

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate no.:
MEDB00001MS
Revision No:
2

Application of: Directive 2014/90/EU of 23 July 2014 on marine equipment (MED), issued as "Forskrift om Skipsutstyr" by the Norwegian Maritime Authority. This Certificate is issued by DNV AS under the authority of the Government of Norway.

This is to certify:

that the Penetrations through "A" class divisions: electric cable transits

with type designation(s)

Roxtec sealing system with multidiameter technology: R-series (steel)

issued to

Roxtec International AB
Karlskrona, Sweden

is found to comply with the requirements in the following Regulations/Standards:

Regulation (EU) 2024/1975,

item No. MED/3.26a. SOLAS 74 as amended, Regulation II-2/9, IMO 2010 FTP Code and IMO MSC.1/1488

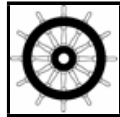
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2025-02-13**.

Issued at **Høvik** on **2024-12-09**

DNV local unit:
Denmark CMC

Approval Engineer:
Marcin Tobiasz



Notified Body
No.: **0575**



for **DNV AS**

Digitally Signed By:
Christine Mydlak-Röder
Location: **DNV Høvik, Norway**
Mydlak-Röder, Christine
Head of Notified Body

A U.S. Coast Guard approval number will be assigned to the equipment when the production module has been completed and will appear on the production module certificate (module D, E or F), as allowed by the "Agreement between the United States of America and the EEA EFTA states on the mutual recognition of Certificates of Conformity for Marine Equipment" signed 17 October 2005, and amended by Decision No 1/2023 dated August 21st, 2023.



The mark of conformity may only be affixed to the above type approved equipment and a Manufacturer's Declaration of Conformity issued when the production-surveillance module (D, E or F) of Annex B of the MED is fully complied with and controlled by a written inspection agreement with a Notified Body. The product liability rests with the manufacturer or his representative in accordance with Directive 2014/90/EU.

This certificate is valid for equipment, which is conform to the approved type. The manufacturer shall inform DNV AS of any changes to the approved equipment. This certificate remains valid unless suspended, withdrawn, recalled or cancelled.

Should the specified regulations or standards be amended during the validity of this certificate, the product is to be re-approved before being placed on board a vessel to which the amended regulations or standards apply.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

“Roxtec sealing system with multidiameter technology: R-series (steel)”
 consisting of a steel sleeve, bolted, welded or attached through expansion (R X) to a steel section. Sleeve is fitted with a Roxtec R frame (standard, Ex or EMC) in sizes 50-200. The R-frame is filled with Roxtec (standard, Ex or EMC) halogen free RM modules.

For further details, see drawings listed under Type Examination documentation below.

Application/Limitation

Approved for use as a single or multicable penetration system in class A-0 and A-60 steel bulkheads and decks for approved ship cables. Other applications are subject to case-by-case approval.

Class A-15 and A-30 shall be insulated as A-60 and in addition the division is to be insulated at least 200 mm around the penetration.

Table 1: Approved cable penetration in A-60 steel deck

Type	Size	Sleeve type	Max. cable Diameter [mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	SLR-series ¹⁾	90	55	4 – 7	Symmetric	Partially insulated (S1593991 ID 1)
R	50 – 200	SLFR-series ²⁾	90	55	4 – 7	Any	Partially insulated (S1593991 ID 1)
R	50 – 100	SLA	50	86 – 96	4 – 5	Either	Fully insulated ⁴⁾ (S1594004 ID 1-2)
R	75 – 200	SLFR X	83	55	4 – 7	Underside	Fully insulated (S1595154 ID 1)
R	50 – 200	SL-series ³⁾	90	Up to 400	4 – 7	Any	Fully insulated (S1593957 ID 2)

- 1) SLR-series includes the following sleeve types: SLR, SLR Ex or sleeves equal to Roxtec dimensions specified in drawing No. S1587721, Rev. A.
- 2) SLFR-series includes following sleeve types: SLFR, SLFR Ex, SLFO /RI.
- 3) SL-series are longer versions of the sleeves in SLR-series.
- 4) No insulation between cables.

