

Resistance thermometer For sanitary applications Model TR20, flush diaphragm, NEUMO BioControl®

WIKA data sheet TE 60.20



further approvals
see page 6

Applications

- Food industry
- Sanitary applications
- Bio and pharmaceutical industry

Special features

- Dead space free
- Hygienic version
- Materials and surface finish quality in accordance with standards of hygienic designs
- Material and surface finish quality in accordance with pharmaceutical industry directives and standards



Resistance thermometer model TR20
Options: Sealing combination at neck tube, cable gland in hygienic design

Description

The model TR20 resistance thermometer is used for temperature measurement in sanitary applications.

It is equipped with a NEUMO BioControl® flush connection and is so particularly suitable for applications where a thermowell immersed into the process medium is not possible or not desired. For increased hygiene requirements for those elements in contact with the surrounding environment, a stainless steel head is available in an optimised hygienic design.

BioControl® is a registered trademark of the company NEUMO.

Sensor

Versions with 1 x Pt100 in 2-, 3- or 4-wire connection. The standard temperature range is -50 ... +150 °C.

Sensor tolerance value per DIN EN 60751

- Class B
- Class A (not with 2-wire connection)

The combination of a 2-wire connection with class A is not permissible, because the lead resistance of the measuring insert overrides the higher sensor accuracy.

For detailed specifications for Pt100 sensors, see Technical information IN 00.17 at www.wika.com.

Documentation and correction of measuring errors

With these electrical thermometers, the measuring errors can be determined under realistic mounting conditions and certified with a test certificate. The standard test temperature is 70 °C; others available on request.

If a digital transmitter is mounted within the thermometer, any measured error determined can be corrected using the transmitter's adaption feature.

Neck tube

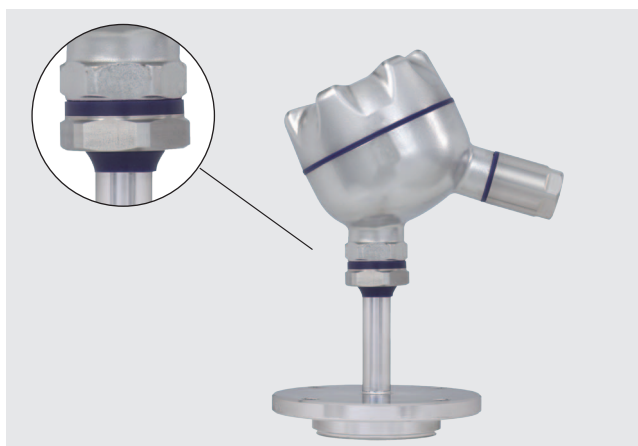
- Material stainless steel
- Diameter 12 mm
- Neck length 70 mm (standard)
50 mm

others on request

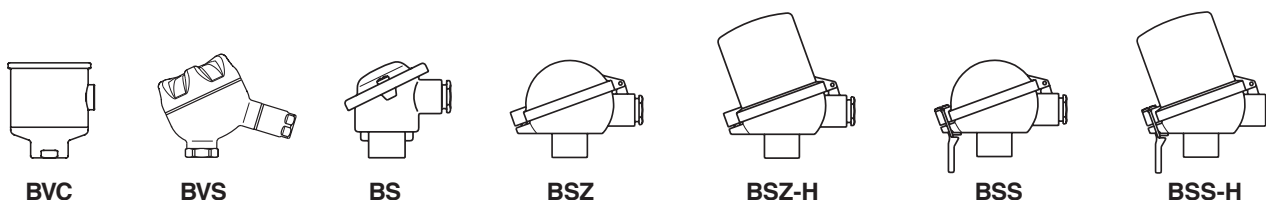
Options

The transition from the connection head to the thermowell is effected via an optional sealing combination (polyurethane) of flat gasket and wiper. This combination permanently prevents the penetration and depositing of humidity and impurities in this area (IP 68). Additionally, the sealing combination simplifies the cleaning process significantly.

