

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class A and B Penetration

with type designation(s)

Roxtec sealing system technology: S-, RS-, and RS PPS/S series

Issued to

Roxtec International AB

Karlskrona, Sweden

is found to comply with

DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021

DNV rules for classification – High speed and light craft

Application :

Approved for use as pipe penetration system through fire resisting divisions 60 (FRP) on high-speed craft.

This certificate is recognized by Transport Canada.

Issued at **Høvik** on **2023-09-28**

for **DNV**

This Certificate is valid until **2028-09-27**.

DNV local unit: **Sweden CMC**

Approval Engineer: **Helge Bjørnarå**

Jowita Permoda
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: S-, RS-, and RS PPS/S series, Consisting of a S-series frame bolted (SFHM Alu/Steel) or laminated/glued (SRC GRP) into an FRP section. The S frame is filled with Roxtec (standard or EMC) halogen free RM modules. Assembled with Roxtec wedge kit (standard or EMC).

Consisting of a SL sleeve bolted (SLFRS Alu/Steel) or laminated/glued (SL GRP) into an FRP section. The sleeve is fitted with a Roxtec RS frame consisting of two halves with removable layers making it adaptable to a single cable of different diameters.

Consisting of a SL sleeve bolted (SLFRS Alu/Steel) or laminated/glued (SL GRP) into an FRP section. The sleeve is fitted with a Roxtec RS PPS/S frame consisting of two halves with removable layers making it adaptable to a single cable of different diameters.

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

Application/Limitation

Approved for use as pipe penetration system through fire resisting divisions 60 (FRP) on high-speed craft. Other applications are subject to case-by-case approval.

Table 1: Approved pipe penetration in fire resisting bulkhead 60 (FRP)

Type	Size	Sleeve/Frame type	Pipe material	Pipe diameter (OD) [mm]	Sleeve/Frame length [mm]	Sleeve/Frame thickness [mm]	Sleeve/Frame position	Sleeve/Frame insulation
S	4 - 6	SRC GRP	Steel, Titanium	6 - 30	60	15	Symmetric	S1582683; No.1
RS	23 - 150	SLFRS Alu/Steel	Steel, Titanium	6 - 114	35 - 65	4 - 7	Symmetric	S1582684; No.1-2
RS	23 - 150	SLFRS Alu/Steel	Copper	6 - 108	35 - 65	4 - 7	Symmetric	S1582684; No.3-4
RS	50 - 450	SLFRS Alu/Steel	GRE/GRP	30 - 360	35 - 65	4	Symmetric	S1582682; No.1-2
RS	25 - 150	SL GRP	Steel, Titanium	6 - 114	75	4 - 5	Symmetric	S1582687; No.1-2
RS	25 - 150	SL GRP	Copper	6 - 108	75	4 - 5	Symmetric	S1582687; No.3-4
RS PPS/S	31	SLFRS Alu/Steel	Thermoplastic	16	35	4	Symmetric	S1582688; No.1
RS PPS/S	31 - 12,5	SLFRS Alu/Steel	PE/ALU/PE	16 - 75	35 - 65	4 - 7	Symmetric	S1582688; No.2
RS PPS/S	50 - 150	SL GRP	Thermoplastic	16 - 110	75	4 - 5	Symmetric	S1582689; No.1
RS PPS/S	50 - 125	SL GRP	PE/ALU/PE	16 - 75	75	4 - 5	Symmetric	S1582689; No.2

Table 2: Approved pipe penetration in fire resisting deck 60 (FRP)

