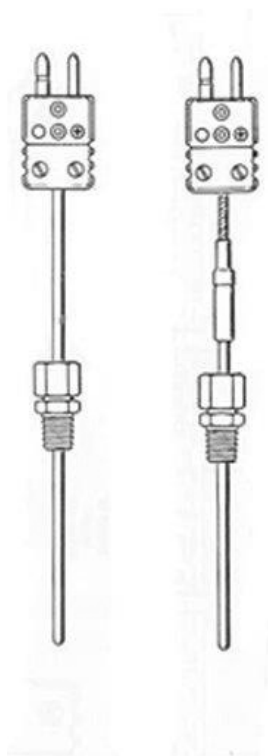


MANTEL-THERMOELEMENTE

THERMOCOUPLES GAINÉS

METAL SHEATED THERMOCOUPLES

• CUSTOM MARLOX THERMOCOUPLES



CUSTOM MARLOX TC

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:

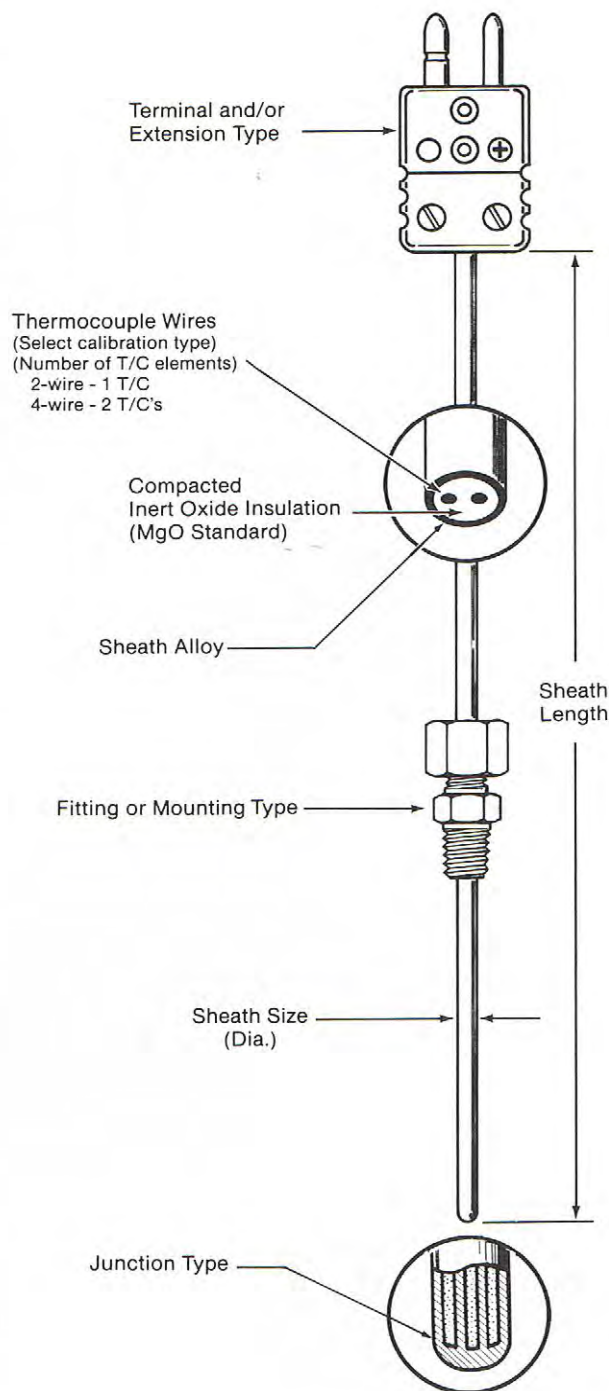
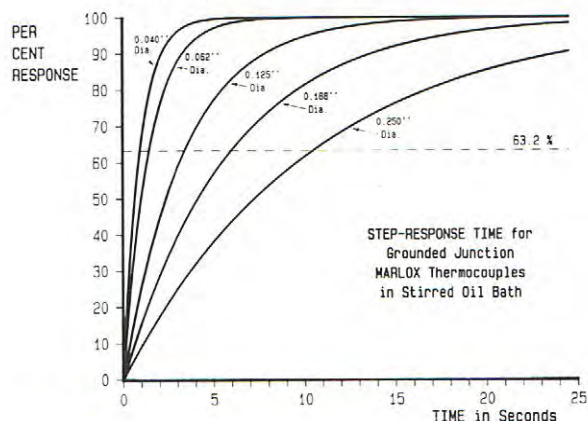
Select the junction that will give the protection and response characteristics that you require.

