



## Main Features

- For corrosive gasses and liquids
- Class 1 and 2 according to EN 13190
- Wetted parts Stainless steel
- Option : case material 1.4404 (316L) for aggressive atmosphere

## Applications

- Food & Beverage
- Oil & Gas / Chemical
- Water & Waste water
- Energy
- Machinery

## Technical Data

|                    |                                                                                            |
|--------------------|--------------------------------------------------------------------------------------------|
| Nominal size       | 80, 100, 130, 160 mm                                                                       |
| Temperature ranges | -70 ... 600°C / -100 ... 1100°F                                                            |
| Accuracy           | According to EN 13190<br>up to 250°C: class 1<br>above 250°C: class 2 (class 1 on request) |
| Protection rating  | IP 67 (EN 60529)                                                                           |
| Immersion tube     | Stainless steel 1.4571 (AISI 316Ti)                                                        |
| Case               | Stainless steel 1.4301 (AISI 304)                                                          |
| Bezel ring         | Stainless steel 1.4301 (AISI 304)                                                          |
| Window             | Instrument glass                                                                           |
| Window gasket      | Elastomer                                                                                  |

|                          |                                                                        |
|--------------------------|------------------------------------------------------------------------|
| Dial                     | Aluminium, white                                                       |
| Pointer                  | Aluminium, black, adjustable                                           |
| Minimum immersion length | Immersion tube Ø 6 mm: L2 ≥ 65 mm<br>Immersion tube Ø 8 mm: L2 ≥ 50 mm |
| Temperature limit        | ranges ≤ 400°C: 135% F.S.<br>ranges > 400°C: 100% F.S.                 |
| ATEX                     | Ex II2GDc<br>(with option 0078)                                        |

## Options

|                                                          |                |
|----------------------------------------------------------|----------------|
| ATEX II2GDc<br>(Including window laminated safety glass) | Code 0078      |
| Stainless steel housing 1.4404 (316L) <sup>(1)</sup>     | Code 0110      |
| Dampening grease                                         | Code 0581      |
| Zero adjustment by knob on the backside <sup>(2)</sup>   | Code 0727      |
| Laminated safety glass                                   | Code 0751      |
| Acrylic glass (PMMA or Plexiglass) <sup>(3)</sup>        | Code 0752      |
| Window polycarbonate <sup>(4)</sup>                      | Code 0753      |
| Silicon free, label marking                              | Code 0793      |
| Silicon free, marking on dial                            | Code 0794      |
| Customer specific immersion length <sup>(5)</sup>        | Code 9003_xxxx |
| Red mark                                                 | Code 9700      |
| Specific temperature range                               | Code 9704      |
| Customer logo on dial                                    | Code 9710      |
| Specific technical data on dial                          | Code 9711      |

<sup>(1)</sup> Only NS 100 and NS 130.

<sup>(2)</sup> Only center back and every angle.

<sup>(3)</sup> The case must not be constantly heated over 75°C.

<sup>(4)</sup> Only center back and every angle, not for NS 160.

<sup>(5)</sup> xxxx = L1 in mm.

## Additional ordering codes for specific process connections

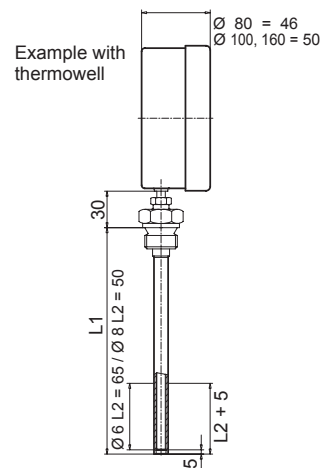
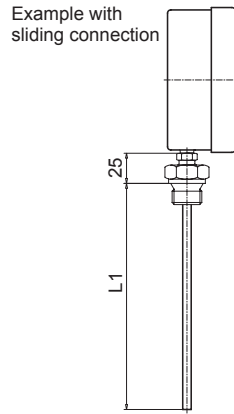
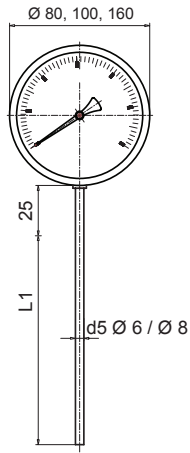
|                    | Sliding | Fix  |
|--------------------|---------|------|
| G 1/4" male        | 9550    | 9551 |
| 1/4" - 18 NPT male | 9560    | 9561 |
| 3/4" - 14 NPT male | 9562    | 9563 |
| 1" - 11.5 NPT male | 9564    | 9565 |
| M18 x 1.5 male     | 9574    | 9575 |
| M27 x 2.0 male     | 9576    | 9577 |
| M20 x 1.5 female   | 9584    | -    |
| M24 x 1.5 female   | 9586    | -    |

