

Instrumentation for H-compact / H-compact PLUS motors
Monitoring bearing temperature by means of 2 resistance thermometers Pt 100
rolling contact bearings

Order code
A 40
 Standard- and Ex-
 design

Resistance thermometer

Type	Resistance thermometer 1 x Pt 100 / e x 6 / M10x1
Measuring element	1x Pt 100 Ohm at 0 °C to DIN EN 60751 class B With efficient heat transfer, electrically insulated from protective tube
Nominal length	e = 20, 50, 100 mm; dependent on the engine type
Diameter	d ₁ = 6 mm
Protective tube	Made of stainless steel, shrunk-sleeve-insulated if no ceramic-insulated- bearings are used
Connection	2-wire up to terminal box 2-wire, Three-wire circuit or Four-wire
Connecting cable, Length /	
Cross Section/ Insulation	3,5 m / ≥ 0,5 ...≤1,5mm ² / Silicone Insulated H-compact 5 m / ≥ 0,5 ...≤1,5mm ² / Silicone Insulated H-compact PLUS
Design / Measuring range	(St: -40 °C to 150 °C) (Ex:) -40 °C to 125 °C Permitted thermometer current max. 5 mA
Terminal housing	Nickel-plated brass
Screw fitting	Sliding, with union nut, according to DIN 3852-B
Certificate	for Ex-proof application PTB 00 ATEX 2127X

Instrument of vibration-resistant design, i. e. for vibratory loads f = 2 to 80 Hz and an acceleration of 0,7*g

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				Date	19.07.04	Monitoring bearing temperature 2 resistance thermometers Pt 100	
				Name	Walla		
				Exam.	Pitka		
AB		01.10.05	Dimić				Sheet
Stat.	Info	Date	Name			A5E00338583A	1 / 5

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The temperature detector in the resistance thermometer is a wire winding (measuring shunt) made of platinum; its resistance changes at a function of temperature in accordance with a specific, repeatable set of basic values. The changes in the resistance are transferred in the form of current changes.

The measuring shunts are double-wound and adjusted to $100 \Omega \pm 0,1 \Omega$ at 0°C . The basic resistance values (i. e. the correlation between the resistance and the temperature) and the permissible deviations are defined in DIN EN 60751.

Basic values and max. permissible deviations to DIN EN 60751 for Pt 100 (Platinum) (extract)

Basic values

Table 1

$^\circ\text{C}$	Ω	$^\circ\text{C}$	Ω
-50	80,31	80	130,90
-40	84,27	90	134,71
-30	88,22	100	138,51
-20	92,16	110	142,29
-10	96,09	120	146,07
0	100,00	130	149,83
10	103,90	140	153,58
20	107,79	150	157,33
30	111,67	160	161,05
40	115,54	170	164,77
50	119,40	180	168,48
60	123,24	190	172,17
70	127,08	200	175,86

Max. permissible deviation from basic values

Table 3

Class	Max. deviation in $^\circ\text{C}$
B (*)	$0,3 + 0,005 * (t)$

(t) is the numerical value of the temperature in $^\circ\text{C}$ without taking its sign in to account

(*) Three-wire circuit

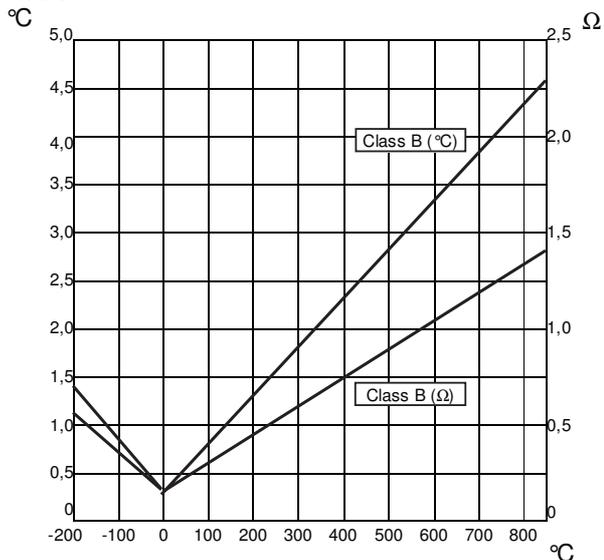
Important: Resistance thermometer may be tested only with single knob measuring bridge in „Wheatstone-circuit“!

