefore it is your responsibility to file any claims. Hidden shipping damage can also occur (no evident sign of mishandling). If after carefully opening the package, damage is discovered, save all product and shipping material then notify and file the proper claims with the shipping company immediately.

Storage:

Store in a dry, clean place. Avoid areas where dropping or stacking may occur.

Location:

The PRT should **SEE**, as close as possible, what the product in the process is experiencing in order to get meaningful temperature measurements. Locate the PRT as close to the product as possible. A rule of thumb is to have at least 10 tube diameters immersion in the hot zone. Avoid direct flame impingement or stagnant areas.

Installation:

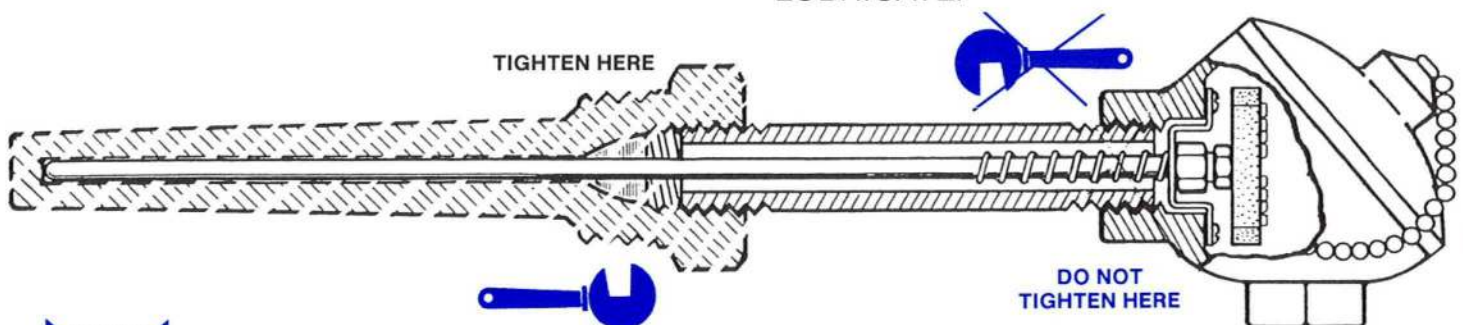
DO NOT ATTEMPT to mechanically connect the assembly into the process by tightening at the terminal or connecting head. USE ONLY THE PROCESS FITTING OR THE THERMOWELL FLATS FOR THIS PURPOSE. Terminals or connecting heads that are twisted can be damaged or cause shorts that can adversely affect the operation of the PRT. DO NOT BEND THE PRT IN THE ELEMENT AREA (within six inches of the end of the sheath). Bending will break the element that is in the metal sheath and the sensor will be rendered inoperative. If thermowell or protecting tube must be welded into the process, carefully remove PRT sensor before welding and be sure to handle carefully, keep clean and replace without forcing or stressing any components.

Wire Extension:

See general operation parameters and job wiring diagrams.

GENERAL MAINTENANCE PARAMETERS:

Regularly scheduled maintenance procedures should include inspection and calibration intervals so that life and reliability of the instrumentation is improved and the likelihood of sudden serious failure is reduced. These procedures should be set up by the responsible engineering department and performed by personnel that are familiar with the operating principles upon which the system is based. DO NOT LUBRICATE.



SENSORS PRT'S — PLATINUM RESISTANCE THERMOMETERS

Platinum Resistance thermometers • Customized PRT's — Built to your design

Description:

Platinum Resistance Thermometers operate on the principle that the electrical resistance of a metal conductor changes as a function of temperature. PRT's provide an accurate, stable and repeatable means of absolute temperature measurement. The accuracy of a PRT may be independent of the distances between the sensor and the instrument whether it be an indicator, recorder, controller, data logger or computer. Copper hook-up wire is generally used between the sensor and instrument.

Marlin PRT probes consist of a platinum resistance element that is encapsulated and circuited in a mineral insulated, metal sheath construction and terminated by means of bare wire, quick connectors or terminal heads. This construction provides a rugged probe that is moisture, pressure, shock and vibration resistant and also is bendable up to the element area.

General Selection Parameters

The conditions of measurement determine the type of PRT used. Temperature, atmosphere, protection, response, and service life should be considered. The following descriptions serve as a guide to selection.

The Platinum Resistance Element:

Select the PRT element that will be capable of operating in your application range. The reference resistance (100 Ohms @ 0° C-typical) and temperature coefficient (Alpha of 0.00385 - typical) must match the instrumentation in your system.

Tolerance of the PRT element:

A range of limits of error elements are available (0.1%-typical). See the tolerance section for definition. In general the better the tolerance the more expensive is the thermometer.

Sheath Alloy:

Select a sheath alloy that will withstand the temperature and possible corrosives of your application. 316 SS is standard.

Probe Diameter:

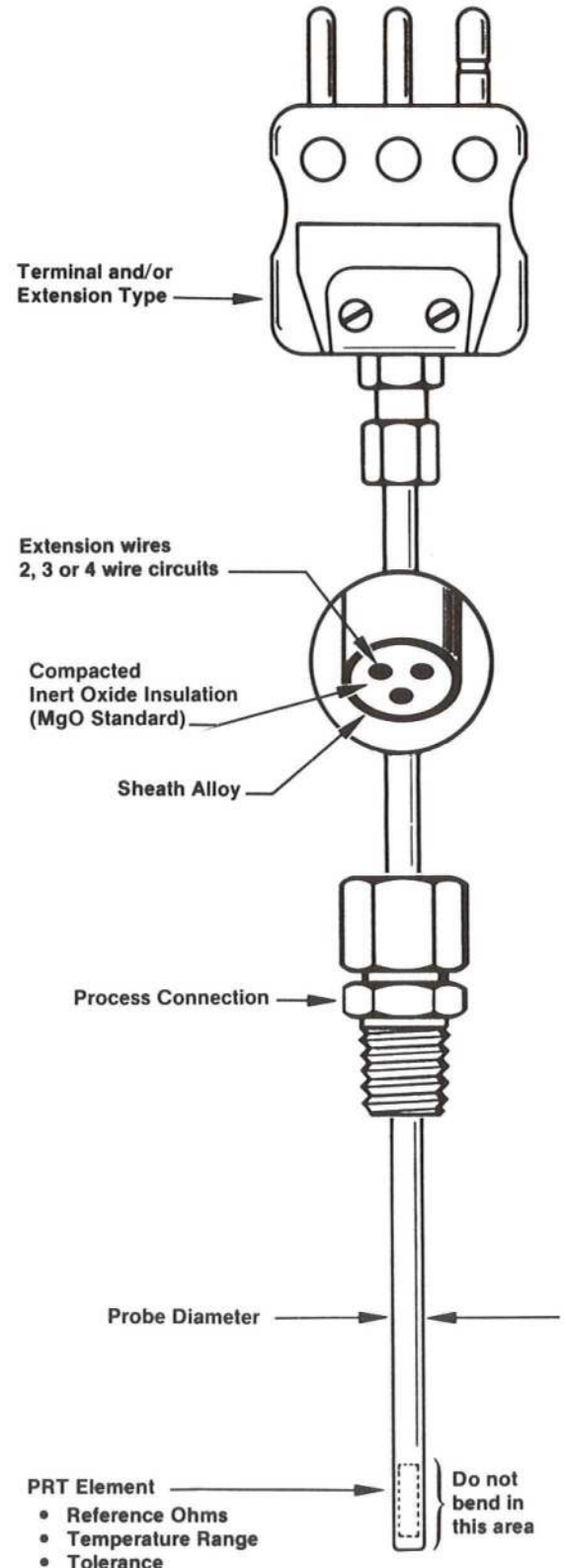
Use the probe diameter that will withstand the rigors of your application but with minimal affect on it. Because the element can be broken if the sheath is bent in the element area, it is recommended that a minimum of 0.187" diameter thermometer be used. Smaller diameters are available on request.

Process Connections:

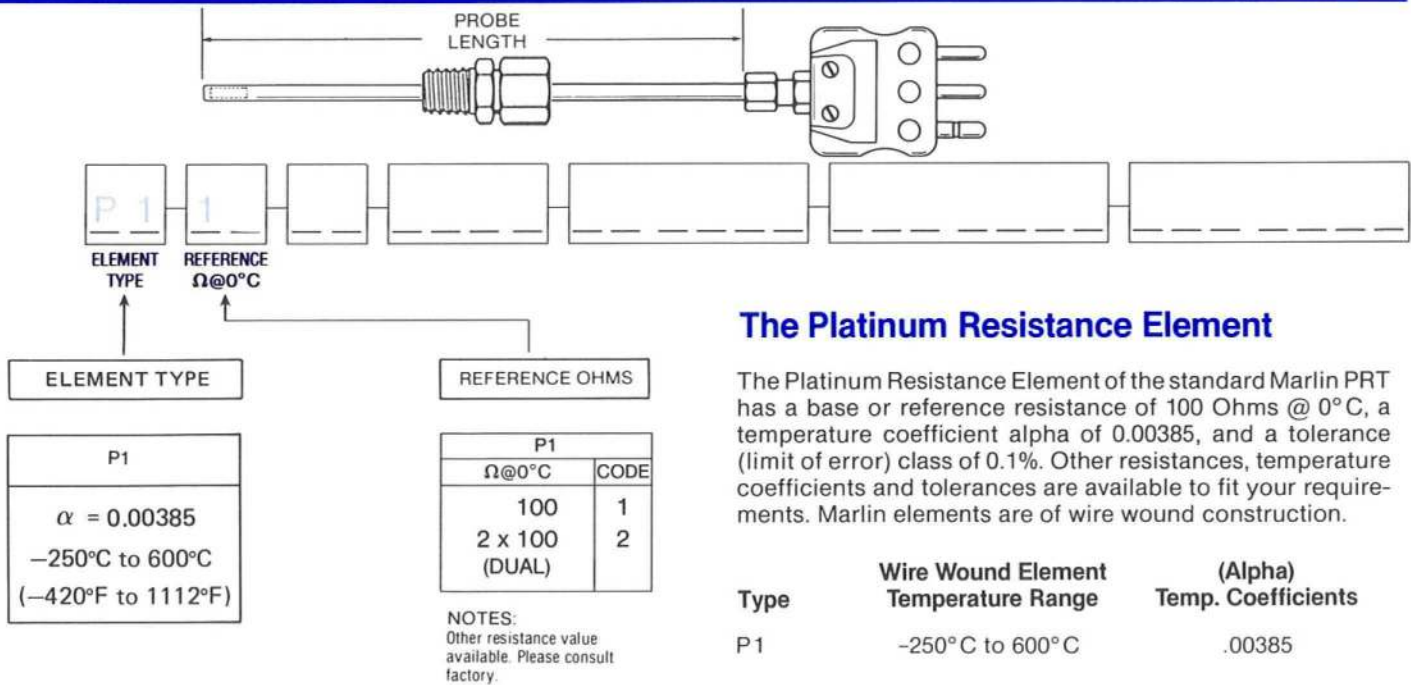
In order to attach and/or seal the thermometer in your application you can use a fitting, braze, weld or solder it in place.

Terminal and/or Extension Type:

For connection to instruments various terminations extension are available. Select the circuit that is required to match your instrumentation.



SENSORS CUSTOM PRT'S



The Platinum Resistance Element

The Platinum Resistance Element of the standard Marlin PRT has a base or reference resistance of 100 Ohms @ 0°C, a temperature coefficient alpha of 0.00385, and a tolerance (limit of error) class of 0.1%. Other resistances, temperature coefficients and tolerances are available to fit your requirements. Marlin elements are of wire wound construction.

Type	Wire Wound Element Temperature Range	(Alpha) Temp. Coefficients
P1	-250°C to 600°C	.00385

Wire wound elements consist of fine, high purity platinum wire wound and imbedded in an insulation. The compacted MgO insulated construction of standard Marlin PRT's provides maximum durability and dependability for industrial PRT applications. All elements are carefully annealed and mounted so that the sensing wire remains strain free under severe, heavy-duty applications. Each element will have its own characteristics and therefore each PRT must be tested to insure it is within tolerance.

Single Element PRT's are most commonly used but dual units are available for simultaneous recording, controlling and indicating of a single thermal point. Also higher resistances are available but it should be noted that resistances above 100 Ohms and multiple elements require larger probe diameters (minimum 0.250") and are more expensive.

Temperature Resistance Relationship

Over the temperature interval -200 to 600°C, the resistance of a platinum resistance thermometer is given by the relationship

$$R_t = R_0 [1 + At + Bt^2 + Ct^3 (t - 100)]$$

where R_t is the resistance in ohms at any temperature t (expressed in degrees Celsius), and R_0 is the resistance in ohms of the thermometer at 0°C. A, B, and C are constants whose values are

$$\begin{aligned} A &= 3.9083 \times 10^{-3} \\ B &= -5.775 \times 10^{-7} \\ C &= -4.183 \times 10^{-12} \end{aligned}$$

The C constant is used only for temperatures below 0°C. For all temperatures above 0°C, the C constant is set equal to zero, and the last term of the expression may be ignored.

PRT Specifications Amperage - Self Heating

The amperage is limited by self-heating. Currents in excess of 10 mA through the elements are not recommended. The error caused by self-heating is typically less than 0.1°C Temperature rise in water for a 5 mA current.

Inductance. Negligible for common AC use.

Insulation Resistance is greater than

- 100 MΩ @ 100 V DC and 25°C
- 10 MΩ @ 10 V DC and 100 to 300°C
- 2 MΩ @ 10 V DC and 301 to 650°C
- 0.5 MΩ @ 10 V DC and 651 to 850°C

Repeatability after 10 cycles to high temperature limits is less than the adjustment error for the corresponding tolerance class.

Alpha the Temperature Coefficient

is defined as:

$$\alpha = \frac{R_{100} - R_0}{100 \times R_0} \quad \frac{\text{Ohms}}{\text{Ohms } ^\circ\text{C}}$$

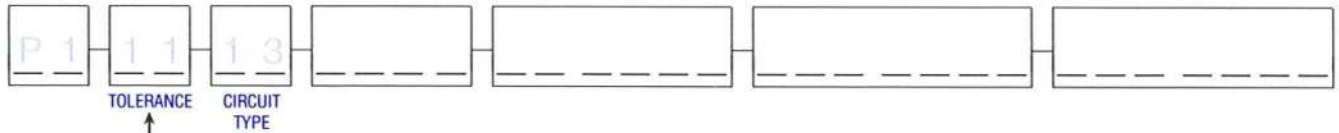
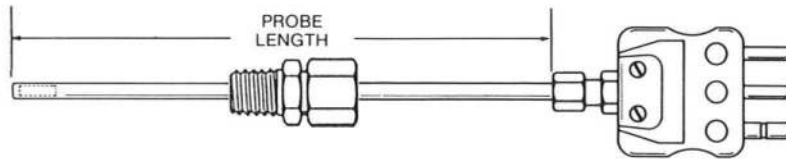
and is related to A & B by the expression

$$\alpha = A + 100B$$

α = 0.00385 for P1



SENSORS CUSTOM PRT'S



TOLERANCE	CODE
0.05%	0
0.1%	1
0.5%	2

CIRCUIT TYPE	
CIRCUIT	CODE
SINGLE ELEMENT	
	12
	13
	14
	15
DUAL ELEMENT	
	22
	23

Calibration Tolerances for Platinum Resistance Thermometers

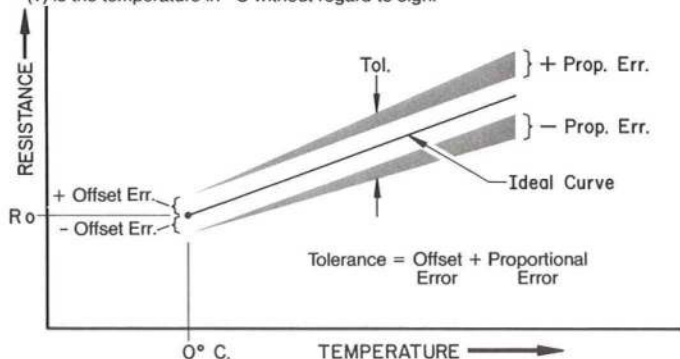
The accuracy of a platinum resistance thermometer is dependent upon two factors. The first is the offset of its actual resistance from the nominal value (typically 100 ohms) at some reference temperature (usually 0°C). The second factor is a variation from a nominal value of the effective resistance temperature coefficient over a given temperature interval, giving rise to an additional error component that is proportional to the temperature. Both of these factors are variable from sensor to sensor, but their magnitude limits are implicit for a given tolerance 'class.'

The designation of a PRT tolerance class is based on the percent allowable variation, in ohms, of the nominal resistance value at the reference temperature. However, for convenience, this ohmic tolerance is often expressed as an equivalent °C temperature variation. To this base uncertainty must be added the allowable proportional error for the class, which is stated as a percentage of measured temperature. This percentage applies when temperatures are expressed in degrees Celsius. A tolerance in degrees Fahrenheit is obtained by multiplying the Celsius equivalent sum temperature tolerance by 9/5.

Tolerance = Offset Error + Proportional Error

Tolerance Class	Offset Error	Proportional Error (°C)	*Sum of Errors (°C)
0.05%	0.15°C	0.3% (T)	0.15 + 0.003 (T)
0.1%	0.3°C	0.5% (T)	0.3 + 0.005 (T)
0.5%	1.3°C	0.8% (T)	1.3 + 0.008 (T)

* See tables — Reference Data, Initial Calibration Tolerance — PRT's.
(T) is the temperature in °C without regard to sign.



NOTES:
Dual element PRT's require 250 O.D. minimum sheath diameter.

PRT Circuitry

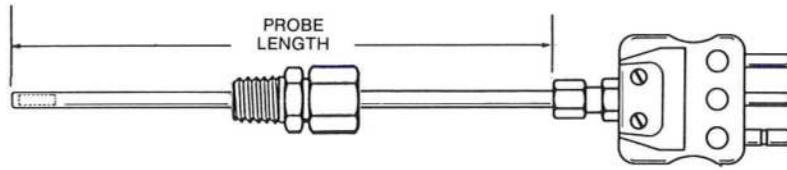
Resistance bridge techniques are used with resistance thermometers for temperature measurement. In these techniques the resistance change with temperature of the PRT, which is the basis for a resistance thermometer, can be affected by the lead resistance. Marlin offers various circuits to fulfill the requirements of your instrumentation.

The accuracy of a PRT may be independent of the distances between the sensor and the instrument whether it be an indicator, recorder, controller, data logger or computer. The distance may vary from a few inches to many miles. Copper hook-up wire is generally used between the sensor and instrument.

The comparatively high signal level of the PRT eliminates the need for high gain amplifiers and generally reduces the susceptibility of the measuring system to noise and signal interference.



SENSORS CUSTOM PRT'S



PROBE DIA. SHEATH MAT'L

PROBE DIAMETER	CODE
3/16 IN	187
1/4 IN	250

NOTES: For special DIA. consult factory.

PROBE MATERIAL	CODE
316SS	S
INCONEL 600	I

NOTES: For special material consult factory.

PRT Probe Diameter

Your application dictates the size of the PRT Probe to be used. Generally the smaller the diameter the faster the thermal response time and the shorter the necessary immersion length for accurate instrumentation, but with less strength than a probe with a larger diameter. Use the sheath size that will withstand the rigors of your application but with minimal affect on it. Because the element can be broken if the sheath is bent in the element area it is recommended that a minimum of 0.187" diameter thermometer be used. Small diameters are available on request.

Sheath Materials

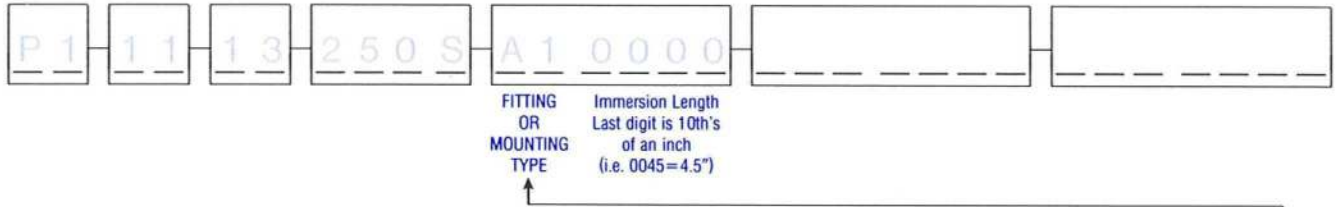
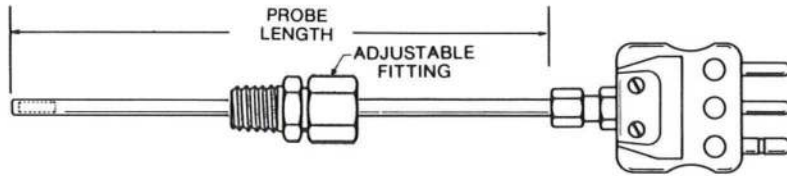
316 Stainless Steel (16% Chromium - 10% Nickel) is a material that has superior corrosion resistance as compared to 304SS with improved oxidation resistance and a higher hot strength. Maximum operation temperature 927° C (1700° F).

Inconel* 600 (72% Nickel - 17% Chromium) is a material that has outstanding resistance to oxidation, corrosion and scaling. Should not be used in the presence of sulfur above 1600° F. Maximum operating temperature 1149° C (2100° F).

*TM International Nickel Co.



SENSORS CUSTOM PRT'S

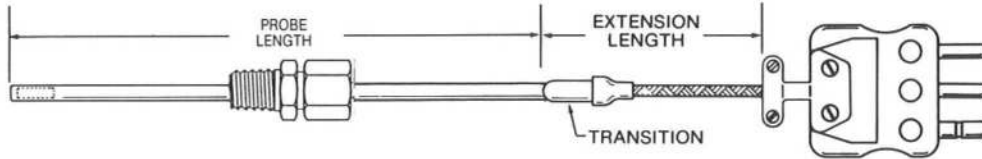


Mounting Fittings (SEE SELECTION SUMMARIES FOR DETAILS)

<p>Compression Fittings field positionable setting of the immersion length of the PRT. Standard fittings are stainless steel, 1/8 NPT or 1/4 NPT thread size, and are supplied with metal ferrules that are not relocatable after compression. Teflon ferrules allow relocation after compression but have a limited temperature and pressure range. Lava ferrules are crushed with compression and must be replaced if PRT is removed or readjusted.</p> <p style="text-align: center;">Teflon — 400°F practical use limit Lava — 900°F practical use limit</p>	<p style="text-align: center;">FIELD POSITIONABLE IMMERSION LENGTH</p>	NONE	CODE XX																															
		S.S. Fitting 1/8 NPT 1/4 NPT	A1 A2																															
<p>Fixed Fittings are stainless steel, NPT thread sizes, and are brazed to the sheath. Additional sizes, materials and welded mountings are also available.</p>		<p style="text-align: center;">FIXED IMMERSION LENGTH*</p> <p>* must be specified</p>	<p>1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 1 NPT</p>	<p>F1 F2 F3 F4 F6 F8</p>																														
<p>Fixed Double Fittings (Back to Back Threads) are stainless steel, NPT thread sizes, and are brazed to the sheath. Generally used with terminal heads this arrangement provides a process connection.</p>		<p style="text-align: center;">IMMERSION LENGTH*</p> <p>* must be specified</p>	<p>1/4 x 1/4 NPT 1/2 x 1/2 NPT 3/4 x 3/4 NPT</p>	<p>D2 D4 D6</p>																														
<p style="text-align: center;">TYPICAL ASSEMBLY w/PROTECTING TUBE</p> <p style="text-align: center;">TYPICAL ASSEMBLY w/THERMOWELL</p>		<table border="1"> <tr> <td rowspan="3">NIPPLE</td> <td>"C" DIM.</td> <td>Gal. Stl. (1)</td> <td>SS</td> </tr> <tr> <td>2"</td> <td>12</td> <td>42</td> </tr> <tr> <td>5"</td> <td>15</td> <td>45</td> </tr> <tr> <td rowspan="2">NIPPLE/ UNION</td> <td>3"</td> <td>16</td> <td>46</td> </tr> <tr> <td>6"</td> <td></td> <td></td> </tr> <tr> <td rowspan="2">NIPPLE/ UNION/ NIPPLE</td> <td>2 1/4"</td> <td>23</td> <td>53</td> </tr> <tr> <td>3 3/4"</td> <td>26</td> <td>56</td> </tr> <tr> <td rowspan="2">NIPPLE/ UNION/ NIPPLE</td> <td>3"</td> <td>33</td> <td>63</td> </tr> <tr> <td>6"</td> <td>36</td> <td>66</td> </tr> </table>	NIPPLE	"C" DIM.	Gal. Stl. (1)	SS	2"	12	42	5"	15	45	NIPPLE/ UNION	3"	16	46	6"			NIPPLE/ UNION/ NIPPLE	2 1/4"	23	53	3 3/4"	26	56	NIPPLE/ UNION/ NIPPLE	3"	33	63	6"	36	66	
NIPPLE	"C" DIM.	Gal. Stl. (1)		SS																														
	2"	12		42																														
	5"	15	45																															
NIPPLE/ UNION	3"	16	46																															
	6"																																	
NIPPLE/ UNION/ NIPPLE	2 1/4"	23	53																															
	3 3/4"	26	56																															
NIPPLE/ UNION/ NIPPLE	3"	33	63																															
	6"	36	66																															
<p>NOTES: 1) Galvanized Steel 2) NPT Size specified by Weatherproof Head Size</p>																																		



SENSORS CUSTOM PRT'S



EXTENSION TYPE
EXTENSION LENGTH IN INCHES (If Applicable)

EXTENSION TYPE	
EXTENSION	CODE
NONE	XXX
TEFLON INSULATED 260°C (500°F)	MT0
FIBERGLASS INSULATED 482°C (900°F)	MGO

Molded Transition and Extension

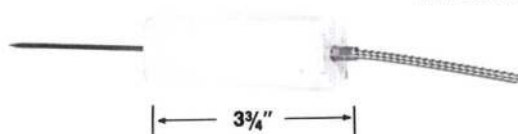
This transition is an exclusive development from Marlin Manufacturing Corporation. After the wire extension has been spliced to the sheathed wire, the transition is molded with a thermoset compound. This transition exhibits the characteristics of high strength and resistivity and protects the splice against moisture, vibration and mechanical damage and also incorporates a strain relief for the wires that obsoletes springs and adapters. Standard transitions can be used in ambient temperatures to 400° F (205° C). High temperature transitions are available for use in ambient temperature to 800° F (425° C).

TRANSITION DIMENSIONS			
SHEATH SIZE DIA. INCHES	TRANSITION* SIZE DIA. INCHES	TRANSITION LENGTH "L" DIMENSION INCHES	STRANDED WIRE EXTENSION GAUGE B & S
.187	.312	1.000	24
.250	.437	1.000	24
.375	.625	1.000	24

*Same diameter transitions are available in 0.187" Dia. and larger sheath sizes.



SS Armor Tubing Can be used over any wire extension for added mechanical damage and abrasion resistance.



(See page F-0 for handle details)

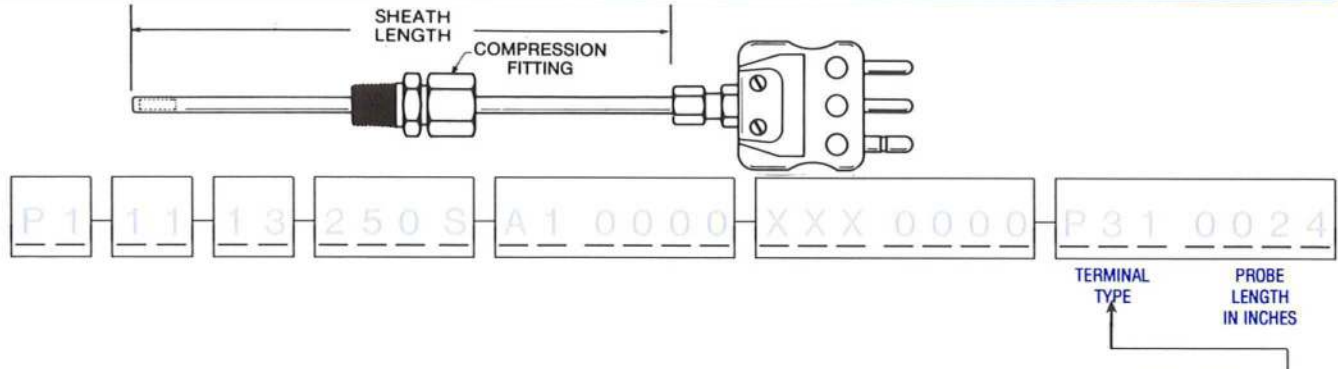
PROBE HANDLE TRANSITION W/SS FLEX ARMOR



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

(216) 941-6200

SENSORS CUSTOM PRT'S



This Platinum Resistance Thermometer (PRT) is now fully specified.

Description:

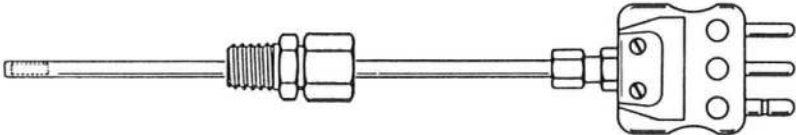
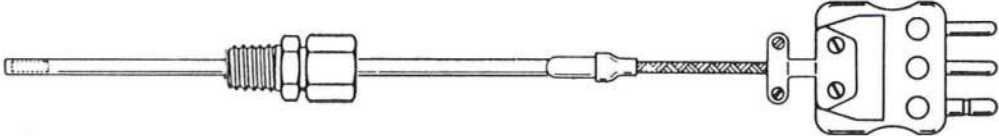
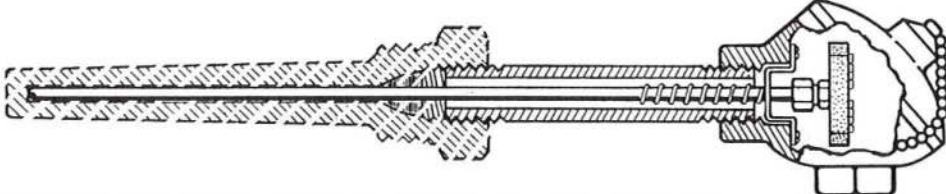
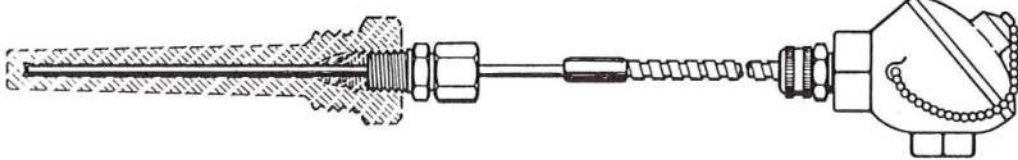

- P1 — Element Type
Alpha = 0.00385
for use to 600°C
- 11 — 100 ohms at 0°C
0.1% tolerance
- 13 — Single element
Three wire circuit
- 250S — ¼" Dia. sheath size
316SS sheath material
- A1 — ⅛ NPT, SS compression fitting
- 0000 — Field positionable A1
- XXX — No transition or
wire extension
- P31 — 3-pole full size plug
- 0024 — 24" long probe length

TERMINAL TYPES		ORDER CODE
	Bare Leads	B10
	Lugs, Uncompensated	L03
	Lugs, Compensated for thermocouple type	L13
	2-Pole Mini Plug Max sheath .125" OD, Max wire 20 ga.	M12
	3-Pole Mini Plug Max sheath .125" OD, Max wire 20 ga.	M32
	2-Pole Full Size Plug	P11
	3-Pole Full Size Plug	P31

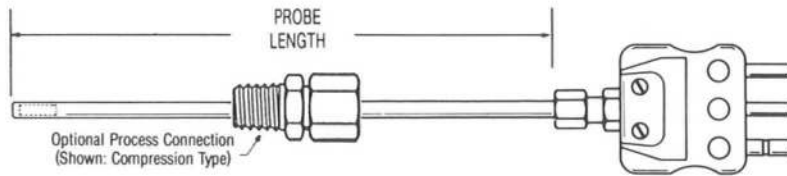
Notes: Above specifications are for
 1.) Connectors for use to 205°C (400°F)
 2.) Other terminal types are available. Please consult factory for terminal type code.



SENSORS
TABLE OF SUMMARY SELECTION — CUSTOM PRT'S

	DESCRIPTION	PAGE
	<p>CUSTOM PRT'S</p> 	C-15
	<p>CUSTOM PRT'S WITH EXTENSION</p> 	C-16
	<p>CUSTOM PRT'S FOR PROTECTION TUBE</p> 	C-17
	<p>CUSTOM PRT'S WITH FLEXIBLE EXTENSION FOR THERMOWELLS</p> 	C-18
	<p>CUSTOM PRT'S FOR PROTECTION TUBE</p> 	C-19

SENSORS — SELECTION SUMMARY CUSTOM PRT'S



ELEMENT TYPE	REFERENCE Ω @ 0°C	TOLERANCE	CIRCUIT TYPE	PROBE DIA.	SHEATH MAT'L	PROCESS CONNECTION	IMMERSION LENGTH (If Applicable)	TERMINAL TYPE	PROBE LENGTH IN INCHES
P1							XXX 00	P31	

Last digit is 10th's of an inch
(i.e. 0045 = 4.5")

P1
$\alpha = 0.00385$
-250°C to 600°C (-420°F to 1112°F)

TOLERANCE	CODE
0.05%	0
0.1%	1
0.5%	2

NOTES:
Other tolerances are available, consult Factory. "9" requires description.

PROBE DIA. & SHEATH MATERIAL	CODE
.187" 316SS	187S
.250" 316SS	250S
.187" INCONEL 600	187I
.250" INCONEL 600	250I

NOTES:
For special dia. or mat'l. consult Factory.

TERMINAL TYPE	CODE
<p>STANDARD 3-POLE PLUG W/EXTERNAL STRAIN RELIEF - Max. Probe Dia. .375" - For Circuits (12, 13)</p>	P31

NOTES FOR ABOVE CONNECTORS
() Circuit hook up.
a) Connectors for use to 205°C (400°F)
b) For Hi-Temp connectors to 425°C (800°F) use code P41

Ref. Ω PRT 1	
Ω @0°C	CODE
100	1
2 x 100 (DUAL)	2

NOTES:
Other resistance value available. Please consult Factory.

CIRCUIT	CODE
SINGLE ELEMENT	
	12
	13
	14
	15
DUAL ELEMENT	
	22
	23

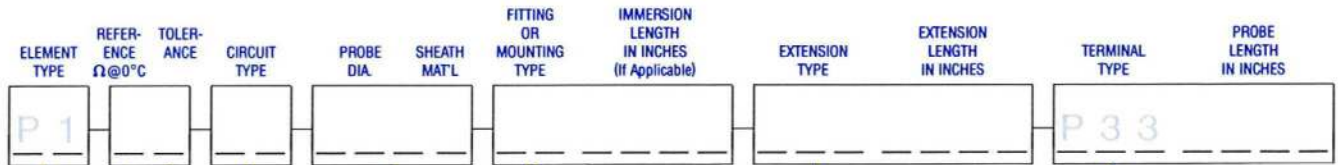
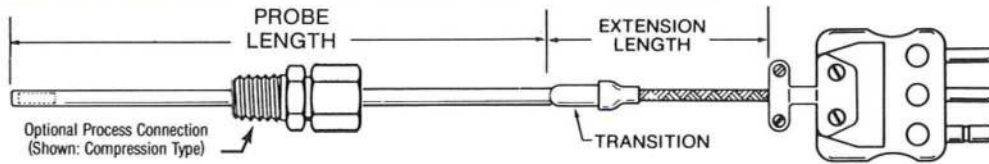
NOTES:
Dual element PRT's require .250 O.D. minimum sheath diameter.

