

Thermocouples with Flameproof Enclosure with Fabricated Thermowell

According to DIN 43 772, replaceable measuring insert

TTeSrXdA
TTeSrXdAT



Application

The thermocouple models TTeSrXdA and TTeSrXdAT with fabricated thermowells form 2, 2G and 2F according to DIN 43 772 have an EU Type Examination Certificate for the ignition protection type "flameproof enclosure". Both models meet the requirements of the directive 2014/34/EU for the application in potentially explosive atmospheres due to gases and dusts. The thermocouples can be mounted directly into the process. The measuring insert can be replaced as separate component.

For both models, we offer various thermocouple materials according to DIN EN 60 584. In addition, model TTeSrXdAT is available with several fitted transmitters with analogue or digital output.

Standard Versions

Measuring Element

Thermocouple types K, N, J and S according to DIN EN 60 584 as single or dual element

Operating Temperature Ranges

Type K (NiCr-Ni): -40 °C to +800 °C (-40 °F to +1472 °F)¹⁾
Type N (NiCrSi-NiSi): -40 °C to +800 °C (-40 °F to +1472 °F)¹⁾
Type J (Fe-CuNi): -40 °C to +750 °C (-40 °F to +1382 °F)
Type S (Pt10Rh-Pt): 0 °C to +800 °C (+32 °F to +1472 °F)¹⁾

Ambient Temperature Ranges²⁾

-40 °C to +85 °C (-40 °F to +185 °F)

Please refer to operating instruction B71 for the precise conditions.

Accuracy

Class 1 according to DIN EN 60 584

Tolerance value³⁾ J, K, N: +1.5 °C or 0.004 · |t|

for type J in the range: -40 °C to +750 °C (-40 °F to +1382 °F)

for type K, N in the range: -40 °C to +1000 °C (-40 °F to +1832 °F)

Tolerance value³⁾ S: +1.0 °C or (1+(t-1100)·0.003) °C

in the entire operating temperature range

Measuring Insert

Special measuring insert with sleeve, which forms, in combination with a socket, a flame arrester in the connection head. The measuring insert shall only be replaced by an original spare part.

Spring-loaded in the connection head

Insertion tube made of sheathed, mineral insulated cable

Sheath material: Inconel 600 (2.4816) for type K, N, S
1.4401 for type J

Insulation: MgO

Diameter (dF): 3±0.05 or 6±0.06 mm (0.12±0.002 or 0.24±0.0024")

Spring travel: approximately 7 mm (0.28")

Neck Tube

Material: stainless steel 316Ti (1.4571)

Standard length h: 120 mm (4.7")

Thermowell

Form 2, 2F or 2G according to DIN 43 772

Material stainless steel 316Ti (1.4571)

Connection Heads

Types XD-AD, XD-AD-W, XD-SD or XD-SD-W

¹⁾ application range limited due to the thermowell material stainless steel 316Ti (1.4571)

²⁾ permissible storage temperature at the connection head

³⁾ whichever value is higher

⁴⁾ depending on the screwed cable gland used

⁵⁾ only with intrinsically safe TTeMiXiAo/TTeMiXiAoT – measuring insert

⁶⁾ not with display in the connection head



Degree of Protection (DIN EN 60 529)

IP66 – 68⁴⁾

Approvals

II 1G Ex ia db IIC T6...T1 Ga⁵⁾⁶⁾

II 1/2G Ex db IIC T6...T1 Ga/Gb

II 1/2G Ex ia/db IIC T6...T1 Ga/Gb⁵⁾⁶⁾

II 2G Ex db IIC T6...T1 Gb

II 1D Ex ia tb IIIC T80 °C...T440 °C Da⁵⁾⁶⁾

II 1/2D Ex ia/tb IIIC T80 °C...T440 °C Da/Db⁵⁾⁶⁾

II 2D Ex tb IIIC T80 °C...T440 °C Db

Application in Explosion Hazardous Areas

Zones 1, 2, 21, 22

Zones 0, 20:

applicable with measuring insert with ignition protection type Ex ia

Output Signal

Model TTeSrXdA: thermoelectric voltage according to DIN EN 60 584

Model TTeSrXdAT: 4...20 mA, HART® or PROFIBUS® PA/FOUNDATION™ Fieldbus

Electrical Connection Values

For the electrical connection values, please refer to operating instruction B71.

