

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class H Penetration

with type designation(s)
ROXTEC SEALING SYSTEM WITH MULTIDIAMETER TECHNOLOGY: RS-SERIES (PIPE)

Issued to
Roxtec International AB
Karlskrona, Sweden

is found to comply with
DNV offshore standards

Application :

Approved as pipe penetration in class H-120 and H-60 steel decks and bulkheads.

Issued at **Høvik** on **2022-02-02**

for **DNV**

This Certificate is valid until **2027-02-01**.

DNV local station: **Sweden CMC**

Approval Engineer: **Kristin Grønnæss**

Helene David-Andersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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: RS-series”
 consisting of steel sleeve, welded or bolted (openable versions included) to steel decks and steel bulkheads. The sleeve is filled with Roxtec RS (standard or EMC) halogen free rubber sealing.

Application/Limitation

Approved as pipe penetration in class H-120 and H-60 in steel deck and bulkhead as specified in the tables below.

General application: Fire against either side*

* In areas with requirements to maximum steel temperature in load bearing constructions, the bulkhead is approved for restricted application: Fire against insulated side

Table 1: Approved pipe penetration in H-120 steel bulkhead.

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation ¹⁾
RS	23 – 50	Steel	6 – 28	35 – 65	4 – 7	Any	S1573419; No. 1
RS	23 – 150	Steel	6 – 114	35 – 65	4 – 7	Symmetric	S1573419; No. 3-4
RS	23	Titanium	6	35	4	Any	S1573419; No. 2
RS	68 – 125	GRE / GRP	32 – 90	65	6 – 7	Any	S1573488

1) Bolted sleeves are approved for restricted application only.

Table 2: Approved pipe penetration in H-60 steel bulkhead.

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation ¹⁾
RS	23 – 150	Steel	6 – 114	35 – 65	4 – 7	Symmetric	S1573390, No. 4-5
RS	23 – 400	Steel	6 – 323	35 – 65	4 – 7	Any	S1573390, No. 1-3
RS	23 – 50	Titanium	6 – 27	35 – 65	4 – 7	Any	S1573390, No. 1
RS	68 – 125	GRE / GRP	32 – 90	65	6 – 7	Any	S1573488

1) Bolted sleeves are approved for restricted application only.

Table 3: Approved pipe penetration in H-120 steel deck.

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
RS	23 – 400	Steel	6 – 323	35 – 65	4 – 7	Any	S1573480; No. 1-3
RS	23	Titanium	6	35	4	Any	S1573480; No. 4

Table 4: Approved pipe penetration in H-60 steel deck.

Type	Size	Pipe material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve thickness [mm]	Sleeve position	Sleeve insulation
RS	23 – 400	Steel	6 – 323	35 – 65	4 – 7	Any	S1573457; No. 1-3
RS	23 – 50	Titanium	6 – 27	35 – 65	4 – 7	Any	S1573457; No. 1

Approved for steel pipe penetration in deck and bulkheads limited to a pressure of 4.00 bar water tightness and 2.67 bar gas tightness.

Approved for GRP pipe penetration in deck and bulkheads limited to a pressure of 4.00 bar water tightness and 2 bar gas tightness.

For bolted versions with gasket and self-tapping screws, the pressure is limited to 3.33 bar water tightness and 1.67 bar gas tightness.

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 vessels (SPS).

Each product is to be supplied with its manual for installation/application and maintenance.

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No. P601739 dated 28 June 2006 from SP, Borås, Sweden
Test report No. P601740 dated 28 June 2006 from SP, Borås, Sweden
Test report No. P703775 dated 7 December 2007 from SP, Borås, Sweden
Test report No. RS-19/B-036/E dated 21 March 2019 from CTO, Gdansk, Poland.
Test report No. RS-19/B-037/E dated 21 March 2019 from CTO, Gdansk, Poland.
Test report No. 21/22654-1652 dated 29 September 2021 from APPLUS, Barcelona, Spain.

Water tightness/gas tightness:

Inspection report MLM 010247 dated 21 August 2001 from DNV, Malmö, Sweden.
Inspection report MLM 010247 dated 28 September 2001 from DNV, Malmö, Sweden.
Inspection report MLM 030473-1 dated 27 January 2003 from DNV, Malmö, Sweden.
Survey report SKM-04-4088 dated 16 June 2004 from DNV, Stockholm, Sweden.
Inspection report MLM 060561 dated 1 December 2006 from DNV, Malmö, Sweden.

Drawing No. S1573488 Rev. A dated 12 November 2021 from manufacturer.
Drawing No. S1573419 Rev. B dated 18 January 2022 from manufacturer.
Drawing No. S1573480 Rev. B dated 18 January 2022 from manufacturer.
Drawing No. S1573457 Rev. B dated 18 January 2022 from manufacturer.
Drawing No. S1573390 Rev. B dated 26 January 2022 from manufacturer.

Tests carried out

Tested according to IMO FTP Code Part 3 (IMO Res. A.754(18)) and with the hydrocarbon time-temperature curve specified in ISO 834-3.

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

Marking of product

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

Periodical assessment

DNV's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in DNV-CP-0338 Section 4.