PROCESS CONNECTION	CODE
NONE	XX
COMPRESSION FITTING	
1/8 NPT	A1
1/4 NPT	A2
Not readjustable with metal ferrule NOTES: C1 = Stl. B1 = Brass Ferrules: Metal Standard (Non-readjustable) "T" for Teflon (Readjustable) e.g. T1 "L" for Lava (Non-reusable) e.g. L1	
FIELD POSITIONABLE IMMERSION LENGTH 	

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY CUSTOM PRT'S WITH EXTENSION



P1	
$\alpha = 0.00385$	
-250°C to 600°C (-420°F to 1112°F)	

CODE	TOLERANCE
0	0.05%
1	0.1%
2	0.5%

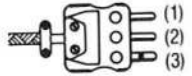
NOTES:
Other tolerances are available, consult Factory.
"9" requires description.

CODE	PROBE DIA. & SHEATH MATERIAL	
187S	.187"	316SS
250S	.250"	
187I	.187"	INCONEL 600
250I	.250"	

NOTES:
For special dia. or matl. consult Factory.

EXTENSION	CODE
TEFLON INSULATED 260°C (500°F)	MT0
FIBERGLASS INSULATED 482°C (900°F)	MGO













- NOTES:
1) For SS Armor Cable over Exten. add "A" to code: e.g. "GA"
2) For SS Overbraid over Exten. add "S" to code: e.g. "GS"
- TRANSITIONS
3) Extension include transitions for use to 205°C (400°F)
4) For Hi-Temp transition 425°C (800°F) add "H" to code: e.g. "HG"
5) For transition "same size" as Sheath O.D. add "E" to code e.g. "EG"

TERMINAL TYPE	CODE
 (1) (2) (3) STANDARD 3-POLE PLUG W/EXTERNAL STRAIN RELIEF - For Circuits (12, 13)	P33

NOTES FOR ABOVE CONNECTORS
() Circuit hook up.
a) Connectors for use to 205°C (400°F)
b) For Hi-Temp connectors to 425°C (800°F) use code P43

Ref. Ω PRT 1	
$\Omega @ 0^\circ\text{C}$	CODE
100	1
2 x 100 (DUAL)	2

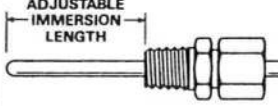
NOTES:
Other resistance value available. Please consult Factory.

CIRCUIT	CODE
SINGLE ELEMENT	
 (2)	12
 (3)	
 (1), (2), (3), (4)	13
 (1), (2), (3), (4)	
 (1), (2), (3), (4)	14
 (1), (2), (3), (4)	
 (1), (2), (3), (4)	15
 (1), (2), (3), (4)	
DUAL ELEMENT	
 (2), (1), (4), (3)	22
 (2), (1), (4), (3)	
 (A1), (A2), (B1), (B2), (B3), (A3)	23
 (A1), (A2), (B1), (B2), (B3), (A3)	

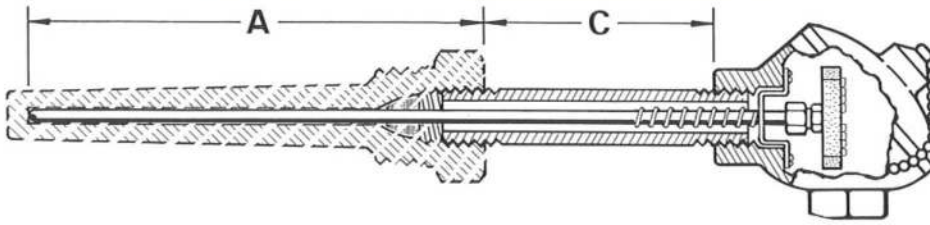
NOTES:
Dual element PRT's require .250 O.D. minimum sheath diameter.

PROCESS CONNECTION	CODE
NONE	XX
*ADJUSTABLE IMMERSION	
1/8 NPT	A1
1/4 NPT	A2

*Not readjustable with metal ferrule
NOTES:
C1=Stl. B1=Brass
Ferrules:
Metal Standard (Non-readjustable)
"T" for Teflon (Readjustable)
e.g. T1
"L" for Lava (Non-reusable)
e.g. L1



SENSORS — SELECTION SUMMARY CUSTOM PRT'S FOR PROTECTION TUBE



ELEMENT TYPE	REFER- ENCE Ω@0°C	TOLER- ANCE	CIRCUIT TYPE	PROBE DIA.	SHEATH MAT'L	SUPPORT FITTING	TERMINAL TYPE	A DIM.
P 1				250 S		0000	XXX 0000	

P1
$\alpha = 0.00385$ -250°C to 600°C (-420°F to 1112°F)

CODE	TOLERANCE
0	0.05%
1	0.1%
2	0.5%

NOTES:
Other tolerances are available, consult Factory. "9" requires description.

CODE	PROBE DIA. & SHEATH MATERIAL
187S	.187" 316SS
250S	.250" 316SS
187I	.187" INCONEL 600
250I	.250" INCONEL 600

NOTES:
For special dia. or mat'l. consult Factory.

CODE	WEATHERPROOF HEAD
274	CAST ALUMINUM 1/2 NPT
276	3/4 NPT
278	1 NPT
374	CAST IRON 1/2 NPT
376	3/4 NPT
378	1 NPT

PROBE MOUNT → NPT
3/4 NPT CONDUIT

CODE	TERMINAL BLOCKS for Weatherproof Heads
124	SPRING LOADED 4 WIRE <p>SPRING ACTION</p>

CODE	EXPLOSIONPROOF HEAD
124	PROBE MOUNT 1/2 NPT <p>3/4 NPT CONDUIT</p>

CODE	TERMINAL BLOCKS for Explosion Proof Heads
124	SPRING LOADED 4 WIRE <p>SPRING ACTION</p>

Ref. Ω PRT 1	
Ω @ 0°C	CODE
100	1
2 x 100 (DUAL)	2

NOTES:
Other resistance value available. Please consult Factory.

CIRCUIT	CODE
SINGLE ELEMENT 	12
	13
	14
	15
DUAL ELEMENT 	22
	23

NOTES:
Dual element PRT's require 250 O.D. minimum sheath diameter

SUPPORT FITTING	"C" DIM.	Stl.(1)	SS
NIPPLE	2"	12	42
	5"	15	45
	6"	16	46

SUPPORT FITTING	"C" DIM.	Stl.(1)	SS
NIPPLE/ UNION/ NIPPLE	2 3/8"	33	53
	5 3/4"	36	56

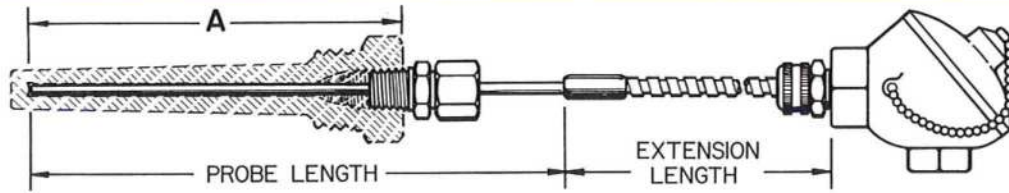
1.) Galvanized Steel

FOR / TITLE:		
DATE:	BY:	JOB NO.



SENSORS — SELECTION SUMMARY

CUSTOM PRT'S WITH FLEXIBLE EXTENSION FOR THERMOWELLS



ELEMENT TYPE	REFER- ENCE Ω@0°C	TOLER- ANCE	CIRCUIT TYPE	PROBE DIA.	SHEATH MAT'L	FITTING OR MOUNTING TYPE	IMMERSION LENGTH IN INCHES (If Applicable)	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
P1				250	S	A4	0000	ME3		241	

Last digit is 10th's
of an inch
(i.e. 0045 = 4.5")

P1
$\alpha = 0.00385$
-250°C to 600°C
(-420°F to 1112°F)

CODE	TOLERANCE
0	0.05%
1	0.1%
2	0.5%

CODE	PROBE DIA. & SHEATH MATERIAL	
187S	.187"	316SS
250S	.250"	
187I	.187"	INCONEL 600
250I	.250"	

EXTENSION	CODE
MOLDED TRANSITION/ TEFLON INSULATED WIRE 260°C (500°F) S.S. FLEX ARMOR	ME3

*EXTENSION LENGTH IN INCHES
NOTES:
1) For SS Armor Cable with PVC Coating over code ME8.

Ref. Ω PRT 1	
Ω @ 0°C	CODE
100	1
2 x 100 (DUAL)	2

CIRCUIT	CODE
SINGLE ELEMENT	
	12
	13
	14
	15
DUAL ELEMENT	
	22
	23

NOTES:
Dual element PRT's require
250 O.D. minimum sheath
diameter.

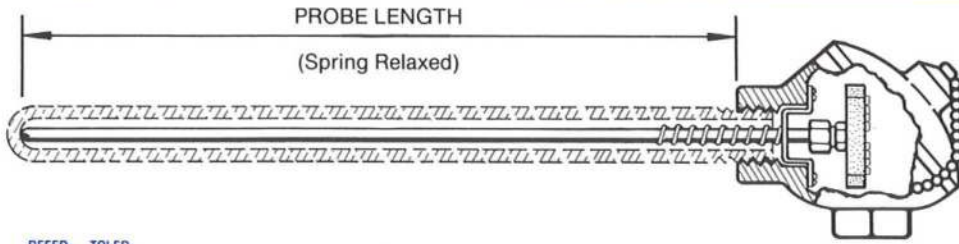
FITTING TYPE	CODE
NONE	XX
COMPRESSION FITTING	
1/2 NPT	A4

WEATHERPROOF HEAD	CODE
CAST ALUMINUM WITH WIRE GRIP FITTING 	241
TERMINAL BLOCKS for Weatherproof Heads	
RIGID 4 WIRE 	

FOR / TITLE:		
DATE:	BY:	JOB NO.



SENSORS — SELECTION SUMMARY CUSTOM PRT'S FOR PROTECTION TUBE



ELEMENT TYPE	REFER- ENCE $\Omega @ 0^\circ\text{C}$	TOLER- ANCE	CIRCUIT TYPE	PROBE DIA.	SHEATH MAT'L	SUPPORT FITTING	TERMINAL TYPE	PROBE LENGTH IN INCHES
P 1				.250 S		XX 0000		

P1
$\alpha = 0.00385$
-250°C to 600°C (-420°F to 1112°F)

CODE	TOLERANCE
0	0.05%
1	0.1%
2	0.5%

CODE	PROBE DIA. & SHEATH MATERIAL	
187S	.187"	316SS
250S	.250"	
187I	.187"	INCONEL 600
250I	.250"	

CODE	WEATHERPROOF HEAD
	CAST ALUMINUM
274	1/2 NPT
276	3/4 NPT
278	1 NPT
	CAST IRON
374	1/2 NPT
376	3/4 NPT
378	1 NPT

3/4 NPT CONDUIT

Ref. Ω PRT 1	
$\Omega @ 0^\circ\text{C}$	CODE
100	1
2 x 100 (DUAL)	2

CIRCUIT	CODE
SINGLE ELEMENT	
	12
	13
	14
	15
DUAL ELEMENT	
	22
	23

SUPPORT FITTING	CODE	
None	XX	
NIPPLE/ UNION	"C" DIM. 2-5/8"	Stl. 23 SS 53
	5-3/4"	26 56

NOTES: 1) Steel Standard
2) Add S for Stainless Stl. e.g. 13S
3) NPT Size specified by Weatherproof Head Size

TERMINAL BLOCKS for Weatherproof Heads	
SPRING LOADED 4 WIRE	

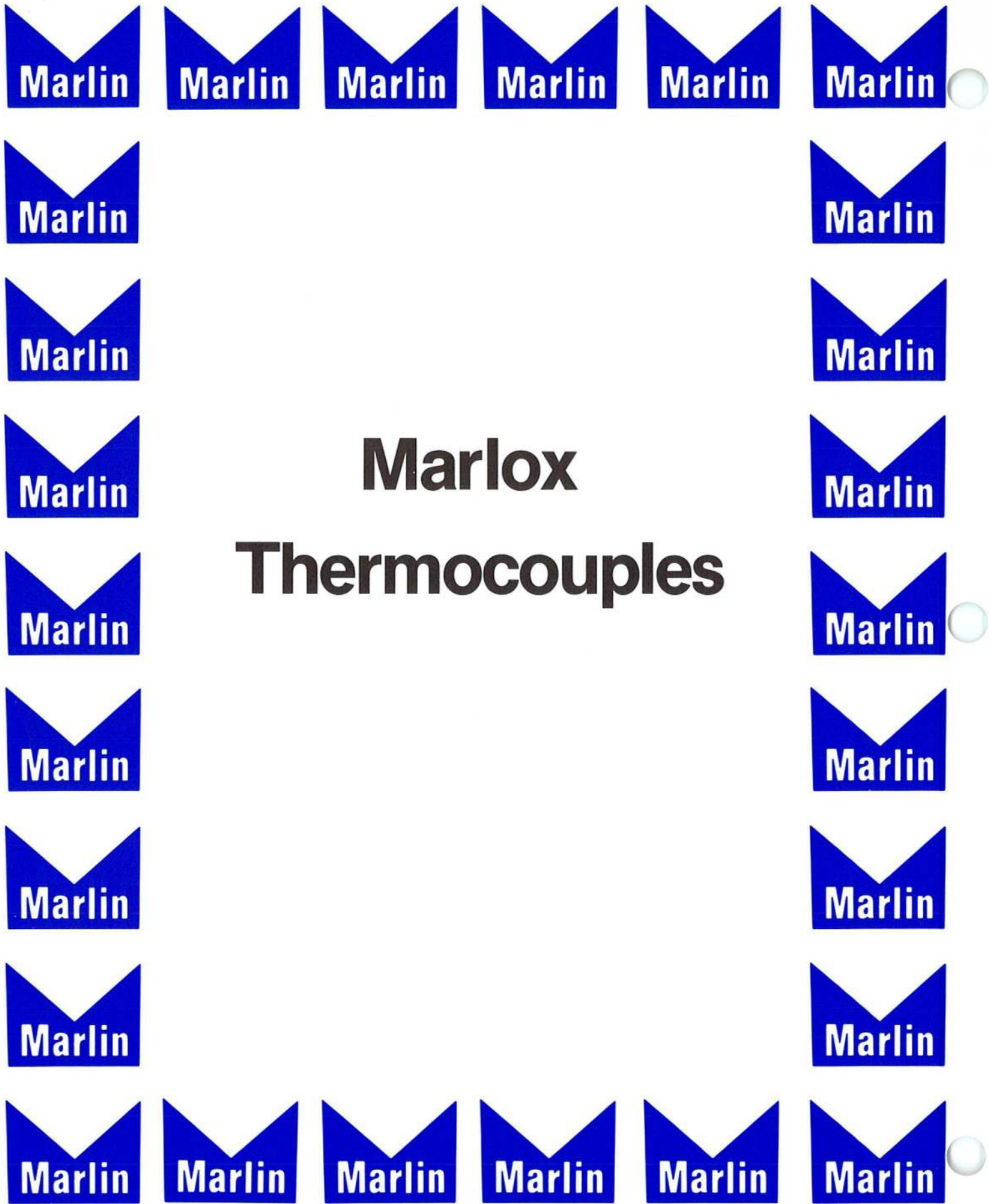
CODE	EXPLOSIONPROOF HEAD
124	1/2 NPT
	PROBE MOUNT 1/2 NPT
	3/4 NPT CONDUIT

TERMINAL BLOCKS for Explosion Proof Heads	
SPRING LOADED 4 WIRE	

NOTES:
Dual element PRT's require
.250 O.D. minimum sheath
diameter.

FOR / TITLE:		
DATE:	BY:	JOB NO.



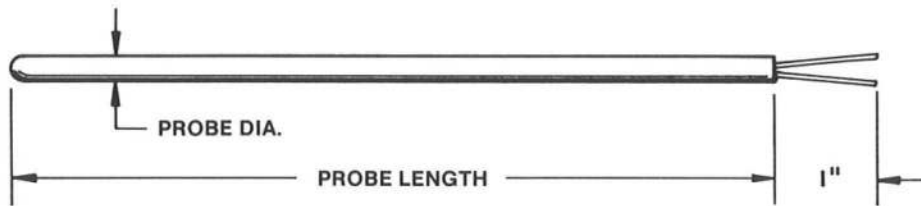


Marlox Thermocouples



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200
FAX: (216) 941-6207

SENSORS STOCK MARLOX® THERMOCOUPLES



DESCRIPTION				PROBE LENGTH INCHES	MARLIN STOCK NO.	PRICE \$/EA.
PROBE DIA.	SHEATH MATERIAL	ANSI TYPE	JUNCTION TYPE			
1/8	Inconel 600	K	Grounded	6"	M009 - 6	12
				12"	M009 -12	14
				18"	M009 -18	15
1/4				6"	M012 - 6	15
				12"	M012 -12	19
				18"	M012 -18	23
1/8	Inconel 600	K	Ungrounded	6"	M014 - 6	14
				12"	M014 -12	16
				18"	M014 -18	18
1/4				6"	M016 - 6	17
				12"	M016 -12	21
				18"	M016 -18	25

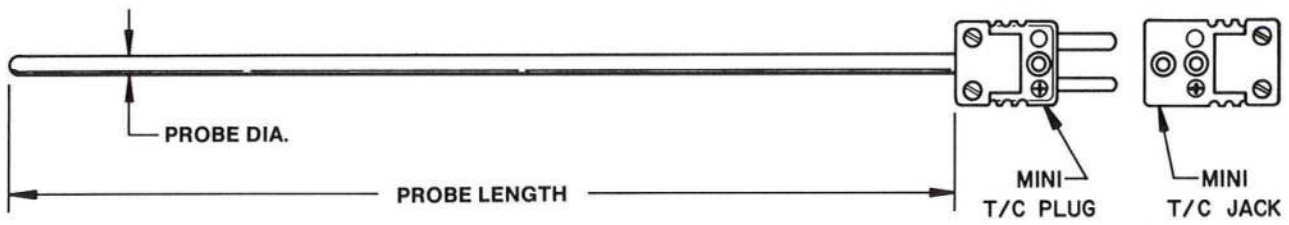
One Week Shipments for orders of stock Marlox Thermocouples.

- Order by Stock Number or Part Number
- Quantity based on total stock Thermocouples per order

DISCOUNT SCHEDULE	
QUANTITY	DISCOUNT FACTOR
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200 +	.75



SENSORS STOCK MARLOX® THERMOCOUPLES



DESCRIPTION				PROBE LENGTH INCHES	MARLIN STOCK NO.	PRICE \$/EA.
PROBE DIA.	SHEATH MATERIAL	ANSI TYPE	JUNCTION TYPE			
1/16	Inconel 600	K	Grounded	6"	M111 - 6	23
				12"	M111 - 12	24
				18"	M111 - 18	25
1/8	Inconel 600	K	Grounded	6"	M112 - 6	23
				12"	M112 - 12	24
				18"	M112 - 18	25
1/16	Inconel 600	K	Ungrounded	6"	M115 - 6	25
				12"	M115 - 12	26
				18"	M115 - 18	27
1/8	Inconel 600	K	Ungrounded	6"	M116 - 6	25
				12"	M116 - 12	26
				18"	M116 - 18	27

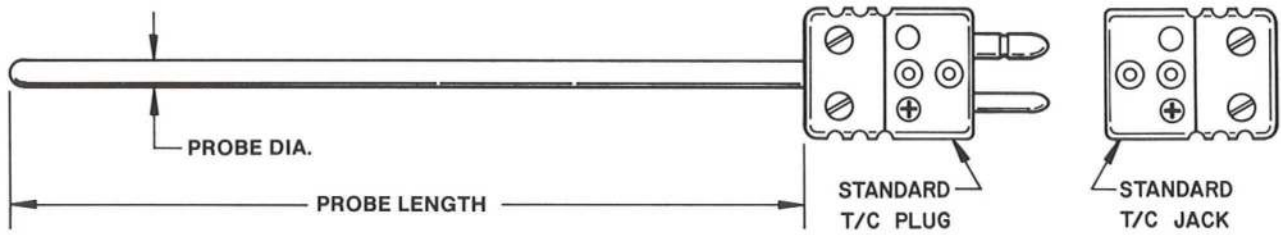
One Week Shipments for orders of stock Marlox Thermocouples.

- Order by Stock Number or Part Number
- Quantity based on total stock Thermocouples per order

DISCOUNT SCHEDULE	
QUANTITY	DISCOUNT FACTOR
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200 +	.75



SENSORS STOCK MARLOX® THERMOCOUPLES



DESCRIPTION				PROBE LENGTH INCHES	MARLIN STOCK NO.	PRICE \$/EA.
PROBE DIA.	SHEATH MATERIAL	ANSI TYPE	JUNCTION TYPE			
1/8	Inconel 600	K	Grounded	6"	M209 - 6	24
				12"	-12	26
				18"	-18	28
1/4	Inconel 600	K	Grounded	6"	M212 - 6	30
				12"	-12	34
				18"	-18	39
1/8	Inconel 600	K	Ungrounded	6"	M214 - 6	26
				12"	-12	28
				18"	-18	30
1/4	Inconel 600	K	Ungrounded	6"	M216 - 6	32
				12"	-12	36
				18"	-18	41

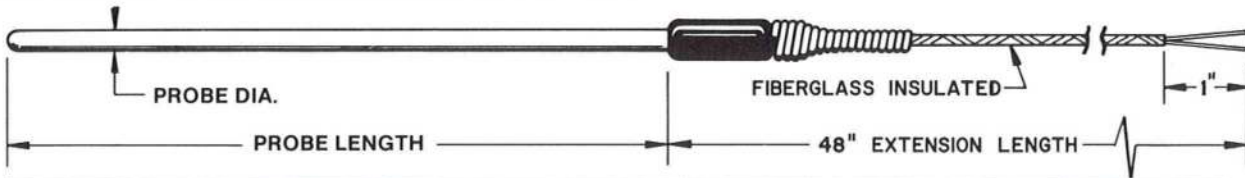
One Week Shipments for orders of stock Marlox Thermocouples.

- Order by Stock Number or Part Number
- Quantity based on total stock Thermocouples per order

DISCOUNT SCHEDULE	
QUANTITY	DISCOUNT FACTOR
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200 +	.75



SENSORS STOCK MARLOX® THERMOCOUPLES



DESCRIPTION						
PROBE DIA.	SHEATH MATERIAL	ANSI TYPE	JUNCTION TYPE	PROBE LENGTH INCHES	MARLIN STOCK NO.	PRICE \$/EA.
1/16	Inconel 600	K	Grounded	6"	M415 - 6	25
				12"	M415 - 12	27
				18"	M415 - 18	29
1/8	Inconel 600	K	Grounded	6"	M416 - 6	26
				12"	M416 - 12	28
				18"	M416 - 18	30
1/16	Inconel 600	K	Ungrounded	6"	M422 - 6	27
				12"	M422 - 12	29
				18"	M422 - 18	30
1/8	Inconel 600	K	Ungrounded	6"	M423 - 6	28
				12"	M423 - 12	30
				18"	M423 - 18	32

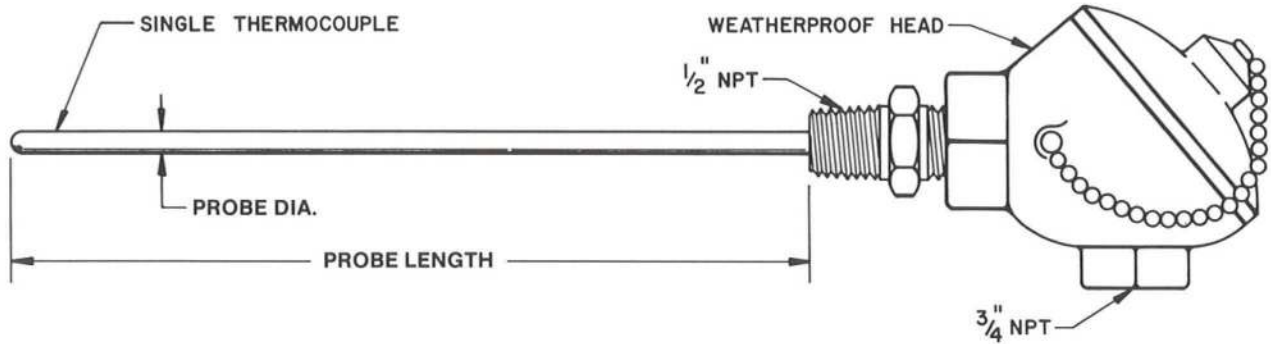
One Week Shipments for orders of stock Marlox Thermocouples.

- Order by Stock Number or Part Number
- Quantity based on total stock Thermocouples per order

DISCOUNT SCHEDULE	
QUANTITY	DISCOUNT FACTOR
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200 +	.75



SENSORS STOCK MARLOX® THERMOCOUPLES



DESCRIPTION				PROBE LENGTH INCHES	MARLIN STOCK NO.	PRICE \$/EA.
PROBE DIA.	SHEATH MATERIAL	ANSI TYPE	JUNCTION TYPE			
1/4	Inconel 600	K	Grounded	6"	M708 - 6	46
				12"	M708 - 12	50
				18"	M708 - 18	54
1/4	Inconel 600	K	Ungrounded	6"	M712 - 6	50
				12"	M712 - 12	54
				18"	M712 - 18	58

One Week Shipments for orders of stock Marlox Thermocouples.

- Order by Stock Number or Part Number
- Quantity based on total stock Thermocouples per order

DISCOUNT SCHEDULE	
QUANTITY	DISCOUNT FACTOR
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200+	.75



GENERAL INSTALLATION PARAMETERS:

Handling:

There are many variations of T/C's and T/C assemblies. Even though some may appear to have heavy duty protecting tubes or thermowells, the internal parts can be delicate. Care in handling is a must to insure the sensor integrity. DO NOT DROP. T/C's are carefully packed at the factory. Inspect the package when receiving for indications of shipping damage. If shipping damage is noticed report it immediately to the shipping company and make the necessary reports. Marlin ships on a FOB factory basis therefore it is your responsibility to file any claims. Hidden shipping damage can also occur (no evident sign of mishandling). If after carefully opening the package, damage is discovered, save all product and shipping material then notify and file the proper claims with the shipping company immediately.

Storage:

Store in a dry, clean place. Avoid areas where dropping or stacking may occur.

Location:

The T/C should "see", as closely as possible, what the product in the process is experiencing in order to get meaningful temperature measurements. Locate the T/C as close to the product as possible. A rule of thumb is to have at least 10 tube diameters immersion in the hot zone. Avoid direct flame impingement or stagnant areas.

Installation:

DO NOT ATTEMPT to mechanically connect the assembly into the process by tightening at the terminal or connecting head. USE ONLY THE PROCESS FITTING OR THE THERMOWELL FLATS FOR THIS PURPOSE. Terminals or connecting heads that are twisted can be damaged or cause shorts that can adversely affect the operation of the T/C. If thermowell or protecting tube must be welded into the process, carefully remove T/C sensor before welding and be sure to handle carefully, keep clean and replace without forcing or stressing any components. Assemblies with ceramic tubes should be preheated before immersion into high heat in order to avoid any thermal shock.

Wire Extension:

Use wire extensions of the same thermocouple material type (i.e. "J", "K", "T", "E", "R", "S", "B", etc.) of the installed T/C throughout the circuit. The use of thermocouple grade or thermocouple extension grade wire and the selection of conductor insulation depends on what the environmental conditions dictate. "RED" color code is always negative in T/C circuits. Ideally run T/C circuit wires in separate conduits at least one foot away from power lines. Twisted and shielded constructions may be required to avoid noise in the T/C circuit. The overall impedance of the T/C circuit must be compatible with your instrumentation. If there is a reversal in the T/C circuit the indication will be down scale. A "double-reversal" in the circuit will give an upscale but erroneous reading. Keep the "RED" color coded leg negative throughout the circuit to avoid these reversals.

GENERAL MAINTENANCE PARAMETERS:

Regularly scheduled maintenance procedures should include inspection and calibration intervals so that life and reliability of the instrumentation is improved and the likelihood of sudden serious failure is reduced. These procedures should be set up by the responsible engineering department and performed by personnel that are familiar with the operating principles upon which the system is based. DO NOT LUBRICATE.

T/C's often deteriorate with time, exhibiting a drift from actual temperatures. Deterioration usually is more rapid at higher temperatures and depends on the integrity of the protecting tube or sheath to isolate it from contaminants. T/C's should be checked at regular maintenance intervals based on recommendations or on experience.

THERMOCOUPLE DO's

- DO check in place.
- DO replace at established, proper intervals.
- DO have good connections throughout the circuit.

THERMOCOUPLE DO NOT's

- DON'T reinsert at different immersions. (Avoid decreasing the immersion.)
- DON'T use for accurate measurements at lower temperatures after being exposed to higher temperatures.
- DON'T use in defective protecting tubes.
- DON'T insulate with used insulators.
- DON'T use oils or solvents on or in T/C's or T/C assemblies.



**Metal Sheathed — Inert Oxide Insulated
THERMOCOUPLE ASSEMBLIES**
Customized Thermocouples — Built to your design
Stock Thermocouples — Off-the-shelf availability
RANDOM LENGTH THERMOCOUPLE CABLE
HIGH TEMPERATURE THERMOCOUPLES

DESCRIPTION

Marlox is metal sheathed, inert oxide insulated thermocouple cable from Marlin Manufacturing Corporation. Available in ANSI calibrations with various types of sheath alloys, Marlox can be ordered as complete fabricated assemblies or in random lengths. Drawn to final size and fully annealed standard Marlox, single or dual thermocouple element, is moistureproof, pressure resistant, accurate, bendable and weldable. Quality control procedures insure that all thermocouple material is tested for adequate insulation resistance. All certified Marlox stock is checked for ANSI limits of error conformance by lot sampling in our quality control laboratory which is certified traceable to the NIST. Post assembly certified traceable calibration, is available upon request.

General Selection Parameters

The conditions of measurement determine the type of thermocouple used. Temperature, atmosphere, protection, response, and service life should be considered. The following descriptions serve as a guide to selection.

Thermocouple Type:

Select the thermocouple type that will be capable of operating in your application temperature range.

Sheath Alloy:

Select a sheath alloy that will withstand the temperature and possible corrosives of your application.

Sheath Size:

Use the thermocouple size that will withstand the rigors of your application but with minimal effect on it. See response chart below.

Junction Type:

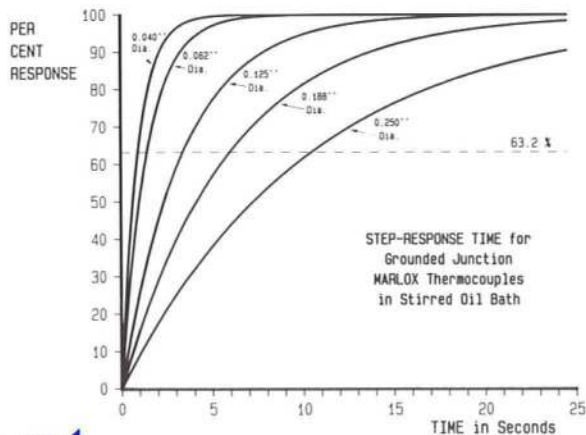
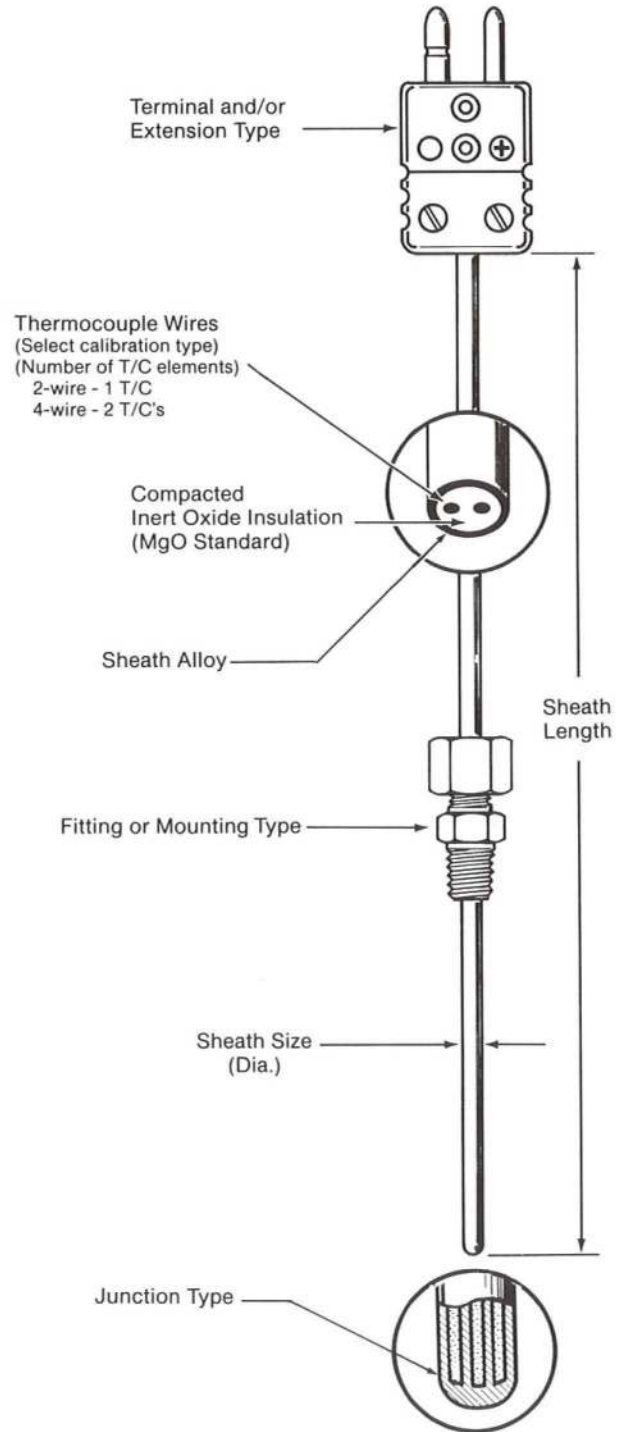
Select the junction that will give the protection and response characteristics that you require.

Fitting or Mounting Type:

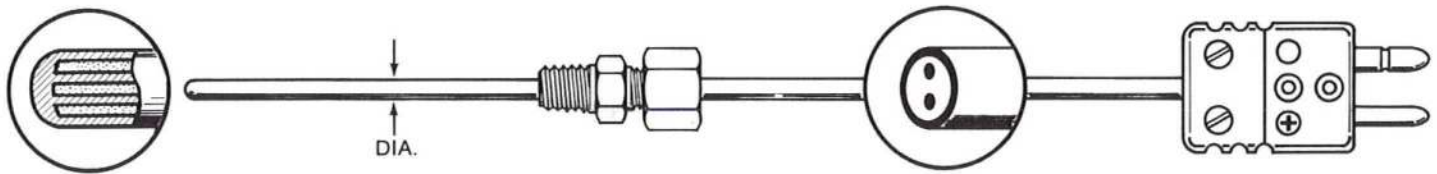
In order to attach and/or seal the thermocouple in your application you can use a fitting, braze, weld or solder it in place.

Terminal and/or Extension Type:

For connection to instruments various terminations and extensions are available.



SENSORS CUSTOM MARLOX® THERMOCOUPLES



SHEATH DIA. SHEATH MAT'L.

1	2	5	3	0	4					
---	---	---	---	---	---	--	--	--	--	--

CODE	SHEATH SIZE DIA. INCHES	CODE	SHEATH SIZE DIA. INCHES
010	.010	187	.187
020	.020	250	.250
032	.032	312	.312
040	.040	375	.375
062	.062	500	.500
125	.125		

CODE	SHEATH MAT'L.
304	304SS
310	310SS
316	316SS
600	INCONEL™ "600"
230	2300™

Temperature Recommendation

The temperature limits for continuous duty, grounded junction thermocouples are shown for available sheath sizes and thermocouple calibrations. Exposed junction thermocouples should be used at lower temperatures for equivalent service life.

