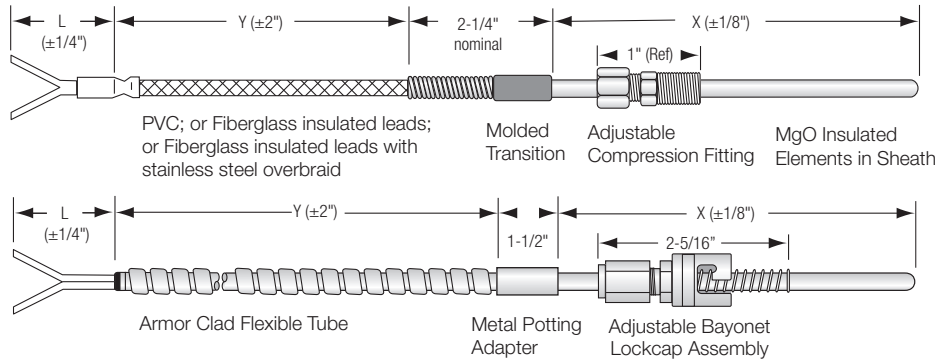


MgO Style (MI) T/C

Barcopac™ Magnesium Insulated (MI) Thermocouples

Thermocouples with magnesium oxide insulation are recommended where the thermocouple is immersed in liquids, high moisture, corrosive gases, or high pressures. The thermocouple can be formed to reach inaccessible areas. The magnesium oxide has a high dielectric strength, responds quickly to temperature changes, and is very durable.



Code	Field 1: Type
M	MgO Insulated Thermocouples

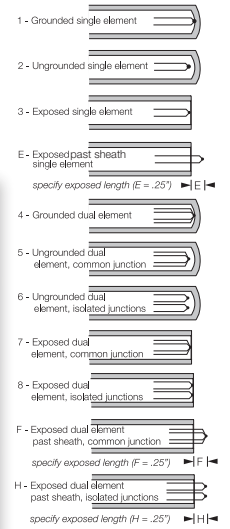
M															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

Field 2 Type	Code for Limits	
	Standard	Special
J	1	J
K	2	K
E	3	E
T	4	T
N	7	N

Code	Field 3: Sheath
1	304 SS
2	Inconel 600
3	316 SS
6	Pyrosil D (Obsolete, replace with Code 7)
7	Hastelloy X (Type K Only)

Code	Field 4: O.D.
2	0.040"
3	0.062" (1/16)
4	0.125" (1/8)
5	0.188" (3/16)
6	0.250" (1/4)
7	0.375" (3/8) (Type J/K only)

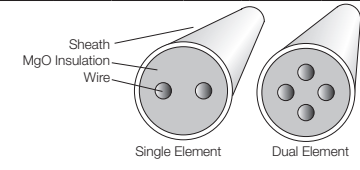
Code	Field 5: Junction Style
0	None, ends sealed (bulk material only)
1	Single, grounded
2	Single, ungrounded (Not available with .040" OD sheath)
3	Exposed junction
E	Exposed junction past the sheath
4	Dual element, grounded element
5	Dual element, ungrounded with common junction*
6	Dual element, ungrounded with isolated junctions*
7	Dual element, exposed with common junction
8	Dual element, exposed with isolated junctions
F	Dual element, exposed past sheath, common jcnct.
H	Dual element, exposed past sheath, isolated
9	None, ends sealed (dual element bulk material only)



Bolded, blue code MgO wire is stocked. Consult factory for non-stocked MgO availability.

