

# Resistance Thermometers

## Thermocouples

## Protective Fittings

## Temperature Sensors for Special Applications



For over 40 years, SCHRAMM GmbH has dealt with the production of resistance thermometers and thermocouples for the various areas of application in the measurement and control technology. Highest standards in the selection of materials used, as well as consistent advancement of the products, have led to a steady growth.

Today, SCHRAMM GmbH enjoys the reputation of a quality-conscious and reliable supplier in industrial chemistry, plant engineering, food industry, Life Science and pharmaceutical industry and in power technology and petrochemicals.

Essential components, such as measuring inserts and protective tubes, are exclusively produced by us. The production in our own company allows us to be responsive to the most diverse customer requirements quickly and price-consciously.



### **Directive 94/9/EC**

The temperature sensors of SCHRAMM GmbH are suitable for their intended use in potentially explosive areas.

**EC Type examination certificate PTB 02 ATEX 2151 X**

The temperature sensors featured and described in this brief overview show only a part of our production capabilities.

We would be happy to help you in the selection of suitable protective tube design as well as a material apt for the process conditions. Please contact our technical sales department.

## RESISTANCE THERMOMETERS FOR THE FOOD AND PHARMACEUTICAL INDUSTRY



|                    |   |
|--------------------|---|
| Application        | : Food or pharma industry   |
| Process connection | : BioControl – BioConnect – Small Flange – Clamp  |
| Material           | : 1.4435/1.4404 - electropolished   |
| connection head    | : stainless steel, aluminium or plastic   |
| measuring inset    | : 1 x Pt100, 3 or 4 wire, Ø 3 mm<br>2 x Pt100, 3 wire, Ø 6 mm   |
| Measuring resistor | : DIN Class A -200...+650°C<br>1/3 - Class B -200...+650°C<br>1/5 - Class B -200...+650°C   |
| Transducer         | : Mounted in high connection head or mounted in place of the ceramic thermal plate on the flange wheel  |
| Documentation      | : 3.1B Certificate of Engineering<br>Drawing Surface Roughness<br>Certificate Certificate of<br>Eelctropolishing Calibration<br>Certificate DIN EN 10 204 - 2.2 |

## PROTECTIVE TUBES MADE OF SPECIAL MATERIAL PROTECTIVE TUBES MADE OF FULL MATERIAL COATED PROTECTIVE TUBES

From our own production, we offer protective tubes of welded design as well as deep-hole drilled protective tubes made of full material.

The range of protective pipes made of full material extends up to a bore depth of 1200 mm. SCHRAMM supplies protective tubes pursuant to DIN 43772 as well as protective pipes pursuant to factory standards and protective pipes according to customer specification.

Coatings of fluoroplastics, such as ECTFE or PFA, for increased corrosion protection can also be supplied as can stellite coatings against increased abrasion.



Besides the standard materials, SCHRAMM offers a large selection of special materials. Thus, structures made of materials, including the following, can be supplied:

Hastelloy

Inconel

Titanium

Monel

Tantalum

Kanthal

Zirconium

We can issue material test certificates 3.1B or 3.1B/AD-W2 for all varieties of protective tubes.

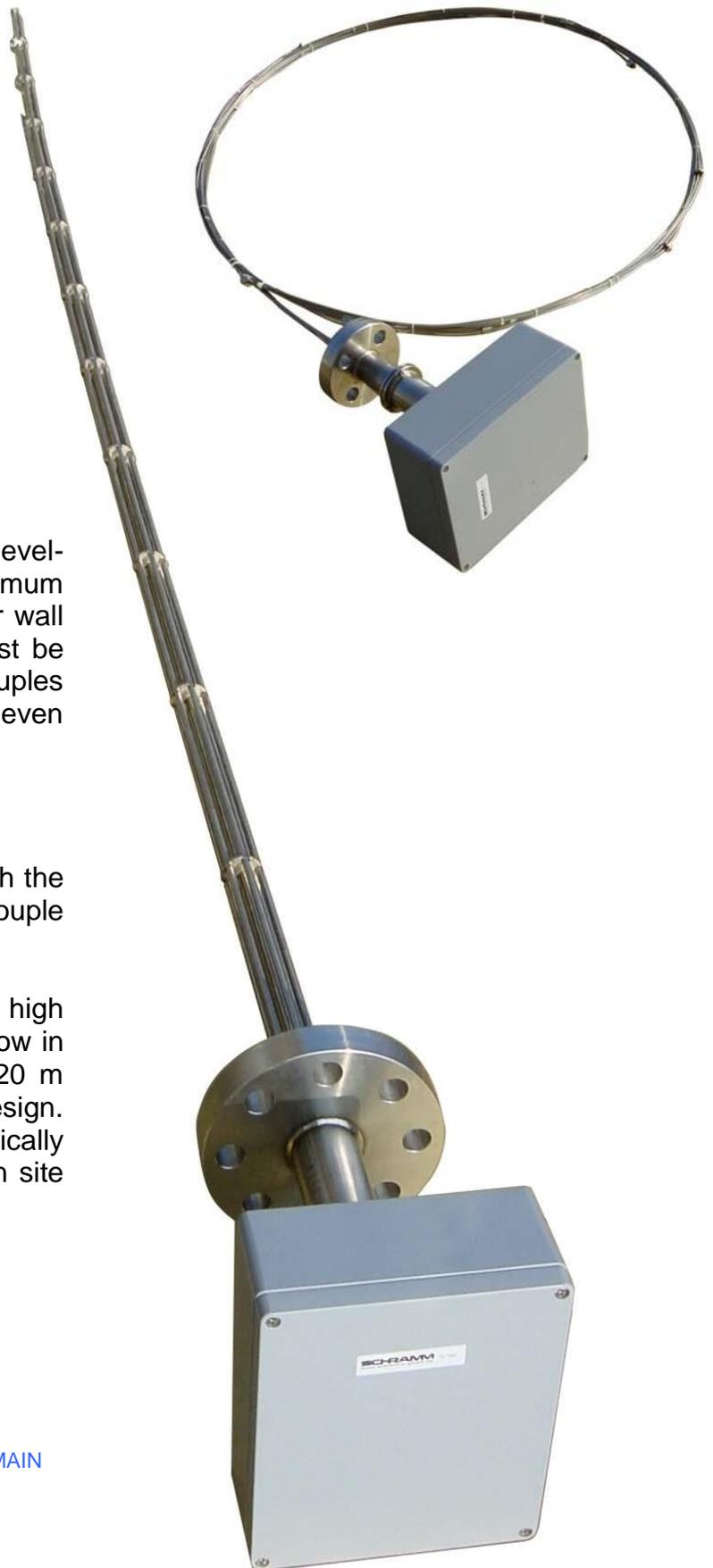
## LEVELS - THERMOCOUPLES FOR THE PETROCHEMICALS INDUSTRY

Several points of measurements are needed in reactors and tanks in the chemical industry for the exact temperature monitoring over the entire reactor and level height.

SCHRAMM offers a range of variants of level-thermocouples which guarantee an optimum heat transfer to the protective tube-inner wall by its design. While doing so, care must be taken so that the sheathed thermocouples can also be changed without problems even during the operation.

Level-thermocouples with up to 30 measuring points in a protective tube of 5 mm diameter can be supplied, although the exchange of a single sheathed-thermocouple is not possible in this design.

In order to keep the naturally high transportation and installation expense low in the level-thermometers that are up to 20 m long, SCHRAMM offers a collapsible design. These individual parts can be economically transported and can also be installed on site even without a lot of expense.



### **SCHRAMM GmbH**

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