

Operating instructions



II 2G Ex h IIC T6...T1 Gb X
II 2D Ex h IIIC T6...T1 Db X

Bimetal thermometer per 2014/34/EG (ATEX)

types:

B20-B21-B22-B23

armatherm

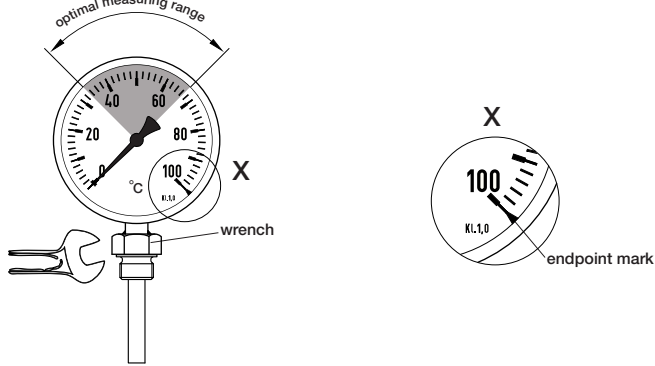
Grevenmarschstraße 38, 32657 Lemgo, Germany

 www.armatherm.de

Special conditions for use (X-Conditions)

These thermometers comply with EN 13190, DIN 43772 and DIN 16179.

- The user must ensure that the correct temperature measuring device is selected with regard to the effect of the medium on the material used, display range and design. The display range of the temperature measuring instrument is optimally selected when the operating temperature is in the middle third of the display range.
- As a rule, a temperature measuring instrument is mounted with the dial vertical. In case of deviations, the position mark on the dial must be observed.



- The temperature measuring point should be prepared according to the specifications for screw-in holes or thermowells. Further instructions can be found in VDE/VDI guidelines 3511 and 3512 sheet 2. Sealing washers to DIN 7603A are suitable for sealing. The correct tightening torque depends on the material and shape of the seal used. It should not exceed 80 Nm. When screwing and unscrewing temperature gauges, do not tighten on the housing, but only on the wrench flats.
- Temperature measuring devices must be galvanically connected to the plant system via the process connection!
- Temperature measuring instruments without glycerine or oil filling must be mounted vibration-free. If this is not possible, the frequency range $<150\text{Hz}$ at $0.7g = 7\text{m/s}^2$ acceleration must not be exceeded. Measuring instruments should be arranged so that they are easy to read.
- Temperature measuring instruments with glycerine or oil filling must be installed without vibration. If this is not possible, the frequency range $<150\text{Hz}$ with $2g = 20\text{m/s}^2$ acceleration must not be exceeded. The devices have a vent screw which must be operated in accordance with the information plate on the measuring device housing.
- We recommend suitable protective tubes between the temperature measuring point and the temperature measuring device, which allow the measuring device to be replaced or a zero point check to be carried out.
- The temperature measuring device must be mounted in such a way that the permissible operating temperature (environment/material to be measured) is neither exceeded nor fallen short of, also taking into account the influence of convection and heat radiation on the housing. For this purpose, the temperature measuring instruments must be protected by sufficiently long measuring lines, water siphons or thermowells.

Permissible temperatures

- **Environment:** -40 ... +60°C. Note the fact that in hybrid mixtures special properties change the ignition temperature. To avoid additional heating the devices must not be exposed to direct sunlight during operation.
- **Medium:** The permissible medium temperature depends not only on the device design but also on the ignition temperature of the surrounding gases and vapors or dusts.
- **Caution!** The temperature of gaseous substances may increase due to heat of compression. In such cases, the rate of pressure change may have to be throttled or the permissible medium temperature reduced.
- **Safety:** A heat reflux from the process which exceeds the ignition temperature of the surrounding explosive atmosphere is not permitted and must be prevented by suitable thermal insulation!

Temperature class	Max. Surface temperature
T6	+65°C
T5	+80°C
T4	+105°C
T3	+160°C
T2	+240°C
T1	+250°C (+360°C for devices without filling)

In explosive atmospheres (dust), the permissible surface temperature is $\leq 2/3$ of the minimum ignition temperature in °C. In case of dust deposits $\leq 5\text{mm}$ thickness, the temperature difference between surface and dust layer must be min. 75K, for thicker dust layers, higher temperature safety distances must be observed.

