

Bimetal Thermometer, Every Angle

TBiGelCh

Bayonet ring case stainless steel, turnable and adjustable

Standard Versions

This data sheet contains detailed information on our standard versions and available options. In overview 8000 you will find additional information on selection, metrological features, permissible ambient and storage temperatures as well as error limits, etc. Information on the metrologically optimal design of thermometers can be found in our technical information sheet T08-000-031.

Measuring Unit

Bimetal coil

Accuracy (DIN EN 13 190)

Class 1

Case

With bayonet ring, stainless steel 304 (1.4301)

Degree of Protection (DIN EN 60 529/IEC 529)

IP65

Nominal Case Sizes

63, 100, 160 mm (2½, 4, 6")

Case Configuration

Connection temperature

sensor (stem):

- pivot (every angle)
- adjustable approx. 135° (90° downward, 45° upward)
- with straightened brackets turnable by 360° with respect to the case

Pivot joint:

centre back position

Temperature Ranges (DIN EN 13 190)

Temperature differences from 60 K up to 600 K

Temperature Sensor (Stem)

Made of stainless steel 316Ti (1.4571)

Max. static

operating pressure: 25 bar

Stem models: B1, B3, B4, B4.1, B5 or B6

Stem Ø dF: 6 or 8 mm (0.24 or 0.31")

Stem length L: from Lmin or L1min up to 400 mm (15.75")

Please regard the minimum stem length depending on active length (La) and stem model, see page 3

Window

Instrument glass

Dial

Aluminum white, scale black

Pointer

Adjustable pointer aluminum black

Indication Adjustment (±4 %)

Externally via screw



Ordering Information, Standard Ranges, Options

See page 4

Special Versions and Further Options

- Other connection threads and materials upon request
- Other temperature ranges and/or special scales, e.g. dual scale °C/°F, coloured fields or ranges, dial inscriptions
- Case parts stainless steel 316L (1.4404) upon request
- For ambient temperatures to -60 °C (-76 °F) upon request
- For ambient temperatures below -20 °C (-4 °F) we recommend: thermometer with crimped-on ring case models TBiGelChg or TBiGelChgG
- GOST version for Russia, Kazakhstan

Thermowells

See data sheets 8.8110ff.

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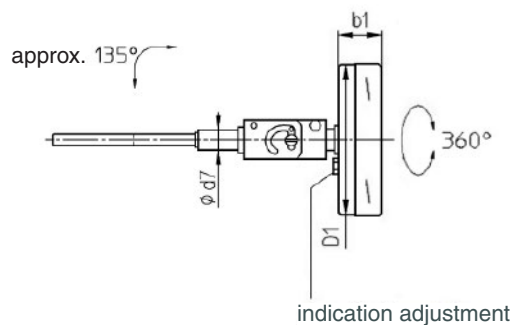
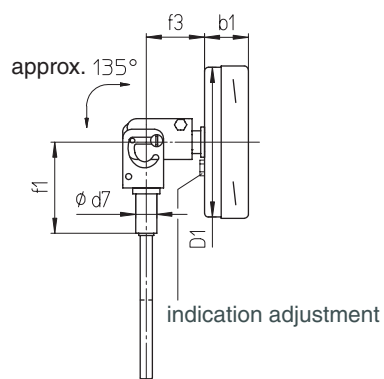
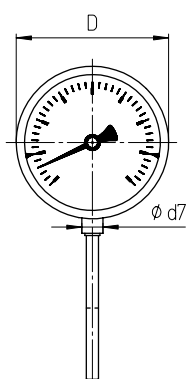
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Stem Position, Dimensional Data and Weights

Centre Back Stem Position, with Pivot (Every Angle)

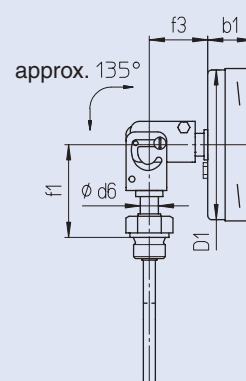
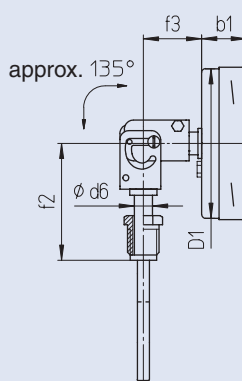
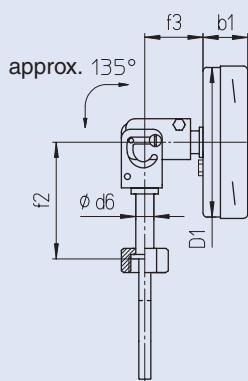
Stem model B1 (also B5)



Stem model B3 (also B6)

Stem model B4

Stem model B4.1



Dimensional Data (mm/inch) and Weights (kg/lb)

NCS	b1	D	D1	d6	d7	f1 ¹⁾	f2 ¹⁾	f3	approx. weight ²⁾ TBiGelCh
63 2½"	26 1.02	64 2.52	62 2.44	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	0.29 0.64
100 4"	28 1.1	101 3.98	99 3.9	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	0.42 0.93
160 6"	27 1.06	161 6.34	159 6.26	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	0.76 1.68

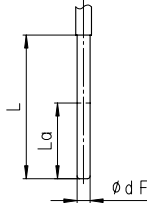
¹⁾ Temperature ranges ≥ 400 °C (≥ 752 °F): extended dimension for small stem lengths, see T08-000-031

²⁾ The data are examples and relate to the version with stem B1, ϕ 8 mm (0.31"), length 100 mm (3.94").

