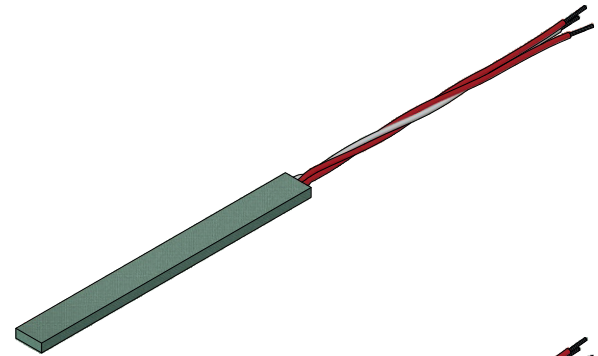


Application

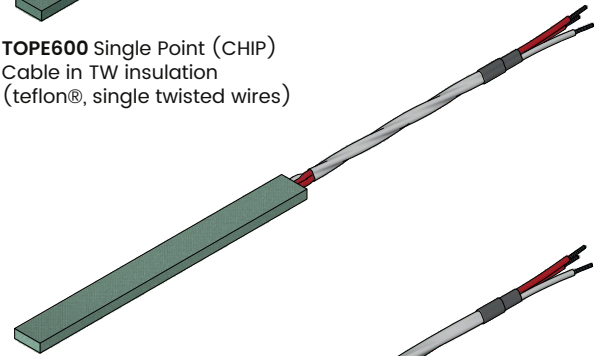
- Electric motors
- Generators

Features

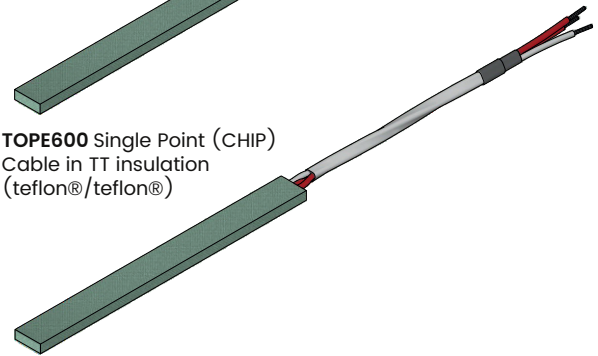
- Single and double sensing element
- Measuring circuit 2-, 3-, 4-wire
- Sensing element:
 - Pt100, Pt500, Pt1000 (IEC751),
 - Ni100, Ni500, Ni1000 (DIN43760),
 - Cu50 (GOST 6651-2009)
- Single point (CHIP) sensing element
- Temperature class F (+155°C) or H (+180°C)
- Non-standard parameters available upon request:
 - customized housing shape and dimensions
 - cables according to the customer's specifications
- Dielectrical strength 2.5 kVAC/60 sec., optionally 5.0 kVAC/60 sec.



TOPE600 Single Point (CHIP)
Cable in TW insulation
(teflon®, single twisted wires)



TOPE600 Single Point (CHIP)
Cable in TT insulation
(teflon®/teflon®)



TOPE600 Single Point (CHIP)
Cable in TCuT insulation
(teflon®/Cu braid/teflon®)

Description

Insert these thin, laminated RTDs in winding slots to detect high temperatures before insulation damage occurs. Six sensors are recommended for each motor, two per phase. Locate sensors near the hottest point of the windings for best performance.

Sensing element is installed inside laminated epoxy glass sheet. Due to very good dielectrical parameters of HGW and special composition of epoxy resin, these sensors have a high mechanical stability and requires no additional insulation for high voltage of 2.5 kV – and 5.0 kV as an option.

Dimensions of the laminated sheet, length and insulation of the connecting cable, accuracy class, may be selected depending on the application needs/requirements.

