# Screw-in RTD temperature probe with plug connector according to DIN EN 175301

- **For temperatures between -50 to +260 °C**
- **Vibration-resistant construction**
- **The plug connection is locked to ensure contact, protection type IP65**
- **Available with transmitter**
- **DNV GL approval for basic types 902044/20 and 902044/21 (max. insertion length 200 mm)**

Vibration-resistant screw-in RTD temperature probes allow temperatures to be measured under pressure in engines and compressors as well as in plant engineering and shipbuilding.

The plug connection between the protection fitting and the connecting cable is locked to ensure contact. It has protection type IP65 when connected.

The measuring insert is a Pt100 temperature sensor according to DIN EN 60751:2009 / IEC 60751:2008, class B in two-wire circuit as standard. Other versions with Pt500 or Pt1000 are also possible.

The connection can be carried out in a two-wire or four-wire circuit as required.

Basic types 902044/25 to 902044/29 are available as versions with transmitters (output 4 to 20 mA).

## Technical data

| | |
|---|---|
| Connection | Basic types 902044/15, 902044/20, 902044/25, 902044/28, and 902044/80:<br>DIN EN 175301-803 plug connectors, Pg9<br>Basic types 902044/16, 902044/21, 902044/26, 902044/29, and 902044/81:<br>DIN EN 175301-803 plug connectors, Pg11<br>Max. conductor cross section 1.5 $mm^2$, IP65, ambient temperature -40 to +125 °C<br>For versions with transmitters: ambient temperature -40 to +85 °C |
| Process connection | Thread, stainless steel 1.4301/1.4571 |
| Protection tube | Stainless steel 1.4571, Ø 8 mm, Ø 6 mm stepped down to Ø 3.5 mm,<br>Max. pressure load 50 bar at 200 °C (basic types 902044/20 and 902044/21) |
| Measuring insert | Pt100 temperature sensor, DIN EN 60751:2009 / IEC 60751:2008, class B, A, or AA in two-wire or four-wire circuit, exchangeable. Shorter fitting lengths in connection with unfavorable fitting conditions (heat conduction error) can result in an exceedance of the tolerance class. The measuring insert is not exchangeable for versions equipped with transmitters. |
| Protection type | IP65 when connected |
| Response times | Basic types 902044/15 and 902044/16: $t_{0.5}$ = < 2 s, $t_{0.9}$ = < 4 s, in water with 0.2 m/s,<br>Ø 6 mm stepped down to Ø 3.5 mm<br>Basic types 902044/20 and 902044/21: $t_{0.5}$ = 15 s, $t_{0.9}$ = 45 s, in water with 0.2 m/s, Ø 8 mm<br>Basic types 902044/25 to 902044/29: $t_{0.5}$ = < 2 s, $t_{0.9}$ = < 4 s, in water with 0.2 m/s,<br>Ø 6 mm stepped down to Ø 3.5 mm<br>Basic types 902044/80 and 902044/81: $t_{0.5}$ = 5 s, $t_{0.9}$ = 12 s, in water with 0.2 m/s, Ø 8 mm |
| Vibration resistance | DNV GL, class B |
| Approvals | Basic type 902044/20 and 902044/21 DNV GL Class Guideline CG-0339, for details see certificate no. TAA00002RV |
| Accessories | Thermowell, data sheet 902440 |

