

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB00002SA
Revision No:
3

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: RS-series (steel)

Issued to

Roxtec International AB
Karlskrona, Sweden

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

Regulation **(EU) 2022/1157,**

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

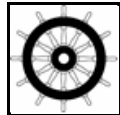
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2027-12-20**.

Issued at **Høvik** on **2022-12-21**

DNV local station:
Sweden CMC

Approval Engineer:
Helge Bjørnå



Notified Body
No.: **0575**

for **DNV AS**

Sverre Olav Bergli
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 1/2019 dated February 22nd, 2019.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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: RS-series (steel division)

The RS cable penetration seal consist of two halves with removable layers making it adaptable to cables of different diameters. It is available in different versions, RS, RS OMD, RS EMC or RS EX, depending on application.

The RS-seal is installed into a steel sleeve that is either welded, bolted, attached through expansion (SLFRS X), attached with a nut (SLA) or by threads (SL 25/M24x1.5 and SL 31/M30x2) onto the steel division.

Application/Limitation

Approved for use as a single cable 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 bulkhead

| RS-series size | Sleeve type | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve insulation |
|----------------|---------------------------|--------------------------|--------------------|-----------------------|-----------------|-------------------|
| 23 - 150 | SLRS-series ¹⁾ | 100 | 35 - 65 | 4 - 7 | Symmetric | S1574995; No. 1 |
| 23 - 125 | SLFRS X | 86 | 65 | 4 - 7 | Insulated side | S1574993; No. 1 |
| 25 - 75 | SLA | 32 | 47 - 86 | 4 - 5 | Either | S1575003; No. 1-3 |
| 31 | Threaded sleeve | 13 | 68 | 2.3 | Insulated side | S1575852; No. 1 |

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to Roxtec dimensions specified in drawing S1586454.

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

| RS-series size | Sleeve type | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve Insulation |
|----------------|---------------------------|--------------------------|--------------------|-----------------------|-----------------|-------------------|
| 23 - 150 | SLRS-series ¹⁾ | 96 | 35 - 65 | 4 - 7 | Any | S1574995; No. 2-3 |
| 25 - 125 | SL-series ²⁾ | 90 | Up to 400 | 4 - 7 | Any | S1579166 |
| 25 - 150 | SLFRS X | 90 | 65 | 4 - 7 | Underside | S1574993; No. 2 |
| 25 - 75 | SLA | 32 | 47 - 86 | 4 - 5 | Top side | S1575003; No. 4-6 |
| 25 - 31 | Threaded sleeve | 13 | 63 - 68 | 2.3 | Top side | S1575852; No. 2 |

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to Roxtec dimensions specified in drawing S1586454.

2) SL-series are longer versions of sleeves in SLRS-series

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

| RS-series size | Sleeve type | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve Insulation |
|----------------|---------------------------|--------------------------|--------------------|-----------------------|-----------------|-------------------|
| 23 - 150 | SLRS-series ¹⁾ | 100 | 35 - 65 | 4 - 7 | Symmetric | S1574998; No. 1 |
| 23 - 150 | SLFRS X | 86 | 65 | 4 - 7 | Insulated side | S1582114; No. 1 |
| 25 - 75 | SLA | 32 | 47 - 86 | 4 - 5 | Either | S1575008; No. 1-4 |
| 31 | Threaded sleeve | 13 | 68 | 2.3 | Either | S1575011; No. 1 |

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to Roxtec dimensions specified in drawing S1586454.

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

| RS-series size | Sleeve type | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve Insulation |
|----------------|---------------------------|--------------------------|--------------------|-----------------------|-----------------|-------------------|
| 23 - 150 | SLRS-series ¹⁾ | 93 | 35 - 65 | 4 - 7 | Symmetric | S1574998; No. 2 |
| 25 - 125 | SL-series ²⁾ | 90 | Up to 400 | 4 - 7 | Any | S1582116 |
| 25 - 125 | SLFRS X | 90 | 65 | 4 - 7 | Underside | S1582114; No. 2 |
| 25 - 75 | SLA | 32 | 47 - 86 | 4 - 5 | Top side | S1575008; No. 5-7 |
| 31 | Threaded sleeve | 13 | 68 | 2.3 | Top side | S1575011; No. 2 |

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to Roxtec dimensions specified in drawing S1586454.
 2) SL-series are longer versions of sleeves in SLRS-series

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

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

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

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).