LIMIT TEMPERATURE °F CONTINUOUS DUTY							
SHEATH DIAMETER INCHES	NOMINAL TUBE WALL THICKNESS INCHES	WIRE GAUGE AWG.		ANSI THERMOCOUPLE TYPE			
		SINGLE TC ELEMENT	DUAL TC ELEMENT	J	T	K	E
.020	.003	38		700	400	1600	800
.032	.004	34		700	400	1600	800
.040	.006	33		700	400	1600	800
1/16	.009	28	30	700	400	1600	800
1/8	.017	22	24	700	400	1600	800
3/16	.025	20	21	900	500	2000	1000
1/4	.033	16	18	1000	600	2000	1100
5/16	.041	16		1000	600	2000	1100
3/8	.052	15		1100	700	2000	1200
1/2	.070	10					

DIM. TOLERANCE: Up to .062 ±.001; .125 to .500 ±.003"

Sheath Alloys

304 Stainless Steel (18% Chromium-8% Nickel) is a general purpose, economical, readily available sheath material that has good corrosion and oxidation resistance. Maximum operating temperature 1650°F.

310 Stainless Steel (24% Chromium-19% Nickel) is a material that has improved resistance to corrosion as compared to 304 SS and the best resistance to oxidation of the "300" series stainless steels. Maximum operating temperature 2100°F.

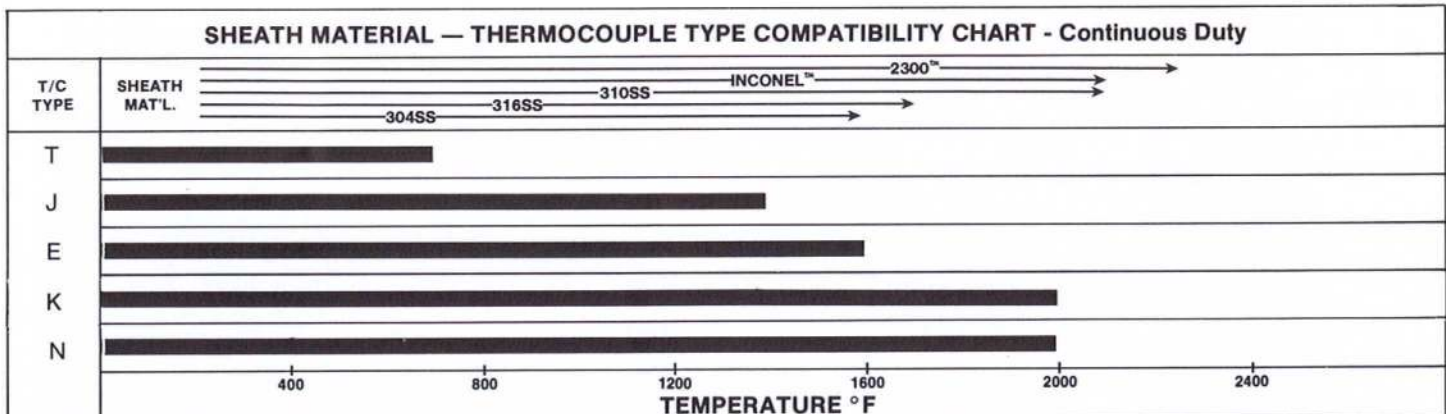
316 Stainless Steel (16% Chromium-10% Nickel) is a material that has superior corrosion resistance as compared to 304 SS or 310 SS with improved oxidation resistance and a higher hot strength than 304 SS. Maximum operating temperature 1700°F.

Inconel™600 (72% Nickel-17% Chromium) is a material that is readily available and has outstanding resistance to oxidation, corrosion and scaling. Should not be used in the presence of sulfur above 1600°F. Maximum operating temperature 2100°F.

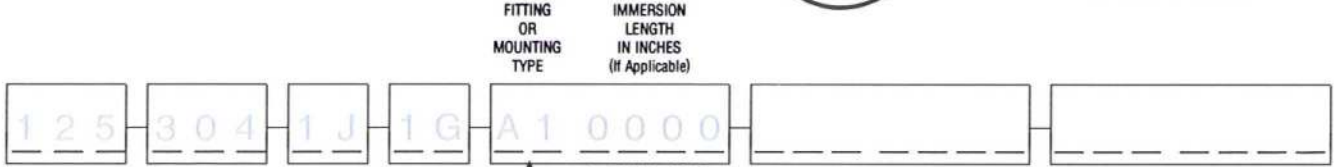
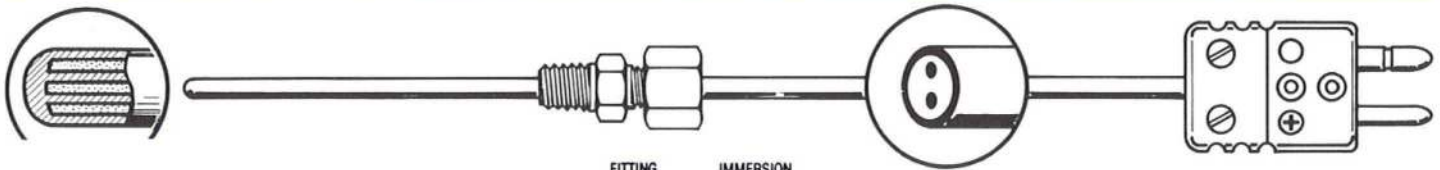
™International Nickel Co.

2300™ This nickel/chrome alloy is a superior alloy for sheathing applications. It is more effective in resisting oxidation at high temperatures than other available alloys as tested in air at 2300°F. Maximum operating temperature 2300°F.

™-Hoskins Mfg. Co.



SENSORS CUSTOM MARLOX® THERMOCOUPLES

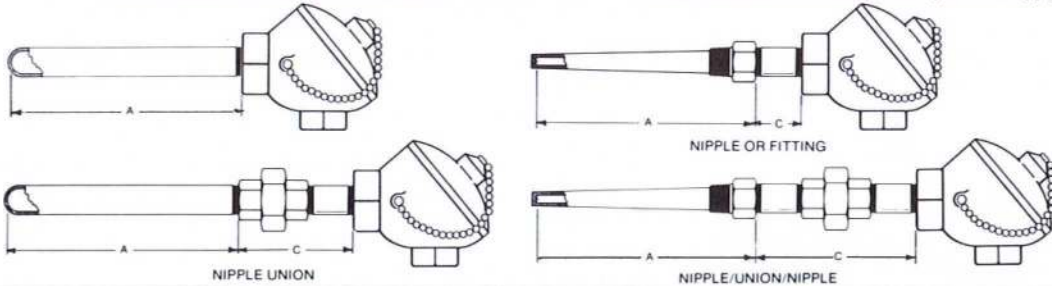


Mounting Fittings — See Selection Summaries for Details

		NONE	CODE
<p>Compression Fittings allow a field positionable setting of the immersion length of the Marlox. Standard fittings are stainless steel, 1/8 NPT or 1/4 NPT thread size, and are supplied with metal ferrules that are not relocatable after compression. Teflon ferrules allow relocation after compression but have a limited temperature and pressure range. Lava ferrules are crushed with compression and must be replaced if Marlox is removed or readjusted.</p>	<p>FIELD POSITIONABLE IMMERSION LENGTH</p>	S.S. Fitting 1/8 NPT 1/4 NPT	XX A1 A2
<p>NOTES: C1=Stl, B1=Brass Ferrules: Metal Std. (Non-readjustable) "T" for Teflon, e.g. T1 "L" for Lava, e.g. L1</p>			
<p>Fixed Fittings are stainless steel, NPT thread sizes, and are brazed to the sheath. Additional sizes, materials and welded mountings are also available.</p>	<p>FIXED IMMERSION LENGTH*</p> <p>* must be specified</p>	1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 1 NPT	F1 F2 F3 F4 F6 F8
<p>Spring Loaded, Adjustable, Bayonet Type Fittings are compression type which allows a variable Marlox immersion length and also has bayonet mounting feature. Standard fittings are stainless steel and are supplied with metal ferrules for 1/8" or 1/16" Marlox sizes. Teflon ferrules are available which allow relocation after compression.</p>		ADJUSTABLE BAYONET	AB
<p>Fixed Spring Loaded Bayonet Mounting for 3/16" Dia. Marlox (See Plastic Industry Thermocouple section for bayonet adapters and dimension selection guide for immersion placement.)</p>		FIXED BAYONET	FB() ↑ "A" Dim.
<p>Fixed Double Fittings (Back to Back Threads) are stainless steel, NPT thread sizes, and are brazed to the sheath. Generally used with terminal heads this arrangement provides a process connection.</p>	<p>IMMERSION LENGTH*</p> <p>* must be specified</p>	1/4 x 1/4 NPT 1/2 x 1/2 NPT 3/4 x 3/4 NPT	D2 D4 D6
<p>Spring Loaded Epoxy Sealed Fitting provides NPT mounting for terminal head and process connection for bearing applications. For 3/16" Dia. Marlox only select immersion that allows at least a 1/4" interference for spring loading. Utilize a AWA3 or AWC3 weatherproof terminal head and terminal block.</p>		SPRING LOADED EPOXY SEALED FITTING	W1
<p>Spring Loaded O-Ring Sealed Fitting provides NPT mounting for terminal head and process connection for bearing applications. For 3/16" Dia. Marlox only select immersion that allows at least a 1/4" interference for spring loading. Marlox element may be easily removed from fitting by bayonet mounting. Utilizes a 6WA2 or 6WC2 weatherproof and terminal block.</p>		SPRING LOADED O-RING SEALED, SS FITTING	S1

TYPICAL ASSEMBLY w/PROTECTING TUBE

TYPICAL ASSEMBLY w/THERMOWELL (Notes 1-5 apply)

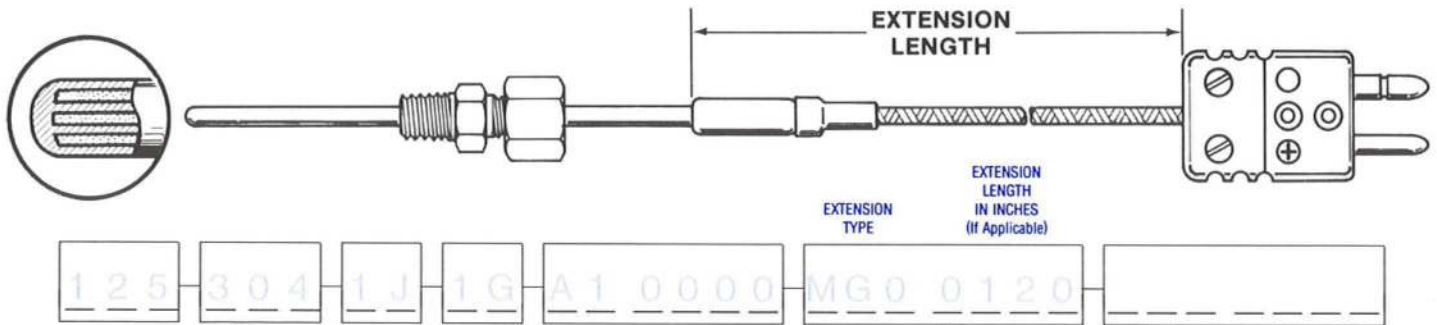


	"C" DIM.	SH.(1)	SS
NIPPLE	2"	12	42
	5"	15	45
	6"	16	46
NIPPLE/ UNION	2 3/4"	23	53
	3 3/4"	26	56
NIPPLE/ UNION/ NIPPLE	3"	33	63
	6"	36	66

NOTES: 1) Galvanized Steel Standard



SENSORS CUSTOM MARLOX® THERMOCOUPLES

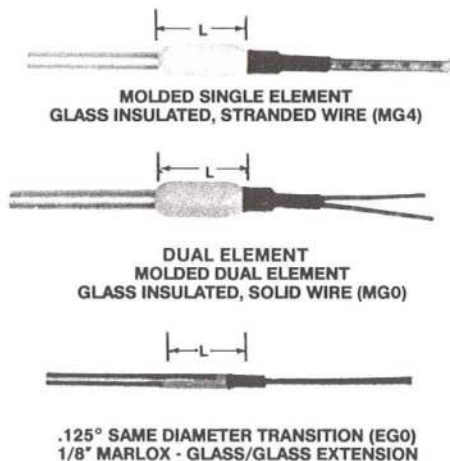


The Marlox Transition

The Marlox transition is an exclusive development from Marlin Manufacturing Corporation. After the wire extension has been spliced to the sheathed thermocouple wire, the transition is molded with a thermoset compound. This transition exhibits the characteristics of high strength and resistivity and protects and splice against moisture, vibration and mechanical damage and also incorporates a strain relief for the wires that obsoletes springs and adapters. Standard transitions can be used in ambient temperatures to 400°F (205°C). High temperature transitions are available for use in ambient temperatures to 800°F (425°C).

MARLOX TRANSITION DIMENSIONS				
MARLOX SIZE DIA. INCHES	TRANSITION* SIZE DIA. INCHES	TRANSITION LENGTH "L" DIMENSION INCHES	WIRE EXTENSION GAUGE (AWG.)	
			SINGLE	DUAL
.020	.190	.875	28	N/A
.032	.190	.875	28	N/A
.040	.190	.875	28	N/A
.062	.190	.875	24	28
.125	.250	1.000	20	24
.187	.312	1.000	20	24
.250	.437	1.000	16	20

* Same diameter transitions are available in .125" Dia. and larger Marlox.
* Dual element transitions are available in .062" Dia. and larger Marlox.



EXTENSION TYPE	
EXTENSION	CODE
NONE	XXX
TEFLON INSULATED 260°C (500°F)	ME0
FIBERGLASS INSULATED 482°C (900°F)	MG0

*Extension length in inches

NOTES:

- 1) For SS flex Armor Cable over Exten. add "3" to code: e.g. "MG3"
 - 2) SS Overbraid over Exten. add "1" to code: e.g. "MG1"
- TRANSITIONS
- 3) Extension includes transitions for use to 205°C (400°F)
 - 4) For Hi-Temp transition 425°C (800°F) add "H" to code: e.g. "HG0"
 - 5) For transition "same size" as Sheath O.D. add "E" to code e.g. "EG0"
 - 6) For "Probe Handle" transition use code "P" e.g. "PT7" (good for 350°F — not available in hi-temp).

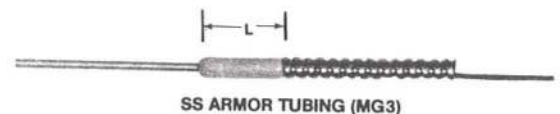
Teflon-Teflon Teflon insulates individual conductors followed by an overall teflon jacket. Superior abrasion and moisture resistance. Resists most acids and vapors. Recommended operating temperature -90°F to 500°F.

Glass-Glass Glass yarn is applied over each conductor then impregnated with silicone varnish plus both conductors are covered with a braid of glass yarn also with silicone varnish. Fair resistance to abrasion and moisture. Recommended operating temperature to 900°F. Varnish is destroyed above 400°F.

Glass-Glass with SS Overbraid Same as Glass-Glass With added abrasion resistance.



SS Armor Tubing Can be used over any wire extension for added mechanical damage and abrasion resistance.



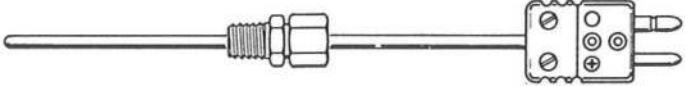
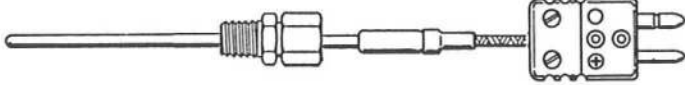
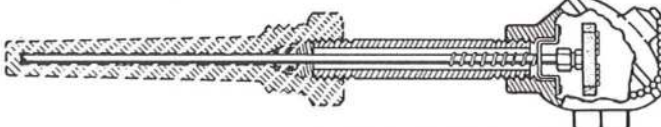
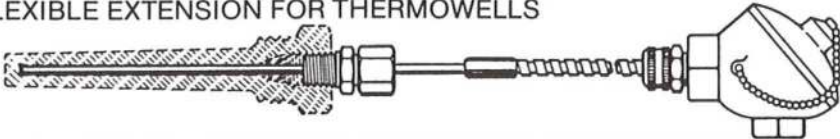
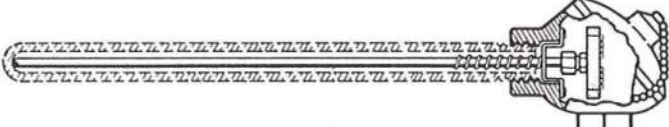
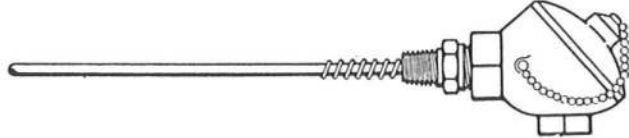
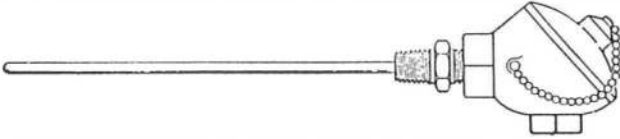
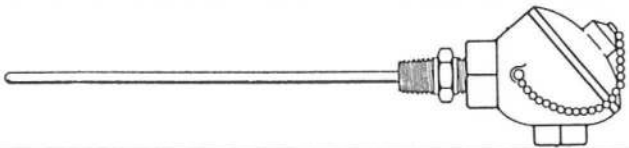
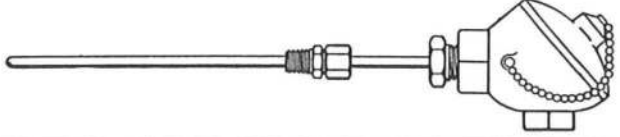
3 3/4" (See page F-0 for handle details)

PROBE HANDLE TRANSITION W/SS FLEX ARMOR (PT7)
(216) 941-6200



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

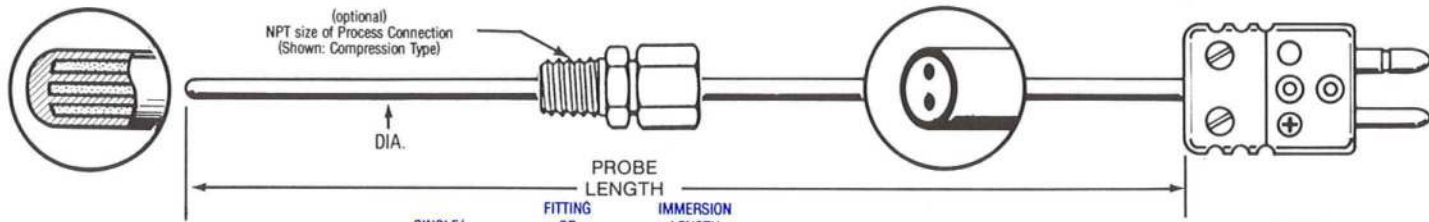
SENSORS
TABLE OF SUMMARY SELECTION — CUSTOM MARLOX THERMOCOUPLES

	DESCRIPTION	PAGE
	CUSTOM MARLOX® THERMOCOUPLES 	C-33
	CUSTOM MARLOX® THERMOCOUPLES WITH EXTENSION 	C-34
	CUSTOM MARLOX™ THERMOCOUPLES FOR THERMOWELLS 	C-35
	CUSTOM MARLOX™ THERMOCOUPLE WITH FLEXIBLE EXTENSION FOR THERMOWELLS 	C-36
	CUSTOM MARLOX™ THERMOCOUPLES FOR PROTECTING TUBE 	C-37
	CUSTOM MARLOX™ THERMOCOUPLES FOR BEARING APPLICATIONS 	C-38
	CUSTOM MARLOX™ THERMOCOUPLES FOR BEARING APPLICATIONS 	C-39
	CUSTOM MARLOX® THERMOCOUPLES WITH DOUBLE FITTING 	C-40
	CUSTOM MARLOX® THERMOCOUPLES WITH MOUNTED HEAD 	C-41

See
Pages
C-20
to
C-25
For
Stock
Marlox
Thermo-
couples



SENSORS — SELECTION SUMMARY CUSTOM MARLOX® THERMOCOUPLES



PROBE DIA. SHEATH MAT'L T/C TYPE SINGLE/DUAL T/C JUNCTION MOUNTING TYPE FITTING OR JUNCTION MOUNTING TYPE IMMERSION LENGTH IN INCHES (If Applicable) XXX 0000 TERMINAL TYPE PROBE LENGTH IN INCHES

PROBE DIA. CODE
010
020
032
040
062
125
187
250
312
375
500

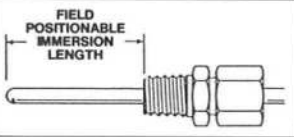
SHEATH MAT'L CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

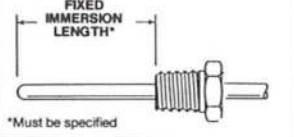
Special tolerance. Use "2" i.e. 2K

MOUNTING FITTING	CODE
NONE	XX
*COMPRESSION FITTING	
SS Fittings 1/8 NPT 1/4 NPT	A1 A2

*Not readjustable with metal ferrule
 NOTES:
 C1=Stl. B1=Brass
 Ferrules:
 Metal Standard (Non-readjustable)
 "T" for Teflon (Readjustable)
 e.g. T1
 "L" for Lava (Non-reusable)
 e.g. L1

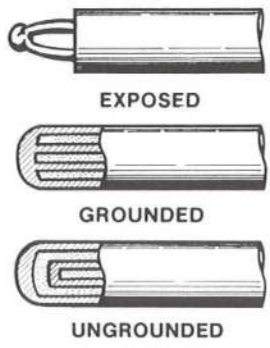


FIXED IMMERSION, SS	
1/8 NPT	F1
1/4 NPT	F2
3/8 NPT	F3
1/2 NPT	F4
3/4 NPT	F6
1 NPT	F8



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	
Exposed	1X
Grounded	1G
Ungrounded	1U
*Weld Pad, Grounded Perpendicular	1A
Parallel	1B
Tube Skin	1C
Dual Thermocouple Element Marlox	
Exposed	2X
Grounded	2G
Ungrounded	2U
Weld Pad, Grounded Perpendicular	2A
Parallel	2B
Tube Skin	2C

TERMINAL TYPE	ORDER CODE
BARE LEADS	B10
MINIATURE PLUG — Max Sheath DIA. .125"	M12
STANDARD 2-POLE PLUG — Max Sheath DIA. .250"	P51
STANDARD 2-POLE PLUG W/EXTERNAL STRAIN RELIEF — Max Sheath DIA. .375"	P11
DUAL-STD. 2-POLE PLUG W/EXTERNAL STRAIN RELIEF — Max Sheath DIA. .375"	P12
STANDARD 3-POLE PLUG W/EXTERNAL STRAIN RELIEF — Max Sheath DIA. .375"	P31
NOTES FOR ABOVE CONNECTORS a) Connectors for use to 205°C (400°F) For other option consult factory	
SINGLE ELEMENT MICRO CONNECTOR HEAD — Max Sheath DIA. .250"	500
DUAL ELEMENT MICRO CONNECTOR HEAD — Max Sheath DIA. .250"	504

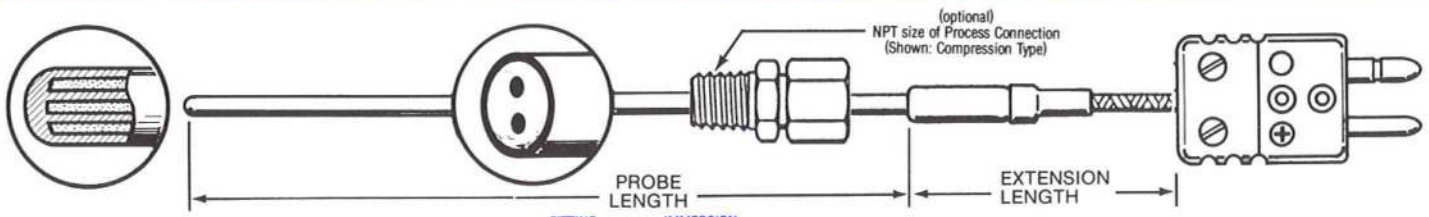


FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY

CUSTOM MARLOX® THERMOCOUPLES WITH EXTENSION



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	FITTING OR JUNCTION MOUNTING TYPE	IMMERSION LENGTH IN INCHES (If Applicable)	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES

PROBE DIA. CODE
010
020
032
040
062
125
187
250
312
375
500

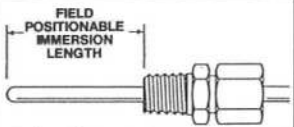
SHEATH MAT'L CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

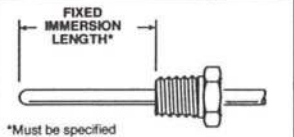
Special tolerance. Use "2" i.e. 2K

MOUNTING FITTING	CODE
NONE	XX
*COMPRESSION FITTING	
SS Fittings	
1/8 NPT	A1
1/4 NPT	A2

*Not readjustable with metal ferrule
 NOTES:
 C1=Stl. B1=Brass
 Ferrules:
 Metal Standard (Non-readjustable)
 "T" for Teflon (Readjustable)
 e.g. T1
 "L" for Lava (Non-reusable)
 e.g. L1



FIXED IMMERSION, SS	
1/8 NPT	F1
1/4 NPT	F2
3/8 NPT	F3
1/2 NPT	F4
3/4 NPT	F6
1 NPT	F8



*Must be specified

EXTENSION TYPE	CODE
TEFLON INSULATED 260°C (500°F)	MEO
FIBERGLASS INSULATED 482°C (900°F)	MGO

*Extension length in inches
 NOTES:
 1) For SS flex Armor Cable over Exten. add "3" to code: e.g. "MG3"
 2) SS Overbraid over Exten. add "1" to code: e.g. "MG1"
 TRANSITIONS
 3) Extension includes transitions for use to 205°C (400°F)
 4) For Hi-Temp transition 425°C (800°F) add "H" to code: e.g. "HG0"
 5) For transition "same size" as Sheath O.D. add "E" to code e.g. "EG0"
 6) For "Probe Handle" transition use code "P" e.g. "PT7" (good for 350°F — not available in hi-temp).

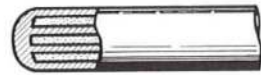
TERMINAL TYPE	CODE
BARE LEADS	B30
MINIATURE PLUG	M15
STANDARD 2-POLE PLUG W/EXTERNAL STRAIN RELIEF	P15
DUAL-STD. 2-POLE PLUG W/EXTERNAL STRAIN RELIEF	P12
STANDARD 3-POLE PLUG W/EXTERNAL STRAIN RELIEF	P32

NOTES FOR ABOVE TERMINAL CONNECTORS
 a) Connectors for use to 205°C (400°F)
 b) For other options see factory

JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	
Exposed	1X
Grounded	1G
Ungrounded	1U
*Weld Pad, Grounded	
Perpendicular	1A
Parallel	1B
Tube Skin	1C
Dual Thermocouple Element Marlox	
Exposed	2X
Grounded	2G
Ungrounded	2U
*Weld Pad, Grounded	
Perpendicular	2A
Parallel	2B
Tube Skin	2C



EXPOSED



GROUNDING

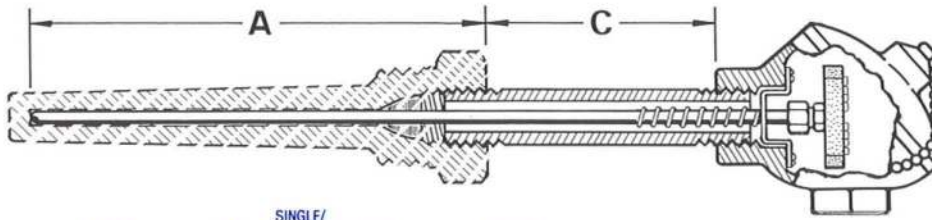


UNGROUNDING

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY CUSTOM MARLOX™ THERMOCOUPLES



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	JUNCTION TYPE	SUPPORT FITTING	TERMINAL TYPE	A DIM
_____	_____	_____	_____	_____	0 0 0 0	X X X 0 0 0 0	_____
PROBE DIA. CODE	SHEATH MAT'L. CODE	ANSI TYPE					SPECIFY "A" DIM. of Thermowell or give Twell P/N i.e. 260TR-34-4 1/2-304

PROBE DIA. CODE
187
250
312
375

SHEATH MAT'L. CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	
Grounded Ungrounded	1G 1U
Dual Thermocouple Element Marlox	
Grounded Ungrounded	2G 2U

SUPPORT FITTING	CODE	
 NIPPLE "C" DIM.	Stl(1)	SS
	2"	12 42
	5"	15 45
 NIPPLE/UNION/NIPPLE "C" DIM.	3"	33 63
	6"	36 69

NOTES: 1) Galvanized Steel Standard
2) NPT Size specified by Weatherproof Head Size

CODE	WEATHERPROOF HEAD
	CAST ALUMINUM
274	1/2 NPT
276	3/4 NPT
278	1 NPT
	CAST IRON
374	1/2 NPT
376	3/4 NPT
378	1 NPT

TERMINAL BLOCKS for Weatherproof Heads	
SPRING LOADED 4 WIRE	

CODE	EXPLOSIONPROOF HEAD
124	1/2 NPT PROBE MOUNT 1/2 NPT
	3/4 NPT CONDUIT

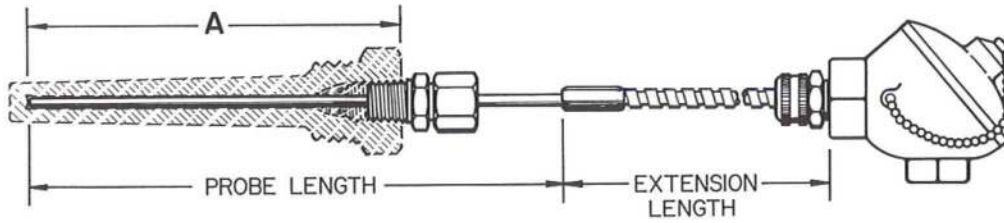
TERMINAL BLOCKS for Explosion Proof Heads	
SPRING LOADED 4 WIRE	

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY

CUSTOM MARLOX™ THERMOCOUPLE WITH FLEXIBLE EXTENSION FOR THERMOWELLS



PROBE DIA.	SHEATH MAT'L.	T/C TYPE	SINGLE/ DUAL T/C	JUNCTION TYPE	SUPPORT FITTING	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
					A4 0000	ME3 0000		241	

PROBE DIA. CODE
187
250
312
375

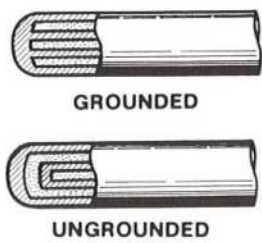
SHEATH MAT'L. CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K

EXTENSION TYPE	CODE
TEFLON INSULATED 260°C (500°F) with SS Armor Cable over Exten.	ME3

*EXTENSION LENGTH IN INCHES
NOTES
1) For SS Armor Cable with PVC coating. Code "ME8"



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	1G 1U
Grounded Ungrounded	
Dual Thermocouple Element Marlox	2G 2U
Grounded Ungrounded	

WEATHERPROOF HEAD	CODE
CAST ALUMINUM with wire grip fitting PROBE MOUNT 1/2 NPT 3/4 NPT CONDUIT	241
TERMINAL BLOCKS for Weatherproof Heads	
RIGID 4 WIRE	

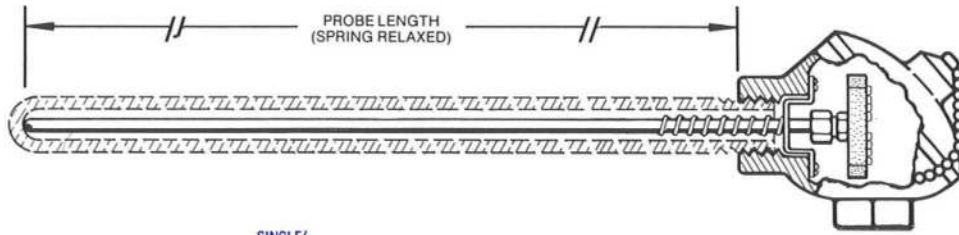
MOUNTING FITTING	ORDER CODE
NONE	XX
FIELD POSITIONABLE IMMERSION COMPRESSION FITTING	1/2 NPT A4
NOTES Stainless Stl.	

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY

CUSTOM MARLOX™ THERMOCOUPLES FOR PROTECTING TUBE



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/ DUAL T/C	JUNCTION TYPE	SUPPORT FITTING	TERMINAL TYPE	PROBE LENGTH IN INCHES
					0000	XXX 0000	

PROBE DIA. CODE
187
250
312
375

SHEATH MAT'L CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K



GROUND



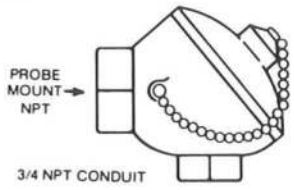
UNGROUND

JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	
Grounded	1G
Ungrounded	1U
Dual Thermocouple Element Marlox	
Grounded	2G
Ungrounded	2U

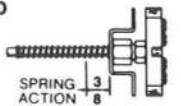
SUPPORT FITTING	CODE
None	XX
NIPPLE/ UNION	
"C" DIM.	Stl. (1)
2-5/8"	23
5-3/4"	26
	SS
	53
	56

NOTES: 1) Galvanized Steel Standard
2) NPT Size specified by Weatherproof Head Size

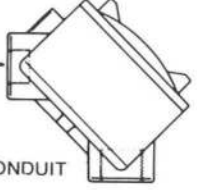
CODE	WEATHERPROOF HEAD
274	CAST ALUMINUM 1/2 NPT
276	3/4 NPT
278	1 NPT
374	CAST IRON 1/2 NPT
376	3/4 NPT
378	1 NPT



CODE	TERMINAL BLOCKS for Weatherproof Heads
	SPRING LOADED 4 WIRE



CODE	EXPLOSIONPROOF HEAD
124	1/2 NPT PROBE MOUNT 1/2 NPT



CODE	TERMINAL BLOCKS for Explosion Proof Heads
	SPRING LOADED 4 WIRE



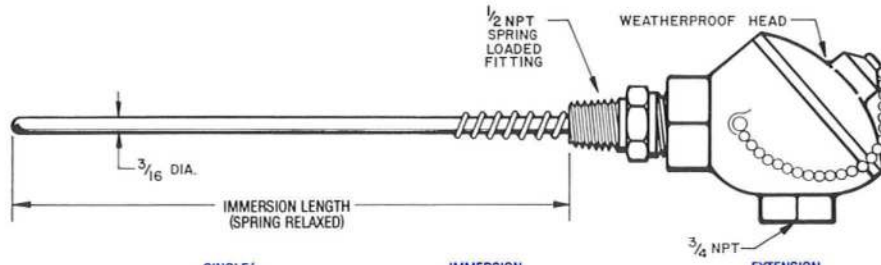
FOR / TITLE:		
DATE:	BY:	JOB NO.



