

Bimetal thermometer

Chemical version

With or without damping

Nominal size 3", 5"

Accuracy class 1



Description

The measuring element of the bimetal thermometer is a quick reacting bimetal coil. It is manufactured from two cold-welded metal strips with different thermal expansion coefficients and rotates in proportion to temperature. The rotary movement is conveyed to the pointer with low friction.

A version with liquid damping is available as an option for service at measuring points subject to strong vibration. The filling damps the measuring system when mechanical vibrations occur, thus producing a steady indication. At the same time, good lubrication of the moving parts is achieved.

A version with rotateable (360°) and turnable case (90°) allow the thermometer to be aligned as desired under all installation conditions.

In conjunction with a corresponding thermowell, these thermometers can also be used with aggressive media.

A comprehensive range of standard versions enables a wide range of applications and uses. The case sizes are available in 3inch and 5inch. Special versions are also manufactured to customer specifications.

Features

- Short response time
- Nominal sizes 3" and 5"
- Large selection of standard versions
- Customized versions available
- For aggressive media
- Filled versions for measuring points with high vibrations
- Models with turnable and rotateable connection

Measuring ranges

-70 ... 30 °C up to 0 ... 500°C

Applications



Chemical and petrochemical industry

Process engineering

Food industry

Models: TM304, TM305, TM307, TM308

Technical data

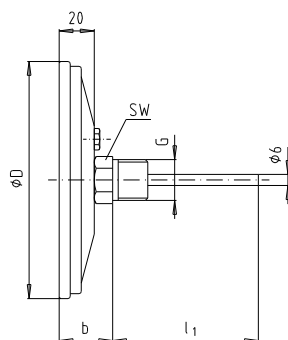
| Model | TM304 | TM307 | TM305 | TM308 | Optionen |
|-----------------------|--|------------|--|------------|--|
| |  | |  | | |
| Nopminal size | 3" (76mm) | 5" (127mm) | 3" (76mm) | 5" (127mm) | |
| Accuracy | Class1 acc. to EN 13190 | | | | |
| Scale range | -70 ... 30 °C | | | | Other ranges Scale °F Double Scale °C/°F 2) |
| Limits of error | -50 ... 50 °C | | 1 °C | | |
| | -30 ... 50 °C | | | | |
| | -20 ... 60 °C | | | | |
| | 0 ... 60 °C | | 0.5 °C | | |
| | 0 ... 80 °C | | | | |
| | 0 ... 100 °C | | | | |
| | 0 ... 120 °C | | 1 °C | | |
| | 0 ... 160 °C | | | | |
| | 0 ... 200 °C | | 2 °C | | |
| | 0 ... 250 °C | | | | |
| | 0 ... 300 °C | | | | |
| | 0 ... 400 °C | | 5 °C | | |
| | 0 ... 500 °C | | | | |
| Scale angle | appr. 270 ° | | | | |
| Range of use | Constant load (1 year): Measuring range (DIN EN 13190) Short time (≤ 24h): Scale range (DIN EN 13190) | | | | |
| Max. pressure at stem | Max. 25 bar statical | | | | |
| Measuring element | Bimetal coil | | | | |
| Zero adjustment | Back of case, externally | | | | |
| Material case/stem | Stainless steel | | | | |
| Process connection | Back mount | | Turnable/rotateable | | |
| Window | Instrument glass | | | | Safety glass |
| Dial | Aluminium, white - marking and scale, black | | | | |
| Pointer | Aluminium, black | | | | |
| Ingress protection | IP 65 (EN 60529/ IEC 529) | | | | |
| Weight (kg) | 0.3 | 0.4 | 0.4 | 0.5 | |

1) $T_{\max} = 250^{\circ}\text{C}$ for thermometers with damping

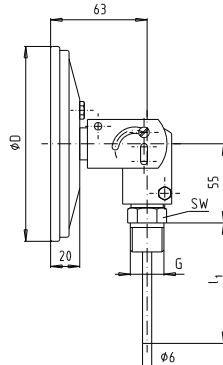
2) Design of connection according to DIN, see table on page 3; Thermowells per DIN, see data sheet DE 1060

Dimensions (mm)

Model TM304, TM307

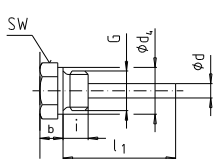
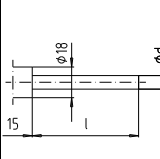
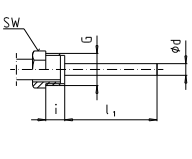
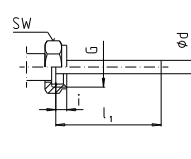
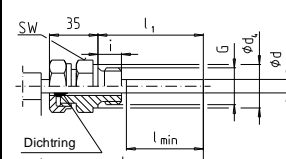


Model TM305, TM308



| Model | Dimensions (mm) | | | | |
|--------------|-----------------|-----|-----|------|------|
| | D (NG) | b | | | |
| | | G½A | G¼A | ½NPT | ¼NPT |
| TM304, TM305 | 3" (76mm) | 35 | 32 | 35 | 28 |
| TM307, TM308 | 5" (127mm) | 35 | 32 | 35 | 28 |

Design of connection

| | Male thread | | | Plain stem | Male nut | Union nut | Compression fitting, sliding on stem | | | | | | | | |
|----------------------------------|---|------|--------|---|---|--|---|----|---------|----|------|---------|----|----|----|
| Stem-length l_1 | 63 mm | 2.5" | 140 mm | 80 mm | 89 mm | variable minimum insertion length $l_{\min} = 60 \text{ mm}$ Length $l \geq l_1 + 35 \text{ mm}$ | | | | | | | | | |
| | 100 mm | 4" | 200 mm | 140 mm | 126 mm | | | | | | | | | | |
| | 150 mm | 6" | 240 mm | 180 mm | 186 mm | | | | | | | | | | |
| | 225 mm | 9" | 290 mm | 230 mm | 226 mm | | | | | | | | | | |
| | 305 mm | 12" | | | 276 mm | | | | | | | | | | |
| | 380 mm | 15" | | | | | | | | | | | | | |
| | 455 mm | 18" | | | | | | | | | | | | | |
| | 610 mm | 24" | | | | | | | | | | | | | |
| Dimensions |  | | |  |  |  |  | | | | | | | | |
| Stem diameter $\varnothing d$ | Standard: 6 mm Option: 8, 10mm | | | | | | | | | | | | | | |
| Thread and dimensions [mm] | | SW | d4 | i | | | SW | i | | SW | d4 | i | | | |
| | G ½ | 27 | 26 | 14 | | G ½ | 27 | 20 | G ½ | 27 | 8,5 | G ½ | 27 | 26 | 14 |
| | G ¼ | 22 | 18 | 12 | | | | | G ¾ | 32 | 10.5 | G ¾ | 32 | 32 | 16 |
| | ½ NPT | 22 | - | 19 | | | | | M24x1.5 | 32 | 13.5 | M18x1.5 | 24 | 23 | 12 |
| | ¼ NPT | 17 | - | 15 | | | | | | | | ½ NPT | 22 | - | 19 |
| | | | | | | | | | | | | ¾ NPT | 30 | - | 20 |
| | Not possible with connection turnable / rotateable | | | | | | | | | | | | | | |

Order details

1. Model
2. Range
3. Design of connection
4. Stem length l_1
5. Thread
6. Options

Subject to technical modifications