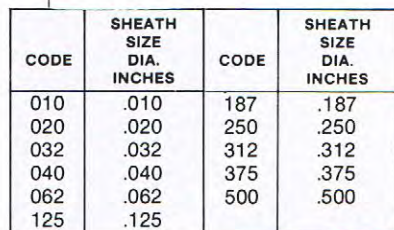
Fitting or Mounting Type:

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.





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

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					

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.

TMInternational 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.

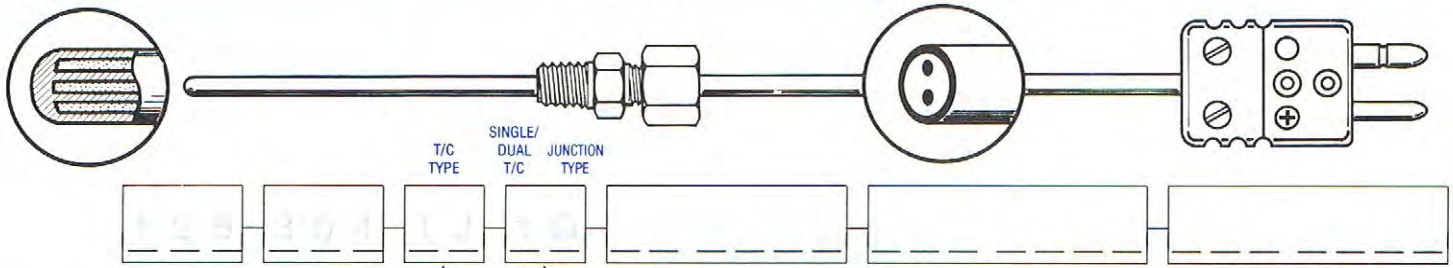
TM-Hoskins Mfg. Co.

SHEATH MATERIAL — THERMOCOUPLE TYPE COMPATIBILITY CHART - Continuous Duty	
T/C TYPE	SHEATH MAT'L.
T	304SS
J	316SS
E	310SS
K	INCONEL™
N	2300™

TEMPERATURE °F

400 800 1200 1600 2000 2400

SENSORS CUSTOM MARLOX® THERMOCOUPLES



THERMOCOUPLE WIRE ALLOYS	TEMPERATURE RANGE (°F)	ORDER CODE STANDARD GRADE	INITIAL CALIBRATION TOLERANCE	
			STANDARD GRADE	SPECIAL* GRADE
Copper (+) vs. Constantan (-)	-32 to +270 +270 to +660	1J	±1.8°F ±.75%	±.9°F ±.4%
Iron (+) vs. Constantan (-)	32 to 530 530 to 1400	1J	±4°F ±.75%	±2°F ±.4%
Chromel™ (+) vs. Constantan (-)	32 to 600 600 to 1600	1E	±3°F ±.5%	±.4°F ±.4%
Chromel™ (+) vs. Alumel™ (-)	32 to 530 530 to 2300	1K	±4°F ±.75%	±2°F ±.4%
Nicrosil (+) vs. Nisil (-)	32 to 530 530 to 2300	1N	±4°F ±.75%	±2°F ±.4%

Calibration Type

Type T (COPPER vs CONSTANTAN) is used for service in oxidizing, inert or reducing atmospheres or in vacuum. It is highly resistant to corrosion from atmospheric moisture and condensation and exhibits high stability at low temperatures; it is the only type with limits of error guaranteed for cryogenic temperatures.