Material	Typ B20-B21-B22-B23
Wetted parts:	Stainless Steel
Movement:	Stainless Steel
Dial and Pointer:	Aluminium
Window:	Float glas/Safety glas

Maintenance and cleaning

- The temperature measuring devices are maintenance-free.
- The accuracy of the display should be checked approximately once a year.
- The temperature measuring instruments may only be cleaned with a damp cloth.
- Repairs may only be carried out by the manufacturer or qualified personnel.



Attention!

Residual media in the measuring systems of the devices can endanger personnel, environment and equipment! Precautionary measures must be taken in accordance with the safety data sheet of the medium!

Warnung!

It must be ensured that the medium temperature for filled instruments does not exceed 250°C

- Directive 2014/34/EU -
Equipment and protective systems for use
in potentially explosive areas



Acknowledgement

BVS 21 ATEX H/B 040

in accordance with article 13 (1) b) ii)
of having received the documentation in compliance with annex VIII number 2

Manufacturer: ARMATHERM GmbH & Co. KG
Address: Grevenmarsch 38
32657 Lemgo

The certification body of DEKRA Testing and Certification GmbH, notified body No. 0158 in accordance with article 17 of directive 2014/34/EU of the European Parliament and of the Council of the European Communities of February 26, 2014, acknowledges to have received the documentation mentioned below on July 23, 2021

Documentation on:

Bimetallthermometer Typ B20, Typ B21, Typ B22, Typ B23
Rohrfedermanometer Typ R10, Typ R11, Typ R14, Typ R16, Typ R20, Typ R21, Typ R23, Typ R24, Typ R25
Kapselfedermanometer Typ K10, K20
Plattenfedermanometer Typ P10, Typ, P15, Typ P20, Typ P21, Typ P23
Gasdruckthermometer Typ G20, Typ G21

The documentation is neither examined on sufficiency nor is it verified. It will be archived for a period of 10 years from the date of the acknowledgement. If the manufacturer desires to have the duration of archival storage extended, he is to duly communicate this in writing.

DEKRA Testing and Certification GmbH

Bochum, 05. August 2021



Certification body



Special service unit

EU Konformitätserklärung
EU declaration of conformity
EU déclaration de conformité

Name des Herstellers:
name of manufacturer:
nom du fabricant:

Armatherm
Fabrik Technischer Messinstrumente
GmbH & Co. KG

Anschrift des Herstellers:
address of manufacturer:
adress du fabricant:

Grevenmarschstr. 38
32657 Lemgo
Germany

Dokument Nr./Document No./Document No.: 00419327

Wir erklären in alleiniger Verantwortung, dass die Bimetallthermometer
We declare under our sole responsibility that the bimetal thermometers
Nous déclarons sous notre seule responsabilité que le thermomètres bimétalliques

Typ/Model/Type: **B20, B21, B22, B23**

die grundlegenden Schutzanforderungen der folgenden Richtlinie erfüllen: 2014/34/EU (ATEX)
are in conformity with the essential protection requirements of the directive 2014/34/EC (ATEX)
sont conformes aux exigences essentielles de sécurité de la directive 2014/34/EC (ATEX)

— Kennzeichnung/Marking/Marquage:



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Die Geräte wurden entsprechend den folgenden Normen geprüft ¹⁾: EN 1127-1:2019
The devices had been tested according to the following standards ¹⁾: DIN EN ISO 80079-36:2016
Les appareils ont été vérifiés suivant les normes ¹⁾: DIN EN ISO 80079-37:2016

- ¹⁾ Konformitätsbewertungsverfahren, Interne Fertigungskontrolle
- ¹⁾ Conformity assessment procedure, Internal control of Production
- ¹⁾ Procédures d'évaluation de la conformité, Contrôle Interne de Fabrication

Die Dokumentation ist hinterlegt bei der benannten Stelle DEKRA EXAM 0158, Vorgangsnummer: BVS 21 ATEX H/B 040
Documentation deposited at notified body DEKRA EXAM 0158, Reference number: BVS 21 ATEX H/B 040
Documentation déposée à l'organisme notifié DEKRA EXAM 0158, Numéro de référence: BVS 21 ATEX H/B 040

Lemgo, den 03.08.2021

Ort und Datum der Ausstellung
Place and date of issue
Lieu et date

Manfred Jünemann,

Geschäftsführer
managing director
gérant