

# Gas-actuated Thermometers, Every Angle

Crimped-on ring case stainless steel, turnable and adjustable

**TGelChg**  
**TGelChgG**

## 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 304 (1.4301)

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

IP65

### Case Filling

For model TGelChgG: silicone oil

### Nominal Case Sizes

63, 80, 100, 160 mm (2½, 3, 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 centre back position

Pivot joint:

### Temperature Ranges (DIN EN 13 190)

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

### Temperature Sensor (Stem)

Made of stainless steel 316Ti (1.4571)

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 (0.31, 0.39 or 0.47")

Stem length L: from Lmin or L1min up to 2.50 m (8.2')

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
- Case parts stainless steel 316L (1.4404) upon request
- Model TGelChg for ambient temperatures to -60 °C (-76 °F); Model TGelChgG for ambient temperatures to -40 °C (-40 °F), to -60 °C (-76 °F) NCS 100 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

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### Location Wesel

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mail@armano-wesel.com

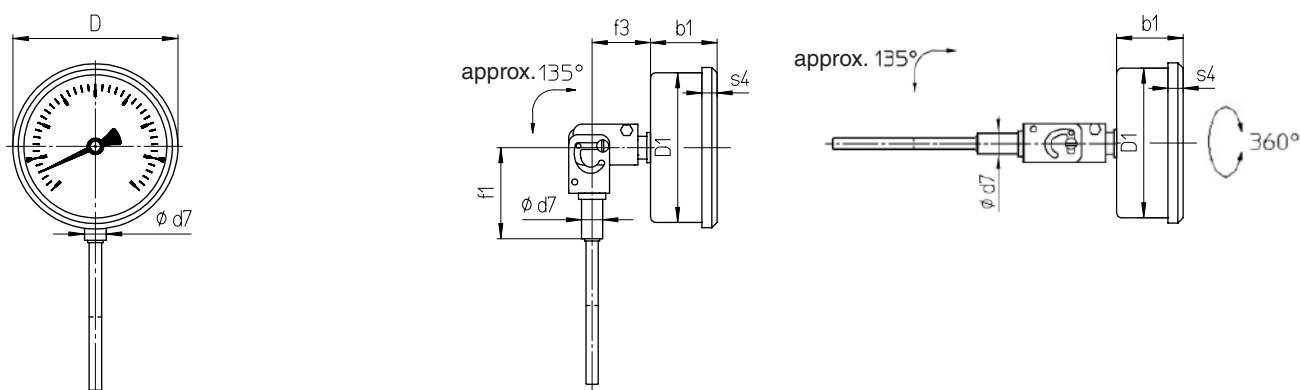
**8212**

08/20

# Stem Position, Dimensional Data and Weights

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

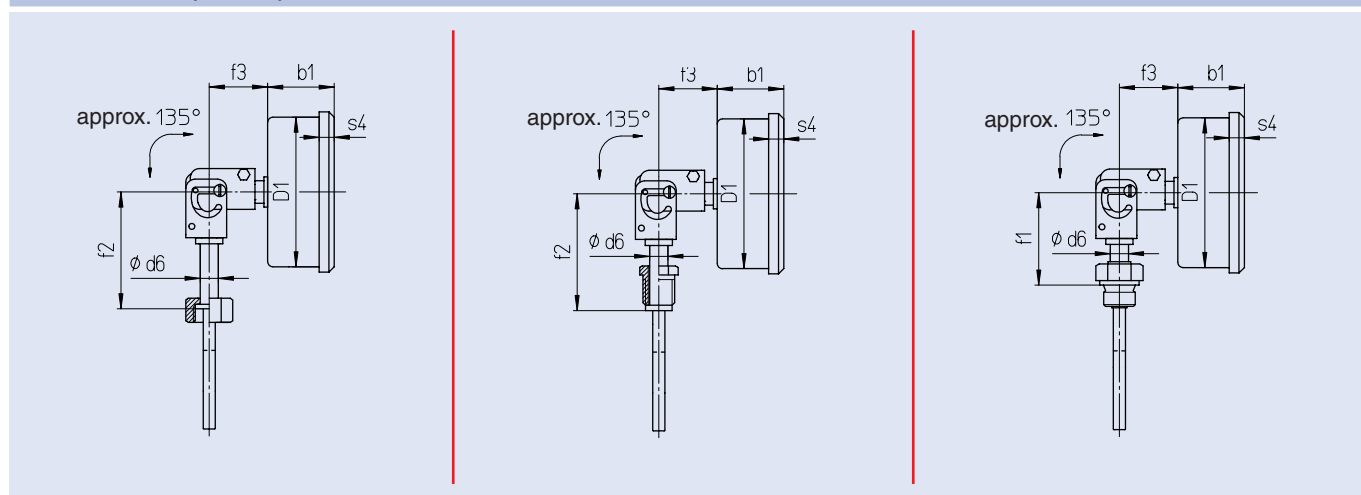
### Stem model A1 (also A5)



