

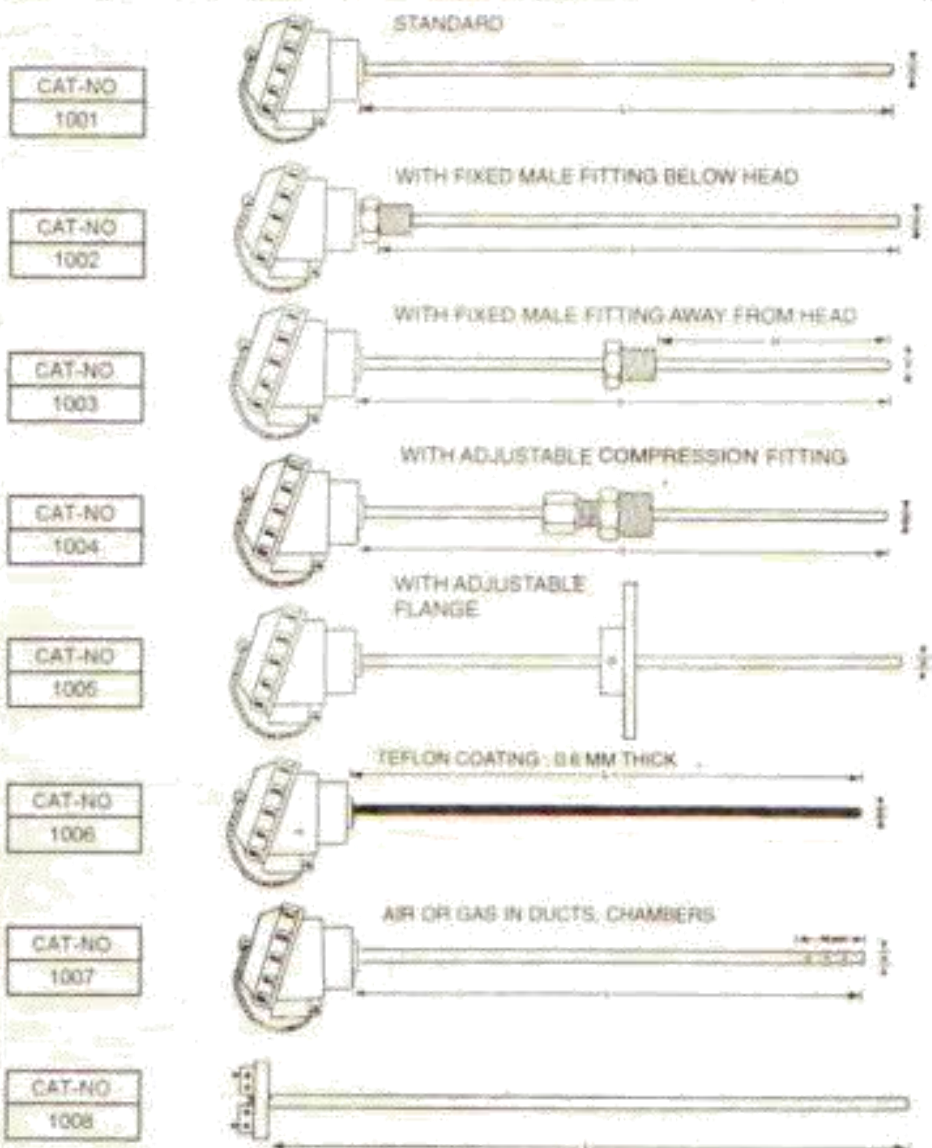


# Temperature Sensor

<b>CAT NO.</b> 100 - 01	<b>NEEDLE PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			600° C
			Very small diameter gives fast response in air and liquids
<b>CAT NO.</b> 100 - 02	<b>LEAF SURFACE PROBE - STANDARD</b>		<b>MAXIMUM TEMPERATURE</b>
			600° C
			Fast response for measuring flat surfaces.
<b>CAT NO.</b> 100 - 03	<b>PRICK PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			400° C
			Chisel-like sharp tip allows easy penetration into semi-solids.
<b>CAT NO.</b> 100 - 04	<b>GENERAL PURPOSE IMMERSION PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			800° C
			Used for air and liquid immersion measurement.
<b>CAT NO.</b> 100 - 05	<b>AIR PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			800° C
			For Gas or air in ducts, chambers, etc. Perforated shield prevents radiation heating. Very sensitive.
<b>CAT NO.</b> 100 - 06	<b>BOW CURVED SURFACE PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			800° C
			For moving or static convex surfaces, rollers etc.
<b>CAT NO.</b> 100 - 07	<b>HIGH TEMPERATURE IMMERSION PROBE</b>		<b>MAXIMUM TEMPERATURE</b>
			1200° C
			INCONEL 600 sheath and MI construction allows measurement in air and liquids upto 1150°C
<b>CAT NO.</b> 100 - 08	<b>NEEDLE PROBE RTD (3-WIRE)</b>		<b>MAXIMUM TEMPERATURE</b>
