

Bimetal thermometer Industrial Version Model TG51

WIKA data sheet TG 51.01

Applications

- A wide range of applications including machine building, vessels, micro-brewing, boilers and water systems/piping
- Heating and air-conditioning technology (HVAC)
- Temperature measurement in harsh and aggressive environments which does not corrode 304 stainless steel

Special features

- Robust industrial design
- Hermetically sealed case
- NEMA 4X (IP66) weather protection
- All 304 stainless steel construction



Fig. left: Back mount (axial)

Fig. right: Back mount, adjustable stem and dial

Description

The model TG51 bimetal thermometer has been developed and manufactured in accordance with ASME B40.200 standard. The thermometer provides high quality and performance, and is an ideal choice for industrial applications.

The robust, hermetically sealed case with standard IP66 (NEMA 4X) ingress protection enables use within harsh external conditions.

Specifically designed for use in the machine building, micro-brewing, boilers, water systems/piping and HVAC industries, the TG51 satisfies the rigorous requirements.

The TG51 is available in an assortment of stem lengths (insertion length L1) 2.5" up to 24" for use in industry standard and application-specific fit and performance.

Specifications

Bimetal thermometer, model TG53	
Measuring element	Bimetal coil
Nominal size in inch [mm]	3" [80 mm] 5" [127 mm]
Connection location	- Back mount (axial) - Lower mount (radial)
Unit (scale range)	°F °C Option: °F/°C (dual scale) °C/°F (dual scale)
Design of Connection	- Standard, male thread - Plain stem
Process connection	- Plain, without thread ¼ NPT ½ NPT
Accuracy class	± 1.0% full scale value per ASME B40.3 Grade A
Stem diameter	¼" [6.35 mm]
Insertion length L ₁	2.5" to 24" (63.5 mm to 609.6 mm)
Material	304 stainless steel
Window	Instrument glass -40 ... +212 °F 1) [-40 ... +100 °C] Safety Glass and Polycarbonate -40 ... +160 °F 1) [-40 ... +70 °C]
Damping	Inert gel to minimize pointer oscillation
Dial	White aluminum, dished, with black outer scale and red inner scale
Pointer	Black aluminum
Ranges	From -100 °F [70 °C] to 1000 °F [540 °C]
Overtemperature stability	≤ +500 °F (+260 °C): Temporary up to 50% of full scale > +500 °F (+260 °C) Continuous to 800 °F (+427 °C) Intermittant up to 1000 °F (+538 °C)

1) For ambient temperatures < 32 °F [0 °C] the measuring system and the window may fog up and possibly ice over.

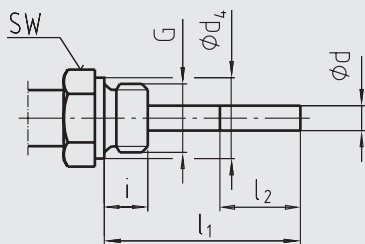
Options

- Thermowells
- Special scales and dial markings
- Calibration certification traceable to NIST

STANDARD RANGES		
Fahrenheit Single Scale	Dual Scale F° & C° F° Outer and C° inner	Celsius Single Scale
-100/150 F°	-100/150 F° & -70/70 C°	-50/50 C°
-40/120 F°	-40/120 F° & -40/50 C°	-20/120 C°
0/140 F°	0/140 F° & -20/60 C°	0/50 C°
0/200 F°	0/200 F° & -15/90 C°	0/100 C°
0/250 F°	0/250 F° & -20/120 C°	0/150 C°
20/240 F°	20/240 F° & -5/115 C°	0/200 C°
25/125 F°	25/125 F° & -5/50 C°	0/250 C°
50/300 F°	50/300 F° & 10/150 C°	0/300 C°
50/400 F°	50/400 F° & 10/200 C°	0/450 C° ¹
50/550 F°	50/550 F° & 10/260 C°	100/550 C° ¹
150/750 F°	150/750 F° & 65/400 C°	
200/1000 F°	200/1000 F° & 100/540 C°	

Connection designs

Standard design (male thread connection)



