

Bimetal thermometer Model 53, industrial series

WIKA data sheet TM 53.01



for further approvals
see page 6

Applications

- Chemical industry, petrochemical industry, process technology and food industry
- Facility management
- For aggressive medium

Special features

- Universal application
- Case and stem from stainless steel
- Bimetal with zero point setting at the back of the case
- Nominal size 3" and 5"
- Embossed dial (no parallax reading errors)



Bimetal thermometer

Fig. left: back mount (axial), model A5301

Fig. right: adjustable stem and dial version,
model S5301

Description

This series of thermometers is designed for installation in pipes, vessels, plant and machinery.

Sheath and case are made of stainless steel. To allow fitting to the process, different installation lengths and process connections are available. Through the high protection class of the thermometer (IP65) and its liquid damping, operation under high vibration conditions is possible.

The imperial nominal sizes are commonly used in North American and related markets.

Standard version

Measuring element

Bimetal coil

Nominal size

3", 5"

Connection design

S Standard (male thread connection) ¹⁾

1 Plain stem (without thread)

2 Male nut

3 Union nut (female)

4 Compression fitting (sliding on stem)

5 Union nut with fitting

1) Not for version "adjustable stem and dial"

Models

Model	NS	Version
A5300	3"	Back mount (axial)
A5301	5"	
S5300	3"	Back mount, adjustable stem and dial
S5301	5"	

Accuracy class

EN 13190

Working range

Normal (1 year): Measuring range (EN 13190)

Short time (24 h max.): Scale range (EN 13190)

Case, bezel ring

Stainless steel 1.4301 (304)

Stem, process connection

Stainless steel 1.4571 (316Ti)

Dial

Aluminium white, black lettering

Window

Instrument glass

Pointer

Aluminium, black, adjustable pointer

Zero adjustment

on the rear of the case, external

Insertion length L₁

63 ... 1,000 mm

minimum/maximum length depends on the measuring range and diameter

Permissible pressure rating of stem

max. 25 bar, static

Permissible ambient temperature at case

-20 ... +60 °C max. (others on request)

Temperature limits for storage and transport

-20 ... +60 °C (EN 13190)

Ingress protection

IP65 per IEC/EN 60529

Options

- Scale range °F, °C/°F (dual scale)
- Liquid damping up to max. 250 °C (at the sensor)
- Laminated safety glass, acrylic plastic
- Stem diameter 6, 10 mm
- Ingress protection IP66
- Special measuring ranges or dial printing to customer specifications (on request)
- Version per ATEX

Scale and measuring ranges ¹⁾ (EN 13190)
Scale graduation per WIKA standard

Scale range in °C	Measuring range ¹⁾ in °C	Scale spacing in °C
-70 ... +70	-50 ... +50	2
-70 ... +30	-60 ... +20	1
-50 ... +50	-40 ... +40	1
-50 ... +100	-30 ... +80	2
-50 ... +300	0 ... 250	5
-50 ... +500	0 ... 450	5
-30 ... +50	-20 ... +40	1
-20 ... +60	-10 ... +50	1
-20 ... +100	0 ... 80	2
-20 ... +120	0 ... 100	2
0 ... 60	10 ... 50	1
0 ... 80	10 ... 70	1
0 ... 100	10 ... 90	1
0 ... 120	10 ... 110	2
0 ... 150	20 ... 130	2
0 ... 160	20 ... 140	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
0 ... 300	30 ... 270	5
0 ... 400	50 ... 350	5
0 ... 500	50 ... 450	5

Scale range in °F	Measuring range ¹⁾ in °F	Scale spacing in °F
-80 ... +120	-40 ... +100	2
-80 ... +240	-50 ... +210	2
-20 ... +120	0 ... 100	2
0 ... 200	20 ... 180	2
0 ... 250	30 ... 220	2
30 ... 300	60 ... 270	5
30 ... 400	80 ... 350	5
50 ... 300	80 ... 270	5
50 ... 400	100 ... 350	5
100 ... 800	200 ... 700	5
200 ... 700	250 ... 650	5
200 ... 1.000	300 ... 900	5

1) The measuring range is indicated on the dial by two triangular marks.
 Only within this range is the stated error limit valid per EN 13190.