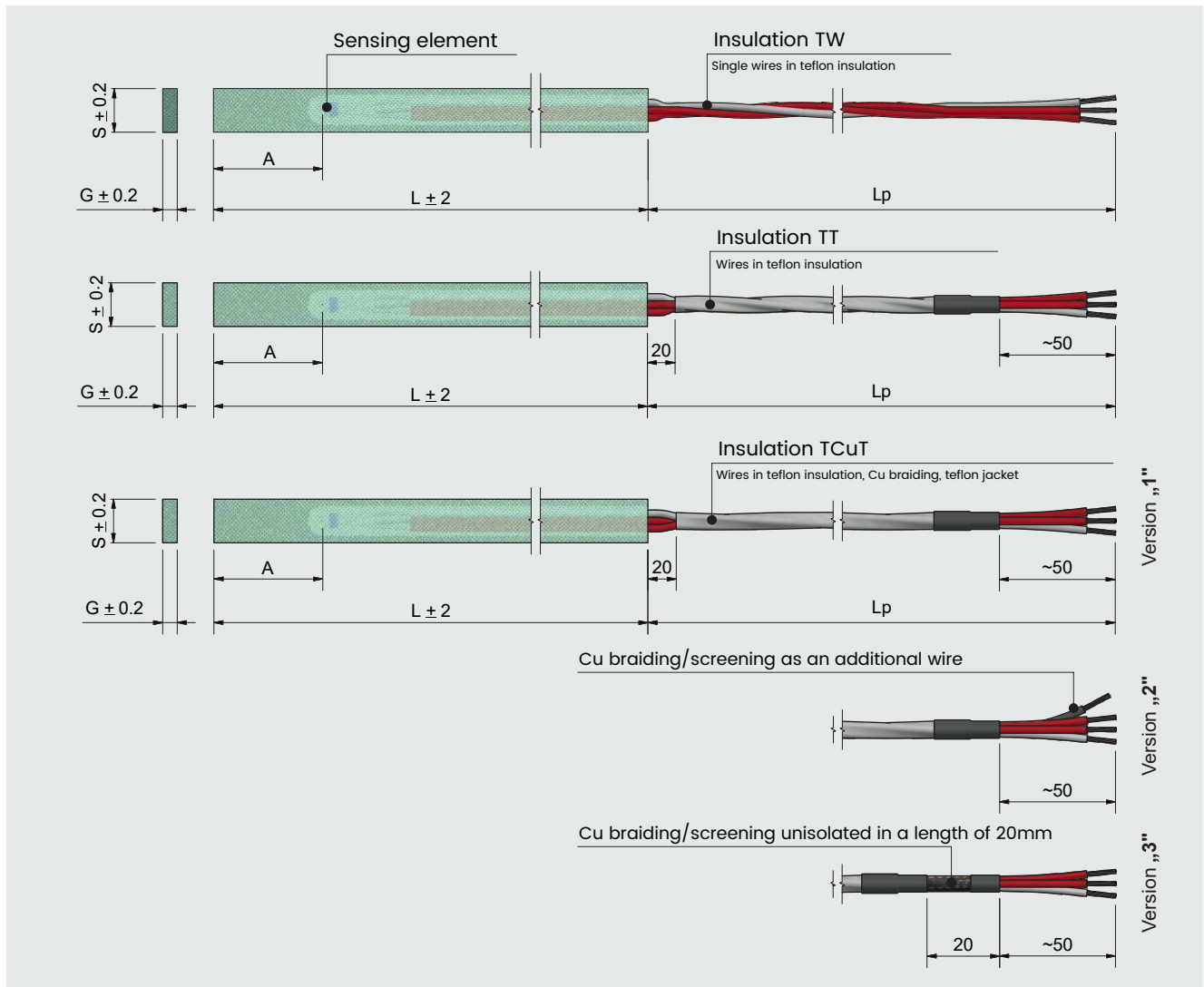
ATEX, IECEx, EAC Ex versions

Intrinsically safe and increased safety designs are available for applications in hazardous areas. These models are provided with certificate according to Directive 2014/34/UE (ATEX), IECEx scheme and EAC Ex TR-CU 012/2011 (Eurasian Economic Union).

Advantages of our Stator RTDs:

- Low heat capacity, which guarantees an immediate response to temperature changes
- Excellent electrical insulation, high thermal conductivity, resistance to deformation occurring during long shifts
- Spot measurement by high class of sensing element
- Resistant to shock, pressure and vibration
- Resistant to common impregnating agents, curing and drying processes
- Supplied with factory test certificate in accordance with EN 10204

Construction



Measuring ranges

from -40°C to $+155^{\circ}\text{C}$ - temperature class F
from -40°C to $+180^{\circ}\text{C}$ - temperature class H

Sensing element

Single or double

Pt100, Pt500, Pt1000 (IEC 751, $\alpha = 0.00385$)

Option:

Ni100, Ni500, Ni1000 (DIN43760, $\alpha = 0.00618$)

Cu50, Cu100 (GOST 6651-94, $\alpha = 0.00426$)

