

(1) **EC-Type-Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**

- (3) **Certificate Number** TÜV 12 ATEX 101309 X
- (4) for the equipment: TNBCD flameproof enclosures  
Type: TNBCD xx yy zz
- (5) of the manufacturer: BARTEC TECHNOR AS
- (6) **Address:** Dusavikveien 39, P.O. Box 658, 4003 Stavanger, Norway
- Order number: 8000407787
- Date of issue: 2013-11-05

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 12 203 101309.

- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN 60079-0:2012**

**EN 60079-1:2007**

**EN 60079-31:2009**

- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.
- (12) The marking of the equipment or protective system must include the following:



**II 2G or II 2(1) G**  
**II 2D**

Ex d [ia Ga] [ib Gb] [op is Ga] IIB T6-T4 Gb  
Ex tb [ia Da] [ib Db] IIIB T85°C – T135°C Db

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



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(13) **SCHEDULE**

(14) **EC-Type-Examination Certificate No. TÜV 12 ATEX 101309 X**

(15) Description of equipment

The TNBCD "d" enclosure is a complete assembly for termination, control and signalling devices and comprises of a SS316 Acid Resistant Stainless steel or CF3M enclosure in various sizes up to (570 x 380 x 350) mm.

The enclosures are designed for mounting of standard components inside. Equipment to be installed inside TNBCD enclosures:

- Instruments of measure of electrical parameters.
- Electronic thermoregulations units
- Radio communication and telephony units, max 3,5 W 80 µS, 250 µJ.
- Laser or optical fibre units in accordance with Technical Note 53-BCD-5, section 6
- PLC and Multiplexer
- Devices for the control and the weight measure: pressure, damp; level; temperature.
- Automatic and /or earth leakage circuit breakers.
- Switches; on load switches; rotary switches.
- Fuses
- Contactors; remote control switches
- Relays
- Electrical and electronic regulation and starting devices.
- Time relays
- Photocells
- Capacitors
- Transformers
- Anti-condensate heating
- Various electronic boards

**Type reference:**

TNBCD xx yy zz

xx: Dimensions of box, width (26 to 57) cm

yy: Dimension of box, height: (25 to 38) cm

zz: Dimension of box, depth: max. 35 cm

Enclosure type	Maximum window diameter
2625xx	65/100 mm
3233xx	65/100 mm
4535xx	65/100/154 mm
5738xx	65/100/154 mm

IP 66 or IP67/68 – 0.4bar, 2 h

IP67/68 – 0.4 bar only for TNBCD without windows, with gasket according to BCD-14-4

Max voltage: 1000 V

Ambient temperature area: -20°C to +60°C

Temperature range if applicable -50°C to +60°C

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Max heat dissipation in accordance with document: "Specifications for the completion of the TNBCD enclosures" rev. D dated 2012-06-21. Max 280 W

The calculations are based upon temperatures anticipated for the outside of the Ex-d enclosure and inside of Ex e junction box.

**Calculated with Tamb=40°C**

Size	Max volt	Max. Heat dissipation (W)					
		TNBCD-T6	TNBCD-T5	TNBCD-T4	TNCC-T6	TNCC-T5	TNCC-T4
TNBCD262531/ TNCC202025	1000V	50	70	115	10	15	25
TNBCD323321/ TNCC 202025	1000V	60	85	140	10	15	25
TNBCD323321/ TNCC 252015	1000V	60	85	140	10	15	25
TNBCD453535/ TNCC381925	1000V	100	135	225	15	25	40
TNBCD453535/ TNCC383821	1000V	100	135	225	30	45	75
TNBCD573835/ TNCC453825	1000V	125	170	280	40	55	90

**Calculated with Tamb=60 °C**

Size	Max volt	Max. Heat dissipation (W)					
		TNBCD-T6	TNBCD-T5	TNBCD-T4	TNCC-T6	TNCC-T5	TNCC-T4
TNBCD262531/ TNCC202025	1000V	25	45	90	5	10	20
TNBCD323321/ TNCC 202025	1000V	30	55	110	5	10	20
TNBCD323321/ TNCC 252015	1000V	30	55	110	5	10	20
TNBCD453535/ TNCC381925	1000V	50	85	175	5	15	30
TNBCD453535/ TNCC383821	1000V	50	85	175	15	25	55
TNBCD573835/ TNCC453825	1000V	60	105	215	20	35	70

When Equipment with a limited Tamb is used (in this case the temperature inside the housing), a temperature calculation have to be performed with the TempCalc-sm Rev. 1 calculation formula. A maximum case internal safe temperature have to be ensured. In such a case the maximum power might be reduced then.

(16) Test documents are listed in the test report No. 12 203 101309

(17) Special conditions for safe use

- It's only allowed for the manufacturer to make the finished mounting of the enclosures in accordance to "Technical Note 53-BCD-5, Specification for the completion of TNBCD enclosures".
- Spacing between internal mounted components must be in accordance with Installation drawing BCD-122-5.
- The requirements in clause D.4 of EN 60079-1 shall be observed.
- Ultrasonic sources may not be mounted into the enclosure.
- Primary or secondary batteries may not be installed.
- [Ex i] certified components can only be installed if two thermostats are mounted in series for disconnecting the [Ex i] component if the temperature inside the flameproof enclosure exceeds the highest Tamb for the [Ex i] component. Alternatively a full scale test for determination of the surface temperature must be performed.
- When viewing windows are mounted the temperature of the cementing resp. window shall not exceed : Enclosure with window type 190 and cementing DP190, according to drawing CDX-75-4: -50°C to 90°C. Enclosure with window according to drawing BCD-55-4: -20°C to 70°C. For other windows the temperature on the cementing/window shall not exceed: - 20°C to 90°C
- Certification with Tamb -50°C is limited to enclosure TNBCD 573835 with lid of stainless steel and with window type 195 according to drawing CDX-75-4.
- IP67 and IP68 - 0.4 bar 2 h only for TNBCD, without lamp globe, push buttons and window according to drawing BCD47-02-4.
- Maximum number of entries are 18, maximum size are M42. Positions are described on drawing made for each standard size of box. Drawing with a reference number BCD-40-3.
- IECEx Certified and tested components that are build into the enclosure's walls need to fulfil the requirements of types of explosion protection used as well the IP level shown on the type label.
- Bartec Technor's Type TNCN/TNCC Ex e junction box may be used for indirect cable entry.
- Rotating machines, or other devices which create turbulence, shall not be incorporated.
- Oil-filled circuit-breakers and contactors shall not be used.
- The Maximum dissipated power in the TNBCD enclosures have to follow values in the manufacturer's power dissipation tables.
- Calculations of inner and surface temperatures must be performed by program: TempCalc-sm Rev. 1.
- The Manufacturer has to ensure all maximum temperatures of equipment used inside or in the enclosure walls are lower that it's maximal Tamb.
- Repairs on flame-proof joints can only be done by Bartec Technor.

(18) Essential Health and Safety Requirements

no additional ones