

# SHEATH TYPE THERMOCOUPLE

NEW-FLOW sheath type thermocouple is high precision and reliability measuring temperature sensor.

## Technical Data

**Head housing:** IP65. Explosion proof available  
**K,E,J,T type available.**

**Dial size:**  $\varnothing 1.0 \sim \varnothing 8.0$  mm on request

**Sheath material:** SS316, SS310, inconel 600 on request

**Working temperature limited:**  $-200 \sim 1050^{\circ}\text{C}$   
according to applicable standards table.

**Measuring junction type:** Grounded type, Ungrounded type,  
Ungrounded separated type

## Element Material

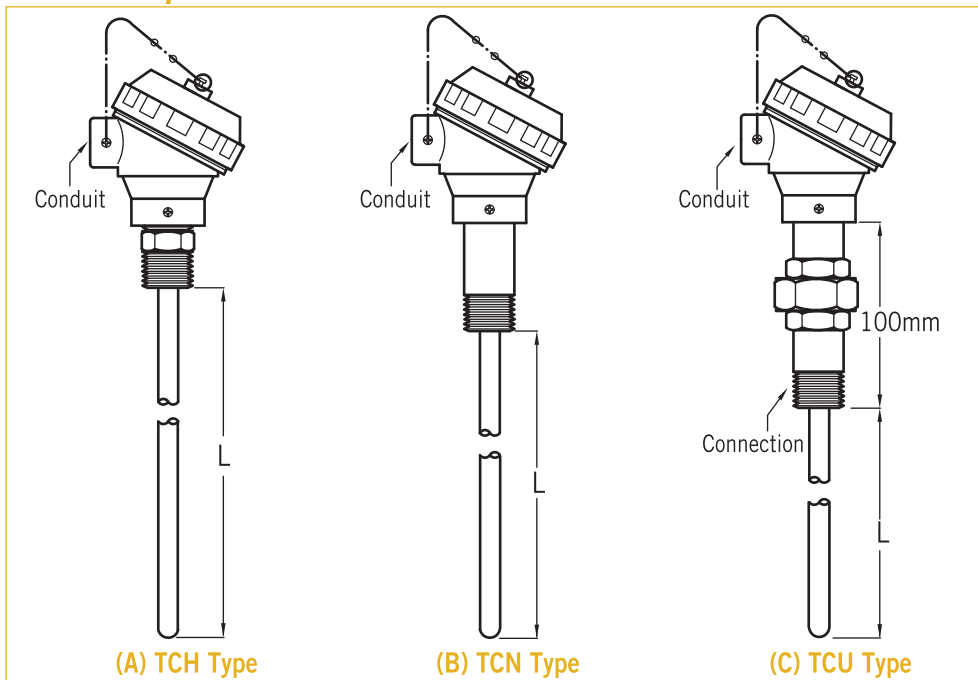
Symbol	Positive Polarity (+)	Negative Polarity (-)
<b>N</b>	Alloy:nickel, chromium and silicone	Alloy:nickel and silicone
<b>K</b>	Alloy:nickel and chromium	Alloy:nickel
<b>E</b>	Alloy:nickel and chromium	Alloy:copper and nickel
<b>J</b>	Iron	Alloy:copper and nickel
<b>T</b>	Copper	Alloy:copper and nickel



*Explosion proof*

*IP65*

## Thermocouple Model

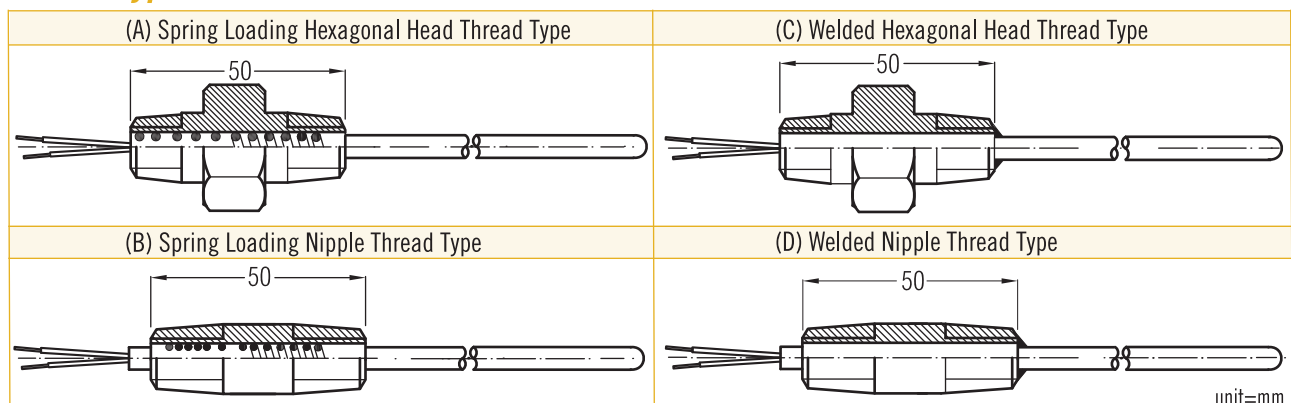


(A) TCH Type

(B) TCN Type

(C) TCU Type

## Sensor Type



## Measuring Junction Type



(A) Grounded Type



(B) Ungrounded Type



(C) Ungrounded Separated Type

(A) It is not suitable for using in location such as electromagnetic induction interfered by radio frequency.

