



Marine & Offshore

Certificate number: 15027/D4 BV

File number: ACI4000/032/007

Product code: 5302H

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

CABLE PENETRATIONS IN FIRE DIVISIONS

H-0 / H-30 / H-60 / H-120 Class Cable Penetrations
Cable sealing system with multidiameter™ technology,
S-series, R-series and RS-seals
(certified products, frame position and achieved performance - see §1)

Requirements:

Bureau Veritas Rules for the Classification of Offshore Units - Part C, Chapter 4
IMO Res. MSC.307(88) (2010 FTP Code) IMO Res. MSC.307(88) (2010 FTP Code) with Hydrocarbon Fire Temperature Curve
IMO Res. MSC.61(67)-(FTP Code) with IMO Res MSC.307(88) (2010 FTP Code) article 8 with Hydrocarbon Fire Temperature Curve

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: 04 May 2026

For Bureau Veritas Marine & Offshore,
At BV GOTHENBURG, on 16 Jan 2024,
Hans-erik ERICSSON

This certificate was created electronically and is valid without signature



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with Bureau Veritas Marine & Offshore. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of Bureau Veritas Marine & Offshore available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against Bureau Veritas Marine & Offshore for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

H-Class ROXTEC cable sealing systems with multidiameter™ technology

1.1 - Roxtec sealing system with multidiameter™ technology, S-series (steel divisions)

Consists of Roxtec **S-Series frames** with a depth of 60 mm (S, S Ex, SF, SFHM, SO, SFO, SFOH, SR/T, SR/S, SRC r20, SRC r40, SRC r60) in height 1-8 and width 60-120, and combinations thereof, welded to the steel sections.

Also included in the S- series are the subgroup of **SK-series frames** with a single barrier with a depth of more than 60 mm (SK, SK Ex, SFK, SFOK, SFOHK, SRCK r20, SRCK r40, SRCK r60) and the subgroup **SBTB-Series frames** with two barriers (SBTB, SBTB Ex, SFBTB, SRBTB, SRCBTB r20, SRCBTB r40, SRCBTB r60).

The S-series (including subgroups) is filled with Roxtec halogen free RM modules[1].

Assembled with Roxtec Wedge, Roxtec ES Wedge, Roxtec Ex Wedge or Roxtec ES Ex Wedge and corresponding stayplates.

[1] *Standard RM, RM Ex, RM ES, RM ES B, RM PE, RM PE B, RM BG, RM BG B, RM ES Ex, RM ES B Ex, RM PE Ex, RM ES B Ex, RM BG Ex, RM BG B Ex*

Additional insulation on penetrations and/or cables:

- should be approved as having the same level of performance as the penetrated division and expected classification of penetration,
- is to be fitted as shown in the referred Manufacturer's drawings (see tables below) and also according to Manufacturer's insulation guidelines.

1.1.1 – H-60 Bulkhead

Frame	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
S-Series 8x1	90	60	Any	44%	S1596160 Rev B dated 21/11/2023 ID 1
S-Series 1x1 up to 8+8x5	90	60	Any	46%	S1596160 Rev B dated 21/11/2023 ID 2-3
S-Series 1x1 up to 8+8x3	96	60	Any	39%	S1596160 Rev B dated 21/11/2023 ID 4-5*
S-Series 1x1 up to 8+8x3	49	60	Unexposed	21%	S1596160 Rev B dated 21/11/2023 ID 6-7*
SK-Series 8x2	103	200	Any	38%	S1596172 Rev B dated 27/11/2023 ID 1
SK-Series 8+8x2	103	200	Any	38%	S1596172 Rev B dated 27/11/2023 ID 2
SBTB-Series 1x1 up to 8x4	90	200	Any	49%	S1596172 Rev B dated 27/11/2023 ID 3
SBTB-Series 1x1 up to 8+8x2	21	200	Unexposed	14%	S1596172 Rev B dated 27/11/2023 ID 4*

***Restricted application – Refer to §4.2** (one fire hazard side on the insulated side of bulkhead)

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1.1.2 – H-120 Bulkhead

Frame	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
S-Series 1x1 up to 8x1	80	60	Unexposed	22%	S15596187 Rev B dated 27/11/2023 ID 1*
S-Series 1x1 up to 6+6x2	80	60	Unexposed	16%	S15596187 Rev B dated 27/11/2023 ID 2*
SBTB-Series 4x1 up to 8x4	88	200	Unexposed	28%	S15596187 Rev B dated 27/11/2023 ID 3*