			- 200° to 400° C
			Very small diameter gives fast response in air and liquids

# THERMOCOUPLE ASSEMBLIES, ACCESSORIES

## HEAD THERMOCOUPLES & RTD GENERAL PURPOSE



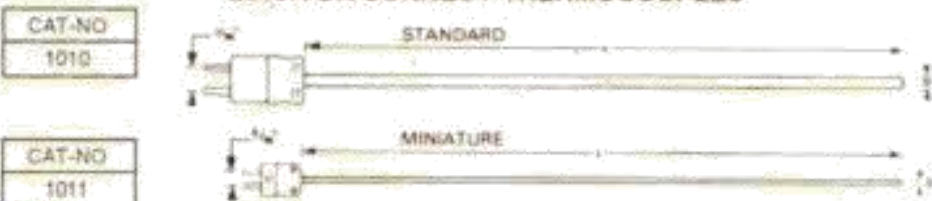
Ceramic insulated wire-in-bead construction with hand-filled MgO powder  
Temp. Max 200° C, 500° C & 800° C.

## THERMOCOUPLE WITH FLAMEPROOF HEAD



For use in hazardous areas. CMRS certified flameproof head

## QUICK DISCONNECT THERMOCOUPLES



## PROCESS CONNECTION

### FIXED MALE FITTING



Material : Stainless steel, Brass  
For Fixing of sensors to the matching female threaded part on the process. Since the fitting is welded/brazed to the sensor tube, the immersion length of the sensor is fixed.

Sizes available : 1/8" BSP/NPT to 1" BSP/NPT, Millimetre and other threads available.

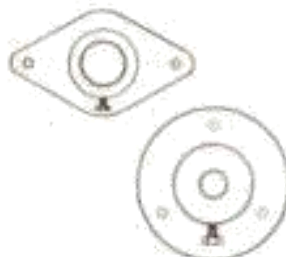
### ADJUSTABLE COMPRESSION FITTING



Material : Stainless Steel, Brass  
For Fixing of sensors to the matching female threaded part on the process. The fitting can be positioned anywhere along the sensor tube length, thus allowing a variable immersion length.

Size : available : 1/8" BSP/NPT to 1" BSP/NPT Millimetre and other threads available.

### ADJUSTABLE FLANGE



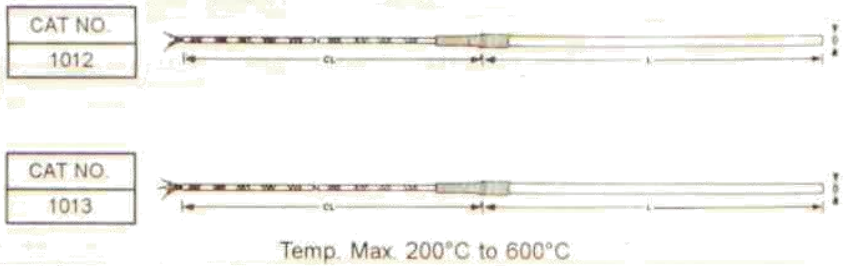
Material : Stainless steel clamping screw provides immersion adjustment.