Ordering Information

See page 4

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ARMANO

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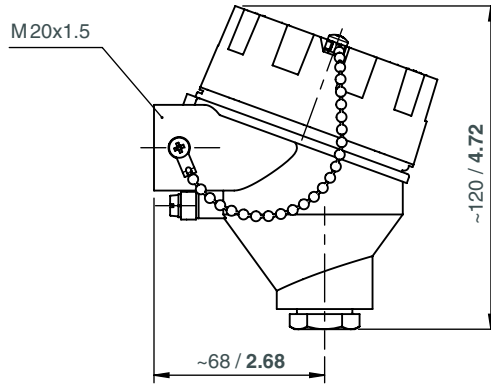
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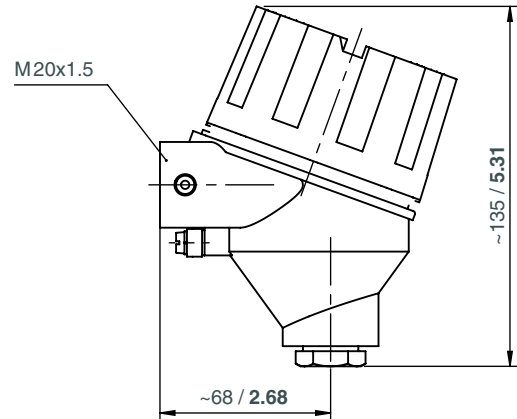
Connection Heads, Dimensional Data (mm/inches)

Connection Heads

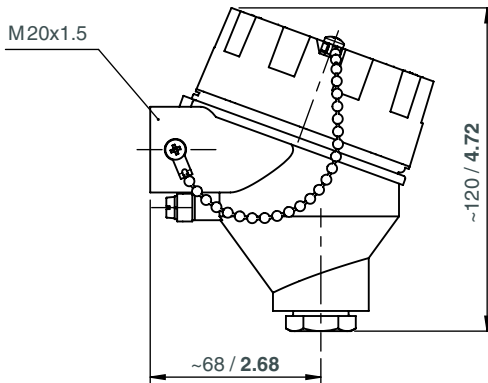
	Head XD-AD
Material:	die-cast aluminum
Lid:	screw-on lid
No. of transmitters:	1
Max. installation dimensions:	Ø 62 x 40 mm (2.44 x 1.57")
Specifics:	–



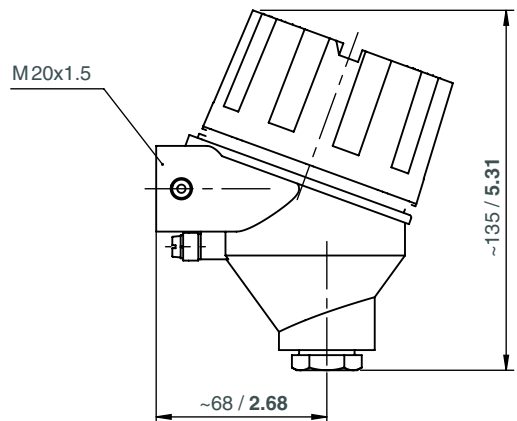
	Head XD-AD-W
Material:	die-cast aluminum
Lid:	screw-on lid with window
No. of transmitters:	1
Max. installation dimensions:	Ø 62 x 40 mm (2.44 x 1.57")
Specifics:	with display in the high lid



	Head XD-SD
Material:	stainless steel 316 (1.4401)
Lid:	screw-on lid
No. of transmitters:	1
Max. installation dimensions:	Ø 62 x 40 mm (2.44 x 1.57")
Specifics:	–



	Head XD-SD-W
Material:	stainless steel 316 (1.4401)
Lid:	screw-on lid with window
No. of transmitters:	1
Max. installation dimensions:	Ø 62 x 40 mm (2.44 x 1.57")
Specifics:	with display in the high lid



Process Connections, Dimensional Data (mm/inches)

Dimensional Data

Process connections: Without thread

Form acc. to DIN 43 772: form 2

Installation length $U1^1$: 280, 370, 520 mm (11.02, 14.57, 20.47")