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

SENSORS — SELECTION SUMMARY

CUSTOM MARLOX™ THERMOCOUPLES FOR BEARING APPLICATIONS



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	JUNCTION TYPE	MOUNTING FITTING	IMMERSION LENGTH IN INCHES	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
1 8 7	3 0 4				W 1		X X X	0 0 0 0		X X X X

PROBE DIA. CODE

187

SHEATH MAT'L. CODE

304
310
316
600
230

ANSI TYPE

1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K

Last digit is 10ths of inches i.e. .0045 = 4.5"

EXTENSION TYPE

X X X

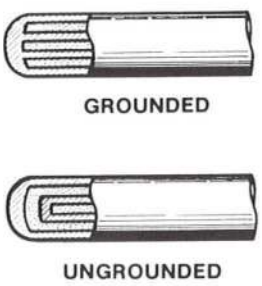
EXTENSION LENGTH IN INCHES

0 0 0 0

TERMINAL TYPE

X X X X

CODE	WEATHERPROOF HEAD
	CAST ALUMINUM
206	3/4 NPT w/single block
226	w/dual block
	TERMINAL BLOCKS for Weatherproof Heads
	<p>RIGID 2 WIRE FOR SINGLE ELEMENT</p> <p>RIGID 4 WIRE FOR DUAL ELEMENT</p>



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	1G 1U
Grounded Ungrounded	
Dual Thermocouple Element Marlox	2G 2U
Grounded Ungrounded	

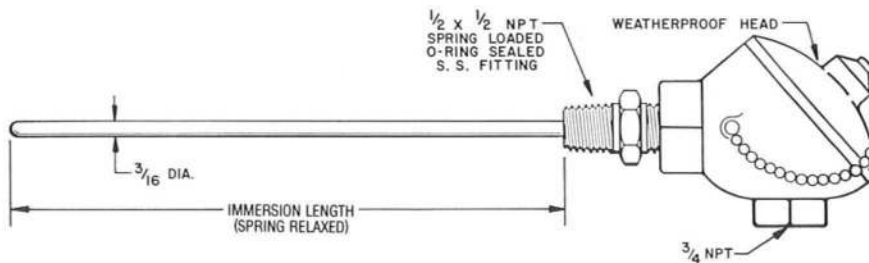
MOUNTING FITTING	CODE
<p style="text-align: center;">SPRING LOADED EPOXY SEALED FITTING</p>	W1
<p>Spring Loaded Epoxy Sealed Fitting provides NPT mounting for terminal head and process connection for bearing applications. For 3/16" Dia. T/C's only select immersion that allows at least a 1/4" interference for spring loading.</p>	

FOR / TITLE:		
DATE:	BY:	JOB NO.



SENSORS — SELECTION SUMMARY

CUSTOM MARLOX™ THERMOCOUPLES FOR BEARING APPLICATIONS



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	JUNCTION TYPE	MOUNTING FITTING	IMMERSION LENGTH IN INCHES	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
1 8 7	3 0 4				S 1		X X X	0 0 0 0	2 9 4	X X X X

PROBE DIA. CODE
187

SHEATH MAT'L. CODE
304

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K

Last digit is 10ths of inches i.e. .0045 = 4.5"

CODE	WEATHERPROOF HEAD
294	CAST ALUMINUM
TERMINAL BLOCKS for Weatherproof Heads	
B12S SPRING LOADED 4 WIRE (Bayonet Mtg.) Max Sheath DIA. .187"	



GROUND



UNGROUND

JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	1G 1U
Grounded Ungrounded	
Dual Thermocouple Element Marlox	2G 2U
Grounded Ungrounded	

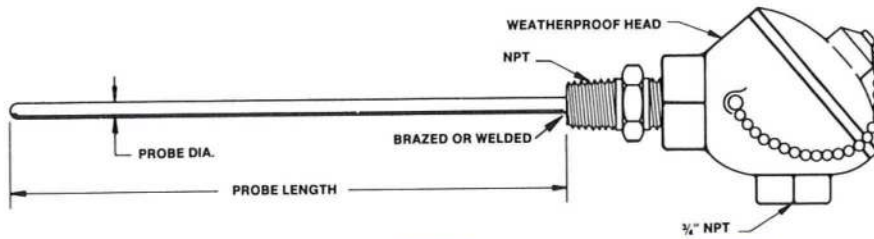
MOUNTING FITTING	CODE
	S1
<p>Spring Loaded O-Ring Sealed Fitting provides NPT mounting for terminal head and process connection for bearing applications. For 3/16" Dia. T/C's only select immersion that allows at least a 1/4" interference for spring loading. T/C element may be easily removed from fitting by bayonet mounting.</p>	

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY

CUSTOM MARLOX™ THERMOCOUPLE WITH DOUBLE FITTING



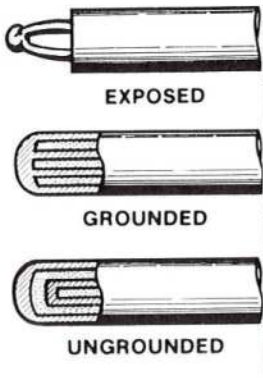
PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	JUNCTION TYPE	MOUNTING FITTING	IMMERSION LENGTH IN INCHES	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
					D		XXX	0000		XXXX

PROBE DIA. CODE
125
187
250
312
375
500

SHEATH MAT'L CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	1X 1G 1U
Exposed Grounded Ungrounded	
Dual Thermocouple Element Marlox	
Exposed Grounded Ungrounded *Weld Pad	2X 2G 2U

Last digit is 10ths of inches i.e. .0045 = 45"

TERMINAL TYPE	CODE	
WEATHERPROOF HEAD		
<p>CAST ALUMINUM SINGLE 1/2 NPT 3/4 NPT DUAL 1/2 NPT 3/4 NPT</p>	204 206 224 226	
	TERMINAL BLOCKS for Weatherproof Heads	
	RIGID 2 WIRE FOR SINGLE ELEMENT	 104 106
	RIGID 4 WIRE FOR DUAL ELEMENT	
GENERAL PURPOSE HEAD w/block		
TERMINAL BLOCK 2-WIRE SINGLE ELEMENT ONLY Cast Aluminum 1/2 NPT 3/4 NPT	104 106	
EXPLOSIONPROOF HEAD	CODE	
RIGID 4 WIRE FOR SINGLE OR DUAL ELEMENT CAST ALUMINUM 1/2 NPT 3/4 NPT CONDUIT	120	
MINI WEATHERPROOF HEAD		
THERMOSET PLASTIC PROBE MOUNT NPT 2-1/8"	400	

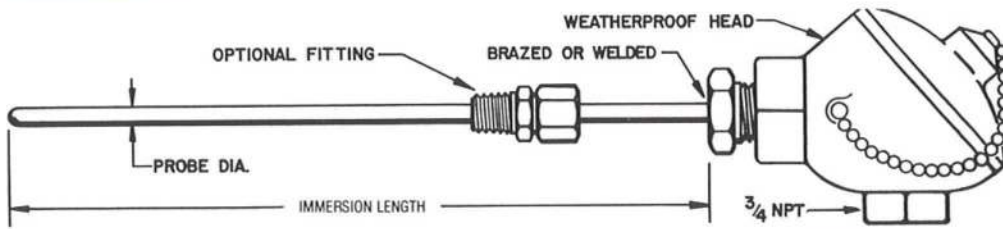
FITTING TYPE	SIZE	CODE
	1/4 x 1/4 NPT 1/2 x 1/2 NPT 3/4 x 3/4 NPT	D2 D4 D6

Fixed Double Fittings (Back to Back Threads) are stainless steel, NPT thread sizes, and are brazed to the sheath. Generally used with terminal heads this arrangement provides a process connection.

FOR / TITLE:		
DATE:	BY:	REFERENCE



SENSORS — SELECTION SUMMARY CUSTOM MARLOX™ THERMOCOUPLES WITH MOUNTED HEAD



PROBE DIA.	SHEATH MAT'L	T/C TYPE	SINGLE/DUAL T/C	JUNCTION TYPE	MOUNTING FITTING	IMMERSION LENGTH IN INCHES	EXTENSION TYPE	EXTENSION LENGTH IN INCHES	TERMINAL TYPE	PROBE LENGTH IN INCHES
						0000	XXX	0000		

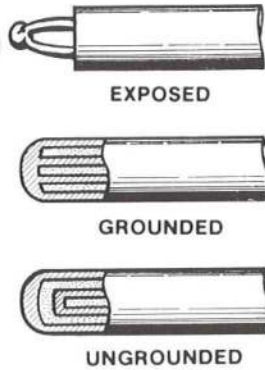
PROBE DIA. CODE
187
250
312
375
500

SHEATH MAT'L. CODE
304
310
316
600
230

ANSI TYPE
1T
1J
1E
1K
1N

Special tolerance. Use "2" i.e. 2K

Last digit is 10ths of inches i.e. .0045 = 4.5"



JUNCTION TYPE	ORDER CODE
Single Thermocouple Element Marlox	1X
Exposed Grounded Ungrounded	1G
Dual Thermocouple Element Marlox	1U
Exposed Grounded Ungrounded *Weld Pad	2X
	2G
	2U

MOUNTING FITTING	CODE
NONE	XX
COMPRESSION IMMERSION	
SS Fitting 1/8 NPT 1/4 NPT	A1 A2
*Not readjustable with metal ferrule NOTES: C1=Stl. B1=Brass Ferrules: Metal Standard (Non-readjustable) "T" for Teflon (Readjustable) e.g. T1 "L" for Lava (Non-reusable) e.g. L1	
FIELD POSITIONABLE IMMERSION LENGTH	

TERMINAL TYPE WEATHERPROOF HEAD	CODE
CAST ALUMINUM SINGLE 1/2 NPT DUAL 1/2 NPT	214 234
TERMINAL BLOCKS for Weatherproof Heads	
RIGID 2 WIRE FOR SINGLE ELEMENT	
RIGID 4 WIRE FOR DUAL ELEMENT	
GENERAL PURPOSE HEAD w/block	
TERMINAL BLOCK 2-WIRE 	SINGLE ELEMENT ONLY Cast Aluminum 1/2 NPT 3/4 NPT 114
EXPLOSIONPROOF HEAD	
RIGID 4 WIRE FOR SINGLE OR DUAL ELEMENT 	CAST ALUMINUM 1/2 NPT 122
MINI WEATHERPROOF HEAD	
THERMOSET PLASTIC 	402 — Does not require terminal block — 1/4 NPT Conduit

FOR / TITLE:		
DATE:	BY:	REFERENCE:



SENSORS HIGH TEMPERATURE METAL SHEATHED THERMOCOUPLES

Specifications

MARLIN offers thermocouples utilizing noble metals and exotic materials for the sheath, thermocouple wires and insulation. These thermocouples are fabricated utilizing hard-fired refractory oxides and incorporate the highest manufacturing standards to insure performance and to prevent contamination.

Thermocouples

Platinum-Rhodium vs Platinum

Recommended for use in inert or oxidizing atmospheres or for short periods of time in vacuum. Easily contaminated, these elements must be protected from the effects of reducing atmospheres and contaminating vapors.

Tungsten vs Tungsten-Rhenium

Recommended for use in vacuum, high purity hydrogen and high purity inert atmospheres only.

Sheath Alloys

Platinum virtually non-oxidizable, soluble only in acids generating free chlorine. Halogens attack it at high temperatures. Malleable. Recommended for use in oxidizing or inert environments. Maximum operating temperature 3000°F.

Platinum 10% Rhodium has the character of platinum with increased resistance to corrosion and higher heat strength. Suitable for oxidizing or inert environments. Maximum operating temperature 3100°F.

Tantalum A reactive and refractory metal: reactive because it will oxidize above 550°F; refractory because of its extremely high melting point. Suitable for use in inert or vacuum environments. Hard and tough with good ductility, maximum operating temperature 4500°F.

Molybdenum Oxidizes at elevated temperatures. Relatively good hot strength. Suitable for inert, vacuum or reducing environments. Maximum operating temperature 4000°F.

Molybdenum 50%/Rhenium 50% Ductile with high hot strength. Suitable in vacuum, hydrogen, nitrogen, cracked ammonia and inert atmospheres. Maximum operating temperature 4000°F.

THERMOCOUPLES

CALIBRATION	MAXIMUM OPERATING TEMP.	MAXIMUM EXPOSURE TEMP.	RECOMMENDED ENVIRONMENT
Pt-10% Rh/Pt ANSI TYPE S	2700°F 1482°C	3100°F 1704°C	Oxidizing, Inert
Pt-13% Rh/Pt ANSI TYPE R	2700°F 1482°C	3100°F 1704°C	Oxidizing, Inert
Pt-30% Rh/Pt-6% Rh ANSI TYPE B	3100°F 1704°C	3220°F 1770°C	Oxidizing, Inert
W-5% Re/W-26% Re (C)	5000°F 2760°C	5430°F 3000°C	Vacuum, High Purity Hydrogen & Inert

Pt-Platinum, Rh-Rhodium, W-Tungsten, Re-Rhenium

SHEATH SIZE-WIRE GAUGE				
Sheath Dia. Inches	.062	.125	.187	.250
Wire Gauge B & S	30	30	24	24

REFRACTORY OXIDE INSULATORS

The resistivity of metal oxides decreases with increasing temperature. Above 3600°F only beryllia retains sufficient resistivity for most applications.

MATERIAL	APPROX. MELT TEMP.	MAXIMUM RECOMMENDED TEMP.	
		HARD-FIRED	SWAGED
Magnesia MgO	5070°F 2800°C	N/A	3400°F 1870°C
Alumina Al ₂ O ₃	3650°F 2010°C	3200°F 1760°C	3000°F 1650°C
Beryllia* BeO	4620°F 2550°C	4200°F 2315°C	N/A

*Caution: Beryllia Dusts are Toxic.

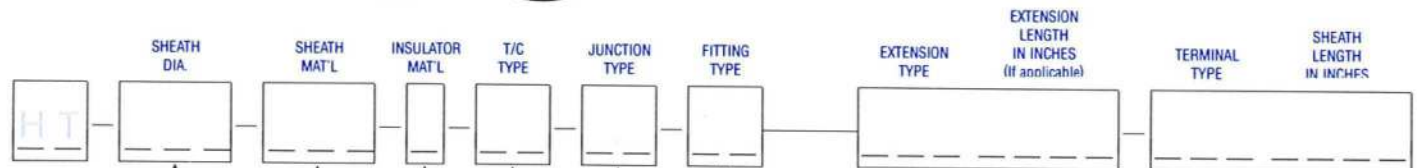
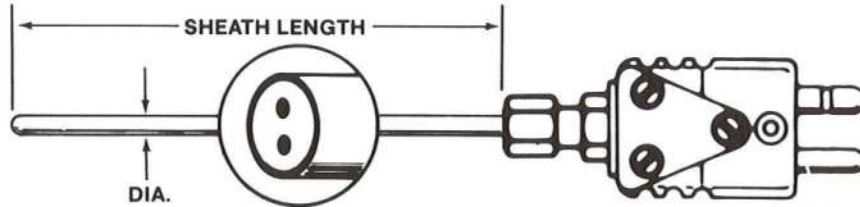
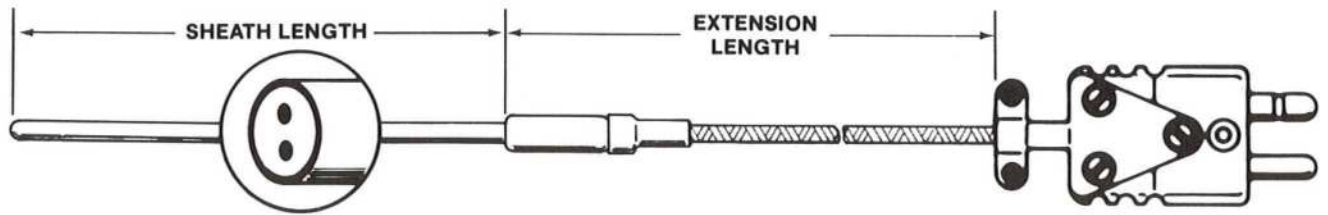
SHEATH ALLOYS

MATERIAL	APPROX. MELT TEMP.	MAXIMUM OPERATING TEMP.	RECOMMENDED ENVIRONMENT
Platinum	3217°F 1770°C	3000°F 1650°C	Oxidizing, Inert
Platinum 10% Rhodium	3362°F 1850°C	3100°F 1705°C	Oxidizing, Inert
Tantalum	5425°F 2996°C	4500°F 2482°C	Vacuum
*Molybdenum	4730°F 2610°C	4000°F 2205°C	Vacuum, Inert
*Moly 50% Rhenium 50%	4424°F 2440°C	4000°F 2205°C	Vacuum, Hydrogen, Nitrogen, Inert, Cracked Ammonia

*Not suitable for swaging



SENSORS HIGH TEMPERATURE METAL SHEATHED THERMOCOUPLES



SHEATH SIZE DIA. INCHES	CODE
0.125	125
0.187	187
0.250	250

INSULATOR MAT'L	CODE
MgO	M
Al ₂ O ₃	A
BeO	E

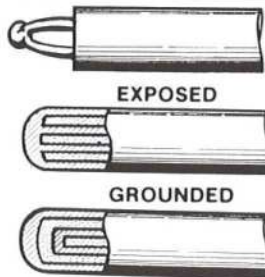
ORDER CODE	JUNCTION TYPE
1X 1G 1U	Single Element Thermocouple
	Exposed Grounded
	Ungrounded
2X 2G 2U	Dual Element Thermocouple
	Exposed Grounded
	Ungrounded

CODE	EXTENSION TYPE
XXX	NONE
MGO	FIBERGLASS INSULATED 482°C (900°F)

SHEATH MAT'L	CODE
Platinum	PPT
Platinum 10% Rhodium	P10
Tantalum	TAN
Molybdenum	MOL
Moly 50% Rhenium 50%	MR5
Inconel "600"	600

THERMOCOUPLE TYPE	CODE
Pt13Rh vs Pt	1R
Pt10Rh vs Pt	1S
Pt30Rh vs Pt6Rh	1B
W5Re vs W26Re	1C

Special limits
Use "2" i.e. 2R



MOUNTING FITTING	CODE
NONE	XX
COMPRESSION IMMERSION	
SS Fitting	A1 A2
1/8 NPT	
1/4 NPT	
*Not readjustable with metal ferrule NOTES: C1 = Stl. B1 = Brass Ferrules: Metal Standard (Non-readjustable) "T" for Teflon (Readjustable) e.g. T1 "L" for Lava (Non-reusable) e.g. L1	
FIELD POSITIONABLE IMMERSION LENGTH	

*Extension length in inches

NOTES:

- 1) For SS Armor Cable over Exten. add "3" to code: e.g. "MG3"
 - 2) For SS Overbraid over Exten. add "1" to code: e.g. "MG1"
- TRANSITIONS:
- 3) Extension includes transitions for use to 205°C (400°F)
 - 4) For Hi-Temp transition 425°C (800°F) add "H" to code e.g. "HGO"

TERMINAL TYPE	CODE
	B10
	B30
	P11
	P15
	P12

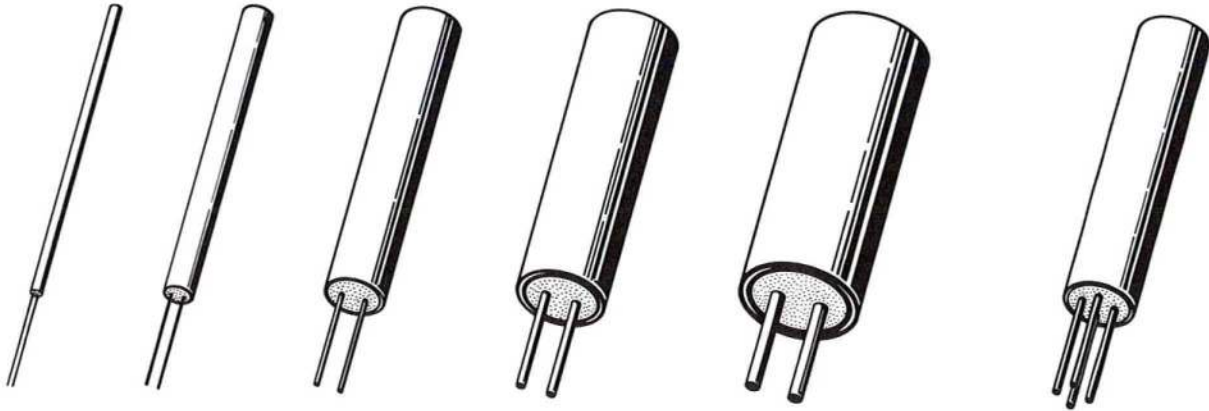
NOTES FOR ABOVE TERMINAL CONNECTORS
1) Connectors for use to 205°C (400°F)
2) For other options consult factory

EXAMPLE:
HT-187-MOL-A-1C-1U-XX-XXX000-P110012
3/16 O.D., Molybdenum Sheath, Alumina Insulator,
Tungsten 5 Rhenium vs Tungsten 26 Rhenium Thermocouple,
Ungrounded Junction, 2-Pole Connector,
12" Sheath Length
(Consult Factory for Prices)

Note: Compression fitting is the only fitting available on this T/C arrangement.



SENSORS RANDOM LENGTH MARLOX[®] THERMOCOUPLE CABLE



MARLOX RANDOM LENGTHS

Marlox is available for your fabrication from our stock. Ends are cut square and moisture sealed.

Standard Marlox is single element (2 wire) or Dual Element (4 wire) thermocouple construction with magnesium oxide (MgO) insulation compacted into a metal sheath.

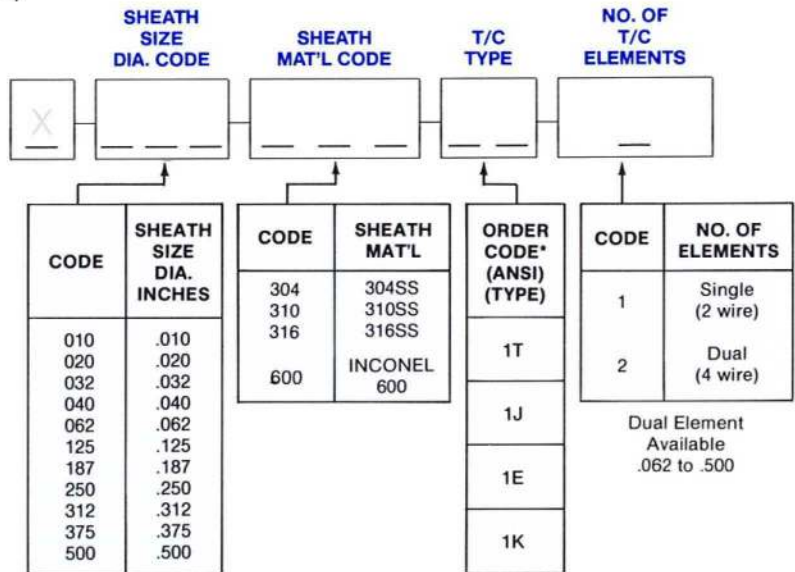
Example: 1/8" OD, 304SS, Iron-Constantan,
Single Element, 50 feet
Order No. X-125-304-1J-1-50 Ft.

SHEATH SIZE DIA. INCHES	NOMINAL TUBE WALL THICKNESS INCHES	WIRE GAUGE B & S		MAX STOCK LENGTH (FT.)
		SINGLE T/C ELEMENT	DUAL T/C ELEMENT	
.010	.0015	44		50
.020	.003	38		100
.032	.004	34		150
.040	.006	33		200
.062	.009	28	30	500
.125	.017	22	24	375
.187	.025	20	21	175
.250	.033	16	18	100
.312	.041	16		60
.375	.052	15		45
.500	.070	10		30

DIM. TOLERANCE: Up to .062 ±.001; .125 to .500 ±.003"
Furnished in coils .010" to 0.312"
Furnished in straight lengths 0.375" to 0.500"

WHEN ORDERING SPECIFY:

- 1) Sheath Alloy and Size by code from table
- 2) ANSI Calibration Type by letter code
- 3) Length in feet



For special limits use "2" i.e. "2K"

PRICE \$/FT													
RANDOM LENGTH MARLOX [®] THERMOCOUPLE CABLE													
CODE	SHEATH SIZE DIA. INCHES	SINGLE ELEMENT (-1)						DUAL ELEMENT (-2)					
		304SS				INCONEL		304				INCONEL	
		J	K	T	E	J	K	J	K	T	E	J	K
010	.010	\$5	\$5	—	—	—	—	—	—	—	—	—	—
020	.020	3	3	3	3	\$3	\$3	—	—	—	—	—	—
032	.032	3	3	3	3	3	3	—	—	—	—	—	—
040	.040	2	2	3	3	2	2	—	—	—	—	—	—
062	.062	2	2	3	3	3	3	\$5	\$5	\$7	\$7	\$6	\$6
125	.125	3	3	3	3	3	3	4	4	6	6	5	5
187	.187	4	4	4	4	4	4	6	6	8	8	8	8
250	.250	6	6	6	6	7	7	8	8	—	—	9	9
312	.312	9	9	—	—	9	9	—	—	—	—	—	—
375	.375	8	8	—	—	14	14	—	—	—	—	—	—
500	.500	—	—	—	—	—	—	—	—	—	—	—	—

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
0-99	NET
100-249	.90
250-499	.80
500-999	.70
1000+	.60

- Quantity is total feet per order.
- All items per order can be combined regardless of sizes or types.


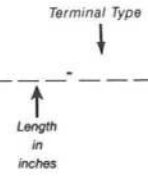

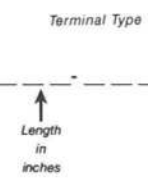
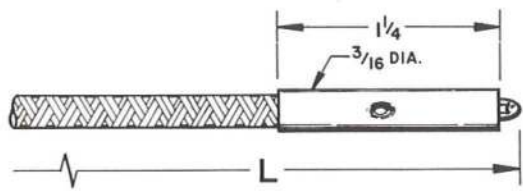
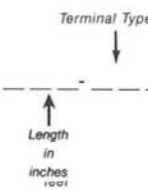
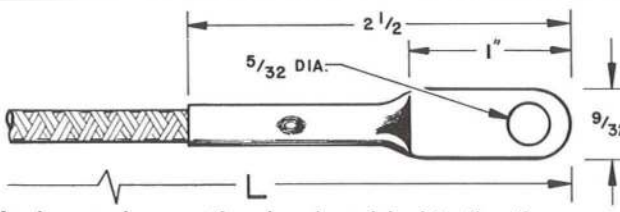
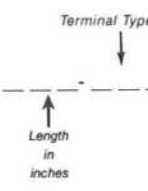
Other Sizes and Combinations available, consult factory.
Special Limit Marlox (i.e. JJ, KK) Add 10% to price.

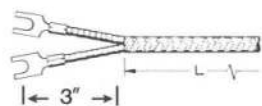
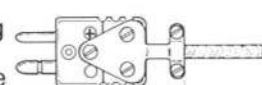
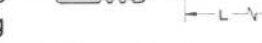


MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200 FAX: (216) 941-6207

SENSORS SURVEY AND PROFILING THERMOCOUPLES

TYPE K 20ga. — CERAMIC FIBER INSULATED — INCONEL OVERBRAID

Description	Part Number	Base Price L = 36 in.	\$/Additional 12 in.
 <p>The inconel overbraid is welded to the thermocouple wire to form a smooth tip.</p>	 <p>K-20-CC42-1G-</p>	\$22.00	\$3.00
 <p>The thermocouple junction is exposed beyond the inconel overbraid</p>	 <p>K-20-CC42-1X-</p>	\$22.00	\$3.00
 <p>An inconel sleeve is added to the exposed junction thermocouple as a mounting strain relief.</p>	 <p>K-20-CC42-1X1-</p>	\$26.00	\$3.00
 <p>An inconel mounting lug is added to the thermocouple. Available grounded.</p>	 <p>K-20-CC42-1G2-</p>	\$30.00	\$3.00

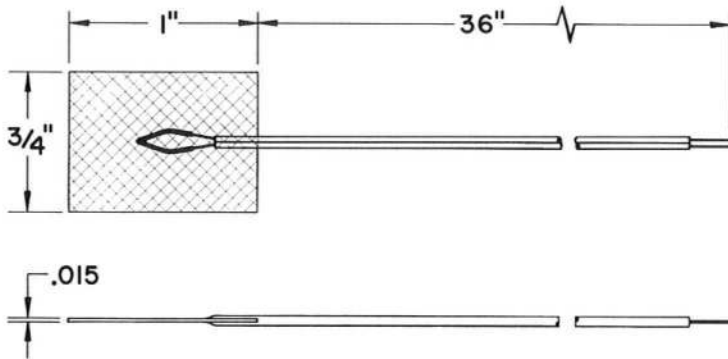
Code	Terminal Type	Price
B10	1" Bare leads	N/C
L13	Compensated Spade Lugs 	\$5.00
P16	2-Pole Connector Plug 	\$6.00
P26	Hi-Temp. 2-Pole Connector Plug 	\$9.00

Discount Schedule	
Quantity	Discount Factor
1-9	NET
10-24	.95
25-49	.90
50-99	.85
100-199	.80
200 +	.75

SENSORS FOIL THERMOCOUPLES ON SELF-ADHESIVE LAMINATE

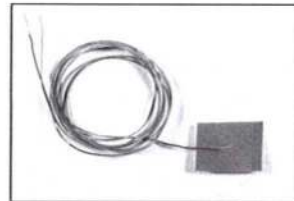
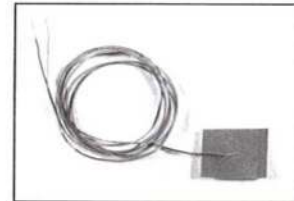
For fast response and accurate sensing of surface temperature these Marlin .005" foil thermocouples (.015" laminate) are easy to apply with their self adhesive laminate. For continuous duty temperature use of -50°F (-45°C)* to $+400^{\circ}\text{F}$ (205°C). The thermocouple leads are 30 gage, teflon insulated 36" long (other lengths available on request). Stocked for immediate delivery in packages of 5 thermocouples.

*Must be applied initially at above 40°F (4°C).



P/N	ANSI TYPE	LEAD LENGTH
M951-5	T J E K	36"

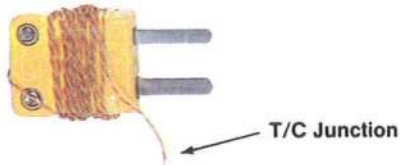
\$60.00/Package of 5



DISCOUNT SCHEDULE	
QUANTITY No. of Pkgs.	Factor
1-2	Ret.
3-5	.95
6-10	.90
11+	.85



SENSORS SPECIALTY THERMOCOUPLES



M970 — Thermocouple Type K
\$24.50 ea.

Very fine gage (40 ga. -.003") Type K thermocouple. This teflon insulated exposed junction thermocouple is 36" long and has a Marlin miniature plug (1260-K) attached. The junction can be cemented or taped in place. Temperature range to 400° F. Available only in Type K.



M990 — Thermocouple Type K
\$28.00 ea.

Totally teflon insulated Type K thermocouple of 24 ga. (.020) wire. For use in applications where acids or corrosives could otherwise attack exposed wire. For use to temperatures of 400° F. Available in Type K only 60" long.

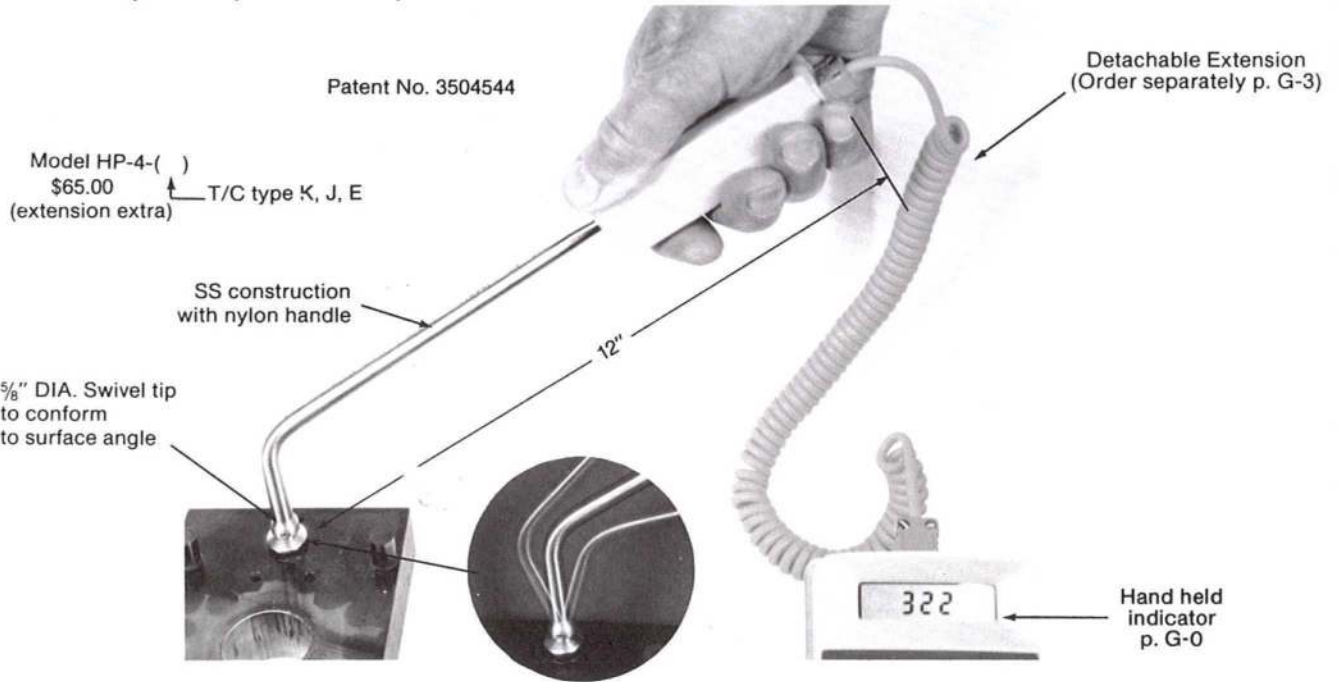
DISCOUNT SCHEDULE	
QUANTITY No. of T/C's	Factor
1-9	Net
10-24	.95
25-49	.90
50+	.85



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200 FAX: (216) 941-6207

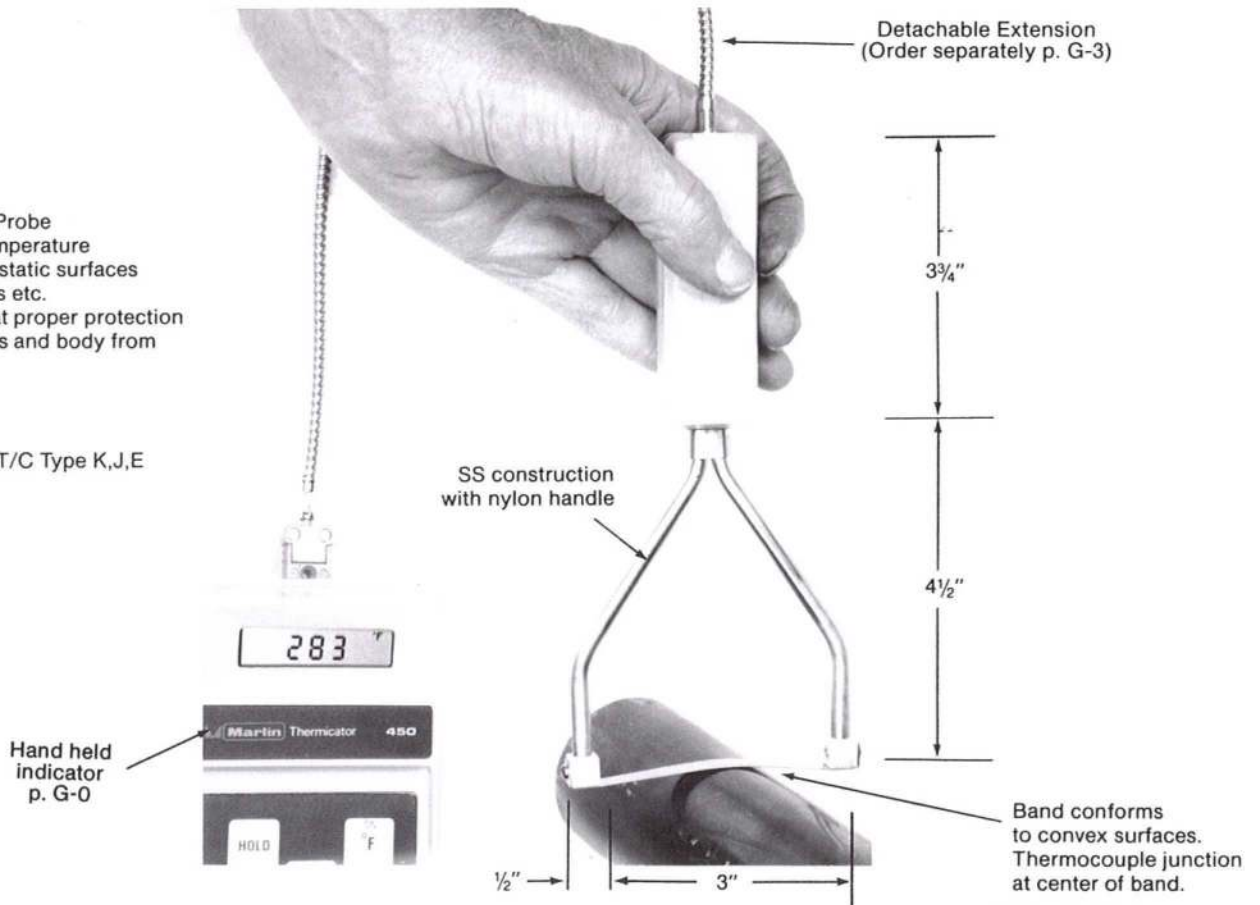
SENSORS SURFACE TEMPERATURE MEASUREMENT — SWIVEL-TIP PROBE

Heavy duty, swivel-tip surface probe for accurate, fast temperature sensing of hot plates, molds, etc. to 500°F (not for liquids). (Insure that proper protection is provided for hands and body from exposure to heat.)