### FIXED FLANGE



Material : Stainless steel  
For mounting thermocouples with fixed immersion length

**THERMOCOUPLE & RTD (3 WIRE) GENERAL PURPOSE**



**MEASURING JUNCTION**

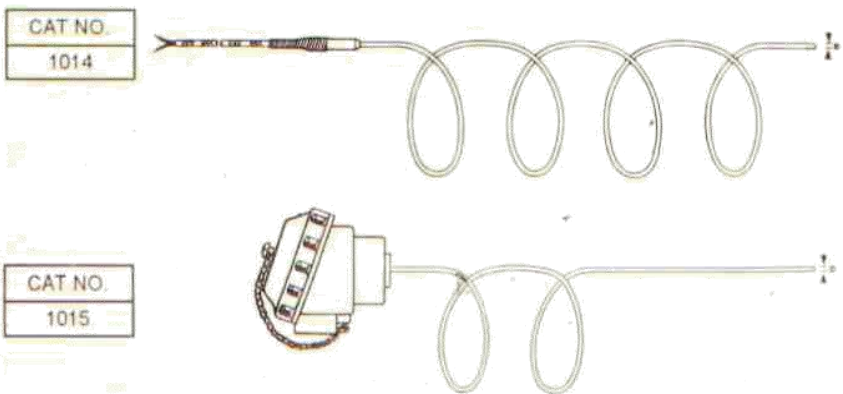
**GROUNDED JUNCTION**



**UNGROUNDED JUNCTION**



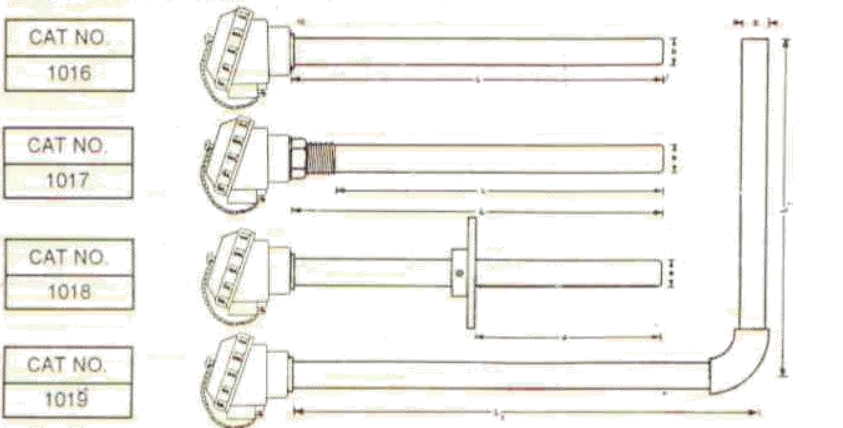
**MINERAL INSULATED (MI) THERMOCOUPLES**



Mineral Insulated (MI) thermocouples offer the following advantages over Ceramic Insulated thermocouples :

- a) Bendable, hence lengths upto 50 mtrs. possible.
- b) Type of T/C - J & K
- c) Sheath dia (mm) : 1.6/3/4.5/6
- d) Sheath material : SS316, Inconel 600
- e) Single or Dual Elements are available.
- f) Temp. Max. 900° C to 1150° C

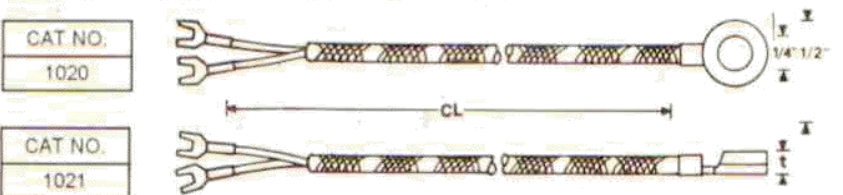
**FURNACE AND BATH THERMOCOUPLES**



Heavy Duty Ceramic Insulated thermocouples. Available in SS304, SS316, SS310 and Inconel 600 sheaths, in straight & L shapes.

