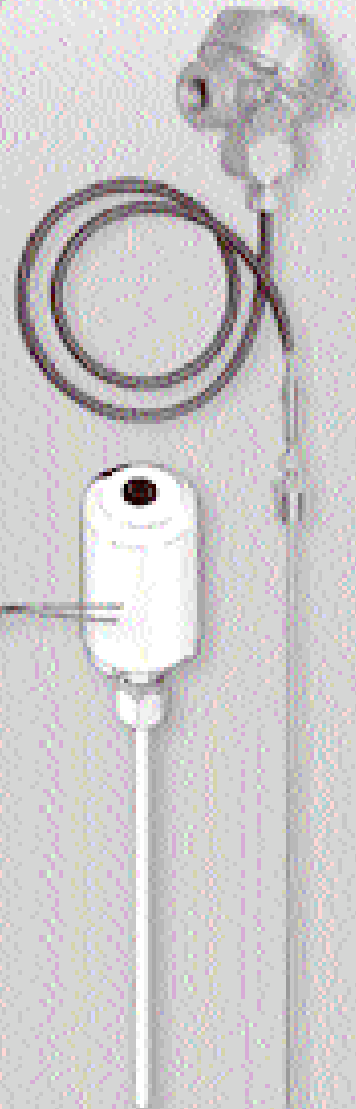


Mineral Insulated Thermocouples

Mineral Insulated Thermocouples are manufactured from mineral oxide insulated metal sheathed cable. Mineral Insulated Cable consists of thermocouple wire insulated by compacted magnesium oxide surrounded by a metal sheath. TCP's Thermo-Pak M. I. Cable is manufactured to exacting standards from the highest quality materials available to ensure accurate and reliable performance with long life. Mineral insulated thermocouples are more durable, faster responding, longer lasting and capable for use at higher temperatures than ceramic insulator or fiberglass insulated thermocouples because the wires are encased and protected by compacted insulation and the metal sheath. Maximum operating temperatures of thermo-pak manufactured thermocouples are determined by the wire calibration type and the sheath alloy selected.



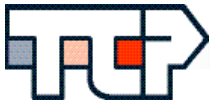
Mineral Insulated

Suggested Maximum Temperature Mineral Insulated 304SS and 316SS Sheathed Thermocouples							
Diameter	Thermocouple Wire Type						
	J	K	T	E	R	S	B
.020"	500° F	1290° F	500° F	570° F	*	*	*
.040"	500° F	1290° F	500° F	570° F	*	*	*
.062"	825° F	1650° F	500° F	950° F	*	*	*
.125"	970° F	1650° F	600° F	1200° F	*	*	*
.187"	1150° F	1650° F	700° F	1350° F	*	*	*
.250"	1330° F	1650° F	700° F	1510° F	*	*	*
.375"	1330° F	1650° F	700° F	1510° F	*	*	*

*Types R, S and B are not recommended with 304SS and 316SS sheath material.

Suggested Maximum Temperature Mineral Insulated Inconel 600 Sheathed Thermocouples							
Diameter	Thermocouple Wire Type						
	J	K	T	E	R	S	B
.020"	*	1500° F	*	*	*	*	*
.040"	750° F	1650° F	*	850° F	2000° F	2000° F	2000° F
.062"	1000° F	1850° F	*	1150° F	2200° F	2200° F	2200° F
.125"	1250° F	2000° F	*	1450° F	2200° F	2200° F	2200° F
.187"	1400° F	2200° F	*	1600° F	2200° F	2200° F	2200° F
.250"	1400° F	2200° F	*	1600° F	2200° F	2200° F	2200° F
.375"	1400° F	2200° F	*	1600° F	---	---	---

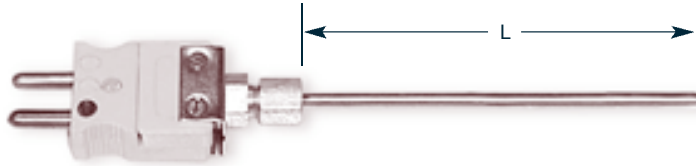
*Not recommended with Inconel 600 sheath material.



GENERAL PURPOSE THERMOCOUPLE

Series 300

- Mineral Insulation Enables Thermocouples to be used at Higher Temperatures.
- Industry Standard Color-Coded Quick Disconnect
- Commonly Installed with Compression Fittings (Adapter)
- High Strength Bendable Designs
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 300 - - - - - - -

300 - - - - - - -

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.