***Restricted application – Refer to §4.2** (one fire hazard side on the insulated side of bulkhead)

1.1.3 – H-0 Deck

Frame	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
S-Series 1x1 up to 8+8x10	90	60	Unexposed	37%	S1596202 Rev B dated 09/11/2023 ID 4
SK-Series 1x1 up to 8x1	90	600	Unexposed	33%	S1596202 Rev B dated 09/11/2023 ID 3
SBTB-Series 2x1 up to 6+6x5	90	320	Unexposed or 50 mm exposed side / 150 mm unexposed side	37%	S1596202 Rev B dated 09/11/2023 ID 2
SBTB-Series 1x1 up to 8+8x3	90	200	Unexposed or 15 mm exposed side / 305 mm unexposed side	37%	S1596202 Rev B dated 09/11/2023 ID 1

1.1.4 – H-60 Deck

Frame	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
S-Series 1x1 up to 8+8x10	90	60	Unexposed	37%	S1596189 Rev A dated 11/09/2023 ID 1-3
SK-Series 1x1 up to 8+8x5	90	100-400	Any	40%	S1596190 Rev A dated 11/09/2023 ID 1-2
SBTB-Series 1x1 up to 8+8x3	90	200-400	Any	40%	S1596190 Rev A dated 11/09/2023 ID 3-4

1.1.5 – H-120 Deck

Frame	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
S-Series 2x1 up to 8x1	90	60	Unexposed	16%	S1596191 Rev B dated 27/11/2023 ID 1
S-Series 2x1 up to 6x2	90	60	Unexposed	10%	S1596191 Rev B dated 27/11/2023 ID 2
S-Series 1x1 up to 8x2	90	60	Any	5%	S1596191 Rev B dated 27/11/2023 ID 3-4
SK-Series 1x1 up to 8+8x5	90	100-400	Any	40%	S1596201 Rev A dated 11/09/2023 ID 1-2
SBTB-Series 1x1 up to 8+8x5	90	200-400	Any	40%	S1596201 Rev A dated 11/09/2023 ID 3-4

1.2 - Roxtec sealing system with multidiameter™ technology: R-series (steel division)

Consists of a rubber frame filled with Roxtec RM modules of different sizes depending on diameter and configuration of the cables. It is available in standard, Ex and EMC versions depending on application.
The R-seal is installed into a steel sleeve that is welded or bolted onto the steel division.

Additional insulation on penetrations and/or cables:

- should be approved as having the same level of performance as the penetrated division and expected classification of penetration,
- is to be fitted as shown in the referred Manufacturer's drawings (see tables below) and also according to Manufacturer's insulation guidelines.

1.2.1 – H-60

Division orientation	Size	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
Bulkhead	50-200	90	55	Any	44%	S1596210 Rev B dated 30/10/2023 ID 3
Bulkhead*	50-200	62	55	Unexposed	26%	S1596210 Rev B dated 30/10/2023 ID 2
Deck	50-200	88	Min. 55	Unexposed	42%	S1596210 Rev B dated 30/10/2023 ID 1

***Restricted application – Refer to §4.3** (one fire hazard side on the insulated side of bulkhead)

1.2.2 – H-120

Division orientation	Size	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
Bulkhead*	50-200	62	55	Unexposed	23%	S1596211 Rev B dated 30/10/2023 ID 2
Deck	50-200	88	Min. 55	Unexposed	42%	S1596211 Rev B dated 30/10/2023 ID 1

***Restricted application – Refer to §4.3** (one fire hazard side on the insulated side of bulkhead)

1.3 - Roxtec sealing system with multidiameter™ technology: RS-series (steel division)

Consists of two halves with removable layers making it adaptable to a single cable of different diameters. It is available in different versions, RS, RS OMD, RS EMC or RS EX, depending on application.
The RS-seal is installed into a steel sleeve that is either welded or bolted onto the steel division.

Additional insulation on penetrations and/or cables:

- should be approved as having the same level of performance as the penetrated division and expected classification of penetration,
- is to be fitted as shown in the referred Manufacturer's drawings (see tables below) and also according to Manufacturer's insulation guidelines.

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H-60 / H-120

Division orientation	Size	Max. cable diameter [mm]	Frame depth [mm]	Frame position	Max. filling ratio	Insulation arrangement
Bulkhead	23-125	90	Diam. 23-31: min. 35 Diam. 43-125: min. 65	Any	N/A	S1596206 Rev B dated 30/10/2023 ID 1
Bulkhead*	23-150	90	Diam. 23-31: min. 35 Diam. 43-125: min. 65	Any	N/A	S1596206 Rev B dated 30/10/2023 ID 2
Deck	23-125	88	Diam. 23-31: min. 35 Diam. 43-125: min. 65	Unexposed	N/A	S1596206 Rev B dated 30/10/2023 ID 3

***Restricted application – Refer to §4.3** (one fire hazard side on the insulated side of bulkhead)

NOTE : filling ratio indicated in the tables is to be considered as the ratio between the total section of cables fitted inside the penetration and the total available packing space area.