Type	Size	Sleeve/Frame type	Pipe material	Pipe diameter (OD) [mm]	Sleeve/Frame length [mm]	Sleeve/Frame thickness [mm]	Sleeve/Frame position	Sleeve/Frame insulation
RS	23 - 150	SLFRS Alu/Steel	Steel, Titanium	6 - 114	35 - 65	4 - 7	Symmetric	S1582684; No.5-6
RS	23 - 150	SLFRS Alu/Steel	Copper	6 - 108	35 - 65	4 - 7	Symmetric	S1582684; No.7-8
RS	50 - 450	SLFRS Alu/Steel	GRE/GRP	30 - 360	35 - 65	4	Symmetric	S1582682; No.3-4
RS	25 - 150	SL GRP	Steel, Titanium	6 - 114	75	4 - 5	Symmetric	S1582687; No.5-6
RS	25 - 150	SL GRP	Copper	6 - 108	75	4 - 5	Symmetric	S1582687; No.7-8
RS PPS/S	31 - 150	SLFRS Alu/Steel	Thermoplastic	16 - 110	35 - 65	4 - 7	Symmetric	S1582688; No.3
RS PPS/S	31 - 125	SLFRS Alu/Steel	PE/ALU/PE	16 - 75	35 - 65	4 - 7	Symmetric	S1582688; No.4
RS PPS/S	50 - 150	SL GRP	Thermoplastic	16 - 110	75	4 - 5	Symmetric	S1582689; No.3
RS PPS/S	50 - 125	SL GRP	PE/ALU/PE	16 - 75	75	4 - 5	Symmetric	S1582689; No.4

Approved for steel and copper pipe in RS frame in SL GRP sleeve in FRP bulkheads or decks limited to a pressure of 2.0 bar watertightness and 1.0 bar gastightness.

Approved for thermoplastic and PE/ALU/PE pipe in RS PPS/S frame in SL GRP sleeve in FRP bulkheads or decks limited to a pressure of 2.0 bar watertightness and 1.0 bar gastightness.

Approved for steel and copper pipe in SRC GRP sleeve in FRP bulkheads or decks limited to a pressure of 2.0 bar watertightness and 1.0 bar gastightness.

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

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

Type Approval documentation

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

Fire test:

Test report No. RS-20/B-253/E dated 9 July 2020 from CTO, Gdansk, Poland.
Test report No. RS-20/B-254/E dated 4 August 2020 from CTO, Gdansk, Poland.
Test report No. RS-20/B-341/E dated 22 October 2020 from CTO, Gdansk, Poland.
Test report No. RS-20/B-426/E dated 23 November 2020 from CTO, Gdansk, Poland.
Test report No. RS-20/B-417/E dated 19 January 2021 from CTO, Gdansk, Poland.

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

Drawing No. S1582682, Rev. A dated 25 August 2022 from maker.
Drawing No. S1582683, Rev. A dated 25 August 2022 from maker.
Drawing No. S1582684, Rev. A dated 25 August 2022 from maker.
Drawing No. S1582687, Rev. A dated 25 August 2022 from maker.
Drawing No. S1582688, Rev. A dated 25 August 2022 from maker.
Drawing No. S1582689, Rev. A dated 25 August 2022 from maker.

Pressure test:

Test report No. N141E2C, Rev.01, dated 19 February 2020 from DNV Sweden CMC.
Test report No. SKM-04-4088 dated 16 April 2004 from DNV Stockholm.
Test report No. MLM 010247 dated 28 September 2001 from DNV Malmö.
Test report No. N142177N dated 1 September 2020 from DNV Sweden CMC.
Test report No. N141ZEM0 dated 15 May 2020 from DNV Sweden CMC.
Test report No. N142846G dated 2 November 2021 from DNV Sweden CMC.
Test report No. MLM 020400 dated 25 March 2002 from DNV Malmö.
Test report No. MLM 050410 dated 20 May 2005 from DNV Malmö.

Tests carried out

Tested according to IMO 2010 FTP Code Part 3.

Pressure tests with water and helium according to DNV Type Approval Programme 8.471.19-1 and DNV-CP-0165.

Marking of product

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

Transport Canada Approval

Based on the procedures laid down in the Transport Canada publication entitled "Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)", DNV confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

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.