## Approvals and approval marks

# Technical data

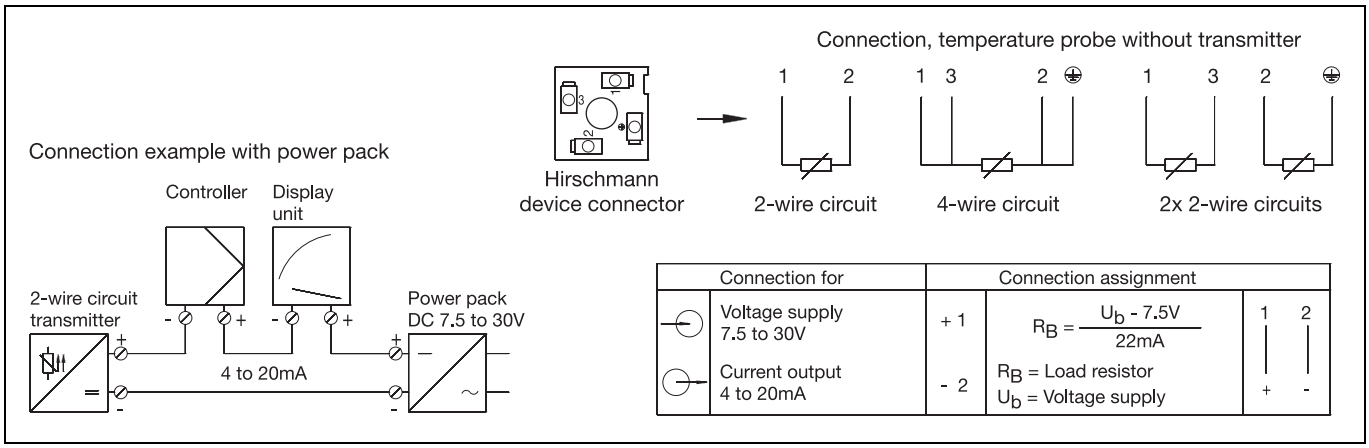
| | | |
|---|---|---|
| Transmitters | Input | |
| | Measurement input | Pt100, Pt500, or Pt1000 according to DIN EN 60751:2009 / IEC 60751:2008 |
| | Measuring range limits | -50 to +260 °C |
| | Measuring span | 25 to 310 K (also see zero offset) |
| | Zero offset<br>Data sheet 707030, page 7/10 | For measuring spans < 75 K, fixed zero adjustment:<br>-40 °C, -20 °C, 0 °C, 20 °C, and 40 °C<br>For measuring spans ÷ 75 K: ±50 °C |
| | Sensor current | ≤ 0.5 mA |
| | Sampling rate | Permanent measurement due to analog signal path |
| | Measuring circuit monitoring | |
| | Underrange | Dropping to ≤ 3.6 mA |
| | Overrange | Increasing to ÷ 22 mA to < 28 mA (typically 24 mA) |
| | Probe short circuit | ≤ 3.6 mA |
| | Probe and line break | Positive: ÷ 22 mA to < 28 mA (typically 24 mA) |
| | Output | Only with the basic types 902044/25 to 902044/29 |
| | Output signal | Load-independent direct current 4 to 20 mA |
| | Transmission behavior | Temperature-linear |
| | Transmission accuracy | ≤ ±0.1 % |
| | Attenuation of the residual ripple of a voltage supply of 24 V, amplitude 10 V at 50 Hz, burden 470 Ω at load of 10 MΩ | 40 dB |
| | Burden (Rb) | Rb = (Ub - 7.5 V) ÷ 22 mA |
| | Burden influence | ≤ ±0.02% per 100 Ω[a] |
| | Setting time for temperature changes | ≤ 10 ms |
| | Calibration conditions | DC 24 V at approx. 22 °C |
| | Calibration accuracy | ≤ ±0.2%[a, b] or ≤ ±0.2 K |
| | Overall accuracy, sensor/calibration | ±0.4 K (typically) at 20 °C and DC 24 V voltage supply |
| | Voltage supply | |
| | Voltage supply (Ub) | DC 7.5 to 30 V SELV |
| | Requirement | The device must be equipped with an electrical circuit that meets the requirements of DIN EN 61010-1 with regard to "Limited-energy circuits". |
| | Reverse voltage protection | Yes |
| | Voltage supply influence | ≤ ±0.01% per V deviation from DC 24 V[a] |
| | Environmental influences | |
| | Operating temperature range | -40 to +85 °C |
| | Storage temperature range | -40 to +100 °C |
| | Temperature influence | ≤ ±0.01% per K deviation from 22 °C[a] |
| | Resistance to climatic conditions similar to DIN EN 60654 class D1 | Relative humidity ≤ 95% annual average, no condensation |
| | Electromagnetic compatibility (EMC) | EN 61326 |
| | Interference emission | Class B - households or small businesses - |
| | Interference immunity | Industrial requirement |

[a] All specifications refer to the measuring range end value of 20 mA.
[b] The higher value is valid.

