

The selection is detailed on page 7



J5Q

Bimetallic Thermometer With Air Envelope

Working principle

The medium measured by the balloon thermometer will expand when the temperature rises, thus deforming the measuring tube, and then transmitting to the instrument pointer through the pointer axis.

Product description

This series of thermometers is widely used in machinery manufacturing, refrigeration and air conditioning industries. The balloon thermometer can be installed in all measuring positions or near the measuring point. Models with capillaries can also be used to measure hard-to-reach and long-distance jumper locations.

The case, capillaries, probe rods and process interfaces are made of stainless steel and are available in a variety of insertion lengths and process interfaces to meet all measurement requirements.



Product application

Universal temperature measuring instrument for gases, liquids and high viscosity process media in harsh operating environments
Refrigeration industry
Machine building

Functional characteristics

The casing and probe rod are made of stainless steel
Designed according to EN 13190
Multiple process interfaces and installation methods
Tape capillary
With a variety of fixed connectors

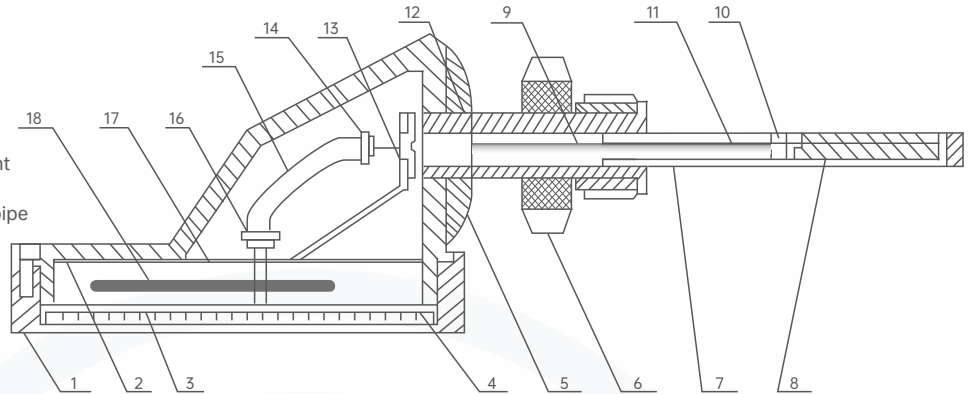


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For more product information, please visit www.ludwig-schneider.com.cn

Bimetallic thermometer Structure chart

1. Watch cover
2. shell
3. glass
4. Sealing ring
5. nut
6. Male joint
7. Outer protective tube
8. Bimetallic temperature sensing element
9. Driving shaft
10. Lower connection of inner protection pipe
11. Inner protective tube
12. External protection pipe fitting
13. support
14. Angle spring lower fastener
15. Angle spring
16. Angle spring upper fastener
17. Panel
18. pointer



Technical parameter

Measurement principle	Bourdon tube system
Nominal size (mm)	100 and 160
Joint design	1 Smooth rod (without thread)
	2 External thread nuts
	3 Coupling nut
	4 Movable sleeve (slide on the probe)
	5 Connecting nut with connector
	6 Flexible sleeve (sliding on capillary)
Accuracy class	Level 2
Rated operating range and conditions	EN 13190
Capillary inlet	Axial or radial
shell	Stainless steel
shroud	Stainless steel
join	1.4571 Stainless steel
Measuring system filling medium	Xylene or silicone oil
capillaries	Length subject to customer specifications (Max. 10 m), Ø2 mm, 1.4571 stainless steel, bending radius not less than 6 mm
Sounding rod	Ø 8 mm, 1.4571 stainless steel
Effective sensor length	Depends on diameter Ød and scale range
Dial plate	Aluminum, white, black print
pointer	Aluminum, black
Watch window	NS 100 and 160: Instrument glass
Storage and transport temperature limits	- Fifty... +70 ° C (EN 13190 standard) without damping liquid
	- Twenty... +60 ° C (EN 13190 standard) with food-compatible damping liquid
	- Fifty... +60 ° C (EN 13190 standard) with damping liquid
Enclosure ambient temperature limit	0... 40 ° C (Max) [others available on request]
Rated pressure of probe rod	Max. 2.5 MPa (static pressure)
Class of protection	IP 65, according to EN 60529 / IEC 529 standard