Type J (IRON vs CONSTANTAN) is used protected or unprotected in vacuum, oxidizing, inert or reducing atmospheres. Iron element oxidizes rapidly at temperatures exceeding 1000°F, and therefore heavier gauge wire is recommended for longer life at these temperatures.

Type E (CHROMEL™ vs CONSTANTAN) may be used protected or unprotected in oxidizing, inert or dry reducing atmospheres, or for short periods of time under vacuum. Must be protected from sulfurous and marginally oxidizing atmospheres. Produces the highest EMF per degree of any standardized metallic thermocouple.

Type K (CHROMEL™ vs ALUMEL™) is used protected or exposed to oxidizing, inert or dry reducing atmospheres. Exposure to vacuum limited to short time periods. Must be protected from sulfurous and marginally oxidizing atmospheres. Reliable and accurate at high temperatures. *—HOSKINS MFG. CO.

Type N (NICROSIL vs NISIL) is used protected or exposed to oxidizing, inert or dry reducing atmospheres. Exposure to vacuum limited to short time periods. Must be protected from sulfurous atmospheres.

*Accuracy of Marlox Thermocouples

Marlin products are manufactured to specifications in conformance with Initial Calibration Tolerance of the American National Standards Institute Standard Number MC96.1 as indicated in the tables. Standard grade wire is used in manufacturing all Marlin thermocouples for temperatures above 32°F; special grade, T/C's for use at sub-zero temperatures, and T/C's with certified traceable calibrations are available upon request. To order a special grade Initial Calibration Tolerance thermocouple use a designation; e.g., 2T, 2J, 2E, 2K, 2N.

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



EXPOSED



GROUNDING



UNGROUNDING

Grounded designated

For ungrounded weld pad junction use "U" e.g. "1UL"



PERPENDICULAR
CODE "A"



PARALLEL
CODE "B"



TUBE SKIN
CODE "C"

WELD PAD GROUNDED or UNGROUNDED JUNCTION

Junctions

All junctions are welded by the tungsten inert gas method to insure performance and to prevent contamination of Marlox thermocouples.

Exposed Junction Bare thermocouple wires are welded to form a junction that extends beyond the sheath for a distance equal to the sheath diameter. Used where fast response is required and contamination is not a factor.

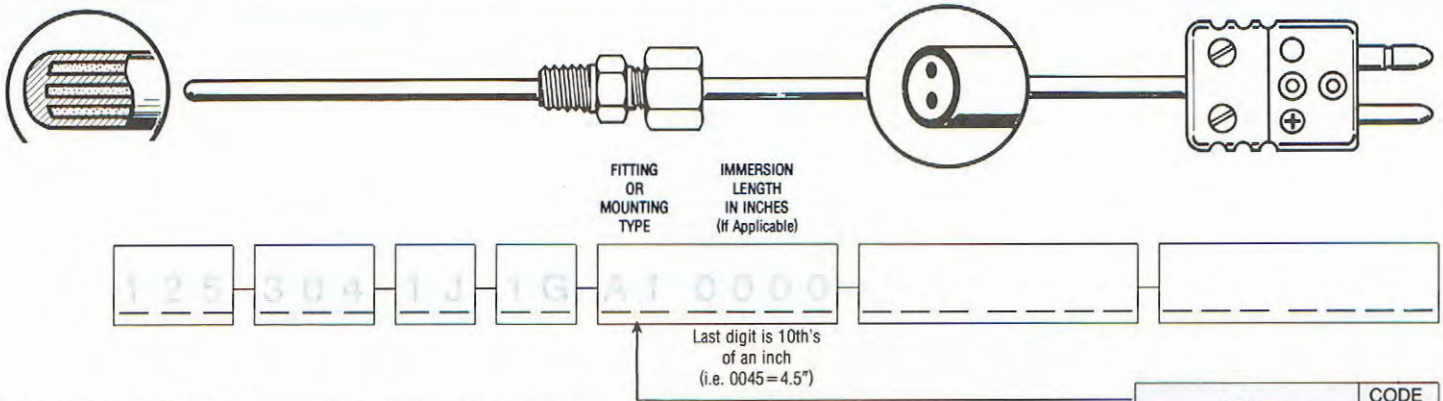
Grounded Junction The thermocouple junction is welded directly to the sheath. Provides good thermocouple protection against pressure, moisture and mechanical damage yet retains good response characteristics.

