

WR Series TC

WRG□K Sheathed TC

WRG□K Sheathed TC

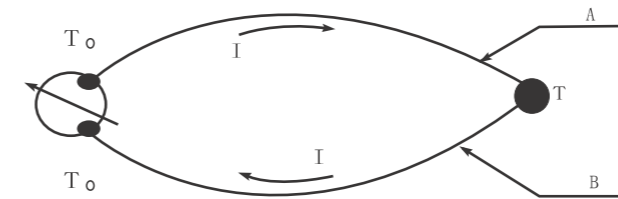
Sheathed thermocouple, with the advantages of a slender body, the short thermal response time, acceptable long life cycle and acceptable etc., is widely acceptable for the narrow pipeline and some special temperature-measuring positions in many fields, such as aviation, atomic energy, chemical industry, metal industry, machine industry, power generation, etc.;

WRG□K series armored thermocouples, with its unique and novel structure, are a new series manufactured in a full range of varieties with full sets of equipment and technology from Okazaki (Japan). They are listed as the 18th batch of import substitute products by Ministry of Mechanic and Electronic Industry, and well received among users.

Armored thermocouples are typically made up of parts such as an armored thermocouple component, fixing devices used in mounting, wiring devices.

■ Working Principle

The isentropic conductor (electric pole A and isentropic) build up a closed loop, when temperature of the two contacts is different, there will be current passing through the loop, and the thermo-emf generated between two contacts is referred as Seebeck Thermoemf. (See the schematic diagram below for the operating principle). Thermoemf is related to isentropic conductor and temperature difference of the two ends. Thermocouples measure temperature with this principle.



Operating Principle

■ Features

Featuring wide temperature measurement range, fast response, smaller outer diameter, faster response to temperature change, ease of installation, longer life, better air impermeability, higher mechanical strength, they are used at places with high vibration and having, high and low temperature conditions.

■ Technical Data

As per the national standard GB/T 18404-2001, equivalent to the international standard IEC61515:1995;
Industry Standard JB/T 8205-1999;



● Mt'l, O.D. and Max. temperature of Protection Tube

Type	Materials	Diameter	Recommended max. temperature	
K	0Cr18Ni9Ti	0.25	250	
		0.5、1.0	400	
		1.5、2.0	600	
		3.0、4.0、4.5	800	
		5.0、6.0、8.0	800	
	0Cr25Ni20	0.25	300	
		0.5、1.0	500	
		1.5、2.0、3.0	800	
		4.0、4.5、5.0	900	
		6.0、8.0	1000	
	GH3030 OR Inconel600	0.25	300	
		0.5、1.0	500	
		1.5、2.0、3.0	800	
		4.0、4.5、5.0	900	
		6.0、8.0	1000	
N	0Cr18Ni9Ti	0.25	250	
		0.5、1.0	400	
		1.5、2.0	600	
		3.0、4.0、4.5	800	
		5.0、6.0、8.0	800	
	GH3030 OR Inconel600	0.25	300	
		0.5、1.0	500	
		1.5、2.0、3.0	800	
		4.0、4.5、5.0	900	
		6.0、8.0	1000	
	E	0Cr18Ni9Ti	0.5、1.0	400
			1.5、2.0	500
			3.0、4.0、4.5	600
			5.0、6.0、8.0	700
			700	700
J	0Cr18Ni9Ti	0.5、1.0	300	
		1.5、2.0	400	
		3.0、4.0、4.5	500	
		5.0、6.0、8.0	600	
		600	600	
T	0Cr18Ni9Ti	0.5、1.0	200	
		1.5、2.0、3.0	250	
		4.0、4.5	300	
		5.0、6.0、8.0	300	
		300	300	
S	GH3039	2.0、3.0、4.0、4.5	1000	
		5.0、6.0、8.0	1100	
		1100	1100	
R	GH3039	2.0、3.0、4.0、4.5	1000	
		5.0、6.0、8.0	1100	
		1100	1100	
B	GH3039	2.0、3.0、4.0、4.5	1200	
		5.0、6.0、8.0	1200	
		1200	1200	
B	RtRh6	2.0、3.0	1200	
		4.0、4.5、5.0	1300	
		6.0、8.0	1300	

Note: Working temperature depends on state of the tested media, environmental conditions, structure of thermocouple measured end. In the event of an exposed end type, working temperature shall be lowered correspondingly.

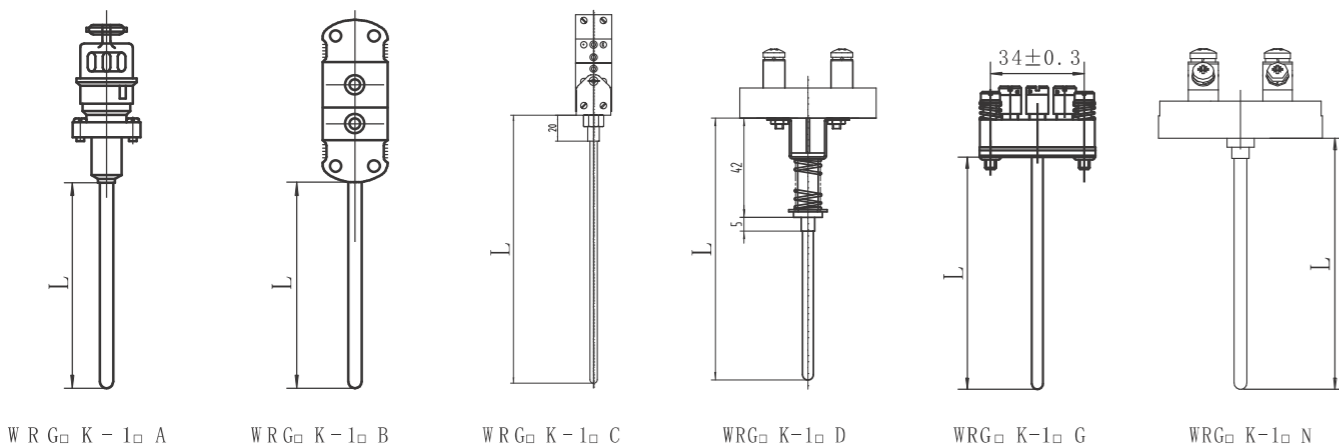


●WRG K series sheathed thermocouple- Okazaki structure (non-junction box type)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
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WRG K-1A	Metal socket type		
WRG K-1B	Plastic socket type		
WRG K-1C	Imported socket type		
WRG K-1D	Crimping terminal plate with the spring thermocouple		
WRG K-1G	Falling-off resistance wiring board thermocouple		
WRG K-1N	Wiring board thermocouple		
Class	① Graduation No.	K: NiCr-NiSi N: NiCrSi- Nickel silicon magnesium E: NiCr- CuNi (constantane) J: Fe-CuNi (constantane) T: Cu-CuNi (constantane)	S: Pt-Rh10-Pt R: Pt-Rh 13-Pt B: Pt-Rh 30-Pt-Rh6
	② Pairs of the thermocouple	No mark: Single-branch 2. Double-branch (suitable for sheathed even diameter Φ3~Φ8)	
Type	③ Type of the measuring end	1. Exposed junction type	2. Shorted junction type 3. Isolated junction type
	④ Tolerance grade	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C	T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C
Temperature measuring elements	⑤ Sheathed thermocouple diameter (mm)	E: Φ3 F: Φ4	G: Φ4.5 H: Φ5 J: Φ6 K: Φ8
	⑥ Total length L (mm)		
	⑦ Material of the casing	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 N: Incone 1600
	⑧ Inserting length l (mm)	Notes: Suitable for fixed thread no marking for non-fixed thread	
Additional unit	⑨	See P157-P158	

●Structure Profile



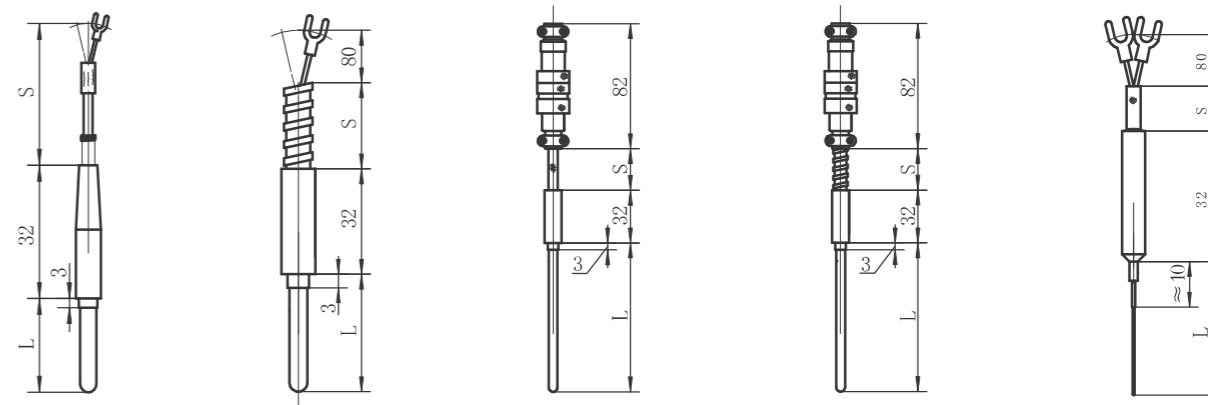
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① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩
WRG□K□ - 1□□ - □□□□□ - □□/□

