

# EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:  
**MEDB00006BG**  
Revision No:  
**1**

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: pipe, duct, trunk, etc penetrations**

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) 2023/1667,

**item No. MED/3.26b. SOLAS 74 as amended, Regulation II-2/9, IMO MSC.1/Circ.1276, IMO 2010 FTP Code and IMO MSC.1/1488**

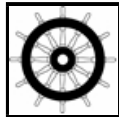
Further details of the equipment and conditions for certification are given overleaf.

This Certificate is valid until **2029-05-07**.

Issued at **Høvik** on **2024-05-08**

DNV local unit:  
**Sweden CMC**

Approval Engineer:  
**Helge Bjørnarå**



Notified Body  
No.: **0575**



for **DNV AS**

Digitally Signed By:

Tessa Biever

Location: DNV Høvik, Norway  
on behalf of

**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)”, consists of a rubber frame (R) that are filled with Roxtec RM modules of different sizes depending on the number/Diameter of the pipes. It is available in standard, Ex and EMC versions depending on application. The R-frame is installed into a steel sleeve (SL) that is welded, bolted, or attached by expansion (SLFR X) onto the steel division.

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

## Application/Limitation

Approved for use as empty, single, or multiple pipe penetration system in A-class steel divisions. Other applications are subject to case-by case approval.

For A-15 and A-30 applications, the penetration shall be insulated as for A-60 and the division is to be fitted with A-60 insulation for a minimum distance of 200 mm around the penetration.

Table 1: Approved pipe penetration in A-60 steel bulkhead.

Frame Type	Size	Pipe material	Pipe diameters (OD) [mm]	Sleeve Type	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	Steel Titanium	6 – 30	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> on one side (S1588636, 8)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Insulated side	Fully insulated <sup>1)</sup> on one side (S1588636, 9)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 500 mm along pipe on one side. (S1588636, 10)
R	50	Copper, CuNi	6 – 10	SLR-series <sup>2)</sup>	55	6	Symmetric	Fully insulated <sup>1)</sup> + 600 mm along pipe on one side. (S1588636, 11)
R	50 – 200	Copper, CuNi	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 600 mm along pipe on one side. (S1588636, 12)
R	50 – 200	Bundle pipe (steel)	8 – 50	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 500 mm along pipe on one side. (S1588636, 13)
R	50 – 200	Empty	NA	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Partially insulated on one side. (S1588636, 14)
R	50 – 200	Steel, Titanium	6 – 30	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated* on both sides. (S1588787, 7)
R	50 – 200	Steel, Titanium	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 500 mm along pipe on one side. (S1588787, 8)
R	50	Copper, CuNi	6 – 10	SL-series <sup>3)</sup>	Up to 400	6	Any	Fully insulated <sup>1)</sup> on both sides and 600 mm along pipe on one side. (S1588787, 9)
R	50 – 200	Copper, CuNi	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 600 mm along pipe on one side. (S1588787, 10)
R	50 – 200	Bundle pipe (steel)	8 – 50	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 500 mm along pipe on one side. (S1588787, 11)
R	70 – 200	Steel, Titanium	6 – 53	SLFR X	55	5.75 – 7	Either	Fully insulated on both sides. (S1588663, 3)

1) No insulation between pipes.

2) SLR-series includes the following types: SLR, SLR Ex or sleeves with equal dimensions specified in drawing S1587721.

3) SL-series are longer versions of sleeves in SLR-series.

Table 2: Approved pipe penetration in A-60 steel deck.

Frame type	Size	Pipe material	Pipe diameters (OD) [mm]	Sleeve type	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	Steel, Titanium	6 – 50	SLR-series <sup>2)</sup>	55	5.75 – 7	Top side, symmetric	Fully insulated <sup>1)</sup> on the underside. (S1588636, 1)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588636, 2)
R	50 – 200	Steel, Titanium	6 – 95	SLR-series <sup>2)</sup>	55	5.75 – 7	Top side, symmetric	Fully insulated <sup>1)</sup> + 400 mm along pipe on the underside. (S1588636, 3)
R	50 – 200	Copper, CuNi	6 – 28	SLR-series <sup>2)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 450 mm along pipe on the underside. (S1588636, 4)
R	50 – 200	Copper, CuNi	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 800 mm along pipe on the underside. (S1588636, 5)
R	50 – 200	Bundle pipe (steel)	8 – 50	SLR-series <sup>2)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588636, 6)
R	50 – 200	Empty	NA	SLR-series <sup>2)</sup>	55	5.75 – 7	Top side, symmetric	Partially insulated on the underside. (S1588636, 7)
R	50 – 200	Steel, Titanium	6 – 50	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on the underside. (S1588787, 1)
R	50 – 200	Steel, Titanium	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588787, 2)
R	50 – 200	Steel, Titanium	6 – 95	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 400 mm along pipe on the underside. (S1588787, 3)
R	50 – 200	Copper, CuNi	6 – 28	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 450 mm along pipe on the underside. (S1588787, 4)
R	50 – 200	Copper, CuNi	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 800 mm along pipe on the underside. (S1588787, 5)
R	50 – 200	Bundle pipe (steel)	8 – 50	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588787, 6)
R	70 – 200	Steel, Titanium	6 – 54	SLFR X	55	5.75 – 7	Either	Fully insulated on the underside. (S1588663, 1)
R	70 – 200	Steel, Titanium	6 – 54	SLFR X	55	5.75 – 7	Either	Fully insulated + 350 mm along pipe on the underside. (S1588663, 2)

1) No insulation between pipes.

