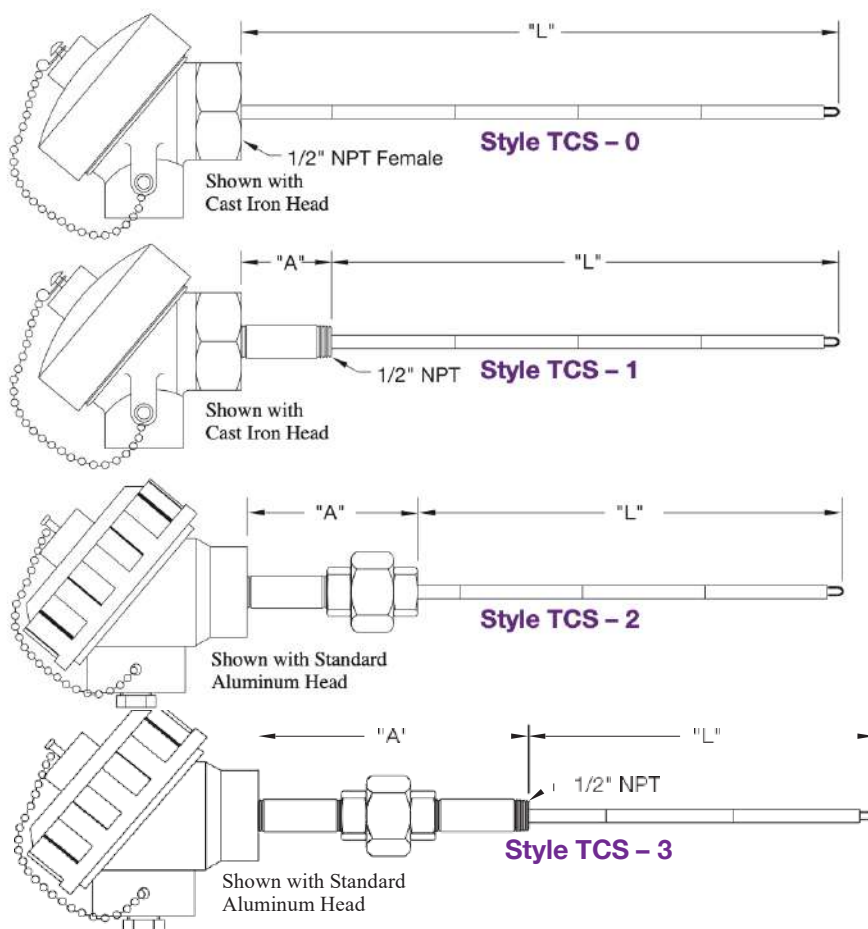


Thermocouples for Thermowells and Protection Tubes



Design Features

- ☀ Ceramic Insulator to insulate wires
- ☀ Galvanized 1/2" pipe nipple & union
- ☀ Cast Iron or Aluminum Head
- ☀ Used with protection tubes and thermowells shown under HK standard thermowells, metal and ceramic protection tubes guide

Ordering Information

Thermocouples are offered with the options listed in the worksheet below. Create an ordering code by filling in the boxes with the appropriate number and/or letter designation for your requirements, and a part number will be assigned.

Ordering Code:

ITCR

1	2	3	4	5	6	7

Style BOX 1

- 0 = Plain
- 1 = with Nipple
- 2 = with Nipple and Union
- 3 = with Nipple, Union and Nipple

Calibration Code BOX 2

- J = Type J
- K = Type K
- X = Other (Specify)

Wire Gauge and Insulator Size BOX 3

- B = 20 ga. (.172" · .118" insulator)
- C = 14 ga. (.375" · .217" insulator)
- D = 8 ga. (.437" · .250" insulator)
- X = Other (Specify)

"L" Dimension BOX 4

- Whole inches
- 00 to 99

"A" Dimension (TCS -1, TCS -2 & TCS -3 only) BOX 5

01 to 99 inches or use Codes below for standard length
Enter 00 for TCS -0 Style

TCS1

- S1 = 1"
- S2 = 2-1/2"
- S3 = 5-1/2"

TCS2

- S1 = 2-1/2"
- S2 = 4"
- S3 = 7"

TCS3

- S1 = 3-1/2"
- S2 = 6-1/2"
- S3 = 12-1/2"

Connection Head BOX 6

- A = Standard Size Aluminum
- H = Standard Cast Iron
- S = Stainless Steel

Note: All have 1/2" conduit connection (3/4" available).