WRG□K□ - 1□1	Wiring fork type with compensating lead		
WRG□K□ - 1□2	Wiring fork type with compensating lead sleeve flexible conduit		
WRG□K□ - 1□3A	Metal socket type with compensating lead (for the connector, see page 156)		
WRG□K□ - 1□4A	Metal socket type with compensating lead sleeve flexible conduit (for the connector, see page 156)		
WRG□K□ - 1□5	Sheathed micro thermocouple (only for K and N types)		
Class	① Graduation No.	K: K type NiCr-NiSi N: N type NiCrSi- Nickel silicon magnesium E: E type NiCr-CuNi (constantane) J: J type Fe-CuNi (constantane) T: T type Cu-CuNi (constantane)	S: S type Pt-Rh10-Pt R: R type Pt-Rh13-Pt B: B type Pt-Rh30- Pt-Rh6
	② Pairs of the thermocouple	No mark: Single branch 2: Double branch (Suitable for sheathed thermocouple diameter : Φ3~Φ8)	
Type	③ Type of the measuring end	1: Exposed junction type (Not applicable for sheathed fine thermocouple)	2: Shorted junction type 3: Isolated junction type (Sheathed thermocouple diameter ≥Φ0.5)
	④ Tolerance grade	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C	T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C
Temperature measuring elements	⑤ Sheathed thermocouple diameter (mm)	M: Φ0.25 A: Φ0.5 B: Φ1	C: Φ1.5 D: Φ2 E: Φ3 F: Φ4 G: Φ4.5 H: Φ5 J: Φ1.5 K: Φ8
	⑥ Total length L (mm)	Notes: M and A are only used for sheathed fine thermocouple	
	⑦ Material of the casing	G: 0Cr18Ni9Ti H: 316 HL: 316L	P: 310S B: GH3030 C: GH3039
Compensating lead	⑧	S: General heatproof compensating lead SP: General heatproof compensating lead with the shielding layer SS: General heatproof, oil resistance compensating lead	
	⑨	Length of the compensating lead (mm)	
Additional device	⑩	See P157-P158	

●Structure Profile



WRG□K-1□1 WRG□K-1□2 WRG□K-1□3A WRG□K-1□4A WRG□K-1□5



●WRG□K Sheathed TC-Japan OKAZAKI Structure(with Junction Box)

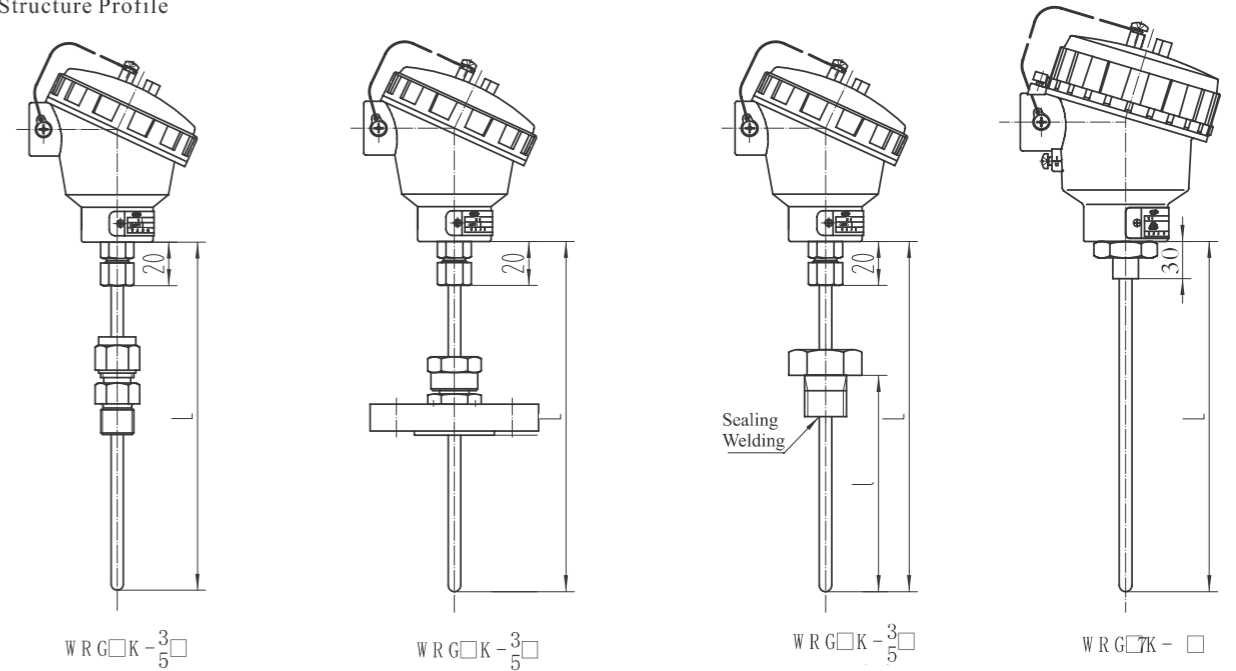
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WRG□K□ - □□ □ Type		No-installation Type			
T y p e	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickelcopper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6	
	② Sensor Quantity	No designation: Single 2: Duplux			
M o d e l	③ J.B. Specification	3: Water-proof Die Casting Al J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 7A: Explosion-proof SS J.B. 9A: SS JDY J.B.	
	④ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type			
S e n s o r	⑤ Accuracy	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C		T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C	S, R P: ±3°C or ±0.5% t °C
	⑥ Diameter (mm)	E: Φ3 F: Φ4	G: Φ4.5 H: Φ5	J: Φ6 K: Φ8	B P: ±4°C or ±0.5% t °C
	⑦ Total Length L (mm)				
	⑧ Sheath Material	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 N: Inconel600	Remarks: Other materials are listed in Page 159	
⑨ Insertion depth l (mm) (Applied for the fixed thread type)					
J.B. Specification	⑩ Electric Connection	M: M20*1.5 Internal Thread N: NPT1/2" Internal Thread		G: G1/2" Internal Thread Z: ZG1/2" Internal Thread	
	⑪ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint		D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	
	⑫ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb		A: ExiaIIC T6 Ga T: ExtIIC T120°C Db IP65	
Process Connection	⑬ Installation	No mark: bare stem l: Fixed Thread		2: compression-fitting thread 6: on-fitting flange (Dual)	
	⑭ Installation Material	A: 304 H: 316		HL: 316L Remark: Any other material is listed in Page 159	
	⑮ Installation Size	fitting Thread M12: M12*1.5 M27: M27*2 M16: M16*1.5 N1: NPT1/2" M20: M20*1.5 Z1: ZG1/2"		Compresson-fitting Flange Flange quantity 1: Single 2: Duplex and with fastenings Flange Specification Standard specification: the designations are detailed in Page 157~158 Standard flange: standard number-nominal diameter-pressure ratio-sealing face	
Remarks: 1.Any other size of thread is designed like: (Specific Size), Ex.: M27*1.5: (M27*1.5);					



● Structure Profile



Remarks: L=1+150mm

● J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Sketch			
Designation	3: Die Casting 3A: SS	5: Die Casting 5A: SS	8: Water-proof (die casting) 9: Explosion-proof (die casting)
Enclosure Grade	IP65	IP65	IP65
Remark: Detailed specifications are listed in Page 154~155			

● Installation

Name	Compression-fitting Thread	Compression-fitting flange	Welded thread
Sketch			
Designation	2: Compression-fitting Thread	6: Compression-fitting Flange	1: Fixed Thread
Remark: Detailed specifications are listed in Page 157~158			

