

WSS Bimetallic Thermometer



Features

1. Directly display temperature in the field
2. High reliability and long life expectancy
3. Many structure form to meet different demands

Application

It is one kind of thermometers to measure middle and low temperature in the field. It could be used to directly measure temperature of liquid, vapor and gas ranging from -80°C to 500°C .

Operation Theory

Bimetallic thermometer is based on bimetal bended into ring shape. One side of bimetal expands in time of being heated, which results in revolving of indicator, then the meter will indicate the corresponding temperature value.

Main Technical Parameters

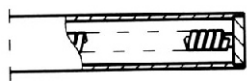
1. Executive Standard: JB/T8803-1998
2. Nominal Diameter of Dial: 60, 100, 150
3. Accuracy Class: (1.0), 1.5
4. Thermal Response Time: $\leq 40\text{s}$
5. Protection Class: IP65
6. Angle-adjusting Error
It shall be no more than 1% of its measuring range
7. Return Error: It shall be no more than the absolute value of basic error limit.
8. Repeat: The repeat range shall be no more than 1/2 of absolute value of basic error limit.
9. Measuring Range: See below table

Measuring Range $^{\circ}\text{C}$	Application Range	
	for industry & Commerce	for Laboratory
$-80\sim+40$ $^{\circ}\text{C}$	✓	✓
$-40\sim+80$ $^{\circ}\text{C}$	✓	✓
$0\sim50$ $^{\circ}\text{C}$	✓	✓
$0\sim100$ $^{\circ}\text{C}$	✓	✓
$0\sim150$	✓	✓
$0\sim200$	✓	✓
$0\sim300$	✓	✓
$0\sim400$	✓	—
$0\sim500$	✓	—

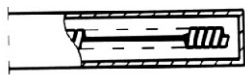
10. Ambient Condition for Normal Operation

Working Environment	Temperature(°C)	Relative Humidity %
Sheltered Place	-25~+25	5~100
Outdoor	-40~+85	5~100

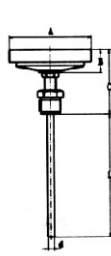
11. Measuring End



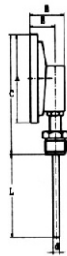
Integration Type



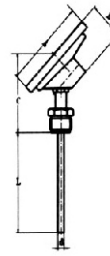
Core Type



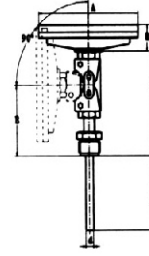
Axial



Radial



135° Angle



Universal (Adjust angle)

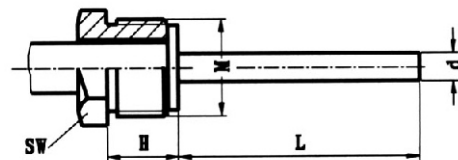
12. Figure & Size

Structure	A	B	C	E	L	D
Axial	65	23	73	-	75	Φ6 Φ8 Φ10
	105	23	73	-	100	
	155	23	73	-	150	
Radial	65	50	110	34	200	
	105	50	110	34	300	
	155	50	110	34	400	
135° Angle	105	23	85	-	500	
	155	23	85	-	750	
Universal	105	23	178	120	1000	
	155	23	178	120		

Mounting & Fixing

Movable male thread

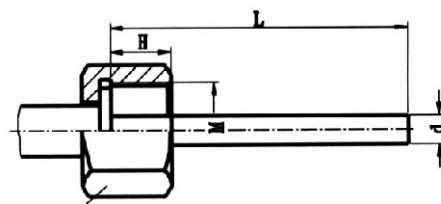
M	H	SW	
M16x1.5	12	18	Φ6 Φ8 Φ10
M20x1.5	16	22	
M27x2	20	30	
NPT1 /4	15	18	
NPT1 /2	19	22	
NPT3 /4	25	30	



Movable male thread

Movable female thread

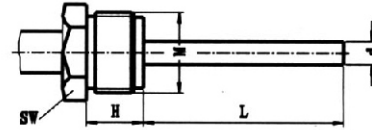
M	H	SW	
M16x1.5	12	18	Φ6 Φ8 Φ10
M20x1.5	16	22	
M27x2	20	30	
NPT1 /4	15	18	
NPT1 /2	19	22	
NPT3 /4	25	30	