To be used with ordering code = 0 for specific connection  
Example: TBI 100 204.162.12T / **9550**

## To be ordered separately

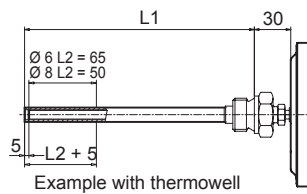
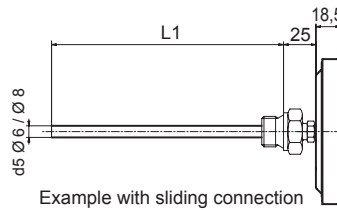
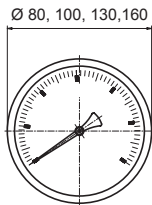
|                                    |          |
|------------------------------------|----------|
| Material certificate 3.1 EN 10204  | 90001132 |
| Calibration certificate (3 points) | 90001188 |

**Drawing - Immersion tube bottom (dimensions in mm)**



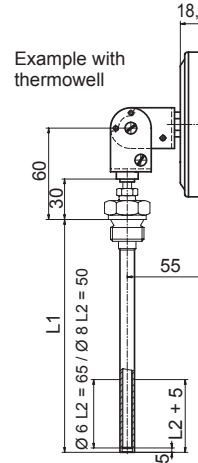
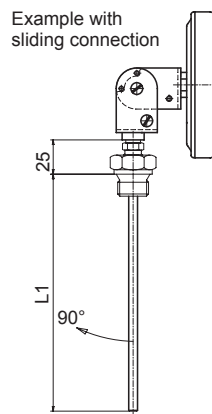
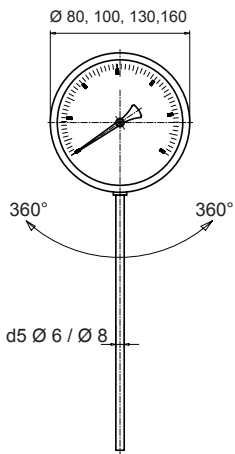
| NS                    | Weight (kg) |
|-----------------------|-------------|
| 80                    | 0.250       |
| 100                   | 0.300       |
| 160                   | 0.700       |
| <b>Add per 100 mm</b> |             |
| Ø 6 mm                | 0.007       |
| Ø 8 mm                | 0.017       |

**Drawing - Immersion tube center back (dimensions in mm)**



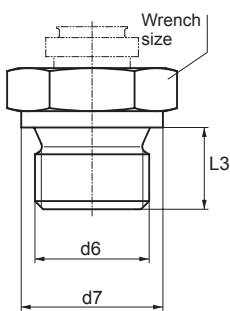
| NS                    | Weight (kg) |
|-----------------------|-------------|
| 80                    | 0.110       |
| 100                   | 0.160       |
| 130                   | 0.300       |
| 160                   | 0.450       |
| <b>Add per 100 mm</b> |             |
| Ø 6 mm                | 0.007       |
| Ø 8 mm                | 0.017       |

**Drawing - Immersion tube center back, every angle (dimensions in mm)**

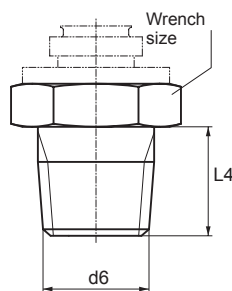


| NS                    | Weight (kg) |
|-----------------------|-------------|
| 80                    | 0.300       |
| 100                   | 0.350       |
| 130                   | 0.470       |
| 160                   | 0.610       |
| <b>Add per 100 mm</b> |             |
| Ø 6 mm                | 0.007       |
| Ø 8 mm                | 0.017       |

