Summary

The bimetallic thermometer is a on site measurement instrument suitable for measuring middle and high temperature, and can be used to measure directly the temperature of gasses and liquids. Compared with glass thermometer, it is featured with no mercury harmness, distinct reading, strong and durable and other advantages. Our company produces multipurpose bimetallic thermometers. The types and models are complete. The quality is high and reliable. It can be used widely in industry, agriculture, national defence and scientific research etc.

Structure features and working principle

Bimetallic thermometer (hereafter referred to as simply thermometer) is a coiling thermal bimetal temperature sensor. One end is fixed inside the protective sleeve (fixed end) and another end (free end) is connected at a fine axle. The axle end is equipped with a needle. When the temperature changes, the free end of the temperature sensor rotates, hereupon, the fine axle moves the needle. The dial plate indicates the temperature change. The steering drive mechanism in the straight meter moves the needle. The meter housing is made of steel plate, cast aluminium alloy and stainless steel. For the head of the adjustable angle thermometer, by means of corrugated pipe, angle machenism and other parts, the angle can be adjusted freely from the angle type to straight type, or from the straight type to angle type.

The electric contact bimetallic thermometer is added with electrical contacts, adjusting devices, outlet box etc. When the temperature fluctuates, at the moment when the needle (moving contact) and the pre-established temperature control contact (upper limit or lower limit) are connected or disconnected, the relay or the contactor in the control circuit moves, thereby, realizing automatic temperature control or producing alarm.

WSS Series bimetallic thermometers

◆Main technical parameters

(1)Accuracy class: 1.5;

(2) Time constant:

Jacket pipe diameter d=6mm <30s;

d=8、10、12mm <40s;

(3) The nominal pressure of jacket pipe:

6.4 MPa（Static pressure）;

(4)Jacket pipe material:1Cr18Ni9Ti.

◆Thermometer type and the meaning of each symbols

WSS- □□□□

- Thermometer
  - Metal expansion typeBi metal
- Dial nominal diameter
  - 3: 60mm
  - 4: 100mm
  - 5: 150mm
- A Meter housing is made of cast aluminum alloy,other material isn't noted.
- 0 Joint without thread
- 1 Joint of movable external thread pipe
- 2 Joint of movable internal thread pipe
- 3 Joint of fixed external thread pipe
- 4 Flange
- 0 Angle type called also as axle type
- 1 Straight type called also as radial type
- 6 Adjustable angle type.

◆ Model and specification

Table 1

Type	Model	Dial plate nominal diameter(mm)	Measuring range(℃)	Value of division(℃)	Insert length (mm)	Jacket pipe diameter(mm)	Installation thread(mm)	Housing material
Angle type	WSS－301 WSS－302	60	-80 ~ +40 -40 ~ +80	2	75 100 150 200 250 300 Note:311、0～50℃,L=75 can't be made	6	Movable external thread M16 × 1.5 Movable internal thread M16 × 1.5	Steel plate
	WSS－301A WSS－302A		0 ~ 50	1				Cast aluminum alloy
			0 ~ 100 0 ~ 150	2				
Straight type	WSS－311A WSS－312A		0 ~ 200 0 ~ 300	5				
Angle type	WSS－401 WSS－402	100	-80 ~ +40 -40 ~ +80	2	75 100 150 200 250 300 400 500 750 1000 1250 1500 1750 2000	8 10 12	Movable external thread M16 × 1.5 Movable internal thread M16 × 1.5	Steel plate
	WSS－401A WSS－402A							Cast aluminum alloy
Straight type	WSS－411 WSS－412							Steel plate
	WSS－411A WSS－412A							Cast aluminum alloy
Angle type	WSS－501 WSS－502	150	0 ~ 50	1				Steel plate
	WSS－501A WSS－502A		0 ~ 100 0 ~ 150	2				Cast aluminum alloy
Straight type	WSS－511 WSS－512		0 ~ 200 0 ~ 300	5				Steel plate
	WSS－511A WSS－512A							Cast aluminum alloy
Adjustable angle type	WSS－463	100	0 ~ 400 0 ~ 500	10	200 250 300 400 500	6	Fixed thread R1/2	Stainless steel plate
	WSS－461 WSS－462				75 100 150 200 250 300 400 500 750 1000 1250 1500 1750 2000	10 12	Movable external thread M16 × 1.5 Movable internal thread M16 × 1.5	Stainless steel plate
	WSS－461A WSS－462A							Cast aluminum alloy

Note:

A Jacket pipe material: 1Crl8Ni9Ti, if other material is required, that shall be noted.

B Other installation thread required needs to be negotiated separately.

C The flange standards and specifications shall be provided in the flanged connection.

D The nominal diameter of the thermometer dial scale is Φ100. The insert length for Φ150 is:

1) When the jacket diameter is Φ8, the insert length range is 75 ~ 500mm;

2) When the jacket diameter is Φ10, the insert length range is 75 ~ 1000mm;

3) When the jacket diameter isΦ12,the insert length range is 1250 ~ 2000mm.

E The requirement on other jacket diameters shall be negotiated separately.