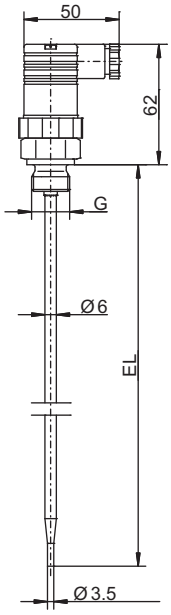
## Approvals and approval marks

| Approval mark | Test facility | Certificates/certification numbers | Inspection basis | Valid for |
|---|---|---|---|---|
| DNV GL | DNV GL | TAA00002RV | Class Guideline DNVGL-CG-0339 | Basic type 902044/20 ...<br>Basic type 902044/21 ... |
| SIL QUALIFIED | - | - | - | Extra codes 658 and 659 in conjunction with declaration of manufacturer |
| PL QUALIFIED | - | - | - | |

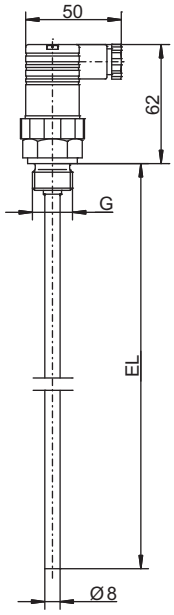
## Connection diagram



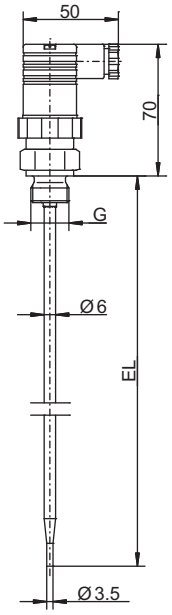
# Dimensions



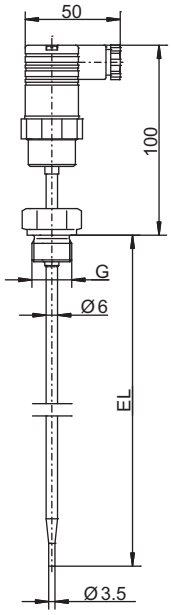

**Basic type 902044/15**
**Basic type 902044/16**



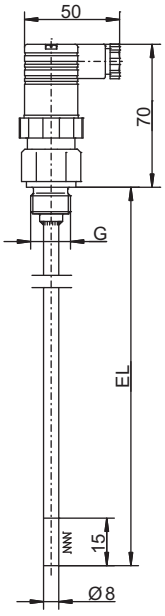

**Basic type 902044/20**
**Basic type 902044/21**




**Basic type 902044/25**
**Basic type 902044/26**



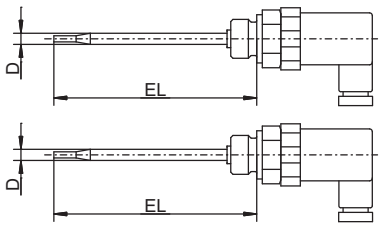

**Basic type 902044/28**
**Basic type 902044/29**




**Basic type 902044/80**
**Basic type 902044/81**

# Order details

| | | | | |
|---|---|---|---|---|
| | | | **(1)** | **Basic type** |
| | | 902044/15 | | Screw-in RTD temperature probe<br>with junction box Pg9 and stepped down protection tube<br>according to DIN EN 175301-803 (DIN 43650) |
| | | 902044/16 | | Screw-in RTD temperature probe<br>with junction box Pg11 and stepped down protection tube<br>according to DIN EN 175301-803 (DIN 43650) |
| | | | **(2)** | **Operating temperature in °C** |
| x | x | 380 | | -50 to +200 °C |
| | | | **(3)** | **Measuring insert** |
| x | x | 1003 | | 1× Pt100 in two-wire circuit (standard) |
| x | x | 1011 | | 1× Pt100 in four-wire circuit |
| | | | **(4)** | **Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008** |
| x | x | 1 | | Class B (standard) |
| x | x | 2 | | Class A |
| | | | **(5)** | **Protection tube diameter D in mm** |
| x | x | 6 | | Ø 6 mm, stepped down to Ø 3.5 mm |
| | | | **(6)** | **Insertion length EL in mm (50 to 800 mm)** |
| x | x | 50 | | 50 mm |
| x | x | 100 | | 100 mm |
| x | x | 150 | | 150 mm |
| x | x | 200 | | 200 mm |
| x | x | 250 | | 250 mm |
| x | x | . . . | | Specification in plain text (50 mm increments) |
| | | | **(7)** | **Process connection** |
| x | x | 102 | | Screw connection G 1/4 |
| x | x | 103 | | Screw connection G 3/8 |
| x | x | 104 | | Screw connection G 1/2 |
| x | x | 126 | | Screw connection M18 × 1.5 |
| x | x | 128 | | Screw connection M20 × 1.5 |
| x | x | 144 | | Screw connection 1/2-14 NPT |
| | | | **(8)** | **Protection tube material** |
| x | x | 26 | | Stainless steel 1.4571 |
| | | | **(9)** | **Extra codes** |
| x | x | 000 | | None |
