DNV·GL

Certificate No:
MEDB00006GS

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

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 GL 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: RS-series (AI)

Issued to
Roxtec International AB
Karlskrona, Sweden

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2020/1170,**
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 **2025-12-20**.
Issued at **Høvik** on **2020-12-21**

DNV GL local station:
Gothenburg FIS

Approval Engineer:
Helge Bjørnarå

Notified Body
No.: **0575**

for **DNV GL AS**

Roald Vårheim
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.

NORWEGIAN ACCREDITATION PROD 019

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 GL 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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

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Product description

"Roxtec sealing system with multidiameter technology: RS-series (Al)",
consisting of an aluminium sleeve, bolted or welded or attached through expansion (RS X) to an aluminium section. Sleeve is filled with a Roxtec RS or RS OMD seal (standard or EMC) in sizes 23-150.

Application/Limitation

Approved for use as single and bundle pipe penetration system in class A-0 to A-60 aluminium bulkheads and decks as follows:

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

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
RS / RS OMD	23 - 150	Steel, Titanium	6 - 119	35 - 65	4 - 7	Any	S1552313 Rev. A
RS / RS OMD	23 - 150	Copper	6 - 108	35 - 65	4 - 7	Any	S1040943 Rev. A
RS / RS OMD	43 - 100	Bundle (Steel)	16 - 50	35 - 65	4 - 7	Any	S1040796 Rev. C
RS / RS OMD	50	Bundle (Copper)	18	65	6	Any	S1040796 Rev. C
RS / RS OMD	68 - 125	GRP	32 - 90	65	6 - 7	Any	S1040877 Rev. A
RS X	25 - 125	Copper, Steel, Titanium	6 - 108	65	4 - 7	Either	S1552354 Rev. B

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

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
RS / RS OMD	23 - 150	Steel, Titanium	6 - 119	35 - 65	4 - 7	Any	S1552313 Rev. A
RS / RS OMD	23 - 150	Copper	6 - 108	35 - 65	4 - 7	Any	S1040943 Rev. A
RS / RS OMD	68 - 125	GRP	32 - 90	65	6 - 7	Either	S1040877 Rev. A

Other applications are subject to case-by-case approval.

Deck or bulkhead to be insulated with approved insulation according to classification covering the edge of the aluminium frame or fully insulated. See insulation drawings specified in the Type Approval documentation. For fire class A-0, A-15 and A-30, the sleeve and pipes are to be insulated as for class A-60.

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 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 use.

Type Examination documentation

Test reports No. P603001 dated 23 January 2007 from SP, Sweden.
Test reports No. PG11898 dated 17 April 2009 from DIFT, Hvidovre, Denmark.
Test reports No. PG11955 dated 17 April 2009 from DIFT, Hvidovre, Denmark.
Test reports No. RS-17/B-555/E dated 15 January 2018 from CTO, Gdansk, Poland.

Test reports No. RS-18/B-179/E dated 25 June 2018 from CTO, Gdansk, Poland.
Test reports No. PGA11371A dated 20 February 2019 from DBI, Hvidovre, Denmark.
Test reports No. RS-19/B-020/E dated 27 May 2019 from CTO, Gdansk, Poland.
Test reports No. RS-19/B-224/E dated 1 August 2019 from CTO, Gdansk, Poland.
Test reports No. PGB10016A dated 3 June 2020 from DBI, Hvidovre, Denmark.
Test reports No. PGB10031A dated 9 July 2020 from DBI, Hvidovre, Denmark.

Assessment report No. 9P02428 dated 13 September 2019 from RISE, Sweden.

Drawing No. S1040796 Rev. C dated 17 February 2015 from maker.
Drawing No. S1040877 Rev. A dated 18 August 2014 from maker.
Drawing No. S1040943 Rev. A dated 12 August 2014 from maker.
Drawing No. S1552313 Rev. A dated 11 February 2020 from maker.
Drawing No. S1552354 Rev. B dated 2 December 2020 from maker.

Tests carried out

Tested according to IMO FTP Code Part 3 (IMO Res. A.754(18)) and in compliance with IMO 2010 FTP Code Ch. 8 and 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, Mark of Conformity and USCG approval if applicable (see first page).

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 (Al)"
consisting of an aluminium sleeve, bolted, welded or attached through expansion (RS X) to an aluminium section. Sleeve is filled with a Roxtec RS or RS OMD seal (standard or EMC) in sizes 23-150.

Application/Limitation

Approved for penetration in aluminium bulkheads or decks for steel and copper pipes limited to a pressure of 4.00 bar watertightness and 2.67 bar gastightness, and GRP/GRE pipes limited to a pressure of 4.00 bar watertightness and 2.00 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.

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

When requested to be used in watertight bulkheads on passenger ships and Special Purpose Ships (SPS), the penetration system has to comply with the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (2009 issue). Penetrations passing through watertight bulkheads are subject for separate examination and approval by actual flag administration.

Type Approval documentation

Test report No. MLM 020106 dated 19 December 2001 from DNV Malmö.
Test report No. MLM 020133 dated 26 February 2002 from DNV Malmö.
Test report No. MLM 020401 dated 25 March 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. SKM-04-4088 dated 16 June 2004 from DNV Stockholm.
Test report No. MLM 060561 dated 1 December 2006 from DNV Malmö.

Tests carried out

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