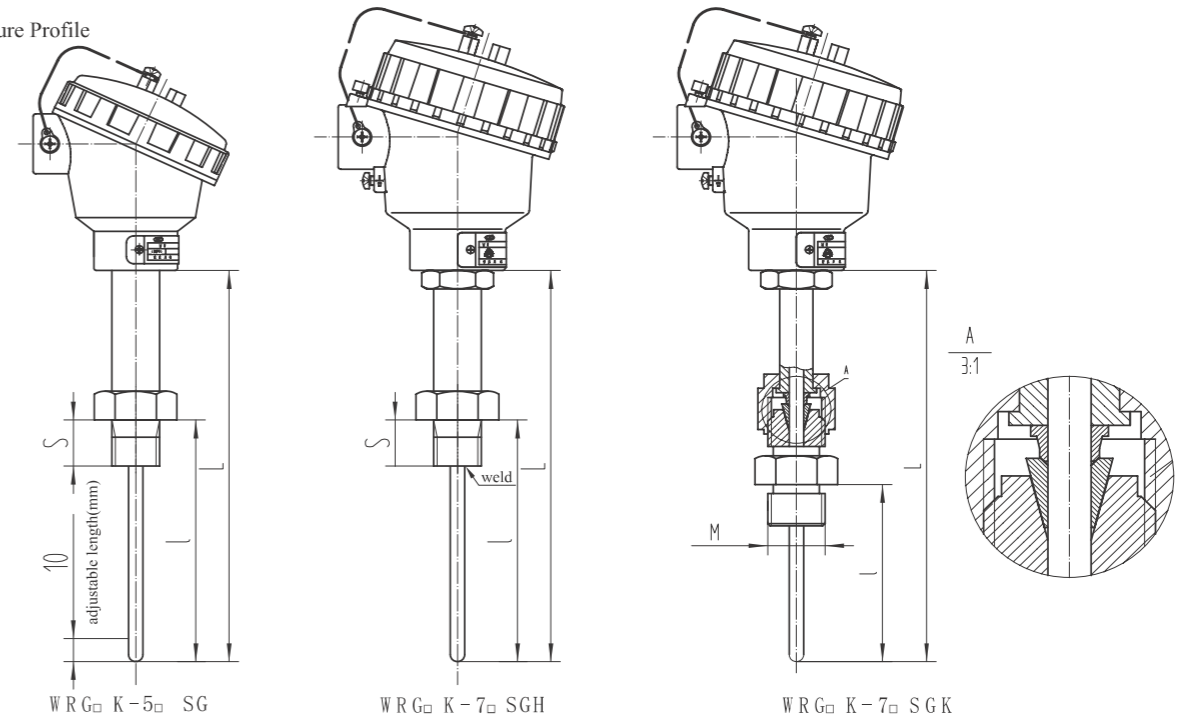


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WRG□K□□□ Type		Not-adjustable-nipple-bolt Type			
Type	① Sensor Type	K : K Type Nickel chrome-nickel silicon N : N Type Nickel chrome silicon - nickel silicon magnesium E : E Type Nickel chrome-Nickel copper (Constantan) J : J Type Iron-Nickel copper (Constantan) T : T Type Copper-Nickel copper (Constantan)		S : S Type Platinum Rhodium 10- Platinum R : R Type Platinum Rhodium 13- Platinum B : B Type Platinum Rhodium 30- Platinum 6	
	② Sensor Quantity	No designation : Single 2: Duplux			
Model	③ J.B. Specification	3 : Water-proof Die Casting Al J.B. 5 : Water-proof Die Casting J.B. 7 : Explosion-proof Die Casting AL J.B. 9 : Die Casting Al JDY J.B.		3A : Water-proof SS J.B. 5A : Water-proof SS J.B. 7A : Explosion-proof SS J.B.(Spring-loaded) 9A : SS JDY J.B.	
	④ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type			
Sensor	⑤ Extension Type	SG: Fixed-bolt Type SGK: Compression-fitting sealing type		SGH: Welded sealing Type Remarks: the spring-loaded structure is invalid for the sealing welded type	
	⑥ Accuracy	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C		T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C	S, R P: ±3°C or ±0.5% t °C B P: ±4°C or ±0.5% t °C
Sensor	⑦ Diameter (mm)	E: Φ3 F: Φ4		G: Φ4.5 H: Φ5	J: Φ6 K: Φ8
	⑧ Total Length L (mm)				
Sensor	⑨ Sheath Material	G: 0Cr18Ni9Ti H: 316 HL: 316L		B: GH3030 C: GH3039 N: Incone1600	Remarks: Other materials are listed in Page 159;
	⑩ Insertion depth ℓ (mm)	Remarks: no marking here when 16 would be marked			
J.B. Specification	⑪ Electric Connection	M: M20*1.5 Internal Thread N: NPT1/2" Internal Thread		G: G1/2" Internal Thread Z: ZG1/2" Internal Thread	Remarks: 1.Any other size of thread is designed like: (Specific Size), Ex.: M27*1.5: (M27*1.5);
	⑫ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint		D: Stainless steel waterproof cable joint F:Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.
Process Connection	⑬ Explosion-proof Class	B1~B6 : ExdIIBT1~T6 Gb C1~C6 : ExdIICT1~T6 Gb		A : ExiaIICT6 Ga T : ExIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;
	⑭ Bolt Material	A : 304 H : 316		HL : 316L	Remark: Any other material is listed in Page 159
Process Connection	⑮ Bolt Size	M20 : M20*1.5			
	⑯ Extra Attachments	Fixed Thread Type (welded Type) Protection Tube B101 BL03 BH01		Flanged type BF02A BF02B BF03 Refer to: P145-P148 Refer to: P148-P149	



●Structure Profile



Remark: L = ℓ + 150 mm

●Extra Attachments

Name	Fixed Thread Type (welded Type) Protection Tube				
Sketch					
Designation	BL01	BH01T	BH01S	BH01L	BL03
Remark: Specific dimensions, refer to Page 145~147;					

Name	Fixed Flange Type Protection Tube		
Sketch			
Designation	BF02A	BF0213	BF03
Remark: Specific dimensions, refer to Page 148~149;			

