DNV·GL

EC-TYPE EXAMINATION CERTIFICATE (MODULE B)

Certificate No:
MEDB0000128
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 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 (steel divisions)

Issued to
Roxtec International AB
Karlskrona, Sweden

is found to comply with the requirements in the following Regulations/Standards:
Regulation **(EU) 2019/1397,**
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 **2025-04-15**.
Issued at **Høvik** on **2020-04-16**

DNV GL local station:
Gothenburg FIS

Approval Engineer:
Helge Bjørnarå

Notified Body
No.: **0575**

for **DNV GL AS**
Digitally Signed By: Hoff, Øyvind
Location: DNV GL Høvik, Norway
on behalf of

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.

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 This certificate remains valid unless suspended, withdrawn, recalled or cancelled.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.

Job Id: **344.1-000153-90**
Certificate No: **MEDB0000128**
Revision No: **3**

Product description

"Roxtec sealing system with multidiameter technology: RS-series (steel divisions)"
consisting of a steel sleeve, bolted, welded or attached through expansion (RS X) to a steel section. Sleeve is filled with a Roxtec RS or RS OMD seal (standard or EMC) in sizes 23-644 and Roxtec RS OC in sizes 75-400.

Application/Limitation

Approved for use as single and bundle pipe penetration system in class A-0, A-15, A-30 and A-60 steel bulkheads and decks as follows:

a) **Steel and titanium pipes**
with diameter 6-558 mm for bulkhead, 6-558 mm for deck
b) **Copper pipes**
with diameter 6-108 mm for bulkhead, 6-225 mm for deck
c) **Fibre glass composite pipes***
with diameter 32-89 mm for bulkhead, diameter 32-275 mm for deck
d) **Bundle pipes**
- for steel pipes: OD 16-50 mm
- for copper pipes: OD 18 mm

e) **Fiber glass composite FR pipes***
with diameter 75-375 mm for bulkhead, diameter 75-375 mm for deck
f) **CuNi (90:10)**
pipes with OD: 10-270 mm for deck & bulkhead

*The pipes under 'c' and 'e' tested in accordance with IMO Res. 753(18).

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

Deck and bulkhead to be insulated with approved insulation according to classification covering the edge of the steel frame. See insulation drawings specified in the Type Examination Documentation. A-0 RS X penetrations are to be insulated as for class A-60.

Cold service piping insulated with Armaflex rubber insulation layer may be used with approved penetrations but is to be locally interrupted through the penetration system.

Please note Installation instruction for Roxtec RS X 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 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.

Type Examination documentation

Test report no. P701755 dated 12 June 2007 from SP, Borås, Sweden. (A-60 deck)
Test report no. 09-345E dated 11 December 2009 from RIME, Tokyo, Japan. (A-60 Bulkhead)
Test report no. 09-346E dated 11 December 2009 from RIME, Tokyo, Japan. (A-60 deck)
Test report no. PX05454 Rev. 1 dated 8 September 2011 (original 15.12.2010) from SP, Borås, Sweden. (A-60 Bulkhead)
Test report no. PGA10141 dated 10 July 2012 from DBI, Hvidovre, Denmark. (A-60 deck)
Test report no. 4P06068 dated 17 January 2015 from SP, Borås, Sweden. (A-60 bulkhead)
Test report no. 4P07023 dated 5 February 2015 from SP, Borås, Sweden. (A-60 deck)