Movable female thread

Fix Threaded Connector

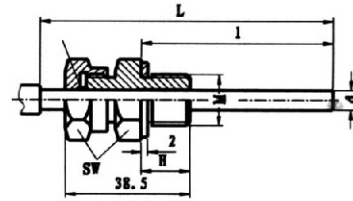
M	H	SW	Φ6 Φ8 Φ10
M16x1.5	12	18	
M20x1.5	16	22	
M27x2	20	30	
NPT1 /4	15	18	
NPT1 /2	19	22	
NPT3 /4	25	30	



Fix Threaded Connector

Compression fittings

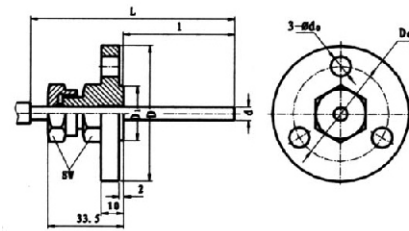
M	H	SW	D
M12x1.5	15	19	Φ6
M16x1.5	15	22	Φ8
M20x1.5	16	24	Φ10



Compression fittings

Flange Adapter

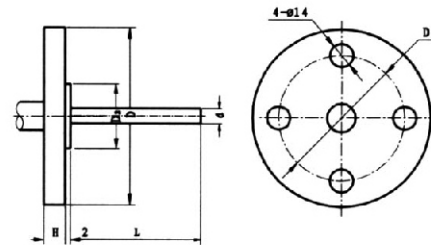
D	D ₁	D ₂	SW	d ₀	d
Φ60	Φ42	Φ24	Φ22	Φ9	Φ8 Φ10



Flange adapter

Fixed Flange

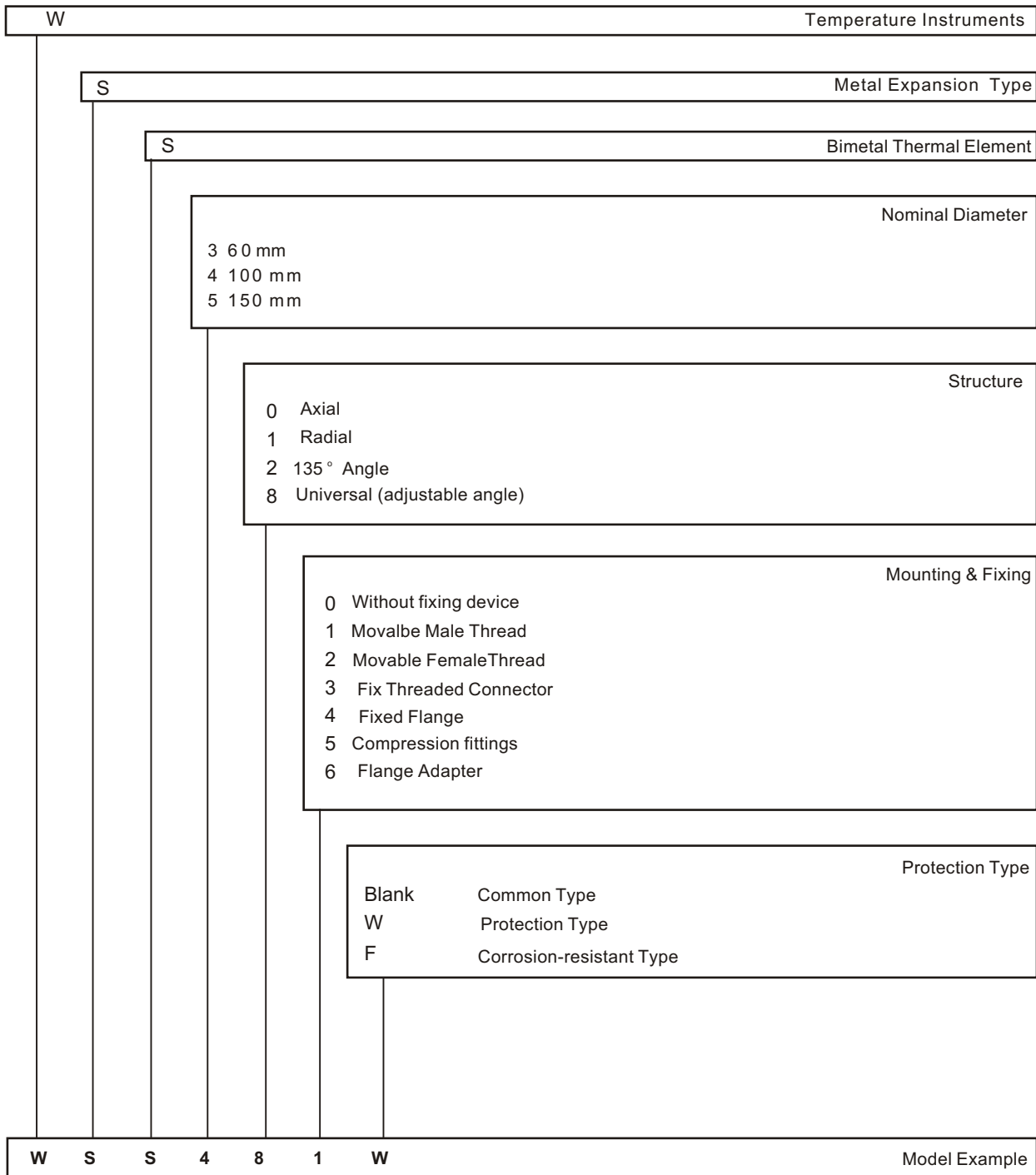
D	D ₁	D ₂	H	d ₀	d
Φ105	Φ75	Φ5	Φ16	Φ14	Φ8 Φ10