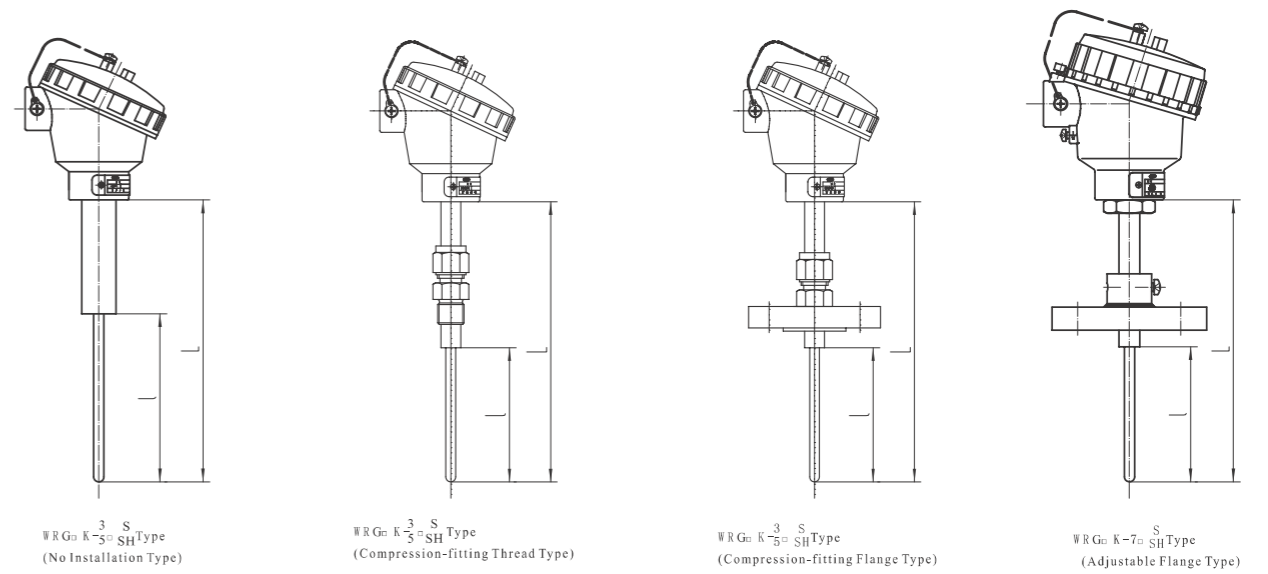


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WRG□K□□□ Type		Reinforcing Pipe Type			
Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6	
	② Sensor Quantity	No designation: Single 2: Duplux			
Model	③ J.B. Specification	3: Water-proof Die Casting Al J.B. 5: Water-proof Die Casting J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.	3A: Water-proof SS J.B. 5A: Water-proof SS J.B. 7A: Explosion-proof SS J.B.(Spring-loaded) 9A: SS JDY J.B.		
	④ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type			
	⑤ Extension Type	S: Reinforcing Pipe Type	SH: Welded reinforcing pipe type (applicable for those of the diameter Φ5)		
Sensor	⑥ Accuracy	K、E、J、N 1: ±1.5°C or ± 0.4% t °C 2: ± 2.5°C or ± 0.75% t °C	T 1: ±0.5°C or ± 0.4% t °C 2: ± 1.0°C or ± 0.75% t °C	S、R P: ± 3°C or ± 0.5% t °C	B P: ± 4°C or ± 0.5% t °C
	⑦ Diameter (mm)	E: Φ3 F: Φ4	G: Φ4, 5 H: Φ5	J: Φ6 K: Φ8	
	⑧ Total Length L (mm)				
	⑨ Sheath Material	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 N: Inconel600	Remarks: Other materials are listed in Page 159;	
	⑩ Insertion depth ℓ (mm)				
J.B. Specification	⑪ Electric Connection	M: M20*1.5Internal Thread N: NPT1/2"Internal Thread	G: G1/2"Internal Thread Z: ZG1/2"Internal Thread	Remarks:1. Any other size of thread should be designed like: (specific size of thread) :	
	⑫ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F:Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.	
	⑬ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb	A: ExiaIICT6 Ga T: ExIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;	
Process Connection	⑭ Installation Method	No designation: No Installation 2: Compression-fitting Thread		6: Compression-fitting Flange 7: Adjustable Flange	
	⑮ Fixing Device Material	A: 304 H: 316	HL: 316L	Remark: Any Other Material Designation refers to Thermowell Materials;	
	⑯ Fixing Device Material	Compression-fitting Thread Fixed Thread and Compression-fitting Flange			
	M12: M12*1.5 M27: M27*2 M16: M16*1.5 N1: NPT1/2" M20: M20*1.5 Z1: ZG1/2"	Flange quantity	1: Single 2: Duplex and with fastenings		
		Flange Specification	Standard specification: the designations are detailed in Page 157~158 Standard flange: standard number-nominal diameter-pressure ratio-sealing face		
	Remarks: 1.Any other size of thread is designed like: (Specific Size), Ex.: M27*1.5: (M27*1.5);				



●Structure Profile



Remark: 1. L=ℓ+150mm
 2. Fixing device is fixed on the reinforcing pipe; If fixed on the sheath, it must be defined in order;

●J.B. Specification

Name	Water-proof J.B.		Explosion-proof J.B.	JDY J.B.
Sketch				
Designation	3: Die-casting Al 3A: SS	5: Die-casting Al 5A: SS	7: Die-casting Al 7A: SS	8: Water-proof Type(Die-casting Al) 9: Explosion-proof Type(Die-casting Al)
Enclosure Protection Class	IP65	IP65	IP65	IP65

Remark: Specific dimensions (refer to Page 136~140)

●Fixing Device

Name	Compression-fitting Thread	Compression-fitting Flange	Adjustable Flange
Sketch			
Designation	2: Compression-fitting Thread	6: Compression-fitting Flange	7: Adjustable Flange

Remark: Specific dimensions (refer to Page 157~158)

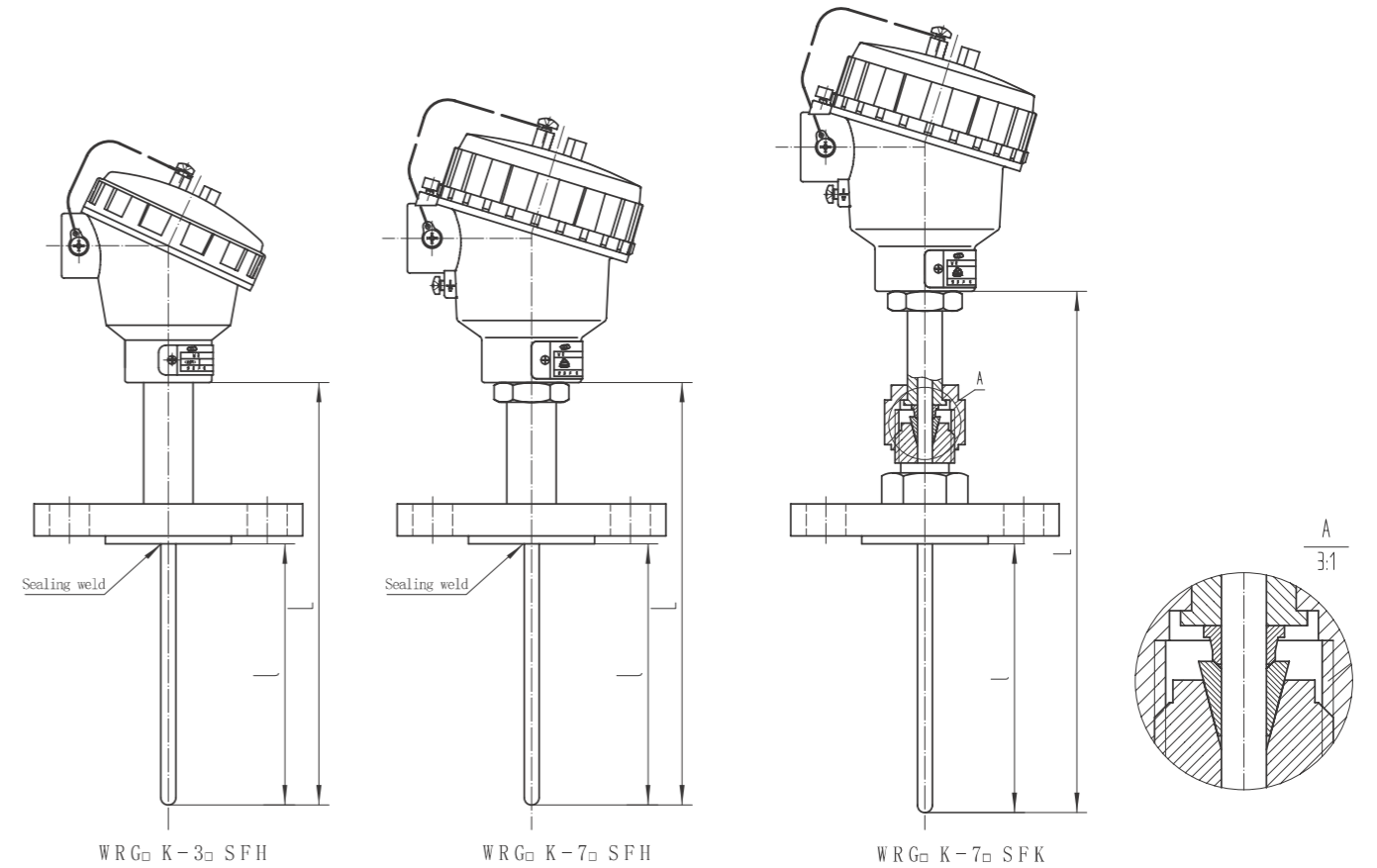


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WRG□K□□□ Type		Reinforcing Pipe Flanged Type			
Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6	
	② Sensor Quantity	No designation: Single 2: Duplux			
Model	③ J.B. Specification	3: Water-proof Die Casting Al J.B. 5: Water-proof Die Casting J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.	3A: Water-proof SS J.B. 5A: Water-proof SS J.B. 7A: Explosion-proof SS J.B.(Spring-loaded) 9A: SS JDY J.B.		
	④ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type			
	⑤ Extension Type	SFK: Fixed flange compression-fitting screw sealing type SFH: Fixed flange welded sealing type			
Sensor	⑥ Accuracy	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C	T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C	S, R P: ±3°C or ±0.5% t °C	B P: ±4°C or ±0.5% t °C
	⑦ Diameter (mm)	E: Φ3 F: Φ4	G: Φ4, 5 H: Φ5	J: Φ6 K: Φ8	
	⑧ Total Length L (mm)				
	⑨ Sheath Material	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 N: Inconel600	Remarks: Other materials are listed in Page 159;	
	⑩ Insertion depth ℓ (mm)				
J.B. Specification	⑪ Electric Connection	M: M20*1.5Internal Thread N: NPT1/2"Internal Thread	G: G1/2"Internal Thread Z: ZG1/2"Internal Thread	Remarks: 1. Any other size of thread should be designed like: (specific size of thread) ; 2. Nylon sealing gland of M20*1.5 is standard for water-proof J.B., which is applied for 3, 5, 3A and 5A in ③; Any other size of gland should be defined in order;	
	⑫ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.	
	⑬ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb	A: ExiaIICT6 Ga T: ExIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;	
Process Connection	⑭ Flange material	A: 304 ZA: 20#	E: Embedded type in 304 SS flange body	Remarks: 1, other materials are detailed in Page 159; 2, if the companion flange material is different, the identification like (upper flange material+bottom flange material);	
	⑮ Flange quantity	1: Single 2: Duplex and with fastenings			
	⑯ Flange Specification	Standard specification: the designations are detailed in Page 157~158 Standard flange: standard number-nominal diameter-pressure ratio-sealing face			



● Structure Profile



Remark: L = ℓ + 150mm

● J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Sketch			
Designation	3: Die-casting Al 3A: SS	5: Die-casting Al 5A: SS	7: Die-casting Al 7A: SS
Enclosure Protection Class	IP65	IP65	IP65
Remark: Specific dimensions (refer to Page 154~155)			

WR Series TC

WR□ Assembly TC

WR□K Sheathed-core Assembly TC

WR□ Assembly TC

WR□ assembly thermocouple is used for measuring the gas, fluid and solid surface temperature at $-200^{\circ}\text{C}\sim 1600^{\circ}\text{C}$ and widely applied in many industrial and scientific technological fields, such as aviation, atomic energy, petroleum, chemistry, metallurgy, machinery, etc.