Special Requirements BOX 7

- X = Specify
- 0 = None

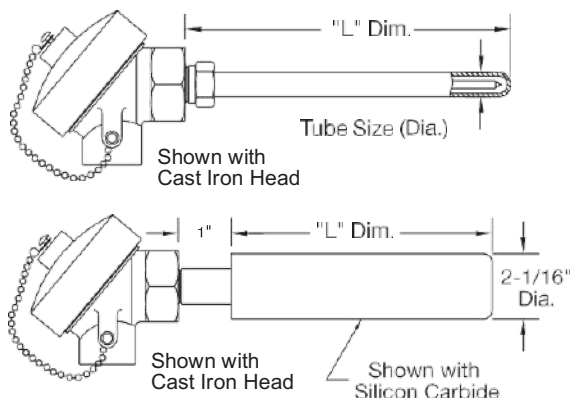
Ceramic and Silicon Carbide Protection Tube Thermocouple Assemblies

Design Features

- Ceramic Insulator to Insulate Wires
- Choice of Alumina 3450°F (1900°C), Mullite 3100°F (1700°C), Hexoloy SA (sintered silicon carbide) 3000°F (1650°C) or Silicon Carbide (carbon bonded) 2300°F (1260°C)
- With or Without Threaded Process Mounting Bushing
- Available with Double Protection Tube

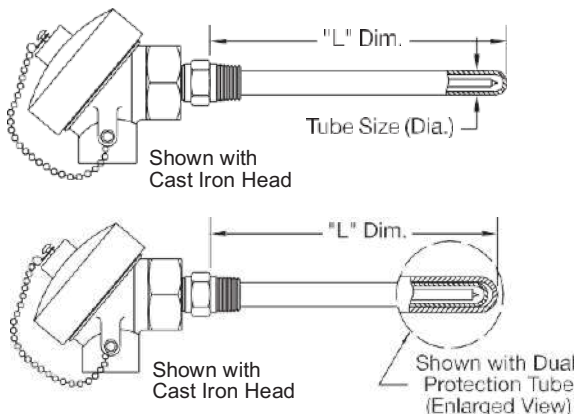
Style ITCS – 7

Without Threaded Process Connection



Style ITCS – 8

With Threaded Process Connection



Ordering Code:

ITCS

1	2	3	4	5	6	7	8	9	10

Style BOX 1

- 7** = Plain
- 8** = w/Pipe Thread Process Connection

Sheath Material BOX 2

- A** = Alumina
- H** = Hexoloy SA (sintered silicone carbide)
- M** = Mullite
- S** = Silicon Carbide (carbon bonded)
- X** = Other (Specify)

Tube & Fitting Size BOX 3

(Style ITCS – 7 has no process pipe thread)

- 1** = 3/8" OD (1/4" ID) — 1/2" NPT Thread for Style TCS- (available in Alumina, Mullite or Hexoloy SA)
- 2** = 5/8" OD (3/8" ID) — 1/2" NPT Thread for Style TCS- (available in Hexoloy SA)
- 3** = 11/16" OD (7/16" ID) — 3/4" NPT Thread for Style TCS- (available in Alumina or Mullite only)
- 4** = 3/4" OD (1/2" ID) — 3/4" NPT for Style TCS-8 (available in Hexoloy SA)
- 5** = 2-1/16" OD (Style TCS- (available in carbon bonded silicone carbide)
- X** = Other (Specify)

Calibration Code BOX 4

- J** = Type J **R** = Type R
- K** = Type K **B** = Type B
- S** = Type S

Wire Gauge BOX 5

- A** = 24 ga. (Type S, R and
- B** = 20 ga.
- C** = 14 ga.
- D** = 8 ga.
- X** = Other

"L" Dimension BOX 6

Whole inches 12 to
in 6-inch
For lengths over 48 in. consult HK.

Threaded Bushing

Material BOX 7

- S** = Stainless
- B** = Brass
- Enter 0 for ITCS-

Protection Tube BOX 8

- 1** = Single Protection Tube (Std.)
- 2** = Double Protection Tube

Connection Head BOX 9

- A** = Standard Size Aluminum
- H** = Standard Cast
- S** = Stainless
- Note:** All have 1/2" conduit connection (3/4" available).