| x | x | 658 | | SIL and PL compatible (only in conjunction with JUMO SIL-certified safety temperature limiters and temperature monitors according to data sheet 701150) |
| x | x | 659 | | SIL and PL compatible (only in conjunction with JUMO dTRANS T06 temperature transmitter according to data sheet 707071) |

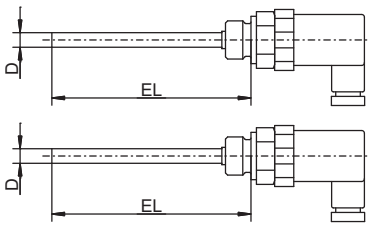



| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Order code** | | - | | - | | - | | - | | - | | - | | - | | / | |
| **Order example** | 902044/15 | - | 380 | - | 1003 | - | 1 | - | 6 | - | 100 | - | 104 | - | 26 | / | 000 |

**Note:**
Version with machine connector M12 × 1, data sheets 902040 and 902815

# Order details

| | | | | |
|---|---|---|---|---|
| | | | **(1)** | **Basic type** |
| | | 902044/20 | | Screw-in RTD temperature probe<br>with junction box Pg9<br>according to DIN EN 175301-803 (DIN 43650) |
| | | 902044/21 | | Screw-in RTD temperature probe<br>with junction box Pg11<br>according to DIN EN 175301-803 (DIN 43650) |
| | | | **(2)** | **Operating temperature in °C** |
| x | x | 380 | | -50 to +200 °C |
| | | | **(3)** | **Measuring insert** |
| x | x | 1003 | | 1× Pt100 in two-wire circuit (standard) |
| x | x | 1011 | | 1× Pt100 in four-wire circuit |
| x | x | 2003 | | 2× Pt100 in two-wire circuit |
| | | | **(4)** | **Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008** |
| x | x | 1 | | Class B (standard) |
| x | x | 2 | | Class A |
| x | x | 3 | | Class AA |
| | | | **(5)** | **Protection tube diameter D in mm** |
| x | x | 8 | | Ø 8 mm |
| | | | **(6)** | **Insertion length EL in mm (50 to 800 mm)** |
| x | x | 50 | | 50 mm |
| x | x | 100 | | 100 mm |
| x | x | 150 | | 150 mm |
| x | x | 200 | | 200 mm |
| x | x | 250 | | 250 mm (no DNV GL approval) |
| x | x | . . . | | Specification in plain text (50 mm increments) |
| | | | **(7)** | **Process connection** |
| x | x | 102 | | Screw connection G 1/4 |
| x | x | 103 | | Screw connection G 3/8 |
| x | x | 104 | | Screw connection G 1/2 |
| x | x | 126 | | Screw connection M18 × 1.5 |
| x | x | 128 | | Screw connection M20 × 1.5 |
| x | x | 144 | | Screw connection 1/2-14 NPT |
| | | | **(8)** | **Protection tube material** |
| x | x | 26 | | Stainless steel 1.4571 |
| | | | **(9)** | **Extra codes** |
| x | x | 000 | | None |
| x | x | 062 | | DNV GL approval (max. EL = 200 mm) |
| x | x | 658 | | SIL and PL compatible (only in conjunction with JUMO SIL-certified safety temperature limiters and temperature monitors according to data sheet 701150) |
| x | x | 659 | | SIL and PL compatible (only in conjunction with JUMO dTRANS T06 temperature transmitter according to data sheet 707071) |