Connection design

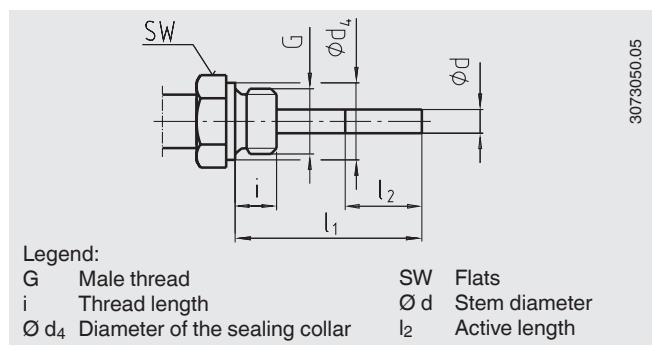
Design standard (male thread connection) ²⁾

Connection, male: ¼ NPT, ½ NPT, G ¼ B, G ½ B
 Insertion length $l_1 = 2.5", 4", 6", 9", 12", 15", 18", 24"$

$l_1 = 63, 100, 150, 225, 305, 380, 455, 610$ mm

Nominal size	Process connection		Dimensions in mm		
	G	i	SW	d_4	$\varnothing d$
3", 5"	¼ NPT	15	17	-	8
	½ NPT	19	22	-	8
	G ¼ B	12	22	18	8
	G ½ B	14	27	26	8

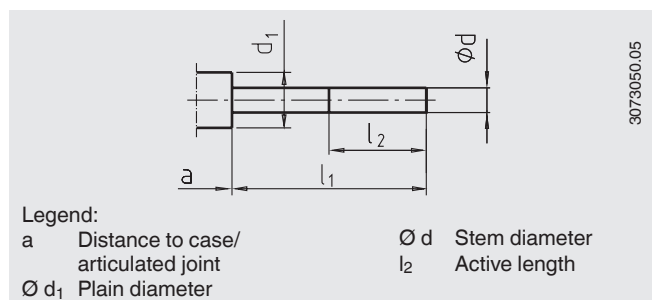
2) Not for version "adjustable stem and dial"



Design 1, plain stem (without thread)

Insertion length $l_1 = 140, 200, 240, 290$ mm

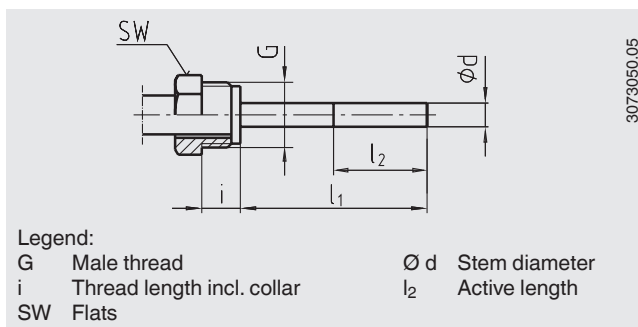
Nominal size	Dimensions in mm			
	d_1	$\varnothing d$	a for axial	a for adjustable stem and dial
3", 5"	18	8	15	25



Design 2, male nut

Insertion length $l_1 = 80, 140, 180, 230$ mm

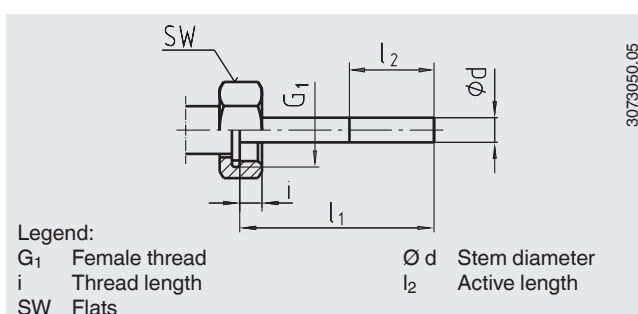
Nominal size	Process connection		Dimensions in mm		
NS	G	i	SW	$\varnothing d$	
3", 5"	G 1/2 B	20	27	8	
	M18 x 1,5	12	24	8	