■Principal Feature

Larger measuring range, longer life, ease of installation, lower price, lower anti-seismic, comparatively lower stability during the longer utility;

■Principal Technical Requirements

Industry Standard Performed:GB/T30429-2013
JB/T8205-1999

●Measuring Scope and Tolerance

Type	Sheath Diameter	Type	Tolerance	Long-term Utility Temperature (°C) ※
Nickel chrome-nickel silicon	0.3~3.2	K	$\pm 2.5^{\circ}\text{C}$ or	-40~1200
Nickel chrome silicon - nickel silicon magnesium		N		-40~1200
Nickel chrome-Nickel copper (Constantan)		E	$\pm 0.75\% t $	-40~750
Iron-Nickel copper (Constantan)		J		-40~600
Copper-Nickel copper (Constantan)	0.2~1.6	T	$\pm 1^{\circ}\text{C}$ or $\pm 0.75\% t $	-40~350
Platinum Rhodium 10-Platinum	0.5	S	$\pm 1.5^{\circ}\text{C}$ or	0~1300
Platinum Rhodium 13-Platinum		R		0~1300
Platinum Rhodium 30-Platinum 6		B	$\pm 4^{\circ}\text{C}$ or $\pm 0.5\% t $	600~1700

Remarks: the temperature scope of TC wires is different up to the different diameters;The temperature in the sheet is the highest Long-term utility temperature;

●Protection Tube O.D. and Length

Protection Tube		Length L mm
O.D.	Mt'l	
Φ16、Φ20 Φ25	Metal	300, 350, 400, 450, 550, 650 900, 1150, 1650, 2150, 2650
		Φ16
Φ25	Non-metal	500, 650, 1650; 2150 (Remarks: For molybdenum disilicide protection tube, length of 2150mm is unavailable;)
Φ35	Non-metal	500, 650, 900, 1150
Right-angle Protection Tube		500×500, 750×750, 500×750 750×500



●Thermal Respon.

Diameter of Protection Tube (mm)	Tapered Protection Tube	Protection Tube Mt'l T 0.5 (S)
Φ16	Non-metal	≤240
	Metal	≤180
Φ20	Metal	≤240
Φ25	Non-metal	≤300

●Room-temperature Insulation Resistance

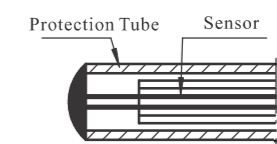
When the ambient temperature is $15\sim 35^{\circ}\text{C}$, the relative humidity is no more than 80%, the insulation resistance between TC wires and protection tube should follow the following sheet;

Length	Room-temperature Insulation Resistance	Test Voltage
$L \leq 1\text{m}$	100M Ω	500±50V d.c
$L > 1\text{m}$	100M Ω/L	

●Hot Junction Structure



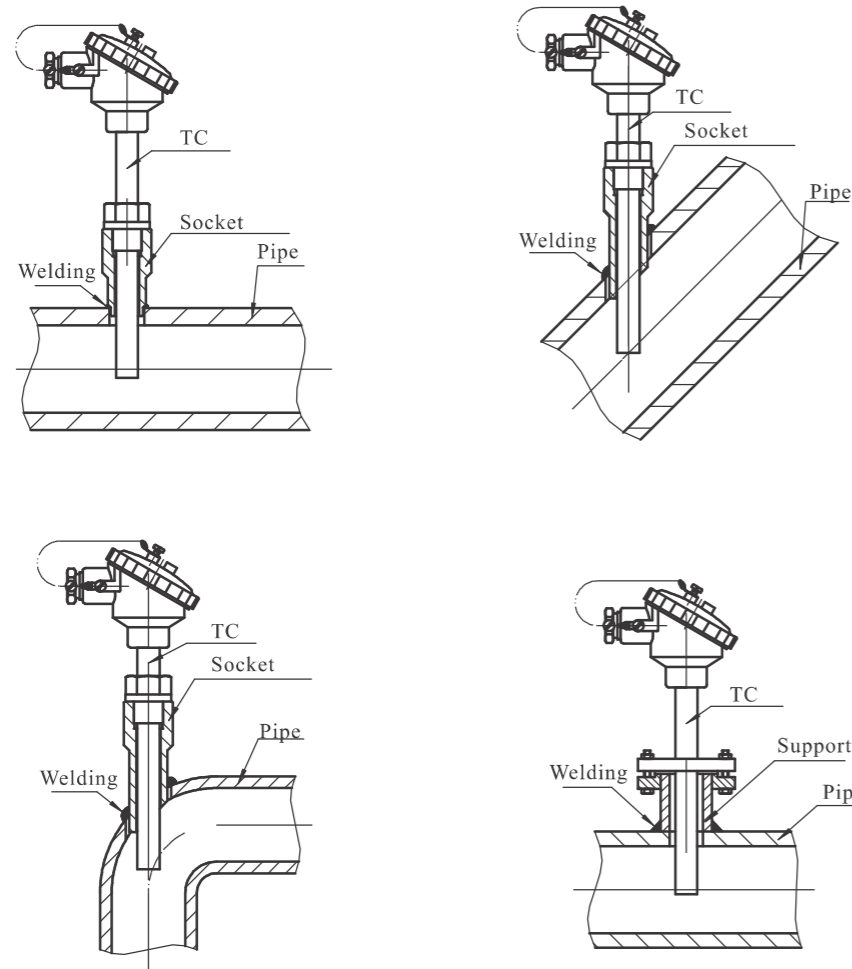
Un-grounded



Grounded(Inertia)



■ Installation Method



■ Order Specification

Example 1: Explosion-proof, duplex, K type, Class II tolerance, 0~800℃, Fixed thread M27*2, O.D. is 16mm, Mt'l:304, Total Length:1000, Insertion depth: 850mm, Explosion-proof Class: Exd II CT4;

Model: WRK2-2416-2MC4-1000A850-AM27



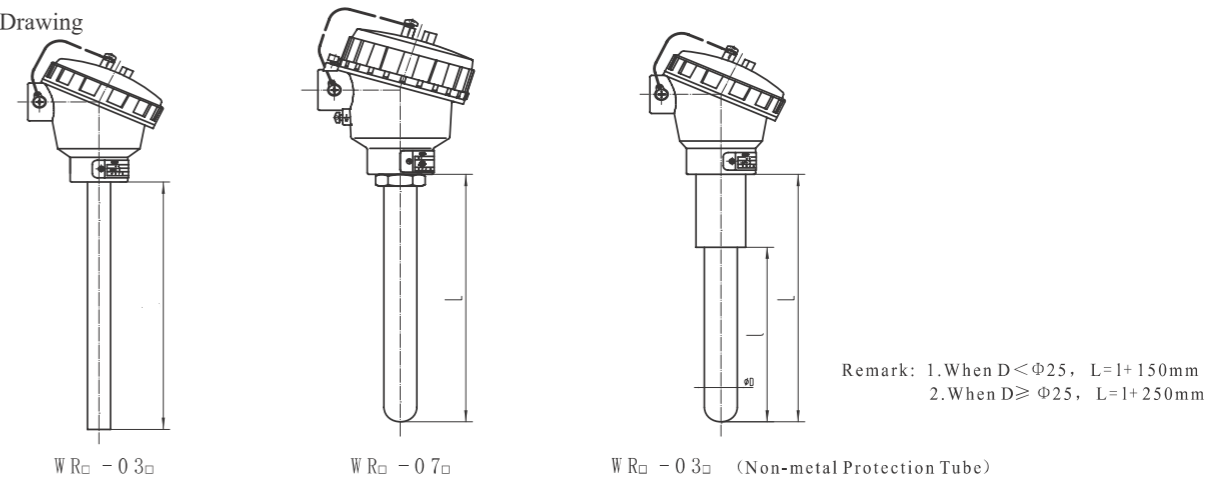
● WR□ Assembly TC (No-installation Type)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