(B) It has response slower than grounded. But ensured a long life, it is available for measuring in various location.

(C) It could be used in two control loop separately.

## Thermocouple Sensor Size

SINGLE ELEMENT	Sheath (mm)		Wire dia. (mm)	Maximum Temperature Range (in air) Limited (unit:°C)					Maximum Length Available (unit:M)		
	O.D	t		N	K		E	J		T	
	Ø1.0	0.17	Ø0.17	900 <sup>(3)</sup>	650 <sup>(1)</sup>		650 <sup>(1)</sup>	450 <sup>(1)</sup>	300 <sup>(1)</sup>	400	
	Ø1.6	0.27	Ø0.27	1200 <sup>(3)</sup>	650 <sup>(1)</sup>		650 <sup>(1)</sup>	450 <sup>(1)</sup>	300 <sup>(1)</sup>	180	
	Ø3.2	0.47	Ø0.51	1260 <sup>(3)</sup>	750 <sup>(1)</sup>		750 <sup>(1)</sup>	650 <sup>(1)</sup>	350 <sup>(1)</sup>	130	
	Ø4.8	0.72	Ø0.76	1260 <sup>(3)</sup>	800 <sup>(1)</sup>		800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	140	
	Ø6.4	0.93	Ø1.0	1260 <sup>(3)</sup>	1000 <sup>(3)</sup>	900 <sup>(2)</sup>	800 <sup>(1)</sup>	800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	80
	Ø8.0	1.16	Ø1.3	—	1050 <sup>(3)</sup>	1000 <sup>(2)</sup>	900 <sup>(1)</sup>	800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	50
DOUBLE ELEMENT	Ø3.2	0.47	Ø0.51	—	750 <sup>(1)</sup>		750 <sup>(1)</sup>	650 <sup>(1)</sup>	350 <sup>(1)</sup>	130	
	Ø4.8	0.72	Ø0.76	—	800 <sup>(1)</sup>		800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	140	
	Ø6.4	0.93	Ø1.0	—	1000 <sup>(3)</sup>	900 <sup>(2)</sup>	800 <sup>(1)</sup>	800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	80
	Ø8.0	1.16	Ø1.3	—	1050 <sup>(3)</sup>	1000 <sup>(2)</sup>	900 <sup>(1)</sup>	800 <sup>(1)</sup>	750 <sup>(1)</sup>	350 <sup>(1)</sup>	50

\*Material:  
 (1) SS316  
 (2) SS310  
 (3) Inconel 600

## Applicable Standards Table

Standard	IEC 584-2-1982 / JIS C1605-1995			ASTM E230-1996		
	Class	Temp. Range(°C)	Tolerance(°C)	Class	Temp. Range(°C)	Tolerance(°C)
N & K	1	-40~+375	±1.5	STD.	0~+1260	±2.2 or ±0.75 %
		+375~+1000	±0.004 t			±1.1 or ±0.4 %
	2	-40~+333	±2.5	SP.	-200~0	±1.7 or ±1 %
		+333~+1200	±0.0075 t			±2.2 or ±2 %
	3	-167~+40	±2.5	STD.	0~+870	±1.7 or ±0.5 %
		-200~-167	±0.015 t			±1 or ±0.4 %
E	1	-40~+375	±1.5	STD.	-200~0	±1.7 or ±1 %
		+375~+800	±0.004 t			±1.7 or ±1 %
	2	-40~+333	±2.5	SP.	0~+760	±1.7 or ±1 %
		+333~+900	±0.0075 t			±1.7 or ±1 %
	3	-167~+40	±2.5	STD.	0~+370	±1.7 or ±1 %
		-200~-167	±0.015 t			±1.7 or ±1 %
J	1	-40~+375	±1.5	STD.	0~+760	±2.2 or ±0.75 %
		+375~+750	±0.004 t			±2.2 or ±0.75 %
	2	-40~+333	±2.5	SP.	0~+370	±1.1 or ±0.4 %
		+333~+750	±0.0075 t			±1.1 or ±0.4 %
T	1	-40~+125	±0.5	STD.	0~+370	±1 or ±0.75 %
		+125~+350	±0.004 t			±1 or ±0.75 %
	2	-40~+133	±1.0	SP.	-200~0	±0.5 or ±0.4 %
		+133~+350	±0.0075 t			±0.5 or ±0.4 %
	3	-67~+40	±1.0	STD.	-200~0	±1 or ±1.5 %
		-200~-67	±0.0075 t			±1 or ±1.5 %