Tolerances

Platinum Class A ($\pm 0.15^{\circ}\text{C}$ in temp. 0°C)
Class B ($\pm 0.30^{\circ}\text{C}$ in temp. 0°C)

Nickel ($\pm 0.40^{\circ}\text{C}$ in 0°C)
Copper ($\pm 0.30^{\circ}\text{C}$ in 0°C)

Electrical parameters

Measuring current	nom. 0,1 mA to 1 mA
Isolation resistance	$>10 \text{ G}\Omega$ (test 500 VDC)
Dielectrical strength	2.5 kVAC (50Hz/60 sec.)
	5.0 kVAC (50Hz/60 sec.)

Housing material

Epoxy glass laminate provides good mechanical strength at elevated temperatures and very good chemical resistance.

IEC 60893	EP GC 203
	EP GC 308
NEMA LI 1	G 11



NOTE!

It is possible to install TOPE600 series sensors in additional epoxy glass sheets with total length up to 5m-see model TOPE602.

RESISTANCE THERMOMETER

STATOR SLOT RTD SINGLE POINT, TYPE **TOPE600**

Insulation types of connection cable

Cable insulation plays a crucial role in ensuring the durability of the stator slot temperature sensor. Among the many available insulation materials, several stand out for their versatility and ability to work across a wide range of applications, considering factors such as temperature resistance, chemical resistance, and mechanical properties. Below presented the most popular versions of cables.

TW insulation

① Conductor	Teflon® PFA
	Teflon® PFA

TT insulation

① Conductor	Teflon® PFA
② Sheath	Teflon® PFA

TCuT insulation

① Conductor	Teflon® PFA
② Screen	Copper braid
③ Sheath	Teflon® PFA

SLSL insulation

① Conductor	Silicone
② Sheath	Silicone

SLCuSL insulation

① Conductor	Silicone
② Screen	copper braid
③ Sheath	Silicone

KK insulation

① Conductor	Kapton®
② Sheath	Kapton®

KFK insulation

① Conductor	Kapton®
② Screen	Alu-foil
③ Sheath	Kapton®

Possible housing dimensions

Connecting Cable No. of wires x section	Insulation	Outer diameter	Housing thickness G [mm] ±0.2	Housing width S [mm] ±0.2	Housing length L [mm] ±2
2 x 0.22 mm ²	TT	∅ 2.5	2.0 ÷ 4.0	6.0 ÷ 14.0	60 ÷ 2600
3 x 0.22 mm ²	TT	∅ 2.6	2.0 ÷ 4.0	8.0 ÷ 14.0	
	TCuT	∅ 3.1			
4 x 0.22 mm ²	TW	∅ 2.5	2.0 ÷ 4.0	10.0 ÷ 14.0	
	TT	∅ 2.6			
	TCuT	∅ 3.9			
6 x 0.22 mm ²	TT	∅ 4.1	2.0 ÷ 4.0	12.0 ÷ 14.0	
3 x 0.50 mm ²	TW	∅ 3.1	2.5 ÷ 4.0	8.0 ÷ 14.0	
	TCuT	∅ 4.2			
4 x 0.50 mm ²	TW	∅ 3.5	2.5 ÷ 4.0	10.0 ÷ 14.0	
	TCuT	∅ 4.5			
6 x 0.50 mm ²	TW	∅ 4.4	2.5 ÷ 4.0	12.0 ÷ 14.0	
	TCuT	∅ 5.4			
8 x 0.50 mm ²	TW	∅ 4.8	2.5 ÷ 4.0	14.0	
	TCuT	∅ 6.0			

