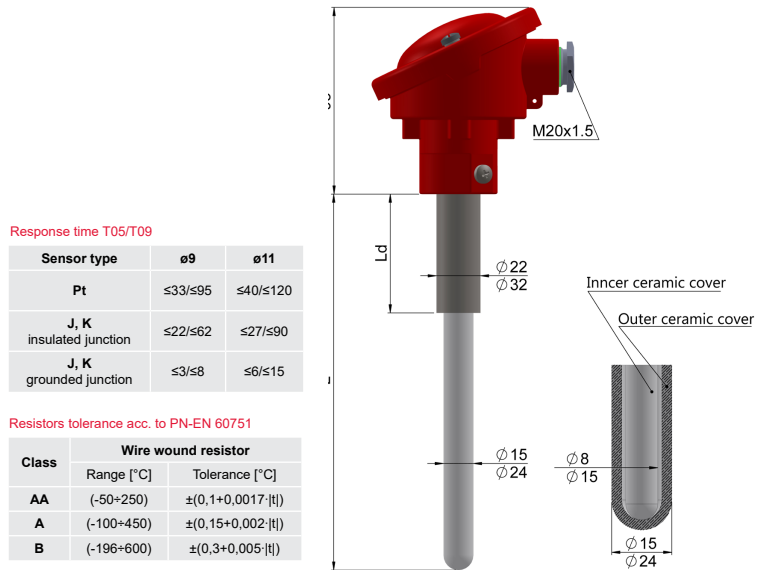


Temperature sensors with ceramic protection tubes **TTSCC-22, TTRCC-22, TTBCS-22, TTKCC-22**

**Dane techniczne**

| Measuring range / sensing element   |                       |                            |
|---|-----------------------|----------------------------|
| (-40 ÷ 1200) °C   | <b>K</b>              | class 2                    |
| (0 ÷ 1600) °C   | <b>S, R</b>           | class 2                    |
| (600 ÷ 1700) °C   | <b>B</b>              | class 3                    |
| Sheath  |                       |                            |
| – sheath material: steel 1.4841, D [mm]: ø22, ø32, L <sub>d min.</sub> = 150 mm |                       |                            |
| – double ceramic thermowell: mullite 610 (only for d [mm]: ø24) or corundum 799 |                       |                            |
| – length L [mm]: 300÷2000   |                       |                            |
| Supporting sheath diameter D [mm]   | Outer sheath diameter | Inner sheath diameter [mm] |
| 32  | 24                    | 15                         |
| 22  | 15                    | 8                          |
| Connection head   |                       |                            |
| – AA, IP53, (-40 ÷ 100) °C  |                       |                            |
| Options   |                       |                            |
| – thermocouple S, R, K: class 1, B: class 2                                     |                       |                            |
| – with (4 ÷ 20) mA transducer in the DAAW head cover                            |                       |                            |
| Additional accessories  |                       |                            |
| – temperature transmitters – p. 225÷241   |                       |                            |
| – compensation cables – p. 197  |                       |                            |
| – mounting brackets: UZ-11, UZ-21 – p. 216                                      |                       |                            |

| Material of the sheath            | Wire diameter [mm] | Type of the thermocouple | Max. operating temp. |
|-----------------------------------|--------------------|--------------------------|----------------------|
| mullite 610                       | ø0,35              | R, S                     | 1200 °C              |
| mullite 610                       | ø0,5               | R, S                     | 1400 °C              |
| corundum 799                      | ø0,35              | R, S                     | 1500 °C              |
| corundum 799                      | ø0,5               | R, S                     | 1600 °C              |
| corundum 799                      | ø0,35              | B                        | 1600 °C              |
| corundum 799                      | ø0,5               | B                        | 1700 °C              |
| mullite 610 or corundum 799 (ø24) | ø2                 | K                        | 1200 °C              |



**Response time T05/T09**

| Sensor type             | ø9      | ø11      |
|-------------------------|---------|----------|
| Pt                      | ≤33/≤95 | ≤40/≤120 |
| J, K insulated junction | ≤22/≤62 | ≤27/≤90  |
| J, K grounded junction  | ≤3/≤8   | ≤6/≤15   |

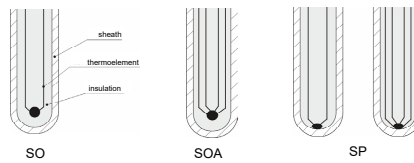
**Resistors tolerance acc. to PN-EN 60751**

| Class | Wire wound resistor |                   |
|-------|---------------------|-------------------|
|       | Range [°C]          | Tolerance [°C]    |
| AA    | (-50÷250)           | ±(0,1+0,0017· t ) |
| A     | (-100÷450)          | ±(0,15+0,002· t ) |
| B     | (-196÷600)          | ±(0,3+0,005· t )  |

**Tolerance for thermocouples class acc. to PN-EN 60584**

| Thermocouple   | Class 1                 |                   | Class 2                         |                    |
|----------------|-------------------------|-------------------|---------------------------------|--------------------|
|                | Range [°C]              | Tolerance [°C]    | Range [°C]                      | Tolerance [°C]     |
| J<br>Fe-CuNi   | (-40÷375)<br>(375÷750)  | ±1,5<br>±0,004  t | (-40÷333)<br>(333÷750)          | ±2,5<br>±0,0075  t |
| K<br>NiCr-NiAl | (-40÷375)<br>(375÷1000) | ±1,5<br>±0,004  t | from<br>(-40÷333)<br>(333÷1200) | ±2,5<br>±0,0075  t |

**Types of measuring hot junction**



**Ordering code**

| Temperature sensor                           | ... | TT | ... | CC-22 | - | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |  |
|--|-----|----|-----|-------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Single                                       |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Double                                       |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| With transmitter                             |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple NiCr-NiAl                       |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple PtRh10-Pt                       |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple PtRh13-Pt                       |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple PtRh30-PtRh6                    |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Material of the ceramic thermowell           |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Outer thermowell diameter d [mm]             |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Supporting sheath length L <sub>o</sub> [mm] |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Sensor sheath length L [mm]                  |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple class for K, R, S               |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Thermocouple class for B                     |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Diameter of platinum wire (for S, R, B) [mm] |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Type of transmitter                          |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Setting of transmitter temperature           |     |    |     |       |   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |

\* or others acc. to requirements

**Ordering example**

**TTSCC-22-799-24-200-1000-1-0,5**