

# Gas-actuated Thermometers, Rigid Mount

Crimped-on ring case stainless steel

**TSchg**  
**TSchgG**

## 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

With nitrogen filling (inert gas, physiologically safe)

### Accuracy (DIN EN 13 190)

Class 1

### Case

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

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

IP65

### Case Filling

For model TSchgG: silicone oil

### Nominal Case Sizes

63, 80, 100, 160 mm (2½, 3, 4, 6")

### Case Configuration

Connection temperature sensor (stem):

- rigid mount with neck tube

Stem position:

- vertical bottom position
- with angle (**w**, **wst**, **wl**, **wr**)
- centre back position (**rm**)

Mounting device:

- without
- for centre back connection:  
back flange for surface mounting (**rmRh**)

### Temperature Ranges (DIN EN 13 190)

Temperature differences (spans) from 80 K up to 600 K

### Temperature Sensor (Stem)

Made of stainless steel 1.4571 (316Ti)

Max. static operating pressure: 25 bar

Stem models: A1, A3, A4, A4.1, A5 or A6

Stem Ø dF: 8, 10 or 12 mm

Stem length L or L1: from Lmin or L1min up to 2.50 m

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

### Window

Instrument glass

### Movement

Brass/German silver

### Dial

Aluminum white, scale black

### Pointer

Aluminum black

### Indication Adjustment (±6 %)

Externally via screw



## Ordering Information, Standard Ranges, Options

See page 4

## Special Versions and Further Options

- Other stem models, e.g.
  - without bent tube, see data sheet 8299.1
  - with connection for food/bio/pharmaceutical industries, see data sheet 8299.3
  - contact stem for temperature measurement at the outside of tanks and pipe barrels up to 300 °C, see data sheet 8299.4
- Other stem Ø, 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 1.4404 (316L) upon request
- Model TSchg for ambient temperatures to -60 °C;  
Model TSchgG for ambient temperatures to -40 °C;  
to -60 °C NCS 100 and 160
- Position of connection radial at 3 o'clock, 9 o'clock, 12 o'clock, others upon request or other than vertical installation (90°)
- GOST version for Russia, Ukraine, Kazakhstan, Belarus

## Thermowells

See data sheets 8.8110 ff.



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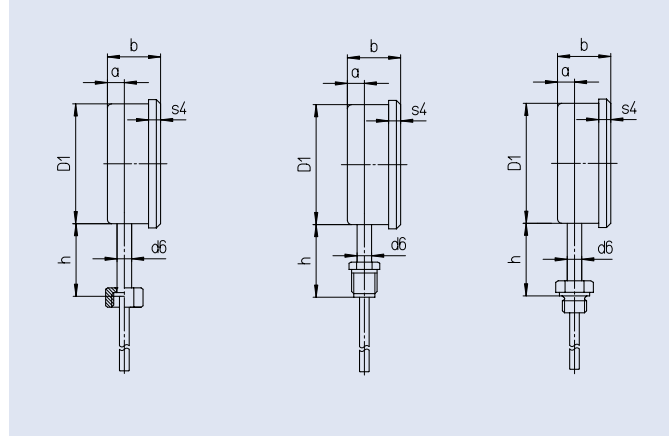
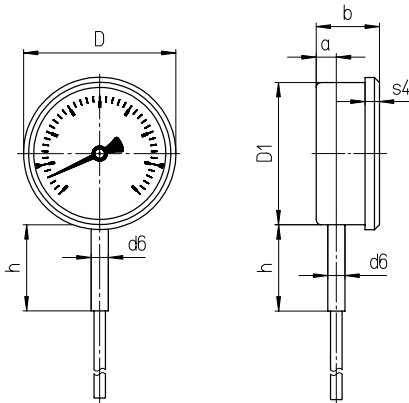
# Stem Position, Code Letters, Dimensional Data and Weights

## Vertical Bottom Stem Position

Stem model A1 (also A5)