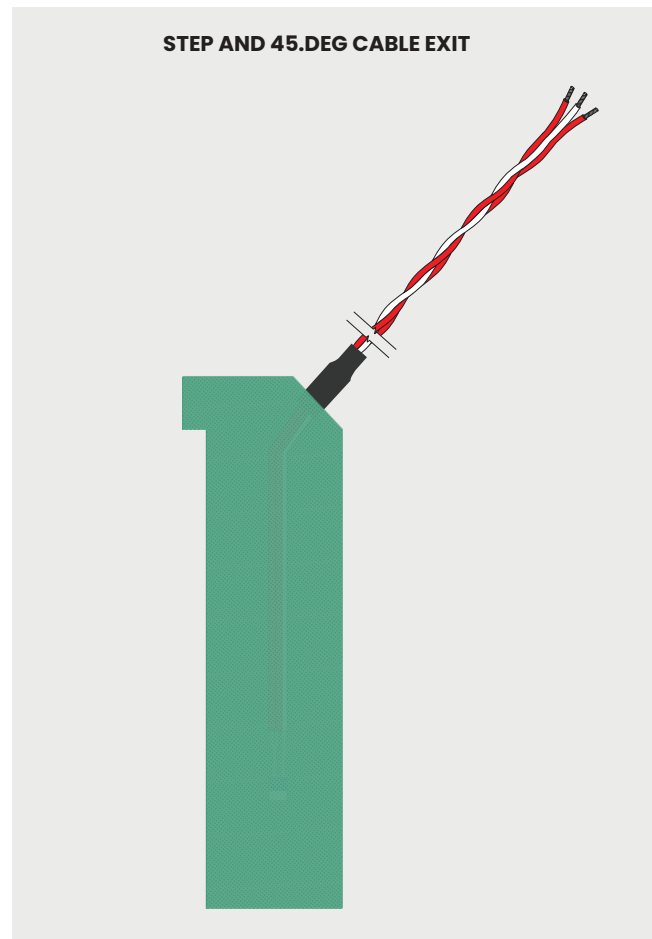
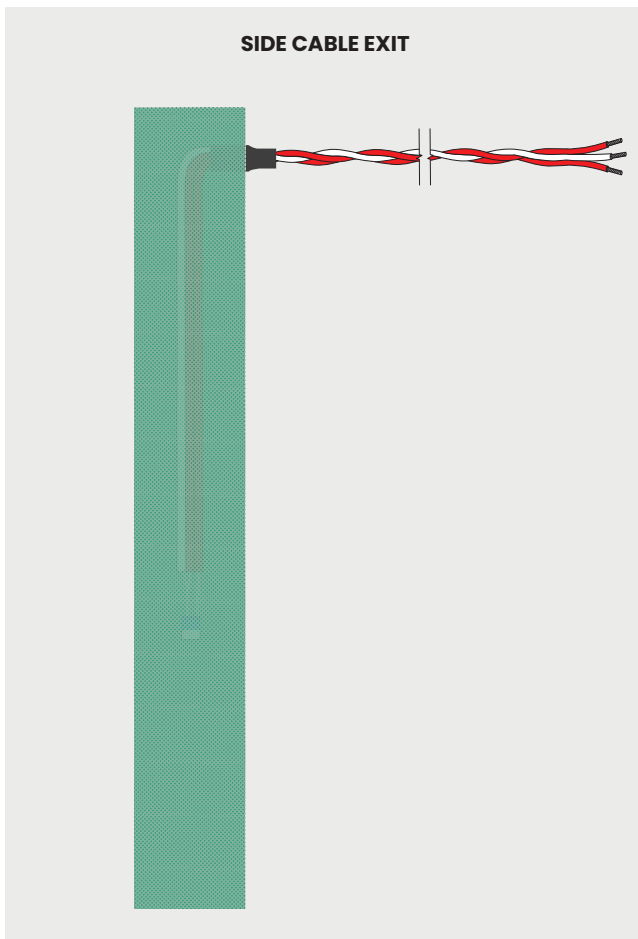
Standard housing dimensions

Thickness [mm]	Width [mm]	Length [mm]
2.5	8	80
2.5	8	150
2.5	8	200
2.5	8	250
2.5	8	300
2.5	8	350
2.5	8	400
2.5	8	500
2.5	10	80
2.5	10	150
2.5	10	200
2.5	10	250
2.5	10	300
2.5	10	350
2.5	10	400
2.5	10	500

Thickness [mm]	Width [mm]	Length [mm]
2.5	12	80
2.5	12	150
2.5	12	200
2.5	12	250
2.5	12	300
2.5	12	350
2.5	12	400
2.5	12	500
3.0	12	80
3.0	12	150
3.0	12	200
3.0	12	250
3.0	12	300
3.0	12	350
3.0	12	400
3.0	12	500

Non-standard sensor versions

This data sheet contains only a small portion of our program of supplying stator slot resistance thermometers. Other versions can be supplied upon customer's request. Below presented examples of customized versions.