Band Type Surface Probe for fast, accurate temperature readings of convex, static surfaces of cylinders and rolls etc. to 750°F. (Insure that proper protection is provided for hands and body from exposure to heat.)

Model HP-5-K
\$95.00
(extension extra) — T/C Type K, J, E



**PLASTIC INDUSTRY
THERMOCOUPLES**

Fast Delivery on:

**Adjustable
Plastic
Industry
Thermocouples**

Since 1952

Marlin

MANUFACTURING CORPORATION

12404 TRISKETT ROAD CLEVELAND, OHIO 44111

216 941-6200

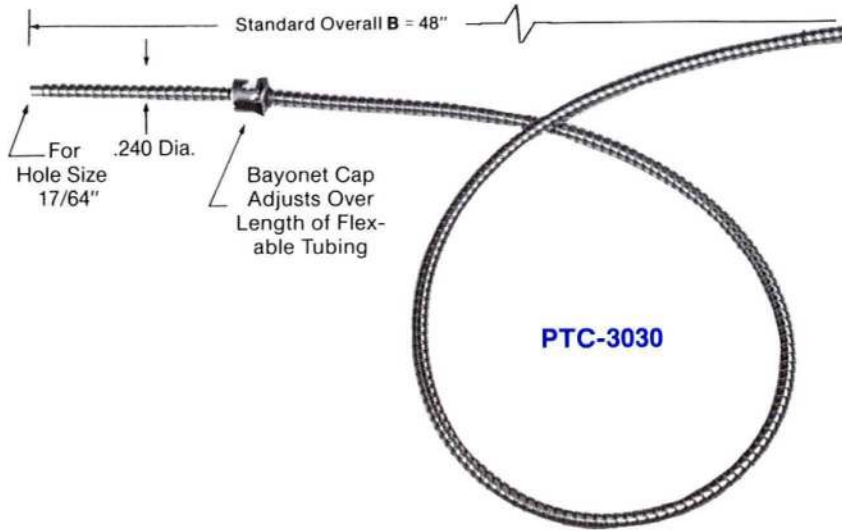
FAX 216 941-6207

TEMPERATURE INSTRUMENTATION for Research and Industry



SENSORS PLASTIC INDUSTRY THERMOCOUPLES

Flex - Armored Adjustable Bayonet Thermocouple



TERMINAL TYPE	
	BX3 BX Connector
	P15 Standard TC Plug
	F15 Standard TC Jack

STANDARD FEATURES

- Adjustable immersion
- Compression tension of Flex-Armor SS Tubing loads T/C Tip
- Type J thermocouple standard
- Grounded junction, Marlin's sensitive tip
- Single element 20 ga. stranded wire fiberglass insulated
- Dual element 24 ga. stranded wire fiberglass insulated
- Fits bayonet-type adapters
- Stainless steel cap
- For temperatures to 900°F (482°C)
- Other thermocouple types available i.e. K, T, E - use proper code and add 10% to price

CATALOG NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH	DISCOUNT SCHEDULE
PTC-3030	Single Element			
	BX3	\$17.00	\$1.75	C
	P15	21.00	per 12 in.	
F15	22.00			
PTC-3030-D	Dual Element			
	BX3	\$27.00	\$2.50	C
	P12	35.00	per 12 in.	
F12	37.00			

To Order Give:

PTC-3030 - **J** - - -
 Catalog No. ANSI Type Terminal Type "B" Length

DISCOUNT SCHEDULE "C"	
QUANTITY	DISCOUNT FACTOR
1-4	Net
5-9	.95
10-49	.90
50-99	.85
100+	.80



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111

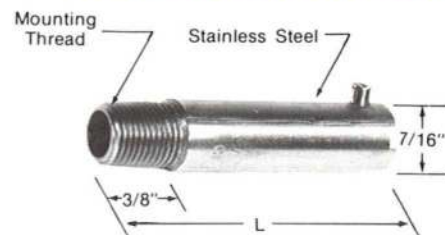
(216) 941-6200
 FAX: (216) 941-6207

SENSORS PLASTIC INDUSTRY THERMOCOUPLES

ADAPTER CATALOG NUMBER	"T" THREAD	"L" INCHES	PRICE \$ EACH	DISCOUNT SCHEDULE
PBA1	1/8 NPT	7/8	\$1.75	C
		1-3/8	3.00	
		1-1/2	3.50	
PBA3	3/8 - 24	1-7/8	3.50	
		2	3.50	
		2-1/2	5.00	
		3	5.00	
		Specials (to 6")	8.00	
		Specials (to 12")	12.00	

To Order Give: **PBA1** or **PBA3** - _____ IN. -
"L"

Threaded Bayonet Adapter



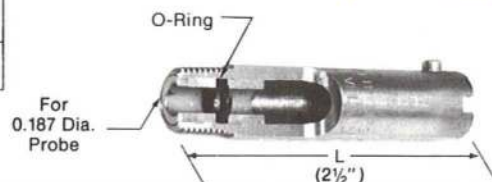
Similar to PBA series but with internal O-ring that seats against TC to prevent oil seepage.

Standard "L" length = 2 1/2"
Available in 1/8 NPT only.

PRICE \$ EACH	DISCOUNT SCHEDULE
\$7.50	C

To Order Give: **PBAO- 2 1/2"**

Oil Seal Bayonet Adapter



"D" hole depth determines the required "A" dimension and threaded bayonet adapter Length "L".

A = D + L
round "A" up to next 1/2 in. if in between increments.

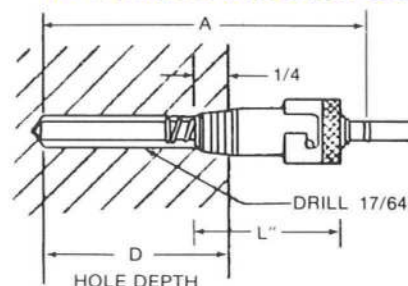
i.e.: for D = 1" And L = 2

A = D + L = 3"

i.e.: for D = 1" And L = 1-7/8

A = D + L = 2-7/8" round to 3"

Dimension Selection Guide



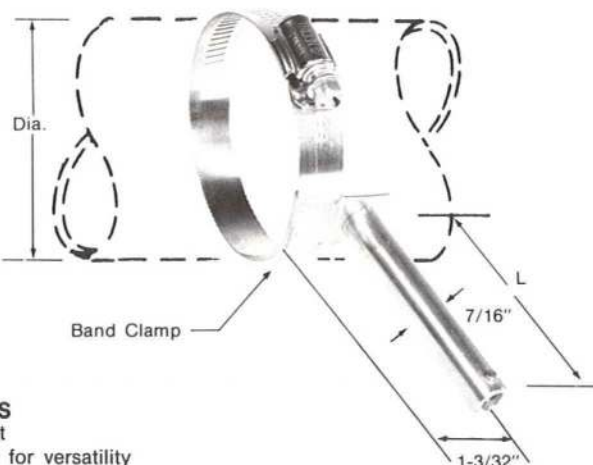
Offset Pipe Clamp Bayonet Adapter

ADAPTER CATALOG NUMBER	"L" INCHES	PRICE \$ (includes clamp)
PBAC	1-3/4	\$7.50
	2-1/4	7.50
	2-3/4	7.50
	3-1/4	8.00
	3-3/4	8.00
	4-1/4	8.00
	4-3/4	8.50
	6-3/4	8.50
	8-3/4	8.50

*Discount Schedule "C" Applies

To Order Give: **PBAC** - _____ IN. -
"L" Band Clamp No.

BAND CLAMP NO.	DIAMETER (Inches)		STANDARD PIPE SIZE
	MIN.	MAX.	
1	7/16	25/32	1/4 to 3/8
2	11/16	1-1/4	1/2 to 3/4
3	1-1/16	2	1 to 1-1/2
4	2-1/16	3	2 to 2-1/2
5	3-5/16	4-1/4	3 to 3-1/2
6	3-9/16	4-1/2	4
7	5-1/8	6	5
8	6-1/8	7	6



STANDARD FEATURES

- Offset mounting bracket
- Two piece construction for versatility
- Stainless steel adapter and clamp

Maximum insulation thickness = L - 3/4"

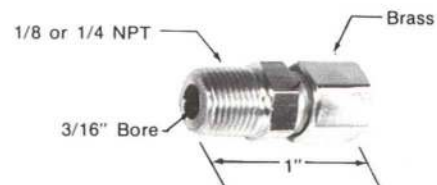
"A" (dimension of bayonet TC) = L + 3/4"

Compression type mounting fitting

COMPRESSION FITTING CAT. #	NPT SIZE	PRICE EACH	DISCOUNT SCHEDULE
A18B 187	1/8 NPT	\$3.00	C
A14B 187	1/4 NPT	3.50	

To Order Give: **A18B-187**

Bore Size →



(216) 941-6200

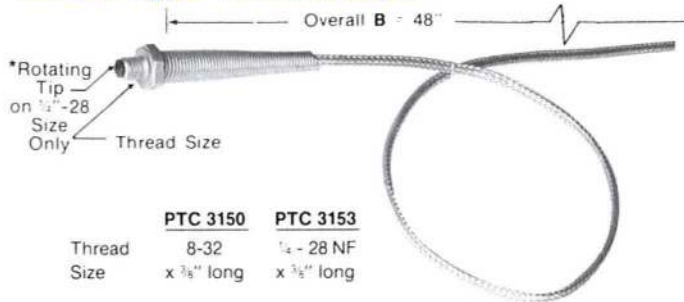
FAX: (216) 941-6207



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111

SENSORS PLASTIC INDUSTRY THERMOCOUPLES

Nozzle Type Thermocouple

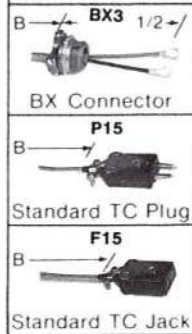


	PTC 3150	PTC 3153
Thread	8-32	1/4 - 28 NF
Size	x 3/8" long	x 3/8" long

STANDARD FEATURES

- *Rotating, quick, response, brass tip: PTC 3153 only
- Type J thermocouple grounded junction standard
- Single element 20 ga. stranded thermocouple wire fiberglass insulated with SS overbraid
- Stainless steel construction

TERMINAL TYPE



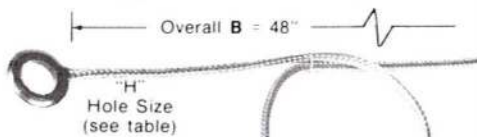
- For temperatures to 900° F (482° C)
- Standard "B" length of 48 in.
- Other thermocouple types available i.e. K, T, E — use proper code and add 10% to price

CATALOG NUMBER	"T" THREAD	TERMINAL TYPE	BASE PRICE \$ "B" PRICE 48 IN.	ADDITIONAL "B" LENGTH
PTC-3150	8-32	BX3	\$14.50	\$1.25 per 12 in.
		P15	19.00	
		F15	20.00	
PTC-3153	1/4-28NF	BX3 P15 F15	14.50 19.00 20.00	\$1.25 per 12 in.

*Discount Schedule "C" Applies

Catalog No.	ANSI Type	Terminal Type	"B" Length
-	-	-	-B =

Washer Type Thermocouple

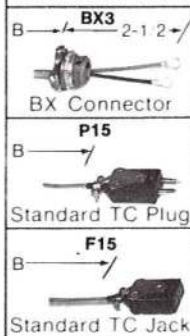


PTC-3160

STANDARD FEATURES

- Nickel plated brass washer (14 & 18 mm plated copper)
- SS overbraid strain relief
- Type J single element thermocouple grounded junction standard
- Stranded thermocouple wire with stainless steel overbraid
- For temperatures to 900° F (482° C)
- Standard "B" length of 48 in.
- Other thermocouple types available i.e. K, T, E — use proper code and add 10% to price

TERMINAL TYPE



CATALOG NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN. H TO 1/2 IN.	BASE PRICE \$ "B" TO 48 IN. H-14mm or 18mm	ADDITIONAL \$ "B" LENGTH
PTC-3160	BX3	\$12.00	\$21.50	\$1.25 per 12 in.
	P15	16.00	26.00	
	F15	17.00	27.00	

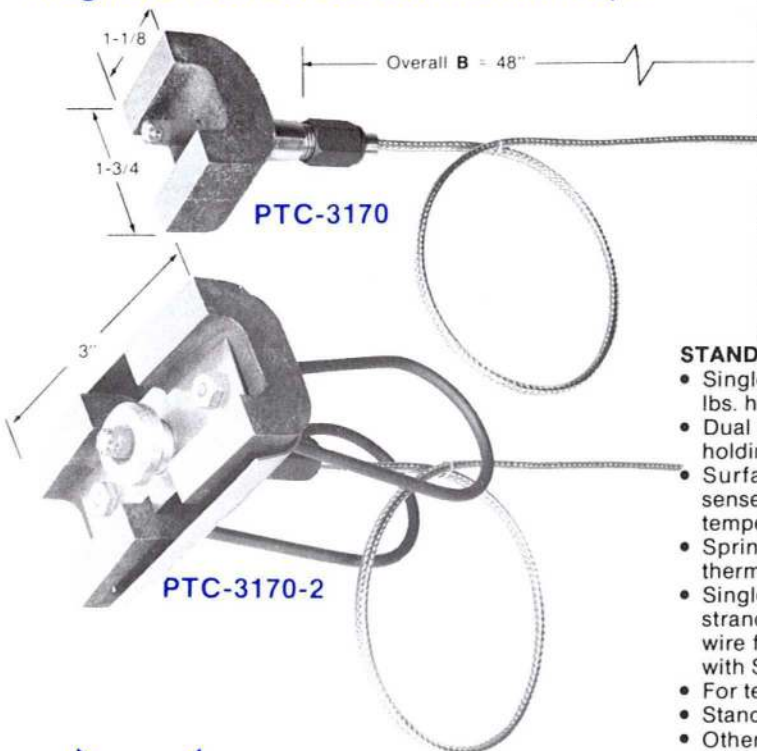
*Discount Schedule "C" Applies

"H" HOLE SIZE	3/16 Bolt (also fits #8 & #10)	1/4 Bolt	3/8 Bolt	1/2 Bolt	14 mm Bolt	18 mm Bolt
Actual ID	0.193	0.255	0.380	0.510	0.560	0.730
Actual OD	0.425	0.545	0.815	1.060	0.810	1.060
Thickness "T"	.095-.120	.095-.120	.095-.12	0.095-.120	.156	.156
Wire Gauge	20	20	20	20	20	20

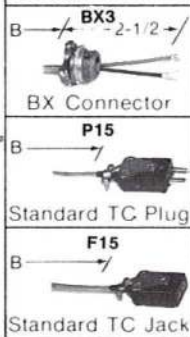
To Order Give: **PTC-3160** - - **H** = **B** =

Catalog No.	ANSI Type	Terminal Type	Hole Size	"B" Length
-	-	-	-	-

Magnetic Mounted Surface Thermocouple



TERMINAL TYPE



STANDARD FEATURES

- Single magnet with 20 lbs. holding force
- Dual magnet has 40 lbs. holding force
- Surface sensitive tip senses accurate surface temperatures
- Spring loaded Type J thermocouple standard
- Single element 20 ga. stranded thermocouple wire fiberglass insulated with SS overbraid
- For temperatures to 500° F (260° C)
- Standard "B" length of 48 in.
- Other thermocouple types available i.e. K, T, E — use proper code and add 10% to price

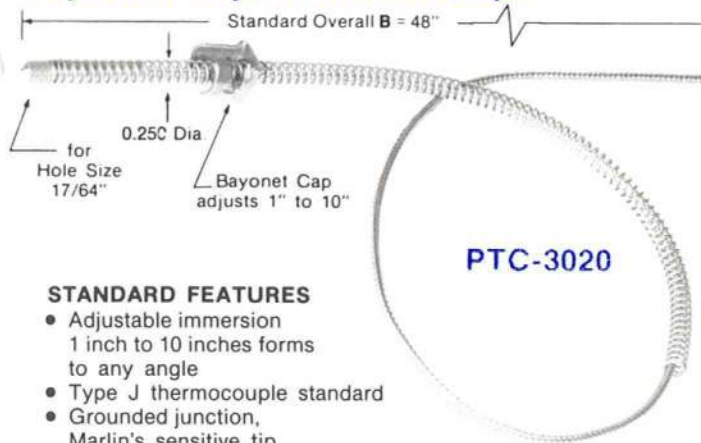
CATALOG NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
(TC and Single Magnet) PTC-3170	BX3 P15 F15	\$66.00 71.00 72.00	\$1.25 per 12 in.
(TC and Dual Magnet) PTC-3170-2	BX3 P15 F15	\$112.00 117.00 118.00	\$1.25 per 12 in.
(TC Replacement) PTC-3171	BX3 P15 F15	\$23.00 28.00 29.00	\$1.25 per 12 in.
(Single Magnet Replacement) PTC-3172	-	\$43.00	-
(Dual Magnet Replacement) PTC-3172-2	-	\$89.00	-

*Discount Schedule "C" Applies



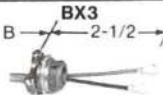
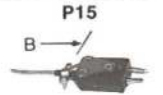

SENSORS PLASTIC INDUSTRY THERMOCOUPLES

Adjustable Bayonet Thermocouple



STANDARD FEATURES

- Adjustable immersion 1 inch to 10 inches forms to any angle
- Type J thermocouple standard
- Grounded junction, Marlin's sensitive tip
- Single element 20 ga. stranded wire fiberglass insulated with stainless steel overbraid
- Dual element 24 ga. stranded wire fiberglass insulated with stainless steel overbraid
- Fits standard bayonet-type adapters

TERMINAL TYPE	
	BX Connector
	Standard TC Plug
	Standard TC Jack

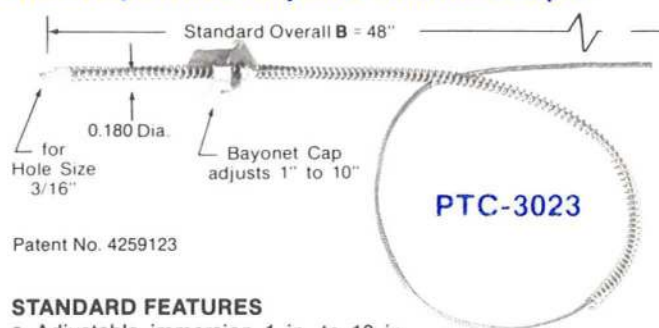
CODE NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
Single Element PTC-3020	BX3	\$13.50	\$1.25
	P15	17.50	per
	F15	18.75	12 in.
Dual Element PTC-3020-D	BX3	\$24.50	\$2.00
	P15	32.00	per
	F15	34.00	12 in.

To Order Give:

PTC - **J** - - -
 Catalog ANSI Terminal "B"
 No. Type Type Length

- Stainless steel spring and cap
- For temperatures to 900° F (482° C)
- Other thermocouple types available i.e. K,T,E - use proper code and add 10% to price

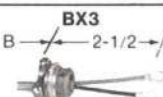
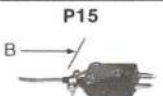

Mini Adjustable Bayonet Thermocouple



Patent No. 4259123

STANDARD FEATURES

- Adjustable immersion 1 in. to 10 in.
- Molded exposed junction tip for fast response
- Snakes into mold area for sensing "real" temperatures
- Single element, Type J, 24 ga. stranded thermocouple wire fiberglass insulated with stainless steel overbraid
- Fits standard bayonet-type adapters
- Stainless steel spring and cap
- For temperature to 600° F (316° C)

TERMINAL TYPE	
	BX Connector
	Standard TC Plug
	Standard TC Jack

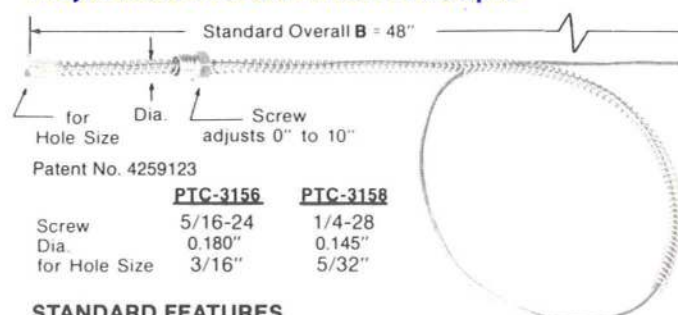
CODE NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
Single Element 180 Dia. PTC-3023	BX3	\$15.00	\$1.25
	P15	19.00	per
	F15	20.00	12 in.

To Order Give:

PTC-3023 - **J** - - -
 Catalog ANSI Terminal "B"
 No. Type Type Length

- Other thermocouple types available i.e. K,T,E - use proper code and add 10% to price

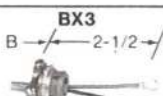
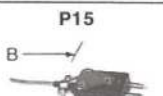

Adjustable Nozzle Thermocouple



Patent No. 4259123

STANDARD FEATURES

- Adjustable immersion 0 in. to 10 in.
- Molded exposed junction tip for fast response
- Snakes into mold area for sensing "real" temperatures
- Single element, Type J, 24 ga. stranded thermocouple wire fiberglass insulated with stainless steel overbraid
- Fits designated threaded hole 3/8" thread depth
- Stainless steel spring
- For temperature to 600° F (316° C)
- Other thermocouple types available i.e. K,T,E - use proper code and add 10% to price

TERMINAL TYPE	
	BX Connector
	Standard TC Plug
	Standard TC Jack

CODE NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
Single Element .180 Dia. 5/16 - 24 Brass Screw PTC-3156	BX3	\$15.00	\$1.25
	P15	19.00	per
	F15	20.00	12 in.
Single Element .145 Dia. 1/4 - 28 SS Screw PTC-3158	BX3	\$15.00	\$1.25
	P15	19.00	per
	F15	20.00	12 in.

To Order Give:

PTC - **J** - - -
 Catalog ANSI Terminal "B"
 No. Type Type Length

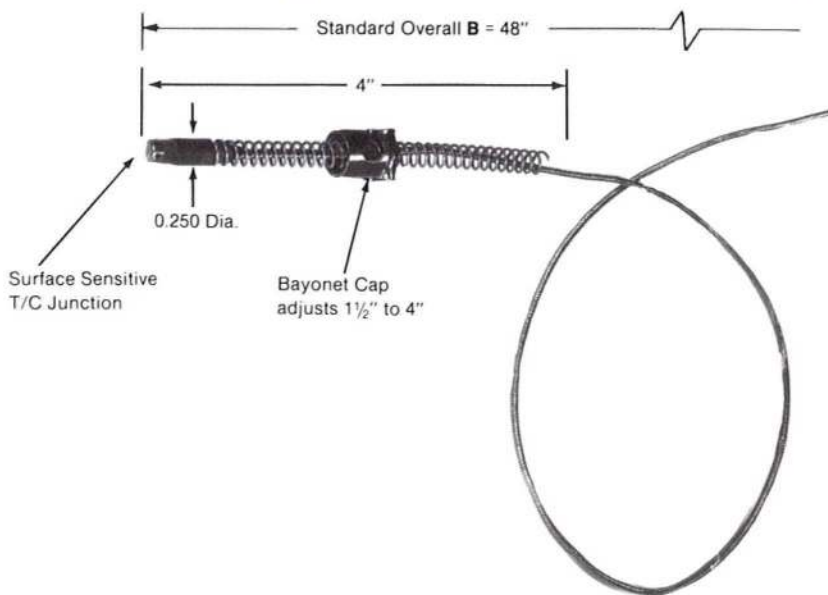


MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111

(216) 941-6200
 FAX: (216) 941-6207

SENSORS PLASTIC INDUSTRY THERMOCOUPLES

Surface Temperature Measurement Thermocouple



TERMINAL TYPE	
BX3	2-1/2"
B	/
BX Connector	
P15	
B	/
Standard TC Plug	
F15	
B	/
Standard TC Jack	

This thermocouple gives accurate surface temperature measurement. Tests show that thermocouples that are not surface sensitive can give readings 20-30° F below actual temperature. Accessory bayonet adapter with a selection of bands is available for pipe application.

CODE NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
Single Element PTC-3175	BX3	\$25.00	\$1.25
	P15	29.00	per
	F15	30.00	12 in.

BAND CLAMP NO.	DIAMETER (Inches)		STANDARD PIPE SIZE
	MIN.	MAX.	
1	7/16	25/32	1/4 to 3/8
2	11/16	1-1/4	1/2 to 3/4
3	1-1/16	2	1 to 1-1/2
4	2-1/16	3	2 to 2-1/2
5	3-5/16	4-1/4	3 to 3-1/2
6	3-9/16	4-1/2	4
7	5-1/8	6	5
8	6-1/8	7	6

To Order Give: **PTC-3175** - **J** - - -
 Catalog No. ANSI Type Terminal Type "B" Length

STANDARD FEATURES

- Type J thermocouple standard
- Grounded junction, Marlin surface sensitive tip
- Single element 20 ga. stranded wire fiberglass insulated with stainless steel overbraid
- Fits standard bayonet-type adapters
- Stainless steel spring and cap
- For temperatures to 500° F (260° C)
- Other thermocouple types available i.e. K, T, E - use proper code and add 20% to price

Pipe Clamp Bayonet Adapter Unit



ADAPTER CODE NUMBER	"L" INCHES	PRICE \$ Includes Clamp
PCS	1-3/4	\$7.50

To Order Give: **PCS** _____
 Band Clamp No.



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

(216) 941-6200

SENSORS PLASTIC INDUSTRY THERMOCOUPLES — MELT

ADJUSTABLE MELT ASSEMBLY		
CATALOG NUMBER	"L" DIMENSION	*PRICE
Single element PTC-3110	3"	\$44.00
	4"	46.00
	5"	48.00
	6"	52.00
Dual Element PTC-3110-D	3"	64.00
	4"	66.00
	5"	68.00
	6"	72.00

Adjustable Plastic Melt Thermocouple
Also Available with Hastalloy Tip
for Max. Abrasion Resistance



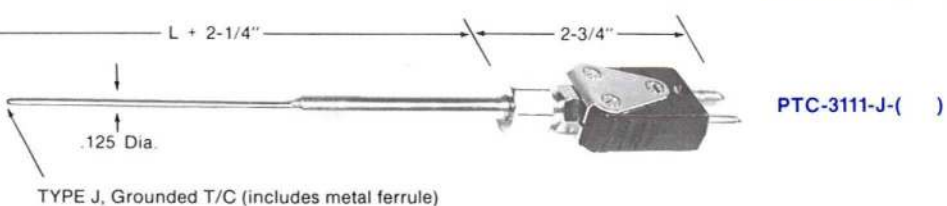
PTC-3110-J-()



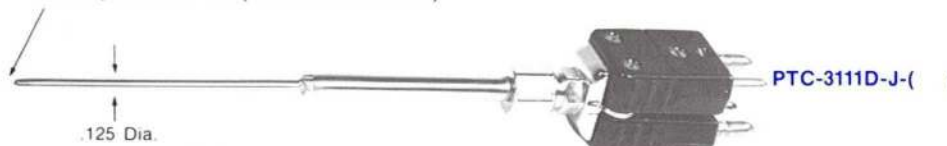
PTC-3110-D-J-()

To Order Give: **PTC** - **J** -
Catalog No. ANSI Type "L"

THERMOCOUPLE REPLACEMENT		
CATALOG NUMBER	FOR BARREL DIMENSION "L"	*PRICE
Single element PTC-3111	3"	\$20.00
	4"	20.00
	5"	20.00
	6"	20.00
Dual element PTC-3111-D	3"	40.00
	4"	40.00
	5"	40.00
	6"	40.00

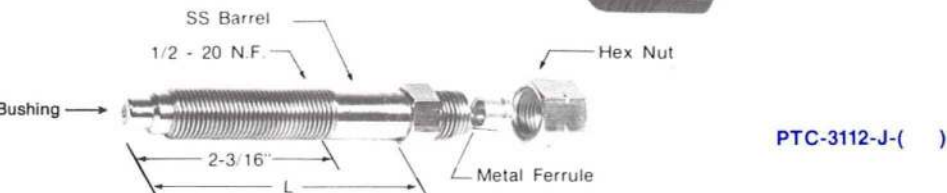


PTC-3111-J-()



PTC-3111D-J-()

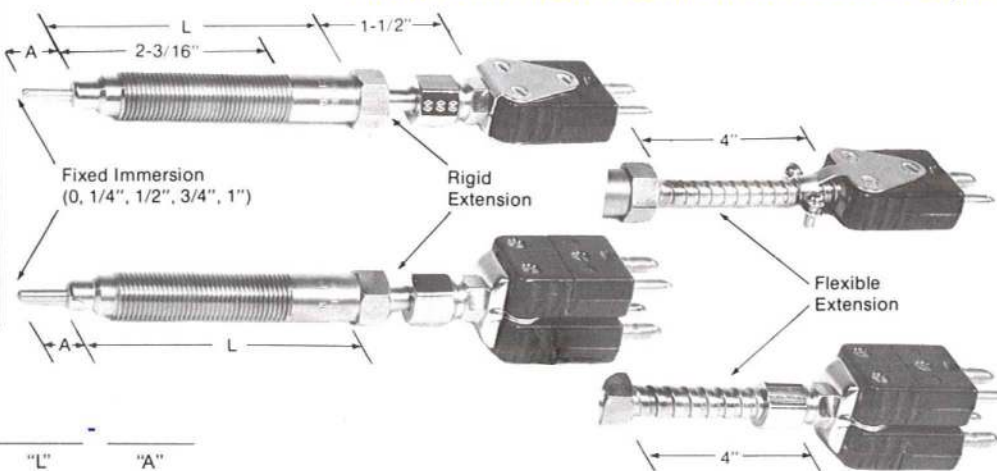
BARREL REPLACEMENT (Includes Metal Ferrule and Hex Nut)		
CATALOG NUMBER	"L" DIMENSION	*PRICE
PTC-3112	3"	\$25.00
	4"	27.00
	5"	29.00
	6"	33.00



PTC-3112-J-()

FIXED IMMERSION MELT TC ASSEMBLY			
CATALOG NO.	"L"	"A"	*PRICE
Single element			
Rigid Extension PTC-3070	3"	Specify (0, 1/4", 1/2", 3/4", or 1")	\$46.00
Flexible Exten. PTC-3090	4"		48.00
	5"		50.00
	6"		52.00
Dual element			
Rigid Extension PTC-3070-D	3"	Specify (0, 1/4", 1/2", 3/4", or 1")	66.00
Flexible Exten. PTC-3090-D	4"		68.00
	5"		70.00
	6"		72.00

Fixed Immersion Plastic Melt Thermocouple



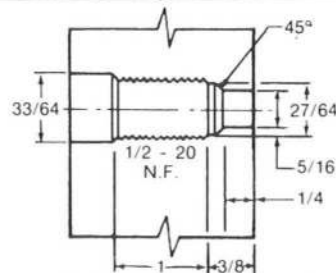
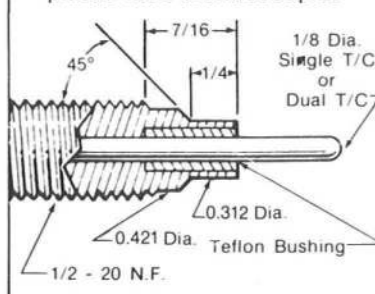
*Discount Schedule "C" Applies

To Order Give: **PTC** - - - -
Catalog No. ANSI Type "L" "A"

STANDARD FEATURES & OPTIONS

- Stainless steel construction
- 1/8" Dia., Type J, grounded junction, Marlox Thermocouple standard
- Single or Dual Element Thermocouple
- Quick Connector Plug Termination
- Teflon Bushing Standard
- Ceramic Bushing available (add \$4.00 to List Price) Add suffix C to catalog no., i.e. PTC-3113C-J-3"
- Other Thermocouple Types available e.g. K, T, E use proper ANSI code and add 10% to list price.
- For additional flexible extension add \$1.25/ft.
- For additional Barrel Length "L" add \$3.00/inch
- For Hastalloy Tip use suffix HST and add \$10.00

Construction detail for plastic melt thermocouples



Recommended dimensions in plastic molding machine barrel for correct mounting of plastic melt extruder type thermocouple.

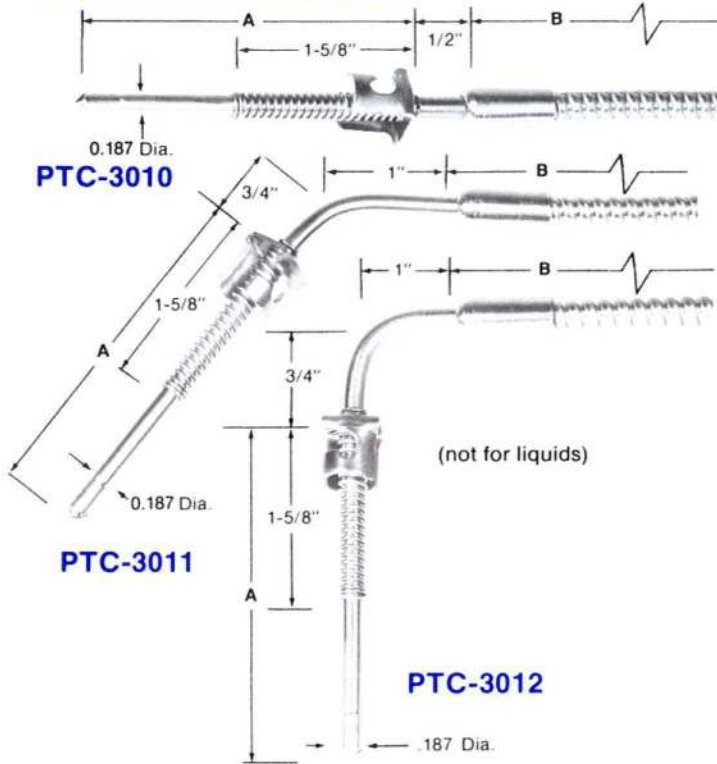


MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

(216) 941-6200

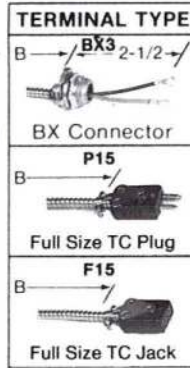
SENSORS PLASTIC INDUSTRY THERMOCOUPLES

Bayonet Thermocouples



Standard "A" Length = 3-1/2 in. (available to 8 in. in 1/2 in. increments)

Standard "B" Length = 48 in.



CATALOG NUMBER	BASE PRICE*		A TO 8" B TO 48"	ADDITIONAL "B" LENGTH
	BX3	P15	F15	
(Single Element) PTC-3010 PTC-3011 PTC-3012	\$17.00	20.50	22.00	\$1.75 per 12 in.
(Dual Element) PTC-3010-D PTC-3011-D PTC-3012-D	\$23.50	36.50	38.50	\$2.50 per 12 in.

