

# Gas-actuated Thermometers, Every Angle

TGelCh  
TGelChG

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

With nitrogen filling (inert gas, physiologically safe)

### Accuracy (DIN EN 13 190)

Class 1

### Case

With bayonet ring, stainless steel 1.4301 (304)

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

IP65

### Case Filling

For model TGelChG: silicone oil

### Nominal Case Sizes

63, 100, 160 mm (2½, 4, 6")

### Case Configuration

Connection temperature

sensor (stem):

pivot (every angle)

Stem position:

centre back position,  
compared to case approx.

135° adjustable and 360° turnable

Mounting device:

without

### 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 optionally: A1, A3, A4, A4.1, A5 or A6

Stem Ø dF: 8, 10 or 12 mm

Stem length L:

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, 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
- Stationary pointer or drag indicator with window made of polycarbonate upon request
- Case parts stainless steel 1.4404 (316L) upon request
- Model TGelCh for ambient temperatures to -60 °C upon request; Model TGelChG for ambient temperatures to -40 °C  
For ambient temperatures below -20 °C we recommend: thermometer with crimped-on ring case models TGelChg or TGelChgG
- GOST version for Russia, Ukraine, Kazakhstan, Belarus

## Accessories

Mechanical: thermowells, see data sheets 8.8110ff.  
Electronic: limit switch contact assemblies,  
see catalogue heading 9.1

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

**ARMANO**

ARMANO Messtechnik GmbH

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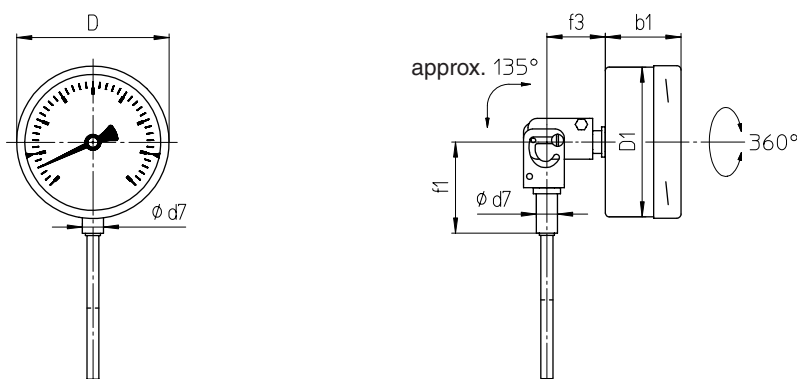
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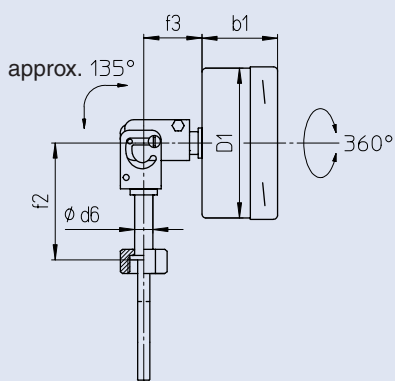
# Stem Position, Dimensional Data and Weights

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

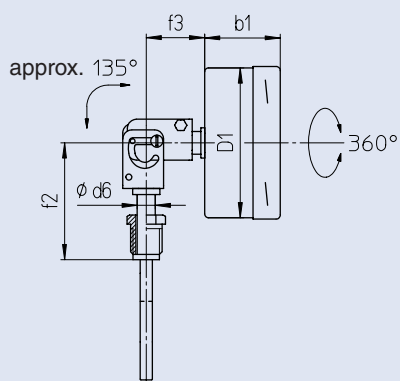
### Stem model A1 (also A5)



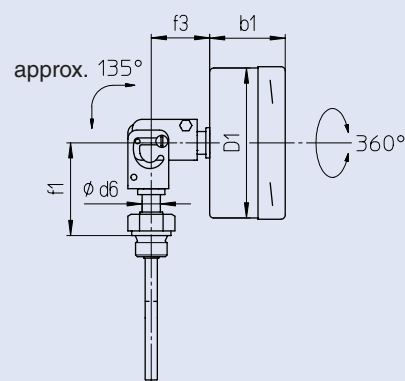
### Stem model A3 (also A6)



### Stem model A4



### Stem model A4.1



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

NCS	b1	D	D1	d6	d7	f1 <sup>1)</sup>	f2 <sup>1)</sup>	f3	approx. weight <sup>2)</sup>	
									TGeICh	TGeIChG
63	39	64	62	12	14	63	80	40	0.36	0.44
100	50	101	99	12	14	63	80	40	0.58	0.84
160	50	161	159	12	14	63	80	40	0.92	1.64

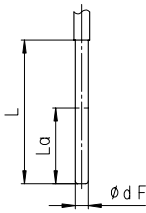
<sup>1)</sup> Temperature ranges  $\geq 400$  °C: extended dimension for small stem lengths, see T08-000-031