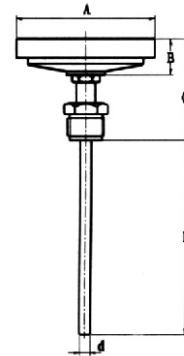
Fixed Flange

Remarks: We can provide flanges of ANSI, JB, HG or other standard.

Model Selection

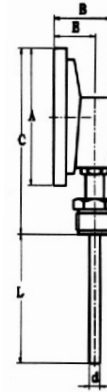


Type & Specification



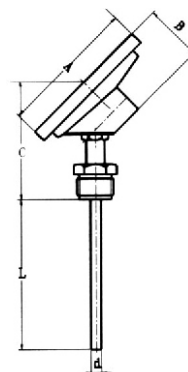
Axial Type

Type	Measuring Range °C	Accuracy Class	Protection Tube Material	Specification		Mounting & Fixing Device							
				D	L								
WSS-300	-80~+40	1.5	1Cr18Ni9Ti	Φ60	75	Without fixing device							
WSS-400				Φ100									
WSS-500				Φ150									
WSS-301				Φ60		Movable Male Thread							
WSS-401				Φ100									
WSS-501				Φ150									
WSS-302				-80~+40		1.5	304	Φ60	100	Movable Female Thread			
WSS-402				0~+80				Φ100					
WSS-502				0~+80				Φ150					
WSS-303				0~100				316		Φ60	200	Fix Threaded Connector	
WSS-403				0~150						Φ100			
WSS-503				0~150						Φ150			
WSS-304				0~200				316L		Φ60	300	Fixed Flange	
WSS-404				0~200						Φ100			
WSS-504				0~200						Φ150			
WSS-305				0~400				1.5		H ·C-276	Φ60	400	Compression fittings
WSS-405				0~500							Φ100		
WSS-505				0~500							Φ150		
WSS-306	0~500	H ·C-276	Φ60	750	Flange Adapter								
WSS-406	0~500		Φ100										
WSS-506	0~500		Φ150										



