



DET NORSKE VERITAS

EC-TYPE EXAMINATION CERTIFICATE

[2] **EQUIPMENT OR PROTECTIVE SYSTEM INTENDED FOR USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES DIRECTIVE 94/9/EC**

[3] EC-Type Examination Certificate Number: **DNV-2001-OSL-ATEX-0176X** Rev. 3

[4] Equipment or Protective System: **Junction box**

[5] Applicant – Manufacturer or Authorized representative: **BARTEC TECHNOR AS**

[6] Address: **Dusavikveien 39, P.O.Box 658
4003 Stavanger
Norway**

[7] This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

[8] DNV, notified body number 0575 in accordance with Article 9 of Council Directive 94/9/EC of 23 March 1994, 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 confidential reports listed in section 14.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0: 2012, EN 60079-7: 2007, EN 61241-0: 2006 and EN 61241-1: 2004

[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 and construction of the specified equipment or protected system. If applicable, further requirements of this Directive apply to the manufacturer and supply of this equipment or protective system.

[12] The marking of the equipment or protective system shall include the following:

 **II 2 G** **Ex eb IIC T6/T5/T4 Gb**
 **II 2 D** **Ex tD A21 IP66-68 T80°C to 110°C**

Høvik, 2013-09-20
for Det Norske Veritas AS

Asle Kaastad
Certification Manager



Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate. Ref.: www.dnv.com/digitalsignatures

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 300.000. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



[13]

Schedule

[14] **EC-TYPE EXAMINATION CERTIFICATE No.:** DNV-2001-OSL-ATEX-0176X

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Certificate History

Revision	Description	Report no.	Issue date
-	Original certificate	2002-3076	2003-01-17
1	Updated according to recent standards and add standards for dust	2008-3217 & 2009-3422	2009-09-10
2	Added Tamb range for option 1, updated descriptive documents	2008-3217 r2	2012-11-29
3	Included new gasket material and new flange design, updated standard for gas.	2008-3217 r3	2013-09-20

[15] Description of Equipment or Protective System

15.1 The TNCN Junction Box comprises a stainless steel enclosure in various sizes up to max 1000x2200xXXX, the quantity and sizes of terminals is based upon heat dissipation, not limited to samples as described below: Enclosures can be delivered with screws, hinges and screws, hinges and quick locks.

The enclosure may also be used as a connection box for intrinsically safe circuits, the code is: Ex [ia] IIC T6.

Option 1:

Enclosures can be delivered with screws, hinges and screws, hinges and quick locks.

T_{amb} = -40°C to +40°C, Ex eb IIC T5 Gb. Internal wiring must have a temperature rating of at least 85°C.

For dust: tD A21 IP66-IP68 T85°C

T_{amb} = -40°C to +45°C, Ex eb IIC T5 Gb. Internal wiring must have a temperature rating of at least 90°C

For dust: tD A21 IP66-IP68 T90°C

T_{amb} = -40°C to +60°C, Ex eb IIC T4 Gb. Internal wiring must have a temperature rating of at least 110°C.

For dust: tD A21 IP66 -IP68 T110°C

T_{amb} -40°C to +60°C, Ex eb IIC T6 Gb for load on terminals **below 4A**. Internal wiring must have a temperature rating of at least 80°C

For dust: tD A21 IP66-IP68 T80°C

Option 2:

Extended Tamb to -50°C. Enclosures can be delivered with screws, hinges and screws, silicone gasket.

T_{amb} = -50°C to +40°C, Ex eb IIC T5 Gb. Internal wiring must have a temperature rating of at least 85°C.

For dust: tD A21 IPxx T85°C (see below for IP rating)

T_{amb} = -50°C to +60°C, Ex eb IIC T4 Gb. Internal wiring must have a temperature rating of at least 110°C.

For dust: tD A21 IPxx T110°C (see below for IP rating)

Ingress protection of enclosures:

Option 1: IP66 / IP67. With silicone gasket IP68 (0.2 bar for 30 minutes)

Option 2:

For enclosure with silicone gasket, cover screws, cover screws and hinges, and extended Tamb: IP66

For enclosure with silicone gasket SIL 16, cover screws, cover screws and hinges and extended Tamb: IP66/67, IP68 (0,2 bar for 30 min)

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Operating temperatures

Operating temperature for neoprene gasket and Lexan window: - 40°C to + 100°C.

