

# Gas-in-Metal Expansion Thermometers

## Process Industry Series with Adjustable Stem and Dial • Model 73

### Thermometers

#### Service intended

All stainless steel thermometer. Suitable for corrosive media and environments in chemical process, petroleum and food industry. The instruments meet the highest standards of measurement technique.

#### Nominal size

100 and 160 mm

#### Temperature element

Inert gas expansion system (non-toxic)

#### Accuracy

Class 1 per DIN 16 203

#### Working range

Permanent: measuring range per DIN 16 203  
Short time ( $\leq 1$  h): 1.2 x measuring range per DIN 16 203,  
> 500 °C 1.1 x measuring range per DIN 16 203

#### Pressure rating of stem

25 bar maximum (without thermowell)

#### Nominal use

See DIN 16 203

#### Degree of protection

IP 56 per EN 60 529 / IEC 529

#### Standard features

##### Location of stem

Centre back

##### Case

Rotatable on stem 360°  
Stem adjustable every angle  
Material: stainless steel

##### Bezel

Cam ring (bayonet type) bezel, natural finish stainless steel

##### Connection

Plain stem, stainless steel 1.4571

##### Stem

8 mm diameter, stainless steel 1.4571  
The active length of the stem depends upon the diameter and the scale range.

##### Dial

White aluminium with black lettering per DIN 16 203

##### Pointer

Adjustable black aluminium pointer

##### Window

Instrument glass

#### Optional extras

- Liquid damping
- Other scale ranges; scale °F, K; dual scale °F/°C, °C/°F or other
- Stem with integral thread connection or other connections
- Stem 6, 10 or 12 mm diameter
- Window of safety glass or non-splintering plastic
- Thermowells per DIN (see data sheet TM 90.01 and TM 90.03) or to user specifications
- Alarm contacts (see data sheet AE 08.01)



Scale-, measuring ranges<sup>1)</sup>, limits of error per DIN 16 203, class 1

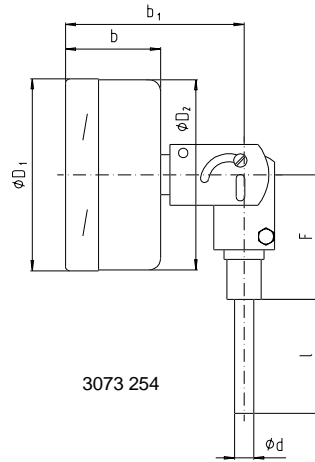
Scale range °C	Scale spacing °C	Measuring range <sup>1)</sup> °C	Limit of error °C
- 80 ... + 60	2	- 60 ... + 40	2
- 60 ... + 40	1	- 50 ... + 30	1
- 40 ... + 60		- 30 ... + 50	
- 30 ... + 50		- 20 ... + 40	
- 20 ... + 60		- 10 ... + 50	
- 20 ... + 80		- 10 ... + 70	
0 ... 60		- 10 ... + 50	
0 ... 80	+ 10 ... + 70	2	
0 ... 100	+ 10 ... + 90		
0 ... 120	+ 20 ... + 100		
0 ... 160	2	+ 20 ... + 140	2
0 ... 200		+ 20 ... + 180	
0 ... 250		+ 30 ... + 220	
0 ... 300	5	+ 30 ... + 270	2.5
0 ... 400		+ 50 ... + 350	
0 ... 500		+ 50 ... + 450	
0 ... 600		+ 100 ... + 500	
0 ... 700	10	+ 100 ... + 600	10

#### Models

Model	Nominal size	Location of stem / Case
S 7304	100	Centre back / adjustable every angle
S 7305	160	

1) The measuring range is indicated on the dial by two triangular marks.  
Within this range the stated limit of error is valid according to DIN 16 203.

## Dimensions



Nominal size	Dimensions in mm										Weight in kg
	alarm contacts of model 811, 821 or 831						d	D <sub>1</sub>	D <sub>2</sub>	F	
	without		1 or 2		3						
b	b <sub>1</sub>	b	b <sub>1</sub>	b	b <sub>1</sub>						
100	50	93	88	131	—	—	8 <sup>1)</sup>	101	99	68	1.300
160					97	140					

1) Option: stem diameter 6, 10, 12 mm

### Design of connection per DIN

#### Connection no. 1

Plain stem

Length of stem  $l = 140, 200, 240$  or  $290$  mm

Stainless steel 1.4571

To fit compression fitting of connection no. 4

#### Connection no. 2

Male nut  $G \frac{1}{2} A$

Length of stem  $l_1 = 80, 140, 180$  or  $230$  mm

Stainless steel 1.4571

To fit DIN thermowells of form BD, BE, BS

#### Connection no. 3

- Union nut  $G \frac{1}{2}$  or  $G \frac{3}{4}$

Length of stem  $l_1 = 89, 126, 186, 226$  or  $276$  mm

Stainless steel 1.4571

To fit DIN thermowells of form CD, CE, CS

- Union nut  $M 24 \times 1.5$  suitable to DIN 43 763 (stem 6 mm diameter only)

#### Connection no. 4

Compression fitting (sliding on stem)

$G \frac{1}{2} A, G \frac{3}{4} A, M 18 \times 1.5, \frac{1}{2} NPT$  or  $\frac{3}{4} NPT$

Minimum insertion  $l_{min}$

(depends upon stem-diameter  $d$  and scale range)

Guiding values with stem-diameter  $d = 8$  mm:

$l_{min}$  approx. 100 mm for scale ranges  $\geq 0 \dots 120$  °C

$l_{min}$  approx. 150 mm for scale ranges  $\leq 0 \dots 100$  °C

Length of stem  $l_1 =$  variable

Length  $L = l_1 + 40$  mm

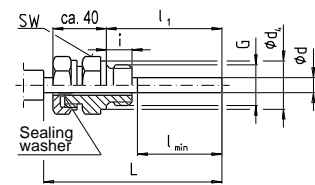
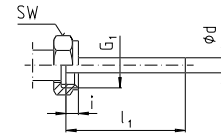
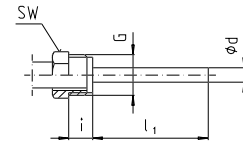
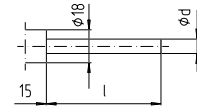
Stainless steel 1.4571

### Dimensions in mm

Male thread G	SW	i
$G \frac{1}{2} A$	27	20

Female thread G <sub>1</sub>	SW	i
$G \frac{1}{2}$	27	8.5
$G \frac{3}{4}$	32	10.5
$M 24 \times 1.5$	32	13.5

Male thread G	SW	d <sub>4</sub>	i
$G \frac{1}{2} A$	27	26	14
$G \frac{3}{4} A$	32	32	16
$M 18 \times 1.5$	24	23	12
$\frac{1}{2} NPT$	22	—	19
$\frac{3}{4} NPT$	30	—	20



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### Ordering information

State: Model / Nominal size / Scale range / No. and size of connection / Length of stem  $l, l_1$  / Optional extras required

Specifications and dimensions given in this leaflet are correct at the time of printing.

Modifications may take place and materials specified may be replaced by others without prior notice.



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