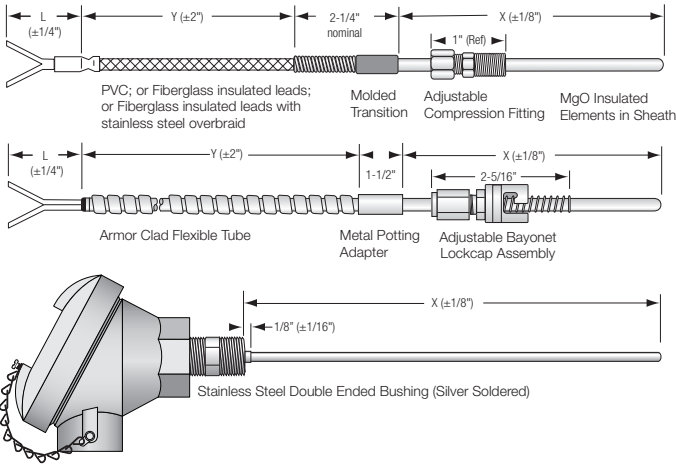
Sheath	O.D.	Type J Code					Type K Code					Type E Code					Type T or (Type N) Code				
		Max. Temp.	Standard Limits	Single/ Dual	Special Limits	Single/ Dual	Max. Temp.	Standard Limits	Single/ Dual	Special Limits	Single/ Dual	Max. Temp.	Standard Limits	Single/ Dual	Special Limits	Single/ Dual	Max. Temp.	Standard Limits	Single/ Dual	Special Limits	Single/ Dual
304 SS	0.040"	700° F	M112	S	MJ12	S	1290° F	M212	S	MK12	S	950° F	M313	S	ME13	S	500° F	M413	S	MT13	S
	0.062"	825° F	M113	S/D	MJ13	S	1600° F	M213	S	MK13	S	1200° F	M314	S/D	ME14	S	600° F	M414	S	MT14	S
	0.125"	970° F	M114	S/D	MJ14	S	1600° F	M214	S/D	MK14	S	1350° F	M315	S	ME15	S	660° F	M415	S	MT15	S
	0.188"	1150° F	M115	S/D	MJ15	S	1600° F	M215	S/D	MK15	S/D	1510° F	M316	S	ME16	S/D	660° F	M416	S	MT16	S
	0.250"	1330° F	M116	S/D	MJ16	S/D	1600° F	M216	S	MK16	S/D										
	0.375"	1500° F	M117	S	MJ17	S	1600° F	M217	S	MK17	S										
Inconel 600	0.040"	700° F	M122	S	MJ22	S	1290° F	M222	S	MK22	S	800° F	M322	S	ME22	S					
	0.062"	825° F	M123	S	MJ23	S	1690° F	M223	S/D	MK23	S/D	950° F	M323	S	ME23	S					
	0.125"	970° F	M124	S	MJ24	S/D	1960° F	M224	S	MK24	S/D	1200° F	M324	S	ME24	S					
	0.188"	1150° F	M125	S	MJ25	S	2100° F	M225	S	MK25	S/D	1350° F	M325	S	ME25	S					
	0.250"	1330° F	M126	S	MJ26	S	2100° F	M226	S	MK26	S/D	1510° F	M326	S	ME26	S	1250° F	(M726)	S	(MN26)	S
	0.375"	1500° F	M127	S	MJ27	S	2100° F	M227	S	MK27	S										
316 SS	0.040"	700° F	M132	S	MJ32	S	1290° F	M232	S	MK32	S					500° F	M433	S	MT33	S	
	0.062"	825° F	M133	S/D	MJ33	S	1290° F	M233	S	MK33	S					600° F	M434	S	MT34	S	
	0.125"	970° F	M134	S/D	MJ34	S	1700° F	M234	S	MK34	S	1200° F	M334	S	ME34	S	600° F	M435	S	MT35	S
	0.188"	1150° F	M135	S/D	MJ35	S	1700° F	M235	S	MK35	S	1200° F	M335	S	ME35	S	660° F	M436	S	MT36	S
	0.250"	1330° F	M136	S/D	MJ36	S	1700° F	M236	S	MK36	S	1600° F	M336	S/D	ME36	S					
	0.375"	1330° F	M137	S	MJ37	S	1700° F	M237	S	MK37	S										
Hastelloy X	0.040"						1800° F	M272	S	MK72	S										
	0.062"						1800° F	M273	S	MK73	S										
	0.125"						2000° F	M274	S	MK74	S										
	0.188"						2000° F	M275	S	MK75	S										
	0.250"						2200° F	M276	S	MK76	S										
	0.375"						2200° F	M277	S	MK77	S										

Type K Pyrosil D, Code MK64 & MK66 Obsolete, Replace with Hastelloy X Code MK74 & MK76



MgO Style (MI) T/C

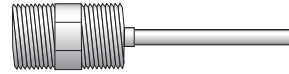
Barcopac™ Magnesium Insulated (MI) Thermocouples



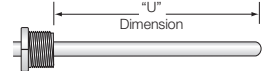
Adjustable Bayonet Lockcap Assembly
Field 13, Code 3

Adjustable Compression Fitting
Field 13 based on material & NPT

Brass:	Stainless Steel:
1/8" NPT Code 1	1/8" NPT Code 2
1/4" NPT Code 4	1/4" NPT Code 5
3/8" NPT Code C	3/8" NPT Code E
1/2" NPT Code D	1/2" NPT Code F



Double Ended Bushing (Silver Soldered)
Field 13, 1/4" NPT Code G (1.500" Long)
1/2" NPT Code H (1.750" Long)
3/4" NPT Code J (1.837" Long)
1" NPT Code J (2.219" Long)



Spring Loaded Double Ended Bushing (Silver Soldered)
Field 13, 1/2" NPT Only, Code 8

Stainless Steel Brazed Bushing
Specify "U" Dimension on order
Field 13, Code 6, 1/8" NPT, (0.687" Long)
Code N, 1/2" NPT, (1.0" Long)

(Add a minimum of 2" to the overall length in fields 7,8,9 for Code 6 or N)

Fields 1 thru 5 Selected on Page M-1



If field 13 is Code 6 or Code N add U = "Insertion Length" to the end of the part number.

