

## Safety Temperature Monitor (STM) Type 2040

### Application

For cryogenic gases and liquids, as well as other liquids, gases and vapors · Set point ranges from  $-45\text{ °C}$  to  $+10\text{ °C}$  · Temperature range from  $-60\text{ °C}$  to  $+60\text{ °C}$  · Operating pressure max. **40 bar** · Free of oil and grease

TÜV-typetested

Industrial gases such as argon, nitrogen and oxygen are stored in liquefied state at a constant pressure in insulated storage vessels. Pipes are attached to these vessels to transmit the medium to consumers.

To comply with German regulations concerning the safety of pressurized vessels, cryogenic media must be prevented from entering consumer plants which are not designed to handle cryogenic media. The Type 2040 Safety Temperature Monitors (STM) are used for protection in these applications.

These safety temperature monitors close whenever the medium temperature falls below the adjusted set point to prevent the liquid media entering the connected consumer plant.

### Special features

- Self-operated regulators with integrated temperature sensor
- Easy set point adjustment
- Free of oil and grease, suitable for oxygen service
- Rugged, compact design featuring small dimensions

The Type 2040 Safety Temperature Monitors are characterized by their increased safety. The valve closes automatically when the sensor system is defective.

Application of the Type 2040 Safety Temperature Monitors, however, is not only restricted to cryogenic applications. Owing to their special design, these devices can also handle gases and liquids under other operating conditions.

### Versions

The Type 2040 Safety Temperature Monitor consists of a body, an integrated temperature sensor with a set point adjuster, and the connecting body with G 1 1/4 A conical joints at both the inlet and outlet.

Soldering nipples and weld-on fittings including connection nuts are available as end connections (see Accessories).

### Special version

With set point indication · With flat gasket connections



Fig. 1 · Type 2040 Safety Temperature Monitor

### Principle of operation

The Type 2040 Safety Temperature Monitor (STM) operates according to the liquid expansion principle.

The pressure generated by the temperature-sensitive medium confined in the integrated sensor (6) opposes the spring force (4) which closes the valve. The valve is normally open. If the medium temperature falls below the adjusted set point (when the medium is too cold), the pressure in the sensor system drops and the force of the springs (4) causes the plug (5) to close the valve. The valve first opens again when the medium temperature has exceeded the adjusted set point.

If the sensor system is defective, the valve closes (fail-safe position).

The version with set point indication has a stainless steel ring on the set point adjuster with a reading in steps of 10 °C for easier set point adjustment.

### Installation

- The regulator can be installed in any desired position
- The direction of flow must match the arrow on the valve body

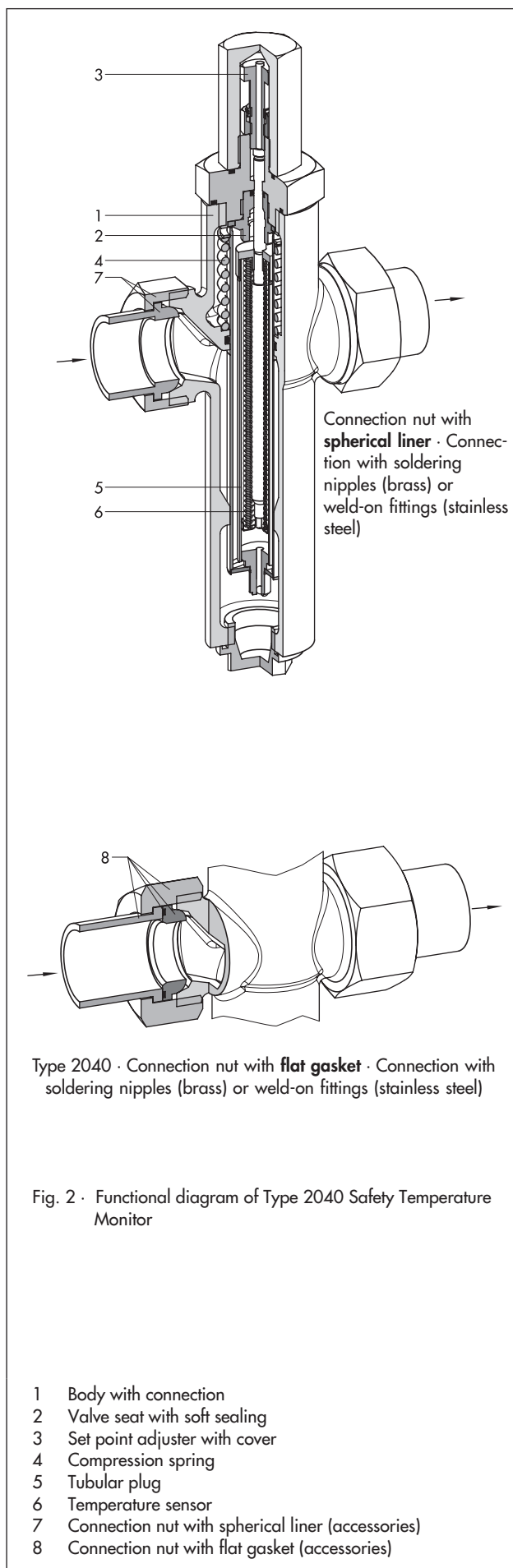
### Accessories

Connecting parts: Soldering nipple/weld-on fittings with either a spherical liner or flat gasket.