2) SLR-series includes the following types: SLR, SLR Ex, SLFR, SLFR Ex, SLFO/RI or sleeves with equal dimensions specified in drawing S1587721.

3) SL-series are longer versions of sleeves in SLR-series.

Table 3: Approved pipe penetration in A-0 steel bulkhead.

Frame type	Size	Pipe material	Pipe diameters (OD) [mm]	Sleeve type	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
R	50 – 100	Steel	6 – 38	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	None. (S1588654, 9)
R	50 – 200	Steel, Titanium	6 – 30	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> on one side (S1588654, 10)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Insulated side	Fully insulated <sup>1)</sup> on one side (S1588654, 11)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 500 mm along pipe on one side. (S1588654, 12)
R	50	Copper, CuNi	6 – 10	SLR-series <sup>2)</sup>	55	6	Symmetric	Fully insulated <sup>1)</sup> + 600 mm along pipe on one side. (S1588654, 13)

R	50 – 200	Copper, CuNi	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 600 mm along pipe on one side. (S1588654, 14)
R	50 – 200	Bundle pipe (steel)	8 – 50	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Fully insulated <sup>1)</sup> + 500 mm along pipe on one side. (S1588654, 15)
R	50 – 200	Empty	NA	SLR-series <sup>2)</sup>	55	5.75 – 7	Symmetric	Partially insulated on one side. (S1588654, 16)
R	50 – 200	Steel, Titanium	6 – 30	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides. (S1588796, 7)
R	50 – 200	Steel, Titanium	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 500 mm along pipe on one side. (S1588796, 8)
R	50	Copper, CuNi	6 – 10	SL-series <sup>3)</sup>	Up to 400	6	Any	Fully insulated <sup>1)</sup> on both sides and 600 mm along pipe on one side. (S1588796, 9)
R	50 – 200	Copper, CuNi	6 – 54	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 600 mm along pipe on one side. (S1588796, 10)
R	50 – 200	Bundle pipe (steel)	8 – 50	SL-series <sup>3)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on both sides and 500 mm along pipe on one side. (S1588796, 11)
R	70 – 200	Steel, Titanium	6 – 53	SLFR X	55	5.75 – 7	Either	Fully insulated on both sides (S1588655, 3)

1) No insulation between pipes.

2) SLR-series includes the following types: SLR, SLR Ex or sleeves with equal dimensions specified in drawing S1587721.

3) SL-series are longer versions of sleeves in SLR-series.

Table 4: Approved pipe penetration in A-0 steel deck.

Frame type	Size	Pipe material	Pipe diameters (OD) [mm]	Sleeve type	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Penetration insulation
R	50 – 200	Steel	6 – 54	SLR-series <sup>2)</sup>	55	5.75 – 7	Top side	None. (S1588654, 1)
R	50 – 200	Steel, Titanium	6 – 50	SLR-series <sup>3)</sup>	55	5.75 – 7	Top side, symmetric	Fully insulated <sup>1)</sup> on the underside. (S1588654, 2)
R	50 – 200	Steel, Titanium	6 – 54	SLR-series <sup>3)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588654, 3)
R	50 – 200	Steel, Titanium	6 – 95	SLR-series <sup>3)</sup>	55	5.75 – 7	Top side, symmetric	Fully insulated <sup>1)</sup> + 400 mm along pipe on the underside. (S1588654, 4)
R	50 – 200	Copper, CuNi	6 – 28	SLR-series <sup>3)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 450 mm along pipe on the underside. (S1588654, 5)
R	50 – 200	Copper, CuNi	6 – 54	SLR-series <sup>3)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 800 mm along pipe on the underside. (S1588654, 6)
R	50 – 200	Bundle pipe (steel)	8 – 50	SLR-series <sup>3)</sup>	55	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588654, 7)
R	50 – 200	Empty	NA	SLR-series <sup>3)</sup>	55	5.75 – 7	Top side, symmetric	Partially insulated on the underside. (S1588654, 8)
R	50 – 200	Steel, Titanium	6 – 50	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> on the underside. (S1588796, 1)
R	50 – 200	Steel, Titanium	6 – 54	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588796, 2)
R	50 – 200	Steel, Titanium	6 – 95	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 400 mm along pipe on the underside. (S1588796, 3)
R	50 – 200	Copper, CuNi	6 – 28	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 450 mm along pipe on the underside.