For duplex calibrations please indicate double letters, example EE.

CODE	SHEATH DIAMETER
H	.020"
B	.040"
C	.062"
D	.125"
E	.187"
F	.250"

Consult factory for other diameters

IMMERSION LENGTH "L"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	TERMINATION STYLE
10	111 Standard Plug
20	131 Mini Plug
30	109 High Temp. Plugs

Code 10 - 111 Plug is standard
Code 20 - 131 Mini Plug is available in .020 to .125 sheath diameter.
Consult factory for other options

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600

Consult factory for other material

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip
W5	Exposed

Code W2 is standard

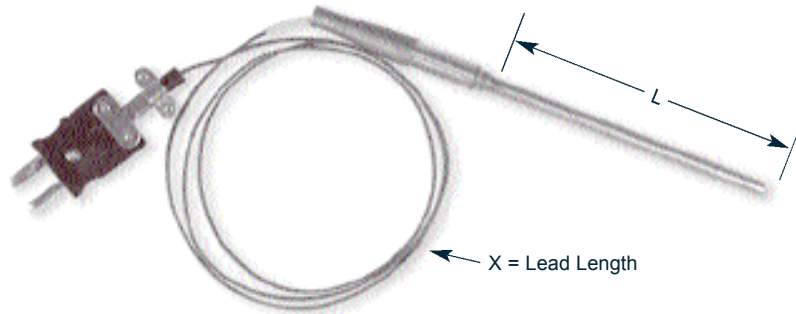
Mineral Insulated

	Metric Orders Welcome
	Place an mm in the appropriate selection box: <input type="text" value="100 mm"/>

TRANSITION JOINT THERMOCOUPLE

Series 400

- Mineral Insulation Enables Thermocouples to be used at Higher Temperatures.
- Industry Standard Color-Coded Quick Disconnect
- Commonly Installed with Compression Fittings (Adapter)
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 400 - J - E - 6 - 6 - W2 - 304 - 10 - 10 - 0

400 - [] - [] - [] - [] - [] - [] - [] - [] - []

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.

For duplex calibrations please indicate double letters, example EE.

CODE	SHEATH DIAMETER
H	.020"
B	.040"
C	.062"
D	.125"
E	.187"
F	.250"
L	.312"

Consult factory for other diameters

IMMERSION LENGTH "L"
Whole inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

LEAD LENGTH "X"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

100 mm

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	TERMINATION STYLE
10	111 Standard Plug
20	131 Mini Plug
30	109 High Temp. Plugs
40	3" Pig Tail (Bare Wire End)

Code 10 -111 Plug is standard
Consult factory for other options

CODE	LEAD WIRE
10	Fiberglass (standard)
1S	Fiberglass w/SS Overbraid
1F	Fiberglass w/SS Flexhose
20	Teflon
2S	Teflon with SS Overbraid
2F	Teflon with SS Flexhose

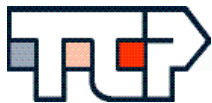
CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600

Consult factory for other material

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip
W5	Exposed

Code W2 is standard

Mineral Insulated



Thermo-Couple Products Co.

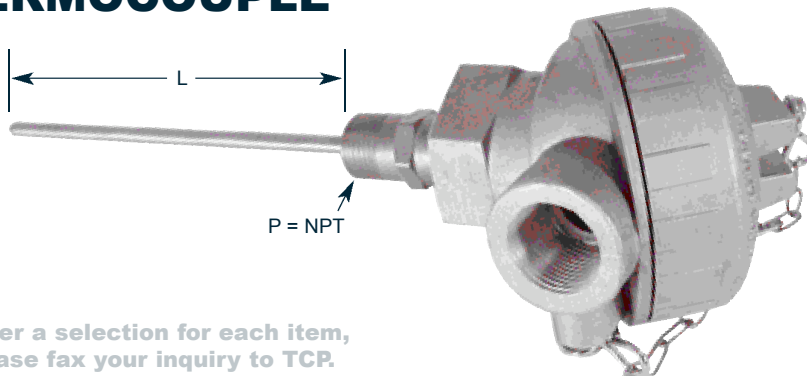
www.tcproducts.com

a division of Marsh Bellofram
www.marshbellofram.com
1-800-727-5646

INDUSTRIAL THERMOCOUPLE

Series 700

- Industrial Design with Cast Screw Cover Heads.
- "Factory Mutual" Approved Heads in Cast Iron and Aluminum
- High strength Bendable Designs
- Mineral Insulation Enable Thermocouples to be used at Higher Temperatures
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 700 - J - E - 6 - W2 - 304 - AL - 1/2 - 0 - 0

700 - [] - [] - [] - [] - [] - [] - [] - [] - []

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.