Fields 14 and 15 Selected on Page M-3

Field 6	Transition Type	Code	Temp.	Flexible Lead Material
Field 6	None	0	None, No flexible lead <i>[If Fields (10,11,12) "Y" Dimension equals 000 then Field 6 = 0]</i>	
	Molded	1	220°F	Fiberglass insulation
		2	220°F	Fiberglass insulation with armor
		3	220°F	Fiberglass insulation with SS overbraid
	Metal Potting Adapter	4	220°F	PVC
		6	1000°F	High temp fiberglass insulation
		7	1000°F	High temp fiberglass insulation with armor
		8	400°F	FEP Teflon® (Types J, K, T only)
		A	500°F	Fiberglass insulation, Nickel plated brass adapter
		B	500°F	Fiberglass with armor, SS adapter
		C	500°F	Fiberglass with SS overbraid, Nickel plated brass adapter

Field 13	Fitting Type	Material	Code	Mounting Fitting O.D. or NPT	
Field 13	Adjustable Bayonet Lock Cap Assembly	Brass	0	None	
			3	<i>(1/16 & 1/8" O.D. sheath diameter only)</i>	
	Compression Fitting	Brass	1	1/8" NPT	
			4	1/4" NPT	
			C	3/8" NPT	
		SS	D	1/2" NPT	
			2	1/8" NPT	
			5	1/4" NPT	
	Brazed Bushing	SS	6	1/8" NPT	
			N	1/2" NPT	
	<i>(specify "U" dimension on order and add 2" to the overall length in fields 7,8,9)</i>				
	Double Ended Bushing (Silver Soldered)	SS	G	1/4" NPT	
			7	1/2" NPT	
H			3/4" NPT		
J			1" NPT		
Spring Loaded Double Ended Bushing (Silver Soldered)	SS	8	1/2" NPT only, 3/16" & 1/4" O.D. only		

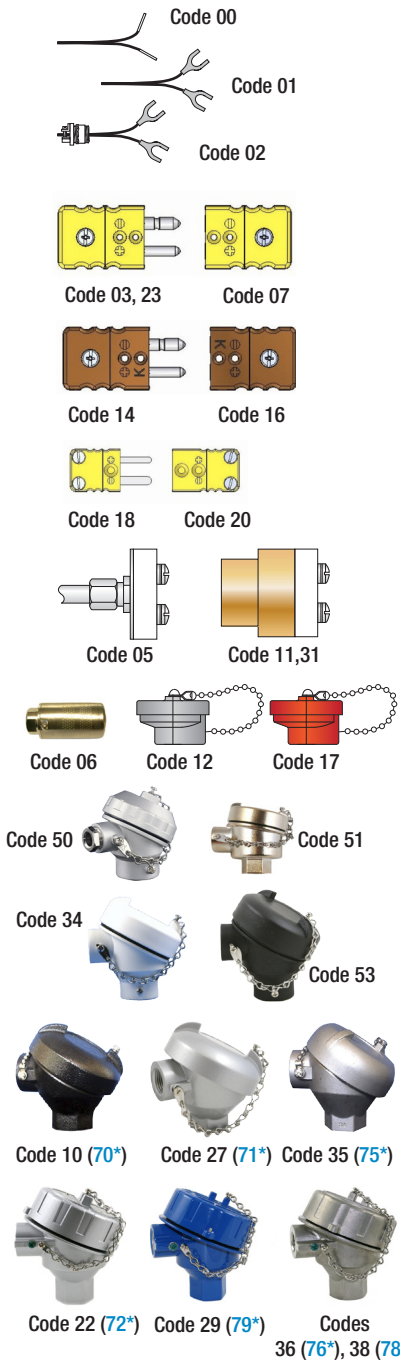
FIELD 6 AND FIELDS 10, 11, 12 MUST BOTH BE ZEROS OR HAVE VALUES. YOU MUST HAVE A TRANSITION FOR FLEXIBLE LEAD MATERIAL (FLEXIBLE LENGTH) IN FIELDS 10, 11, 12