Ungrounded Junction The junction is electrically and mechanically insulated from the sheath for long life characteristics under maximum corrosion, thermal shock, and vibration conditions.

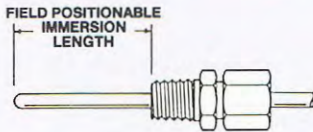
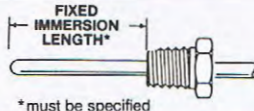
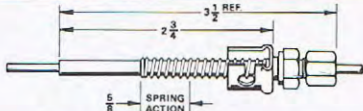
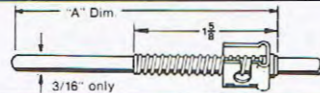
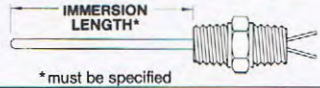
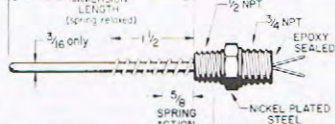
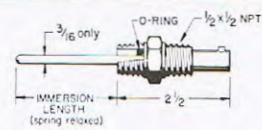
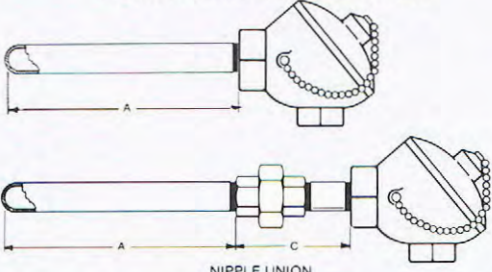
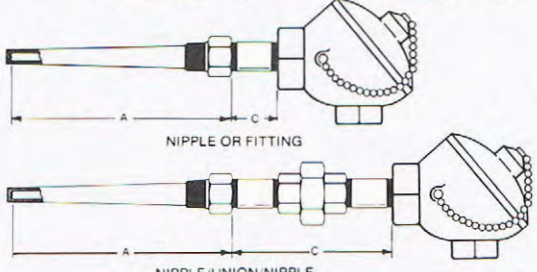
Dual Element Junction Dual element Marlox provides two circuits for simultaneous response from a single thermal point. Exposed, grounded or dual ungrounded are available. In Marlox 0.125 dia. and up the dual element ungrounded thermocouple junctions are insulated from the sheath and each other. Smaller dia. Marlox Dual ungrounded junctions are insulated from the sheath but not from each other.

Weld Pad Junction junction is used as a means of attaching Marlox to surfaces such as boiler tubes and pipes to provide efficient surface temperature measurement. Standard construction utilizes grounded or ungrounded junction Marlox welded to an alloy pad (1"×1"×1/8") of the same composition as the sheath. Tube skin Perpendicular and Parallel pad arrangements are available.