WR□□ - 0□□ - □□□□ - □□□□/□

Type	①	Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6
	②	Sensor Quantity	No designation: Single		2: Duplux
Model	③	J.B. Specification	3: Water-proof Die Casting Al J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 7A: Explosion-proof SS J.B.(Spring-loaded) 9A: SS JDY J.B.
	④	Protection Tube O.D. (mm)	12: Φ12 16: Φ16	20: Φ20 25: Φ25	Remarks:Any other size of thread should be designed like: (specific size of thread); Example: Φ22: (22)
Sensor and J.B.	⑤	Tolerance Class	K, E, J, N 1: ±1.5℃ or ±0.4% t ℃ 2: ±2.5℃ or ±0.75% t ℃	T 1: ±0.5℃ or ±0.4% t ℃ 2: ±1.0℃ or ±0.75% t ℃	S, R 1: ±1.0℃ or ±{1+0.003*(t-1100)}℃ 2: ±1.5℃ or ±0.25% t ℃ B P: ±4℃ or ±0.5% t ℃
	⑥	Electric Connection	M: M20*1.5Inner Thread N: NPT1/2"Inner Thread	G: G1/2"Inner Thread Z: ZG1/2"Inner Thread	Remarks:1. Any other size of thread should be designed like; (specific size of thread); 2.Nylon sealing gland of M20*1.5 is standard for water-proof J.B.; which is applied for 3, 5,3A and 5A in ③; Any other size of gland should be defined in order;
	⑦	Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F:Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.
	⑧	Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdHCT1~T6 Gb	A: ExiaIICT6 Ga T: ExtIIC T120℃ Db IP65	Remark: No designation for Water-proof Types;
Protection Tube	⑩	Total Length L (mm)	A: 304 H: 316 HL: 316L P: 310S B: GH3030 C: GH3039 N: Inconel600 K: Incoloy800 HC: HastelloyC HB: HastelloyB TT: Ti TA: Tantalum ME: Monel R: Conrundum S: Recrystallized Silicone Carbon SS: Green Silicone Carbon Remark: Any other Mt'l is referred in Page 159;		
	⑪	Non-metal Protection Tube Lengthl (mm)	Remarks: Not applicable for Metal Protection Tube;		
Others	⑫	Hot Junction Structure	No designation: Un-grounded X: Inertia TC (Limited for K/E/N type grounded Type)		

● Schematic Drawing





●WR□ Assembly TC (Thread Type)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

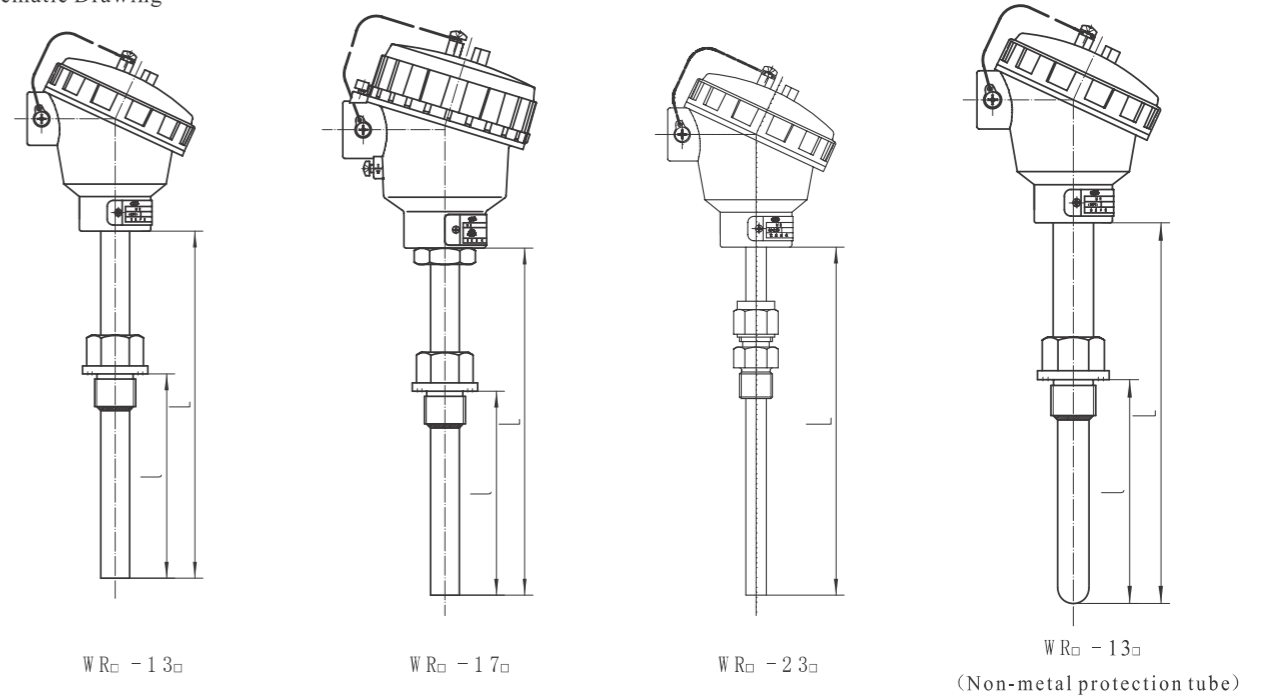
WR□□ - □□□ - □□□□ - □□□□ - □□/□

Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6		
	② Sensor Quantity	No designation: Single 2: Duplux				
Model	③ Bolt Type	1: Fixed Thread Type		2: Compression-fitting Thread Type		
	④ J.B. Specification	3: Water-proof Die Casting Al J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 7A: Explosion-proof SS J.B.(Spring-loaded) 9A: SS JDY J.B.		
	⑤ Protection Tube O.D. (mm)	12: Φ12 16: Φ16	20: Φ20 25: Φ25	Remarks: Any other size of thread should be designed like: (specific size of thread); Example: Φ22: (22)		
Sensor and J.B.	⑥ Tolerance Class	K, E, J, N	T	S, R	B	
		1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C	1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C	1: ±1.0°C or ±{1+0.003*(t-1100)} °C 2: ±1.5°C or ±0.25% t °C	P: ±4°C or ±0.5% t °C	
	⑦ Electric Connection	M: M20*1.5F N: NPT1/2"F	G: G1/2"F Z: ZG1/2"F	Remarks: 1. Any other size of thread should be designed like: (specific size of thread); 2. Nylon sealing gland of M20*1.5 is standard for water-proof J.B., which is applied for 3, 5, 3A and 5A in ③; Any other size of gland should be defined in order;		
	⑧ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.		
⑨ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb	A: ExialICT6 Ga T: ExIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;			
Protection Tube	⑩ Total Length ℓ (mm)					
	⑪ Protection Tube Mt'l	A: 304 H: 316 HL: 316L P: 310S	B: GH3030 C: GH3039 N: Inconel600 K: Incoloy800	HC: HastelloyC HB: HastelloyB TT: Ti TA: Tantalum ME: Monel	R: Conrundum S: Recrystallized Silicone Carbon SS: Green Silicone Carbon	
	Remark: Any other Mt'l is referred in Page 153;					
⑫ Insertion Depth ℓ (mm)						
Process Connection	⑬ Bolt Mt'l	A: 304 H: 316	HL: 316L TT: Ti	Remarks: Any other mt'l refer to protection tubes' in Page 159;		
	⑭ Bolt Specification	M20: M20*1.5 M27: M27*2 M33: M33*2	N1: NPT1/2" G1: G1/2" Z1: ZG1/2"	Remarks: Any other size of thread is designed like: (Specific Size), Ex.: M27*1.5: (M27*1.5);		
Others	⑮ Hot Junction Structure	No designation: Un-grounded X: Inertia TC (Limited for K\EN type grounded type)				

Remark: Socket is detailed in Page 150;



●Schematic Drawing



Remark 一: L=ℓ+150mm (Applicable for non-metal protection tube)

Remark 二: 1.when D<Φ25, L=ℓ+150mm
2.when D≥Φ25, L=ℓ+250mm
(Non-metal protection tube)

●J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Sketch			
Designation	3: Die-casting AL 3A: SS	4: Die-casting AL 4A: SS	9: Die-casting Al 9A: SS
Enclosure Protection	IP65	IP65	IP65
Remark: Refer to Page 154~155: Standard Components;			



●WR□ Assembly TC (Flanged Type)

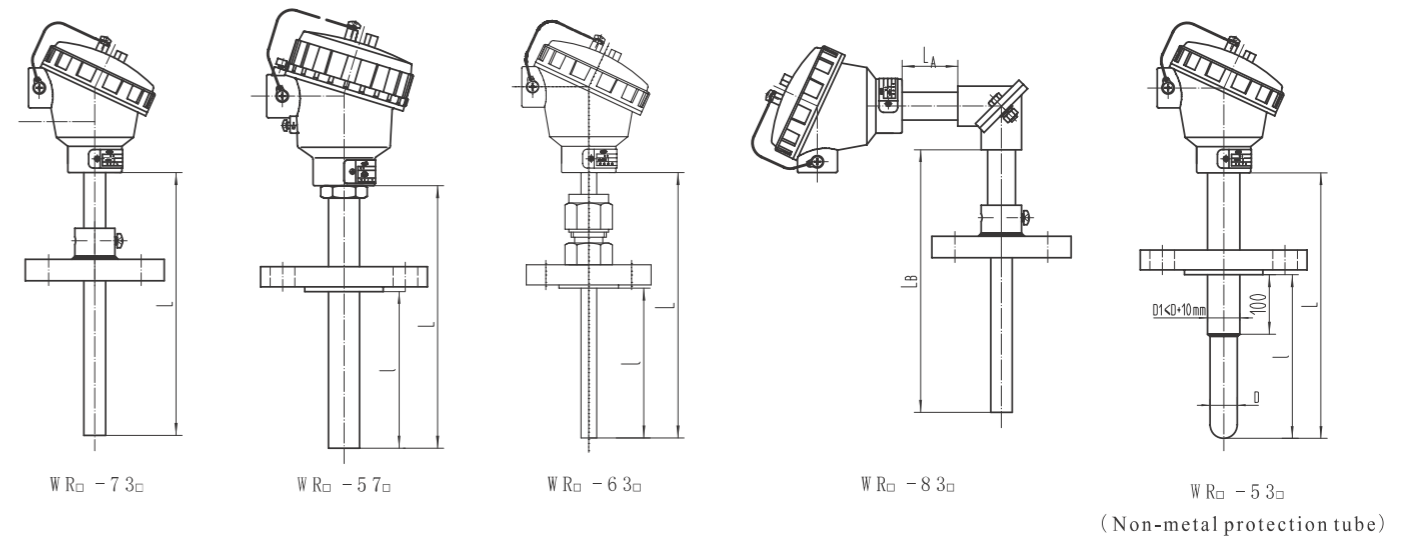
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