Special Requirements BOX 10

- 0** = None
- X** = Specify

Ordering Information

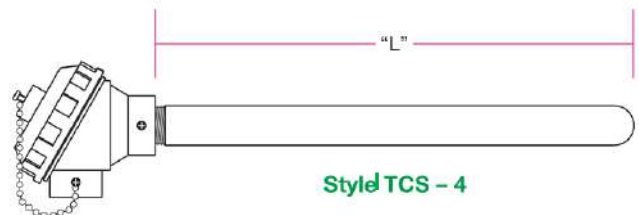
Thermocouples are offered with options listed in the worksheet. an ordering code by filling in the boxes with the appropriate number and/or letter designation for your requirements, and a part number will be assigned.



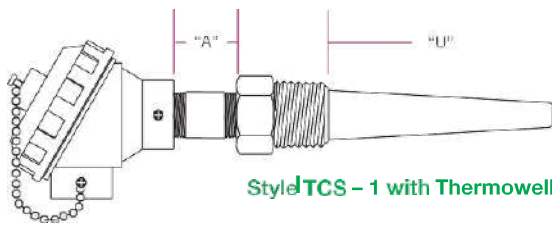
Industrial Process Thermocouples

HK Manufactures many styles of industrial thermocouple assemblies for a wide range of industries, from petrochemical to textile applications, where one or more protection tubes may be necessary to protect the thermocouple.

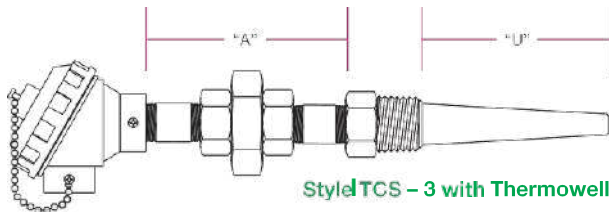
Metal-Protecting Tube Assemblies.....



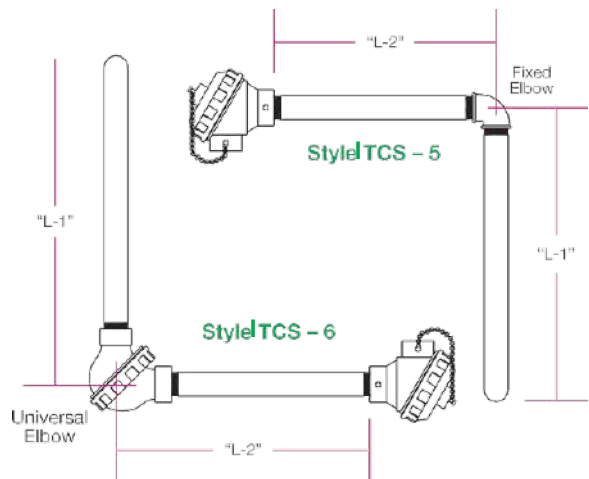
Thermowell Assemblies.....



Thermocouple Head, Nipple, Thermowell

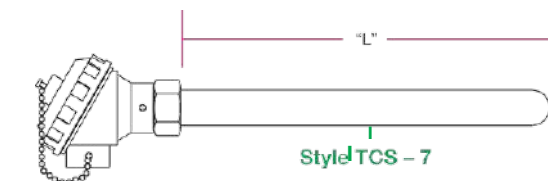


Thermocouple Head, Nipple, Union, Nipple, Thermowell

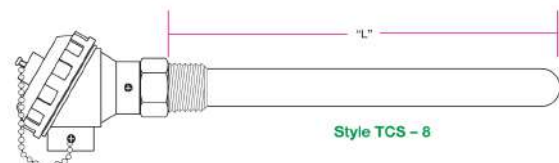


Thermocouple Head, Metal Protecting Tube

Ceramic Tube Assemblies.....