**Drawings - connections**



Cylindrical screw threads



Conical screw threads

| d6                   | d7 | L3 | L4 | Wrench size | Weight (kg) |       |
|----------------------|----|----|----|-------------|-------------|-------|
|                      |    |    |    |             | sliding     | fix   |
| G 1/2", male         | 26 | 15 | -  | 27          | 0.095       | 0.090 |
| G 3/4", male         | 32 | 16 | -  | 32          | 0.150       | 0.140 |
| G 1", male           | 39 | 19 | -  | 41          | 0.210       | 0.240 |
| M 20 x 1.5, male     | 27 | 14 | -  | 27          | 0.090       | 0.090 |
| M 24 x 1.5, male     | 27 | 15 | -  | 27          | 0.110       | 0.110 |
| 1/2" - 14 NPT", male | -  | -  | 20 | 27          | 0.095       | 0.100 |

## Temperature ranges

| Code              | Range<br>°C | Code | Range<br>°F  | Code | Range (double scale)<br>°C / °F |
|-------------------|-------------|------|--------------|------|---------------------------------|
| 53T <sup>1)</sup> | -10 ... 30  | 68U  | -100 ... 120 | 51V  | -30 ... 70 / -40 ... 160        |
| 52T               | -20 ... 40  | 09U  | -50 ... 120  | 68V  | -70 ... 50 / -100 ... 100       |
| 54T               | -20 ... 60  | 08U  | -40 ... 160  | 55V  | -30 ... 170 / 0 ... 350         |
| 84T               | -20 ... 100 | 54U  | 0 ... 140    | 11V  | 0 ... 60 / 30 ... 140           |
| 55T               | -30 ... 170 | 02U  | 0 ... 200    | 20V  | 0 ... 120 / 30 ... 250          |
| 51T               | -30 ... 70  | 03U  | 0 ... 250    | 13V  | 0 ... 160 / 30 ... 320          |
| 68T               | -70 ... 50  | 04U  | 0 ... 300    | 14V  | 0 ... 250 / 30 ... 500          |
| 10T <sup>1)</sup> | 0 ... 40    | 05U  | 0 ... 400    | 15V  | 0 ... 400 / 30 ... 750          |
| 11T               | 0 ... 60    | 06U  | 0 ... 500    | 16V  | 0 ... 600 / 100 ... 1100        |
| 27T               | 0 ... 80    | 11U  | 30 ... 140   |      |                                 |
| 12T               | 0 ... 100   | 20U  | 30 ... 250   |      |                                 |
| 20T               | 0 ... 120   | 13U  | 30 ... 320   |      |                                 |
| 13T               | 0 ... 160   | 22U  | 30 ... 400   |      |                                 |
| 22T               | 0 ... 200   | 23U  | 30 ... 580   |      |                                 |
| 14T               | 0 ... 250   | 15U  | 30 ... 750   |      |                                 |
| 23T               | 0 ... 300   | 28U  | 100 ... 800  |      |                                 |
| 15T               | 0 ... 400   | 29U  | 200 ... 1000 |      |                                 |
| 25T               | 0 ... 500   |      |              |      |                                 |
| 16T               | 0 ... 600   |      |              |      |                                 |
| 30T               | 100 ... 500 |      |              |      |                                 |

<sup>1)</sup> Only center back version, NS 80 and NS 100, max. immersion length 160 mm

