Marine & Offshore

Certificate number: 40893/B0 BV
File number: ACI4000/032/009
Product code: 5300H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

ROXTEC International AB

KARLSKRONA - SWEDEN

for the type of product

PIPE, CABLE, DUCT PENETRATIONS IN FIRE DIVISIONS

ROXTEC cable sealing system with multidiameter technology
Jet Fire Application for S-series Frames and RS-series seals

Requirements:
Bureau Veritas Rules for the Classification of Offshore units Part C Chapter 4
ISO 22899-1

This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 12 Apr 2026

For Bureau Veritas Marine & Offshore,
At BV GOTHENBURG, on 12 Apr 2021,
Torbjorn Ygesjo

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

ROXTEC cable sealing system with multidiameter technology

Roxtec S series frames:

Consisting of Roxtec S series frame (S, SO, SF, SFO, SR, SK, SRC r20&r40 and BTB) in sizes 1-8 and combinations thereof, welded or bolted on to the Jet Fire steel division, and filled with Roxtec (standard, Ex or EMC, PE, ES, BG, BGB) halogen free insert modules. Assembled with Roxtec Wedge kit or Roxtec EMC, EX Wedge kit.

Penetration designation	External dimensions (mm)	Frame/Sleeve dimensions (mm)	Packing space (mm)	Classification	Maximum cable and pipe outer diameter
S-series 1x1 to 8x1 and combinations thereof	121x80 to 298x141 Depth: 200	121x80 to 298x141 Depth: 200	60x60 to 120x240	When installed/insulated according drawing N° S1501671 (detail J-30), the penetration can withstand the jet fire for 30 min. When installed/insulated according drawing N° S1501671 (detail J-60), the penetration can withstand the jet fire for 60 min.	Cables, including Metal Clad (MC) and Steel Wire Armored (SWA) cables ∅ ≤ 103 mm
S-series SBTB 1x1 to 8x1 and combinations thereof	121x80 to 298x141 Depth: 300	121x80 to 298x141 Depth: 300		When installed/insulated according drawing N° S1501671 (detail J-60 SBTB), the penetration can withstand the jet fire for 60 min.	Cables ∅ ≤ 43 mm Steel pipes ∅ ≤ 20 mm
	121x80 to 298x141 Depth: 400	121x80 to 298x141 Depth: 400		When installed/insulated according drawing N° S1501671 (detail J-120 SBTB), the penetration can withstand the jet fire for 120 min.	Cables ∅ ≤ 79 mm Steel pipes ∅ ≤ 30 mm
S-series SBTB 8x2	298x271 Depth: 400	298x271 200 mm exposed side / 200 unexposed side	120x240	When installed/insulated according drawing N° S1558321 rev.B (N°1), the penetration can withstand with regards to integrity only: - the HHF jet fire (350 kW/m²) for 20 min. - the extended pool fire (250 kW/m²) for 35 min.	Cables ∅10-82 mm Steel pipes ∅6-30 mm
S-series SBTB 8x2	298x271 Depth: 400	298x271 300 mm exposed side / 100 mm unexposed side	120x240	When installed/insulated according drawing N° S1558321 rev.B (N°2), the penetration can withstand with regards to integrity only: - the HHF jet fire (350 kW/m²) for 20 min. - the extended pool fire (250 kW/m²) for 10 min.	
S-series SBTB 6x4	756x468x8 Depth: 300	534x240 Depth: 300	180x120	When installed/insulated according drawings N° S1558321 rev.B (N°3), the penetration can withstand with regards to integrity only: - the HHF jet fire (350 kW/m²) for 15 min. - the jet fire (250 kW/m²) for 30 min. - the extended pool fire (150 kW/m²) for 75 min.	
S-series SBTB 8+4	318x552 Depth: 400	318x552 Depth: 400	120x240	When installed/insulated according drawing N° S1558323 (N°1), the penetration can withstand: - the HHF jet fire (350 kW/m²) for 30 minutes. - the jet fire (250 kW/m²) for 30 minutes. Exposed side of frame and division are coated with 16 mm thick passive fire protection "Chartek 7".	
S-series SKFDH 6x4	730x440 Depth: 370	730x440 Depth: 370	120x180	When installed/insulated according drawing N° S1558323 (N°2), the penetration can withstand HHF jet fire (350 kW/m²) for 60 min. Exposed side of frame and division are coated with 16 mm thick passive fire protection "Chartek 7".	Cables ∅10-82 mm Steel pipes ∅6-16 mm
S-series SKFDH 6x4	730x440 Depth: 370	730x440 Depth: 370	120x240	When installed/insulated according drawing N° S1558323 (N°3), the penetration can withstand: - the HHF jet fire (350 kW/m²) for 20 minutes. - the pool fire (200 kW/m²) for 40 minutes. Exposed side of frame and division are coated with 16 mm thick passive fire protection "Chartek 7".	Cables ∅10-49 mm Steel pipes ∅16 mm

Roxtec RS seals:

Composed of steel sleeves (welded or bolted) with RS- type (Ex and EMC versions included) halogen free rubber sealings in size 23-400 mounted in steel deck and bulkheads.