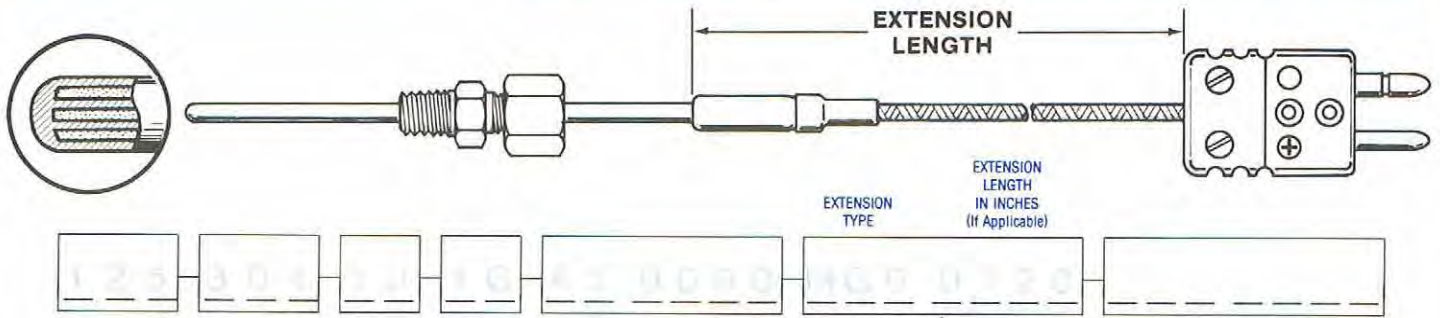
SENSORS CUSTOM MARLOX® THERMOCOUPLES



Mounting Fittings — See Selection Summaries for Details

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.		S.S. Fitting 1/8 NPT 1/4 NPT		A1 A2
Fixed Fittings are stainless steel, NPT thread sizes, and are brazed to the sheath. Additional sizes, materials and welded mountings are also available.		NOTES: C1 = Stl. B1 = Brass Ferrules: Metal Std. (Non-readjustable) "T" for Teflon, e.g. T1 "L" for Lava, e.g. L1		
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.		1/8 NPT 1/4 NPT 3/8 NPT 1/2 NPT 3/4 NPT 1 NPT	F1 F2 F3 F4 F6 F8	
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.)		ADJUSTABLE BAYONET	AB	
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.		FIXED BAYONET	FB() ↑ "A" Dim.	
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.		1/4 x 1/4 NPT 1/2 x 1/2 NPT 3/4 x 3/4 NPT	D2 D4 D6	
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.		SPRING LOADED EPOXY SEALED FITTING	W1	
		SPRING LOADED O-RING SEALED, SS FITTING	S1	
TYPICAL ASSEMBLY w/PROTECTING TUBE		TYPICAL ASSEMBLY w/THERMOWELL (Notes 1-5 apply)		
				
NIPPLE UNION		NIPPLE OR FITTING		
		NIPPLE/UNION/NIPPLE		
		NIPPLE UNION		
		NIPPLE/UNION		
		NIPPLE/UNION/NIPPLE		
		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).

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).

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.



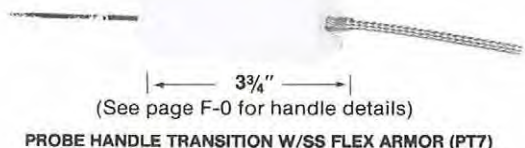
Teflon-Teflon Teflon insulates individual conductors followed by an overall teflon jacket. Superior abrasion and moisture resistance. Resists most acids and vapors. Recommended operating temperature -90°F to 500°F.

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.

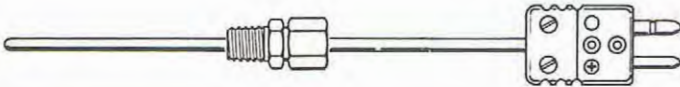
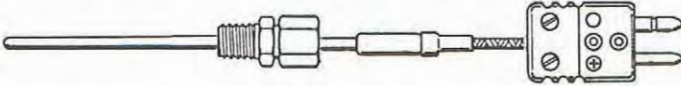
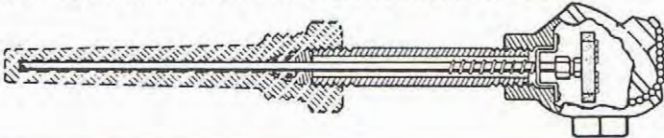
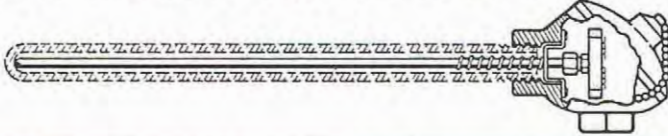
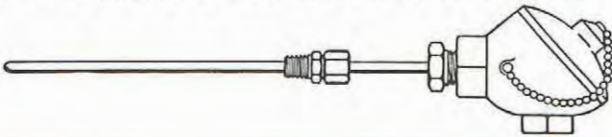


SS Armor Tubing Can be used over any wire extension for added mechanical damage and abrasion resistance.