*Discount Schedule "C" Applies

NOTE: For stainless steel overbraid construction in lieu of SS armor tubing add S to catalog number (i.e. PTC-3010S-P15-3"-48") and deduct \$1.00 from base price.

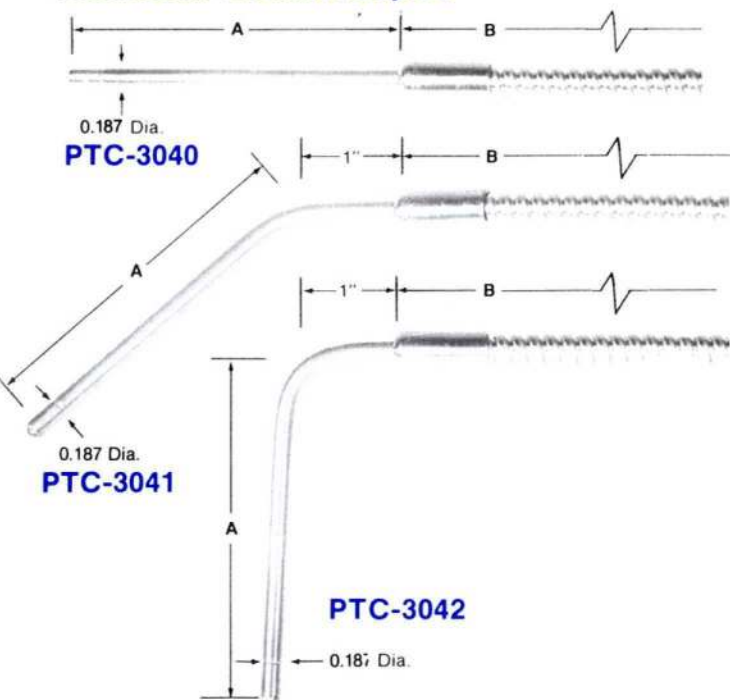
To Order Give: - **J** - **A =** **B =**

Catalog No.	ANSI Type	Terminal Type
-------------	-----------	---------------

STANDARD FEATURES

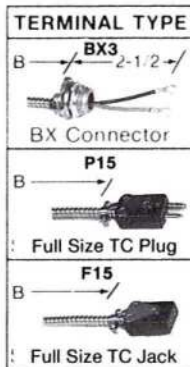
- Sensitive tip 0.187 Dia. (not for use in liquids)
- Type J thermocouple with grounded junction standard
- Single element: 20 ga. stranded thermocouple wire with fiberglass insulation and SS armor tubing
- Dual element: 24 ga. stranded thermocouple wire with fiberglass insulation and SS armor tubing
- SS overbraid also available (add S to catalog no.)
- Fits standard bayonet type adapters
- For temperatures to 900°F (482°C)
- Rigid "B" length available (specify rigid "B" add \$3.00 to base price)
- Stainless steel construction
- Other thermocouple types available i.e. K, T, E - use proper code and add 10% to price

Immersion Thermocouples



Standard "A" Length = 3-1/2 in. (available to 8 in. in 1/2 in. increments)

Standard "B" Length = 48 in.



CATALOG NUMBER	BASE PRICE*		A TO 8" B TO 48"	ADDITIONAL "B" LENGTH
	BX3	P15	F15	
(Single Element) PTC-3040 PTC-3041 PTC-3042	\$15.00	18.50	19.50	\$1.75 per 12 in.
(Dual Element) PTC-3040-D PTC-3041-D PTC-3042-D	\$18.50	32.50	35.50	\$2.50 per 12 in.

*Discount Schedule "C" Applies

NOTE: For stainless steel overbraid construction in lieu of SS armor tubing add S to catalog number (i.e. PTC-3040S-P15-3"-48") and deduct \$1.00 from base price. For extra "A" Dim. add \$0.50/inch.

To Order Give: - **J** - **A =** **B =**

Catalog No.	ANSI Type	Terminal Type
-------------	-----------	---------------

STANDARD FEATURES

- Sensitive tip 0.187 Dia.
- Type J thermocouple with grounded junction standard
- Single element: 20 ga. stranded thermocouple wire with fiberglass insulation and SS armor tubing
- Dual element: 24 ga. stranded thermocouple wire with fiberglass insulation and SS armor tubing
- SS overbraid also available (add S to catalog no.)
- Fits 3/16" bore compression fitting (order separately)
- For temperatures to 900°F (482°C)
- Rigid "B" length available (specify rigid "B" add \$3.00 to base price)
- Stainless steel construction
- Other thermocouple types available i.e. K, T, E — use proper code and add 10% to price



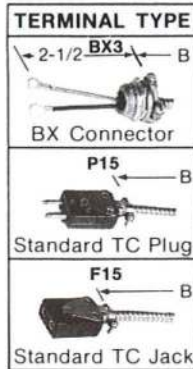
MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

(216) 941-6200

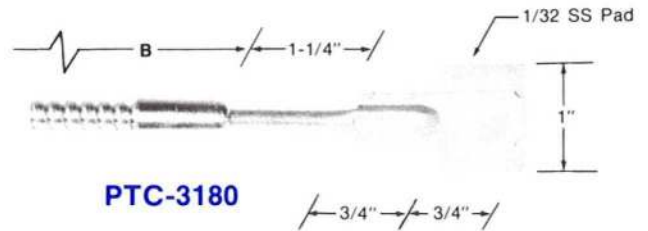
SENSORS PLASTIC INDUSTRY THERMOCOUPLES

CATALOG NUMBER	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
PTC-3180	BX3	\$22.00	
	P15	26.50	\$1.75 per 12 in.
	F15	27.50	

*Discount Schedule "C" Applies



Spade Type Thermocouple



PTC-3180

STANDARD FEATURES

- For use under heater bands or where no thermocouple hole can be drilled
- Type J thermocouple grounded junction standard
- Very sensitive, quick responding
- 20 ga. stranded thermocouple wire fiberglass insulated with SS armor tubing
- Stainless steel construction with 1/32 SS pad
- For temperatures to 900° F (482° C)
- Other thermocouple types available e.g. K, T, E—use proper code and add 10% to price

To Order Give: **PTC-3180** - **J** - **B** =
 Catalog No. Ansi Type Terminal Type "B" Length

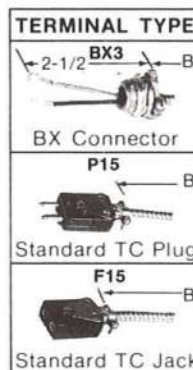
CATALOG NUMBER SINGLE T/C	TERMINAL TYPE	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
PTC-3191	BX3	\$12.00	\$1.75 per 12 in.
	P15	16.00	
	F15	17.00	
PTC-3192	BX3	\$16.00	\$1.75 per 12 in.
	P15	20.00	
	F15	21.00	
PTC-3193	BX3	\$17.00	\$1.75 per 12 in.
	P15	21.00	
	F15	22.00	

- For SS overbraid construction deduct 10% from base and increment prices and add suffix S (i.e. PTC-3191S-J-P15) to catalog number.

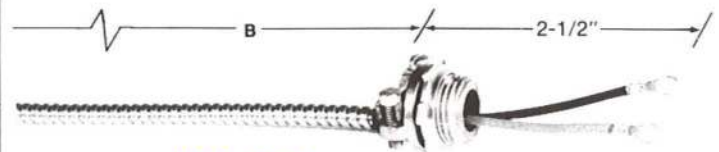
CATALOG NUMBER DUAL TR	TERMINAL TYPE DUAL T/C	BASE PRICE \$ "B" TO 48 IN.	ADDITIONAL \$ "B" LENGTH
PTC-3191D	BX3	\$20.00	\$3.00 per 12 in.
	P12	30.00	
	F12	32.00	
PTC-3192D	BX3	\$30.00	\$3.00 per 12 in.
	P12	40.00	
	F12	42.00	
PTC-3193D	BX3	\$32.00	\$3.00 per 12 in.
	P12	42.00	
	F12	44.00	

*Discount Schedule "C" Applies

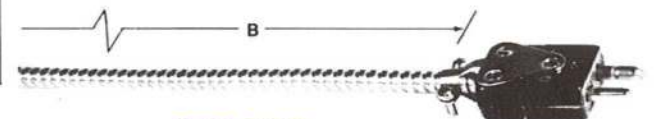
To Order Give: **PTC-** - **J** - **B** =
 Catalog No. Ansi Type Terminal Type "B" Length



Extension Cable



PTC-3191



PTC-3192



PTC-3193

STANDARD FEATURES

- Single element Type J stranded thermocouple extension wire standard
- SS armor tubing construction
- Standard connectors for 500° F ambient
- SS overbraid construction available
- Dual element available
- Other thermocouple types available e.g. K, T, E—use proper code and add 10% to price

DISCOUNT SCHEDULE "C"	
QUANTITY	FACTOR
1-4	Net
5-9	.95
10-49	.90
50-99	.85
100+	.80





Fast Delivery on:

Thermodip T/C's

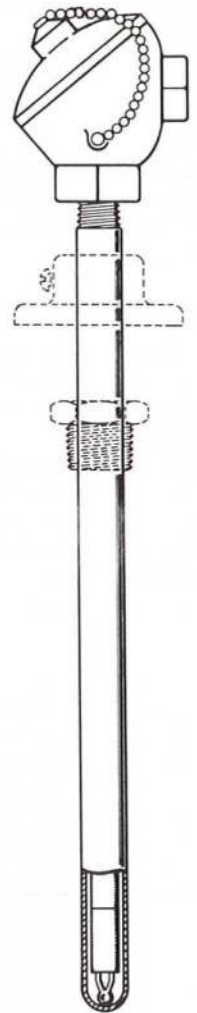
Thermocouple

—Assemblies

—Elements

Protecting Tubes

**MARLIN
INDUSTRIAL THERMOCOUPLES**



Marlin MANUFACTURING CORPORATION

12404 TRISKETT ROAD CLEVELAND, OHIO 44111
216 941-6200 FAX 216 941-6207

GENERAL SELECTION PARAMETERS

The conditions of measurement determine the type of thermocouple used. Temperature, atmosphere, protection, response and service life should be considered. The following descriptions serve as a guide to selection.

Thermocouple Type:

Select the thermocouple type that will be capable of operating in your application temperature range and be compatible with your instrumentation.

Protecting Tube:

Select a material that will withstand the temperature and possible corrosives of your application. (see table below for T/C - Tube Compatibility and pages D-0, D-1, D-8 for tube information)

Tube Size:

Use the tube size that will withstand the rigors of your application but with minimal effect on it.

Fitting or Mounting Type:

To attach and/or seal the assembly in your application use a flange or fixed fitting.

Terminal and/or Extension Type:

For connection to instruments various terminations are available.

GENERAL INSTALLATION PARAMETERS:

The thermocouple should "see", as closely as possible, what the product in the process is experiencing in order to get meaningful measurements.

Location:

Locate the thermocouple junction as close to the product as possible. A rule of thumb is to have at least 10 tube diameters immersion in the hot zone. Avoid direct flame impingement or stagnant areas.

Wire Extension:

Pages E-1, E-2 and E-3 give general wire insulation char-

acteristics, select the insulation that environmental conditions dictate. Use the correct thermocouple type through the circuit. "Red" color code is always negative in thermocouple circuits. Ideally, run thermocouple circuit wires in separate conduits at least one foot away from power lines. Twisted and shielded constructions may be required to avoid noise in the thermocouple circuit. The overall impedance of the thermocouple circuit must be compatible with your instrumentation.

GENERAL MAINTENANCE PARAMETERS:

Thermocouples often deteriorate with time, exhibiting a drift from actual temperatures. Deterioration usually is more rapid at higher temperatures and depends upon the integrity of the protecting tube to isolate it from contaminants. Thermocouples should be checked at regular maintenance intervals based on recommendations or on experience.

Thermocouple DO's

- DO check in place.
- DO replace at established, proper intervals.
- DO have good connections throughout the circuit.

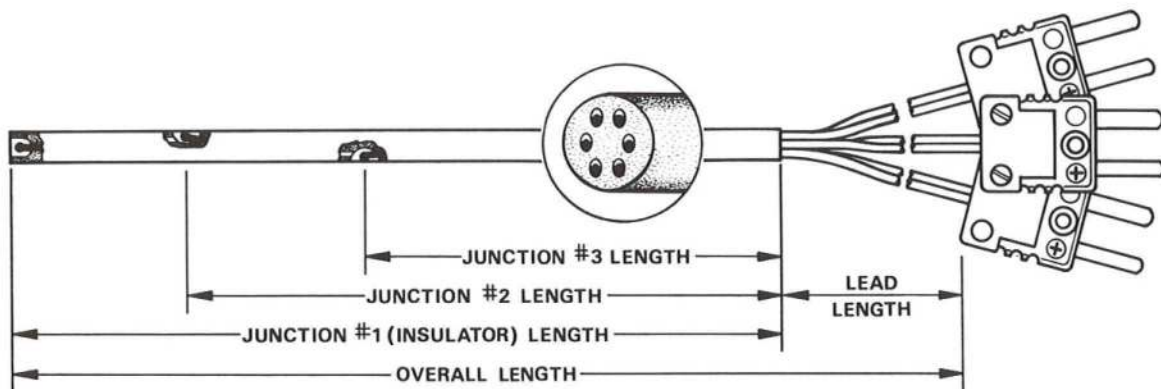
Thermocouple DO NOT's

- DON'T reinsert at different immersions. (Avoid decreasing the immersion.)
- DON'T use for accurate measurements at lower temperatures after being exposed to higher temperatures.
- DON'T use in defective protecting tubes.
- DON'T insulate with used insulators.

If there is a reversal in the thermocouple circuit the indication will be down scale. A "double-reversal" in the circuit will give an upscale but erroneous reading. Keep the "Red" color coded leg negative throughout the circuit to avoid these reversals.

PROTECTING TUBE — THERMOCOUPLE TYPE COMPATIBILITY CHART - Continuous Duty	
T/C TYPE	SHEATH MAT'L.
	<div style="display: flex; justify-content: space-between; align-items: center;"> C-1018 304SS 316SS 446SS INCONEL™ </div>
T	0 - 800
J	0 - 1600
E	0 - 2000
K	0 - 2200
N	0 - 2200
R,S B	<div style="display: flex; justify-content: space-between; align-items: center;"> MULLITE ALUMINA </div>
	400 800 1200 1600 2000 3000 TEMPERATURE °F

SENSORS INDUSTRIAL — 3 ZONE PROFILE THERMOCOUPLE



SPECIFICATIONS:

3-Zone Profile Thermocouple

- 24 ga. (.020") Type R, S, or B Thermocouple Wire
- 997 Alumina Insulator .250" Dia. — Max Length 84"
- All Junctions Recessed in Insulator
- Teflon Insulated Color Coded Leads.

Standard Color Code:

- #1 T/C - Black/Red
- #2 T/C - Yellow/Red
- #3 T/C - Green/Red

(Specify your Color Code requirements if not Marlin standard)

Terminations:

- Mini T/C Connector Plugs 1260-() Use Code M14
- Mini T/C Connector Jack 1210-() Use Code F14
- For No terminals Use Code 0

TO ORDER: 97-250V-3 - - - - - -

↑ T/C Type
 ↑ T/C #1
 ↑ T/C #2
 ↑ T/C #3
 ↑ Lead Length
 Termination
 0 None
 2MP-Mini Plug

[Junction Lengths
In Inches]

e.g. 97-250-3S-60-50-40-12-M14

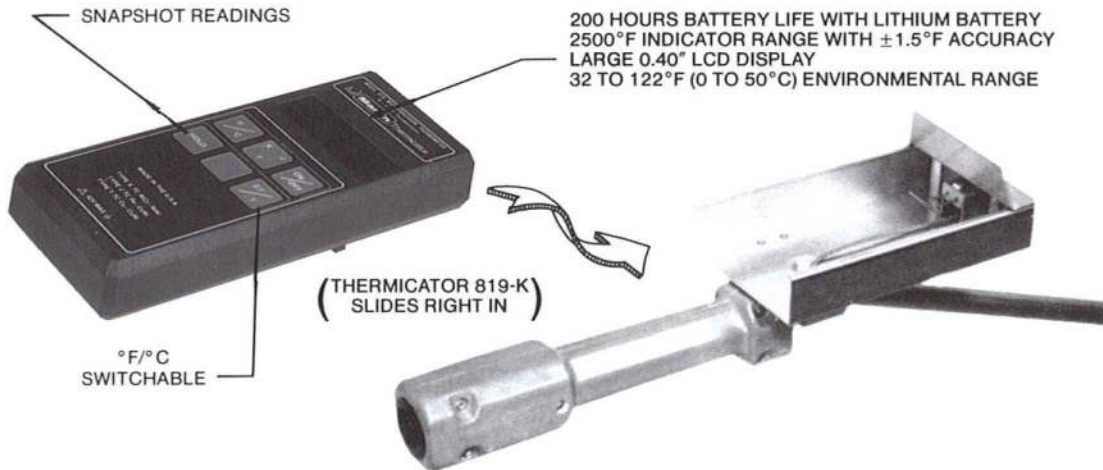
- Description • 3-Zone Type "S" ITS-90 24 ga. (.020) Thermocouples
- Insulator length 60"
 - Recessed Junctions @ 60", 50", 40".
 - 12" leads w/Mini T/C Connector Plugs



SENSORS THERMO-DIP® HOLDER FOR DIGITAL FOUNDRY THERMICATOR®

FAST DEPENDABLE READINGS AT LOW COST
\$250. for Holder with Indicator

(Thermocouple not included)



Thermo-Dip® Holder for Digital Foundry Thermicator

Thermo-Dip holder is constructed of a stainless steel tube and box with reinforced thermoset molded grip. Thermocouple installs in stainless steel sleeve with two stainless set screws. Removing one half of grip exposes terminals for easy thermocouple replacement. Thermicator 819-K indicator slides into holder for fast dependable connections.

PART NO.	LENGTH	PRICE*
119-006	43"	\$100.
	55"	106.
	72"	112.
	96"	122.

*-Order 819-K separately @ \$150.00
-Order Thermo-Dip Thermocouples separately (next page)



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111

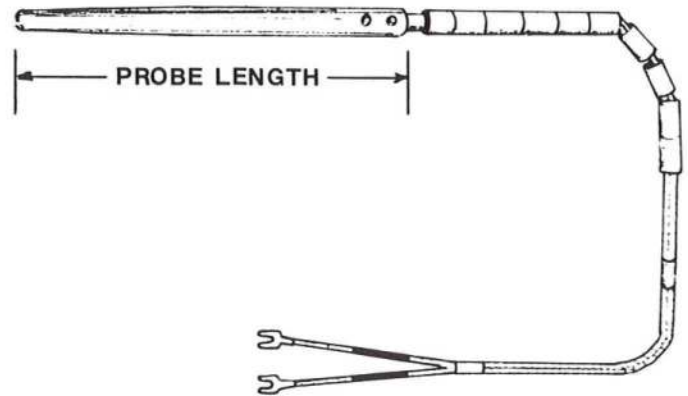
(216) 941-6200

FAX: (216) 941-6207

SENSORS NON-FERROUS FOUNDRY THERMOCOUPLES

Thermo-Dip® Thermocouples

Thermo-Dip thermocouples are designed for intermittent temperature sensing below 2300°F (1255°C), for use in molten brass, copper, aluminum, lead and other non-ferrous metals. The 446 SS sheath (.500" OD) protects a 16 gage ANSI Type K thermocouple. Insulated at the hot end with double bore ceramic insulators and fiberglass sleeving at the cold end. Interchangeable with other makes.

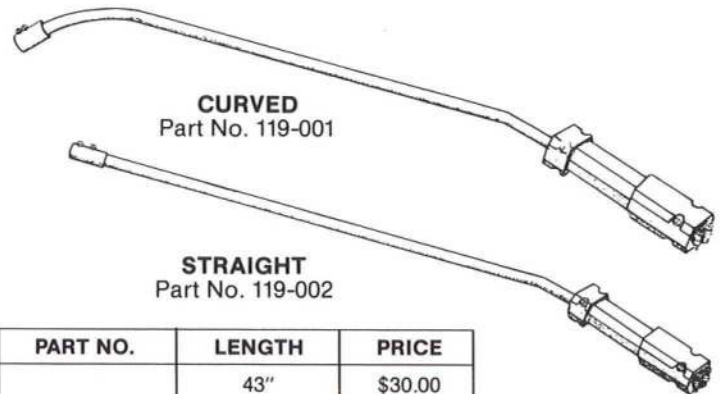


PROBE LENGTHS	FOR HOLDER LENGTHS							
	43"		55"		72"		96"	
	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE	PART NO.	PRICE
8"	119-084	\$12.00	119-085	\$15.00	119-087	\$17.00	119-089	\$24.00
12"	119-124	17.00	119-125	18.50	119-127	21.00	119-129	28.00
15"	119-154	19.00	119-155	21.00	119-157	24.00	119-159	32.00
20"	119-204	31.50	119-205	34.00	119-207	36.00	119-209	38.00
24"	119-244	37.00	119-245	40.00	119-247	45.00	119-249	49.00
30"	119-304	44.00	119-305	48.00	119-307	52.00	119-309	57.00

Thermo-Dip® Holder

Thermo-Dip holder is constructed of a stainless steel tube with reinforced thermoset molded grip. Thermocouple installs in stainless steel sleeve with two stainless set screws. Removing one half of grip exposes terminals for easy thermocouple replacement. Interchangeable with other makes.

Curved holder available in lengths of 43", 55", 72" and 96". Straight holder available in 31" length only.



PART NO.	LENGTH	PRICE
119-001	43"	\$30.00
	55"	36.00
	72"	42.00
	96"	52.00
119-002	31"	\$30.00

Armored Extension Cable

Connects Thermo-Dip holder to wall mounted instrument. Flexible armor protects 16 ga Type KX extension wire; strain relief springs provide extra protection at each end.

Available in lengths from 5 feet.
119-005 - ()
cable length in feet. →



PART NO.	LENGTH	PRICE
119-005	5 Ft.	\$17.00
Each additional foot		1.75

QUANTITY	DISCOUNT FACTOR
1-4	Net
5-9	.950
10-24	.900
25-49	.850
50-99	.800
100+	.750



SENSORS INDUSTRIAL PLATINUM THERMOCOUPLE ASSEMBLIES — GENERAL

GENERAL NOTES

There are many arrangements of industrial platinum thermocouple assemblies that utilize combinations of protecting tubes, thermocouple elements, terminals and mounting options. They are categorized into SINGLE, DOUBLE and TRIPLE tube assemblies which, depending on their application and design, give various degrees of protection to the platinum thermocouple element. Platinum thermocouples are relatively expensive units that are easily

contaminated so proper protection from harmful atmospheres is required in order to get suitable service life from the assembly.

Please refer to the "PROTECTING TUBES — GENERAL" section for material selection parameters.

The part numbers shown are for "commonly used" assemblies.

SENSORS INDUSTRIAL DOUBLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Part No.	Double Tube Assembly Type	Replacement Components																												
<p>(see tables)</p> <p>ABB C D</p> <p>D176C — <input type="checkbox"/> — <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type </p>		<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">A</th> <th style="text-align: center;">C</th> <th style="text-align: center;">D</th> </tr> </thead> <tbody> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-3-<input type="checkbox"/></td> <td style="text-align: center;">— <input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">60-687-3 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Open Head</td> <td style="text-align: center;">MTI-01-<input type="checkbox"/></td> <td colspan="2"></td> </tr> </tbody> </table>		A	C	D	T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X	Protecting Tube				No. 1	60-687-3 —	<input type="checkbox"/>	— X	No. 2	SIC —	<input type="checkbox"/>	— X	Terminal				Open Head	MTI-01- <input type="checkbox"/>		
	A	C	D																											
T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X																											
Protecting Tube																														
No. 1	60-687-3 —	<input type="checkbox"/>	— X																											
No. 2	SIC —	<input type="checkbox"/>	— X																											
Terminal																														
Open Head	MTI-01- <input type="checkbox"/>																													

Assembly Example: **D 1 7 6 C — S — 24"**

Assembly Designation
(Double Tube Type 1)

Insulator Material
(Alumina 997)

Thermocouple Type
(No. 1 Tube-Mullite 60)
(No. 2 Tube-Silicon Carbide)

Protecting Tube Material
(No. 1 Tube-Mullite 60)
(No. 2 Tube-Silicon Carbide)

Assembly Length

In each assembly designation the INSULATOR and/or PROTECTING TUBE MATERIAL can be changed from the "commonly used" combination to fit your particular requirements. For example, if the above assembly was required with Alumina 997 for the No. 1 protecting tube the part number would change from:

D 1 7 6 C — S — 24"

to:

D 1 7 7 C — S — 24"

Of course, the thermocouple type and length must reflect the proper requirements of your application.

For each assembly designation, a parts list for replacement components is given opposite the assembly sketch. If the material of the insulator and/or tube is changed from the "commonly used" combination, the material code must be changed in the replacement components when ordering or specifying these replacement components.

Example:

D 1 7 6 C — S — 24"

REPLACEMENT T/C Element:	97-187-3-S-24"
Protecting Tube No. 1:	60-687-3 — 24"
No. 2:	SIC - 24"

WHEN CHANGED TO:

D 1 7 7 C — S — 24"

REPLACEMENT T/C Element:	97-187-3-S-24"
Protecting Tube No. 1:	97-687-3 — 24"
No. 2:	SIC - 24"

If you need any additional information please contact the Factory.



SENSORS INDUSTRIAL PLATINUM THERMOCOUPLE ASSEMBLIES — TABLES

TABLE A — INSULATOR MATERIAL

MATERIAL	CODE
MULLITE 60	6
ALUMINA 997	7
ALUMINA 998	8

INSULATOR MAT'L.

Note: Insulator material can be changed from "commonly used" combination to fit your particular requirements.

ASSEMBLY DESIGNATION

EXAMPLE: **D 1 7 6 C — S — 24"**

TABLE B — PROTECTING TUBE MATERIAL

TUBE MATERIAL	CODE
MULLITE 60	6
ALUMINA 997	7
ALUMINA 998	8
SA SILICON CARBIDE	A
SILICON CARBIDE	C
METAL CERAMIC	L
INCONEL	I

PROTECTING TUBE MAT'L.

Note: Protecting Tube materials can be changed from "commonly used" combination to fit your particular requirements.

No. 1. No. 2.

TABLE C — SINGLE/DUAL THERMOCOUPLE & T/C TYPE

THERMOCOUPLE TYPE	SINGLE ELEMENT	DUAL ELEMENT
<u>ITS-90/IPTS 1968</u>		
Pt13%Rh vs Pt	R	R2
Pt10%Rh vs Pt	S	S2
Pt30%Rh vs Pt6%Rh	B	B2
<u>IPTS 1948</u>		
Pt13%Rh vs Pt	4R	4R2
Pt10%Rh vs Pt	4S	4S2

THERMOCOUPLE TYPE

TABLE D — ASSEMBLY TUBE LENGTH

Length from 12" to 48" in 6" increments.
For special Lengths consult Factory.

ASSEMBLY LENGTH



SENSORS INDUSTRIAL SINGLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Part No.	Single Tube Assembly Type	Replacement Components
<p>(see tables)</p> <p>AB C D</p> <p>F088 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal 2-Pole Connector Ftg. & Adapter</p> <p>A C D</p> <p>98-187-1-□ - □ - X</p> <p>B</p> <p>98-375-0 - □</p> <p>1060-□</p> <p>1089- 3/8</p>
<p>(see tables)</p> <p>AB C D</p> <p>F177 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal 2-Pole Connector Ftg. & Adapter</p> <p>A C D</p> <p>97-125-1-□ - □ - X</p> <p>B</p> <p>97-250-0 - □</p> <p>1060-□</p> <p>1070- 1/4-T</p>
<p>(see tables)</p> <p>AB C D</p> <p>F277 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal 2-Pole Connector Ftg. & Adapter</p> <p>A C D</p> <p>97-187-1-□ - □ - X</p> <p>B</p> <p>97-375-0 - □</p> <p>1060-□</p> <p>1070- 3/8-T</p>
<p>(see tables)</p> <p>AB C D</p> <p>F977 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal Open Head</p> <p>A C D</p> <p>97-187-1-□ - □ - X</p> <p>B</p> <p>97-375-0 - □</p> <p>MTI-01-□</p>
<p>(see tables)</p> <p>AB C D</p> <p>F377 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal Open Head</p> <p>A C D</p> <p>97-187-3-□ - □ - X</p> <p>B</p> <p>97-687-3 - □</p> <p>MTI-01-□</p>
<p>(see tables)</p> <p>AB C D</p> <p>F477 - □ - □</p> <p>T/C Type Length</p>		<p>T/C Element Protecting Tube</p> <p>Terminal Open Head</p> <p>A C D</p> <p>97-187-3-□ - □ - X</p> <p>B</p> <p>97-687-2 - □</p> <p>MTI-02-□</p>

SENSORS INDUSTRIAL SINGLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Replacement Components	Single Tube Assembly Type	Part No.																																																																											
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">C</td> <td style="width: 33%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□ — X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">97-687-3</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td style="text-align: center;">WC-7/8</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td style="text-align: center;">WA-7/8</td> </tr> <tr> <td colspan="4"><i>(add suffix "WA" e.g. F566-R-18-WA)</i></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td style="text-align: center;">GP-7/8</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4"><i>(add suffix "GP")</i></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	□	□ — X	Protecting Tube	B				97-687-3	□		Terminal				Weatherproof (standard)				Cast Iron (standard)			WC-7/8	Aluminum (optional)			WA-7/8	<i>(add suffix "WA" e.g. F566-R-18-WA)</i>				General Purpose			GP-7/8	Aluminum (optional)				<i>(add suffix "GP")</i>				Terminal Blocks	Single El.		Dual El.	WC or WA	TB-A		TB-D	GP	TB-1		n/a		<p>(see tables)</p> <p>AB C D</p> <p>F577 — □ — □</p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: small;">T/C Type Length</p>															
	A	C	D																																																																										
T/C Element	97-187-5-□	□	□ — X																																																																										
Protecting Tube	B																																																																												
	97-687-3	□																																																																											
Terminal																																																																													
Weatherproof (standard)																																																																													
Cast Iron (standard)			WC-7/8																																																																										
Aluminum (optional)			WA-7/8																																																																										
<i>(add suffix "WA" e.g. F566-R-18-WA)</i>																																																																													
General Purpose			GP-7/8																																																																										
Aluminum (optional)																																																																													
<i>(add suffix "GP")</i>																																																																													
Terminal Blocks	Single El.		Dual El.																																																																										
WC or WA	TB-A		TB-D																																																																										
GP	TB-1		n/a																																																																										
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">C</td> <td style="width: 33%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□ — X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">97-687-2</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td style="text-align: center;">WC-2</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td style="text-align: center;">WA-2</td> </tr> <tr> <td colspan="4"><i>(add suffix "WA" e.g. F666-R-18-WA)</i></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td style="text-align: center;">GP-2</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4"><i>(add suffix "GP")</i></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	□	□ — X	Protecting Tube	B				97-687-2	□		Terminal				Weatherproof (standard)				Cast Iron (standard)			WC-2	Aluminum (optional)			WA-2	<i>(add suffix "WA" e.g. F666-R-18-WA)</i>				General Purpose			GP-2	Aluminum (optional)				<i>(add suffix "GP")</i>				Terminal Blocks	Single El.		Dual El.	WC or WA	TB-A		TB-D	GP	TB-1		n/a		<p>(see tables)</p> <p>AB C D</p> <p>F677 — □ — □</p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: small;">T/C Type Length</p>															
	A	C	D																																																																										
T/C Element	97-187-5-□	□	□ — X																																																																										
Protecting Tube	B																																																																												
	97-687-2	□																																																																											
Terminal																																																																													
Weatherproof (standard)																																																																													
Cast Iron (standard)			WC-2																																																																										
Aluminum (optional)			WA-2																																																																										
<i>(add suffix "WA" e.g. F666-R-18-WA)</i>																																																																													
General Purpose			GP-2																																																																										
Aluminum (optional)																																																																													
<i>(add suffix "GP")</i>																																																																													
Terminal Blocks	Single El.		Dual El.																																																																										
WC or WA	TB-A		TB-D																																																																										
GP	TB-1		n/a																																																																										
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">C</td> <td style="width: 33%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□ — X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">97-687-7(6)†</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td style="text-align: center;">WC-3</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td style="text-align: center;">WA-3</td> </tr> <tr> <td colspan="4"><i>(add suffix "WA" e.g. F766-R-18-WA)</i></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td style="text-align: center;">GP-3</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4"><i>(add suffix "GP")</i></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	□	□ — X	Protecting Tube	B				97-687-7(6)†	□		Terminal				Weatherproof (standard)				Cast Iron (standard)			WC-3	Aluminum (optional)			WA-3	<i>(add suffix "WA" e.g. F766-R-18-WA)</i>				General Purpose			GP-3	Aluminum (optional)				<i>(add suffix "GP")</i>				Terminal Blocks	Single El.		Dual El.	WC or WA	TB-A		TB-D	GP	TB-1		n/a		<p>(see tables)</p> <p>AB C D</p> <p>F777 — □ — □</p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: small;">T/C Type Length</p>															
	A	C	D																																																																										
T/C Element	97-187-5-□	□	□ — X																																																																										
Protecting Tube	B																																																																												
	97-687-7(6)†	□																																																																											
Terminal																																																																													
Weatherproof (standard)																																																																													
Cast Iron (standard)			WC-3																																																																										
Aluminum (optional)			WA-3																																																																										
<i>(add suffix "WA" e.g. F766-R-18-WA)</i>																																																																													
General Purpose			GP-3																																																																										
Aluminum (optional)																																																																													
<i>(add suffix "GP")</i>																																																																													
Terminal Blocks	Single El.		Dual El.																																																																										
WC or WA	TB-A		TB-D																																																																										
GP	TB-1		n/a																																																																										
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;"></td> <td style="width: 33%; text-align: center;">A</td> <td style="width: 33%; text-align: center;">C</td> <td style="width: 33%; text-align: center;">D</td> <td style="width: 33%; text-align: center;">OAL</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□</td> <td style="text-align: center;">□ — X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td style="text-align: center;">97-687-2</td> <td style="text-align: center;">□</td> <td></td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td style="text-align: center;">WC-2</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td style="text-align: center;">WA-2</td> <td></td> </tr> <tr> <td colspan="5"><i>(add suffix "WA" e.g. F866-R-18-30-WA)</i></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td style="text-align: center;">GP-2</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5"><i>(add suffix "GP")</i></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> <td></td> </tr> <tr> <td>WC or WA</td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> <td></td> </tr> <tr> <td>GP</td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> <td></td> </tr> </table>		A	C	D	OAL	T/C Element	97-187-5-□	□	□	□ — X	Protecting Tube	B					97-687-2	□			Terminal					Weatherproof (standard)					Cast Iron (standard)			WC-2		Aluminum (optional)			WA-2		<i>(add suffix "WA" e.g. F866-R-18-30-WA)</i>					General Purpose			GP-2		Aluminum (optional)					<i>(add suffix "GP")</i>					Terminal Blocks	Single El.		Dual El.		WC or WA	TB-A		TB-D		GP	TB-1		n/a			<p>(see tables)</p> <p>AB C D</p> <p>F877 — □ — □ — □</p> <p style="font-size: small;">↑ ↑ ↑</p> <p style="font-size: small;">T/C Type Length Overall Length</p>
	A	C	D	OAL																																																																									
T/C Element	97-187-5-□	□	□	□ — X																																																																									
Protecting Tube	B																																																																												
	97-687-2	□																																																																											
Terminal																																																																													
Weatherproof (standard)																																																																													
Cast Iron (standard)			WC-2																																																																										
Aluminum (optional)			WA-2																																																																										
<i>(add suffix "WA" e.g. F866-R-18-30-WA)</i>																																																																													
General Purpose			GP-2																																																																										
Aluminum (optional)																																																																													
<i>(add suffix "GP")</i>																																																																													
Terminal Blocks	Single El.		Dual El.																																																																										
WC or WA	TB-A		TB-D																																																																										
GP	TB-1		n/a																																																																										