The design of the BVS head combined with the cable gland in hygienic design results in an easy to clean and hygienic measuring location, even in areas which are not in contact with the medium.



Connection head



Model	Material	Cable entry	Ingress protection	Cap	Surface finish	Weight in kg
BVC	Stainless steel (1.4571)	M16 x 1.5 ¹⁾	IP 68	Flat screw cover	Metal blank	0,60
BVS	Stainless steel (1.4308)	M20 x 1.5 ¹⁾	IP 68	Screw cover, Hygienic Design	Precision casting, electropolished	0,50
BS	Aluminium	M20 x 1.5 ¹⁾	IP 65	Cap with 2 screws	Blue, lacquered ²⁾	0.14
BSZ	Aluminium	M20 x 1.5 ¹⁾	IP 65	Hinged cover with cylinder head screw	Blue, lacquered ²⁾	0.29
BSZ-H	Aluminium	M20 x 1.5 ¹⁾	IP 65	Hinged cover with cylinder head screw	Blue, lacquered ²⁾	0.30
BSS	Aluminium	M20 x 1.5 ¹⁾	IP 65	Hinged cover with clip	Blue, lacquered ²⁾	0.27
BSS-H	Aluminium	M20 x 1.5 ¹⁾	IP 65	Hinged cover with clip	Blue, lacquered ²⁾	0.32

1) Standard
2) RAL 5022

Connection head with digital indicator (option)

As an alternative to the standard connection head the thermometer can be fitted with an optional DIH10 digital indicator. The connection head used for this is similar to the model BSZ-H head. For operation, a 4 ... 20 mA transmitter is needed, which is mounted to the measuring insert. The indication range is configured identically to the measuring range of the transmitter.



Fig. connection head with digital indicator, model DIH10

Transmitter (option)

Depending on the connection head used, a transmitter can be mounted within the thermometer.

- Mounted instead of terminal block
- Mounted within the cap of the connection head
- Mounting not possible

Mounting of 2 transmitters on request.

Connection head	Transmitter model					
	T12	T19	T24	T32	T53	T91.10
BVC	○	○	○	○	○	○
BVS	○	○	○	○	○	○
BS	–	○	○	–	○	○
BSZ / BSZ-K	○	○	○	○	○	○
BSZ-H / BSZ-HK	●	●	●	●	●	●
BSS	○	○	○	○	○	○
BSS-H	●	●	●	●	●	●

Model	Description	Explosion protection	Data sheet
T19	Analogue transmitter, configurable	Without	TE 19.03
T24	Analogue transmitter, PC configurable	Optional	TE 24.01
T91.10	Analogue transmitter, fixed measuring range	Without	TE 91.01
T12	Digital transmitter, PC configurable	Optional	TE 12.03
T32	Digital transmitter, HART® protocol	Optional	TE 32.04
T53	Digital transmitter FOUNDATION™ Fieldbus and PROFIBUS® PA	Standard	TE 53.01

BioControl® connection

The flange connection is designed for fitting to the model 910.60 NEUMO BioControl® system.

BioControl® connection

Size 25, 50 and 65

Wetted material

Stainless steel 1.4435

Wetted surface

Versions:

- 0.8 µm (standard)
- 0.4 µm
- 0.4 µm electropolished
- 0.25 µm mechanically and electropolished

Sealing (available as an option)

EPDM or FEP with FPM core
(both materials are FDA approved)

Nominal pressure

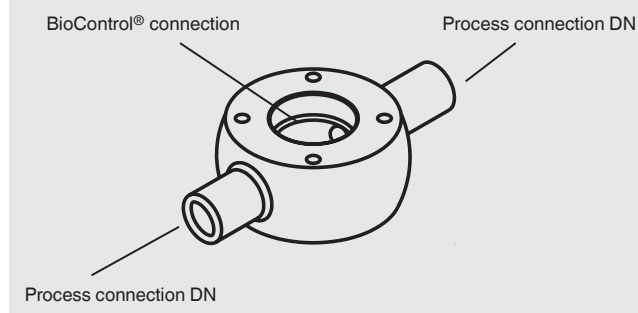
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BioControl® housing

