



Marine &amp; Offshore

Certificate number: 15027/D2 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

(For details of approved configurations, 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.61(67)-(FTP Code) with IMO Res MSC.307(88) (2010 FTP Code) article 8

IMO MSC/Circ.1120

IMO MSC.1/Circ.1488

*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 15 Mar 2022,

Torbjorn Ygesjö



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.

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BV Mod. Ad.E 530 June 2017

This certificate consists of 9 page(s)

## **THE SCHEDULE OF APPROVAL**

### **1. PRODUCT DESCRIPTION:**

#### **H Class ROXTEC cable sealing systems with multidiameter technology**

##### **Roxtec S-series frames**

Consisting of Roxtec S-series frame (S, SO, SF, SFO, SR, SK, SRC r20&r40, SBTB, SRBTB) in sizes 1 - 8 and combinations thereof, welded or bolted to the steel divisions; filled with Roxtec RM modules (standard, Ex or EMC, PE, ES, BG, BGB).

Assembled with Roxtec Wedge kit or Roxtec EMC, Ex Wedge kit.

For bolted configurations, 3 mm thick EPDM rubber sealing strips are installed in between the Roxtec frames and the division.

Overview (See below view “details of the cable transits” for approved configurations):

Single frames in size 1-8		
Classification	Orientation	Filling ratio (cable area relative to total opening area)
H-0	DECK	0 ~ 28 %
H-60	DECK	0 ~ 14 %
	BULKHEAD	0 ~ 33 %
H-120	DECK	0 ~ 29 %
	BULKHEAD	0 ~ 18 %

Combination frames of size 1-8		
Classification	Orientation	Filling ratio (cable area relative to total opening area)
H-0	DECK	0 ~ 12 %
H-60	DECK	0 ~ 12 %
	BULKHEAD	0 ~ 33 %
H-120	DECK	0 ~ 29 %
	BULKHEAD	0 ~ 13 %

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Details of the cable transits:

**Classification: H0 (deck)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
SBTB / SRBTB	2x1	Min 200 mm	N°1 drawing S1554321	(1) Insulation located with a length of 200 mm around the transit	Ø 21 mm	0~15 %
SBTB / SRBTB	2x1	Min 320 mm	N°2 drawing S1554321	/	Ø 20 mm	0~15 %
SK	2x1~8x1	Min 600 mm	N°3 drawing S1554321	/	Ø 89 mm	0 ~28 %
S / SO / SF / SFO / SR /SRC r20&r40	1x1~8x1	60 mm	N°4 drawing S1554321	(2) Insulation located with a length of 450 mm around the transit	Ø 62 mm	0 ~13 %
SBTB / SRBTB	Single frame or combination frame with a maximum number of 6 openings not exceeding size 8	Min 320 mm	N°2 drawing S1554321	/	Ø 68 mm	0 ~4 %
S / SO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 4 openings not exceeding size 8	60 mm	N°4 drawing S1554321	(3) Insulation located with a length of 450 mm around the transit	Ø 82 mm	0 ~ 12%
SBTB / SRBTB	Single frame or combination frame with a maximum number of 2 rows, 5 columns and 10 openings not exceeding size 6	Min 200 mm	N°1 drawing S1554321	(4) Insulation located with a length of 200 mm around the transit	Ø 89 mm	0 ~5 %

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**Classification: H60 (deck)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
S / SO / SR /SRC r20&r40	1x1 ~ 8x1	60 mm	N°1 drawing S1554279	(2)	Ø 62 mm	0 ~14 %
S / SO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 4 openings not exceeding size 8	60 mm	N°2 drawing S1554279	(3)	Ø 82 mm	0 ~12 %

