

Gas-Actuated Thermometers, Rigid Stem

All Stainless Steel, Case with Bayonet Ring

Ø 63 mm (2 ½"), Ø 100 mm (4") and Ø 160 mm (6")

Standard or Liquid Filled (L)

Models :
TGI / TGIL
63 / 100 / 160

STANDARD VERSIONS

Measuring Unit

with nitrogen filling
(inert gas, physiological harmless)

Accuracy (EN 13 190)

Class 1

Case

With bayonet ring, 1.4301 (304 stainless steel)

Case Protection Type (EN 60 529 / IEC 529)

IP 65

Case Filling

For model TGIL : silicone oil

Nominal Case Sizes

TGI : 63, 100, 160 (mm) (2½", 4", 6")

TGIL : 63, 100, 160 (mm) (2½", 4", 6")

Case Configuration

Connection temperature

sensor (stem): rigid connection with neck tube

Stem position:

vertical bottom position,
optional: with angle (**w**, **wst**, **wl**, **wr**) or
centre back position (**rm**),
see page 2

Mounting device:

without,
optional: for centre back connection (**rm**),
back flange for surface
mounting (**Rh**), see page 2

Temperature Ranges (EN 13 190)

Temperature differences from 80 K to 600 K

Temperature Sensor (Stem)

1.4571 (316 stainless steel),

max. static operating pressure: 25 bar

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

Stem- Ø dF: 6, 8, 10 or 12 mm

Stem length L resp. L1: Lmin resp. L1min up to max. 2.50 m

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

Window

Instrument glass

Movement

Brass/German silver

Dial

Aluminum, black figures, white background

Pointer

Aluminum, black

Zero Adjustment (± 6%)

Externally by a screw



SPECIAL VERSIONS AND FURTHER OPTIONS AMONG OTHERS

- Other stem models, e. g.
 - without bent tube
 - with connection for food- / biotechnics / pharmaceutical industry,
 - Contact stem for temperature measurement at the outsides of the cases and pipe barrels up to 300 °C
- Other stem-Ø, connection thread and materials upon request
- Other temperature ranges and/or special scales, e.g. double scale °C/°F, coloured fields or areas, dial inscriptions, etc.
- Min.- or max.- drag indicator upon request
- Case parts 1.4404 (316 stainless steel) upon request
- Model TGI : for ambient temperatures up to -60 °C upon request
Model TGIL : for ambient temperatures up to -40 °C.
For ambient temperatures below -20°C we recommend: thermometers with crimped-on ring case model TGI resp. TGIL
- Position of connection at 3 o'clock, 9 o'clock, 12 o'clock, others upon request or other than vertical installation (90°)

ACCESSORIES

Mechanical:

Thermowells or flange thermowell see pages 49 and 50

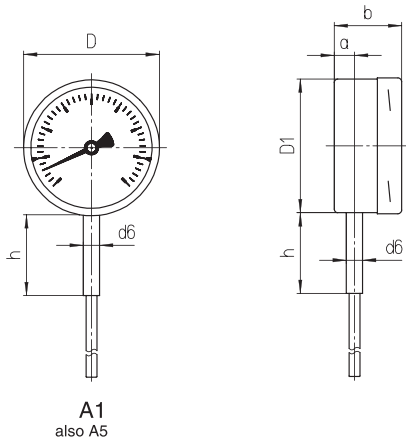
Electronical:

Limit switch contact assemblies, see page 17

Stem Position / Case Configurations, Code Letters, Dimensional Data and Weights

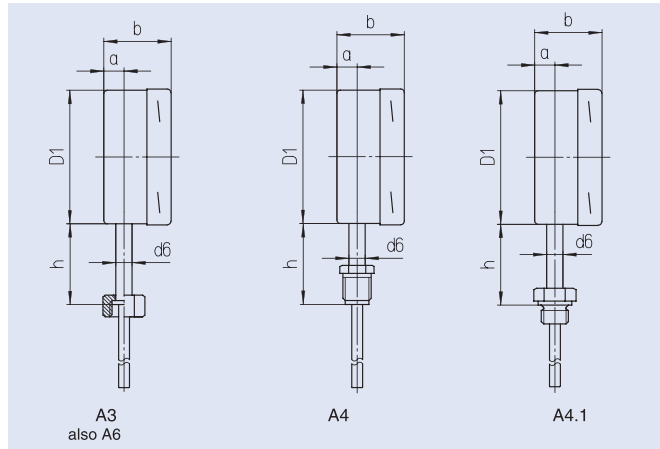
Vertical Bottom Stem Position

without additional code letters



Further Stem Models

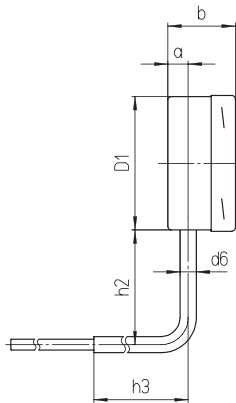
(demonstrated as example: vertical bottom stem position)



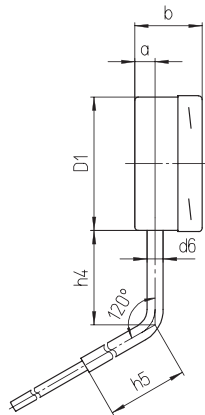
Vertical Bottom Stem Position with angle

with angle:

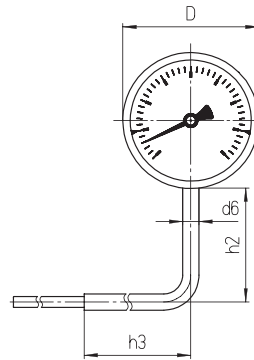
90° angled to the back,
code letter **w**



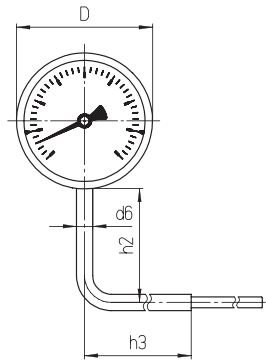
obtuse-angled to the back,
code letter **wst**



right-angled to the left,
code letters **wl**

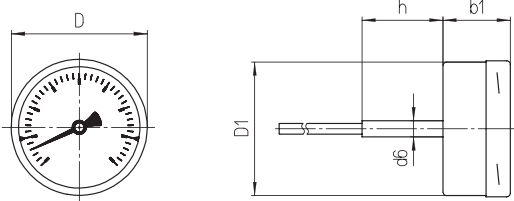


right-angled to the right,
code letters **wr**

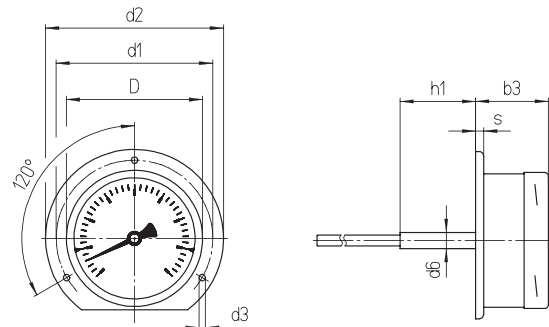


Centre Back Stem Position

code letters **rm**



with back flange for surface mounting (back flange),
code letters **rmRh**



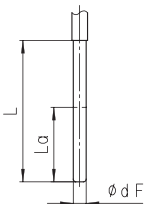
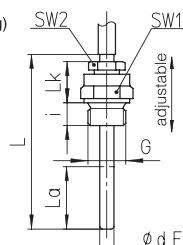
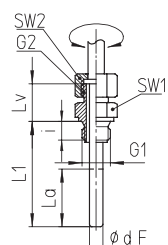
Dimensional Data (mm / inches) and Weights (kg / lb)