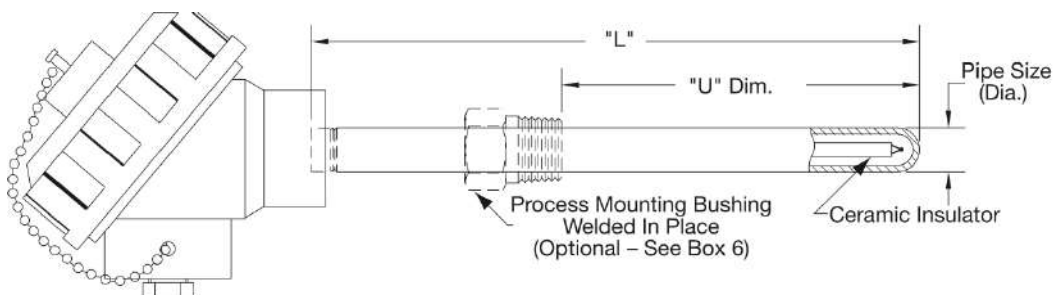
Style ITCS 7 - Thermocouple Head, Fixed Bushing, Ceramic tube



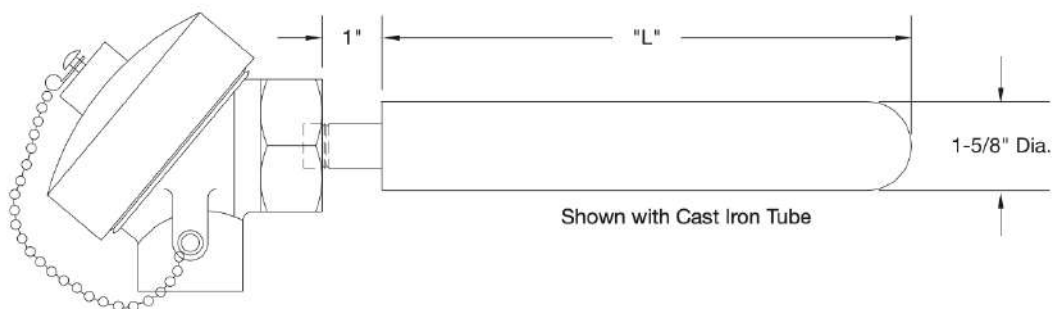
Style ITCS 8 - Thermocouple Head, Ceramic tube



Metal Protection Tube Thermocouple Assemblies



Shown with Standard Die Cast Aluminum Head



Shown with Cast Iron Head

Ordering Information

Thermocouples are offered with the options listed in the worksheet below. Create an ordering code by filling in the boxes with the appropriate number and/or letter designation for your requirements, and a part number will be assigned.

Design Features

- ☀ Widely used in high temperature industrial process heating applications such as furnaces, ovens; and petrochemical and textile applications up to 2200°F (1204°C)
- ☀ Pipe size protection tubes made with schedule 40 pipe in various steel and nickel alloys
- ☀ Optional process mounting bushing welded on protection tube
- ☀ Thermocouple heads are available in aluminum, cast iron or stainless steel. Explosion proof heads are also available in aluminum or stainless steel

Ordering Code: **ITCC** -

Pipe Size Sch. 40 BOX 1

H = 1/2" Pipe (.84" OD · .62" ID)
M = 3/4" Pipe (1.05" OD · .82" ID)
N = 1" Pipe (1.31" OD · 1.05" ID)
R = 1-5/8" OD · 7/8" ID (Cast Iron Only)
X = Other (Specify)

Wire Gauge BOX 4

B = 20 ga.
C = 14 ga.
D = 8 ga.
X = Other (Specify)

"U" Dimension BOX 7

Whole inches 01 to 99
 Enter 00 for cast iron tube or if no bushing required

Sheath Material BOX 2

1 = Carbon Steel (Black Pipe)
2 = 304 SS
3 = 316 SS
4 = 446 SS
5 = Cast Iron (1-5/8" OD x 7/8" ID Only)
6 = Alloy 601
X = Other (Specify)

"L" Dimension BOX 5

Whole inches 12 to 96
 (in 6-inch increments)
 Cast Iron is available in limited lengths.