Table 2: Approved cable penetration in A-60 steel bulkhead

Type	Size	Sleeve type	Max. cable Diameter [mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	SLR-series ¹⁾	90	55	4 – 7	Symmetric	Partially insulated (S1593991 ID 2)
R	50 – 100	SLA	50	86 – 96	4 – 5	Either	Fully insulated ⁴⁾ (S1594004 ID 3-5)
R	70 – 200	SLFR X	67	55	4 – 7	Insulated side	Partially insulated (S1595154 ID 2)
R	50 – 200	SL-series ³⁾	90	Up to 400	4 – 7	Any	Fully insulated on both sides (S1593957 ID 1)

- 1) SLR-series includes the following sleeve types: SLR, SLR Ex or sleeves equal to Roxtec dimensions specified in drawing No. S1587721, Rev. A.
- 2) SLFR-series includes following sleeve types: SLFR, SLFR Ex, SLFO /RI.
- 3) SL-series are longer versions of the sleeves in SLR-series.
- 4) No insulation between cables.

Table 3: Approved cable penetration in A-0 steel deck

Type	Size	Sleeve type	Max. cable Diameter [mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	SLR-eries ¹⁾	39	55	4 – 7	Symmetric	None (S1594024 ID 2)
R	50 – 200	SLR-eries ¹⁾	90	55	4 – 7	Symmetric	Partially insulated (S1594024 ID 1)
R	50 – 200	SLFR-series ²⁾	90	55	4 – 7	Any	Partially insulated (S1594024 ID 1)
R	50 – 100	SLA	50	86 – 96	4 – 5	Underside	Fully insulated (S1596198 ID 1)
R	50 - 100	SLA	50	86 – 96	4 - 5	Topside	None (S1596198 ID 2)

R	75 – 200	SLFR X	83	55	4 – 7	Underside	Fully insulated (S1595196 ID 1)
R	50 – 200	SL-series ³⁾	90	Up to 400	4 – 7	Any	Fully insulated ⁴⁾ (S1593984 ID 2)

- 1) SLR-series includes the following sleeve types: SLR, SLR Ex or sleeves equal to Roxtec dimensions specified in drawing No. S1587721, Rev. A.
- 2) SLFR-series includes following sleeve types: SLFR, SLFR Ex, SLFO /RI.
- 3) SL-series are longer versions of the sleeves in SLR-series.
- 4) No insulation between cables.

Table 4: Approved cable penetration in A-0 steel bulkhead

Type	Size	Sleeve type	Max. cable Diameter [mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	SLR-series ¹⁾	90	55	4 – 7	Symmetric	None (S1594024 ID 3)
R	50 – 100	SLA	50	86 – 96	4 – 5	Either	Fully insulated (S1596198 ID 4-7) ^{4), 5)}
R	70 – 200	SLFR X	67	55	4 - 7	Insulated side	Partially insulated (S1595196 ID 2)
R	50 – 200	SL-series ³⁾	90	Up to 400	4 - 7	Any	Fully insulated on both sides (S1593984 ID 1)

- 1) SLR-series includes the following sleeve types: SLR, SLR Ex or sleeves equal to Roxtec dimensions specified in drawing No. S1587721, Rev. A.
- 2) SLFR-series includes following sleeve types: SLFR, SLFR Ex, SLFO /RI.
- 3) SL-series are longer versions of the sleeves in SLR-series.
- 4) No insulation for size 50 installed on unexposed side.
- 5) No insulation between cables.

The insulation materials used have to be approved according to the Marine Equipment Directive and bear the Mark of Conformity.

All SLA sleeves shall be installed in accordance with Roxtec's SLA Installation Instructions, including aperture dimensions and tolerances, tightening torque, etc.

Please note Installation instruction for Roxtec RX attached through expansion: Aperture irregularities are acceptable within min and max diameters. (Max Ø = Min Ø + 2mm).

Penetrations through structural divisions should not impair the structural strength of the division. Special consideration should be given to bulkheads and decks with high stress locations (IMO MSC.1/Circ.1488).

Each product shall be supplied with its manual for installation and maintenance.