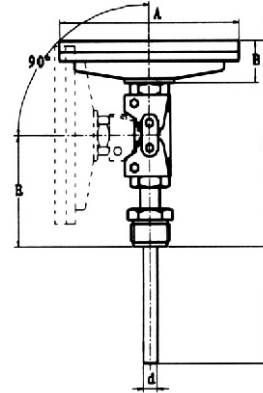
Radial Type

Type	Measuring Range °C	Accuracy Class	Protection Tube Material	Specification		Mounting & Fixing Devices			
				D	L				
WSS-310	-80~+40	1.5	1Cr18NI9Ti	Φ60	75	Without fixing device			
WSS-410				Φ100					
WSS-510				Φ150					
WSS-311				Φ60		Movable Male Thread			
WSS-411				Φ100					
WSS-511				Φ150					
WSS-312				-80~+40		304	Φ60	100	Movable Female Thread
WSS-412							Φ100	150	
WSS-512							Φ150	200	
WSS-313				0~+80		316	Φ60	300	Fix Threaded Connector
WSS-413							Φ100	400	
WSS-513							Φ150	750	
WSS-314				0~150		316L	Φ60	1000	Fixed Flange
WSS-414							Φ100		
WSS-514							Φ150		
WSS-315				0~200		H · C-276	Φ60		Compression fittings
WSS-415							Φ100		
WSS-515							Φ150		
WSS-316	0~500		Φ60		Flange Adapter				
WSS-416			Φ100						
WSS-516			Φ150						



135° Angle Type

Type	Measuring Range °C	Accuracy Class	Protection Tube Material	Specification		Mounting & Fixing Devices	
				D	L		
WSS-420	-80~+40	1.5	1Cr18Ni9Ti	Φ100	75	Without fixing device	
WSS-520				Φ150			
WSS-421				Φ100			Movable Female Thread Movable Male Thread
WSS-521	Φ150			100			
WSS-422	0~50			Φ100		150	
WSS-522	0~100			Φ150		200	
WSS-432	0~150			316	Φ100	300	Fixed Flange
WSS-532	0~200			316L	Φ150	400	
WSS-424	0~200			H • Alloy C-276	Φ100	500	
WSS-524	0~300				Φ150	750	Compression fittings
WSS-425	0~400				Φ100	1000	
WSS-525	0~500				Φ150		Flange Adapter
WSS-426					Φ100		
WSS-526					Φ150		



Universal Type

Type	Measuring Range °C	Accuracy Class	Protection Tube Material	Specification		Mounting & Fixing Devices		
				D	L			
WSS-480	-80~+40	1.5	1Cr18Ni9Ti	Φ 100	75	Without fixing device		
WSS-580				Φ 150				
WSS-481	-40~+80			Φ 100		100	Movable Male Thread	
WSS-581				Φ 150				
WSS-482	0~50			Φ 100			150	Movable Female Thread
WSS-582	0~100			Φ 150				
WSS-482	0~150			Φ 100	200			Fix Threaded Connector
WSS-582	0~200			Φ 150				
WSS-484	0~300			Φ 100		300		Fixed Flange
WSS-584	0~400			Φ 150				
WSS-485	0~500			Φ 100			400	Compression fittings
WSS-585	0~500			Φ 150				
WSS-486		Φ 100	500	Flange Adapter				
WSS-586		Φ 150						

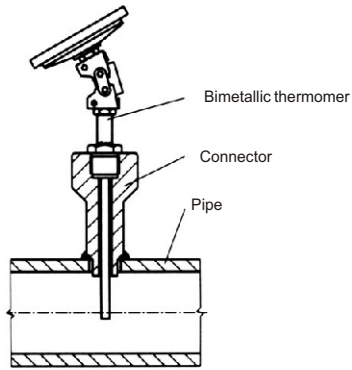
Necessary information in model Selection

- 1) Structure
- 2) Dial Diameter
- 3) Accuracy Class
- 4) Mounting & Fixing
- 5) Measuring Range
- 6) Length or Insert Length