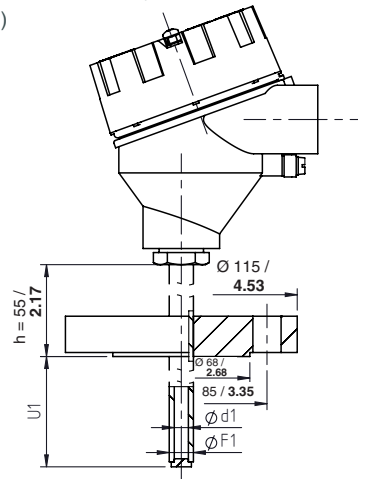
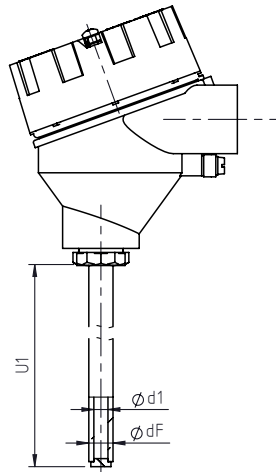
Measuring insert length: $U1 + 33$ mm (1.3")

Blind flange acc. to DIN 2527, DN 25 PN 40, form C form 2F

225, 315, 465 mm (8.86, 12.4, 18.31")

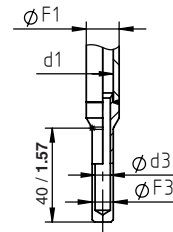
$U1 + h + 33$ mm (1.3")

F1	d1	Measuring insert Ø
12 / 0.47	9 / 0.35 ²⁾	6 / 0.24
14 / 0.55	9 / 0.35	6 / 0.24 ³⁾



Tapered measuring tip²⁾

F1	d1	F3	d3	Measuring insert Ø
12 / 0.47	7 / 0.28	6 / 0.24	3.5 / 0.14	3 / 0.12
14 / 0.55	9 / 0.35	9 / 0.35	6.5 / 0.26	6 / 0.24



Process connection: Thread spigot

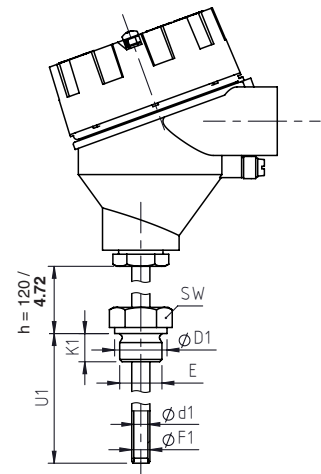
Form acc. to DIN 43 772: form 2G

Installation length $U1^1$: 160, 250, 400 mm (6.3, 9.84, 15.75")

Measuring insert length: $U1 + h + 33$ mm (1.3")

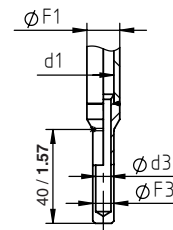
E	F1	d1	Measuring insert Ø
G ½ B (½" BSP) ½" NPT ²⁾ M20x1.5 ²⁾	12 / 0.47	7 / 0.28	6 / 0.24
G ¾ B (¾" BSP) ²⁾ G 1 B (1" BSP)	14 / 0.55	9 / 0.35	6 / 0.24 ³⁾

E	K1	i2	D1	SW
G ½ B (½" BSP)	14 / 0.55 ⁴⁾	–	26 / 1.02	27 / 1.06
½" NPT	19 / 0.75	8.13 / 0.32	–	27 / 1.06
M20x1.5	14 / 0.55	–	25 / 0.98	27 / 1.06
G ¾ B (¾" BSP)	16 / 0.63	–	27 / 1.06	32 / 1.26
G 1 B (1" BSP)	18 / 0.71 ⁴⁾	–	39 / 1.54	41 / 1.61



Tapered measuring tip²⁾

F1	d1	F3	d3	Measuring insert Ø
12 / 0.47	7 / 0.28	6 / 0.24	3.5 / 0.14	3 / 0.12
14 / 0.55	9 / 0.35	9 / 0.35	6.5 / 0.26	6 / 0.24



¹⁾ Deviating lengths available – please specify when ordering.

²⁾ No version according to DIN 43 772.

³⁾ With crimped-on sleeve Ø 8 x 50 mm (0.31 x 1.97") in the sensor range. Measuring insert with a consistent diameter of 8 mm (0.31") upon request.

⁴⁾ Deviating from DIN 43 772, we manufacture the length of the thread spigot according to DIN 3852-2.