								(S1588796, 4)
R	50 – 200	Copper, CuNi	6 – 54	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 800 mm along pipe on the underside. (S1588796, 5)
R	50 – 200	Bundle pipe (steel)	8 – 50	SL-series <sup>4)</sup>	Up to 400	5.75 – 7	Any	Fully insulated <sup>1)</sup> + 350 mm along pipe on the underside. (S1588796, 6)
R	70 – 200	Steel, Titanium	6 – 54	SLFR X	55	5.75 – 7	Either	Fully insulated on the underside. (S1588655, 1)
R	70 – 200	Steel, Titanium	6 – 54	SLFR X	55	5.75 – 7	Either	Fully insulated + 350 mm along pipe on the underside. (S1588655, 2)

1) No insulation between pipes.

2) SLR-series includes the following types: SLR, SLR Ex.

3) SLR-series includes the following types: SLR, SLR Ex, SLFR, SLFR Ex, SLFO/RI or sleeves with equal dimensions specified in drawing S1587721.

4) SL-series are longer versions of sleeves in SLR-series.

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).

The insulation material used has 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 use.

### Type Examination documentation

Test report No. 4P8662 dated 8 June 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. PGA10799A dated 25 May 2016 from DBI, Hvidovre, Denmark.

Test report No. PGA10800A dated 26 May 2016 from DBI, Hvidovre, Denmark.

Test report No. 6P10022 dated 7 March 2017 from SP, Borås, Sweden.

Test report No. 8P04039 dated 6 August 2018 from SP, Borås, Sweden.

Test report No. 8P04040 dated 13 August 2018 from SP, Borås, Sweden.

Test report No. RS-18/B-291/E dated 20 August 2018 from CTO, Gdansk, Poland.

Test report No. RS-18/B-292/E dated 13 September 2018 from CTO, Gdansk, Poland.

Test report No. PGA11301A dated 22 November 2018 from DBI, Hvidovre, Denmark.

Test report No. PGA11302A dated 16 January 2019 from DBI, Hvidovre, Denmark.

Test report No. RS-19/B-225/E dated 8 August 2019 from CTO, Gdansk, Poland.

Test report No. PGB10046A dated 16 November 2020 from DBI, Hvidovre, Denmark.

Test report No. PGB10118A dated 15 November 2021 from DBI, Hvidovre, Denmark.

Test report No. RS-22/B-153/E dated 4 May 2022 from CTO, Gdansk, Poland.

Test report No. PGB10174A dated 13 July 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-337/E dated 28 October 2022 from CTO, Gdansk, Poland.

Test report No. RS-22/B-338/E dated 28 October 2022 from CTO, Gdansk, Poland.

Test report No. PGB10176A dated 4 November 2022 from DBI, Hvidovre, Denmark.

Test report No. RS-22/B-395/E dated 28 November 2022 from CTO, Gdansk, Poland.

Test report No. RS-23/B-340/E dated 3 November 2023 from CTO, Gdansk, Poland.

Test report No. 9P02428 dated 13 September 2019 from manufacturer.

Drawing No. S1588636 Rev. B dated 15 November 2023 from manufacturer.

Drawing No. S1588654 Rev. B dated 15 November 2023 from manufacturer.

Drawing No. S1588655 Rev. B dated 11 December 2023 from manufacturer.

Drawing No. S1588663 Rev. C dated 17 January 2024 from manufacturer.

Drawing No. S1588787 Rev. B dated 15 November 2023 from manufacturer.

Drawing No. S1588796 Rev. B dated 17 November 2023 from manufacturer.



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### **Tests carried out**

Tested according to IMO FTPC Part 3 and in compliance with IMO 2010 FTP Code Ch. 8, and in accordance with 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/or USCG approval number if applicable (see page 1).

## **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)”, consists of a rubber frame (R) that are filled with Roxtec RM modules of different sizes depending on the number/Diameter of the pipes. It is available in standard, Ex and EMC versions depending on application. The R-frame is installed into a steel sleeve (SL) that is welded, bolted, or attached by expansion (SLFR X) onto the steel division.

### **Application/Limitation**

Approved for penetration in steel bulkheads or decks limited to a pressure of 4.0 bar watertightness and 2.0 bar gastightness for steel pipes.

For bolted versions with gasket, the pressure is limited to 2.5 bar watertightness and 1.0 bar gastightness.

For expansion version (SLFR X), the pressure is limited to 4.0 bar watertightness and 2.0 bar gastightness.

For longer version sleeves, the pressure is limited to 1.33 bar watertightness and 0.67 bar gastightness.

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

### **Type Approval documentation**

Test report No. MLM 010247 dated 28 September 2001 from DNV Malmö.  
Test report No. MLM 030473-1 dated 27 January 2003 from DNV Malmö.  
Test report No. N1429Y4V dated 21 March 2022 from DNV Sweden CMC.  
Test report No. N142G50V dated 20 June 2022 from DNV Sweden CMC.  
Test report No. N142JK51 dated 27 February 2023 from DNV Sweden CMC.

### **Tests carried out**

Pressure tests with water and helium according to DNV-CP-0165.