Type Examination documentation

- Test report No. 4P06068 dated 17 January 2015 from SP, Borås, Sweden.
- Test report No. PGA10723A dated 4 February 2016 from DBI, Hvidovre, Denmark.
- Test report No. PGA10724A dated 5 February 2016 from DBI, Hvidovre, Denmark.
- Test report No. PGA10800A dated 26 May 2016 from DBI, Hvidovre, Denmark.
- Test report No. PGA10871A, Rev.2 dated 9 December 2016 from DBI, Hvidovre, Denmark.
- Test report No. 7P02167 dated 7 August 2017 from SP, Borås, Sweden.
- Test report No. RS-18/B-485/E dated 10 December 2018 from CTO, Gdansk, Poland.
- Test report No. RS-18/B-255/E dated 20 August 2019 from CTO, Gdansk, Poland.
- Test report No. 8P07092 dated 27 September 2019 from SP, Borås, Sweden.
- Test report No. 8P07094 dated 16 January 2020 from SP, Borås, Sweden.
- Test report No. RS-22/B-338/E dated 28 October 2022 from CTO, Gdansk, Poland.
- Test report No. PGB10167A dated 18 Mars 2022 from DBI, Hvidovre, Denmark.
- Test report No. RS-22/B-336/E dated 28 October 2022 from CTO, Gdansk, Poland.
- Test report No. RS-22/B-338/E dated 28th October 2022 from CTO, Gdansk, Poland.
- Test report No. RS-22/B-152/E dated 4 May 2022 from CTO, Gdansk, Poland.
- Test report No. RS-23/B-105/E dated 23 May 2023 from CTO, Gdansk, Poland.
- Test report No. RS-23/B-106/E dated 23rd May 2023 from CTO, Gdansk, Poland.
- Test report No. PGB10172A dated 17 June 2022 from DBI, Hvidovre, Denmark.
- Test report No. PGB10177A dated 4 November 2022 from DBI, Hvidovre, Denmark.
- Test report No. PGB10174A dated 13 July 2022 from DBI, Hvidovre, Denmark.

Test report No. RS-22/B-153/E dated 4 May 2022 from CTO, Gdansk, Poland.
Test report No. RS-23/B-031/E dated 7 March 2023 from CTO, Gdansk, Poland.
Test report No. PGB10169A dated 18 March 2022 from DBI, Hvidovre, Denmark.
Test report No. PGB10345A dated 13 May 2024 from DBI, Hvidovre, Denmark.

Drawing No. S1593991, Rev. A dated 11 September 2023 from mnaufacturer.
Drawing No. S1595154, Rev. C dated 25 October 2024 from mnaufacturer.
Drawing No. S1595196, Rev. B dated 16 August 2024 from mnaufacturer.
Drawing No. S1593984, Rev. A dated 11 September 2023 from mnaufacturer.
Drawing No. S1594004, Rev. A dated 11 September 2023 from mnaufacturer.
Drawing No. S1593957, Rev. A dated 11 September 2023 from mnaufacturer.
Drawing No. S1594024, Rev. A dated 11 September 2023 from mnaufacturer.
Drawing No. S1596198, Rev. B dated 21 August 2024 from mnaufacturer.

Installation instructions Roxtec SLA sleeve from Roxtec.

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Marking of product

The product or packing is to be marked with name and address of manufacturer, type designation, fire-technical rating, MED Mark of Conformity and USCG approval number if applicable (see first page).

**Additional application/information for Watertightness/gastightness
 (Not part of the Marine Equipment Directive requirement)**

Product description

Roxtec sealing system with multidiameter technology: R-series (steel)” consisting of a steel sleeve, bolted, welded or attached through expansion (R X) to a steel section. Sleeve is fitted with a Roxtec R frame (standard, Ex or EMC) in sizes 50-200. The R-frame is filled with Roxtec (standard, Ex or EMC) halogen free RM modules.

Application/Limitation

Approved for penetration in steel bulkheads or decks limited to a pressure according to below table:

Type	Installation	Watertightness [bar]	Gas tightness [bar]	Test report
SLR-series ¹⁾	Welded	4.00	2.67	MLM010238
SLFR-series ²⁾	Bolted ³⁾	3.33	1.67	MLM020408
SLFR X	Expansion	4.00	2.67	MLM030473-1
SL-series ⁴⁾	Welded	1.33	0.67	N142G50V
SLA	Bolted	2.67	1.00	N141EX8Z

- 1) SLR-series includes the following sleeve types: SLR, SLR Ex or sleeves equal to Roxtec dimensions specified in drawing No. S1587721 Rev. A.
- 2) SLFR-series includes the following sleeve types: SLFR, SLFR Ex.
- 3) Installed with pre punched gasket and self-tapping screws.
- 4) SL-series are longer versions of the sleeves in SLR-series.

The penetration system is not to be used for penetrating boundaries of tanks.

Type Approval documentation

- Test report No. MLM 010238 dated 30 August 2001 from DNV Malmö.
- Test report No. MLM 020408 dated 3 June 2001 from DNV Malmö.
- Test report No. MLM 030473-1 dated 27 January 2003 from DNV Malmö.
- Test report No. 40007647-1 dated 13 December 2011 from DNV Malmö.
- Test report No. N142G50V dated 11 November 2022 from DNV Malmö.
- Test report No. N142JK51 dated 27 February 2023 from DNV Malmö.
- Test report No. N141EX8Z, Rev.1 dated 10 August 2017 from DNV Malmö.

Tests carried out

Pressure tests with water and Helium according to DNV Type Approval Programme 8.471.19-1.