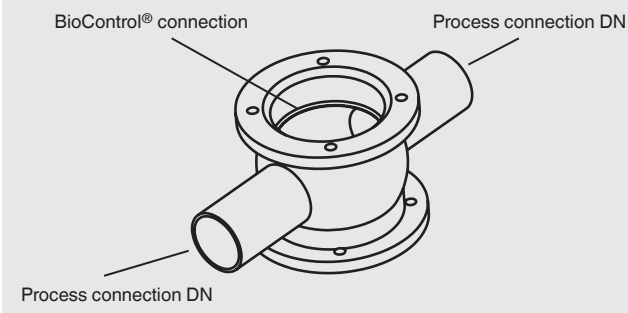
The housing of the BioControl® system is not part of the scope of delivery of the resistance thermometer described here, and can be ordered as an additional item.

For a detailed description of this housing, see data sheet AC 09.14.

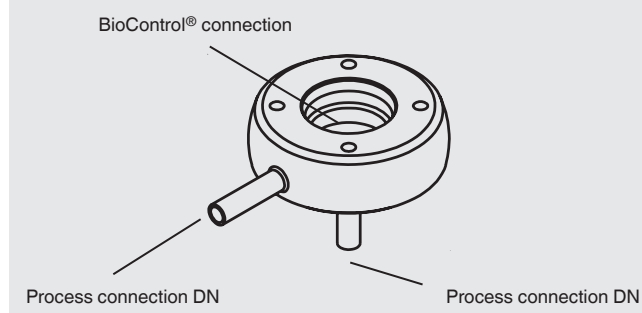
Housing type (G), size 25



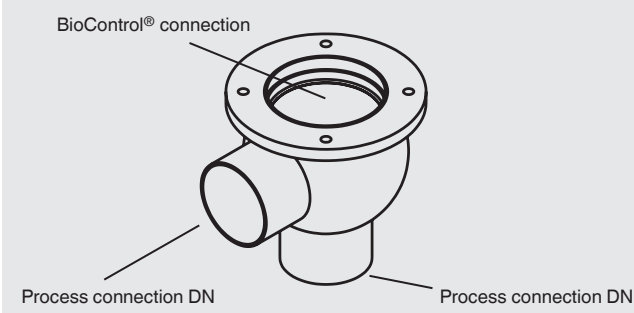
Housing type (G), sizes 50 and 65



Housing type - angled variant (U), size 25

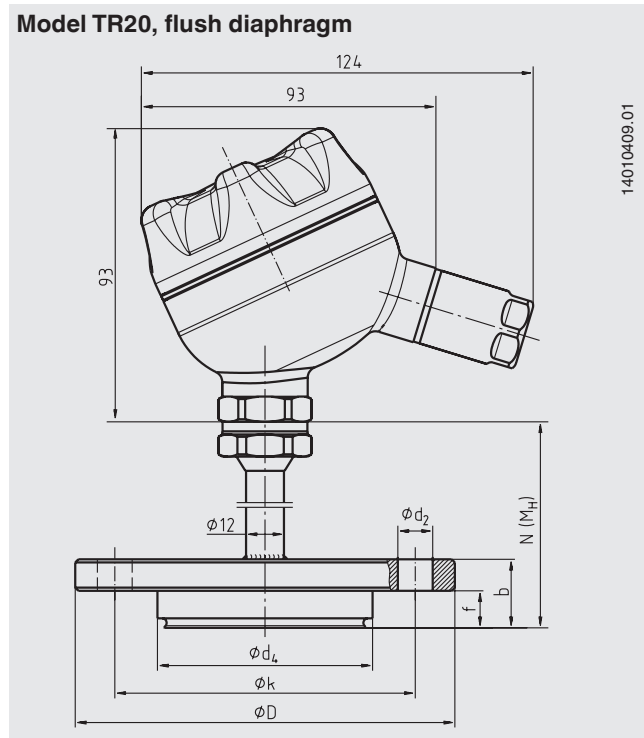


Housing type - angled variant (U), sizes 50 and 65



Dimensions in mm

Standard version



BioControl® connection Size	Dimensions in mm						Weight in kg
	ϕd_2	ϕd_4	ϕD	f	b	ϕk	
25	4 x $\phi 7$	30.5	64	11	20	50	1.0
50	4 x $\phi 9$	50	90	17	27	70	1.4
65	4 x $\phi 11$	68	120	17	27	95	2.0

Explosion protection (option)

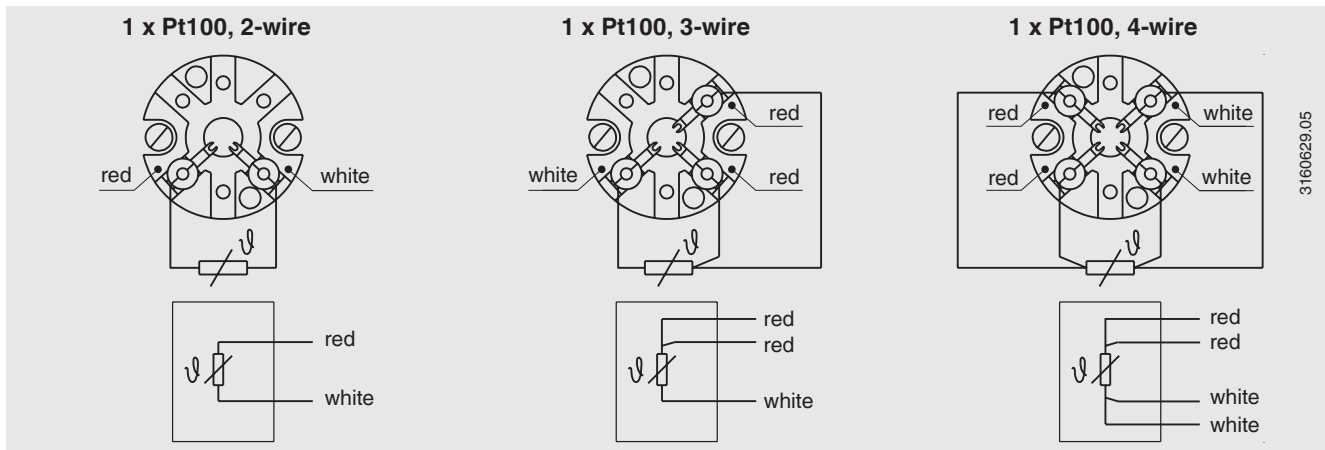
Resistance thermometers of the TR20 series are available with a EC-type examination certificate for "intrinsically safe", Ex i, ignition protection.

These instruments comply with the requirements of 94/9/EC (ATEX) directive for gas.

The classification/suitability of the instrument (permissible power P_{max} as well as the permissible ambient temperature) for the respective category can be seen on the EC-type examination certificate and in the operating instructions.

Built-in transmitters have their own EC-type examination certificate. The permissible ambient temperature ranges of the built-in transmitters can be taken from the corresponding transmitter approval. The system operator is responsible for using suitable thermowells.

Electrical connection



For the electrical connections of built-in temperature transmitters see the corresponding data sheets or operating instructions.

Approvals

- ATEX
- GOST-R
- MakNII

Certificates

- 3-A
- KazInMetr
- BelGIM

further approvals and certificates see locale website

Ordering information

Model / Connection head / Cable entry of connection head / Terminal block, transmitter / Process connection / Surface of wetted parts / Neck tube / Measuring element / Connection method / Temperature range / Certificates / Options

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