For duplex calibrations please indicate double letters, example EE.

CODE	SHEATH DIAMETER
D	.125"
E	.187"
F	.250"

Consult factory for other diameters

IMMERSION LENGTH "L"	
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.	

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip

Code W2 is standard

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600

Code 304 is standard
Consult factory for other material

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	SPRING LOADING
0	NONE
1	Spring Loaded Element

None is standard. Spring loading not available if mounting thread is 0

CODE	MOUNTING THREAD "P"
0	None
1/4	1/4" NPT
3/8	3/8" NPT
1/2	1/2" NPT

Code 1/2 - 1/2" NPT is standard

CODE	TERMINATION STYLE
0	None
AL	Aluminum Head
CI	Cast Iron Head
P	Inconel 600

Code CI - Cast Iron is standard

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

100 mm

Mineral Insulated

BASE THERMOCOUPLE ELEMENT

Series 800

- Available in all Standard Sheath Diameters and Sheath Materials
- Mineral Insulation Enables Thermocouples to Be Used at Higher Temperatures
- Bare Leads Provided for Terminations of Your Choice
- See page 23 for Maximum Temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 800 - J - H - 6 - W2 - 304 - 0

800 - [] - [] - [] - [] - [] - []

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.
For duplex calibrations please indicate double letters, example EE.	

CODE	SHEATH DIAMETER
H	.020"
B	.040"
C	.062"
D	.125"
E	.187"
F	.250"
L	.312"
Consult factory for other diameters	

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600
Consult factory for other material	

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip
W5	Exposed
Code W2 is standard	

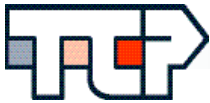
IMMERSION LENGTH "L"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

Mineral Insulated

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

100 mm



Thermo-Couple Products Co.

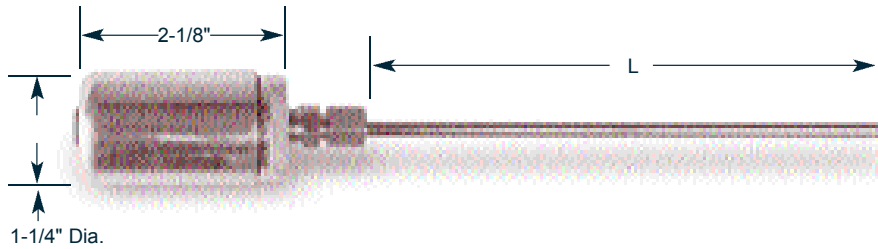
www.tcproducts.com

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www.marshbellofram.com
1-800-727-5646

MINIATURE HEAD THERMOCOUPLE

Series 900

- Supplied with a Lightweight Miniature Screw-Cover Head
- Waterproof Cover Available
- High Strength Bendable Design
- Mineral Insulation enables Thermocouples to be used at Higher Temperatures.
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 900 - J - D - 6 - W2 - 316 - 50 - 0

900 - [] - [] - [] - [] - [] - [] - []

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.

For duplex calibrations please indicate double letters, example EE.

CODE	SHEATH DIAMETER
C	.062"
D	.125"
E	.187"
F	.250"

Consult factory for other diameters

IMMERSION LENGTH "L"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip
W5	Exposed

Code W2 is standard

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	TERMINATION STYLE
50	Dust Cover
51	Waterproof Cover

Dust Cover is standard

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600

Consult factory for other material

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

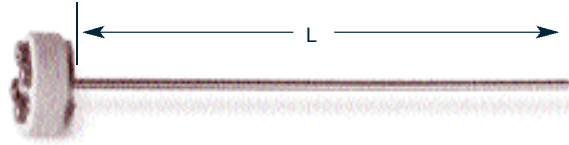
100 mm

Mineral Insulated

“EXHAUST-TEMP” THERMOCOUPLE

Series 1000

- Rugged Thermocouple
- Designed for Exhaust Manifold Temperature Measurements on Internal Combustion Engines.
- Vibration Resistant
- Commonly Installed with Compression Fittings (Adapter)
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 1000 - J - D - 6 - W2 - 304 - 60 - 0

1000 - - - - - - -

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.
For duplex calibrations please indicate double letters, example EE.	