## Ordering example with options

|                                                             | TBI | 100 | - | 2 | 1 | 1 | . | 1 | 4 | 0 | . | 12T | / | 9003 | - | 0130 | - | 0078 |
|-------------------------------------------------------------|-----|-----|---|---|---|---|---|---|---|---|---|-----|---|------|---|------|---|------|
| All stainless steel bimetal thermometer                     | ←   |     |   |   |   |   |   |   |   |   |   |     |   |      |   |      |   |      |
| Nominal size 100 mm                                         |     | ←   |   |   |   |   |   |   |   |   |   |     |   |      |   |      |   |      |
| Case material stainless steel 1.4301 (AISI 304)             |     |     | ← |   |   |   |   |   |   |   |   |     |   |      |   |      |   |      |
| Without connection (direct mounting)                        |     |     |   | ← |   |   |   |   |   |   |   |     |   |      |   |      |   |      |
| Immersion tube outlet: Bottom                               |     |     |   |   | ← |   |   |   |   |   |   |     |   |      |   |      |   |      |
| Indication EN 13190 (standard)                              |     |     |   |   |   | ← |   |   |   |   |   |     |   |      |   |      |   |      |
| Immersion tube Ø 6 mm, stainless steel 1.4571 (AISI 316 Ti) |     |     |   |   |   |   | ← |   |   |   |   |     |   |      |   |      |   |      |
| Immersion length (L1) customer specific                     |     |     |   |   |   |   |   | ← |   |   |   |     |   |      |   |      |   |      |
| Temperature range: 0 ... 100°C                              |     |     |   |   |   |   |   |   | ← |   |   |     |   |      |   |      |   |      |
| Option: Customer specific immersion length                  |     |     |   |   |   |   |   |   |   | ← |   |     |   |      |   |      |   |      |
| Option: Immersion length L1 = 130 mm                        |     |     |   |   |   |   |   |   |   |   | ← |     |   |      |   |      |   |      |
| Option: ATEX Version with laminated safety glass included   |     |     |   |   |   |   |   |   |   |   |   | ←   |   |      |   |      |   |      |