Design 3, union nut

Insertion length $l_1 = 89, 126, 186, 226, 276$ mm

Nominal size	Process connection		Dimensions in mm		
NS	G ₁	i	SW	$\varnothing d$	
3", 5"	G 1/2 B	8,5	27	8	
	G 3/4 B	108.5	32	8	
	M24 x 1.5	13.5	32	8	

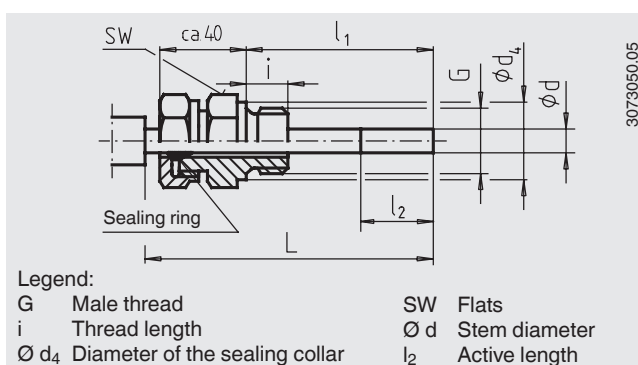


Design 4, compression fitting (sliding on stem)

Standard insertion length $l_1 = 63, 100, 160, 200, 250$ mm

Length $L = l_1 + 40$ mm

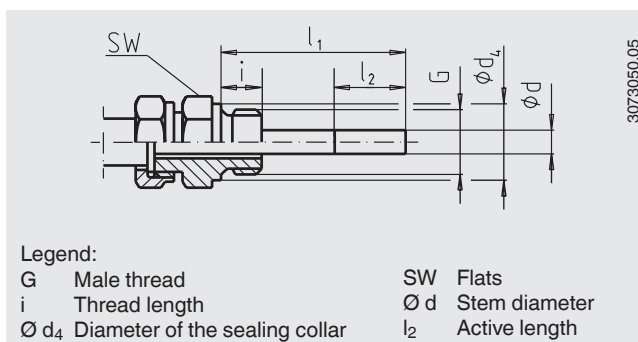
Nominal size	Process connection		Dimensions in mm			
NS	G	i	SW	d_4	$\varnothing d$	
3", 5"	G 1/2 B	14	27	26	8	
	G 3/4 B	16	32	32	8	
	M18 x 1.5	12	24	23	8	
	1/2 NPT	19	22	-	8	
	3/4 NPT	20	30	-	8	