Stem model A3 (also A6) Stem model A4 Stem model A4.1

without additional code letter



## Angular Bottom Stem Position

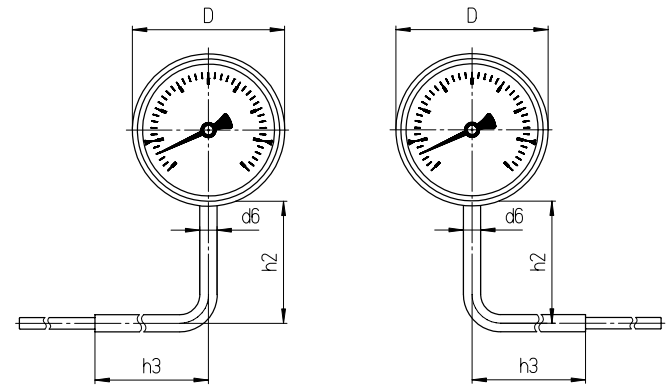
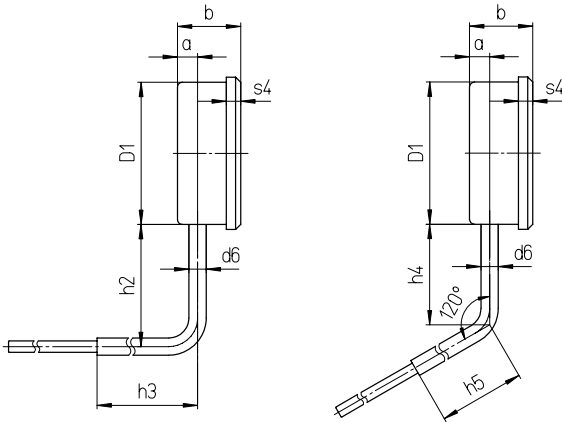
with angle:

right-angled to the back,  
code letter **w**

obtuse-angled to the back,  
code letters **wst**

lateral to the left,  
code letters **wl**

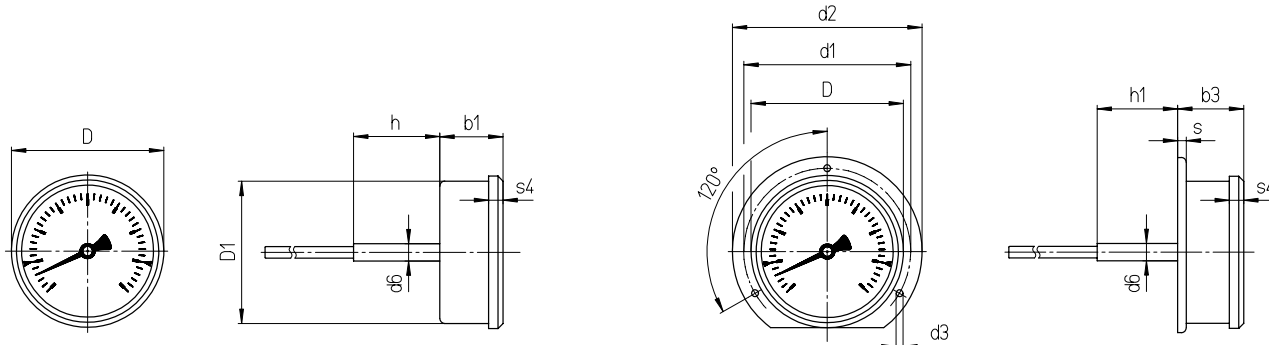
lateral to the right,  
code letters **wr**



