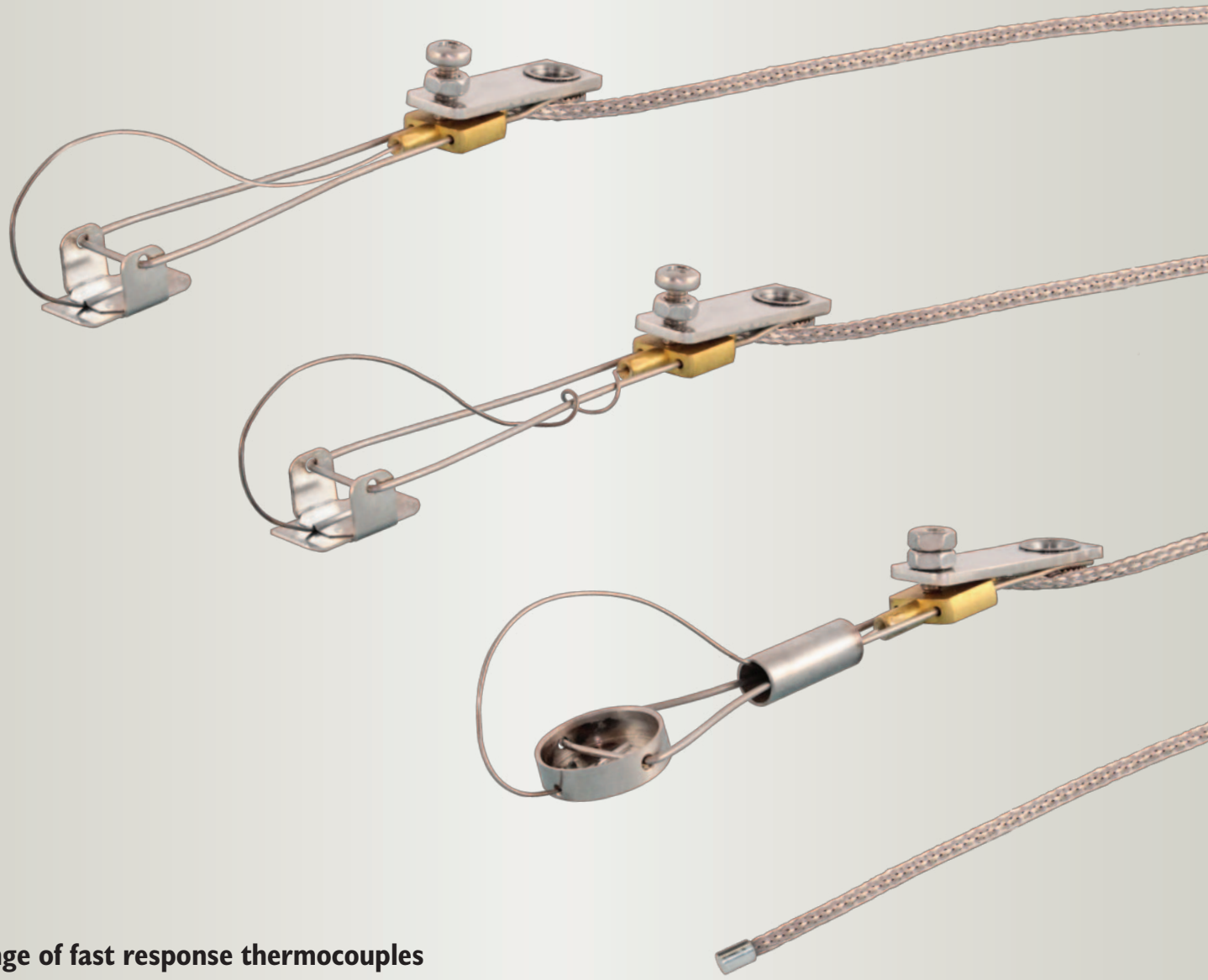
Brake Disc Rubbing and Brake Pad Embedded Thermocouples - Type 30



A range of fast response thermocouples designed to monitor brake disc and brake pad temperatures in the automotive industry as well as a variety of other industrial applications

