DNV·GL

Certificate No:
MEDB0000128

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 the Kingdom 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) 2015/559,**
Annex A.1, item No. A.1/3.26b and Annex B, Module B in the Directive; SOLAS 74 as amended, Regulation II-2/9, IMO MSC/Circ.1276 and IMO 2010 FTP Code

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

This Certificate is valid until **2020-01-26**.

Issued at **Høvik** on **2016-11-18**

DNV GL local station:
Gothenburg

Approval Engineer:
Ivar Bull

Notified Body
No.: **0575**

for **DNV GL AS**

Vidar Dolonen
Head of Notified Body

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Job Id:
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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 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

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.

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.

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).

Type Examination documentation

Basis for approval:

Test report no. 22N007.18D (A-0 deck) from SINTEF, Norway.	2000-05-29
Test report no. 103070.13B (A-60 deck) from SINTEF, Norway	2002-04-23
Test report no. 103070.13C (A-60 bulkhead) from SINTEF, Norway	2002-04-23
Test report no. 103070.23A (A-60 bulkhead) from SINTEF, Norway	2002-12-11
Test report no. 103070.23B (A-60 deck) from SINTEF, Norway	2002-12-11
Test report no. 103070.25A (A-0 bulkhead) from SINTEF, Norway	2003-03-11
Test report no. 103070.25B (A-0 deck) from SINTEF, Norway	2003-03-11

Test report no. 103070.27B (A-60 deck) from SINTEF, Norway	2003-07-04
Test report no. 103070.29A (A-60 bulkhead) from SINTEF, Norway	2003-10-28
Test report no. 10166-3 (A-60 deck) from Roxtec International AB	2002-06-27
Test report no. PX05454 Rev. 1(A-60 Bulkhead) from SP Sweden	2011-09-08
Test report no. P701755 (A-60 deck) dated from SP Sweden	2007-06-12
Test report no. 09-345E (A-60 Bulkhead) and 09-346E (A-60 deck) both from Research Institute of Marine Engineering, Tokyo, Japan.	2009-12-11
Test report no. PGA10141 (A-60 deck) from DBI, Denmark.	2012-07-10
Test report no. 4P06068 (A-60 bulkhead) from SP Sweden	2015-01-17
Testreport no. 4P07023 (A-60 deck) from SP Sweden	2015-02-04
Testreport no. PGA20649 (A-60 bulkhead) from DBI, Denmark	2015-03-18
Testreport no. PGA20650 (A-60 bulkhead) from DBI, Denmark	2015-03-18
Test report no 4P08662 (A60 steel bulkhead) from SP, Sweden	2015-06-08
Test report no PGA10800A (A60 steel deck) from DBI, Denmark	2016-05-26
Test report no 6P02249 (A60 steel deck) from SP, Sweden	2016-08-17
Test report no 6P04351 (A60 steel bulkhead) from SP, Sweden	2016-06-22
Assessments:	
P402000 (With Armaflex insulation) from SP, Sweden	2004-11-29
P602999 from SP, Sweden	2007-01-23
P603000 from SP, Sweden	2007-01-23
P701755 from SP, Sweden	2006-06-12
Drawings: Nos. S1040656 Rev.D (A-15, A-30 and A-60 bulkhead), S1511684 Rev. B, RS/RS OMD with steel pipe in class A steel deck S1006159 Rev. A (A-15, A-30 and A-60 copper pipe RS X), S1004621 Rev. 0 (A-0 copper pipe), S1006160 Rev. A (A-15, A-30 and A-60 copper pipe (RS X)), S1511683 Rev. C, RS/RS OMD with copper pipe in A-60 deck/bulkhead S1012033 Rev. 0 (Steel pipes), S1011906 Rev. A (FGC pipes), S1011907 Rev. 0 (Bundle pipes), S1017433 Rev. B (with Armaflex) from Roxtec International AB. S1040668 Rev. B (RS OC). S1503926 Rev. A (A-15, A-30 and A-60 GRE FR deck/bulkhead) S1510043 Rev. C RS/RS OMD with CuNi 90:10 pipe in class A steel deck S1511583 Rev. A RS/RS OMD with CuNi 90:10 pipe in class A steel bulkhead	

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.

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)

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Additional application/information for Watertightness/gastightness (Not part of the Marine Equipment Directive requirement)

Product description

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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 23-558 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

Tests carried out

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