Options

Scale unit	° F and ° C / ° F (dual scale)
Watch window material	Laminated safety glass, transparent plastic
Accuracy class	Level 1.0
Rod diameter	6 and 10 mm
Protective hose	Spiral protected hose, stainless steel
Liquid-filled case	Filling medium: glycerin
Other options	Sheathing that meets DIN standards or customer specifications
	Surface mount brackets of other material or length (A)
	Designed according to DIN EN ISO 13485, products suitable for medical applications are available according to customer requirements

Scale range, measuring range ¹⁾, Error Limit (EN 13190)

1) The limits of the measuring range are indicated by two triangular marks on the dial.

Only within this range can the error limits specified in EN 13190 be guaranteed.

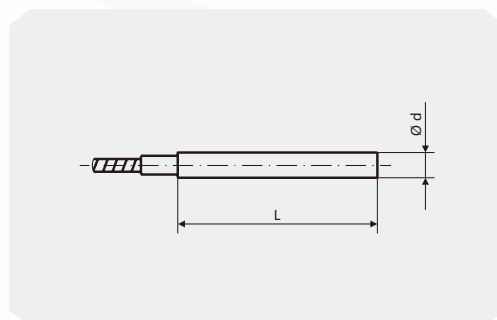
Scale according to LUDWIG standard

Range (unit: ° C)	Measuring range (unit: ° C)	Minimum scale value (unit: °C)	Error limit (± °C)
-60 ... +40	-50 ... +30	2	1
-40 ... +60	-30 ... +50	2	1
-30 ... +50	-20 ... +40	2	1
-20 ... +60	-10 ... +50	2	1
-20 ... +80	-10 ... +70	2	1
0 ... 60	10 ... 50	2	1
0 ... 80	10 ... 70	2	1
0 ... 100	10 ... 90	2	1
0 ... 120	10 ... 110	4	2
0 ... 160	20 ... 140	4	2
0 ... 200	20 ... 180	4	2
0 ... 250	30 ... 220	5	5
0 ... 300	30 ... 270	10	10
0 ... 400	50 ... 350	10	10

Joint design

Design 1: Smooth rod connection (without thread)

Insert length L= 140, 200, 240 and 290 mm
This design is the basis of Design 4 (Movable sleeve)



Icon symbol:

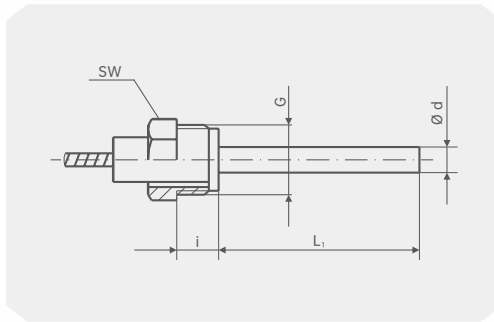
Ød Rod diameter
L Insertion length

Joint design

Design 2: Nuts with external threads

Standard insertion length
L1= 63, 100, 160, 200
And 250 mm

Icon symbol:
G Male thread
I Thread length
(including ferrule)
Ød Rod diameter
SW Wrench width
L1 Insertion length

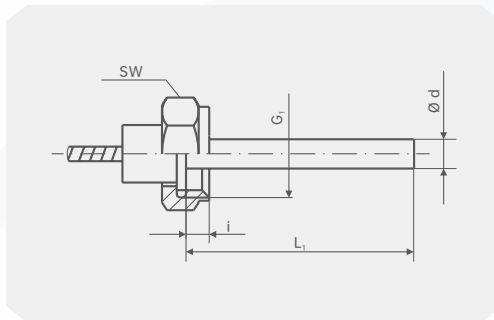


Process connection	Size (mm)	
G	SW	i
G1/2B	27	20

Design 3: Coupling nut

Standard insertion length
L1=89, 126, 186, 226
and 276 mm

Icon symbol:
G Male thread
I Thread length
Ød Rod diameter
SW Wrench width
L1 Insertion length