TC Ltd for Temperature Sensing, Measurement and Control

Type 30 Brake Disc Rubbing Thermocouples

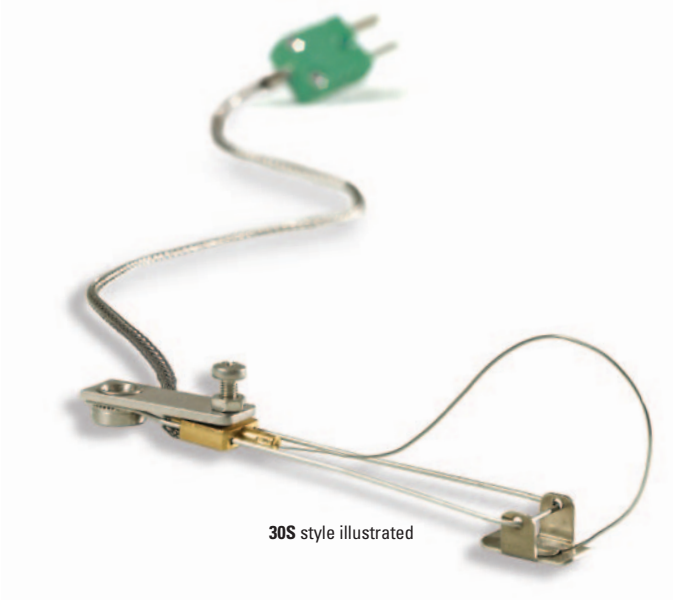
Brake Disc Rubbing Thermocouples

These thermocouples have been specifically designed to monitor brake disc temperatures up to a maximum of 850°C. They can also be used in a variety of other industrial applications and incorporate a fast response, miniature, mineral insulated thermocouple (0.5mm dia.) which is microwelded to a floating, fully adjustable stainless steel shoe.

The sensor can be easily adjusted by setting the spring pressure using the supplied screw and locknut set. This allows for perfect setting of the temperature sensor on the brake disc in a variety of applications. The brake disc rubbing thermocouple is then easily mounted into position through a 5mm fixing hole which is set in the main body.

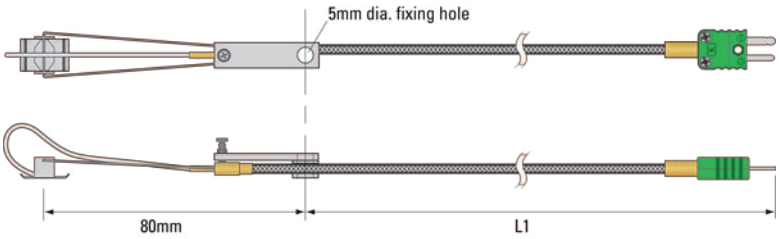
The standard version is supplied with stainless braided cable terminated in a miniature flat pin plug. A more robust version (30R) is also available where the sensor is wrapped around the wire guide and a third heavy duty version (30H) is available where the frame is supported buy a strain relief tube and the sensor is housed in a robust disc. All versions are available in thermocouple types K, T, J, N and E and are suitable for use up to 850°C, depending on the thermocouple type.

- **Fast response**
- **For monitoring of brake disc temperatures up to 850°C**
- **Easily mounted and adjusted**
- **Standard, Robust or Heavy Duty versions available**
- **Thermocouple types K, T, J, N or E**

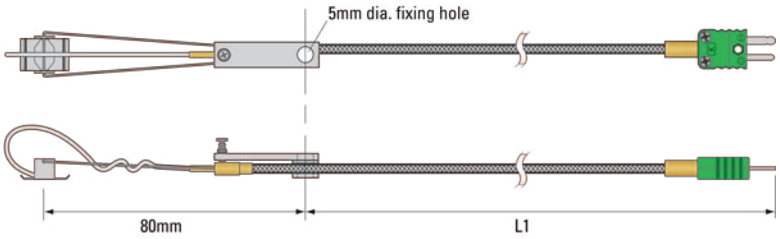


30S style illustrated

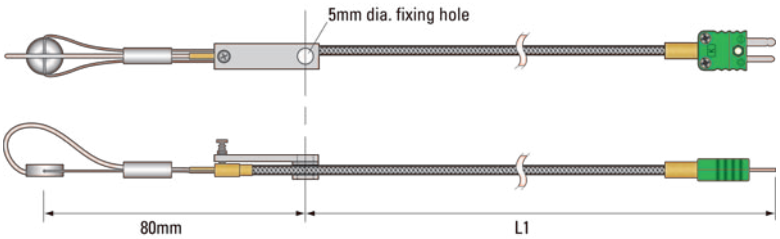
Typical Construction and Styles



Style 30S - Standard version
This sensor is suitable for most applications.