Fields 7, 8, 9	Code	Rigid Length (Dimension "X")
Fields 7, 8, 9	XXX	Dimension "X" (Specify XX in whole inch increments, using two digits) NOTE: If over 998", specify 999 = "length" on order. NOTE: If field 13, Code 6 or N, add minimum of two inches to the rigid length.
	NOTE: The maximum rigid length XXX for single, ungrounded junction is limited in inches as follows:	
	Sheath O.D.	J K E T
	0.063"	180 100 90 200
	0.125"	700 430 555 330
	0.188"	1600 877 722 1750
	0.250"	3181 1934 1521 3885

Fields 10, 11, 12	Code	Flexible Length
Fields 10, 11, 12	000	None - no flexible lead (no transition)
	YYY	Dimension "Y" (Specify YYY in whole inch increments, using three digits) [If Field 6 is 0, then Field 10,11,12 "Y" Dimension is 000] NOTE: If over 998", specify 999 = "length" on order

MgO Style (MI) T/C

Barcopac™ Magnesium Insulated (MI) Thermocouples



Termination Type	Code	Field 14, 15: Termination	Code w/ Transmitter	Rating	*Note
Stripped and Split Leads	00	1/4 Stripped leads			6
	01	2-1/2" split leads, spade lugs			3
	02	2-1/2" split leads, spade lugs, 1/2" NPS box connector w/ lock nut			3
	13	1-1/2" split leads, sleeve & butt connectors			5
Plugs and Jacks	03	Solid pin quick disconnect plug			
	04	Solid pin quick disconnect plug with mating jack			
	07	Standard quick disconnect jack			
	14	High temperature quick disconnect plug (350°C / 662°F)			
	15	High temperature quick disconnect plug and jack (350°C / 662°F)			
	16	High temperature quick disconnect jack (350°C / 662°F)			
	18	Miniature quick disconnect plug	Only available with 0.188" OD Diameter sheath or less		3, 4
	19	Miniature quick disconnect plug and jack			4
	20	Miniature quick disconnect jack			4
	23	Hollow pin quick disconnect plug(s)			
Open Heads	05	Ceramic wafer open head (dual; .250" sheath only)			
	11	Brass, open terminal, no external mounting threads			1, 2
	31	Brass, open terminal, with external process mounting threads			1, 2
Miniature & Small Heads	06	Miniature head and cover			1, 2
	12	Weatherproof, plastic head, 350° F			2, 7
	17	Weatherproof, plastic head, high temperature, 800° F			2, 7
	50	Small aluminum head		IP68	
	51	Small 316 stainless steel screw cover head			
Polypropylene Head	34	White Polypropylene Head			1, 2
	53	Black Polypropylene Head			1, 2
General Purpose	08	General Purpose Cast Iron Head. Replace with code 10			
	09	General Purpose Aluminum Head, Replace with code 27			
Weatherproof Head	10	Weatherproof, cast iron head	70*	NEMA 4X	1, 2
	27	Weatherproof, aluminum head	71*	NEMA 4X	1, 2
	35	Weatherproof, 316 stainless steel head	75*	NEMA 4X	2
Explosion Proof Head	22	Explosion proof head, aluminum head (NEMA 4X)	72*	NEMA 4X	2
	29	Explosion proof head, blue epoxy, aluminum head (ATEX)	79*	ATEX	2
	36	Explosion proof head, 316 stainless steel head (NEMA 4X)	76*	NEMA 4X	2
	38	Explosion proof head, 316 stainless steel head (ATEX)	78*	ATEX	2
Extended Lead	99	Extended lead. Specify length "L" (up to 36") on order, And specify termination code (from above list).			

*Must specify the range of the sensor on the order. (i.e., 0°F - 800°F)

*Add a Transmitter

Select the code in the Transmitter Code column to add a fully isolated 4 to 20 ma two-wire loop powered temperature transmitter for in-head assembly.

You must specify the range of the sensor on the order. (i.e. 0°F - 800°F)



Note	Description	Note	Description
1	Limited to 0.040" MgO or larger	5	Available with Field 6, code 0 only. Not available with 0.040" diameter.
2	Not available with assemblies using lead wire between MgO and connector	6	1/4" stripped unless there is no transition (Field 6, code 0); then 1-1/4" stripped.
3	Available with Field 6, codes 1, 3, 4 and 6	7	Weatherproof plastic head accepts 1/4" bushing only (Field 13, code 7)
4	Maximum sheath O.D. is 1/8" for Field 6, code 0 only. Single element only.	8	Available with Field 6, codes 1, 2, 3, 4, 5, 6, 7, 8 and 9