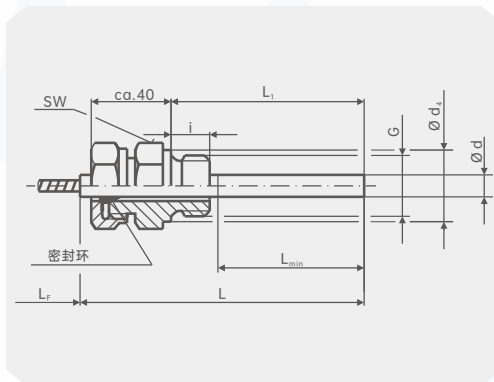


Process connection	Size (mm)	
G	SW	i
G1/2	27	8.5
G3/4	32	10.5
M24*1.5	32	13.5

Design 4: Active card sleeve (Slide on the probe)

Standard insertion lengths
L1=100, 160, 200 and 250 mm
(The insertion length can be
shortened to the minimum
immersion length
L_{min}=60mm)

Icon symbol:
G Male thread
I Thread length
Ød_s Seal sleeve diameter
SW Wrench width
Ød Rod diameter
L_f Capillary length
L_{min} Immersion length
L2 Insertion length

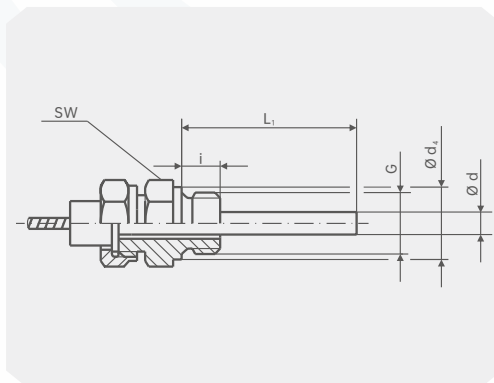


Process connection	Size (mm)		
G	SW	Ød _s	i
G1/2B	27	26	14
G3/4B	32	32	16
M18×1.5	24	23	12
1/2NPT	22	-	19
3/4NPT	30	-	20

Design 5: Coupling nut with joint

Insertion length
L1=63, 100, 160, 200
and 250 mm

Icon symbol:
G Male thread
I Thread length
Ød_s Seal sleeve diameter
SW Wrench width
Ød Rod diameter
L1 Insertion length



Process connection	Size (mm)		
G	SW	Ød _s	i
G1/2B	27	26	14
G3/4B	32	32	16
M18×1.5	24	23	12
1/2NPT	22	-	19
3/4NPT	30	-	20

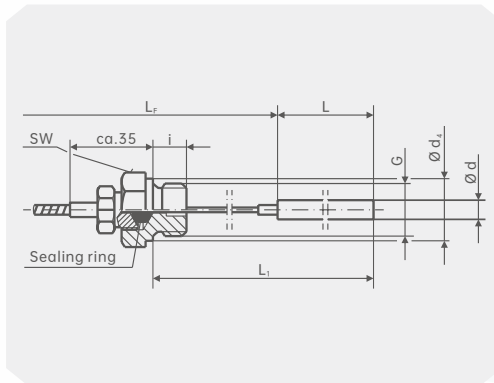
Joint design

Design 6: Active card sleeve (Slides on the capillary)

Standard insertion length
 L1=100、140、200、240 and 250 mm

Icon symbol:

- G Male thread
- I Thread length
- $\varnothing d_s$ Seal sleeve diameter
- SW Wrench width
- $\varnothing d$ Rod diameter
- L_f Capillary length
- L_1 Insertion length

