

# Explosion proof type Sheathed thermocouple and resistance temperature detector with spring load

**Model : R921, R922 (RS series)**

Spec. sheet no. **RD09-03**

## Service intended

Generally, sheathed type temperature sensors are used with thermowell. To maximize the heat-transfer between sheath junction and thermowell, the sheath must be inserted as close as possible to the bottom of the well. However, it is not always possible to determine the actual distance between the end tip of the sheath and the bottom of the thermowell. Furthermore, heat expansion can damage the sheath which is located inside the thermowell. To prevent this uncertainty and the damage to the sheath, RS series employ the spring load type sheath. This spring load absorbs the impact to the sheath, and protects the sheath from the vibration. Moreover, it is designed to be used in an explosive area.



## Standard features

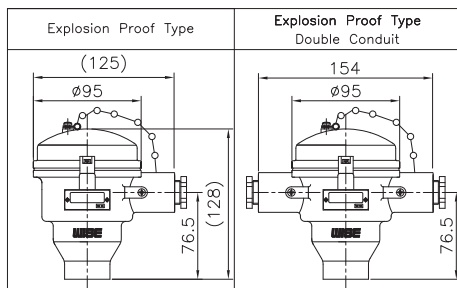
### Element

Thermocouple : K, E, J, T, N  
R.T.D. : Pt 100 Ω at 0 °C  
TCR : 3,850 ppm/k

### Tolerances on temperature reading

- Thermocouple  
Class 1, Class 2 (DIN/IEC584-2, BS/EN60584-2, JIS C1602)  
Special, Standard (ASTM E230, E988, ISA-MC96.1)
- R.T.D.  
Class A :  $\pm (0.15 + 0.002 | t |)$   
Class B :  $\pm (0.3 + 0.005 | t |)$

### Head type



### Head material

ALDC (Standard)  
316SS

### Sheath outer diameters

- Thermocouple  
1.0, 1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5 and 12.7 mm  
\* Double elements is not available for 1.0 and 1.6 mm sheath outer diameters
- R.T.D.  
3.2, 4.8, 6.4 and 8.0 mm

### Certificates

KCS Ex d IIC T6 IP65

**1. Base model**

- R921** Single element  
**R922** Double (Duplex) element

**2. Head and tip shape type**

- A** ALDC head and ungrounded  
**B** ALDC head and grounded  
**C** ALDC head(Double conduit) and ungrounded  
**D** ALDC head(Double conduit) and grounded  
**E** 316SS head and ungrounded  
**F** 316SS head and grounded  
**G** 316SS head(Double conduit) and ungrounded  
**H** 316SS head(Double conduit) and grounded

**3. Element**

- |          |                       |          |                       |
|----------|-----------------------|----------|-----------------------|
| <b>K</b> | K (0.75)              | <b>1</b> | K (0.4)               |
| <b>J</b> | J (0.75)              | <b>2</b> | J (0.4)               |
| <b>T</b> | T (0.75)              | <b>3</b> | T (0.4)               |
| <b>E</b> | E (0.5)               | <b>4</b> | E (0.4)               |
| <b>N</b> | N (0.75)              | <b>5</b> | N (0.4)               |
| <b>Q</b> | Pt 100 Ω (B), 3 wire  | <b>9</b> | Pt 100 Ω (A), 3 wire  |
| <b>U</b> | JPt 100 Ω (B), 3 wire | <b>0</b> | JPt 100 Ω (A), 3 wire |
| <b>A</b> | Pt 100 Ω (B), 4 wire  | <b>C</b> | Pt 100 Ω (A), 4 wire  |
| <b>B</b> | JPt 100 Ω (B), 4 wire | <b>D</b> | JPt 100 Ω (A), 4 wire |
| <b>Z</b> | Other                 |          |                       |

**4. Sheath material (RTD. is only 316SS and 316L SS)**

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

**5. Sheath outer diameter (mm)**

- A9** 1.0 (Thermocouple only)  
**B9** 1.6 (Thermocouple only)  
**C9** 2.3 (Thermocouple only)  
**D9** 3.2  
**E9** 4.8  
**F9** 6.4  
**G9** 8.0  
**H9** 9.5 (Thermocouple only)  
**L9** 12.7 (Thermocouple only)

**6. Conduit connection**

- 3** ½" NPT  
**6** ¾" NPT  
**7** None  
**8** M20 x 1.5P  
**9** Other

**7. Mounting type**

- X** Refer to mounting table (11<sup>th</sup> character)

**8. Connection type**

- XX** Refer to connection type 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

1	2	3	4	5	6	7	8	9	10
R921	A	K	1	B9	3	X	XX	X	1

Sample  
ordering code

## Mounting, connection type and insert length table - 11<sup>th</sup> thru 14<sup>th</sup> characters

11 <sup>th</sup> character		12 <sup>th</sup> character		13 <sup>th</sup> character		14 <sup>th</sup> 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	1/8" and 304SS	B	PT	B	200
B	80 mm	C	1/4" and 304SS	C	NPT	C	300
C	100 mm	D	3/8" and 304SS	D	PF	D	400
D	150 mm	E	1/2" and 304SS	E	NPS	E	500
E	200 mm	F	3/4" and 304SS	F	UNF	F	600
F	Other	G	1" and 304SS	G	BSPT	G	700
	Fixed flange lag length	H	1 1/4" and 304SS	H	BSPF	H	800
G	80 mm	J	1 1/2" 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	1/2" and 316SS	N	B16.5 Class 300 FF	N	2,500
M	Movable thread	P	3/4" and 316SS	O	Sanitary	P	3,000
N	Movable flange	Q	5/8" and 316SS	P	B16.5 Class 600 RF	Q	3,500
P	Compression fitting	R	1/2" and 316SS	Q	B16.5 Class 600 FF	R	4,000
	Union and nipple length	S	3/4" 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	1 1/4" and 316SS	T	JIS 10K RF	U	6,000
S	Other	V	1 1/2" 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 14<sup>th</sup> 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.