## Centre Back Stem Position

code letters **rm**

with back flange for surface mounting, except NCS 80  
code letters **rmRh**



## Dimensional Data (mm) and Weights (kg)

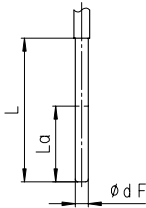
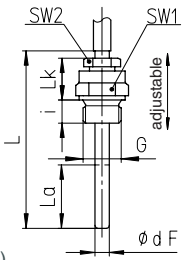
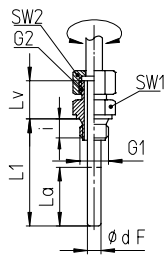
NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	h <sup>1)</sup>	h1 <sup>1)</sup>	h2	h3	h4	h5	s	s4	approx. weight <sup>2)</sup> TSChg	approx. weight <sup>2)</sup> TSChgG
63	12	39	39	42	67	62	75	85	3.6	12	60	57	85	120	70	120	5	8	0.23	0.30
80	15	42	42	—	86	79	95	110	4.8	12	60	—	85	120	70	120	—	8	0.32	0.46
100	15	43	43	46.5	106	99	116	132	4.8	12	60	57	85 <sup>3)</sup>	120	70 <sup>3)</sup>	120	6	10	0.43	0.63
160	15	51	51	54	167	159	178	196	5.8	12	60	—	109	120	70	120	—	11	0.75	1.46

<sup>1)</sup> Temperature ranges  $\geq 400$  °C: extended neck tube for smaller stem lengths, see T08-000-031  
Temperature ranges  $> 500$  °C: +20 mm – standard for all stem lengths

<sup>2)</sup> The data are examples and relate to the version with stem A1,  $\varnothing$  10 mm, length 200 mm.

<sup>3)</sup> For TSChgG: h2 = 109 mm, h4 = 94 mm

# Stem Models

Stem Models											
<b>Process connection:</b>		<b>Without screw fitting, plain stem</b>									
<b>Stem model:</b>	<b>A1</b>										
<b>Form acc. to DIN EN 13 190:</b>	Form 1										
<b>Stem material:</b>	1.4571										
<b>Stem Ø dF:</b>	8, 10, 12 mm										
<b>Order length:</b>	L										
<b>Suitable thermowell models:</b> (data sheet)	SK1 (8.8140), SK2 (8.8141)										
											
<b>Process connection:</b>		<b>Union nut</b>			<b>Male thread, turnable</b>			<b>Male thread, rigid</b>			
<b>Stem model:</b>	<b>A3</b>										
<b>Form acc. to DIN EN 13 190:</b>	Form 5										
<b>Stem material:</b>	1.4571										
<b>Stem Ø dF:</b>	8, 10, 12 mm										
<b>Screw fitting material:</b>	1.4571										
<b>Order length:</b>	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)				
<b>Thread</b> (dimensional data in mm):	<b>G</b>	<b>SW</b>	<b>i</b>	<b>G</b>	<b>SW</b>	<b>i</b>	<b>G</b>	<b>SW</b>	<b>i</b>		
	G ½	27	10	G ½ B	22	20	G ½ B	27	14		
	G ¾	32	12	G ¾ B	27	23	G ¾ B	32	16		
	M20x1.5	27	10	M18x1.5	22	14	½" NPT	27	19		
	M24x1.5	32	12	M20x1.5	22	20	¾" NPT	27	19		
	M27x2	32	12				M18x1.5	24	14		
							M20x1.5	27	14		
									<b>Thermowell required!</b>		
<b>Process connection:</b>		<b>Male thread/compression fitting</b>				<b>Male thread, turnable/double male adapter</b>					
<b>Stem model:</b>	<b>A5</b>										
	(A1 with compression fitting)										
<b>Form acc. to DIN EN 13 190:</b>	Form 2 (cylindrical thread) Form 3 (conical thread)										
<b>Stem material:</b>	1.4571										
<b>Stem Ø dF:</b>	8, 10, 12 mm										
<b>Screw fitting material:</b>	1.4571										
<b>Order length:</b>	L										
<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)						
<b>Thread</b> (dimensional data in mm):	<b>G</b>	<b>SW1</b>	<b>SW2</b>	<b>i</b>	<b>Lk</b>	<b>G1</b>	<b>G2</b>	<b>SW1</b>	<b>SW2</b>	<b>i</b>	<b>Lv</b>
	G ½ B	27	22	14	42	G ½ B	G ½ B	27	27	14	28
	G ¾ B	32	22	16	42	G ¾ B	G ½ B	32	27	16	28
	½" NPT	27	22	19	42	½" NPT	G ½ B	27	27	19	28
	¾" NPT	27	22	19	42	¾" NPT	G ½ B	27	27	19	28
	M20x1.5	27	22	14	42	M20x1.5	M20x1.5	27	27	14	28
						M24x1.5	M20x1.5	32	27	14	28
						M27x2	M20x1.5	32	27	16	28
											