Temp Max. 800° C to 1150° C

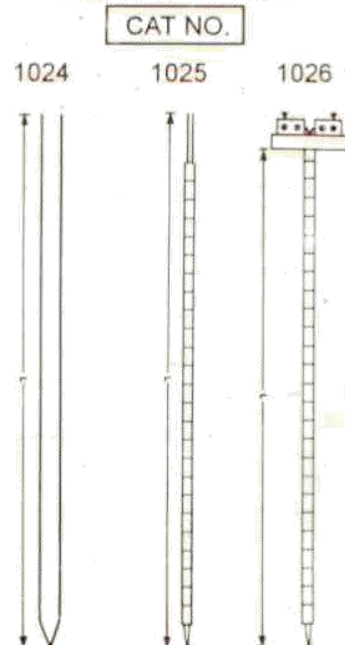
**WASHER THERMOCOUPLES TEMP. MAX : 400° C**



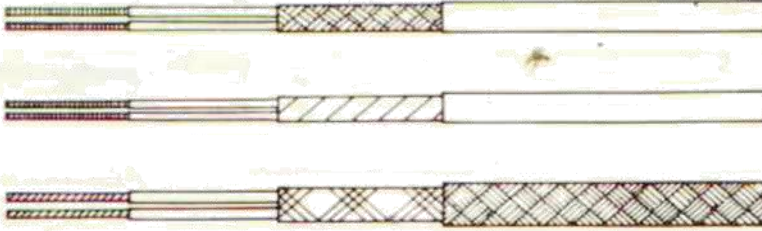
**THERMOCOUPLES FOR PLASTICS INDUSTRY TEMP. MAX. 400° C**



**REPLACEMENT THERMOCOUPLES**



### COMPENSATING CABLES FOR T/C AND RTD



Extension and Compensating Cables are available in single and multiple cores

1. Fibreglass / Fibreglass SS braided.
2. PVC / PVC.
3. Teflon / Teflon

TABLE - 1

TABLE - 2

#### THERMOCOUPLES REFERENCES JUNCTION 0° C LIMITS OF ERROR

Thermocouple Type	Temperature Range °C	Standard (Which ever is greater)
J	0 to 750	± 2.2°C or ± 0.75%
K	0 to 1250	± 2.2°C or ± 0.75%
T	0 to 350	± 1.0°C or ± 0.75%
E	0 to 900	± 1.7°C or ± 0.5%
R	0 to 1450	± 1.5°C or ± 0.25%
S	0 to 1450	± 1.5°C or ± 0.25%

#### SHEATH MATERIAL TEMPERATURE CHARACTERISTICS

Sheath Material	Operating Temperature	Melting Temperature
304 Stainless Steel	900 °C	1427 °C
310 Stainless Steel	1100 °C	1399 °C
316 Stainless Steel	900 °C	1371 °C
446 Stainless Steel	1150 °C	1400 °C
INCONEL	1150 °C	1427 °C

#### HOW TO ORDER : BROADLY, SPECIFY FROM THE LIST BELOW ALL APPLICABLE :

- |   |                                      |
|---|--------------------------------------|
| 1. CAT Number.                          | 7. Thermocouple Wire Gauge           |
| 2. Thermocouple & RTD type (Table No.1) | 8. Maximum Temperature Range         |
| 3. Single Element or Duplex.            | 9. Normal Temperature Range          |
| 4. Sheath length, Diameter & Material   | 10. Measuring Junction Type (Page 3) |
| 5. Sheath Material. (Table 2)           | 11. Cable Type & Length.             |
| 6. Process Connection. (Page 2)         | 12. Sketch of Thermocouple           |