Sheathed thermocouple
Model : R120 sereis (R series)

Spec. sheet no. RD01-02

Service intended

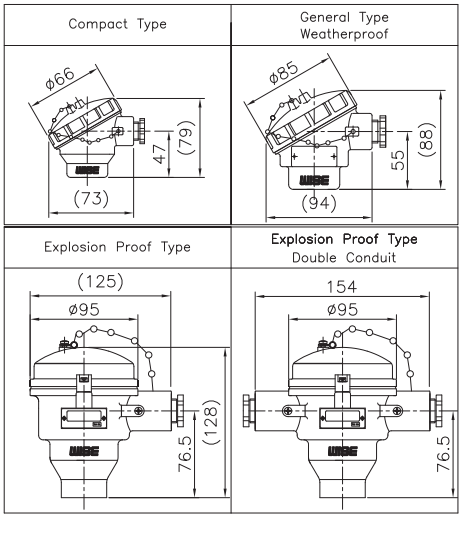
Sheath type thermocouple generally shares the similar principle of protection tube type thermocouple.
However, it has a different construction.
It is filled with inorganic insulating material between the thin wire and the metal sheath, and it shares the same body as one.
Inside the thin stainless steel pipe, thermocouple element is located, and then stainless pipe is filled with a MgO.
Normally, thermocouple is used with a thermowell.
The advantages over protection tube types are ; it has a faster response time, it has a broader temperature range (-200 ~ 1,600 ℃), longer life, it can be bended to install according to its required installation site condition, a better mechanical strength, and a better internal pressure control.

Explosion proof type General type

Standard features

Element
K, E, J, T, N

Head type



Tolerances on temperature reading
Class 1, Class 2 (DIN/IEC584-2, BS/EN60584-2, JIS C1602)
Special, Standard (ASTM E230 E988 ISA-MC96.1)

Head material
ALDC (Standard)
304SS (Not available compact type)
316SS (Not available compact type)

Hot junction shape
Grounded
Ungrounded

Sheath outer diameters
1.0, 1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5 and 12.7 mm
Double element is not available for 1.0 and 1.6 mm sheath outer diameter

Certificates
KCS Ex d IIC T6

1. Base model

R121	Single element
R122	Double (Duplex) element

2. Head & tip shape type

A	General (Weatherproof) and ungrounded
B	General (Weatherproof), ungrounded and spring - loaded
C	General (Weatherproof) and grounded
D	General (Weatherproof), grounded and spring - loaded
E	General (Weatherproof) and exposed
F	Explosion proof and ungrounded
H	Explosion proof and grounded
K	Explosion proof and exposed
L	Compact (Small) and ungrounded
M	Compact (Small) and grounded
N	Compact (Small) and exposed
P	Explosion proof (Double conduit) and ungrounded
Q	Explosion proof (Double conduit) and grounded
R	Explosion proof (Double conduit) and exposed

3. Element (Tolerance)

K	K (0.75)
J	J (0.75)
T	T (0.75)
N	N (0.75)
E	E (0.5)
B	B (0.5)
1	K (0.4)
2	J (0.4)
3	T (0.4)
4	E (0.4)
5	N (0.4)
R	R (0.25)
S	S (0.25)
Z	Other

4. Sheath material

1	316SS
2	Inconel 600
3	310SS
4	446SS
5	347SS
6	321SS
7	316L SS
8	Other

5. Sheath outer diameter (mm)

A9	1.0
B9	1.6
C9	2.3
D9	3.2
E9	4.8
F9	6.4
G9	8.0
H9	9.5
L9	12.7

6. Conduit connection

1	½" PF
2	½" PT
3	½" NPT
4	¾" PF
5	¾" PT
6	¾" NPT
7	None
8	M20 x 1.5P
9	Other

7. Mounting type

X	Refer to mounting table (11th character)

8. Connection type

XX	Refer to mounting table (12th and 13th character)

9. Insert length

X	Refer to insert length table (14th character)

10. Option

0	None
1	Accessories
4	Epoxy coated ALDC head
5	Head material : 304SS (Only for weatherproof head)
6	Head material : 316SS (Not available for explosion proof-double conduit type)
7	Accessories and epoxy coated ALDC head
8	Accessories and head material : 304SS (Only for weatherproof head)
9	Accessories and head material : 316SS

1	2	3	4	5	6	7	8	9	10	
R121	**A**	**K**	**1**	**F9**	**1**	**X**	**XX**	**X**	**0**	**Sample ordering code**

Mounting, connection type and insert length table - 11th thru 14th characters

11th character		12th character		13th character		14th character	
Code	Mounting	Code	Connection size and connector material	Code	Connection type	Code	Insert length (mm)
A	None	A	None	A	None	A	100
	Fixed thread lag length	B	⅛" and 304SS	B	PT	B	200
B	80 mm	C	¼" and 304SS	C	NPT	C	300
C	100 mm	D	⅜" and 304SS	D	PF	D	400
D	150 mm	E	½" and 304SS	E	NPS	E	500
E	200 mm	F	¾" and 304SS	F	UNF	F	600
F	Other	G	1" and 304SS	G	BSPT	G	700
	Fixed flange lag length	H	1¼" and 304SS	H	BSPF	H	800
G	80 mm	J	1½" and 304SS	J	MM	J	900
H	100 mm	K	2" and 304SS	K	B16.5 Class 150 RF	K	1,000
J	150 mm	L	3" and 304SS	L	B16.5 Class 150 FF	L	1,500
K	200 mm	M	7/16" and 304SS	M	B16.5 Class 300 RF	M	2,000
L	Other	N	⅛" and 316SS	N	B16.5 Class 300 FF	N	2,500
M	Movable thread	P	¼" and 316SS	O	Sanitary	P	3,000
N	Movable flange	Q	⅜" and 316SS	P	B16.5 Class 600 RF	Q	3,500
P	Compression fitting	R	½" and 316SS	Q	B16.5 Class 600 FF	R	4,000
	Union and nipple length	S	¾" and 316SS	R	JIS 5K RF	S	4,500
Q	100 mm length	T	1" and 316SS	S	JIS 5K FF	T	5,000
R	150 mm length	U	1¼" and 316SS	T	JIS 10K RF	U	6,000
S	Other	V	1½" and 316SS	U	JIS 10K FF	V	7,000
	Nipple length	W	2" and 316SS	V	JIS 20K RF	W	8,000
T	50 mm	X	3" and 316SS	W	JIS 20K FF	X	9,000
U	100 mm	Y	7/16" and 316SS	X	B16.5 Class 1,500 RTJ	Y	10,000
V	150 mm	Z	Other	Y	B16.5 Class 2,500 RTJ	Z	Other
W	Other			Z	Other		
X	Fixed thread						
Z	Other						

- Note for 14th character, please choose a code of next higher length if applicable length is not. Actual length shall be specified.
- Note for *Y code (Oil sealing type), only available with spring-loaded head type.

Memo