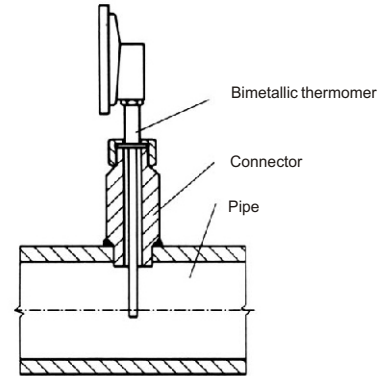
Example A: Universal type, 100 for dial diameter, measuring range 0~400 °C, class 1.5, movable male threadrd connector M27x2, length 450mm,

WSS-481 0~400°C L=450 M27x2

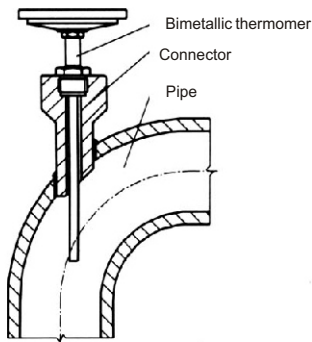
Mounting Figures



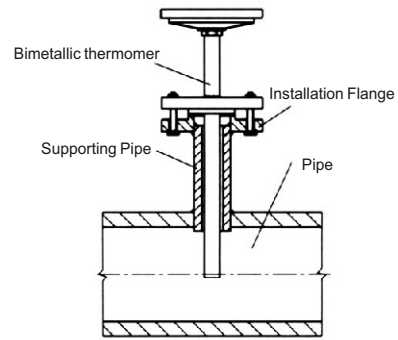
Vertically mounted into pipe



Vertically mounted into pipe



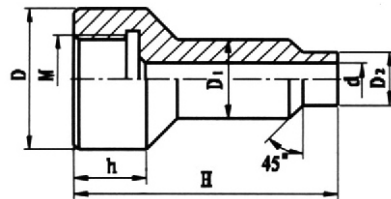
Mounted into bent pipe



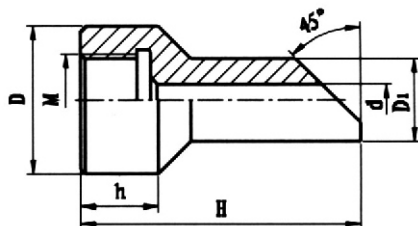
Mounted with flange connection

Specification of Straight

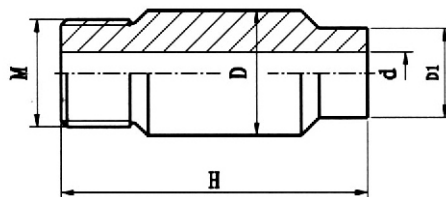
Connector



代号 Code	M	D	D1	D2	d	h	H
TH48A	M16x1.5	Φ36	Φ18	Φ14	Φ7	27	80
TH48B	M20x1.5	Φ40	Φ18	Φ14	Φ7	27	60
TH48C	M27x2	Φ47	Φ28	Φ22	Φ17	32	60
TH48D	M33x2	Φ55	Φ36	Φ30	Φ21	34	120
TH48E	NPT1/2	Φ39	Φ27	Φ21	Φ16	35	60
TH48F	NPT3/4	Φ47	Φ31	Φ25	Φ20	40	
TH48G	NPT1	Φ47	Φ41	Φ35	Φ30	45	120



代号 Code	M	D	D1	d	h	H
TH49A	M27x2	Φ47	Φ28	Φ18	30	90
TH49B	M33x2	Φ55	Φ36	Φ24	30	150
TH49C	NPT 1/2	Φ39	Φ27	Φ16	30	90
TH49D	NPT 3/4	Φ47	Φ31	Φ20	35	90
TH49E	NPT1	Φ47	Φ41	Φ30	40	150



代号 Code	M	D	D1	d	H
TH50A	M16x1.5	Φ26	Φ28	Φ18	90
TH50B	M20x1.5	Φ30	Φ36	Φ24	150
TH50C	M27x2	Φ37	Φ27	Φ16	90
TH50D	NPT1 /4	Φ16	Φ31	Φ20	90
TH50E	NPT1 /2	Φ21	Φ41	Φ30	
TH50F	NPT3 /4	Φ34	Φ41	Φ30	150