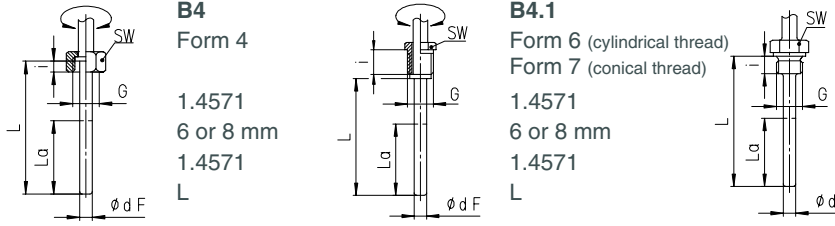
Stem Models

Stem Models

Process connection:	Without screw fitting, plain stem	
Stem model:	B1	
Form acc. to DIN EN 13 190:	Form 1	
Stem material:	1.4571	
Stem Ø dF:	6 or 8 mm	
Order length:	L	
Suitable thermowell models: (data sheet)	SK1 (8.8140), SK2 (8.8141) SK3.B (8.8150), SK4.B (8.8151)	



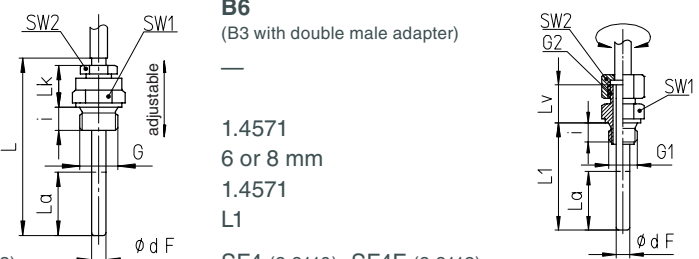
Process connection:	Union nut	Male thread, turnable	Male thread, rigid
Stem model:	B3	B4	B4.1
Form acc. to DIN EN 13 190:	Form 5	Form 4	Form 6 (cylindrical thread) Form 7 (conical thread)
Stem material:	1.4571	1.4571	1.4571
Stem Ø dF:	6 or 8 mm	6 or 8 mm	6 or 8 mm
Screw fitting material:	1.4571	1.4571	1.4571
Order length:	L	L	L
Suitable thermowell models: (data sheet)	SF4.1 (8.8111), SF4.1F (8.8113) SF8 (8.8130), SF9 (8.8131)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)



Thread (dimensional data in mm/inch):	G			SW			i		
	G 1/2	27/1.06	10/0.39		G 1/2B	22/0.87	20/0.79	G 1/2B	27/1.06
G 3/4	32/1.26	12/0.47		G 3/4B	27/1.06	23/0.91	G 3/4B	32/1.26	16/0.63
M20x1.5	27/1.06	10/0.39		M18x1.5	22/0.87	14/0.55	1/2" NPT	27/1.06	19/0.75
M24x1.5	32/1.26	12/0.47		M20x1.5	22/0.87	20/0.79	3/4" NPT	27/1.06	19/0.75
M27x2	32/1.26	12/0.47					M18x1.5	24/0.94	14/0.55
							M20x1.5	27/1.06	14/0.55

Thermowell required!

Process connection:	Male thread/compression fitting	Male thread, turnable/double male adapter
Stem model:	B5 (B1 with compression fitting)	B6 (B3 with double male adapter)
Form acc. to DIN EN 13 190:	Form 2 (cylindrical thread) Form 3 (conical thread)	—
Stem material:	1.4571	1.4571
Stem Ø dF:	6 or 8 mm	6 or 8 mm
Screw fitting material:	1.4571	1.4571
Order length:	L	L1
Suitable thermowell models: (data sheet)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)	SF4 (8.8110), SF4F (8.8112) SF5 (8.8120), SF6, SF7 (8.8121)