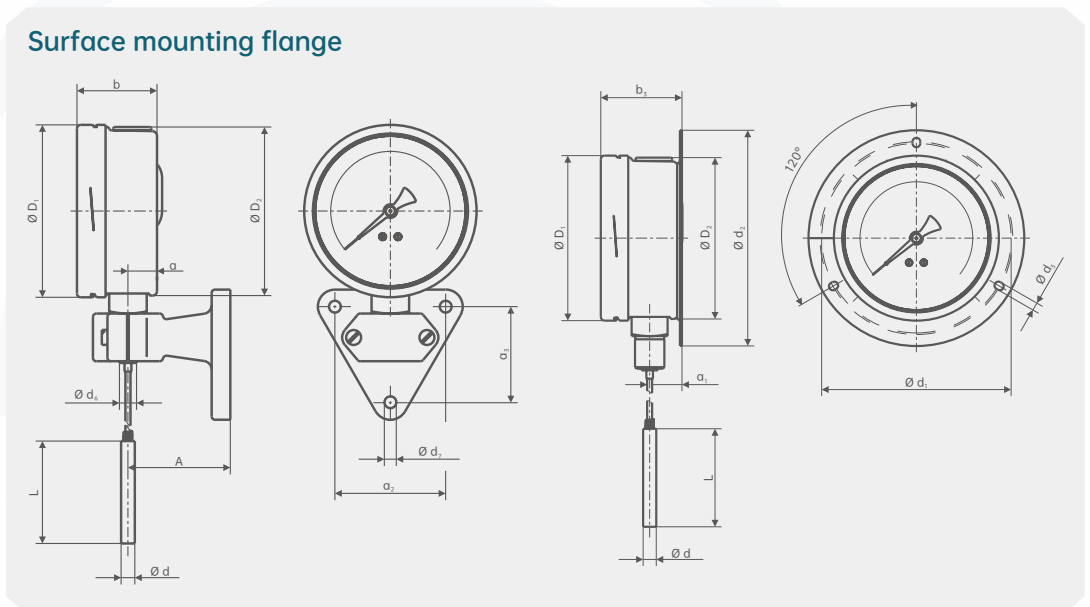


Process connection	Size (mm)		
	SW	$\varnothing d_s$	i
G			
G1/2B	27	26	14
G3/4B	32	32	16
1/2NPT	22	-	19
3/4NPT	30	-	20

Size (mm)

L=Insertion length

Surface mounting flange

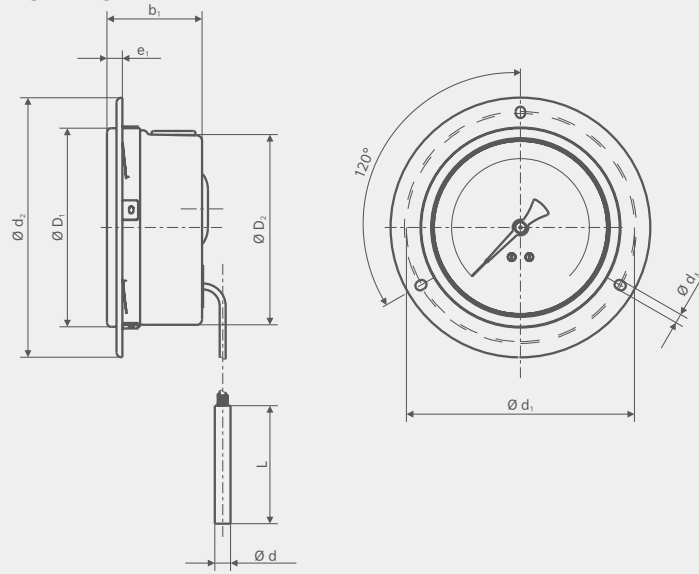


NS	Size (mm)																weight kg
	a	a ₁	a ₂	a ₃	b	b ₁	b ₃	Ød	Ød ₁	Ød ₂	Ød ₃	Ød ₆	Ød ₇	A	ØD ₁	ØD ₂	
100	15.5	22	65	56	49.5	49.5	50.0	8	116	132	4.8	18	7	60	101.0	99	0.9
160	15.5	22	65	56	49.5	-	50.0	8	178	196	6.0	18	7	60	161.0	159	1.40