NCS	a	b	b1	b3	D	D1	d1	d2	d3	d6	h ¹⁾	h1 ¹⁾	h2	h3	h4	h5	s	approx. weight ²⁾	
																		TGI	TGIL
63	12	39	39	42	64	62	75	85	3.6	12	60	57	85	120	70	120	5	0.24	0.32
2½"	.47	1.54	1.54	1.65	2.52	2.44	2.95	3.35	.14	.47	2.36	2.24	3.35	4.72	2.76	4.72	.2	0.53	0.70
100	15	50	50	53.5	101	99	116	132	4.8	12	60	56.5	85	120	70	120	6	0.46	0.72
3"	.59	1.97	1.97	2.10	3.98	3.9	4.57	5.2	.19	.47	2.36	2.22	3.35	4.72	2.76	4.72	.24	1.01	1.59
160	15	50	50	53	161	159	178	196	5.8	12	60	57	85 ³⁾	120	70 ³⁾	120	6	0.78	1.50
6"	.59	1.97	1.97	2.09	6.34	6.26	7.01	7.72	.23	.47	2.36	2.24	3.35	4.72	2.76	4.72	.24	1.72	3.30

¹⁾ Temperature range > 500 °C and above: +20 mm (0.79")

²⁾ The information is an example and relates on version with stem A1, Ø 10 mm (0.4"), length 200 mm (8").

Stem Models

Stem Models																																																																																									
Process connection:			without screw fitting, plain stem																																																																																						
Stem model:			A1																																																																																						
Form according to DIN 13 190:			Form 1																																																																																						
Stem material:			1.4571																																																																																						
Stem-Ø dF:			8, 10, 12																																																																																						
Order length:			L																																																																																						
Data sheet (suitable thermowell models):			8.8140 (SK1), 8.8141 (SK2)																																																																																						
																																																																																									
Process connection:			Union nut		Male thread, turnable			Male thread, rigid																																																																																	
Stem model:			A3		A4			A4.1																																																																																	
Form according to DIN 13 190:			Form 5		Form 4			Form 6 (thread cylindrical) Form 7 (thread conical)																																																																																	
Stem material:			1.4571		1.4571			1.4571																																																																																	
Stem-Ø dF:			8, 10, 12		8, 10, 12			8, 10, 12																																																																																	
Screw fitting material:			1.4571		1.4571			1.4571																																																																																	
Order length:			L		L			L																																																																																	
Data sheet (suitable thermowell models):			8.8111 (SF4.1), 8.8113 (SF4.1F) 8.8130 (SF8), 8.8131 (SF9)		8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121 (SF6+SF7)			8.8110 (SF4), 8.8112 (SF4F) 8.8120 (SF5), 8.8121 (SF6+SF7)																																																																																	
Thread (dimensions in mm):			<table><tr><th>G</th><th>SW</th><th>i</th></tr><tr><td>G ½</td><td>27</td><td>10</td></tr><tr><td>G ¾</td><td>32</td><td>12</td></tr><tr><td>M 20 x 1.5</td><td>27</td><td>10</td></tr><tr><td>M 24 x 1.5</td><td>32</td><td>12</td></tr><tr><td>M 27 x 2</td><td>32</td><td>12</td></tr></table>		G	SW	i	G ½	27	10	G ¾	32	12	M 20 x 1.5	27	10	M 24 x 1.5	32	12	M 27 x 2	32	12	<table><tr><th>G</th><th>SW</th><th>i</th></tr><tr><td>G ½ B</td><td>27</td><td>20</td></tr><tr><td>G ¾ B</td><td>32</td><td>23</td></tr><tr><td>M 18 x 1.5</td><td>22</td><td>14</td></tr><tr><td>M 20 x 1.5</td><td>27</td><td>20</td></tr></table> Thermowell required!			G	SW	i	G ½ B	27	20	G ¾ B	32	23	M 18 x 1.5	22	14	M 20 x 1.5	27	20	<table><tr><th>G</th><th>SW</th><th>i</th></tr><tr><td>G ½ B</td><td>27</td><td>14</td></tr><tr><td>G ¾ B</td><td>32</td><td>16</td></tr><tr><td>½" NPT</td><td>27</td><td>19</td></tr><tr><td>¾" NPT</td><td>27</td><td>19</td></tr><tr><td>M 18 x 1.5</td><td>24</td><td>14</td></tr><tr><td>M 20 x 1.5</td><td>27</td><td>14</td></tr></table>			G	SW	i	G ½ B	27	14	G ¾ B	32	16	½" NPT	27	19	¾" NPT	27	19	M 18 x 1.5	24	14	M 20 x 1.5	27	14																									
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Process connection:			Male thread / compression			Male thread, turnable / double male adapter																																																																																			
Stem model:			A5 (= basic stem A1 with compression fitting)			A6 (= basic stem A3 with double male adapter)																																																																																			
Form according to DIN 13 190:			Form 2 (thread cylindrical) Form 3 (thread conical)			—																																																																																			
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G	SW1	SW2	i	Lk																																																																																					
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Minimum Stem Length, Active Length and maximum realisable Stem Length																																																																																									
Stem model: Length: Thread:			up to max. 500 °C			500 °C and above																																																																																			
			Stem-Ø dF:			Stem-Ø dF:																																																																																			
all models	La	all standard threads	12	10	8	12	10	8																																																																																	
			35	45	75	75	105	165																																																																																	
A1 A3 A4	Lmin	all standard threads	55	65	95	95	125	185																																																																																	
		G ½ B, M 18x1.5, M 20x1.5	49	59	89	89	119	179																																																																																	
A4.1	Lmin	G ¾ B	51	61	91	91	121	181																																																																																	
		½" NPT, ¾" NPT	54	64	94	94	124	184																																																																																	
A5	Lmin	all standard threads	90	100	130	130	160	220																																																																																	
		G ½ B, M 20x1.5	49	59	89	89	119	179																																																																																	
A6	L1min	G ¾ B, M24x1.5, M27x2	51	61	91	91	121	181																																																																																	
		½" NPT, ¾" NPT	54	64	94	94	124	184																																																																																	
others			upon request			upon request																																																																																			
The minimum length Lmin / L1min of the stem is the smallest possible stem length against the active length La (vessel) and the stem model. The active length La of the stem (vessel) has to immerse completely into the medium, to grant a measuring result, which corresponds to the accuracy class. The maximum realisable stem length is 2.50 m. Larger lengths are realisable with a capillary line, e. g. with special stems A3.2, A4.2 and A4.3																																																																																									