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◆ The profile and installing dimensions

◇ WSS- 301□401□501□411□511 / 302□402□502□412□512 profile and installing dimensions(See fig.1、fig.2 and table 2、table 3)

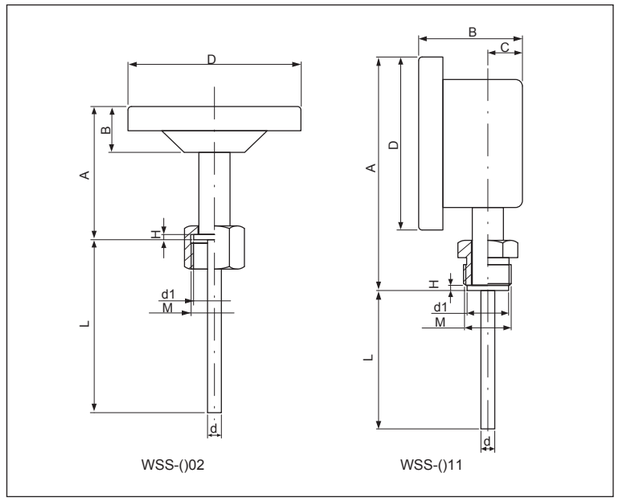

Fig. 1

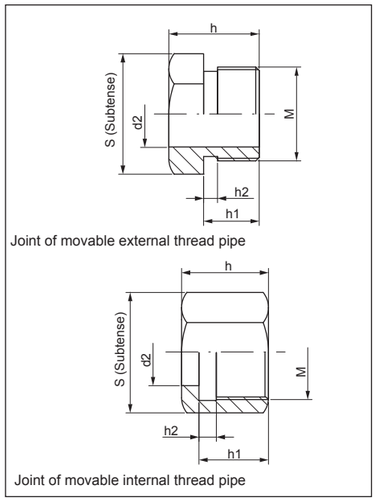

Fig.2

Table 2 (mm)

Model□	D□	A□	B□	C□	M□	d□	d1□	H □	L
WSS-301	□ϕ 60□	51□	20 □	□ –	M16 × 1.5□	ϕ 6 □	ϕ 14 □	2	See table 1 the insert length
WSS-302									
WSS-401	□ϕ 100 □	73□	26.5□		M27X2	ϕ 8 ϕ 10 ϕ 12	ϕ 24	3	
WSS-402									
WSS-501	□ϕ 150□	77□	30.5□						
WSS-502									
WSS-411	□ϕ 100□	134□	64□	20					
WSS-412									
WSS-511	□ϕ 150□	183□	68						
WSS-512									

Table 3 (mm)

Installation mode□	M□	S□	h□	h1□	h2□	d2
Joint of movable □ external thread pipe□	M16 × 1.5□	20□	20□	12□	3□	ϕ 9.5
	M27 × 2□	30□	26□	16□	4□	ϕ 17.5
Joint of movable□ internal thread pipe□	M16 × 1.5□	20□	20□	15□	3□	ϕ 9.5
	M27 × 2□	30□	25□	20□	5□	ϕ 17.5

◇ WSS – 301A□311A□401A□411A□501A□511A / 302A□312A□402A□412A□502A□512A profile and installing dimensions(See fig.2、fig.3、fig.4 and table 3、table 4)

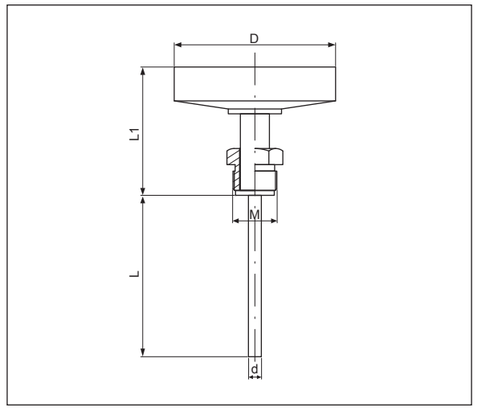

Fig.3

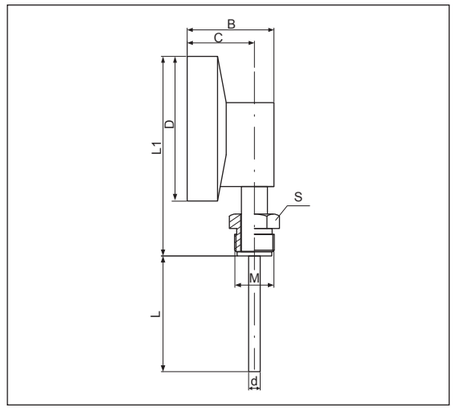

Fig.4

Table 4 (mm)

□Model□	D□	d□	B□	C□	L□	L1□	S□	M
WSS-301A	ϕ 60	ϕ 6	-□	-	See table 1 the insert length	61	20	M16 × 1.5
WSS-302A								
WSS-311A			47□	35		110		
WSS-312A								
WSS-401A	ϕ 100	ϕ 8 ϕ 10 ϕ 12	-□	-		75	30	M27 × 2
WSS-402A								
WSS-411A			60□	14		165		
WSS-412A								
WSS-501A	ϕ 150		-□	-		81		
WSS-502A								
WSS-511A			65□	18		217		
WSS-512A								

◇ WSS – 461A / 462A profile and installing dimensions(See fig.2、fig.5 and table 3、table5)

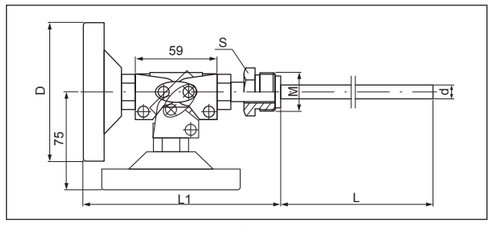

Fig.5

Table 5 (mm)

□ Model□	D□	M□	S□	d□	L□	L1
WSS – 462A	ϕ 100	M27 × 2	30	ø10	See table 1 the insert length	165
WSS – 461A				ø12		

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