Size mm

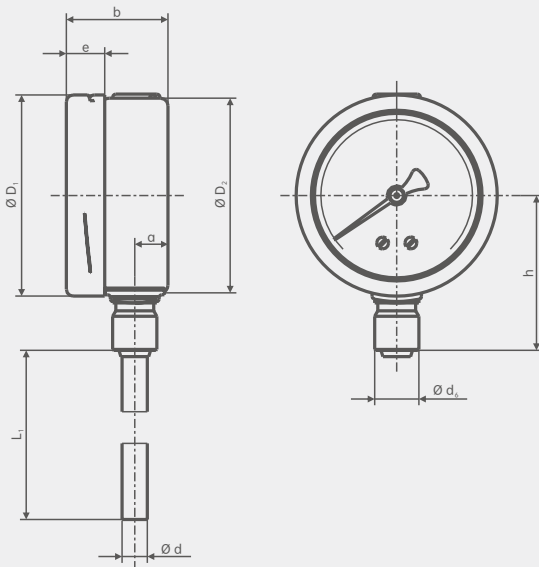
L=Insertion length

Panel mounting flange

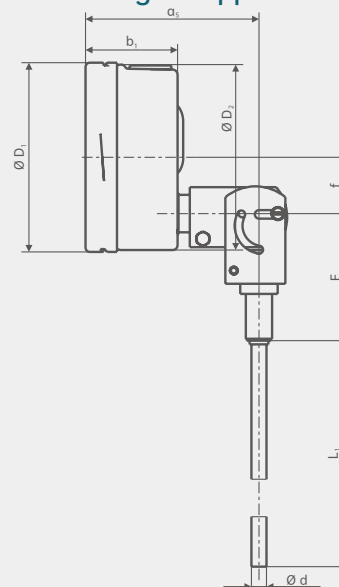


NS	Size (mm)								Weight kg
	b1	Ød	Ød ₁	Ød ₂	Ød ₃	e ₁	ØD ₁	ØD ₂	
100	49.5	8	116	132	4.8	8	101.0	99	0.9
160	-	8	178	196	6.0	8	161.0	159	1.40

Radial mounting



Housing rotation range is approximately < 90°



NS	Size (mm)								weight kg
	a	b	Ød	Ød ₆	e	h	ØD ₁	ØD ₂	
100	15.5	49.5	8	18	16.8	68.5	101.0	99	0.9

NS	Size (mm)							weight kg
	a _s	b ₁	Ød	f	ØD ₁	ØD ₂	F	
100	93	49.5	8	30	101.0	99	68	0.9



J5Q-Selection composition

Selection example J5Q

1	B	2	S	3	G	4	J	5	L	6	N	7	U	8	C	9	U
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1.Installation form	A	Cardan type
	B	Radial type
	T()	Other installation forms
2.Material	S	304SS
	L	316L
	T()	Other materials
3.Dial diameter	G	100mm
	H	160mm
4.precision	J	1.6%
	K	1.0%
5.Process connection	L	Fixed thread
	M	Sliding thread
6.Specification of threaded connection	N	G1/2 Male thread
	O	G1/4 Male thread
	P	1/2NPT Male thread
	Q	1/4NPT Male thread
	R	M14*1.5 Male thread
	S	M20*1.5 Male thread
	V	M27*2 Male thread
T()	Other specifications	
7.Rod diameter(mm)	U	6
	V	8
	W	10
	X	12
	T()	Other probe diameters
8.Rod length(mm)	A	100
	B	150
	C	200
	D	250
	E	300
	F	350
	G	400
	H	450
	I	500
T()	Other	
9.Measuring range(°C)	J	-50~50
	K	-30~50
	L	-20~60
	M	0~50
	N	0~80
	O	0~100



J5Q-Selection composition

Selection example **J5Q**



9.Measuring range(°C)	P	0~150
	Q	0~200
	R	0~250
	S	0~300
	X	0~350
	U	0~400
	V	0~450
	W	0~500
	T()	Other temperature ranges
10.Special requirements	T()	Remark

Instructions:

It means that J5Q bimetal thermometer installation mode is radial, material 304 stainless steel, dial diameter 100mm, accuracy 1.6%, fixed thread connection, thread specification is G1/2 external thread, probe rod diameter 6mm, probe rod length 200mm, measuring range 0~400°C, the 10th item gray part is not required.

Product certification

Compliance and approval; Rodwig thermometers meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;