Connection Head BOX 8

A = Standard Size
H = Standard Cast
S = Stainless
Note: All have 1/2" conduit connection (3/4" available).
H = 1/2" Pipe (.84" OD · .62" ID)

Calibration Code BOX 3

J = Type J
K = Type K
X = Other (Specify)

Process Mounting Bushing BOX 6

0 = No Bushing Required
 Enter 0 for Cast Iron Tube
M = 3/4" NPT (For 1/2" pipe only)
N = 1" NPT (For 1/2 and 3/4" pipe only)
P = 1-1/4" NPT
X = Other (Specify)

Special Requirements BOX 9

X = Specify
0 = None

Your Reliable Partners in Temperature Sensing, Heating and Controlling Solutions

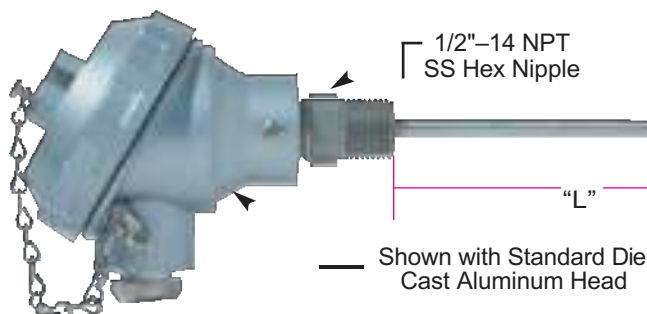
Email: info@hkgco.com

WWW.HKGCO.COM

Tel: +1-989-501-9025

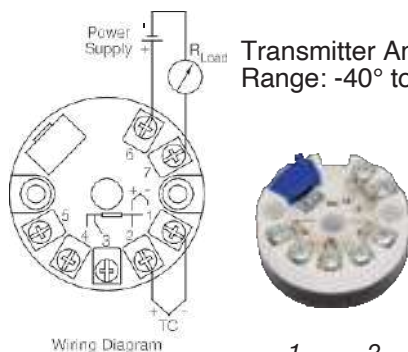


Thermocouples with Transmitter and Connection Head



Design Features

- 4-20mA Programmable Linear Output Transmitter
- Available with Spring-Loaded Sheath
- Transmitter Accuracy of $\pm 0.2\%$ of temperature span
- 1/2" NPT Process Connection



Transmitter Ambient Temperature
Range: -40° to $+185^{\circ}\text{F}$ (-40° to 85°C)

Ordering

Thermocouples are offered with the options listed in the worksheet below. an ordering code by filling in the boxes with the appropriate number and/or letter designation for your requirements, and a part number will be

Wiring Diagram

1 2 3 4 5 6 7 8 9 10 11

TTM -

Calibration Code BOX 1

ANSI Standard Tolerances **J K E T**

Special Tolerances **3 4 5 6**

Insulation BOX 2

M = 96% min. MgO (Standard)
H = 99.4% min. MgO

Sheath Material BOX 3

A = Alloy 600 **C** = 316 SS
B = 304 SS

Sheath O.D. BOX 4

F = .125" **H** = .250"
G = .188"

Sheath Length "L" BOX 5

Whole inches
01 to 99
For lengths over 99 in. consult HK.

Sheath Length "L" BOX 6

Fractional inches
0 = 0" **2** = 1/4" **4** = 1/2" **6** = 3/4"
1 = 1/8" **3** = 3/8" **5** = 5/8" **7** = 7/8"

Junction Type BOX 7

Grounded **G** Ungrounded **U** Exposed **E**

Transmitter Type BOX 8 (Enter Code Below)

Temperature low range Temperature high range Unit $^{\circ}\text{F}$ $^{\circ}\text{C}$

1 = Non-isolated (Standard)
2 = Isolated

Connection Head BOX 9

A = Standard Aluminum **S** = Stainless Steel
B = Medium Size Aluminum **L** = Aluminum Head with LCD Indicator
H = Standard Cast Iron **X** = Specify
P = Polypropylene Head (FDA Approved) **M** = Heavy Duty Aluminum Head with LCD Indicator

Note: Conduit connection for A, H & S is 1/2", for B is 3/8" NPT, for P is 3/4" NPT.

Please refer to Pg. 2 for all types of head

Spring-Loaded Probe BOX 10

Y = Spring-Loaded
0 = Not Required

Special Requirements BOX 11

X = Specify
0 = None

Connection Head(Temperature Sensor Enclosure)



Mini Head 1



Mini Head 2



Mini Head 3



Plastic Head



Small Bakelite Head



Weather Proof Head



Weather Proof Head(BIG)



Hinge Type Head



Imported Head 1



Imported Head 2



Imported Head 3



Imported Head 4



Flame Proof Head 1



Flame Proof Head 2
(II C APPROVED)



IP-65 HEAD



SS Head



SS Head (SMALL)



Stainless Steel(SS) Head 1



Stainless Steel(SS) Head 2



KNE Type Head