### Stem model A3 (also A6)

### Stem model A4

### Stem model A4.1



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

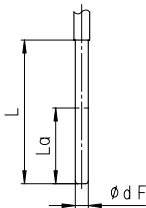
NCS	b1	D	D1	d6	d7	f1 <sup>1)</sup>	f2 <sup>1)</sup>	f3	s4	approx. weight <sup>2)</sup>	
										TGelChg	TGelChgG
63 2½"	39 1.54	67 2.64	62 2.44	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	8 0.31	0.35 0.77	0.43 0.95
80 3"	42 1.65	86 3.39	79 3.11	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	8 0.31	0.44 0.97	0.58 1.28
100 4"	43 1.69	106 4.17	99 3.9	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	10 0.39	0.55 1.21	0.75 1.65
160 6"	51 2	167 6.57	159 6.26	12 0.47	14 0.55	60 2.36	78 3.07	37 1.46	11 0.43	0.88 1.94	1.6 3.53

<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 A1,  $\phi$  10 mm (0.39"), length 200 mm (7.87")

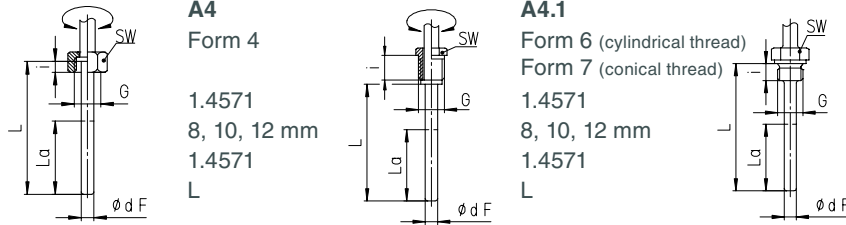
# Stem Models

## Stem Models

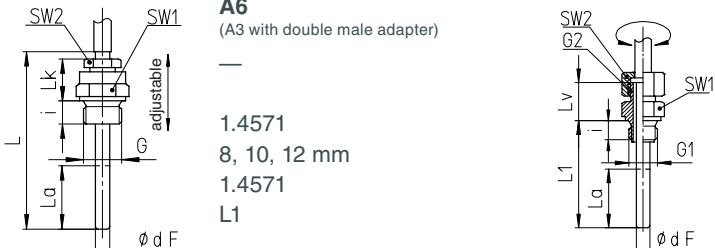
<b>Process connection:</b>	<b>Without screw fitting, plain stem</b>		
<b>Stem model:</b>	<b>A1</b>		
<b>Form acc. to DIN EN 13 190:</b>	Form 1		
<b>Stem material:</b>	1.4571		
<b>Stem Ø dF:</b>	8, 10, 12 mm		
<b>Order length:</b>	L		
<b>Suitable thermowell models:</b> (data sheet)	SK1 (8.8140), SK2 (8.8141)		



<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)																																																						
<b>Stem material:</b>	1.4571	1.4571	1.4571																																																						
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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/inch)

Stem model:	Length:	Thread:	up to max. 500 °C (932 °F)			500 °C (932 °F) and above		
			Stem Ø dF:			Stem Ø dF:		
			12 (0.47")	10 (0.39")	8 (0.31")	12 (0.47")	10 (0.39")	8 (0.31")
all models	La	all standard threads	35	45	75	75	105	165
			<b>1.38</b>	<b>1.77</b>	<b>2.95</b>	<b>2.95</b>	<b>4.13</b>	<b>6.5</b>
A1/A3/A4	Lmin	all standard threads	55	65	95	95	125	185
			<b>2.17</b>	<b>2.56</b>	<b>3.74</b>	<b>3.74</b>	<b>4.92</b>	<b>7.28</b>
A4.1	Lmin	G½B, M18x1.5, M20x1.5	49	59	89	89	119	179
			<b>1.93</b>	<b>2.32</b>	<b>3.5</b>	<b>3.5</b>	<b>4.69</b>	<b>7.05</b>
		G¾B	51	61	91	91	121	181
			<b>2</b>	<b>2.4</b>	<b>3.58</b>	<b>3.58</b>	<b>4.76</b>	<b>7.13</b>
½" NPT, ¾" NPT	54	64	94	94	124	184		
	<b>2.13</b>	<b>2.52</b>	<b>3.7</b>	<b>3.7</b>	<b>4.88</b>	<b>7.24</b>		
A5	Lmin	all standard threads	90	100	130	130	160	220
			<b>3.54</b>	<b>3.94</b>	<b>5.12</b>	<b>5.12</b>	<b>6.3</b>	<b>8.66</b>
A6	L1min	G½B, M20x1.5	49	59	89	89	119	179
			<b>1.93</b>	<b>2.32</b>	<b>3.5</b>	<b>3.5</b>	<b>4.69</b>	<b>7.05</b>
		G¾B, M24x1.5, M27x2	51	61	91	91	121	181
			<b>2</b>	<b>2.4</b>	<b>3.58</b>	<b>3.58</b>	<b>4.76</b>	<b>7.13</b>
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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.

The maximum feasible stem length is 2.50 m (8.2').  
With a capillary line, greater lengths are possible, e.g. with special stems A3.2, A4.2 and A4.3 (data sheet 8299.1).

