

# Bimetal Thermometers, Every Angle

Crimped-on ring case stainless steel, turnable and adjustable

**TBiGelChg**  
**TBiGelChgG**

## 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 polished crimped-on ring, stainless steel 304 (1.4301)

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

IP65

### Case Filling

For model TBiGelChgG

Temperature ranges:

from  $-20\text{ °C}$  ( $-4\text{ °F}$ ) up to  $+100\text{ °C}$  ( $+212\text{ °F}$ ): glycerin

from  $-40\text{ °C}$  ( $-40\text{ °F}$ ) and above  $+100\text{ °C}$  ( $+212\text{ °F}$ )

up to  $+250\text{ °C}$  ( $+482\text{ °F}$ ): silicone oil

### Nominal Case Sizes

63, 80, 100, 125, 160 mm ( $2\frac{1}{2}$ , 3, 4, 5, 6")

### Case Configuration

Connection temperature

sensor (stem):

pivot (every angle)

- adjustable approx.  $135^\circ$

( $90^\circ$  downward,  $45^\circ$  upward)

- with straightened brackets turnable

by  $360^\circ$  with respect to the case

centre back position

Pivot joint:

### 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  $\varnothing$  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

Aluminum black

### Indication Adjustment ( $\pm 4\%$ )

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  $^{\circ}\text{C}/^{\circ}\text{F}$ , coloured fields or ranges, dial inscriptions
- Case parts stainless steel 316L (1.4404) upon request
- Model TBiGelChg for ambient temperatures to  $-60\text{ °C}$  ( $-76\text{ °F}$ )
- Model TBiGelChgG for ambient temperatures to  $-40\text{ °C}$  ( $-40\text{ °F}$ ) to  $-60\text{ °C}$  ( $-76\text{ °F}$ ) NCS 100, 125 and 160
- GOST version for Russia, Kazakhstan

## Thermowells

See data sheets 8.8110ff.

[www.armano-messtechnik.com](http://www.armano-messtechnik.com)

**ARMANO**

ARMANO Messtechnik GmbH

### Location Beierfeld

Am Gewerbepark 9 • 08344 Grünhain-Beierfeld  
Tel.: +49 3774 58 - 0 • Fax: +49 3774 58 - 545  
mail@armano-beierfeld.com

### Location Wesel

Manometerstraße 5 • 46487 Wesel-Ginderich  
Tel.: +49 2803 9130 - 0 • Fax: +49 2803 1035  
mail@armano-wesel.com