WR□□ - □□□ - □□□ - □□□ - □□□/□

Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6	
	② Sensor Quantity	No designation: Single 2: Duplux			
Model	③ Flange type	5: Fixed flange 7: Flexible flange		6: Compression-fitting flange 8: Right-angle flexible flange	
	④ J.B. Specification	3: Water-proof Die Casting Al J.B. 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 7A: Explosion-proof SS J.B. 9A: SS JDY J.B.	
	⑤ Protection Tube O.D. (mm)	12: Φ12 16: Φ16		20: Φ20 25: Φ25 Remarks: Any other size of thread should be designed like: (specific size of thread); Example: Φ22: (22)	
Sensor and J.B.	⑥ Tolerance Class	K, E, J, N 1: ±1.5°C or ±0.4% t °C 2: ±2.5°C or ±0.75% t °C		T 1: ±0.5°C or ±0.4% t °C 2: ±1.0°C or ±0.75% t °C	S, R 1: ±1.0°C or ±{1+0.003*(t-1100)}°C 2: ±1.5°C or ±0.25% t °C
	⑦ Electric Connection	M: M20*1.5 Inner Thread N: NPT1/2" Inner Thread		G: G1/2" Inner Thread Z: ZG1/2" Inner Thread	Remarks: 1. Any other size of thread should be designed like: (specific size of thread); 2. Nylon sealing gland of M20*1.5 is standard for water-proof J.B., which is applied for 3, 3A and 5A in ④; Any other size of gland should be defined in order;
	⑧ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint		D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.
	⑨ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb		A: ExiaIICT6 Ga T: ExIIBC T120°C Db IP65	Remark: No designation for Water-proof Types;
	⑩ Total Length L (mm)	Remark: Length of LA should be defined for right-angle flexible flange;			
Protection Tube	⑪ Protection Tube Mt'l	A: 304 H: 316 HL: 316L P: 310S		B: GH3030 C: GH3039 N: Inconel600 K: Incoloy800	HC: HastelloyC HB: HastelloyB TT: Ti TA: Tantanum ME: Monel
	⑫ Insertion Depth ℓ (mm)	1.Length of LB should be defined for right-angle flexible flange; 2.for flexible flange type and compression-fitting flange type, no designation of insertion depth;			
Process Connection	⑬ Flange material	A: 304 H: 316		E: Embedded type in 304 SS flange body	Remark: any other mt'l designation refer to Page 159;
	⑭ Flange quantity	1: Single 2: Duplex and with fastenings			
	⑮ Flange Specification	Standard specification: the designations are detailed in Page 157~158 Standard flange: standard number-nominal diameter-pressure ratio-scaling face			
Others	⑯ Hot Junction Form	No designation: Un-grounded X: Inertia TC (Limited for K/E/N grounded type)			



●Structure Profile



Remark: L=ℓ+150mm

●J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Form			
Designation	3: Die-casting Al. 3A: SS	7: Die-casting Al. 7A: SS	9: Die-casting Al 9A: SS
Enclosure Protection Class	IP65	IP65	IP65
Remark: Refer to Page145~146: Standard Components			

●Fitting Devices

Name	Fixed Flange	Compression-fitting Flange	Flexible Flange
Form			
Designation	5: Fixed Flange	6: Compression-fitting Flange	7: Flexible Flange
Remarks: Refer to Page157-158: Standard Components			



●WR□ K Sheathed-core Assembly TC (Thread Type)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

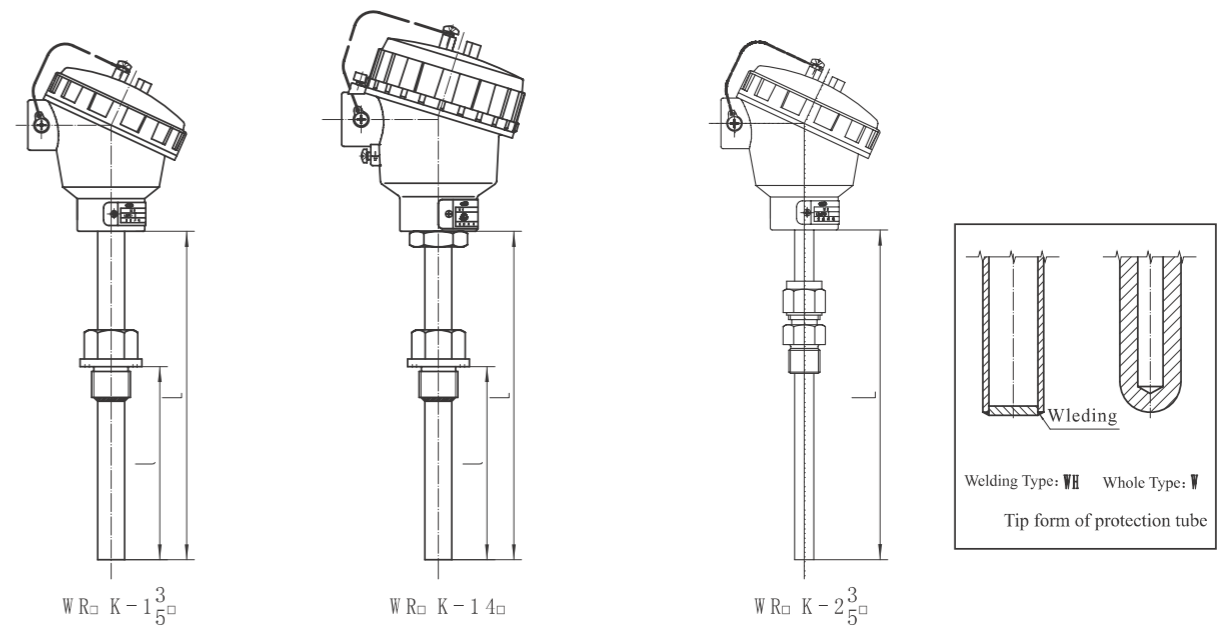
WR□K□ - □□□ - □□□□□□□□ - □□□□ - □□□

Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6		
	② Sensor Quantity	No designation: Single		2: Duplux		
Model	③ Thread Type	1: Fixed Thread		2: Compression-fitting Thread		
	④ J.B. Specification	3: Water-proof Die Casting Al J.B. 5: Water-proof Die Casting J.B.(Spring-loaded) 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 5A: Water-proof SS J.B.(Spring-loaded) 7A: Explosion-proof SS J.B.(Spring-loaded) 9A: SS JDY J.B.		
	⑤ O.D. of Protection Tube (mm)	12: Φ12 16: Φ16	20: Φ20 25: Φ25	Remarks: 1.For tapered fixed thread, only the: Φ18 2.Any other size of thread should be designed like, (specific size of thread): Example: Φ22: (22)		
Sensor and J.B.	⑥ Tolerance Class	K、E、J、N 1: ±15°C or ±0.4% t °C 2: ±25°C or ±0.75% t °C		T 1: ±15°C or ±0.4% t °C 2: ±10°C or ±0.75% t °C	S、R、B P: ±3°C or ±0.5% t °C P: ±4°C or ±0.5% t °C	
	⑦ Sheathed TC diameter (mm)	H: Φ5 (Standard specification, recommended)		Remark: Other diameter is designed like: J: Φ6、K: Φ8、F: Φ		
	⑧ Sheath Mt'l	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 P: 310S	Remark: Refer to Page 159: Material Designation		
	⑨ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type				
	⑩ Electric Connection	M: M20*1.5 Internal Thread N: NPT1/2" Internal Thread	G: G1/2" Internal Thread Z: ZG1/2" Internal Thread	Remarks: 1. Any other size of thread should be designed like: (specific size of thread); 2.Nylon sealing gland of M20*1.5 is standard for water-proof J.B., which is applied for 3, 5, 3A and 5A in ③; Any other size of gland should be defined in order;		
	⑪ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.		
	⑫ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb	A: ExiaIICT6 Ga T: ExTIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;		
Protection Tube	⑬ Structure	WH: Plug type		W: Drilled bar type		
	⑭ Total Length ℓ (mm)					
	⑮ Protection Tube Mt'l	A: 304 H: 316 HL: 316L	HC: HastelloyC HB: HastelloyB TT: Ti TA: Tantanum ME: Monel	Remark: Refer to Page 159: Material Designation		
Process Connection	⑯ Insertion depth ℓ (mm)					
	⑰ Thread Type	A: 304 H: 316	HL: 316L TT: Ti	Remark: Refer to Page 159: Material Designation		
	⑱ Thread Specification	M20: M20*1.5 M27: M27*2 M33: M33*2	N1: NPT1/2" G1: G1/2" Z1: ZG1/2"	Remarks: Any other size of thread is designed like: (Specific Size), Ex.: M27*1.5: (M27*1.5);		