**Classification: H60 (bulkhead)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
S / SO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 6 openings not exceeding size 8	60 mm	N°3 drawing S1554279 (see §4.2)	(5)	Ø 96 mm	0 ~ 33 %
SK	1x1 ~ 8x2	200 mm	N°1 drawing S1554304	(6)	Ø 103 mm	0 ~ 33%
SK / SBTB / SRBTB	Combination frame with a maximum number of 4 openings not exceeding size 8	200 mm	N°2 drawing S1554304	(7)	Ø 103 mm	0 ~ 32%
S / SO / SR /SRC r20&r40	1x1 ~ 8x1	60 mm	N°3 drawing S1554304 (see §4.2)	(8)	Ø 49 mm	12% ~ 18 %
S / SO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 6 openings not exceeding size 8	60 mm	N°3 drawing S1554304 (see §4.2)	(8)	Ø 49 mm	18% with cables evenly spread
SBTB / SRBTB	Single frame or combination frame with a maximum number of 6 openings not exceeding size 8	200 mm	N°4 drawing S1554304 (see §4.2)	(9)	Ø 21 mm	0 ~ 11.7%

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**Classification: H120 (deck)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
S / SO / SF / SFO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 4 openings not exceeding size 8	60 mm	N°1 or N°2 drawing S1554312	(10)	Ø 98 mm	0 ~15 %
S / SO / SF / SFO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 2 openings not exceeding size 8	60 mm	N°1 drawing S1554312	(10)	Ø 98 mm	0 ~29 %
S / SO / SF / SFO / SR /SRC r20&r40	1x1 ~ 8x1	60 mm	N°3 drawing S1554309	(11)	Ø 47 mm	0 ~14 %
S / SO / SF / SFO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 4 openings not exceeding size 8	60 mm	N°4 drawing S1554309	(10)	Ø 98 mm	0 ~15 %

**Classification: H120 (bulkhead)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
S / SO / SF / SFO / SR /SRC r20&r40	1x1 ~ 6x1	60 mm	N°1 drawing S1554309 (see §4.2)	(12)	Ø 54 mm	0 ~ 18 %
S / SO / SF / SFO / SR /SRC r20&r40	Single frame or combination frame with a maximum number of 4 openings not exceeding size 6	60 mm	N°2 drawing S1554309 (see §4.2)	(13)	Ø 80 mm	0 ~ 13 %

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Design of the insulation system:

N° of insulation system	Division	Insulation system
(1)	Deck	<u>On side exposed to fire:</u> 2 layers 38 + 38 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ).
(2)	Deck	<u>On side exposed to fire:</u> 3 layers 25 + 25 + 25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m <sup>3</sup> )
(3)	Deck	<u>On side exposed to fire:</u> 2 layers 38 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> )
(4)	Deck	<u>On side exposed to fire:</u> 2 layers 50 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m <sup>3</sup> )
(5)	Bulkhead	<u>On the stiffened side:</u> 2 layers 50 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> )
(6)	Bulkhead	<u>On the stiffened side:</u> 2 layers 50 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ). 5 additional compressed layers 30 + 30 + 30 + 30 + 30 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ) are laid on the 2 layers of <b>FireMaster607</b>
(7)	Bulkhead	<u>On the stiffened side:</u> 2 layers 50 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ). 4 compressed layers 30 + 30 + 30 + 30 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ) are laid on the 2 layers of <b>FireMaster 607</b> and located around the frame on 100 mm. The transit system is in addition insulated with 1 layer 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ) overlapping the compressed layer on 100 mm around the frame.
(8)	Bulkhead	<u>On side exposed to fire:</u> 12 mm thick of coating <b>Chartek 7</b> manufactured by International Paint located on the transit frame and the cables with a length of 250 mm.
(9)	Bulkhead	<u>On side exposed to fire:</u> 12 mm thick of coating <b>Chartek 7</b> manufactured by International Paint.
(10)	Deck	<u>On side exposed to fire:</u> 2 layers 38 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 96 kg/m <sup>3</sup> ). 4 additional layers 50 + 50 + 50 + 50 mm thick are laid on the bottom of the 2 layers of insulation under the transit system and 150 mm around.
(11)	Deck	<u>On side exposed to fire:</u> 2 layers 50 + 50 mm thick of mineral wool <b>Rockwool Firebatt 110</b> manufactured by ROCKWOOL (density 120 kg/m <sup>3</sup> ) and 1 layer 25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m <sup>3</sup> )
(12)	Bulkhead	<u>On side exposed to fire:</u> 1 layer 100 mm thick of mineral wool <b>Rockwool Firebatt 110</b> manufactured by ROCKWOOL (density 100 kg/m <sup>3</sup> ) and 1 layer 25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m <sup>3</sup> )
(13)	Bulkhead	<u>On side exposed to fire:</u> 3 layers 25+25+25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m <sup>3</sup> )

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**Roxtec R-series frames**

Composed of steel sleeves with R type frames (standard, Ex or EMC, PE, ES, BG, BGB) made of steel and rubber, in sizes 70 – 200 and filled with Roxtec halogen free RM modules made of rubber (standard, Ex or EMC, PE, ES, BG, BGB), welded or bolted to steel divisions.