SENSORS INDUSTRIAL DOUBLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Part No.	Double Tube Assembly Type	Replacement Components																																																																
<p>(see tables)</p> <p>ABB C D</p> <p>D177C — □ — □</p> <p>↑ ↑ ↑</p> <p>T/C Type Length</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-3-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-687-3 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Open Head</td> <td style="text-align: center;">MTI-01-□</td> <td colspan="2"></td> </tr> </table>		A	C	D	T/C Element	97-187-3-□	— □	— X	Protecting Tube				No. 1	97-687-3 —	□	— X	No. 2	SIC —	□	— X	Terminal				Open Head	MTI-01-□																																						
	A	C	D																																																															
T/C Element	97-187-3-□	— □	— X																																																															
Protecting Tube																																																																		
No. 1	97-687-3 —	□	— X																																																															
No. 2	SIC —	□	— X																																																															
Terminal																																																																		
Open Head	MTI-01-□																																																																	
<p>(see tables)</p> <p>ABB C D</p> <p>D277C — □ — □</p> <p>↑ ↑ ↑</p> <p>T/C Type Length</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-687-2 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Weatherproof (standard)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (standard)</td> <td colspan="3" style="text-align: right;">WC-7/8</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">WA-7/8</td> </tr> <tr> <td> (add suffix "WA" e.g. D266C-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">GP-7/8</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	— □	— X	Protecting Tube				No. 1	97-687-2 —	□	— X	No. 2	SIC —	□	— X	Terminal				Weatherproof (standard)				Cast Iron (standard)	WC-7/8			Aluminum (optional)	WA-7/8			(add suffix "WA" e.g. D266C-R-18-WA)				General Purpose				Aluminum (optional)	GP-7/8			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a	
	A	C	D																																																															
T/C Element	97-187-5-□	— □	— X																																																															
Protecting Tube																																																																		
No. 1	97-687-2 —	□	— X																																																															
No. 2	SIC —	□	— X																																																															
Terminal																																																																		
Weatherproof (standard)																																																																		
Cast Iron (standard)	WC-7/8																																																																	
Aluminum (optional)	WA-7/8																																																																	
(add suffix "WA" e.g. D266C-R-18-WA)																																																																		
General Purpose																																																																		
Aluminum (optional)	GP-7/8																																																																	
(add suffix "GP")																																																																		
Terminal Blocks	Single El.	Dual El.																																																																
WC or WA	TB-A	TB-D																																																																
GP	TB-1	n/a																																																																
<p>(see tables)</p> <p>ABB C D</p> <p>D3777 — □ — □</p> <p>↑ ↑ ↑</p> <p>T/C Type Length</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-3-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-3 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Open Head</td> <td style="text-align: center;">MTI-01-□</td> <td colspan="2"></td> </tr> </table>		A	C	D	T/C Element	97-187-3-□	— □	— X	Protecting Tube				No. 1	97-375-0 —	□	— X	No. 2	97-687-3 —	□	— X	Terminal				Open Head	MTI-01-□																																						
	A	C	D																																																															
T/C Element	97-187-3-□	— □	— X																																																															
Protecting Tube																																																																		
No. 1	97-375-0 —	□	— X																																																															
No. 2	97-687-3 —	□	— X																																																															
Terminal																																																																		
Open Head	MTI-01-□																																																																	
<p>(see tables)</p> <p>ABB C D</p> <p>D4777 — □ — □</p> <p>↑ ↑ ↑</p> <p>T/C Type Length</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-3 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Weatherproof (standard)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (standard)</td> <td colspan="3" style="text-align: right;">WC-7/8</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">WA-7/8</td> </tr> <tr> <td> (add suffix "WA" e.g. D4666-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">GP-7/8</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	— □	— X	Protecting Tube				No. 1	97-375-0 —	□	— X	No. 2	97-687-3 —	□	— X	Terminal				Weatherproof (standard)				Cast Iron (standard)	WC-7/8			Aluminum (optional)	WA-7/8			(add suffix "WA" e.g. D4666-R-18-WA)				General Purpose				Aluminum (optional)	GP-7/8			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a	
	A	C	D																																																															
T/C Element	97-187-5-□	— □	— X																																																															
Protecting Tube																																																																		
No. 1	97-375-0 —	□	— X																																																															
No. 2	97-687-3 —	□	— X																																																															
Terminal																																																																		
Weatherproof (standard)																																																																		
Cast Iron (standard)	WC-7/8																																																																	
Aluminum (optional)	WA-7/8																																																																	
(add suffix "WA" e.g. D4666-R-18-WA)																																																																		
General Purpose																																																																		
Aluminum (optional)	GP-7/8																																																																	
(add suffix "GP")																																																																		
Terminal Blocks	Single El.	Dual El.																																																																
WC or WA	TB-A	TB-D																																																																
GP	TB-1	n/a																																																																
<p>(see tables)</p> <p>ABB C D</p> <p>D5777 — □ — □</p> <p>↑ ↑ ↑</p> <p>T/C Type Length</p>		<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3"></td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-3 —</td> <td style="text-align: center;">□</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Weatherproof (standard)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (standard)</td> <td colspan="3" style="text-align: right;">WC-2</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">WA-2</td> </tr> <tr> <td> (add suffix "WA" e.g. D5666-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: right;">GP-2</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5-□	— □	— X	Protecting Tube				No. 1	97-375-0 —	□	— X	No. 2	97-687-3 —	□	— X	Terminal				Weatherproof (standard)				Cast Iron (standard)	WC-2			Aluminum (optional)	WA-2			(add suffix "WA" e.g. D5666-R-18-WA)				General Purpose				Aluminum (optional)	GP-2			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a	
	A	C	D																																																															
T/C Element	97-187-5-□	— □	— X																																																															
Protecting Tube																																																																		
No. 1	97-375-0 —	□	— X																																																															
No. 2	97-687-3 —	□	— X																																																															
Terminal																																																																		
Weatherproof (standard)																																																																		
Cast Iron (standard)	WC-2																																																																	
Aluminum (optional)	WA-2																																																																	
(add suffix "WA" e.g. D5666-R-18-WA)																																																																		
General Purpose																																																																		
Aluminum (optional)	GP-2																																																																	
(add suffix "GP")																																																																		
Terminal Blocks	Single El.	Dual El.																																																																
WC or WA	TB-A	TB-D																																																																
GP	TB-1	n/a																																																																

SENSORS

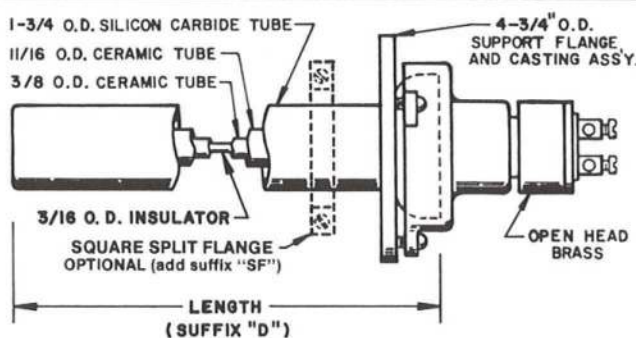
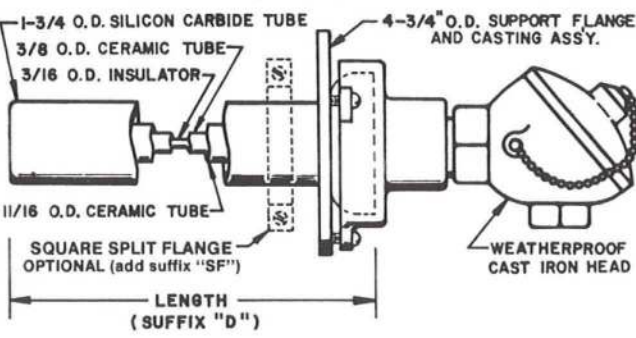
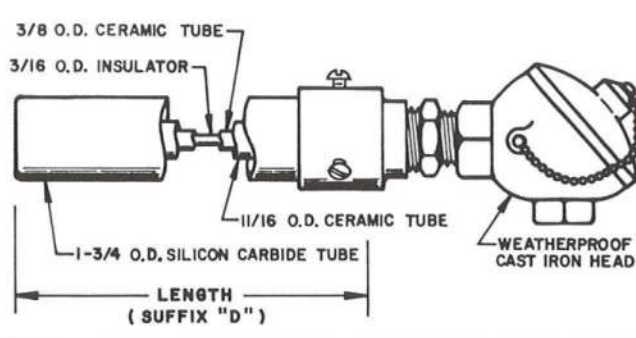
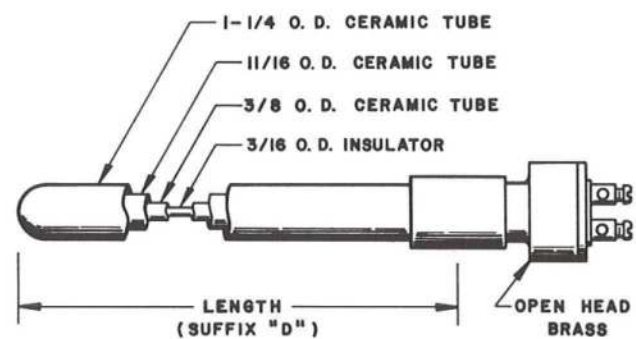
INDUSTRIAL DOUBLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Replacement Components	Double Tube Assembly Type	Part No.																																																																																																																																								
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">T/C Element</td> <td style="width: 10%;">A</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Protecting Tube</td> <td>97-187-5-</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>X</td> </tr> <tr> <td>No. 1</td> <td>97-375-0</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>No. 2</td> <td>97-687-7(6')</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WC-3</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WA-3</td> <td></td> </tr> <tr> <td>(add suffix "WA" e.g. D6666-R-18-WA)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>GP-3</td> <td></td> </tr> <tr> <td>(add suffix "GP")</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td>Single El.</td> <td></td> <td></td> <td></td> <td>Dual El.</td> <td></td> </tr> <tr> <td>WC or WA</td> <td></td> <td>TB-A</td> <td></td> <td></td> <td></td> <td>TB-D</td> <td></td> </tr> <tr> <td>GP</td> <td></td> <td>TB-1</td> <td></td> <td></td> <td></td> <td>n/a</td> <td></td> </tr> </table>	T/C Element	A	C	D					Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		No. 2	97-687-7(6')	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Terminal								Weatherproof (standard)								Cast Iron (standard)						WC-3		Aluminum (optional)						WA-3		(add suffix "WA" e.g. D6666-R-18-WA)								General Purpose								Aluminum (optional)						GP-3		(add suffix "GP")								Terminal Blocks		Single El.				Dual El.		WC or WA		TB-A				TB-D		GP		TB-1				n/a			<p style="text-align: center;">(see tables)</p> <p style="text-align: center;">ABB C D</p> <p style="text-align: center;">D6777 - <input type="checkbox"/> - <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type</p>																
T/C Element	A	C	D																																																																																																																																							
Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X																																																																																																																																			
No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
No. 2	97-687-7(6')	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
Terminal																																																																																																																																										
Weatherproof (standard)																																																																																																																																										
Cast Iron (standard)						WC-3																																																																																																																																				
Aluminum (optional)						WA-3																																																																																																																																				
(add suffix "WA" e.g. D6666-R-18-WA)																																																																																																																																										
General Purpose																																																																																																																																										
Aluminum (optional)						GP-3																																																																																																																																				
(add suffix "GP")																																																																																																																																										
Terminal Blocks		Single El.				Dual El.																																																																																																																																				
WC or WA		TB-A				TB-D																																																																																																																																				
GP		TB-1				n/a																																																																																																																																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">T/C Element</td> <td style="width: 10%;">A</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Protecting Tube</td> <td>97-187-5-</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>X</td> </tr> <tr> <td>No. 1</td> <td>97-375-0</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>No. 2</td> <td>SA-750</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WC-2</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WA-2</td> <td></td> </tr> <tr> <td>(add suffix "WA" e.g. D7666-R-18-30-WA)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>GP-2</td> <td></td> </tr> <tr> <td>(add suffix "GP")</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td>Single El.</td> <td></td> <td></td> <td></td> <td>Dual El.</td> <td></td> </tr> <tr> <td>WC or WA</td> <td></td> <td>TB-A</td> <td></td> <td></td> <td></td> <td>TB-D</td> <td></td> </tr> <tr> <td>GP</td> <td></td> <td>TB-1</td> <td></td> <td></td> <td></td> <td>n/a</td> <td></td> </tr> </table>	T/C Element	A	C	D					Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		No. 2	SA-750	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Terminal								Weatherproof (standard)								Cast Iron (standard)						WC-2		Aluminum (optional)						WA-2		(add suffix "WA" e.g. D7666-R-18-30-WA)								General Purpose								Aluminum (optional)						GP-2		(add suffix "GP")								Terminal Blocks		Single El.				Dual El.		WC or WA		TB-A				TB-D		GP		TB-1				n/a			<p style="text-align: right; font-weight: bold; font-size: 1.2em;">NEW</p> <p style="text-align: center;">(see tables)</p> <p style="text-align: center;">ABB C D</p> <p style="text-align: center;">D777A - <input type="checkbox"/> - <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type</p>																
T/C Element	A	C	D																																																																																																																																							
Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X																																																																																																																																			
No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
No. 2	SA-750	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
Terminal																																																																																																																																										
Weatherproof (standard)																																																																																																																																										
Cast Iron (standard)						WC-2																																																																																																																																				
Aluminum (optional)						WA-2																																																																																																																																				
(add suffix "WA" e.g. D7666-R-18-30-WA)																																																																																																																																										
General Purpose																																																																																																																																										
Aluminum (optional)						GP-2																																																																																																																																				
(add suffix "GP")																																																																																																																																										
Terminal Blocks		Single El.				Dual El.																																																																																																																																				
WC or WA		TB-A				TB-D																																																																																																																																				
GP		TB-1				n/a																																																																																																																																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">T/C Element</td> <td style="width: 10%;">A</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Protecting Tube</td> <td>97-187-5-</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>X</td> </tr> <tr> <td>No. 1</td> <td>97-687-2</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>No. 2</td> <td>SIC</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>O</td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WC-2</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WA-2</td> <td></td> </tr> <tr> <td>(add suffix "WA" e.g. D866C-R-18-WA)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>GP-2</td> <td></td> </tr> <tr> <td>(add suffix "GP")</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td>Single El.</td> <td></td> <td></td> <td></td> <td>Dual El.</td> <td></td> </tr> <tr> <td>WC or WA</td> <td></td> <td>TB-A</td> <td></td> <td></td> <td></td> <td>TB-D</td> <td></td> </tr> <tr> <td>GP</td> <td></td> <td>TB-1</td> <td></td> <td></td> <td></td> <td>n/a</td> <td></td> </tr> </table>	T/C Element	A	C	D					Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	No. 1	97-687-2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		No. 2	SIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	O	Terminal								Weatherproof (standard)								Cast Iron (standard)						WC-2		Aluminum (optional)						WA-2		(add suffix "WA" e.g. D866C-R-18-WA)								General Purpose								Aluminum (optional)						GP-2		(add suffix "GP")								Terminal Blocks		Single El.				Dual El.		WC or WA		TB-A				TB-D		GP		TB-1				n/a			<p style="text-align: center;">(see tables)</p> <p style="text-align: center;">ABB C D</p> <p style="text-align: center;">D877C - <input type="checkbox"/> - <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type</p>																
T/C Element	A	C	D																																																																																																																																							
Protecting Tube	97-187-5-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X																																																																																																																																			
No. 1	97-687-2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
No. 2	SIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	O																																																																																																																																			
Terminal																																																																																																																																										
Weatherproof (standard)																																																																																																																																										
Cast Iron (standard)						WC-2																																																																																																																																				
Aluminum (optional)						WA-2																																																																																																																																				
(add suffix "WA" e.g. D866C-R-18-WA)																																																																																																																																										
General Purpose																																																																																																																																										
Aluminum (optional)						GP-2																																																																																																																																				
(add suffix "GP")																																																																																																																																										
Terminal Blocks		Single El.				Dual El.																																																																																																																																				
WC or WA		TB-A				TB-D																																																																																																																																				
GP		TB-1				n/a																																																																																																																																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">T/C Element</td> <td style="width: 10%;">A</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Protecting Tube</td> <td>97-187-3-</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>X</td> </tr> <tr> <td>No. 1</td> <td>97-687-3</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>(No. 1 with WA or WC option 60-687-8 (1')-)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. 2</td> <td>60-1250-4</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Open Head (standard)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>MTI-41-</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Weatherproof (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WC-4</td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>WA-4</td> <td></td> </tr> <tr> <td>(add suffix "WA" e.g. D9666-R-18-WA)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>GP-4</td> <td></td> </tr> <tr> <td>(add suffix "GP")</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td>Single El.</td> <td></td> <td></td> <td></td> <td>Dual El.</td> <td></td> </tr> <tr> <td>WC or WA</td> <td></td> <td>TB-A</td> <td></td> <td></td> <td></td> <td>TB-D</td> <td></td> </tr> <tr> <td>GP</td> <td></td> <td>TB-1</td> <td></td> <td></td> <td></td> <td>n/a</td> <td></td> </tr> </table>	T/C Element	A	C	D					Protecting Tube	97-187-3-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	No. 1	97-687-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		(No. 1 with WA or WC option 60-687-8 (1')-)								No. 2	60-1250-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Terminal								Open Head (standard)						MTI-41-	<input type="checkbox"/>	Weatherproof (optional)								Cast Iron (optional)						WC-4		Aluminum (optional)						WA-4		(add suffix "WA" e.g. D9666-R-18-WA)								General Purpose								Aluminum (optional)						GP-4		(add suffix "GP")								Terminal Blocks		Single El.				Dual El.		WC or WA		TB-A				TB-D		GP		TB-1				n/a			<p style="text-align: center;">(see tables)</p> <p style="text-align: center;">ABB C D</p> <p style="text-align: center;">D9776 - <input type="checkbox"/> - <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type</p>
T/C Element	A	C	D																																																																																																																																							
Protecting Tube	97-187-3-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X																																																																																																																																			
No. 1	97-687-3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
(No. 1 with WA or WC option 60-687-8 (1')-)																																																																																																																																										
No. 2	60-1250-4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
Terminal																																																																																																																																										
Open Head (standard)						MTI-41-	<input type="checkbox"/>																																																																																																																																			
Weatherproof (optional)																																																																																																																																										
Cast Iron (optional)						WC-4																																																																																																																																				
Aluminum (optional)						WA-4																																																																																																																																				
(add suffix "WA" e.g. D9666-R-18-WA)																																																																																																																																										
General Purpose																																																																																																																																										
Aluminum (optional)						GP-4																																																																																																																																				
(add suffix "GP")																																																																																																																																										
Terminal Blocks		Single El.				Dual El.																																																																																																																																				
WC or WA		TB-A				TB-D																																																																																																																																				
GP		TB-1				n/a																																																																																																																																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">T/C Element</td> <td style="width: 10%;">A</td> <td style="width: 10%;">C</td> <td style="width: 10%;">D</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>Protecting Tube</td> <td>97-187-3-</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td>X</td> </tr> <tr> <td>No. 1</td> <td>97-375-0</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>No. 2</td> <td>LT-1</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Open Head</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>MTI-03-</td> <td><input type="checkbox"/></td> </tr> </table>	T/C Element	A	C	D					Protecting Tube	97-187-3-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X	No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		No. 2	LT-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Terminal								Open Head						MTI-03-	<input type="checkbox"/>		<p style="text-align: center;">(see tables)</p> <p style="text-align: center;">ABB C D</p> <p style="text-align: center;">DA77L - <input type="checkbox"/> - <input type="checkbox"/></p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Length</p> <p style="text-align: center;">Type</p>																																																																																								
T/C Element	A	C	D																																																																																																																																							
Protecting Tube	97-187-3-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X																																																																																																																																			
No. 1	97-375-0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
No. 2	LT-1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																																																																																				
Terminal																																																																																																																																										
Open Head						MTI-03-	<input type="checkbox"/>																																																																																																																																			

SENSORS INDUSTRIAL DOUBLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Part No.	Double Tube Assembly Type	Replacement Components																																																																																																				
<p>(see tables)</p> <p>ABB C D</p> <p>DB77L — □ — □</p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Type Length</p>	<p>7/8 O.D. METAL-CERAMIC LT-1 TUBE 3/8 O.D. ALUMINA TUBE 3/16 O.D. ALUMINA INSULATOR</p> <p>LENGTH (SUFFIX "D")</p> <p>WEATHERPROOF CAST IRON HEAD</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td></td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. 1</td> <td style="text-align: center;">97-375-0</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>No. 2</td> <td style="text-align: center;">LT-1</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WC-3</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WA-3</td> </tr> <tr> <td colspan="5">(add suffix "WA" e.g. DB77L-R-18-WA)</td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">GP-3</td> </tr> <tr> <td colspan="5">(add suffix "GP")</td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td></td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td></td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D		T/C Element	97-187-5-□	— □	— □	— X	Protecting Tube	B				No. 1	97-375-0	—	□		No. 2	LT-1	—	□		Terminal					Weatherproof (standard)					Cast Iron (standard)				WC-3	Aluminum (optional)				WA-3	(add suffix "WA" e.g. DB77L-R-18-WA)					General Purpose					Aluminum (optional)				GP-3	(add suffix "GP")					Terminal Blocks		Single El.		Dual El.	WC or WA		TB-A		TB-D	GP		TB-1		n/a																				
	A	C	D																																																																																																			
T/C Element	97-187-5-□	— □	— □	— X																																																																																																		
Protecting Tube	B																																																																																																					
No. 1	97-375-0	—	□																																																																																																			
No. 2	LT-1	—	□																																																																																																			
Terminal																																																																																																						
Weatherproof (standard)																																																																																																						
Cast Iron (standard)				WC-3																																																																																																		
Aluminum (optional)				WA-3																																																																																																		
(add suffix "WA" e.g. DB77L-R-18-WA)																																																																																																						
General Purpose																																																																																																						
Aluminum (optional)				GP-3																																																																																																		
(add suffix "GP")																																																																																																						
Terminal Blocks		Single El.		Dual El.																																																																																																		
WC or WA		TB-A		TB-D																																																																																																		
GP		TB-1		n/a																																																																																																		
<p>(see tables)</p> <p>ABB C D</p> <p>DC77A — □ — □</p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Type Length</p>	<p>3/4" O.D. SA SILICON CARBIDE TUBE 3/8 O.D. ALUMINA TUBE 3/16 O.D. ALUMINA INSULATOR</p> <p>LENGTH (SUFFIX "D")</p> <p>WEATHERPROOF CAST IRON HEAD</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td style="text-align: center;">OAL</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— □</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. 1</td> <td style="text-align: center;">97-375-0</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>No. 2</td> <td style="text-align: center;">SA-750</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WC-3</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WA-3</td> </tr> <tr> <td colspan="5">(add suffix "WA" e.g. DC77L-R-18-30-WA)</td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">GP-3</td> </tr> <tr> <td colspan="5">(add suffix "GP")</td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td></td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td></td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D	OAL	T/C Element	97-187-5-□	— □	— □	— □	Protecting Tube	B				No. 1	97-375-0	—	□		No. 2	SA-750	—	□		Terminal					Weatherproof (standard)					Cast Iron (standard)				WC-3	Aluminum (optional)				WA-3	(add suffix "WA" e.g. DC77L-R-18-30-WA)					General Purpose					Aluminum (optional)				GP-3	(add suffix "GP")					Terminal Blocks		Single El.		Dual El.	WC or WA		TB-A		TB-D	GP		TB-1		n/a																				
	A	C	D	OAL																																																																																																		
T/C Element	97-187-5-□	— □	— □	— □																																																																																																		
Protecting Tube	B																																																																																																					
No. 1	97-375-0	—	□																																																																																																			
No. 2	SA-750	—	□																																																																																																			
Terminal																																																																																																						
Weatherproof (standard)																																																																																																						
Cast Iron (standard)				WC-3																																																																																																		
Aluminum (optional)				WA-3																																																																																																		
(add suffix "WA" e.g. DC77L-R-18-30-WA)																																																																																																						
General Purpose																																																																																																						
Aluminum (optional)				GP-3																																																																																																		
(add suffix "GP")																																																																																																						
Terminal Blocks		Single El.		Dual El.																																																																																																		
WC or WA		TB-A		TB-D																																																																																																		
GP		TB-1		n/a																																																																																																		
<p>(see tables)</p> <p>ABB C D</p> <p>DD766 — □ — □</p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Type Length</p>	<p>2" O.D. PORCELAIN TUBE 11/16 O.D. CERAMIC TUBE 3/16 O.D. INSULATOR</p> <p>ADJUSTABLE FLANGE OPTIONAL (add suffix "AF")</p> <p>LENGTH (SUFFIX "D")</p> <p>WEATHERPROOF CAST IRON HEAD</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td></td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> <td></td> </tr> <tr> <td>No. 1</td> <td style="text-align: center;">60-687-2</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>No. 2</td> <td style="text-align: center;">60-2000-0</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof (standard)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WC-2</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">WA-2</td> </tr> <tr> <td colspan="5">(add suffix "WA" e.g. DD666-R-18-WA)</td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td></td> <td></td> <td style="text-align: center;">GP-2</td> </tr> <tr> <td colspan="5">(add suffix "GP")</td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td></td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td></td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D		T/C Element	97-187-5-□	— □	— □	— X	Protecting Tube	B				No. 1	60-687-2	—	□		No. 2	60-2000-0	—	□		Terminal					Weatherproof (standard)					Cast Iron (standard)				WC-2	Aluminum (optional)				WA-2	(add suffix "WA" e.g. DD666-R-18-WA)					General Purpose					Aluminum (optional)				GP-2	(add suffix "GP")					Terminal Blocks		Single El.		Dual El.	WC or WA		TB-A		TB-D	GP		TB-1		n/a																				
	A	C	D																																																																																																			
T/C Element	97-187-5-□	— □	— □	— X																																																																																																		
Protecting Tube	B																																																																																																					
No. 1	60-687-2	—	□																																																																																																			
No. 2	60-2000-0	—	□																																																																																																			
Terminal																																																																																																						
Weatherproof (standard)																																																																																																						
Cast Iron (standard)				WC-2																																																																																																		
Aluminum (optional)				WA-2																																																																																																		
(add suffix "WA" e.g. DD666-R-18-WA)																																																																																																						
General Purpose																																																																																																						
Aluminum (optional)				GP-2																																																																																																		
(add suffix "GP")																																																																																																						
Terminal Blocks		Single El.		Dual El.																																																																																																		
WC or WA		TB-A		TB-D																																																																																																		
GP		TB-1		n/a																																																																																																		
<p>(1/2" INC. PIPE)</p> <p>(see tables)</p> <p>ABB C D</p> <p>DE76I — □ — □</p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Type Length</p> <p>(1" INC. PIPE)</p> <p>ABB C D</p> <p>DF76I — □ — □</p> <p style="text-align: center;">↑ ↑</p> <p style="text-align: center;">T/C Type Length</p>	<p>1/2" OR 1" STD. PIPE (INCONEL) 3/8 OR 11/16 O.D. CERAMIC TUBE 3/16 O.D. INSULATOR</p> <p>FIXED MTG. BUSHING OPTIONAL (see table)</p> <p>ADJUSTABLE FLANGE OPTIONAL (add suffix "AF")</p> <p>LENGTH (SUFFIX "D")</p> <p>WEATHERPROOF CAST IRON HEAD</p>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td style="text-align: center;">A</td> <td style="text-align: center;">C</td> <td style="text-align: center;">D</td> <td></td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5-□</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— □</td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td style="text-align: center;">B</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="5">(DE type assembly)</td> </tr> <tr> <td>No. 1</td> <td style="text-align: center;">60-375-0</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>No. 2</td> <td style="text-align: center;">12-600</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td colspan="5">(DF type assembly)</td> </tr> <tr> <td>No. 1</td> <td style="text-align: center;">60-687-0</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>No. 2</td> <td style="text-align: center;">44-600</td> <td style="text-align: center;">—</td> <td style="text-align: center;">□</td> <td></td> </tr> <tr> <td>Terminal</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Weatherproof for Ass.y</td> <td></td> <td style="text-align: center;">DE</td> <td></td> <td style="text-align: center;">DF</td> </tr> <tr> <td>Cast Iron (standard)</td> <td></td> <td style="text-align: center;">WC-2</td> <td></td> <td style="text-align: center;">WC-4</td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td style="text-align: center;">WA-2</td> <td></td> <td style="text-align: center;">WA-4</td> </tr> <tr> <td colspan="5">(add suffix "WA" e.g. DE66I-R-18-WA)</td> </tr> <tr> <td>General Purpose</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Aluminum (optional)</td> <td></td> <td style="text-align: center;">GP-2</td> <td></td> <td style="text-align: center;">GP-4</td> </tr> <tr> <td colspan="5">(add suffix "GP")</td> </tr> <tr> <td>Terminal Blocks</td> <td></td> <td style="text-align: center;">Single El.</td> <td></td> <td style="text-align: center;">Dual El.</td> </tr> <tr> <td>WC or WA</td> <td></td> <td style="text-align: center;">TB-A</td> <td></td> <td style="text-align: center;">TB-D</td> </tr> <tr> <td>GP</td> <td></td> <td style="text-align: center;">TB-1</td> <td></td> <td style="text-align: center;">n/a</td> </tr> </table>		A	C	D		T/C Element	97-187-5-□	— □	— □	— X	Protecting Tube	B				(DE type assembly)					No. 1	60-375-0	—	□		No. 2	12-600	—	□		(DF type assembly)					No. 1	60-687-0	—	□		No. 2	44-600	—	□		Terminal					Weatherproof for Ass.y		DE		DF	Cast Iron (standard)		WC-2		WC-4	Aluminum (optional)		WA-2		WA-4	(add suffix "WA" e.g. DE66I-R-18-WA)					General Purpose					Aluminum (optional)		GP-2		GP-4	(add suffix "GP")					Terminal Blocks		Single El.		Dual El.	WC or WA		TB-A		TB-D	GP		TB-1		n/a
	A	C	D																																																																																																			
T/C Element	97-187-5-□	— □	— □	— X																																																																																																		
Protecting Tube	B																																																																																																					
(DE type assembly)																																																																																																						
No. 1	60-375-0	—	□																																																																																																			
No. 2	12-600	—	□																																																																																																			
(DF type assembly)																																																																																																						
No. 1	60-687-0	—	□																																																																																																			
No. 2	44-600	—	□																																																																																																			
Terminal																																																																																																						
Weatherproof for Ass.y		DE		DF																																																																																																		
Cast Iron (standard)		WC-2		WC-4																																																																																																		
Aluminum (optional)		WA-2		WA-4																																																																																																		
(add suffix "WA" e.g. DE66I-R-18-WA)																																																																																																						
General Purpose																																																																																																						
Aluminum (optional)		GP-2		GP-4																																																																																																		
(add suffix "GP")																																																																																																						
Terminal Blocks		Single El.		Dual El.																																																																																																		
WC or WA		TB-A		TB-D																																																																																																		
GP		TB-1		n/a																																																																																																		

SENSORS INDUSTRIAL TRIPLE TUBE PLATINUM THERMOCOUPLE ASSEMBLIES

Replacement Components	Triple Tube Assembly Type	Part No.																																																																												
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">A</td> <td style="width: 30%; text-align: center;">C</td> <td style="width: 30%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-3- <input type="checkbox"/></td> <td style="text-align: center;">— <input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3" style="text-align: center;">B</td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-3 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 3</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Open Head</td> <td style="text-align: center;">MTI-01- <input type="checkbox"/></td> <td colspan="2"></td> </tr> </table>		A	C	D	T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X	Protecting Tube	B			No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 2	97-687-3 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 3	SIC —	<input type="checkbox"/>	— X	Terminal				Open Head	MTI-01- <input type="checkbox"/>				<p>(see tables)</p> <p>ABBB</p> <p>T1777C — <input type="checkbox"/> — <input type="checkbox"/></p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: x-small;">T/C Type Length</p>																																												
	A	C	D																																																																											
T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X																																																																											
Protecting Tube	B																																																																													
No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 2	97-687-3 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 3	SIC —	<input type="checkbox"/>	— X																																																																											
Terminal																																																																														
Open Head	MTI-01- <input type="checkbox"/>																																																																													
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">A</td> <td style="width: 30%; text-align: center;">C</td> <td style="width: 30%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5- <input type="checkbox"/></td> <td style="text-align: center;">— <input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3" style="text-align: center;">B</td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-2 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 3</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Weatherproof (standard)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (standard)</td> <td colspan="3" style="text-align: center;">WC-4</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">WA-4</td> </tr> <tr> <td> (add suffix "WA" e.g. T2666C-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">GP-4</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5- <input type="checkbox"/>	— <input type="checkbox"/>	— X	Protecting Tube	B			No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 2	97-687-2 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 3	SIC —	<input type="checkbox"/>	— X	Terminal				Weatherproof (standard)				Cast Iron (standard)	WC-4			Aluminum (optional)	WA-4			(add suffix "WA" e.g. T2666C-R-18-WA)				General Purpose				Aluminum (optional)	GP-4			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a			<p>(see tables)</p> <p>ABBB</p> <p>T2777C — <input type="checkbox"/> — <input type="checkbox"/></p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: x-small;">T/C Type Length</p>								
	A	C	D																																																																											
T/C Element	97-187-5- <input type="checkbox"/>	— <input type="checkbox"/>	— X																																																																											
Protecting Tube	B																																																																													
No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 2	97-687-2 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 3	SIC —	<input type="checkbox"/>	— X																																																																											
Terminal																																																																														
Weatherproof (standard)																																																																														
Cast Iron (standard)	WC-4																																																																													
Aluminum (optional)	WA-4																																																																													
(add suffix "WA" e.g. T2666C-R-18-WA)																																																																														
General Purpose																																																																														
Aluminum (optional)	GP-4																																																																													
(add suffix "GP")																																																																														
Terminal Blocks	Single El.	Dual El.																																																																												
WC or WA	TB-A	TB-D																																																																												
GP	TB-1	n/a																																																																												
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">A</td> <td style="width: 30%; text-align: center;">C</td> <td style="width: 30%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-5- <input type="checkbox"/></td> <td style="text-align: center;">— <input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3" style="text-align: center;">B</td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-2 (1") —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 3</td> <td style="text-align: center;">SIC —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;">— O</td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Weatherproof (standard)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (standard)</td> <td colspan="3" style="text-align: center;">WC-2</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">WA-2</td> </tr> <tr> <td> (add suffix "WA" e.g. T8666C-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">GP-2</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-5- <input type="checkbox"/>	— <input type="checkbox"/>	— X	Protecting Tube	B			No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 2	97-687-2 (1") —	<input type="checkbox"/>	<input type="checkbox"/>	No. 3	SIC —	<input type="checkbox"/>	— O	Terminal				Weatherproof (standard)				Cast Iron (standard)	WC-2			Aluminum (optional)	WA-2			(add suffix "WA" e.g. T8666C-R-18-WA)				General Purpose				Aluminum (optional)	GP-2			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a			<p>(see tables)</p> <p>ABBB</p> <p>T8777C — <input type="checkbox"/> — <input type="checkbox"/></p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: x-small;">T/C Type Length</p>								
	A	C	D																																																																											
T/C Element	97-187-5- <input type="checkbox"/>	— <input type="checkbox"/>	— X																																																																											
Protecting Tube	B																																																																													
No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 2	97-687-2 (1") —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 3	SIC —	<input type="checkbox"/>	— O																																																																											
Terminal																																																																														
Weatherproof (standard)																																																																														
Cast Iron (standard)	WC-2																																																																													
Aluminum (optional)	WA-2																																																																													
(add suffix "WA" e.g. T8666C-R-18-WA)																																																																														
General Purpose																																																																														
Aluminum (optional)	GP-2																																																																													
(add suffix "GP")																																																																														
Terminal Blocks	Single El.	Dual El.																																																																												
WC or WA	TB-A	TB-D																																																																												
GP	TB-1	n/a																																																																												
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">A</td> <td style="width: 30%; text-align: center;">C</td> <td style="width: 30%; text-align: center;">D</td> </tr> <tr> <td>T/C Element</td> <td style="text-align: center;">97-187-3- <input type="checkbox"/></td> <td style="text-align: center;">— <input type="checkbox"/></td> <td style="text-align: center;">— X</td> </tr> <tr> <td>Protecting Tube</td> <td colspan="3" style="text-align: center;">B</td> </tr> <tr> <td> No. 1</td> <td style="text-align: center;">97-375-0 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> No. 2</td> <td style="text-align: center;">97-687-3- <input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td> (No. 2 with WA or WC option 60-687-8(1"-))</td> <td colspan="3"></td> </tr> <tr> <td> No. 3</td> <td style="text-align: center;">60-1250-4 —</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>Terminal</td> <td colspan="3"></td> </tr> <tr> <td> Open Head (standard)</td> <td colspan="3" style="text-align: center;">MTI-41- <input type="checkbox"/></td> </tr> <tr> <td> Weatherproof (optional)</td> <td colspan="3"></td> </tr> <tr> <td> Cast Iron (optional)</td> <td colspan="3" style="text-align: center;">WC-4</td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">WA-4</td> </tr> <tr> <td> (add suffix "WA" e.g. T9666C-R-18-WA)</td> <td colspan="3"></td> </tr> <tr> <td> General Purpose</td> <td colspan="3"></td> </tr> <tr> <td> Aluminum (optional)</td> <td colspan="3" style="text-align: center;">GP-4</td> </tr> <tr> <td> (add suffix "GP")</td> <td colspan="3"></td> </tr> <tr> <td>Terminal Blocks</td> <td style="text-align: center;">Single El.</td> <td colspan="2" style="text-align: center;">Dual El.</td> </tr> <tr> <td> WC or WA</td> <td style="text-align: center;">TB-A</td> <td colspan="2" style="text-align: center;">TB-D</td> </tr> <tr> <td> GP</td> <td style="text-align: center;">TB-1</td> <td colspan="2" style="text-align: center;">n/a</td> </tr> </table>		A	C	D	T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X	Protecting Tube	B			No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>	No. 2	97-687-3- <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(No. 2 with WA or WC option 60-687-8(1"-))				No. 3	60-1250-4 —	<input type="checkbox"/>	<input type="checkbox"/>	Terminal				Open Head (standard)	MTI-41- <input type="checkbox"/>			Weatherproof (optional)				Cast Iron (optional)	WC-4			Aluminum (optional)	WA-4			(add suffix "WA" e.g. T9666C-R-18-WA)				General Purpose				Aluminum (optional)	GP-4			(add suffix "GP")				Terminal Blocks	Single El.	Dual El.		WC or WA	TB-A	TB-D		GP	TB-1	n/a			<p>(see tables)</p> <p>ABBB</p> <p>T97776 — <input type="checkbox"/> — <input type="checkbox"/></p> <p style="font-size: small;">↑ ↑</p> <p style="font-size: x-small;">T/C Type Length</p>
	A	C	D																																																																											
T/C Element	97-187-3- <input type="checkbox"/>	— <input type="checkbox"/>	— X																																																																											
Protecting Tube	B																																																																													
No. 1	97-375-0 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
No. 2	97-687-3- <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
(No. 2 with WA or WC option 60-687-8(1"-))																																																																														
No. 3	60-1250-4 —	<input type="checkbox"/>	<input type="checkbox"/>																																																																											
Terminal																																																																														
Open Head (standard)	MTI-41- <input type="checkbox"/>																																																																													
Weatherproof (optional)																																																																														
Cast Iron (optional)	WC-4																																																																													
Aluminum (optional)	WA-4																																																																													
(add suffix "WA" e.g. T9666C-R-18-WA)																																																																														
General Purpose																																																																														
Aluminum (optional)	GP-4																																																																													
(add suffix "GP")																																																																														
Terminal Blocks	Single El.	Dual El.																																																																												
WC or WA	TB-A	TB-D																																																																												
GP	TB-1	n/a																																																																												

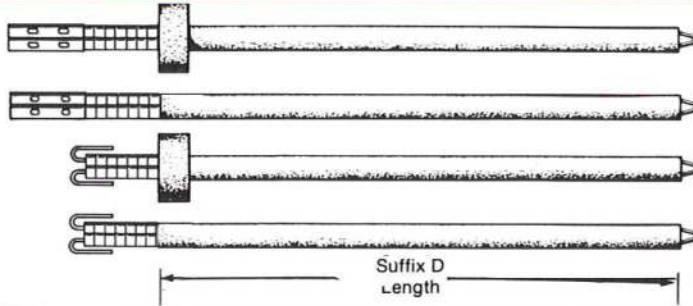


SENSORS INDUSTRIAL — PLATINUM THERMOCOUPLE ELEMENTS

Platinum 24 ga. (.020") thermocouple elements have welded junctions, Insulators are round double bore alumina or mullite. Alumina is the recommended material for use with Platinum thermocouples. Available in lengths from 12", in 6" increments.