Connection	Connecting parts	Order no.
Sealed by a spherical liner	Soldering nipple, red brass, DN 25	1400-6840
	Soldering nipple, brass, DN 15	1400-9182
	Weld-on fittings (stainless steel), DN 25	1400-9129
	Weld-on fittings (stainless steel), DN 15	1400-9183
Sealed by a flat gasket	Soldering nipple, brass, DN 25	1400-9131
	Soldering nipple, brass, DN 15	1400-9130
	Weld-on fittings (stainless steel), DN 25	1400-9181
	Weld-on fittings (stainless steel), DN 15	1400-9180

### Typetesting

The Type 2040 Safety Temperature Monitors are typetested. The test mark is available on request.



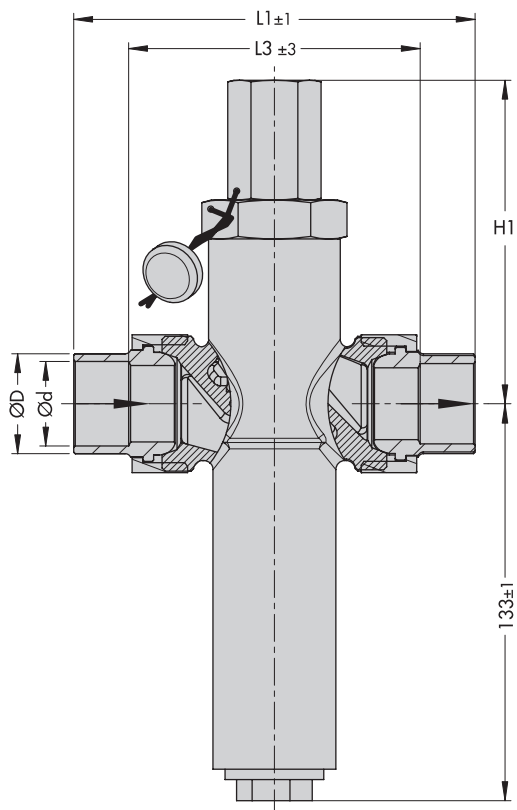
**Table 1** · Technical data · All pressures in bar (gauge)

<b>Type 2040 Safety Temperature Monitor</b>	
Body connection	G 1¼ (see Fig. 3 for connecting parts)
K <sub>VS</sub> coefficient	5
Set point ranges	-30 °C to +10 °C -45 °C to -10 °C
Max. perm. operating pressure	40 bar
Max. perm. differential pressure	25 bar
Leakage rate	≤ 0.05 % of K <sub>VS</sub> at -10 °C ≤ 0.1 % of K <sub>VS</sub> at -45 °C
Hysteresis	2 °C
Accuracy	± 1 °C
Temperature range	-60 °C to +60 °C

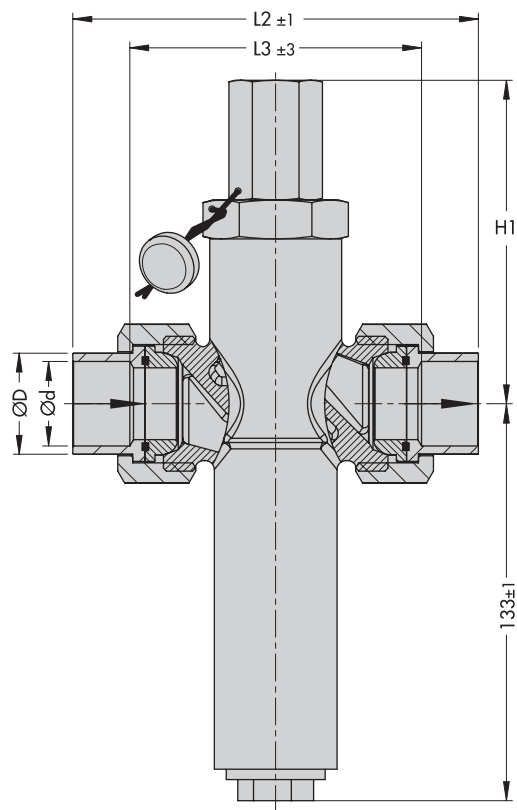
**Table 2** · Materials · Material number according to DIN EN

Body	CC491K (G-CuSn5ZnPb)
Bellows	CW453K (CuSn8F40)
Spring	1.4310
O-ring	NBR
Seat	CW617N (CuZn40Pb2)/NBR
Tubular plug	1.4571/1.4404

## Dimensions in mm



Connecting parts with **spherical liner**



Connecting parts with **flat gasket**

### Soldering nipple (brass)

Dimensions in mm	DN 15	DN 25
L3	100	
Ø d	For pipe Ø 16	For pipe Ø 28

### Weld-on fittings (stainless steel)

Dimensions in mm	DN 15	DN 25
L1	155	
L2	165	
Ø d	16.1	28.5
Ø D	21.3	33.7

### Height H1

Without set point indication: H1 = 108±1 mm

With set point indication: H1 = 116±1 mm

**Weight:** 1.8 kg (without connecting parts)

Fig. 3 · Dimensions

## Ordering text

Safety Temperature Monitor (STM) Type 2040

Set point range ...

Connection ...

Optionally, special version

Specifications subject to change without notice



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