CODE	SHEATH DIAMETER
C	.062"
D	.125"
E	.187"
F	.250"
Consult factory for other diameters	

IMMERSION LENGTH "L"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	TERMINATION STYLE
60	Fiberglass Head (350°F)
61	Ceramic Head (1500°F)
Fiberglass Head is standard	

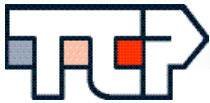
CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600
Consult factory for other material	

CODE	JUNCTION STYLE
W1	Grounded Flat Tip
W2	Grounded Rounded Tip
W3	Ungrounded Flat Tip
W4	Ungrounded Rounded Tip
W5	Exposed
Code W2 is standard	

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

Mineral Insulated



WASHER THERMOCOUPLE

Series 1400

- Designed for High Temperature Bolt or Stud Applications
- Stainless Steel Washer
- Welded Construction with Grounded Junction
- See page 23 for maximum temperature.



Enter a selection for each item, please fax your inquiry to TCP.

Example: 1400 - J - D - 6 - 304 - 10 - 0

1400 - - - - - -

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
R	Plat. 13% Rhod./Plat.
S	Plat. 10% Rhod./Plat.
B	Plat. 30% Rhod./Plat. 6% Rhod.
For duplex calibrations please indicate double letters, example EE.	

CODE	SHEATH DIAMETER
D	.125"
E	.187"
F	.250"
Consult factory for other diameters	

IMMERSION LENGTH "L"
Specify in inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	TERMINATION STYLE
10	111 Standard Plug
20	131 Mini Plug
30	109 High Temp. Plugs
Code 10 - 111 Plug is standard	
Code 20 - 131 Plug available only on .125 diameter	
Consult factory for other options	

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
600	Inconel 600
Consult factory for other material	

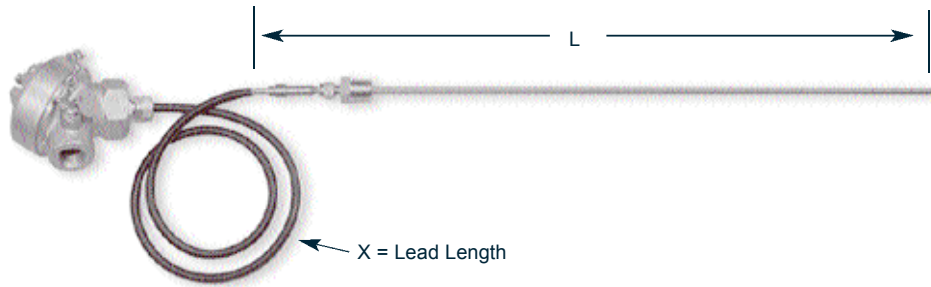
Mineral Insulated

	Metric Orders Welcome
	Place an mm in the appropriate selection box: <input type="text" value="100 mm"/>

REFINERY THERMOCOUPLE ASSEMBLY

Series 2100

- Complete Thermocouple Assembly with Cast Head
- Complete with 1/2" NPT SS Mounting Adapter
- PVC Coated Flex Armor Provides Moisture Resistance
- Design Fits Most Thermowells
- See page 23 for maximum temperature



Enter a selection for each item, please fax your inquiry to TCP.

Example: 2100 - J - E - 6 - 36 - W2 - 316 - CI - 0

2100 - [] - [] - [] - [] - [] - [] - [] - []

CODE	WIRE CALIBRATION
J	Iron/Constantan
K	Chromel/Alumel
T	Copper/ Constantan
E	Chromel/Constantan
For duplex calibrations please indicate double letters, example EE.	

CODE	SHEATH DIAMETER
E	.187"
F	.250"
L	.312"
.250 is standard	
Consult factory for other diameters	

IMMERSION LENGTH "L"
Whole inches 01 to 99 (6 inch increments standard). For lengths over 99 inches consult factory.

LEAD LENGTH "X"
36 inches standard, if other, specify

CODE	OTHER PERTINENT DATA
0	NONE
999	Special Request Consult Factory

CODE	CONNECTION HEAD
CI	Cast Iron
AL	Aluminum
Cast Iron is standard	

CODE	SHEATH MATERIAL
304	304 Stainless Steel
316	316 Stainless Steel
Consult factor for other options	

CODE	JUNCTION STYLE
W2	Grounded Rounded Tip
W4	Ungrounded Rounded Tip
Code W2 is standard	

Metric Orders Welcome

Place an **mm** in the appropriate selection box:

100 **mm**

Mineral Insulated