Ordering Information with Indication- and Temperature Ranges, Options

Basic Model:		Gas-actuated thermometers, rigid connection to stem	TGI
Case filling:	without		without code letters
	silicone oil		L
Nominal case size:	Case-Ø 63, 100, 160		63, 100, 160
Stem position / case configuration:	vertical bottom position		without code letters
	90° angled to the back		w
	obtuse-angled to the back		wst
	right-angled to the left		wl
	right-angled to the right		wr
	centre back position		rm
	centre back position, with back flange for surface mounting		rmRh
Temperature ranges:	scale:	Δ T (K):	
	0 — 80 °C	80	
	0 — 100 °C	100	e. g. 0-100 °C
	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. -30/+50 °C
	—20 / + 60 °C	80	
	—20 / + 80 °C	100	
	+50 / +300 °C	250	
	+50 / +400 °C	350	
	+100 / +500 °C	400	
Stem:	without screw fitting, plain stem		A1
	union nut		A3
	male thread, turnable		A4
	male thread, rigid		A4.1
	male thread / compression fitting		A5
	male thread, turnable / double-male adapter		A6
Stem-Ø dF:	6, 8, 10 or 12 mm		dF 8, 10, 12
Stem length:	L resp. L1 in mm	e. g.	L = 100 mm
Process connection:	see page 3	e. g.	G ½ B
Options:	red mark	on the dial	
	plastic clip	red or green external at crimped-on ring for NCS 100 and 160	
	stationary red pointer	on the dial	
		adjustable when removable ring	
	window	laminated safety glass	
		acrylic glass (PMMA)	
		polycarbonate (PC) (not NCS 250)	
	movement stainless steel		
	case ventilation no.22 for outdoor installation		
	case polished		
	bayonet ring polished		
	TGI 63, 100, 160	copy of the certificate upon request	
	TGIL 63, 100, 160		
	measuring point	stainless steel-plate 12 mm x 55 mm (0.47" x 2.17"), wire mounting or	
	marking	sticker on case coverage	
			<i>(order at the moment still as cleartext)</i>

Example:

TGI **100 w, 0-100 °C, A3, dF 8, L = 100 mm, G ½**

Special Versions: Please describe your requirements clearly