Thread (dimensional data in mm/inch):	G					SW1					SW2					i					Lk					
	G 1/2B	27/1.06	22/0.87	14/0.55	42/1.65		G 1/2B	G 1/2B	27/1.06	27/1.06	14/0.55	28/1.1		G 1/2B	G 1/2B	32/1.26	27/1.06	16/0.63	28/1.1		G 1/2B	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1
G 3/4B	32/1.26	22/0.87	16/0.63	42/1.65		G 3/4B	G 3/4B	27/1.06	27/1.06	19/0.75	28/1.1		G 3/4B	G 3/4B	27/1.06	27/1.06	19/0.75	28/1.1		G 3/4B	G 3/4B	27/1.06	27/1.06	19/0.75	28/1.1	
1/2" NPT	27/1.06	22/0.87	19/0.75	42/1.65		1/2" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1		1/2" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1		1/2" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1	
3/4" NPT	27/1.06	22/0.87	19/0.75	42/1.65		3/4" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1		3/4" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1		3/4" NPT	G 1/2B	27/1.06	27/1.06	19/0.75	28/1.1	
M20x1.5	27/1.06	22/0.87	14/0.55	42/1.65		M20x1.5	M20x1.5	27/1.06	27/1.06	14/0.55	28/1.1		M20x1.5	M20x1.5	32/1.26	27/1.06	14/0.55	28/1.1		M20x1.5	M20x1.5	32/1.26	27/1.06	16/0.63	28/1.1	

Minimum Stem Length and Active Length (mm/inch)

Stem model:	Length:	Thread:	Stem Ø dF:					
			6 (0.24")			8 (0.31")		
			Span ΔT ¹⁾					
			≥100 K	=80 K	=60 K	≥80 K	=60 K	
all models	La	all standard threads	40	60	70	40	60	
			1.57	2.36	2.76	1.57	2.36	
B1 / B4	Lmin	all standard threads	45	65	75	45	65	
			1.77	2.56	2.95	1.77	2.56	
B3	Lmin	all standard threads	52	72	82	52	72	
			2.05	2.83	3.23	2.05	2.83	
B4.1	Lmin	all standard threads	60	80	90	60	80	
			2.36	3.15	3.54	2.36	3.15	
B5	Lmin	all standard threads	95	115	125	95	115	
			3.74	4.53	4.92	3.74	4.53	
B6	L1min	all standard threads	60	80	90	60	80	
			2.36	3.15	3.54	2.36	3.15	
others			upon request			upon request		

The minimum length Lmin/L1min is the smallest feasible stem length.
Important: Please note the technical information sheet T08-000-031 on the metrologically optimal stem length.

The active length La is the temperature-sensitive part of the stem.

¹⁾ The temperature difference (span) ΔT = 60 K corresponds e.g. to the temperature range 0–60 °C, but also to –20/+40 °C, see table page 4

Ordering Information

Basic Model: Bimetal Thermometer Every Angle		TBiGelCh
Case filling:	without	without code letters
Nominal case size:	case Ø 63, 100, 160 mm (2½, 4, 6")	63, 100, 160
Stem position/ case configuration:	centre back position, with pivot (every angle)	without code letters
Temperature ranges:		
scale °C:	ΔT (K):	scale °F: ΔT (°F):
0 – 60 °C	60	0 – 150 °F 150
0 – 80 °C	80	0 – 200 °F 200
0 – 100 °C	100	0 – 250 °F 250 e.g. 0–100 °C
0 – 120 °C	120	0 – 300 °F 300
0 – 160 °C	160	–50 / +130 °F 180
0 – 200 °C	200	–40 / +160 °F 200
0 – 250 °C	250	–30 / +120 °F 150
0 – 300 °C	300	–10 / +100 °F 110
0 – 400 °C	400	20 – 240 °F 220
0 – 500 °C	500	30 – 140 °F 110
0 – 600 °C	600	40 – 400 °F 360
–50 / +50 °C	100	50 – 300 °F 250
–40 / +40 °C	80	50 – 500 °F 450
–40 / +60 °C	100	80 – 800 °F 720
–30 / +50 °C	80	150 – 700 °F 550 e.g. –30/+50 °C
–30 / +70 °C	100	
–20 / +40 °C	60	
–20 / +60 °C	80	
–20 / +80 °C	100	
50 – 300 °C	250	
Stem:	without screw fitting, plain stem	B1
	union nut	B3
	male thread, turnable	B4
	male thread, rigid	B4.1
	male thread/compression fitting	B5
	male thread, turnable/double male adapter	B6
Stem Ø dF:	6 or 8 mm (0.24 or 0.31")	dF 6, 8
Stem length:	L or L1 in mm	e.g. L = 100 mm
Process connection:	see page 3	e.g. G½B
Options:	red mark on the dial	
	plastic clip red or green, external at the bayonet ring for NCS 100, 160	
	window laminated safety glass	
	acrylic glass (PMMA)	
	polycarbonate (PC)	
	case polished	
	bayonet ring polished	
	stem Ø dF 10 mm (0.39")	
	stem length >400 mm (15.75"), max. 800 mm (31.5")	
	instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting or sticker upon the case	

Example:

TBiGelCh 80, 0–100 °C, B3, dF 8, L = 140 mm, G½

Special Versions: Please describe your requirements in cleartext!