

TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MERB00002SA
Revision No:
1

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 9,**

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 **2024-11-21**

DNV local unit:
Denmark CMC



for **DNV UK Ltd.**

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**Maritime &
Coastguard
Agency**

UK Approved Body Authorised
by the MCA

This certificate will not be valid if the manufacturer makes any changes or modifications to the approved type of equipment, which have not been notified to, and agreed with the approved body named on this certificate.

During the period of validity of this certificate the applicable regulations (international conventions and the relevant resolutions and circulars of the IMO) and testing standards may change, therefore the product conformity may need to be re-assessed by the Approved Body.

"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. In case limitations of use apply, these should be indicated in the Annex.

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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-0, 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 - 125	SLRS-series ¹⁾	90	35 - 65	4 - 7	Any	Fully insulated on one side (S1588058, 1)
23 - 150	SLRS-series ¹⁾	100	35 - 65	4 - 7	Any	Fully insulated on one side (S1588058, 2)
25 - 125	SL-series ²⁾	90	Up to 400	4 - 7	Any	Fully insulated both sides (S1588060, 1)
23 - 125	SLFRS X	86	65	4 - 7	Insulated side	Fully insulated on one side (S1588957, 1)
25 - 75	SLA	32	47 - 86	4 - 5	Either	Fully insulated on one side (S1589092, 1 – 3)
31	Threaded sleeve	13	68	2.3	Insulated side	Fully insulated on one side (S1575852, 1)

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex, SLFRS, SLFRS Ex, SLFRS BG, SLFO, SLFO/RI or sleeves equal to Roxtec dimensions specified in drawing S1586454 Rev.A

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

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	Partially insulated on one side (S1588058, 3)
25 - 125	SL-series ²⁾	90	Up to 400	4 - 7	Any	Fully insulated on the underside (S1588060, 2)
25 - 150	SLFRS X	90	65	4 - 7	Any	Fully insulated on the underside (S1588957, 2)
25 - 75	SLA	32	47 - 86	4 - 5	Any	Fully insulated on the underside (S1589092, 4-6)
25 - 31	Threaded sleeve	13	63 - 68	2.3	Top side	Fully insulated on one side S1575852; No. 2

1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex, SLFRS, SLFRS Ex, SLFRS BG, SLFO, SLFO/RI or sleeves equal to Roxtec dimensions specified in drawing S1586454 Rev.A

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	None (S1588955, 1)
25 - 125	SL-series ²⁾	90	Up to 400	4 - 7	Any	Fully insulated both sides (S1588060, 1)

23 - 150	SLFRS X	86	65	4 - 7	Insulated side	Fully insulated on one side (S1588955, 1)
25 - 75	SLA	32	47 - 86	4 - 5	Either	None (S1588065, 1)
31	Threaded sleeve	13	68	2.3	Either	None (S1575011, 1)

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

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

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, Top side	None (S1588955, 2)
25 - 125	SL-series ²⁾	90	Up to 400	4 - 7	Any	Fully insulated on the underside (S1588119, 2)
25 - 125	SLFRS X	90	65	4 - 7	Underside	Fully insulated on the underside (S1589097, 2)
25 - 75	SLA	32	47 - 86	4 - 5	Top side	None (S1588065, 2)
25 - 75	SLA	32	47 - 86	4 - 5	Underside	Fully insulated on the underside (S1588065, 3-4)
31	Threaded sleeve	13	68	2.3	Top side	None S1575011; No. 2

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

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

The insulation materials used have to be approved according to the Marine Equipment Regulations 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.
Test report No. RS-17/B-396/E dated 31 October 2017 from CTO, Gdansk, Poland.
Test report No. RS-22/B-338/E dated 28 October 2022 from CTO, Gdansk, Poland.
Test report No. RS-22/B-336/E dated 28 October 2022 from CTO, Gdansk, Poland.
Test report No. 8P07094 dated 23 September 2023 from RISE, Borås, Sweden.
Test report No. PGB10178A dated 4 November 2022 from DBI, Hvidovre, Denmark.
Test report No. PGB10176A dated 4 November 2022 from DBI, Hvidovre, Denmark.
Test report No. RS-23/B-031/E dated 7 March 2023 from CTO, Gdansk, Poland.
Test report No. PGB10177A dated 4 November 2022 from DBI, Hvidovre, Denmark.
Test report No. 6P02249 dated 17 May 2016 from SP, Borås, Sweden.
Test report No. RS-23/B-225/E dated 30 August 2023 from CTO, Gdansk, Poland.
Test report No. RS-23/B-339/E dated 3 November 2023 from CTO, Gdansk, Poland.

Drawing No. S1574995 Rev. B dated 8 August 2022 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. S1586454 Rev. A dated 30 November 2022 from maker.
Drawing No. S1588957 Rev. A dated 17 November 2023 from maker.
Drawing No. S1588058 Rev. A dated 23 November 2023 from maker.
Drawing No. S1588955 Rev. A dated 17 March 2023 from maker.
Drawing No. S1589092 Rev. A dated 17 November 2023 from maker.
Drawing No. S1588065 Rev. A dated 17 November 2023 from maker.
Drawing No. S1588060 Rev. A dated 17 November 2023 from maker.
Drawing No. S1589097 Rev. A dated 17 November 2023 from maker.
Drawing No. S1588119 Rev. A dated 17 November 2023 from maker.

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, and UK Mark of Conformity (see first page).

APPENDIX

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