

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00002SA
Revision No:
0

This Certificate is issued by DNV UK Limited based on authorisation of the Maritime & Coast Guard Agency (MCA) as an UK Approved Body to undertake conformity assessments on marine equipment in accordance with the requirements of the Merchant Shipping (Marine Equipment) Regulations 2016 as amended.

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 **MSN 1874 Amendment 7,**

item No. UK/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 **London** on **2023-03-30**

DNV local unit:
Sweden CMC



for **DNV UK Ltd.**

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Maritime &
Coastguard
Agency

UK Approved Body Authorised
by the MCA

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-control phase module (D, E or F) of Schedule 2 of the Merchant Shipping (Marine Equipment) Regulations 2016, as amended is fully complied with and controlled by a written inspection agreement with an approved body. The product liability rests with the manufacturer or his representative in accordance with the Merchant Shipping (Marine Equipment) Regulations 2016.

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 This certificate remains valid unless suspended, withdrawn, re-called, or cancelled.

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 UK Marine Equipment Regulation and bear the UK 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.



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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, UK Mark of Conformity (see first page).

APPENDIX

Additional application/information for Watertightness/gastightness (Not part of the UK Marine Equipment Regulation 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 DNV-CP-0165.