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

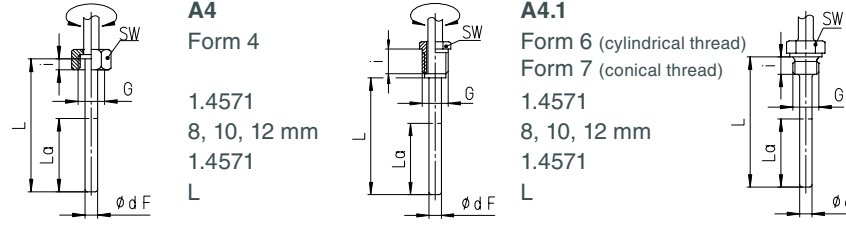
# Stem Models

## Stem Models

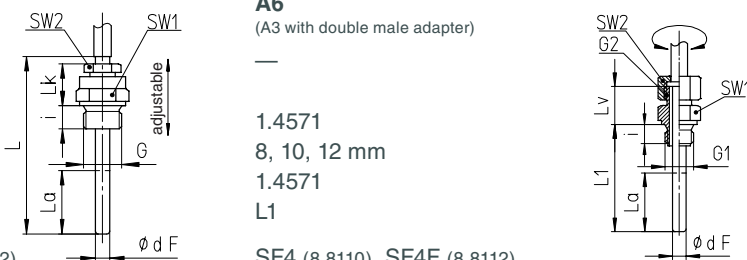
<b>Process connection:</b>	<b>Without screw fitting, plain stem</b>		
<b>Stem model:</b>	<b>A1</b>		
<b>Form acc. to DIN EN 13 190:</b>	Form 1		
<b>Stem material:</b>	1.4571		
<b>Stem Ø dF:</b>	8, 10, 12 mm		
<b>Order length:</b>	L		
<b>Suitable thermowell models:</b> (data sheet)	SK1 (8.8140), SK2 (8.8141)		



<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>A4</b>	<b>A4.1</b>																																																						
<b>Form acc. to DIN EN 13 190:</b>	Form 5	Form 4	Form 6 (cylindrical thread) Form 7 (conical thread)																																																						
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<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)																																																						
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<b>Stem model:</b>	<b>A5</b> (A1 with compression fitting)	<b>A6</b> (A3 with double male adapter)																																																																														
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## Minimum Stem Length, Active Length and Maximum Feasible Stem Length (mm)

Stem model:	Length:	Thread:	up to max. 500 °C			500 °C and above		
			Stem Ø dF:			Stem Ø dF:		
			12	10	8	12	10	8
<b>all models</b>	La	all standard threads	35	45	75	75	105	165
<b>A1/A3/A4</b>	Lmin	all standard threads	55	65	95	95	125	185
<b>A4.1</b>	Lmin	G 1/2 B, M18x1.5, M20x1.5	49	59	89	89	119	179
		G 3/4 B	51	61	91	91	121	181
		1/2" NPT, 3/4" NPT	54	64	94	94	124	184
<b>A5</b>	Lmin	all standard threads	90	100	130	130	160	220
<b>A6</b>	L1min	G 1/2 B, M20x1.5	49	59	89	89	119	179
		G 3/4 B, M24x1.5, M27x2	51	61	91	91	121	181
		1/2" NPT, 3/4" NPT	54	64	94	94	124	184
<b>others</b>			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.

The maximum feasible stem length is 2.50 m. With a capillary line, greater lengths are possible, e.g. with special stems A3.2, A4.2 and A4.3 (data sheet 8299.1).

## Ordering Information

Basic Model: Gas-actuated Thermometer Pivot (Every Angle) at the Stem		TGeICh
<b>Case filling:</b>	without silicone oil	without code letters <b>G</b>
<b>Nominal case size:</b>	case Ø 63, 100, 160 mm (2½, 4, 6")	<b>63, 100, 160</b>
<b>Stem position/ case configuration:</b>	centre back position, with pivot (every angle)	without code letters
<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	<b>A1</b>
	union nut	<b>A3</b>
	male thread, turnable	<b>A4</b>
	male thread, rigid	<b>A4.1</b>
	male thread/compression fitting	<b>A5</b>
	male thread, turnable/double male adapter	<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>G½B</b>
<b>Options:</b>	red mark on the dial	
	plastic clip red or green, external at the bayonet ring for NCS 100 and 160	
	stationary red on the dial	
	pointer adjustable with removable ring	
	window laminated safety glass	
	acrylic glass (PMMA)	
	polycarbonate (PC)	
	movement stainless steel	
	case ventilation no. 22 for outdoor installation	
	case polished	
	bayonet ring polished	
	instrument tag stainless steel plate 12 x 55 mm (0.47 x 2.17") with wire mounting or sticker upon the case	

**Example:**

TGeICh 100, 0–100 °C, A3, dF 8, L = 100 mm, M27x2

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