**Classification: H60/H120 (deck and bulkhead)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio (cable area relative to packing space area)
R	70 ~ 200	Steel sleeve: 55 mm Frame: 71 ~ 75 mm	N°1 S1554319 (see §4.2)	(14)	Ø 63 mm	10 ~ 28 %
R	70 ~ 200	Steel sleeve: 55 mm Frame: 71 ~ 75 mm	N°2 S1554319	(14)	Ø 63 mm	10 ~ 28 %

**Design of the insulation system:**

N° of insulation system	Division	Insulation system
(14)	Bulkhead / Deck	<u>On side exposed to fire:</u> 3 layers 25+25+25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m3)

**Roxtec RS-series seals**

Composed of steel sleeves with RS- type frames (Ex and EMC versions included) made of steel and rubber, in sizes 23 - 150, welded or bolted to steel decks or bulkheads.

**Classification: H60/H120 (deck and bulkhead)**

Type	Size	Depth	Installation / insulation arrangement	Design of the insulation system (see table below)	Maximum cable diameter	Filling ratio
RS	23 ~ 125	Steel sleeve: 35-65 mm Frame: 39-79 mm	N°1 S1554320 (bulkhead) (see §4.2)	(14) or (15)	Ø 96 mm	Not applicable (1 cable max. in each rubber frame)
RS	150	Steel sleeve: 35-65 mm Frame: 39-79 mm	N°2 S1554320 (bulkhead) (see §4.2)	(15)	Ø 96 mm	
RS	23 ~ 125	Steel sleeve: 35-65 mm Frame: 39-79 mm	N°3 S1554320 (deck)	(14)	Ø 78 mm	

**Design of the insulation system:**

N° of insulation system	Division	Insulation system
(14)	Bulkhead / Deck	<u>On side exposed to fire:</u> 3 layers 25 + 25 + 25 mm thick of ceramic fibre <b>FireMaster 607</b> manufactured by Thermal Ceramic (density 128 kg/m3)
(15)	Bulkhead	<u>On side exposed to fire:</u> 2 layers 50 + 50 mm thick of ceramic fibre <b>FireMaster 607</b> blankets (96 kg/m3)

**2. DOCUMENTS AND DRAWINGS :**

As per the Manufacturer's drawings:

**2.1 – Design of the transit systems:**

S1004649 Rev.E dated 28/09/2010: S2-S4-S6-S8 Ex Frame - Single Frame  
 S1005518 Rev.B dated 07/05/2019: S Frame - Single Frame  
 S1005519 Rev.E dated 07/05/2019: S Frame - Combination Frame  
 S1513135 Rev.A dated 03/06/2016: R Frames- R70 Ex and Standard  
 S1513136 Rev.A dated 03/06/2016: R Frames - R200 Ex and Standard  
 S1005507 Rev.D dated 29/04/2016: RS Seals - RS 25-31  
 S1005510 Rev.E dated 29/04/2016: RS Seals - RS 100-150  
 S1023958 Rev.A dated 27/05/2011: RS 23 – Assembly  
 S1007491 Rev.B dated 27/06/2010: RS 25 Ex Assembly  
 S1007536 Rev.B dated 27/06/2010: RS 150 Ex Assembly  
 S1000392 Rev.B dated 18/02/1999: SR Frame (S) - Single frame  
 S1000391 Rev.D dated 07/05/2019: SR Frame (S) - Combination frame  
 S1000686 Rev. C dated 18/02/1999: SO Frame - Single frame  
 S1002302 Rev. A dated 06/06/2001: SO Frame + Single frame  
 S1005261 Rev.E dated 10/09/2003: SFO Frame - SFO Single Spot Welded  
 S1005675 Rev.D dated 18/10/2019: SFO Frame - SFO Comb. Spot Welded  
 S1007987 Rev.B dated 13/05/2005: SFO Frame / bolted assembly  
 S1008448 Rev.B dated 05/10/2005: SO Frame - Combination frame  
 S1010396 Rev.A dated 03/01/2007: SR Frame (T) - Single Frame  
 S1010399 Rev.A dated 07/05/2019: SR Frame (T) - Combination Frame  
 S1026459 Rev.F dated 09/03/2021: gasket – SFOH combination frame  
 S1032396 Rev.A dated 11/04/2013: SFHM Gasket 50x3 – Single Frame 60  
 S1032393 Rev.A dated 11/04/2013: SFHM Gasket 50x3 + Combination Frame  
 S1035764 Rev.B dated 03/10/2014: SRBTB/S Frame + Combination Frame (part of test report 6P02536)  
 S1006967 Rev.L dated 14/06/2018: SLR and SLRS Sleeve