Style 30R - Robust version
As Style 30S but the sensor is wrapped around the wire guide for extra support.



Style 30H - Heavy Duty version
For demanding applications, the sensor and frame are supported by a strain relief tube and the sensor is housed in a robust disc.

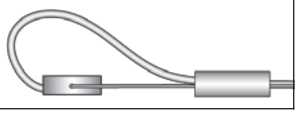
Technical Data

Thermocouple type:	K, T, J, N or E
Construction:	Stainless Steel throughout excluding Brass main body and termination plug
Temperature range:	Type K, 0 to 850°C Type T, 0 to 400°C Type J, 0 to 700°C Type N, 0 to 850°C Type E, 0 to 800°C
Response Time:	Response times vary according to application
Number of channels:	1 (simplex) as standard or 2 (duplex)
Sensor Junction Type:	Either insulated (as standard) or grounded
Sensor Diameter:	0.5mm dia (simplex) or 1.0mm dia (duplex)
Extension Leads:	300mm long Mineral Insulated overbraided with Stainless Steel as standard or custom built to customer specification
Connector Type:	Miniature plastic flat pin plug in either IEC or ANSI colours
Mounting:	Via a 5mm fixing hole located on the main body
Adjustment:	Fully adjustable for perfect location of the shoe via a screw and locknut set on main body

Brake Disc Rubbing Thermocouples Type 30

SECTION 1	Thermocouple Type	Temperature Range* (continuous)	(short term)
K	Nickel Chromium vs Nickel Aluminium	0 to +1100°C	-180 to +1350°C
T	Copper vs Constantan	-185 to +300°C	-250 to +400°C
J	Iron vs Constantan	+20 to +700°C	-180 to +750°C
N	Nicrosil vs Nisil	0 to +1100°C	-270 to +1300°C
E	Nickel Chromium vs Constantan	0 to +800°C	-40 to +900°C

**Construction of Type 30 Thermocouples limits temperatures to as specified under Technical Data*

SECTION 2	Tip Styles and Descriptions Description	Tip Detail
S	**Standard Version** Straight-over sensor. Available in simplex (0.5mm diameter) or duplex (1.0mm diameter).	
R	**Robust Version** Sensor wrapped around frame for extra support. Available in simplex (0.5mm diameter) or duplex (1.0mm diameter).	
H	**Heavy Duty Version** Sensor housed in a robust disc and fitted with a strain relief tube for extra support. Available in simplex (1.0mm diameter) or duplex (1.0mm diameter).	

SECTION 3	Types of Sensing Junction	
I		**Insulated** Hot junction insulated from sheath. Gives floating output with typical insulation resistance in excess of 100 megohms.
G		**Grounded** Hot junction is welded to the sheath tip giving an earthed output and a faster response to temperature changes.

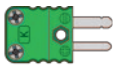
SECTION 4	No. of Junctions
S	**Simplex** One thermocouple output. **0.5mm diameter (30S and 30R) or 1.0mm diameter (30H)**
D	**Duplex** Two thermocouple outputs. **1.0mm diameter**

Order Code - Example

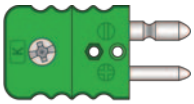
Type No. (See Section 2)		Thermocouple Type (See Section 1)		Measuring Junction (See Section 3)		No. of Junctions (See Section 4)		Cable (L1)
30S	-	K	-	I	-	S	-	300mm

Embedded Brake Pad Thermocouples

These sensors are designed for embedding in to a brake pad to monitor fluctuations in the brake pad temperature up to a maximum of 800°C. Generally available in 3.2mm, 4.0mm or 6.0mm diameter, the sensor is 4mm long, but other sizes are available. Supplied with stainless steel braided cable and available in two models: Type 30E rated to 600°C and Type 30EHT which is rated to 800°C. Note: If an insulated junction is required the maximum temperature is limited to 250°C.



F11 - Optional F11 Miniature Plug



R11 - Optional R11 Standard Plug

Order Code - Example

Type No.		Thermocouple Type		Tip Diameter		Measuring Junction (Grounded or Insulated)		Cable Length		Connector (optional)
30EHT	-	K	-	6.0	-	G	-	2 MTRS	-	F11

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