Operating temperature for silicon gasket: -50 to + 200°C.

Operating temperature for silicone gasket SIL 16: -50°C to +110°C

15.2 Power dissipation in the various sizes of the enclosure:

The size is indicated in cm W*H*D. Where D is indicated as xx the depth may be 10cm or larger.

Size	Max. dissipated Power at Ta=40
121009	6 W
1515xx	15 W
2828xx	30 W
2838xx	40 W
3020xx	30 W
3838xx	40 W
3845xx	50 W
3857xx	65 W
5757xx	90 W
5776xx	120 W
7676xx	180 W
7695xx	200 W
9595xx	240 W
76114xx	240 W
95114xx	240 W
95152xx	240 W
95200xx	240 W

Intermediate sizes between the sizes described in the table may use the dissipated power of the nearest smaller size.

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15.2 Dissipated power in the terminals:

	Box up to TNCN1515XX		Box up to TNCN2828XX		Box up to TNCN5757XX	
Terminal size	Dissipated power		Dissipated power		Dissipated power	
1,5 mm ²	0,9W @ 16A	0,4W @ 10A	2,2W @ 16A	0,9W @ 10A	3,0W @ 16A	1,2W @ 10A
2,5 mm ²	0,9W @ 20A	0,6W @ 16A	1,4W @ 20A	0,9W @ 16A	2,8W @ 20A	1,8W @ 16A
4 mm ²	0,9W @ 25A	0,6W @ 20A	1,4W @ 25A	0,9W @ 20A	2,7W @ 25A	1,7W @ 20A
6 mm ²	0,8W @ 31A	0,6W @ 25A	1,0W @ 31A	0,9W @ 25A	2,7W @ 31A	1,8W @ 25A
10 mm ²	1,0W @ 43A	0,7W @ 35A	1,7W @ 43A	1,1W @ 35A	3,1W @ 43A	2,0W @ 35A
16 mm ²	1,6W @ 65A	1,0W @ 52A	2,6W @ 65A	1,7W @ 52A	4,7W @ 65A	3,0W @ 52A
35 mm ²	2,7W @ 120A	1,7W @ 96A	4,2W @ 120A	2,7W @ 96A	7,4W @ 120A	4,7W @ 96A
50 mm ²	4,8W @ 135A	3,8W @ 120A	6,1W @ 135A	4,8W @ 120A	9,0W @ 135A	7,1W @ 120A
95 mm ²	7,5W @ 210A	3,1W @ 135A	9,2W @ 210A	3,8W @ 135A	12,9W @ 210A	5,3W @ 135A
150 mm ²	11,7W @ 250A	8,2W @ 210A	13,2W @ 250A	9,3W @ 210A	16,5W @ 250A	11,6W @ 210A
185 mm ²	15,3W @ 350A	7,8W @ 250A	17,1W @ 350A	8,7W @ 250A	21,1W @ 350A	10,8W @ 250A
240 mm ²	6,3W @ 307A	3,6W @ 234A	8,1W @ 307A	4,7W @ 234A	12,2W @ 307A	7,1W @ 234A
300 mm ²	12,1W @ 452A	5,6W @ 307A	14,5W @ 452A	6,7W @ 307A	19,9W @ 452A	9,2W @ 307A
	Box up to TNCN95114XX		Box up to TNCN95152XX		Box up to TNCN100200XX	
Terminal size	Dissipated power		Dissipated power		Dissipated power	
1,5 mm ²	3,3W @ 16A	1,3W @ 10A	6,5W @ 16A	2,5W @ 10A	7,5W @ 16A	4,8W @ 10A
2,5 mm ²	5,0W @ 20A	3,2W @ 16A	6,0W @ 20A	3,9W @ 16A	7,5W @ 20A	4,8W @ 16A
4 mm ²	4,9W @ 25A	3,1W @ 20A	5,9W @ 25A	3,8W @ 20A	7,3W @ 25A	4,7W @ 20A
6 mm ²	5,0W @ 31A	3,3W @ 25A	6,0W @ 31A	3,9W @ 25A	7,5W @ 31A	4,8W @ 25A
10 mm ²	5,6W @ 43A	3,7W @ 35A	6,7W @ 43A	4,4W @ 35A	8,3W @ 43A	5,5W @ 35A
16 mm ²	8,3W @ 65A	5,3W @ 52A	9,9W @ 65A	6,3W @ 52A	12,3W @ 65A	7,8W @ 52A
35 mm ²	13,1W @ 120A	8,4W @ 96A	15,6W @ 120A	10,0W @ 96A	19,0W @ 120A	12,0W @ 96A
50 mm ²	14,0W @ 135A	11,1W @ 120A	16,2W @ 135A	12,8W @ 120A	19,4W @ 135A	15,3W @ 120A
95 mm ²	19,4W @ 210A	8,0W @ 135A	22,2W @ 210A	9,2W @ 135A	26,3W @ 210A	10,9W @ 135A
150 mm ²	22,2W @ 250A	15,7W @ 210A	24,7W @ 250A	17,4W @ 210A	28,4W @ 250A	20,1W @ 210A
185 mm ²	28,1W @ 350A	14,4W @ 250A	31,1W @ 350A	15,9W @ 250A	35,6W @ 350A	18,2W @ 250A
240 mm ²	19,3W @ 307A	11,2W @ 234A	22,4W @ 307A	13,0W @ 234A	26,9W @ 307A	15,6W @ 234A
300 mm ²	29,2W @ 452A	13,5W @ 307A	33,2W @ 452A	15,3W @ 307A	39,2W @ 452A	18,1W @ 307A