RESISTANCE THERMOMETER

STATOR SLOT RTD SINGLE POINT, TYPE **TOPE600**



Data sheet TOPE600 | Edition 2023

Ordering code

TOPE600 - - - - - - - - -

Order	Parameter	Code	<input checked="" type="checkbox"/>	Description		
1	Type of sensing element	1xPt100	<input type="checkbox"/>	Single Pt100	IEC 751, $\alpha = 0.00385$	
		2xPt100	<input type="checkbox"/>	Double Pt100	IEC 751, $\alpha = 0.00385$	
		1xNi100	<input type="checkbox"/>	Single Ni100	DIN43760, $\alpha = 0.00618$	
		2xNi100	<input type="checkbox"/>	Double Ni100	DIN43760, $\alpha = 0.00618$	
		xxx	<input type="checkbox"/>	Other, please specify		
2	Dimension A [mm]	10	<input type="checkbox"/>	10 mm		
		50	<input type="checkbox"/>	50 mm		
		xxx	<input type="checkbox"/>	Other, please specify		
3	Dimension S [mm]	6	<input type="checkbox"/>	6 mm		
		8	<input type="checkbox"/>	8 mm		
		10	<input type="checkbox"/>	10 mm		
		12	<input type="checkbox"/>	12 mm		
		14	<input type="checkbox"/>	14 mm		
		xxx	<input type="checkbox"/>	Other, please specify		
4	Dimension L [mm]	80	<input type="checkbox"/>	80 mm		
		150	<input type="checkbox"/>	150 mm		
		200	<input type="checkbox"/>	200 mm		
		xxx	<input type="checkbox"/>	Other, please specify		
5	Thickness G [mm]	2	<input type="checkbox"/>	2 mm		
		2.5	<input type="checkbox"/>	2.5 mm		
		3	<input type="checkbox"/>	3 mm		
		xxx	<input type="checkbox"/>	Other, please specify		
6	Cable length Lp [mm]	1000	<input type="checkbox"/>	1000mm		
		2000	<input type="checkbox"/>	2000mm		
		xxx	<input type="checkbox"/>	Other, please specify		
7	RTD class	A	<input type="checkbox"/>	Class A acc. to PN-EN 60751 / IEC 751 (available only for Pt sensing elements)		
		B	<input type="checkbox"/>	Class B acc. to PN-EN 60751 / IEC 751 / DIN43760 / GOST 6651-94		
8	Connection line	2	<input type="checkbox"/>	2-wire		
		3	<input type="checkbox"/>	3-wire		
		4	<input type="checkbox"/>	4-wire		
9	Connecting cable type			Conductor	Screen	Sheath
		2x0.22-TT	2x0.22 mm ²	Teflon® PFA		Teflon® PFA
		3x0.22-TT	3x0.22 mm ²	Teflon® PFA		Teflon® PFA
		3x0.22-TCuT	3x0.22 mm ²	Teflon® PFA	Cu Braid	Teflon® PFA
		4x0.22-TW	4x0.22 mm ²	Teflon® PFA		
		4x0.22-TT	4x0.22 mm ²	Teflon® PFA		Teflon® PFA
		4x0.22-TCuT	4x0.22 mm ²	Teflon® PFA	Cu Braid	Teflon® PFA
		6x0.22-TCuT	6x0.22 mm ²	Teflon® PFA	Cu Braid	Teflon® PFA
		3x0.50-TW	3x0.50 mm ²	Teflon® FEP		
		3x0.50-TCuT	3x0.50 mm ²	Teflon® FEP	Cu Braid	Teflon® FEP
		4x0.50-TW	4x0.50 mm ²	Teflon® FEP		
		4x0.50-TCuT	4x0.50 mm ²	Teflon® FEP	Cu Braid	Teflon® FEP
		6x0.50-TW	6x0.50 mm ²	Teflon® FEP		
		6x0.50-TCuT	6x0.50 mm ²	Teflon® FEP	Cu Braid	Teflon® FEP
		8x0.50-TW	8x0.50 mm ²	Teflon® FEP		
8x0.50-TCuT	8x0.50 mm ²	Teflon® FEP	Cu Braid	Teflon® FEP		

Example

TOPE600-1xPt100-10-8-80-2.5-3000-A-3-3x0.22-TCuT

RTD sensor 1xPt100, length A=10 mm, width 8 mm, length L=80 mm, thickness 2.5 mm, cable length Lp=3000 mm, class A acc. to EN 60751, 3-wire connection line, cable 3x0.22mm² in TCuT insulation.