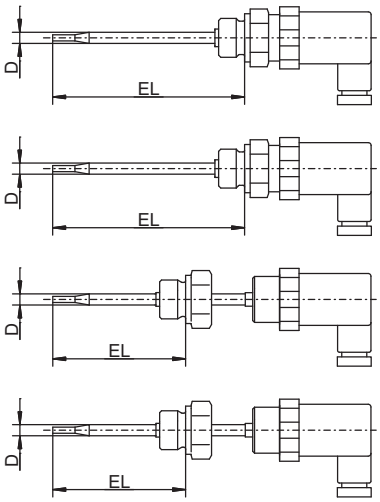



| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Order code** | | - | | - | | - | | - | | - | | - | | - | | / | |
| **Order example** | 902044/20 | - | 380 | - | 1003 | - | 1 | - | 8 | - | 100 | - | 104 | - | 26 | / | 000 |

**Note:**
Version with machine connector M12 × 1, data sheets 902040 and 902815

# Order details

| | | | | | (1) | Basic type |
|---|---|---|---|---|---|---|
| | | | | 902044/25 | | Screw-in RTD temperature probe<br>with analog transmitter and junction box Pg9<br>according to DIN EN 175301-803 (DIN 43650) |
| | x | | | 902044/26 | | Screw-in RTD temperature probe<br>with analog transmitter and junction box Pg11<br>according to DIN EN 175301-803 (DIN 43650) |
| | | x | | 902044/28 | | Screw-in RTD temperature probe<br>with analog transmitter and junction box Pg9<br>according to DIN EN 175301-803 (DIN 43650)<br>(neck tube design for higher temperatures) |
| | | | x | 902044/29 | | Screw-in RTD temperature probe<br>with analog transmitter and junction box Pg11<br>according to DIN EN 175301-803 (DIN 43650)<br>(neck tube design for higher temperatures) |
| | | | | | (2) | **Operating temperature in °C** |
| x | x | | | 370 | | -50 to +150 °C |
| | | x | x | 386 | | -50 to +260 °C |
| | | | | | (3) | **Measuring insert** |
| x | x | x | x | 1003 | | 1× Pt100 in two-wire circuit |
| | | | | | (4) | **Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008** |
| x | x | x | x | 1 | | Class B (standard) |
| x | x | x | x | 2 | | Class A |
| | | | | | (5) | **Protection tube diameter D in mm** |
| x | x | x | x | 6 | | Ø 6 mm, stepped down to Ø 3.5 mm |
| | | | | | (6) | **Insertion length EL in mm (50 to 800 mm)** |
| x | x | x | x | 50 | | 50 mm |
| x | x | x | x | 100 | | 100 mm |
| x | x | x | x | 150 | | 150 mm |
| x | x | x | x | 200 | | 200 mm |
| x | x | x | x | 250 | | 250 mm |
| x | x | x | x | . . . | | Specification in plain text (50 mm increments) |
| | | | | | (7) | **Process connection** |
| x | x | x | x | 102 | | Screw connection G 1/4 |
| x | x | x | x | 103 | | Screw connection G 3/8 |
| x | x | x | x | 104 | | Screw connection G 1/2 |
| x | x | x | x | 126 | | Screw connection M18 × 1.5 |
| x | x | x | x | 128 | | Screw connection M20 × 1.5 |
| x | x | x | x | 144 | | Screw connection 1/2-14 NPT |
| | | | | | (8) | **Protection tube material** |
| x | x | x | x | 26 | | Stainless steel 1.4571 |
| | | | | | (9) | **Extra codes** |
| x | x | x | x | 000 | | None |