2. DOCUMENTS AND DRAWINGS

2.1 - As per the Manufacturer's insulation drawings quoted in tables in §1.

2.2 - For S-series : technical statement (effect of the orientation on fire performance) n°PHD10048A dated 12/01/2022, from DBI, Denmark.

3. TEST REPORTS :

3.1 – S-Series

Division Orientation	Test report N°	Dated	Laboratory
Deck	846007.06*	19/09/1997	SINTEF, Norway
Deck	PG11088	18/02/2003	DBI, Denmark
Bulkhead	PG11199*	04/07/2003	DBI, Denmark
Bulkhead	P400834*	31/03/2004	DBI, Denmark
Bulkhead	P703775*	07/12/2007	DBI, Denmark
Bulkhead	PX07235*	15/12/2010	DBI, Denmark
Deck	3P04210	24/09/2013	SP, Sweden
Deck	4P02192	30/06/2014	SP, Sweden
Deck	6P02536	12/07/2016	SP, Sweden
Bulkhead	R23234.01.301	13/04/2018	SWRI, USA
Bulkhead	RS-19/B-037/E	21/03/2019	CTO, Poland
Bulkhead	PGB10170A	20/05/2022	DBI, Denmark
Bulkhead	PGB10171A	20/05/2022	DBI, Denmark
Bulkhead	RS-22/B-396/E	28/11/2022	CTO, Poland
Deck	PGB10215A	04/05/2023	DBI, Denmark
Deck	PGB10216A	09/05/2023	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3 with Hydrocarbon Fire Temperature Curve, except * as per IMO FTP Code, Annex 1, part 3 [test standard: IMO Resolution A.754(18) with Hydrocarbon Fire Temperature Curve].

3.2 – R-Series

Division Orientation	Test report N°	Dated	Laboratory
Bulkhead	PG11087*	12/02/2003	DBI, Denmark
Deck	RS-19/B-036/E	21/03/2019	CTO, Poland
Bulkhead	RS-19/B-037/E	21/03/2019	CTO, Poland
Bulkhead	PGB10120A	17/12/2021	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3 with Hydrocarbon Fire Temperature Curve, except * as per IMO FTP Code, Annex 1, part 3 [test standard: IMO Resolution A.754(18) with Hydrocarbon Fire Temperature Curve].

3.3 – RS-Series

Division Orientation	Test report N°	Dated	Laboratory
Bulkhead	P703775*	07/12/2007	DBI, Denmark
Deck	RS-19/B-036/E	21/03/2019	CTO, Poland
Bulkhead	PGB10120A	17/12/2021	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3 with Hydrocarbon Fire Temperature Curve, except * as per IMO FTP Code, Annex 1, part 3 [test standard: IMO Resolution A.754(18) with Hydrocarbon Fire Temperature Curve].

4. APPLICATION / LIMITATION :

4.1 - Approved for use as cable transits in H-0 to H-120 Class steel divisions with limitations contained in §1.

4.2 - For S-Series :

- Bulkhead: the use of cable penetration systems in bulkheads is **restricted** to application where on board fire hazard has been identified as being from the bulkhead's insulated side (refer to §1.1.1 and 1.1.2 for concerned cable penetration systems).
- Deck: Approval is **limited** to cable penetration systems fitted on the upper side of the deck (refer to §1.1.3, 1.1.4 and 1.1.5 for concerned cable penetration systems) or with frame lowered below deck (refer to §1.1.3 for concerned cable penetration systems).

4.3 - For R-Series and RS-Series :

- Bulkhead (refer to §1.2 and §1.3 for concerned cable penetration systems): the use of cable penetration systems in bulkheads is **restricted** to application where on board fire hazard has been identified as being from the bulkhead's insulated side.
- Deck : Approval is **limited** to cable penetration systems fitted on the upper side of the deck.

4.4 - Filling ratio not to exceed the one tested (see § 1).

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The **ROXTEC cable sealing system with multidiameter technology™, S-series, R-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.

5.4 - For information, **ROXTEC International AB** has declared to Bureau Veritas the following production site(s):

ROXTEC International AB
Rombvägen 2
371 23 KARLSKRONA
SWEDEN

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° 15027/D3 BV issued on 31/08/2022 by the Society.

7.3 - Watertightness and Gastightness:

Third Party Inspection reports from DNV, Norway: N° MLM 010235 dated 21/08/2001

N° MLM 010238 dated 30/08/2001

N° MLM 020106 dated 19/12/2001

N° MLM 020133 dated 26/02/2002

N° MLM 020408 dated 03/06/2002

- Tested watertightness (before fire exposure): 6 bar during 60 min.

- Tested gastightness (before fire exposure): 4 bar during 30 min.

*** END OF CERTIFICATE ***