Table 2

Adjustment	
Initial adjustment before starting for disconnecting	$T_{\text{max}}=120^\circ\text{C}$
Warning (acc. to measured values)	$T1 = T + 5\text{K}$
Disconnection (acc. to measured values)	$T2 = T + 10\text{K}$

T is the normal operating temperature of the engine on installation site.

Table 4



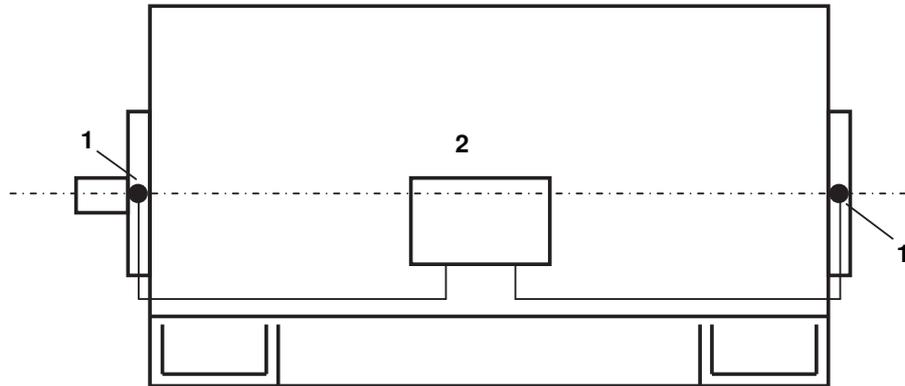
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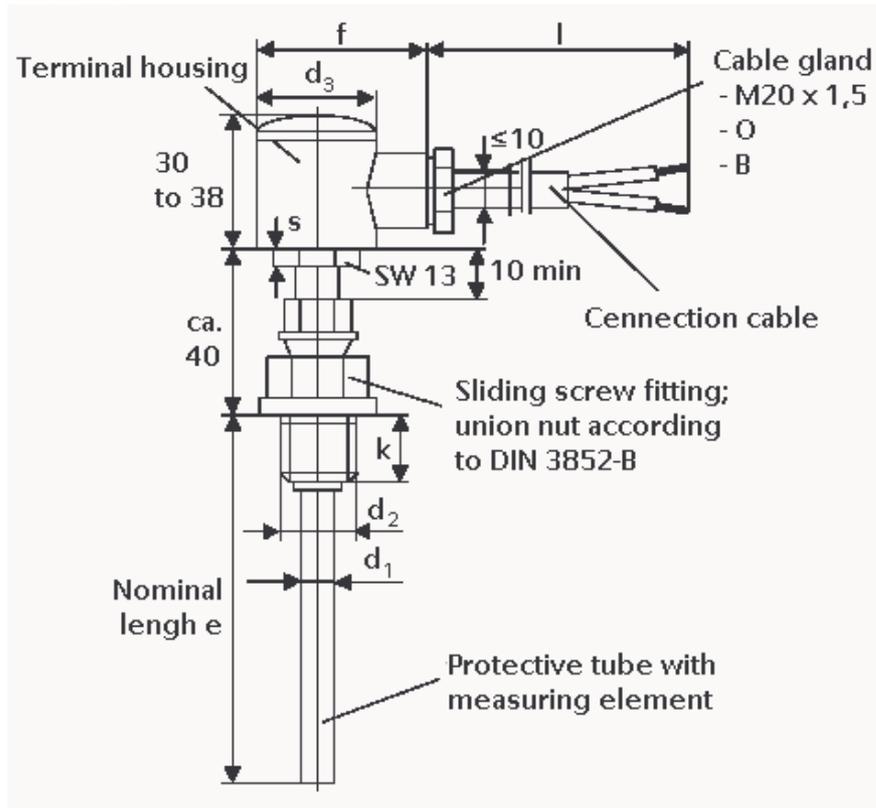
Location diagram:

Location at the machine



1 = Resistant thermometer
 2 = Terminal box

Resistance thermometer



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