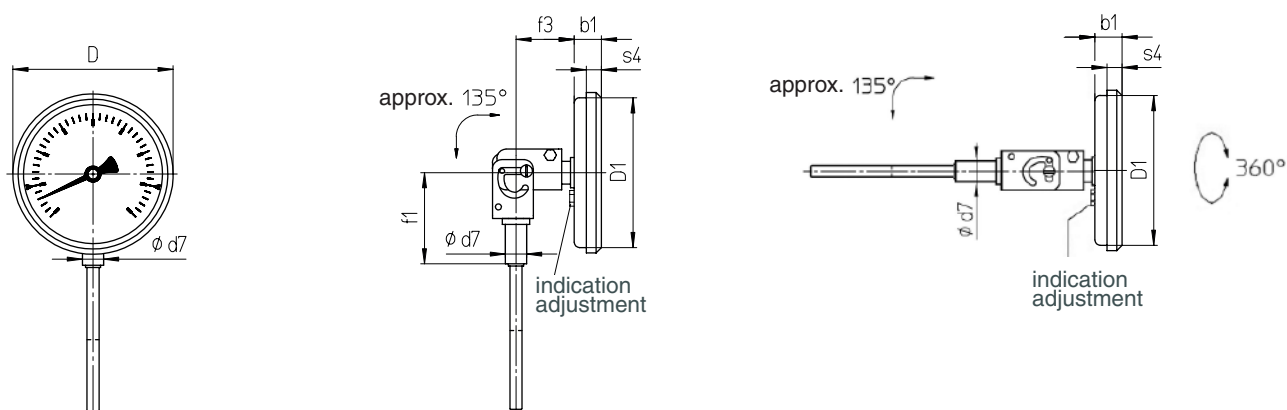
**8112**

08/20

# Stem Position, Dimensional Data and Weights

## Centre Back Stem Position, with Pivot (Every Angle)

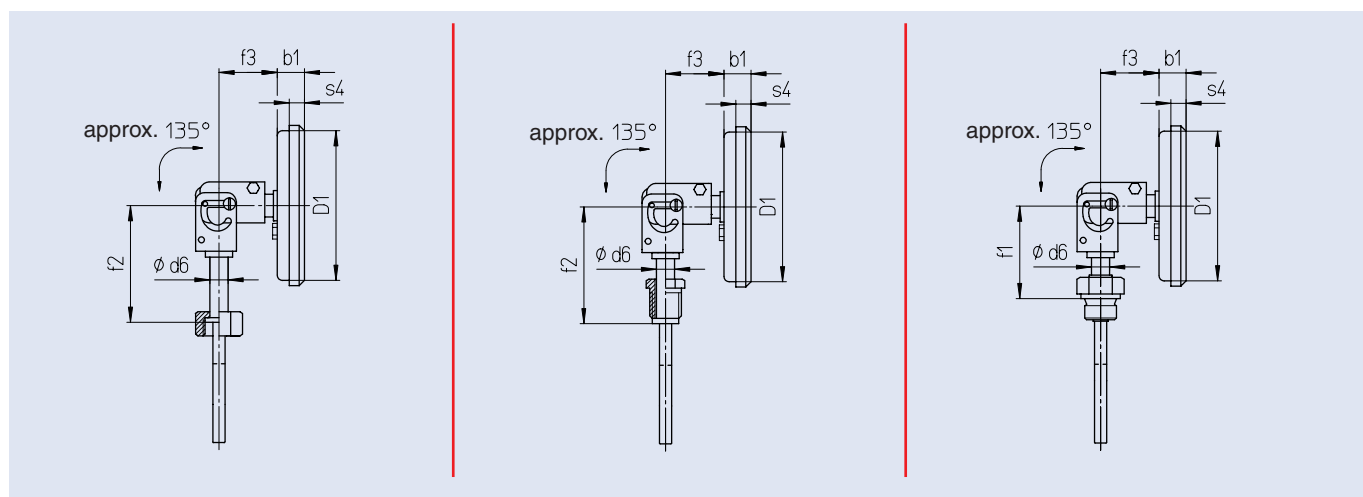
Stem model B1 (also B5)



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 <sup>1)</sup>	f2 <sup>1)</sup>	f3	s4	approx. weight <sup>2)</sup>	
										TBiGelChg	TBiGelChgG
63 2½"	17 0.67	67 2.64	62 2.44	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	8 0.31	0.28 0.62	0.31 0.68
80 3"	18 0.71	86 3.39	79 3.11	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	8 0.31	0.32 0.71	0.37 0.82
100 4"	18 0.71	106 4.17	98 3.86	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	10 0.39	0.39 0.86	0.46 1.01
125 5"	20 0.79	136 5.35	125 4.92	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	11 0.43	0.49 1.08	0.65 1.43
160 6"	21 0.83	167 6.57	159 6.26	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	11 0.43	0.64 1.41	0.84 1.85

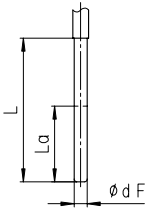
<sup>1)</sup> Temperature ranges  $\geq 400$  °C ( $\geq 752$  °F): extended dimension for small stem lengths, see T08-000-031

<sup>2)</sup> The data are examples and relate to the version with stem B1,  $\varnothing$  8 mm (0.31"), length 100 mm (3.94").

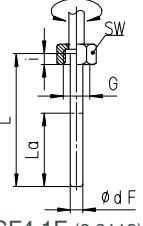
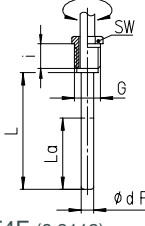
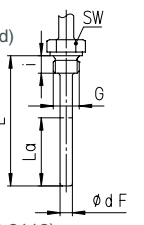
# Stem Models

## Stem Models

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

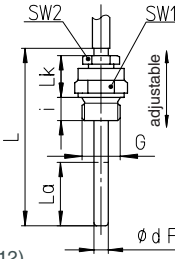
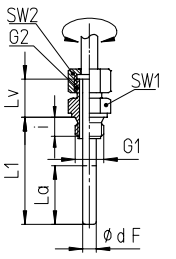