**2.2 – Installation / insulation arrangement:**

S1554279 Rev.B dated 17/12/2021: S-Series Frames W Cables - H-60 Steel Deck/Bulkhead  
 S1554304 Rev.C dated 03/01/2022: S-Series W Cables Incl. MC/SWA Cables - H-60 Steel Bulkhead  
 S1554309 Rev.B dated 17/12/2021: S-Series Frames Cables - H-120 Steel Deck/Bulkhead  
 S1554312 Rev.B dated 17/12/2021: S-Series Frames W Cables Incl. MC/SWA Cables - H60-H120 Steel Deck  
 S1554321 Rev.B dated 17/12/2021: S-Series Frames W Cables - H0 Steel Deck  
 S1554319 Rev.B dated 03/01/2022: R-Frames W Cables - H60- 120 Steel Deck/Bulkhead,  
 S1554320 Rev.B dated 10/01/2022: RS Seals W Cables - H60-H120 Steel Deck/Bulkhead,

**2.3 – Technical statement n°PHD10048A dated 12/01/2022, from DBI, Denmark.****3. TEST REPORTS :**

3.1 – Test report N° 250000.20/90.313 dated 09/11/1990, as per IMO Resolution A.517(13), from SINTEF, Norway.

3.2 – Test reports as per IMO FTP Code Annex 1 Part 3 [test standard: IMO Resolution A.754(18)]:

- N° 846007.06 dated 19/09/1997, from SINTEF, Norway.
- N° PG11087 dated 12/02/2003, from DBI, Denmark.
- N° PG11088 dated 18/02/2003, from DBI, Denmark.
- N° PG11199 dated 04/07/2003, from DBI, Denmark.
- N° P400834 dated 31/03/2004, from SP, Sweden.
- N° P703775 dated 07/12/2007, from SP, Sweden.
- N° PX07235 dated 15/12/2010, from SP, Sweden.



3.3 – Test reports as per IMO 2010 FTP Code Annex 1 Part 3, from SP, Sweden:

- N° 3P04210 dated 24/09/2013
- N° 4P02192 dated 30/06/2014
- N° 6P02536 dated 12/07/2016

#### **4. APPLICATION / LIMITATION :**

- 4.1 – Approved for use as cable transits in H-0, H-30, H-60 and H-120 class steel divisions, with limitations contained in §1.
- 4.2 – **Restricted application:** the use of bulkhead transit systems is restricted to application where on board fire hazard has been identified as being from the bulkhead insulation side.
- 4.3 – Approval of deck cable transit fitted on the unexposed side is limited to this orientation.
- 4.4 – The arrangement of the cable transit (with fire insulation, if any) is subject to approval in each case.
- 4.5 – Insulated transit systems have been tested with fire insulating materials FireMaster 607 (96 kg/m<sup>3</sup>, from Thermal Ceramic) and Rockwool Firebatt 110 (density 120 kg/m<sup>3</sup>, from Rockwool). Alternative insulation material is subject to case-by-case approval providing that it has been approved as giving at least an equivalent insulation performance (H-class approved).

#### **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/D1 BV issued on 04/02/2022 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 \*\*\*