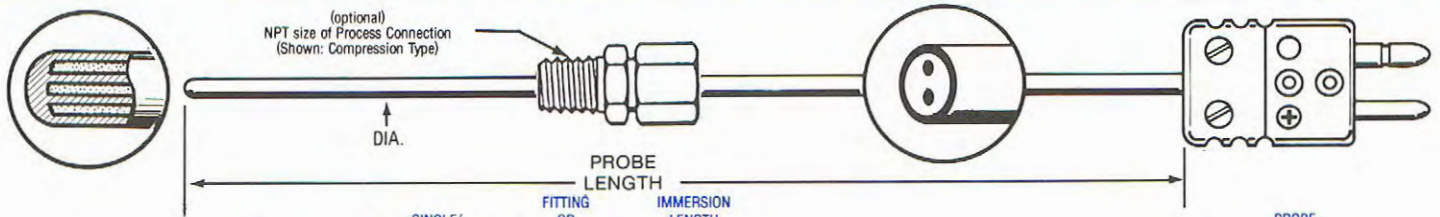


SENSORS

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SENSORS — SELECTION SUMMARY CUSTOM MARLOX® THERMOCOUPLES



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

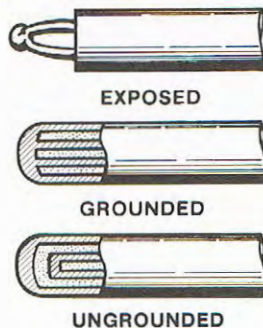
ANSI TYPE
1T
1J
1E
1K
1N

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	
FIELD POSITIONABLE IMMERSION LENGTH	
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
FIXED IMMERSION LENGTH*	
*Must be specified	

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

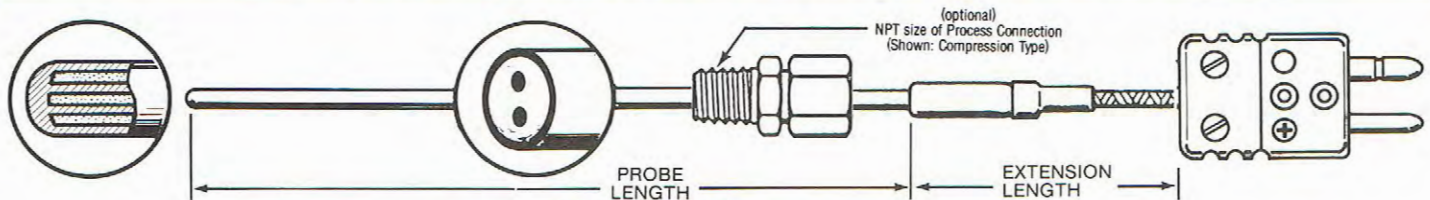
TERMINAL TYPE	ORDER CODE
BARE LEADS	B10
MINIATURE PLUG — Max Sheath DIA. .125"	M12
STANDARD 2-POLE PLUG — Max Sheath DIA. .250"	P51
STANDARD 2-POLE PLUG W/EXTERNAL STRAIN RELIEF — Max Sheath DIA. .375"	P11
DUAL-STD. 2-POLE PLUG W/EXTERNAL STRAIN RELIEF — Max Sheath DIA. .375"	P12
STANDARD 3-POLE PLUG 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	JUNCTION TYPE	FITTING OR MOUNTING TYPE	IMMERSSION 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

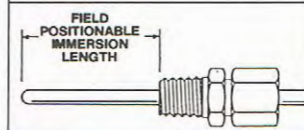
ANSI TYPE
1T
1J
1E
1K
1N

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

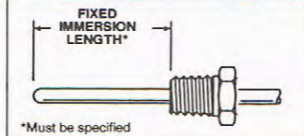
Last digit is 10ths of inches i.e. 0045 = 4.5"

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



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



GROUND



UNGROUND

FOR / TITLE:		
DATE:	BY:	REFERENCE