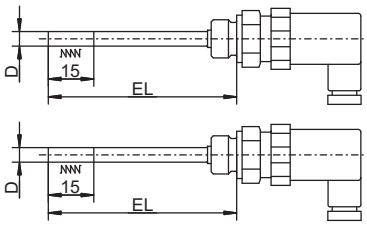



| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Order code** | | - | | - | | - | | - | | - | | - | | - | | / | |
| **Order example** | 902044/25 | - | 370 | - | 1003 | - | 1 | - | 6 | - | 100 | - | 104 | - | 26 | / | 000 |

**Note:**
Version with machine connector M12 × 1, data sheets 902040 and 902815

# Order details

| | | | | |
|---|---|---|---|---|
| | | | **(1)** | **Basic type** |
| | | 902044/80 | | Screw-in RTD temperature probe<br>with junction box Pg9<br>according to DIN EN 175301-803 (DIN 43650)<br>and flexible screw connection |
| | | 902044/81 | | Screw-in RTD temperature probe<br>with junction box Pg11<br>according to DIN EN 175301-803 (DIN 43650)<br>and flexible screw connection |
| | | | **(2)** | **Operating temperature in °C** |
| x | x | 380 | | -50 to +200 °C |
| | | | **(3)** | **Measuring insert** |
| x | x | 1003 | | 1× Pt100 in two-wire circuit (standard) |
| x | x | 1011 | | 1× Pt100 in four-wire circuit |
| x | x | 2003 | | 2× Pt100 in two-wire circuit |
| | | | **(4)** | **Tolerance class according to DIN EN 60751:2009 / IEC 60751:2008** |
| x | x | 1 | | Class B (standard) |
| x | x | 2 | | Class A |
| | | | **(5)** | **Protection tube diameter D in mm** |
| x | x | 8 | | Ø 8 mm |
| | | | **(6)** | **Insertion length EL in mm (50 to 800 mm)** |
| x | x | 50 | | 50 mm |
| x | x | 100 | | 100 mm |
| x | x | 150 | | 150 mm |
| x | x | 200 | | 200 mm |
| x | x | 250 | | 250 mm |
| x | x | . . . | | Specification in plain text (50 mm increments) |
| | | | **(7)** | **Process connection** |
| x | x | 104 | | Screw connection G 1/2 |
| | | | **(8)** | **Protection tube material** |
| x | x | 26 | | Stainless steel 1.4571 |
| | | | **(9)** | **Extra codes** |
| x | x | 000 | | None |
| x | x | 658 | | SIL and PL compatible (only in conjunction with JUMO SIL-certified safety temperature limiters and temperature monitors according to data sheet 701150) |
| x | x | 659 | | SIL and PL compatible (only in conjunction with JUMO dTRANS T06 temperature transmitter according to data sheet 707071) |




| | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | | (7) | | (8) | | (9) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Order code** | | - | | - | | - | | - | | - | | - | | - | | / | |
| **Order example** | 902044/80 | - | 380 | - | 1003 | - | 1 | - | 8 | - | 100 | - | 104 | - | 26 | / | 000 |

# Stock versions

| Order code | Part no. |
|---|---|
| 902044/15-380-1003-1-6-100-104-26/000 | 00600899 |
| 902044/20-380-1003-1-8-50-104-26/000 | 00365259 |
| 902044/20-380-1003-1-8-100-104-26/000 | 00368414 |
| 902044/20-380-1003-1-8-150-104-26/000 | 00368416 |