Remark: refer to Page 150: Sockets



●Structure Profile



Remark 一: L=ℓ+150mm (Applicable for non-metal protection tube)

Remark 二: 1.when D<Φ25, L=ℓ+150mm
2.when D≥Φ25, L=ℓ+250mm (Non-metal protection tube)

●J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Form			
Designation	3: Die-casting Al. 3A: SS	7: Die-casting Al. 7A: SS	9: Die-casting Al 9A: SS
Enclosure Protection Class	IP65	IP65	IP65
Remarks: Refer to Page154~155: Standard Components			



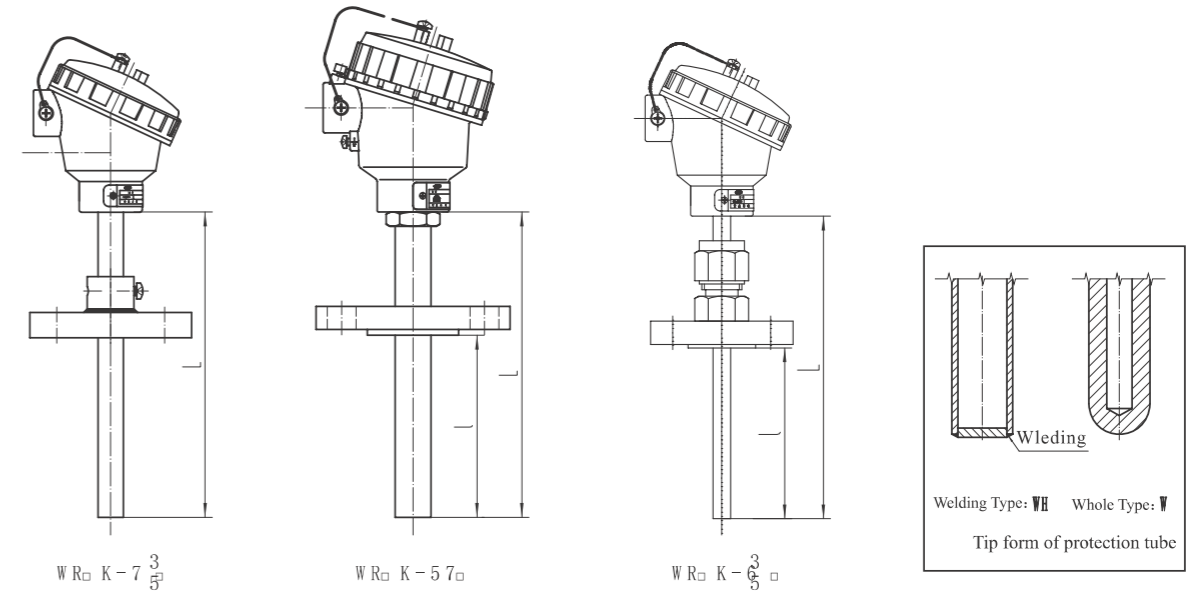
●WR□ K Sheathed-core Assembly TC (Flanged Type)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲
 WR□K□ - □□□ - □□□□□□□□ - □□□□ - □□□□

Type	① Sensor Type	K: K Type Nickel chrome-nickel silicon N: N Type Nickel chrome silicon - nickel silicon magnesium E: E Type Nickel chrome-Nickel copper (Constantan) J: J Type Iron-Nickel copper (Constantan) T: T Type Copper-Nickel copper (Constantan)		S: S Type Platinum Rhodium 10- Platinum R: R Type Platinum Rhodium 13- Platinum B: B Type Platinum Rhodium 30- Platinum 6		
	② Sensor Quantity	No designation: Single		2: Duplex		
Model	③ Flange Type	3: Flexible Flange Type 4: Fixed Flange Type		8: Flexible Compression-fitting Flange Type 0: Fixed Compression-fitting Flange Type		
	④ J.B. Specification	3: Water-proof Die Casting Al J.B. 5: Water-proof Die Casting J.B.(Spring-loaded) 7: Explosion-proof Die Casting AL J.B. 9: Die Casting Al JDY J.B.		3A: Water-proof SS J.B. 5A: Water-proof SS J.B.(Spring-loaded) 7A: Explosion-proof SS J.B. 9A: SS JDY J.B.		
	⑤ Protection Tube O.D. (mm)	12: Φ12 16: Φ16	20: Φ20 25: Φ25	Remarks:1. Any other size of thread should be designed like: (specific size of thread); Ex: Φ22: (22)		
Sensor and J.B.	⑥ Tolerance Class	K, E, J, N 1: ±15°C or ±0.4% t °C 2: ±25°C or ±0.75% t °C		T 1: ±15°C or ±0.4% t °C 2: ±10°C or ±0.75% t °C	S, R P: ±3°C or ±0.5% t °C	
	⑦ Sheath Diameter (mm)	H: Φ5 (Standard Specification, Recommended)		Remark: Other diameter designation is: J: Φ6, K: Φ8, F: Φ4		
	⑧ Sheath Mtl	G: 0Cr18Ni9Ti H: 316 HL: 316L	B: GH3030 C: GH3039 P: 310S	Remark: Refer to Page 153: Material Designation		
	⑨ Hot Junction Structure	1: Exposed Type 2: Grounded Type 3: Isolated Type				
	⑩ Electric Connection	M: M20*1.5 Internal Thread N: NPT1/2" Internal Thread	G: G1/2" Internal Thread Z: ZG1/2" Internal Thread	Remarks:1. Any other size of thread should be designed like: (specific size of thread); 2. Nylon sealing gland of M20*1.5 is standard for water-proof J.B., which is applied for 3, 5, 3A and 5A in ④ (Any other size of gland should be defined in order)		
	⑪ Joint of the cables	No mark: Provide Nylon cable joint/dust-proof cap E: Nickel plated copper explosion insulation cable joint	D: Stainless steel waterproof cable joint F: Stainless steel explosion insulation cable joint	Notes: 1. The explosion products shall be equipped with explosion insulation cable joint; 2. The non-explosion insulation products shall be equipped with standard Nylon waterproof cable joint.		
	⑫ Explosion-proof Class	B1~B6: ExdIIBT1~T6 Gb C1~C6: ExdIICT1~T6 Gb	A: ExiaIICT6 Ga T: ExIIIC T120°C Db IP65	Remark: No designation for Water-proof Types;		
	⑬ Construction	WH: Plug type		W: Drilled-bar-stock type		
	⑭ Total Length ℓ (mm)					
	Protection Tube	⑮ Protection Tube Mtl	A: 304 H: 316 HL: 316L P: 310S	HC: Hastelloy C HB: Hastelloy B TT: Ti TA: Tantanum ME: Monel	Remark: refer to Page 159: Mtl Designation	
⑯ Insertion depth l (mm) Remark						
Process Connection	⑰ Flange material	A: 304 ZA: 20#	E: Embedded type in 304 SS flange body			
	⑱ Flange quantity	1: Single 2: Duplex and with fastenings				
	⑲ Flange Specification	Standard specification: the designations are detailed in Page 157~158 Standard flange: standard number-nominal diameter-pressure ratio-sealing face				



●Structure Profile



WR□K-7, WR□K-5, WR□K-3
 Remarks: L=ℓ+150mm

●J.B. Specification

Name	Water-proof J.B.	Explosion-proof J.B.	JDY J.B.
Form			
Designation	3: Die-casting Al. 3A: SS	7: Die-casting Al. 7A: SS	9: Die-casting Al 9A: SS
Enclosure Protection Class	IP65	IP65	IP65
Remarks: Refer to Page 154~155: Standard Components			

●Fixing Devices

Name	Fixed Flange	Compression-fitting Flange	Flexible Flange
Form			
Designation	5: Fixed Flange	6: Compression-fitting Flange	7: Flexible Flange
Remark: Specific dimensions (refer to Page 157-158)			