Test report no. PGA10649 dated 18 May 2015 from DBI, Hvidovre, Denmark. (A-60 bulkhead)
Test report no. PGA10650 dated 18 May 2015 from DBI, Hvidovre, Denmark. (A-60 bulkhead)
Test report no. PGA10800A dated 26 May 2015 from DBI, Hvidovre, Denmark. (A-60 steel deck)
Test report no. 4P08662 dated 8 July 2015 from SP, Borås, Sweden. (A-60 steel bulkhead)
Test report no. 6P04351 dated 22 June 2016 from SP, Borås, Sweden. (A-60 steel bulkhead)
Test report no. 6P02249 dated 17 August 2016 from SP, Borås, Sweden. (A-60 steel deck)
Test report no. PGA10871A dated 9 December 2016 from DBI, Hvidovre, Denmark. (A-60 steel deck)
Test report no. RS-18/B-022/E dated 29 January 2018 from CTO, Gdansk, Poland. (A-60 bulkhead)
Test report no. RS-18/B-023/E dated 29 January 2018 from CTO, Gdansk, Poland. (A-60 deck)
Test report no. RS-18/B-181/E dated 7 May 2018 from CTO, Gdansk, Poland. (A-60 bulkhead)
Test report no. RS-18/B-484/E dated 10 December 2018 from CTO, Gdansk, Poland. (A-60 deck)
Test report no. RS-18/B-485/E dated 10 December 2018 from CTO, Gdansk, Poland. (A-60 bulkhead)

Assessment no. P701755 dated 12 July 2006 from SP, Borås, Sweden.
Assessment no. P602999 dated 23 January 2007 from SP, Borås, Sweden.
Assessment no. P603000 dated 23 January 2007 from SP, Borås, Sweden.
Assessment no. 9P02428 dated 13 September 2019 from SP, Borås, Sweden.

Drawing no. S1006159 Rev. A (A-15, A-30 and A-60 copper pipe RS X)
Drawing no. S1006160 Rev. A (A-15, A-30 and A-60 copper pipe RS X)
Drawing no. S1011906 Rev. A (FGC pipes)
Drawing no. S1011907 Rev. 0 (Bundle pipes)
Drawing no. S1017433 Rev. B (with Armaflex)
Drawing no. S1040668 Rev. B (RS OC)
Drawing no. S1503926 Rev. A (A-15, A-30 and A-60 GRE FR deck/bulkhead)
Drawing no. S1510043 Rev. C (RS/RS OMD with CuNi 90:10 pipe in class A steel deck)
Drawing no. S1511583 Rev. A (RS/RS OMD with CuNi 90:10 pipe in class A steel bulkhead)
Drawing no. S1511683 Rev. C (RS/RS OMD with copper pipe in A-60 deck/bulkhead)
Drawing no. S1530506 Rev. A (RS/RS OMD with CuNi 90:10 pipe in class A-0 steel deck)
Drawing no. S1530507 Rev. A (RS/RS OMD with CuNi 90:10 pipe in class A-0 steel bulkhead)
Drawing no. S1551073 Rev. A (A-0/A-60 deck/bulkhead)
Drawing no. S1551097 Rev. A (A-0/A-60 deck/bulkhead)
Drawing no. S1551208 Rev. A (RS/RS OMD with steel or titanium pipe in class A-60 steel divisions)

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, MED Mark of Conformity and USCG approval number if applicable (Page 1)

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 divisions)"
consisting of a steel sleeve, bolted, welded or attached through expansion (RS X) to a steel section.
Sleeve is filled with a Roxtec RS or RS OMD seal (standard or EMC) in sizes 23-644.

Application/Limitation

Approved for penetration in steel bulkheads or decks limited to a pressure of 4 bar watertightness and 2.67 bar gastightness as follows:
a) For steel and copper pipes in sizes 10-558 mm.
b) For bundle of steel and copper pipes 16-50 mm.
c) For fibre glass composite pipes with diameter 32-410 mm.

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 is not to be used for penetrating boundaries of tanks.

Pipe penetrations with plastic or composite pipes are not approved for use in watertight bulkheads on passenger ships and special purpose ships (SPS).

Type Approval documentation

Test report No. MLM 010247 dated 28 September 2002 from DNV Malmö.
Test report No. MLM 020401 dated 25 March 2002 from DNV Malmö.
Test report No. MLM 030473-1 dated 27 January 2003 from DNV Malmö. (RS X)
Test report No. MLM 060561 dated 1 December 2006 from DNV Malmö. (Bundle)

Tests carried out

Pressure tests with water and Helium according to DNVGL-CP-0165.