

# Mineral Insulated Thermocouple model L

## MIT with Lemo - plug connector

### In general

The temperature sensors manufactured by Reckmann GmbH (R58®) are solely intended for the measurement of process temperatures in solid, liquid and gaseous media. This version with flexible sheath material allows to detect the temperature even in hard-to-reach places. The plug-in connection simplifies the replacement of the sensor.

#### Range of application:

Aluminium/non-ferrous metals, industrial furnace construction/heat treatment, plant construction/mechanical engineering, energy, automotive/electromobility, plastics/hot runner, research and development, cement/construction materials, paper, pipeline and container construction, food and beverage industry, sanitary, heating and air-conditioning technology.

**For installation-specific data, see installation instructions MIT  
Type code 1R9-K0.**

### Technical datas

- **Measuring unit** (fig. 1/2) is similar to DIN 43735 without base with directly assembled Lemo connector.
- **Sensor** depended on use:  
with 1 or 2 thermocouples according to IEC / EN 60584-1.
- **Sheath material** type according to IEC / EN 61515.  
Standard - material 2.4816 or 1.4541 depended on process temperature, preference diameter 1,5 / 3,0 or 6,0 mm.
- **Process connection** with compression fitting, union nut or "compression connection pipe according or similar to DIN 32676.
- **Recommended operating temperature** at measuring tip depending on Thermocouple type and diameter -50 °C to:  
Type J: Ø 1,5 and 2,0 mm up to 440°C, Ø 3,0 mm up to 520°C, Ø 4,5 up to 620°C, 6,0 und 8,0 mm up to 720°C.  
Type K: Ø 1,5 and 2,0 mm up to 920°C, Ø 3,0 mm up to 1070°C, Ø 4,5; 6,0 and 8,0 mm up to 1100°C.  
Type N: Ø 1,5 and 2,0 mm bis 920°C, Ø 3,0 mm bis 1070°C, Ø 4,5; 6,0 and 8,0 mm up to 1100°C.  
Type E: Ø 1,5 and 2,0 mm up to 510°C, Ø 3,0 mm up to 650°C, Ø 4,5 up to 730°C, 6,0 und 8,0 mm up to 820°C.  
Type T: Ø 1,5 and 2,0 mm up to 260°C, Ø 3,0 mm up to 315°C, Ø 4,5 / 6,0 and 8,0 mm up to 350°C.
- **Connector operating temperature** (Fig. 1/1):  
-40 °C to 200 °C .

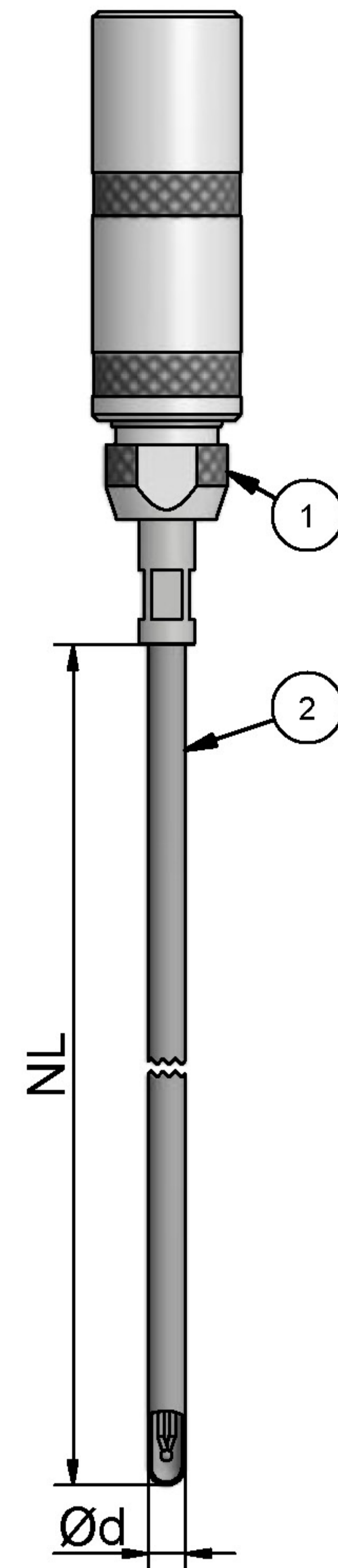


fig. 1

# Deviations according to the sensor type

## Thermocouples

table 1

Thermocouple type	Permitted deviations <sup>1)</sup> (±°C) and the validity for the temperature		
	class 1	class 2	class 3 <sup>2)</sup>
<b>by Type T</b>	0,5 °C oder 0,004 x  t	1 °C oder 0,0075 x  t	1 °C oder 0,015 x  t
<b>Type T</b>	-40 °C bis +350 °C	-40 °C bis +350 °C	-200 °C bis +40 °C
<b>bei Typ E,J,K,N</b>	1,5 °C oder 0,004 x  t	2,5 °C oder 0,0075 x  t	2,5 °C oder 0,015 x  t
<b>Type E</b>	-40 °C bis +800 °C	-40 °C bis +900 °C	-200 °C bis +40 °C
<b>Type J</b>	-40 °C bis +750 °C	-40 °C bis +750 °C	/
<b>Type K</b>	-40 °C bis +1000 °C	-40 °C bis +1200 °C	-200 °C bis +40 °C
<b>Type N</b>	-40 °C bis +1000 °C	-40 °C bis +1200 °C	-200 °C bis +40 °C
<b>by Typ R oder S</b>	1 °C für t < 1100 °C [1 + 0,003 x (t - 1100)] für t > 1100 °C	1,5 °C oder 0,0025 x  t	4 °C oder 0,005 x  t
<b>by Type B</b>	/	0,01 x  t	/
<b>Type B</b>	/	600 °C bis 1700 °C	600 °C bis 1700 °C

1) The deviation limit is either given as the difference in °C or as a function of temperature (°C from IST-90) according to the above mentioned table. For each the greater value is valid.  
 2) The normally available material for thermocouples keeps the limit deviation according to Table 1 for temperatures above -40°C. At low temperatures, these materials do not necessarily meet the class 3 limit deviations. If thermocouples of types T, E, K and N are required, which comply with both the class 3 and class 1 or 2 limit deviations, this must be specified by the user because therefore a special selection of the available material is usually necessary.

Source: Technical dates from IEC / EN 60584-1:2014-07 chapter 5