<b>Process connection:</b>	<b>Union nut</b>	<b>Male thread, turnable</b>	<b>Male thread, rigid</b>
<b>Stem model:</b>	<b>B3</b>	<b>B4</b>	<b>B4.1</b>
<b>Form acc. to DIN EN 13 190:</b>	Form 5	Form 4	Form 6 (cylindrical thread) Form 7 (conical thread)
<b>Stem material:</b>	1.4571	1.4571	1.4571
<b>Stem Ø dF:</b>	6 or 8 mm	6 or 8 mm	6 or 8 mm
<b>Screw fitting material:</b>	1.4571	1.4571	1.4571
<b>Order length:</b>	L	L	L
<b>Suitable thermowell models:</b> (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			G			G		
	G	SW	i	G	SW	i	G	SW	i
G 1/2	27/1.06	10/0.39	G 1/2 B	22/0.87	20/0.79	G 1/2 B	27/1.06	14/0.55	
G 3/4	32/1.26	12/0.47	G 3/4 B	27/1.06	23/0.91	G 3/4 B	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	<b>Thermowell required!</b>			M18x1.5	24/0.94	14/0.55	
						M20x1.5	27/1.06	14/0.55	

<b>Process connection:</b>	<b>Male thread/compression fitting</b>	<b>Male thread, turnable/double male adapter</b>
<b>Stem model:</b>	<b>B5</b> (B1 with compression fitting)	<b>B6</b> (B3 with double male adapter)
<b>Form acc. to DIN EN 13 190:</b>	Form 2 (cylindrical thread) Form 3 (conical thread)	—
<b>Stem material:</b>	1.4571	1.4571
<b>Stem Ø dF:</b>	6 or 8 mm	6 or 8 mm
<b>Screw fitting material:</b>	1.4571	1.4571
<b>Order length:</b>	L	L1
<b>Suitable thermowell models:</b> (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					G1					
	SW1	SW2	i	Lk	G1	G2	SW1	SW2	i	Lv	
G 1/2 B	27/1.06	22/0.87	14/0.55	42/1.65	G 1/2 B	G 1/2 B	27/1.06	27/1.06	14/0.55	28/1.1	
G 3/4 B	32/1.26	22/0.87	16/0.63	42/1.65	G 3/4 B	G 3/4 B	32/1.26	27/1.06	16/0.63	28/1.1	
1/2" NPT	27/1.06	22/0.87	19/0.75	42/1.65	1/2" NPT	G 1/2 B	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 3/4 B	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	
					M24x1.5	M20x1.5	32/1.26	27/1.06	14/0.55	28/1.1	
					M27x2	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 <sup>1)</sup>					
			≥100 K	=80 K	=60 K	≥80 K	=60 K	
<b>all models</b>	La	all standard threads	40	60	70	40	60	
			1.57	2.36	2.76	1.57	2.36	
<b>B1 / B4</b>	Lmin	all standard threads	45	65	75	45	65	
			1.77	2.56	2.95	1.77	2.56	
<b>B3</b>	Lmin	all standard threads	52	72	82	52	72	
			2.05	2.83	3.23	2.05	2.83	
<b>B4.1</b>	Lmin	all standard threads	60	80	90	60	80	
			2.36	3.15	3.54	2.36	3.15	
<b>B5</b>	Lmin	all standard threads	95	115	125	95	115	
			3.74	4.53	4.92	3.74	4.53	
<b>B6</b>	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.

<sup>1)</sup> 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	TBiGelChg	
Case filling:	without depending on version: glycerin or silicone oil			without code letters <b>G</b>	
Nominal case size:	case Ø 63, 80, 100, 125, 160 mm (2½, 3, 4, 5, 6")			<b>63, 80, 100, 125, 160</b>	
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. <b>0–100 °C</b>
	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. <b>–30/+50 °C</b>
	–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			<b>B1</b>	
	union nut			<b>B3</b>	
	male thread, turnable			<b>B4</b>	
	male thread, rigid			<b>B4.1</b>	
	male thread/compression fitting			<b>B5</b>	
	male thread, turnable/double male adapter			<b>B6</b>	
Stem Ø dF:	6 or 8 mm (0.24 or 0.31")			<b>dF 6, 8</b>	
Stem length:	L or L1 in mm		e.g.	<b>L = 100 mm</b>	
Process connection:	see page 3		e.g.	<b>G½B</b>	
Options:	red mark	on the dial			
	plastic clip	red or green, external at crimped-on ring for NCS 80, 100, 125, 160			
	window	tempered safety glass for NCS 80, 100, 125 and 160			
		acrylic glass (PMMA) for NCS 80 and 100			
		polycarbonate (PC) NCS 63, 80 and 100			
	case polished				
	stem Ø dF 10 mm (0.39")				
	case filling temperature ranges from –20 °C up to +100 °C (–4/+212 °F): silicone oil				
	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:

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

**Special Versions:** Please describe your requirements in cleartext!