Example: R-97-187-3-24"-X

Type R 24 GA. (.020) Thermocouple
997 Aluminum Insulator, 3/16 O.D. with
Collar, Exposed Junction



INSULATOR TYPE		PART NUMBER				PRICE		
MATERIAL	SIZE O.D.	A	(see tables)	B	C	D	\$/12" T.C	\$/1" ADDITION
MULLITE 60	1/8	□ - 60 -	125 -	□ -	□ -	X	Consult Factory	
	3/16	□ - 60 -	187 -	□ -	□ -	□		
	1/4	□ - 60 -	250 -	□ -	□ -	□		
		↑ T/C Type		↑ Term Option	↑ Length	↑ Junction Option		
ALUMINA 997	1/8	□ - 97 -	125 -	□ -	□ -	X	Consult Factory	
	3/16	□ - 97 -	187 -	□ -	□ -	□		
	1/4	□ - 97 -	250 -	□ -	□ -	□		
		↑ T/C Type		↑ Term Option	↑ Length	↑ Junction Option		
ALUMINA 998	1/8	□ - 98 -	125 -	□ -	□ -	X	Consult Factory	
	3/16	□ - 98 -	187 -	□ -	□ -	□		
	1/4	□ - 98 -	250 -	□ -	□ -	□		
		↑ T/C Type		↑ Term Option	↑ Length	↑ Junction Option		
NONE (Bare Element)		□ -	00 - 24(020) -	1 -	□ -	X	Consult Factory	
		↑ T/C Type						

NOTES: All platinum thermocouples utilize 24ga. (.020") wire unless otherwise specified.

TABLE B TERMINATION OPTIONS

DESCRIPTION	ORDER CODE	PRICE ADDITION
1" BARE LEADS	1	n/c
Ball & Socket Insulators	2	\$2.00
Ball & Socket Insulators w/Collar	3	\$3.00
Ball & Socket Insulators w/Sleeves	4	\$3.00
Ball & Socket Insulators w/Collar and Sleeves	5	\$3.00
2-Pole-Plug and Tube Adapter	2SPC	\$7.50

TABLE A THERMOCOUPLE TYPE

T/C TYPE	ORDER CODE	
	SINGLE ELEMENT	DUAL ¹ ELEMENT
ITS-90/IPTS 1968		
PT13%RH vs PT	R	R2
PT10%RH vs PT	S	S2
PT30%RH vs PT6%RH	B	B2
IPTS 1948		
PT13%RH vs PT	4R	4R2
PT10%RH vs PT	4S	4S2

Notes: 1) Dual Element
— Not available in 1/8 O.D.
— Does not apply to bare elements

TABLE C ELEMENT LENGTH

Available from 12" to 48" in 1" increments for longer lengths consult Factory.

TABLE D JUNCTION OPTIONS

DESCRIPTION	ORDER CODE
EXPOSED	X
RECESSED ¹	U

Notes: 1) Recessed available in 3/16 and 1/4 O.D. only



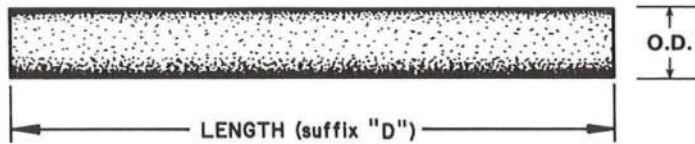
MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

SENSORS INDUSTRIAL T/C COMPONENTS — ALUMINA & MULLITE INSULATORS

Example:

2-60-187-3-24"-X

TWO HOLE, Mullite 60 Insulator
3/16 O.D. with Collar,
24" long with plain Junction End



ONE HOLE

TWO HOLE

FOUR HOLE

INSULATOR TYPE		PART NUMBER					BASE PRICE	
MATERIAL	SIZE O.D.	A	(see tables)	B	C	D	12" INSULATOR	6" ADDITION
MULLITE 60	1/8	□ - 60 - 125	□ - □ - X				\$3.50	\$1.75
	3/16	□ - 60 - 187	□ - □ - □					
	1/4	□ - 60 - 250	□ - □ - □					
		↑ Hole Type	↑ O.D. Code	↑ End Option	↑ Length	↑ Junction End Option		
ALUMINA 997	1/8	□ - 97 - 125	□ - □ - X				6.50	3.25
	3/16	□ - 97 - 187	□ - □ - □					
	1/4	□ - 97 - 250	□ - □ - □					
			↑ O.D. Code	↑ End Option	↑ Length	↑ Junction End Option		
ALUMINA 998	1/8	□ - 98 - 125	□ - □ - X				9.00	4.50
	3/16	□ - 98 - 187	□ - □ - □					
	1/4	□ - 98 - 250	□ - □ - □					
		↑ Hole Type	↑ O.D. Code	↑ End Option	↑ Length	↑ Junction End Option		

Tolerances: Diameter ±3%; Length ±.062"; Camber .062" Max. Per Ft.
For material specifications see general data section.

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1-9	NET
10-49	.90
50-74	.85
75-99	.80
100+	.75

TABLE A HOLE TYPE

HOLE TYPE			INSULATOR	
CODE	DESCRIPTION	HOLE SIZE	O.D.	O.D. CODE
1	ONE	0.062"	1/8"	125
		0.093"	3/16"	187
		0.125"	1/4"	250
2	TWO	0.031"	1/8"	125
		0.040"	3/16"	187
		0.062"	1/4"	250
4	FOUR	0.020"	1/8"	125
		0.040"	3/16"	187
		0.062"	1/4"	250

TABLE B TERMINATION END OPTIONS

DESCRIPTION	ORDER CODE	PRICE ADD.
PLAIN END	1	N/C
WITH COLLAR	3	\$3.00

ASSEMBLY TUBE LENGTH

TABLE C INSULATOR LENGTH

Available from 12" to 48" in 6" increments for longer lengths consult Factory.

TABLE D JUNCTION END OPTIONS

DESCRIPTION	CODE	PRICE ADD.
PLAIN END	X	N/C
RECESSED	U	\$5.00

Notes: 1) Recessed available in 3/16 and 1/4 O.D. only



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

(216) 941-6200

SENSORS INDUSTRIAL THERMOCOUPLE COMPONENTS — CERAMIC INSULATORS

FOR WIRE GAUGE	OD (INCHES)	HOLE SIZE (INCHES)	CODE FOR ELEMENT	LENGTH	PART NO.	PRICE \$/1000
8	0.562 × 0.312	0.190	V0	1"	2V081-0	\$41.
8	0.500 × 0.250	0.156	V1	1"	2V081-1	41.
8	0.435 × 0.250	0.156	V2	1"	2V081-2	26.
8	0.562 × 0.312	0.190	V3	3"	2V083	110.
14	0.375 × 0.217	0.109	V1	1"	2V141-1	23.
14	0.312 × 0.187	0.085	V2	1"	2V141-2	23.
14	0.375 × 0.217	0.093	V3	3"	2V143	96.



TWO HOLE OVAL

FOR WIRE GAUGE	OD (INCHES)	HOLE SIZE (INCHES)	CODE FOR ELEMENT	LENGTH	PART NO.	PRICE \$/1000
8	0.468	0.156	R1	1"	2R081	\$41.
8	0.500	0.187	R3	3"	2R083	144.
14	0.250	0.085	R1	1"	2R141	23.
14	0.250	0.080	R2	2"	2R142	41.
14	0.281	0.085	R3	3"	2R143	73.
20	0.156	0.045	R1	1"	2R201	26.
20	0.187	0.065	R2	1"	2R201-1	26.
20	0.225	0.078	R3	3"	2R203	73.



TWO HOLE ROUND

14	0.312	0.075	R4	1"	4R141	\$64.
----	-------	-------	----	----	-------	-------



FOUR HOLE ROUND

FOR WIRE GAUGE	OD (INCHES)	HOLE SIZE (INCHES)	CODE FOR ELEMENT	LENGTH	PART NO.	PRICE \$/1000
6	0.312	0.187	O1	1"	1R061	\$41.
8	0.250	0.156	O1	1"	1R081	41.
8	0.250	0.156	O3	3"	1R083	73.
14	0.187	0.093	O1	1"	1R141	41.



ONE HOLE ROUND

FOR WIRE GAUGE	OD (INCHES)	HOLE SIZE (INCHES)	CODE FOR ELEMENT	LENGTH	PART NO.	PRICE \$/1000
8	0.260	0.156	S1	0.260	1B08	\$18.
14	0.200	0.092	S2	0.200	1B14	18.
20	0.170	0.068	S3	0.170	1B20	18.
24	0.110	0.056	S4	0.110	1B24	18.



BALL AND SOCKET

- All insulators on this page are:
- Composition Ceramics
 - Operating Temperatures to 2000° F
 - Not suitable for use with Platinum Type Thermocouples

BALL AND SOCKET PREPACKED IN 12" SLEEVES					PRICE \$/EACH
8	0.260	0.156	12" Sleeve (Approx 54 pcs of 0.260 long Insulators)	1B08-12	\$1.75
14	0.200	0.092	12" Sleeve (Approx 70 pcs of 0.200 long Insulators)	1B14-12	1.75
20	0.170	0.068	12" Sleeve (Approx 82 pcs of 0.170 long Insulators)	1B20-12	2.00

*Use quantity discount on next page (this table only)

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1M-5M	NET
6M-9M	.95
10M-24M	.90
25M-49M	.85
50M-74M	.80
75M+	.75

M signifies 1000's



Marlin MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

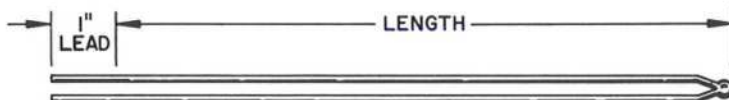
(216) 941-6200

SENSORS INDUSTRIAL — BASE METAL THERMOCOUPLE ELEMENTS

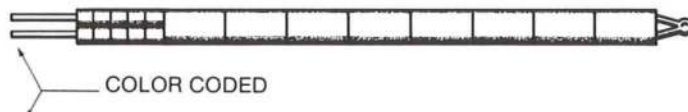
DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1-9	NET
10-49	.90
50-74	.85
75-99	.80
100+	.75

Element Type:

Bare



2-Hole Ceramic Insulated



4-Hole Ceramic Insulated



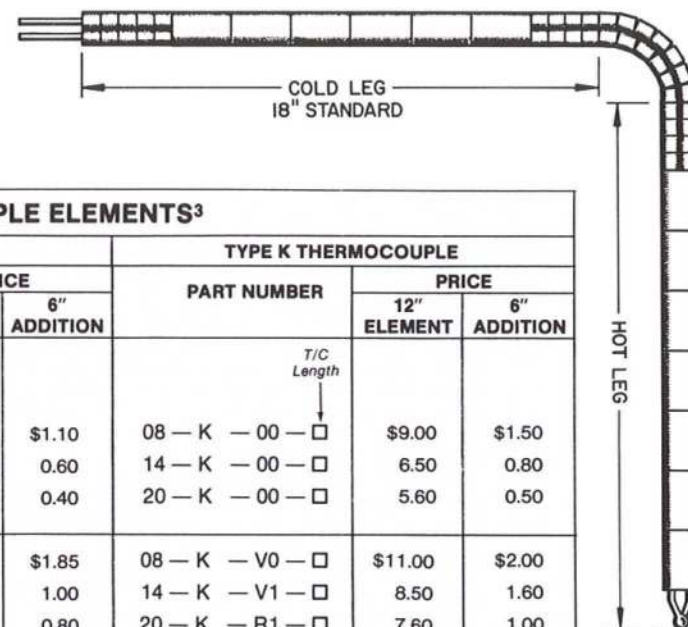
Ball & Socket Ceramic Insulated



Example:

08-K-V0-18" @ \$13.00
8 ga., Type K Thermocouple Element,
2-Hole Ceramic Insulated, 18" long
with welded junction

Angle



BASE METAL THERMOCOUPLE ELEMENTS ³								
WIRE GAGE	STANDARD ¹ INSULATOR TYPE	ELEMENT TYPE	TYPE J THERMOCOUPLE			TYPE K THERMOCOUPLE		
			PART NUMBER	PRICE		PART NUMBER	PRICE	
				12" ELEMENT	6" ADDITION		12" ELEMENT	6" ADDITION
8 14 20	NONE	BARE	08 - J - 00 - □ 14 - J - 00 - □ 20 - J - 00 - □	\$7.00 5.75 5.45	\$1.10 0.60 0.40	08 - K - 00 - □ 14 - K - 00 - □ 20 - K - 00 - □	\$9.00 6.50 5.60	\$1.50 0.80 0.50
8 14 20	2V081-0 2V141-1 2R201-1	2-HOLE CERAMIC INSULATED	08 - J - V0 - □ 14 - J - V1 - □ 20 - J - R1 - □	\$9.00 7.25 7.45	\$1.85 1.00 0.80	08 - K - V0 - □ 14 - K - V1 - □ 20 - K - R1 - □	\$11.00 8.50 7.60	\$2.00 1.60 1.00
14	4R141	4-HOLE CERAMIC INSULATED	14 - J2 - R4 - □ (DUAL THERMOCOUPLE)	\$10.00	\$2.75	14 - K2 - R4 - □	\$11.00	\$3.25
8 14 20	IB08 IB14 IB20	BALL & SOCKET CERAMIC INSULATED	08 - J - S1 - □ 14 - J - S2 - □ 20 - J - S3 - □	\$12.50 10.25 8.25	\$4.20 3.10 2.60	08 - K - S1 - □ 14 - K - S2 - □ 20 - K - S3 - □	\$17.00 12.50 10.60	\$4.60 3.60 3.10
8 14 20	2V081-0/IB08 2V141-1/IB14 2R201-1/IB20	ANGLE ²	08 - JA - V0 - □ 14 - JA - V1 - □ 20 - JA - R1 - □	\$14.50 10.75 9.00	\$1.85 1.10 0.80	08 - KA - V0 - □ 14 - KA - V1 - □ 20 - KA - R1 - □	\$18.00 13.50 11.60	\$2.50 1.55 1.10

- NOTES: 1) Part numbers reflect Marlin standard construction. For different insulator other than shown substitute insulator code for element shown in insulator table at no change in price.
e.g. for element with small 2-hole oval ceramics 08 - K - V2 - 18"
- 2) Angle type elements include 18" of cold leg. For other than 18" insert length after "A" code and add incremental additional cost.
e.g. 08 - KA (24") - V0 - 18"
- 3) Welded junctions are standard. For twisted and welded junction add suffix "W" and add \$1.00 to list price
e.g. 08 - K - V0 - 18" - W



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

SENSORS INDUSTRIAL — BASE METAL THERMOCOUPLE ASSEMBLIES

T/C Type: **A** NPT Size: **B** Tube Mat'l.: **C** Length: **D** Mounting Option: **E** See Notes Table B: **F**

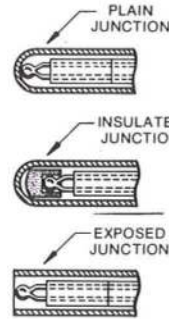
Assembly Example: K — 12 — 600 — 24"

TABLE A THERMOCOUPLE TYPE

THERMOCOUPLE TYPE	ORDER CODE "A"	
	SINGLE ELEMENT	DUAL ELEMENT
CHROMEL vs ALUMEL	K	K2
IRON vs CONSTANTAN	J	J2

- Notes: 1) All assemblies are plain junction unless otherwise specified.
 2) For insulated junction insert "U"
 e.g. KU-12-600-24"
 3) For angle type assembly insert "A" code: Prices add \$14 to list.
 e.g. KA-12-600-24"
 For other than 18" cold leg specify cold leg length: Price per 6"
 e.g. KA (24")-12-600-24" \$4.00
 ⌒ Cold leg length

JUNCTION OPTIONS



ANGLE ASSEMBLY OPTION

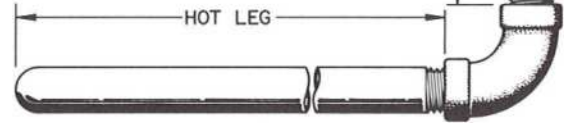


TABLE B PROTECTING TUBE SIZE

PROTECTING TUBE SIZE		ORDER CODE	T/C ELEMENT REPLACEMENT				HEAD & BLOCK REPLACEMENT	
NPT	I.D. x O.D.		SINGLE ELEMENT		DUAL ELEMENT		SINGLE ELEMENT	DUAL ELEMENT
1/4	0.364 x 0.540	14	A	D	A	D	AWC-1/4	DWC-1/4
3/8	0.493 x 0.675	38	14 - □ - R1 - □	14 - □ - V1 - □	14 - □ 2 - R4 - □	14 - □ 2 - R4 - □	AWC-3/8	DWC-3/8
1/2	0.622 x 0.840	12	08 - □ - V0 - □	08 - □ - V0 - □	14 - □ - V1 - □ (2 Pcs)	14 - □ - V1 - □ (2 Pcs)	AWC-2	DWC-2
3/4	0.824 x 1.050	34	08 - □ - V0 - □	08 - □ - V0 - □	08 - □ - V0 - □ (2 Pcs)	08 - □ - V0 - □ (2 Pcs)	AWC-3	DWC-3
1	1.049 x 1.315	44	08 - □ - V0 - □	08 - □ - V0 - □	08 - □ - V0 - □ (2 Pcs)	08 - □ - V0 - □ (2 Pcs)	AWC-4	DWC-4

- Notes: 1) Schedule 40 protecting tubes standard, for extra-heavy schedule 80 use suffix "H" e.g. K — 12 — 600 — 24" — 0 — H. Consultant Factory for price.
 2) For open end tube (for exposed T/C junction) construction add suffix "X" e.g. 12 — 304 — 12" — 0 — X with no increase in price.
 3) Weatherproof cast iron head standard for WP aluminum head use suffix "WA" e.g. K — 12 — 600 — 24" — WA; Price add \$2.50 to list price.
 4) For general purpose aluminum head suffix GP, e.g. K — 13 — 600 GP, price deduct \$1.50 from list price (not available in dual element).
 5) 1/4 NPT & 3/8 NPT heads utilize reducer bushings.

TABLE C — PROTECTING TUBE MATERIAL

MATERIAL	ORDER CODE	MAX. WORKING TEMPERATURE	APPROX. MELTING TEMPERATURE	REPLACEMENT PROTECTING TUBE CODE
CARBON STEEL	118	1300°F	2500°F	B D E
304SS	304	1650°F	2560°F	□ — 118 — □ — □
316SS	316	1700°F	2500°F	□ — 304 — □ — □
446SS	446	2000°F	2700°F	□ — 316 — □ — □
INCONEL 600	600	2100°F	2550°F	□ — 446 — □ — □
				□ — 600 — □ — □

TABLE D — ASSEMBLY LENGTH from 12" in 6" increments

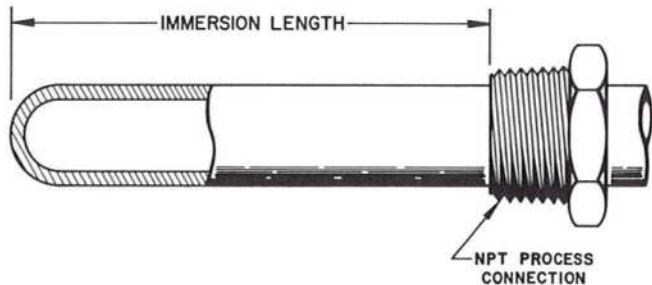
TABLE E — MOUNTING BUSHING

FIXED BUSHING SIZE	PART NO. (Steel)	PRICE \$ add	PART NO. (SS)	PRICE \$ add
1/2 NPT	F12C	\$ 8.00	F12S	\$10.00
3/4 NPT	F34C	9.00	F34S	11.00
1 NPT	F44C	9.00	F44S	13.00
1-1/4 NPT	F54C	11.00	F54S	27.00
1-1/2 NPT	F64C	11.00	F64S	32.00

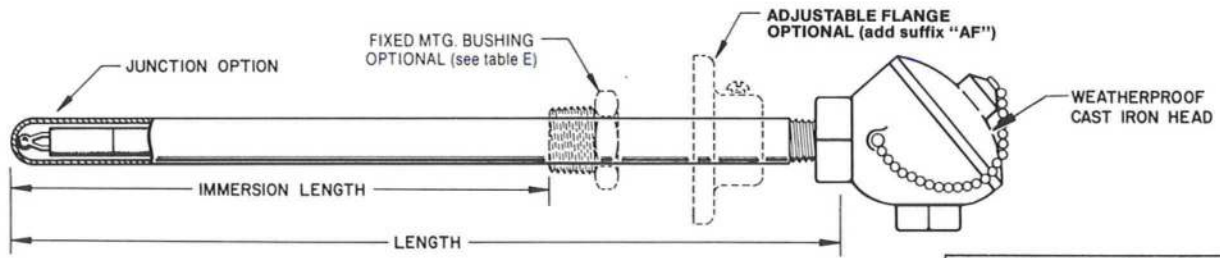
- Notes: Bushings are welded to tubes.
 1/2 NPT Bushing fits up to 3/8 pipe
 3/4 NPT Bushing fits up to 1/2 pipe
 1 NPT Bushing fits up to 3/4 pipe
 1-1/4 NPT Bushing fits up to 1 pipe
 1-1/2 NPT Bushing fits up to 1-1/4 pipe

GIVE IMMERSION LENGTH WHEN ORDERING BUSHING
 e.g. 12 — 304 — 24" — F34C — 18" and add bushing price to baselist price.

Fixed Steel Mounting Bushing For Metal Protecting Tubes



SENSORS INDUSTRIAL — BASE METAL THERMOCOUPLE ASSEMBLIES



Example: K-12-600-24"

Type K Thermocouple, 1/2 NPT, Inconel 600 Tube, 24" long

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1-9	NET
10-49	.90
50-74	.85
75-99	.80
100+	.75

PROTECTING TUBE		PART NUMBER	BASE PRICE	
MATERIAL	SIZE NPT		\$/12" ASSEMBLY	\$/6" ADDITION
CARBON STEEL	1/4 NPT	(see tables) A B C D E F □ - 14 - 118 - □ - □ - □	\$40.00	4.50
	1/2 NPT	□ - 12 - 118 - □ - □ - □	41.00	4.75
	3/4 NPT	□ - 34 - 118 - □ - □ - □	42.00	5.00
	1 NPT	□ - 44 - 118 - □ - □ - □	43.00	5.50
		T/C Type J or K Length Mounting Accessories (if Applicable) See Note 1, 2		
304 SS	1/4 NPT	(see tables) A B C D E F □ - 14 - 304 - □ - □ - □	44.00	6.00
	1/2 NPT	□ - 12 - 304 - □ - □ - □	46.00	6.75
	3/4 NPT	□ - 34 - 304 - □ - □ - □	47.00	7.00
	1 NPT	□ - 44 - 304 - □ - □ - □	48.00	8.00
		T/C Type J or K Length Mounting Accessories (if Applicable) See Note 1, 2		
316 SS	1/4 NPT	(see tables) A B C D E F □ - 14 - 316 - □ - □ - □	46.00	7.00
	1/2 NPT	□ - 12 - 316 - □ - □ - □	48.00	8.00
	3/4 NPT	□ - 34 - 316 - □ - □ - □	49.00	9.00
	1 NPT	□ - 44 - 316 - □ - □ - □	52.00	11.00
		T/C Type J or K Length Mounting Accessories (if Applicable) See Note 1, 2		
446 SS	1/4 NPT	(see tables) A B C D E F □ - 14 - 446 - □ - □ - □	58.00	12.00
	1/2 NPT	□ - 12 - 446 - □ - □ - □	62.00	15.00
	3/4 NPT	□ - 34 - 446 - □ - □ - □	68.00	18.00
	1 NPT	□ - 44 - 446 - □ - □ - □	75.00	22.00
		T/C Type J or K Length Mounting Accessories (if Applicable) See Note 1, 2		
INCONEL 600	1/4 NPT	(see tables) A B C D E F □ - 14 - 600 - □ - □ - □	61.00	16.00
	1/2 NPT	□ - 12 - 600 - □ - □ - □	67.00	18.00
	3/4 NPT	□ - 34 - 600 - □ - □ - □	70.00	21.00
	1 NPT	□ - 44 - 600 - □ - □ - □	77.00	24.00
		T/C Type J or K Length Mounting Accessories (if Applicable) See Note 1, 2		

Note: 1) Schedule 40 protecting tubes standard, for extra-heavy schedule 80 use code "H" e.g. K-12-600-24-0-H, consult factory for price.
 2) For open end tube (for exposed T/C junction) construction add suffix "X" e.g. 12-304-12"-0-X with no increase in price.



(216) 941-6200

MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 FAX: (216) 941-6207

SENSORS INDUSTRIAL — BASE METAL THERMOCOUPLE ASSEMBLIES — TABLES

DISCOUNT SCHEDULE	
QUANTITY	FACTOR
1-9	NET
10-49	.90
50-74	.85
75-99	.80
100+	.75

ASSEMBLY DESIGNATION

EXAMPLE:

C16 — K — 24"

TABLE B — PROTECTING TUBE MATERIAL

TUBE MATERIAL	CODE
MULLITE 60	6
ALUMINA 997	7
ALUMINA 998	8
CAST IRON	T
INCONEL	I

PROTECTING TUBE MAT'L

Note: Protecting Tube materials can be changed from "commonly used" combination to fit your particular requirements. (Applies to assemblies C1, C2, C3)

TABLE C — SINGLE/DUAL THERMOCOUPLE & T/C TYPE

THERMOCOUPLE TYPE	SINGLE ELEMENT	DUAL ELEMENT
CHROMEL™ vs ALUMEL™	K	K2
IRON vs CONSTANTAN	J	J2

THERMOCOUPLE TYPE

TABLE D — ASSEMBLY TUBE LENGTH

Length from 12" to 48" in 6" increments.
For special Lengths consult Factory.

ASSEMBLY LENGTH



SENSORS INDUSTRIAL — BASE METAL THERMOCOUPLE ASSEMBLIES

Replacement Components	Assembly Type	Part No.				
<p>T/C Element C D 14- <input type="checkbox"/> — V1 — <input type="checkbox"/></p> <p>Protecting Tube B 60-687-2 — <input type="checkbox"/></p> <p>Terminal Weatherproof (standard) Cast Iron (standard) WC-2 Aluminum (optional) WA-2 add suffix "WA" e.g. C16-K-24"-WA General Purpose Aluminum (optional) GP-2 (add suffix "GP")</p> <p>Terminal Blocks Single El. Dual El. WC or WA TB-A TB-D GP TB-1 n/a</p>		<p>(see tables) B C D C16 — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ T/C Type Length</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>12" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$40.</td> <td>\$5.50</td> </tr> </table>	12" Ass'y	6" Add.	\$40.	\$5.50
12" Ass'y	6" Add.					
\$40.	\$5.50					
<p>T/C Element C D 14- <input type="checkbox"/> — V1 — <input type="checkbox"/></p> <p>Protecting Tube B 60-687-7(6") — <input type="checkbox"/></p> <p>Terminal Weatherproof (standard) Cast Iron (standard) WC-3 Aluminum (optional) WA-3 add suffix "WA" e.g. C26-K-12"-WA General Purpose Aluminum (optional) GP-3 (add suffix "GP")</p> <p>Terminal Blocks Single El. Dual El. WC or WA TB-A TB-D GP TB-1 n/a</p>		<p>(see tables) B C D C26 — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ T/C Type Length</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>12" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$42.</td> <td>\$5.50</td> </tr> </table>	12" Ass'y	6" Add.	\$42.	\$5.50
12" Ass'y	6" Add.					
\$42.	\$5.50					
<p>T/C Element C D 08- <input type="checkbox"/> — V0 — <input type="checkbox"/></p> <p>Protecting Tube B 60-1000-8(3") — <input type="checkbox"/></p> <p>Terminal Weatherproof (standard) Cast Iron (standard) WC-4 Aluminum (optional) WA-4 add suffix "WA" e.g. C36-K-24"-WA General Purpose Aluminum (optional) GP-4 (add suffix "GP")</p> <p>Terminal Blocks Single El. Dual El. WC or WA TB-A TB-D GP TB-1 n/a</p>		<p>(see tables) B C D C36 — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ T/C Type Length</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>12" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$55.</td> <td>\$7.</td> </tr> </table>	12" Ass'y	6" Add.	\$55.	\$7.
12" Ass'y	6" Add.					
\$55.	\$7.					
<p>T/C Element C D 08- <input type="checkbox"/> — V0 — <input type="checkbox"/></p> <p>Protecting Tube B 34-CIR — <input type="checkbox"/></p> <p>Terminal Weatherproof (standard) Cast Iron (standard) WC-3 Aluminum (optional) WA-3 add suffix "WA" e.g. C4A-K-18"-WA General Purpose Aluminum (optional) GP-3 (add suffix "GP")</p> <p>Terminal Blocks Single El. Dual El. WC or WA TB-A TB-D GP TB-1 n/a</p>		<p>(see tables) B C D C4T — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ T/C Type Length</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>12" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$40.</td> <td>\$6.</td> </tr> </table>	12" Ass'y	6" Add.	\$40.	\$6.
12" Ass'y	6" Add.					
\$40.	\$6.					
<p>T/C Element C D 08- <input type="checkbox"/> — V0 — <input type="checkbox"/></p> <p>Protecting Tube B 34-CIR — <input type="checkbox"/></p> <p>Terminal Weatherproof (standard) Cast Iron (standard) WC-3 Aluminum (optional) WA-3 add suffix "WA" e.g. C5A-K-24"-WA General Purpose Aluminum (optional) GP-3 (add suffix "GP")</p> <p>Terminal Blocks Single El. Dual El. WC or WA TB-A TB-D GP TB-1 n/a</p>		<p>(see tables) B C D C5T — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ T/C Type Length</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>12" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$54.</td> <td>\$6.</td> </tr> </table>	12" Ass'y	6" Add.	\$54.	\$6.
12" Ass'y	6" Add.					
\$54.	\$6.					
<p>Blast furnace, open end, T/C assembly standard assembly consists of a weatherproof head, refractory terminal block and tapered plug on 6" running thread on 3/4 NPS Inconel Pipe. Type K, 8 ga. T/C is cemented in tube. Replacement T/C's are not available.</p>		<p>(see tables) B C D End Option C6I — K — <input type="checkbox"/> — <input type="checkbox"/></p> <p>↑ ↑ Length O-Flush X-Expose</p> <p>PRICE</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <th>18" Ass'y</th> <th>6" Add.</th> </tr> <tr> <td>\$115.</td> <td>\$21.</td> </tr> </table>	18" Ass'y	6" Add.	\$115.	\$21.
18" Ass'y	6" Add.					
\$115.	\$21.					



MANUFACTURING CORPORATION 12404 TRISKETT ROAD CLEVELAND, OHIO 44111 (216) 941-6200 FAX: (216) 941-6207