Penetration designation	External dimensions (mm)	Frame/Sleeve dimensions (mm)	Packing space (mm)	Classification	Maximum cable and pipe outer diameter
RS-Series 23-400	∅29 to 400 Depth: 44 to 86	Inner ∅23 to 400 Depth: 35 to 65	∅3.6 to 336	When installed/insulated according drawing N° S1501673, the penetration can withstand the jet fire for 60 minutes.	Steel pipes ∅ ≤ 323 mm

- When bolted (pre-engineered), sealing strips, EPDM rubber, 15x6 mm, are installed in between the Roxtec frame and the division.
- Tested fill based on transit opening area and the Roxtec Cable Sealing System: between 0 and 100% (maximum fill of a Roxtec transit is to install cable in every module installed in transit opening and minimum is to not install cable in any module in transit opening.
- For multi-cable transits, the transit was tested with the cables evenly spread inside the packing space.

2. DOCUMENTS AND DRAWINGS:

As per the Manufacturer's drawings N° S1501671 rev.B, N° S1501673 rev.B, N° S1558321 rev.B dated 11/02/2021 and N° S1558323 rev.A dated 02/09/2020.

3. TEST REPORTS:

3.1 - Test report N° 846031.02 dated 04/11/1997, as per Health and Safety Executiv, Offshore Technology Report - OTI 95 634 "Jet Fire Resistance Test of Passive Fire Protection Materials", from SINTEF, Norway.

3.2 - Test report N° NBL-107332 dated 03/06/2005, as per Health and Safety Executiv, Offshore Technology Report - OTI 95 634 "Jet Fire Resistance Test of Passive Fire Protection Materials", from SINTEF, Norway.

3.3 - Test report N° NBL-F10106 dated 13/10/2010, as per ISO 22899-1:2007, from SINTEF, Norway.

3.4 - Test report N° NBL-F10107 dated 15/11/2010, as per ISO 22899-1:2007, from SINTEF, Norway.

3.5 - Report N° F15 20119-1 Version 1, "Evaluation of jet fire attack direction on response of products", dated 29/01/2015, from SP Fire Research AS, Norway.

3.6 - Test report N° 120000-56 Version 1, "Sequential HHF jet fire test and “extended pool fire” test", dated 09/12/2019, from RISE, Norway.

3.7 - Test report N° F17 120000-15:2 Version 1, "Jet fire test based on ISO 22899-1", dated 06/07/2017, from RISE, Norway.

3.8 - Test report N° F19 120000-48:1 Version 1, "Jet fire test based on ISO 22899-1", dated 11/04/2019, from RISE, Norway.

3.9 - Test report N° F19 120000-48:2 Version 1, "Jet fire test based on ISO 22899-1", dated 11/04/2019, from RISE, Norway.

3.10 - Test report N° 120000-59 Version 2, "Sequential HHF jet fire test, “standard” jet fire test and “pool fire” test", dated 17/08/2020, from RISE, Norway.

4. APPLICATION / LIMITATION:

4.1 - Approved for use as cable transits in jet-fire resistant steel divisions, with limitations contained in §1.

4.2 - The fitting aboard to be the same as used for the test.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The **ROXTEC cable sealing system with multidiameter technology, S-series and RS-series** are to be supplied by **ROXTEC International AB** in compliance with the type described in this certificate.

5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.

5.3 - **ROXTEC International AB** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products.

6. MARKING OF PRODUCT:

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

7. OTHERS:

7.1 - It is **ROXTEC International AB**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This Certificate supersedes the Type Approval Certificate N° 40893/A1 BV issued on 22/09/2016 by the Society.

7.3 - Testing for water and gas tightness witnessed by third party (DNV):

Product	Report N°	Date
SLFO/RI	MLM090673	08/10/2009
Bolted sleeve	MLM020401	25/03/2002
S-frame	MLM020400	25/03/2002
S-frame	SKM-04-4088	16/06/2004
RS-seal	MLM090652	15/06/2009

Product	Test pressure water tightness	Test pressure gas tightness
S Series frame	6 bar	3 bar
RS Series seal	6 bar	3 bar
Welded SL, SLF sleeve and frame	6 bar	3 bar
Bolted SLF sleeve and frame	5 bar	2.5 bar
SLFO/RI sleeve	2 bar	1 bar

***** END OF CERTIFICATE *****