

# Non-metallic protection tube thermocouple

## Model : R700 series

Spec. sheet no. RD07-01

### Service intended

This thermocouple is the combination of a precious metal such as platinum and rhodium alloy with non - metallic materials such as alumina and ceramic which can withstand a high temperature. It is mainly used in a furnace, kilns, and a production line of glass and ceramic.

- Furnaces, kilns and ovens
- Furnaces with oxidizing and neutral atmosphere
- Glass, fiber and ceramic industries



### Standard features

#### Element

- Type R (87% Pt, 13% Rh / Pt)
- Type S (90% Pt, 10% Rh / Pt)
- Type B (70% Pt, 30% Rh / 94% Pt, 6% Rh)
- Type K

#### Tolerances on temperature reading

- "K" type : Class 2 (0.4%, 0.75%)  
Standard (ASTM 0.4%, 0.75%)
- "R", "S" type : Class 2 (0.25%)  
Standard (ASTM 0.25%)
- "B" type : Class 3 (0.5%)  
Standard (ASTM 0.5%)

#### Head type

Compact Type	General Type Weatherproof

#### Head material

- ALDC (Standard)
- 304SS (Not available compact type)
- 316SS (Not available compact type)

#### Element outer diameter

- "K" type : 0.65, 1.0, 1.6, 2.3 and 3.2 mm
- "R", "S", "B" type : 0.5 mm

#### Protecting tube material and outer diameter

Material	Outer diameter (mm)
SSA - S (99.5% Alumina)	8, 10, 13, 15, 17, 21, 25
HB (60% Alumina - 40% Silica)	8, 10, 13, 15, 17, 21, 25
GK - SiC (90% SiC)	25, 30, 40

**1. Base model**

- R701** Non-metallic protection tube thermocouple  
(Single element)
- R702** Non-metallic protection tube thermocouple  
(Double (Duplex) element)

**2. Head type**

- 0** General (Weatherproof)
- 2** None

**3. Element**

- K** K (0.75)
- B** B (0.5)
- 1** K (0.4)
- R** R (0.25)
- S** S (0.25)

**4. Mounting type and extension length (mm)**

- |                           |                             |
|---------------------------|-----------------------------|
| <b>A</b> None             | <b>K</b> Fixed flange 300   |
| <b>B</b> Support tube 100 | <b>L</b> Movable thread 100 |
| <b>C</b> Support tube 150 | <b>M</b> Movable thread 150 |
| <b>D</b> Support tube 300 | <b>N</b> Movable thread 300 |
| <b>E</b> Fixed thread 100 | <b>P</b> Movable flange 100 |
| <b>F</b> Fixed thread 150 | <b>Q</b> Movable flange 150 |
| <b>G</b> Fixed thread 300 | <b>R</b> Movable flange 300 |
| <b>H</b> Fixed flange 100 | <b>Z</b> Other              |
| <b>J</b> Fixed flange 150 |                             |

**5. Outer protection tube outer diameter (mm)**

- |              |              |
|--------------|--------------|
| <b>00</b> 8  | <b>40</b> 21 |
| <b>10</b> 10 | <b>50</b> 25 |
| <b>20</b> 13 | <b>60</b> 30 |
| <b>25</b> 15 | <b>70</b> 40 |
| <b>30</b> 17 |              |

**6. Outer protection tube material**

- |                                |                  |
|--------------------------------|------------------|
| <b>0</b> 316SS                 | <b>5</b> Inconel |
| <b>1</b> SSA - S (8 ~ 25 mm)   | <b>6</b> 446SS   |
| <b>3</b> HB (8 ~ 21 mm)        | <b>7</b> Other   |
| <b>4</b> GK - SiC (25 ~ 40 mm) | <b>8</b> 310SS   |

**7. Inner tube material**

- 0** None
- 1** SSA - S
- 3** HB
- 5** Inconel
- 9** Other

**8. Connection type**

- XX** Refer to connection table (12<sup>th</sup> and 13<sup>th</sup> character)

**9. Insert length**

- X** Refer to insert length table (14<sup>th</sup> character)

**10. Option**

- 0** None
- 1** Accessories
- 4** Epoxy coated ALDC head
- 5** Head material : 304SS
- 6** Head material : 316SS
- 7** Accessories and epoxy coated ALDC head
- 8** Accessories and head material : 304SS
- 9** Accessories and head material : 316SS

1	2	3	4	5	6	7	8	9	10
R701	0	K	B	00	7	0	XX	X	4

Sample  
ordering code

### Mounting, connection type and insert length table - 12<sup>th</sup> thru 14<sup>th</sup> characters

12 <sup>th</sup> character		13 <sup>th</sup> character		14 <sup>th</sup> character	
Code	Connection size	Code	Connection type	Code	Insertion length (mm)
A	None	A	None	A	100
E	½" (15A)	B	PT	B	200
F	¾" (20A)	C	NPT	C	300
G	1" (25A)	D	PF	D	400
H	1¼" (32A)	K	ANSI 150 Lb RF	E	500
J	1½" (40A)	L	ANSI 150 Lb FF	F	600
K	2" (50A)	M	ANSI 300 Lb RF	G	700
L	2½" (65A)	N	ANSI 300 Lb FF	H	800
M	3" (80A)	P	ANSI 600 Lb RF	J	900
Z	Other	Q	ANSI 600 Lb FF	K	1,000
		R	JIS 5K RF	L	1,500
		S	JIS 5K FF	M	2,000
		T	JIS 10K RF		
		U	JIS 10K FF		
		V	JIS 20K RF		
		W	JIS 20K FF		
		Z	Other		

Note : Please choose a code of next higher length if applicable length is not. Actual length shall be specified.

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