## Ordering details TBI

|                                                                   | TBI |  |   | - | 2 |   |  | . | 1 |  |  | . | xxx | / |
|-------------------------------------------------------------------|-----|--|---|---|---|---|--|---|---|--|--|---|-----|---|
| <b>Model</b>                                                      |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| All stainless steel Industrial Bimetal Thermometer                | TBI |  |   |   |   |   |  |   |   |  |  |   |     |   |
| <b>Nominal size</b>                                               |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| 80 mm                                                             |     |  | 0 | 8 | 0 |   |  |   |   |  |  |   |     |   |
| 100 mm                                                            |     |  | 1 | 0 | 0 |   |  |   |   |  |  |   |     |   |
| 130 mm                                                            |     |  | 1 | 3 | 0 |   |  |   |   |  |  |   |     |   |
| 160 mm                                                            |     |  | 1 | 6 | 0 |   |  |   |   |  |  |   |     |   |
|                                                                   |     |  |   |   |   | - |  |   |   |  |  |   |     |   |
| <b>Case</b>                                                       |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| Stainless steel 1.4301 (AISI 304)                                 |     |  |   |   |   | 2 |  |   |   |  |  |   |     |   |
| <b>Connection</b>                                                 |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| <b>Without connection (direct mounting)</b>                       |     |  |   |   |   |   |  |   | 1 |  |  |   |     |   |
| <b>With sliding connection:</b>                                   |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| Sliding screw connection M20 x 1.5, male <sup>(3)</sup>           |     |  |   |   |   | 2 |  |   |   |  |  |   |     |   |
| Sliding screw connection M24 x 1.5, male <sup>(3)</sup>           |     |  |   |   |   | 3 |  |   |   |  |  |   |     |   |
| Sliding screw connection G ½", male <sup>(3)</sup>                |     |  |   |   |   | 5 |  |   |   |  |  |   |     |   |
| Sliding screw connection ½"-14 NPT, male <sup>(4)</sup>           |     |  |   |   |   | 6 |  |   |   |  |  |   |     |   |
| Sliding screw connection G ¾", male <sup>(3)</sup>                |     |  |   |   |   | 7 |  |   |   |  |  |   |     |   |
| Sliding screw connection G 1", male <sup>(3)</sup>                |     |  |   |   |   | 8 |  |   |   |  |  |   |     |   |
| Sliding screw connection G ½", female                             |     |  |   |   |   | 9 |  |   |   |  |  |   |     |   |
| Sliding screw connection G ¾", female                             |     |  |   |   |   | A |  |   |   |  |  |   |     |   |
| Sliding screw connection G 1", female                             |     |  |   |   |   | B |  |   |   |  |  |   |     |   |
| <b>With fix connection: <sup>(1)</sup></b>                        |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| Fix screw connection G ½", male <sup>(1) (5)</sup>                |     |  |   |   |   | C |  |   |   |  |  |   |     |   |
| Fix screw connection G ¾", male <sup>(1) (5)</sup>                |     |  |   |   |   | D |  |   |   |  |  |   |     |   |
| Fix screw connection G 1", male <sup>(1) (5)</sup>                |     |  |   |   |   | E |  |   |   |  |  |   |     |   |
| Fix screw connection M20 x 1.5, male <sup>(1) (5)</sup>           |     |  |   |   |   | S |  |   |   |  |  |   |     |   |
| Fix screw connection M24 x 1.5, male <sup>(1) (5)</sup>           |     |  |   |   |   | T |  |   |   |  |  |   |     |   |
| Fix screw connection ½"-14 NPT, male <sup>(1) (6)</sup>           |     |  |   |   |   | Q |  |   |   |  |  |   |     |   |
| <b>Specific connection (additional code needed, see page 1)</b>   |     |  |   |   |   | 0 |  |   |   |  |  |   |     |   |
| <b>Immersion tube outlet</b>                                      |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| Bottom                                                            |     |  |   |   |   |   |  |   | 1 |  |  |   |     |   |
| Center back                                                       |     |  |   |   |   |   |  |   | 2 |  |  |   |     |   |
| Center back, every angle                                          |     |  |   |   |   |   |  |   | 4 |  |  |   |     |   |
|                                                                   |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| <b>Indication</b>                                                 |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| EN 13190 (Standard)                                               |     |  |   |   |   |   |  |   | 1 |  |  |   |     |   |
| <b>Immersion tube / diameter / material</b>                       |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| Ø 6 mm, stainless steel 1.4571 (AISI 316 Ti)                      |     |  |   |   |   |   |  |   |   |  |  | 4 |     |   |
| Ø 8 mm, stainless steel 1.4571 (AISI 316 Ti)                      |     |  |   |   |   |   |  |   |   |  |  | 6 |     |   |
| <b>Immersion tube / installed length L1</b>                       |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| 60 mm <sup>(2)</sup>                                              |     |  |   |   |   |   |  |   |   |  |  | 1 |     |   |
| 100 mm                                                            |     |  |   |   |   |   |  |   |   |  |  | 2 |     |   |
| 160 mm                                                            |     |  |   |   |   |   |  |   |   |  |  | 4 |     |   |
| 250 mm                                                            |     |  |   |   |   |   |  |   |   |  |  | 6 |     |   |
| 400 mm                                                            |     |  |   |   |   |   |  |   |   |  |  | 7 |     |   |
| 600 mm                                                            |     |  |   |   |   |   |  |   |   |  |  | 8 |     |   |
| 1000 mm                                                           |     |  |   |   |   |   |  |   |   |  |  | 9 |     |   |
| Customer specific length (use option 9003_ xxxx, xxxx = L1 in mm) |     |  |   |   |   |   |  |   |   |  |  | 0 |     |   |
| <b>Unit of measurement / Temperature ranges <sup>(7)</sup></b>    |     |  |   |   |   |   |  |   |   |  |  |   |     |   |
| °C                                                                |     |  |   |   |   |   |  |   |   |  |  |   | xxT |   |
| °F                                                                |     |  |   |   |   |   |  |   |   |  |  |   | xxU |   |
| °C / °F (double scale)                                            |     |  |   |   |   |   |  |   |   |  |  |   | xxV |   |
| <b>Options to be added behind the / (see example page 3)</b>      |     |  |   |   |   |   |  |   |   |  |  |   |     | / |

<sup>(1)</sup> TBI with fix connection: only available for the every angle version of TBI

<sup>(2)</sup> L1 < 100 mm: only for immersion tube Ø 8 mm and only for temperature ≤ 250°C. The case must not be heated over 110°C.

<sup>(3)</sup> Form 2 according to EN 13190

<sup>(4)</sup> Form 6 according to EN 13190

<sup>(5)</sup> Form 3 according to EN 13190

<sup>(6)</sup> Form 7 according to EN 13190

<sup>(7)</sup> Available standard temperature ranges, see tables on page 3. For ranges not listed, please contact Baumer.