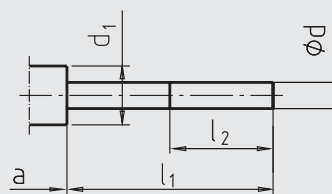
Connection, male: ¼ NPT, ½ NPT

Standard insertion length $l_1 = 2.5", 4", 6", 9", 12", 15", 18", 24"$

Recommendation: For applications with vibration on the process side

Nominal size	Process connection		Dimensions in mm / inch		
NS	G	i	SW	d₄	Ø d
3", 5"	½ NPT	19	22	-	¼" or ⅜"

Design 1, plain stem (without thread)



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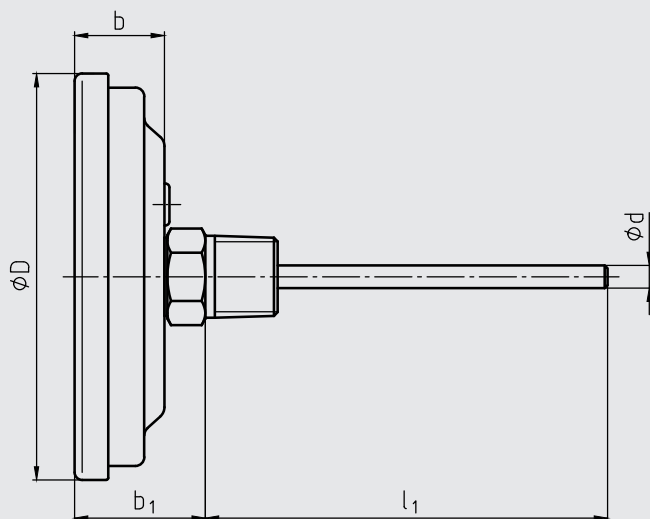
Standard insertion length $l_1 = 6", 7", 9", 11"$

Standard insertion length $l_1 = 2.5", 4", 6", 9", 12", 15", 18", 24"$

Nominal size	Dimensions in mm / inch			
NS	d₁	Ød	a for axial	a for adjustable stem and dial
3", 5"	18	0.31"	15	25

Back mount (axial)

NPT thread



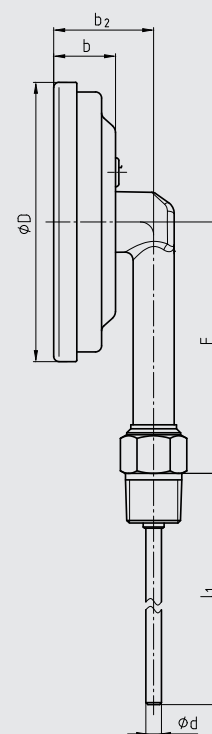
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Nominal size	Dimensions in mm / inch					
NS	Ø D	Ø d	b	b₁ ¹)	b₂	F
				NPT thread		NPT thread
3"	83	1/4" or 3/8"	23	37	38	84
5"	134	1/4" or 3/8"	23	37	38	109

1) With scale ranges $\geq 0 \dots 300^\circ\text{C}$ the dimensions increase by 40 mm

Lower mount (radial)

NPT thread



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Legend

Nominal size	Dimensions in inch / (mm)					
NS	Ø D	Ø d	b	b₁ ¹)	b₂	F
3	3.29" (83.4)	¼"	0.91" (23.0)	1.45" (36.7)	1.48" (37.6)	3.27" (83.2)
5"	5.28" (134.1)	¼"	0.92" (23.3)	1.23" (31.1)	1.47" (37.3)	4.27" (108.5)

Thermowell

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

However, in order to enable exchanging the thermometer during operation (e.g. instrument replacement or calibration) and to ensure a better protection of the measuring 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 wake frequency calculation, see Technical information IN 00.15.

Threaded thermowell (solid-machined), model TW15

Data sheet: TW 95.15



Approvals

Logo	Description	Country
-	CRN (option) Safety (e.g. electr. safety, overpressure, ...)	Canada

Certificates (option)

- 2.2 test report
- 3.1 inspection certificate with 3 test points (optionally with 5 test points)

Approvals and certificates, see website

Ordering information

Model / Nominal size / Connection location / Connection design / Unit / Scale range / Process connection / Stem diameter / Insertion length l_1 / Approvals / Certificates / Options

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