											
<b>Minimum Stem Length, Active Length and Maximum Feasible Stem Length (mm)</b>											
			up to max. 500 °C			500 °C and above					
			Stem Ø dF:			Stem Ø dF:					
			12			10			8		
<b>Stem model:</b>	<b>Length:</b>	<b>Thread:</b>									
<b>all models</b>	L <sub>min</sub>	all standard threads	35	45	75	75	105	165			
<b>A1/A3/A4</b>	L <sub>min</sub>	all standard threads	55	65	95	95	125	185			
<b>A4.1</b>	L <sub>min</sub>	G ½ B, M18x1.5, M20x1.5	49	59	89	89	119	179			
		G ¾ B	51	61	91	91	121	181			
		½" NPT, ¾" NPT	54	64	94	94	124	184			
<b>A5</b>	L <sub>min</sub>	all standard threads	90	100	130	130	160	220			
		G ½ B, M20x1.5	49	59	89	89	119	179			
<b>A6</b>	L <sub>1min</sub>	G ¾ B, M24x1.5, M27x2	51	61	91	91	121	181			
		½" NPT, ¾" NPT	54	64	94	94	124	184			
<b>others</b>			upon request			upon request					

## Ordering Information

Basic Model: Gas-actuated Thermometer Rigid Mount to the Stem		TSchg
<b>Case filling:</b>	without silicone oil	without code letters <b>G</b>
<b>Nominal case size:</b>	case Ø 63, 80, 100, 160 mm (2½, 3, 4, 6")	<b>63, 80, 100, 160</b>
<b>Stem position/ case configuration:</b>	vertical bottom position right-angled to the back obtuse-angled to the back lateral angled to the left lateral angled to the right centre back position centre back position, with back flange for surface mounting	without code letters <b>w</b> <b>wst</b> <b>wl</b> <b>wr</b> <b>rm</b> <b>rmRh</b>
<b>Temperature ranges:</b>	scale: $\Delta T$ (K):	
	0 – 80 °C 80	
	0 – 100 °C 100	e.g. <b>0–100 °C</b>
	0 – 120 °C 120	
	0 – 160 °C 160	
	0 – 200 °C 200	
	0 – 250 °C 250	
	0 – 300 °C 300	
	0 – 400 °C 400	
	0 – 500 °C 500	
	0 – 600 °C 600	
	–100 / +100 °C 200	
	–50 / +50 °C 100	
	–40 / +40 °C 80	
	–40 / +60 °C 100	
	–30 / +50 °C 80	e.g. <b>–30/+50 °C</b>
	–20 / +60 °C 80	
	–20 / +80 °C 100	
	50 – 300 °C 250	
	50 – 400 °C 350	
	100 – 500 °C 400	
<b>Stem:</b>	without screw fitting, plain stem union nut male thread, turnable male thread, rigid male thread/compression fitting male thread, turnable/double male adapter	<b>A1</b> <b>A3</b> <b>A4</b> <b>A4.1</b> <b>A5</b> <b>A6</b>
<b>Stem Ø dF:</b>	8, 10 or 12 mm	<b>dF 8, 10, 12</b>
<b>Stem length:</b>	L or L1 in mm	e.g. <b>L = 100 mm</b>
<b>Process connection:</b>	see page 3	e.g. <b>G ½ B</b>
<b>Options:</b>	red mark on the dial plastic clip red or green, external at crimped-on ring for NCS 80, 100, 160 window tempered safety glass for NCS 80, 100 and 160 acrylic glass (PMMA) for NCS 80 and 100 polycarbonate (PC) NCS 63, 80 and 100 movement stainless steel case ventilation no. 22 for outdoor installation case polished versions: DNV GL dial marking with symbol and Russian Sea Register copy of the certificate upon request <b>TSchg 100</b> <b>TSchgG 63, 80, 100</b> instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting or sticker upon the case	

**Example:**

**TSchg 80 w, 0–100 °C, A5, dF 10, L = 100 mm, G ½ B**

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