For loads on terminals below 4 A: The quantity will be limited by the available space inside the box. There is no restriction in the number of terminals. The temperature class will then be T6.

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15.3 Variations:

- 15.3.1 The enclosure can be equipped with windows in lid up to a max size of 0.3 m² for each window. Material of window can be either glass and/or Lexan. If Lexan window is used the following label must be present on the TNCN box
“WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS”
- 15.3.2 Mounting of all types of approved transit frames is allowed.
- 15.3.3 Several TNCN junction boxes may be mounted together using a special flange connection, or welded together.
- 15.3.4 TNCN may be supplied with gland plates.
- 15.3.5 TNCN may be supplied with one or several doors.
- 15.3.6 TNCN may be supplied with a self-regulating trace heating cable.
- 15.3.7 TNCN may be used as connection box for flameproof equipment.
- 15.3.8 TNCN may be equipped with certified connectors, glands and plugs.

[16] **Project No.:** PRJC-59216-2008-PRC-NOR

Descriptive Documents

Number	Title	Rev.	Date
CNX-170-5	Type label for TNCN Ex e	L	2013-08-29
CNX-176-4	General arrangement drawing Mounting of MCT	B	2013-09-04
CNX-177-4	General arrangement drawing Mounting detail for window in TNCN box/cabinet	B	2013-09-04
CNX-175-4	Alternative locking details for TNCN boxes	F	2010-11-04
CNX-179-4	Arrangement of flange plates or flange connection of TNCN junction boxes, 2 sheets	B	2009-08-26
CNX-174-4	G. A. drawing for door	B	2010-11-09
CNX-178-4	General arrangement drawing for TNCN box/cabinet	B	2013-09-04
CNX-181-4	Installation of self-regulating heat trace cables in TNCN Ex e enclosures	B	2013-09-04
CNX-180-4	Connection of TNCN boxes/cabinets	B	2013-09-04
51-CNX-5	User manual TNCN Ex e Junction Box	H	2013-08-30
52-CNX-5	Terminal list TNCN	B	2013-09-03

Routine tests

A dielectric strength test shall be carried out on final assembly according to clause 6.1 of EN 60079-7: 2007, with the voltage levels described in 6.1, based on rated voltage U_n .

[17] Special Conditions for Safe Use

If Lexan window is used there is a risk for electrostatic discharge, and the following label must be present on the TNCN box “WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD - SEE INSTRUCTIONS”

[18] Essential Health and Safety Requirements

See part 9 of this certificate

END OF CERTIFICATE

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