Type Examination documentation

Test report No. PGA10652 dated 3 July 2015 from DBI, Hvidovre, Denmark.
 Test report No. PGA10723A dated 4 February 2016 from DBI, Hvidovre, Denmark.
 Test report No. PGA10800A dated 26 May 2016 from DBI, Hvidovre, Denmark.
 Test report No. 6P02249 dated 17 August 2016 from SP, Borås, Sweden.
 Test report No. PGA10870A dated 1 November 2016 from DBI, Hvidovre, Denmark.
 Test report No. PGA10871A dated 31 October 2016 from DBI, Hvidovre, Denmark.
 Test report No. 6P10024 dated 7 March 2017 from SP, Borås, Sweden.
 Test report No. RS-17/B-395/E dated 30 October 2017 from CTO, Gdansk, Poland.
 Test report No. RS-18/B-022/E dated 29 January 2018 from CTO, Gdansk, Poland.
 Test report No. 8P07092 dated 27 September 2019 from SP, Borås, Sweden.
 Test report No. PGA11610A dated 1 January 2020 from DBI, Hvidovre, Denmark.
 Test report No. PGA11611A dated 11 January 2020 from DBI, Hvidovre, Denmark.
 Test report No. 8P07094 dated 16 January 2020 from SP, Borås, Sweden.
 Test report No. RS-20/B-017/E dated 23 January 2020 from CTO, Gdansk, Poland.
 Test report No. RS-20/B-081/E dated 31 March 2020 from CTO, Gdansk, Poland.
 Test report No. RS-20/B-083/E dated 20 April 2020 from CTO, Gdansk, Poland.
 Test report No. RS-20/B-191/E dated 5 June 2020 from CTO, Gdansk, Poland.
 Test report No. PGB10110A dated 27 April 2021 from DBI, Hvidovre, Denmark.
 Test report No. PGB10118A dated 15 November 2021 from DBI, Hvidovre, Denmark.
 Test report No. RS-21/B-517/E dated 15 December 2021 from CTO, Gdansk, Poland.
 Test report No. RS-21/B-518/E dated 15 December 2021 from CTO, Gdansk, Poland.
 Test report No. PGB10169A dated 18 March 2022 from DBI, Hvidovre, Denmark.
 Test report No. RS-22/B-153/E dated 8 April 2022 from CTO, Gdansk, Poland.
 Test report No. 7P02024 dated 8 June 2022 from SP, Borås, Sweden.
 Test report No. PGB10172A dated 17 June 2022 from DBI, Hvidovre, Denmark.

Drawing No. S1574993 Rev. A dated 28 December 2021 from maker.
 Drawing No. S1574995 Rev. B dated 8 August 2022 from maker.
 Drawing No. S1574998 Rev. B dated 8 August 2022 from maker.
 Drawing No. S1575003 Rev. A dated 28 December 2021 from maker.
 Drawing No. S1575008 Rev. B dated 28 December 2021 from maker.
 Drawing No. S1575011 Rev. A dated 29 December 2021 from maker.
 Drawing No. S1575852 Rev. A dated 31 January 2022 from maker.
 Drawing No. S1579166 Rev. A dated 3 May 2022 from maker.
 Drawing No. S1582114 Rev. A dated 9 August 2022 from maker.
 Drawing No. S1582116 Rev. A dated 9 August 2022 from maker.
 Drawing No. S1586454 Rev. A dated 30 November 2022 from maker.



Job Id: **344.1-000153-105**
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Revision No: **3**

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.

APPENDIX

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

Product description

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

The RS cable penetration seal consist of two halves with removable layers making it adaptable to cables of different diameters. It is available in different versions, RS, RS OMD, RS EMC or RS EX, depending on application.

The RS-seal is installed into a steel sleeve that is either welded, bolted, attached through expansion (SLFRS X) or attached with a nut (SLA) onto the steel division.

Application/Limitation

Approved for penetration in steel bulkheads or decks limited to a pressure of 4.00 bar watertightness and 2.67 bar gastightness.

For bolted versions with gasket and self-tapping screws, the pressure is limited to 3.33 bar watertightness and 1.67 bar gastightness.

For SLA sleeves the pressure is limited to 2.67 bar watertightness and 1.00 bar gastightness.

For longer versions of sleeves in SLRS-series the pressure is limited to 2.00 bar watertightness and 1.00 bar gastightness.

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

Type Approval documentation

Test report No. MLM 010235 dated 21 August 2001 from DNV Malmö.

Test report No. MLM 010133 dated 26 February 2002 from DNV Malmö.

Test report No. MLM 020408 dated 3 June 2002 from DNV Malmö.

Test report No. MLM 030473-1 dated 27 January 2003 from DNV Malmö.

Test report No. N141EX8Z Rev. 2 dated 10 August 2017 from DNV GL Malmö.

Test report No. DOC-004793 Rev. A dated 20 June 2022 from maker.

Tests carried out

Pressure tests with water and helium according to DNV Type Approval Programme 8.471.19-1 and DNVGL-CP-0165.