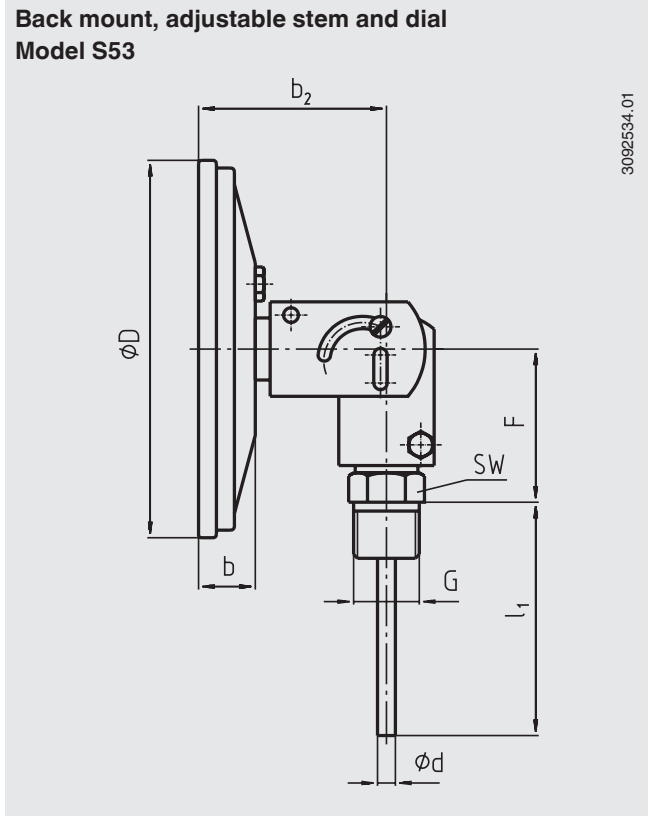
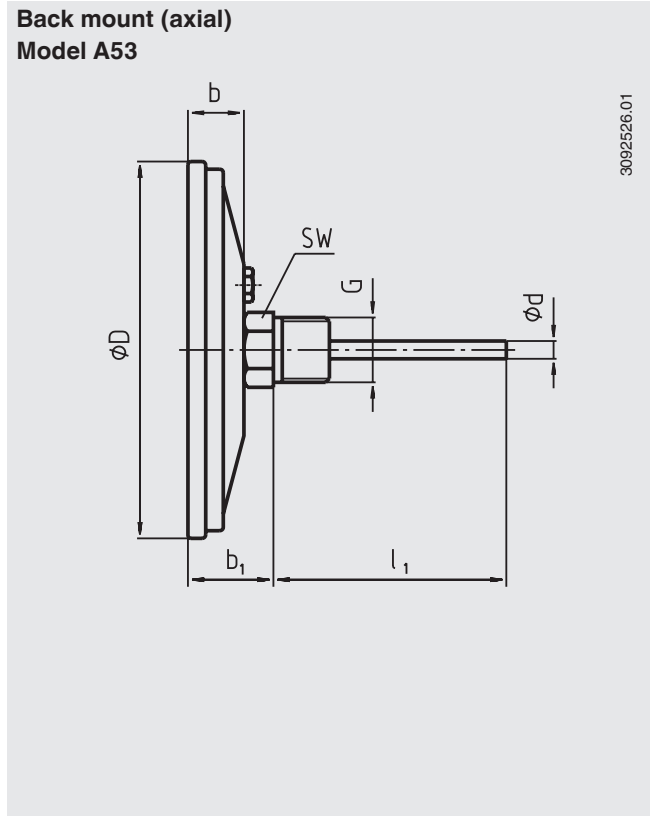
Design 5, union nut with loose fitting

Standard insertion length $l_1 = 63, 100, 160, 200, 250$ mm

Nominal size	Process connection		Dimensions in mm			
NS	G	i	SW	d_4	$\varnothing d$	
3", 5"	G 1/2 B	14	27	26	8	
	G 3/4 B	16	32	32	8	
	M18 x 1.5	12	24	23	8	
	1/2 NPT	19	22	-	8	
	3/4 NPT	20	30	-	8	



Dimensions in mm



Nominal size	Dimensions in mm										Weight in kg	
	NS	Ø D	Ø d	b	b ₂	F	b ₁ ¹⁾				Model A53xx	Model S53xx
							G ¼ B	¼ NPT	G ½ B	½ NPT		
3"	76	6	20	63	55	32	28	35	35	0.30	0.40	
5"	127	6	20	63	55	32	28	35	35	0.40	0.50	

1) With scale ranges ≥ 0 ... 300 °C the dimensions increase by 40 mm

Thermowell

In principle, the operation of a mechanical thermometer without a thermowell with low process-side loading (low pressure, low viscosity and low flow velocities) is possible.

However, in order to enable exchanging the thermometer during operation (e.g. instrument replacement or calibration) and to ensure a better protection of the instrument and also the plant and the environment, it is advisable to use a thermowell from the extensive WIKA thermowell portfolio.

For further information on the calculation for the thermowell, see Technical information IN 00.15.

Approvals

Logo	Description	Country
	EU declaration of conformity ATEX directive (option) Hazardous areas	European Union
	EAC (option) ■ Import certificate ■ Permission for commissioning ■ Hazardous areas	Eurasian Economic Community
	GOST (option) Metrology, measurement technology	Russia
	KazInMetr (option) Metrology, measurement technology	Kazakhstan
-	MTSCHS (option) Permission for commissioning	Kazakhstan
	BelGIM (option) Metrology, measurement technology	Belarus
	UkrSEPRO (option) Metrology, measurement technology	Ukraine
	Uzstandard (option) Metrology, measurement technology	Uzbekistan
-	CRN (option) Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (options)

- 2.2 Test report
- 3.1 inspection certificate
- DKD/DAkkS calibration certificate

Approvals and certificates, see website

Ordering information

Model / Nominal size / Scale range / Connection size / Connection location / Options

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