



Marine & Offshore

Certificate number: 12509/D1 BV

File number: ACI4000/032/005 and 008

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**

RS series seals cable and pipe penetrations in A-Class Divisions

**Requirements:**

SOLAS 74, as amended, Regulations II-2/9.7.1.2

Bureau Veritas Rules for the Classification of Steel Ships 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

*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: 26 Feb 2023**

**For Bureau Veritas Marine & Offshore,**

At BV GOTHENBURG, on 29 Jan 2020,

Magne MOLLER



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 5 page(s)

## THE SCHEDULE OF APPROVAL

### 1. PRODUCT DESCRIPTION:

#### **RS series seals cable and pipe penetrations in A-Class Divisions**

"Roxtec cable and pipe sealing system with multidiameter technology, RS, RS OMD, RS OC, RS PPS and RS PPS/S series" are composed of steel sleeves with RS, RS OMD, RS OC, RS PPS or RS PPS/S type (Ex and EMC, PE, ES, BG, BGB versions include) halogen free rubber sealing, welded, bolted (incl. SL A) or attached through expansion (RS X) onto the steel deck or steel bulkhead.

#### **1.1 - RS and RS OMD sealing systems with welded or bolted sleeves (SL, SLF and SLFO/RI) are approved for the following services:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Cable	Deck: up to 82 Bulkhead: up to 102	Deck: 23-150 Bulkhead: 23-150	S1526991 rev B (deck & bulkhead)	S1527437 rev B (deck & bulkhead)
Steel pipe	Deck: up to 558 Bulkhead: up to 558	Deck: 23-644 Bulkhead: 23-644	S1527114 rev A (deck & bulkhead)	S1527448 rev B (deck & bulkhead)
CuNi 90:10 pipe	Deck: up to 270 Bulkhead: up to 270	Deck: 25-350 Bulkhead: 25-350	S1527380 rev A (deck) S1527374 rev A (bulkhead)	S1527373 rev A (deck) S1527383 rev A (bulkhead)
Copper Pipe	Deck: up to 225 Bulkhead: up to 108	Deck: 23-300 Bulkhead: 23-150	S1527108 rev A (deck & bulkhead)	S1527070 rev A (deck & bulkhead)
FGC pipe (GRE/GRP)	Deck: up to 360 Bulkhead: up to 89	Deck: 68-450 Bulkhead: 68-125	S1527082 rev A (deck & bulkhead)	S1527446 rev A (deck & bulkhead)
GRE FR pipe	Deck: up to 375 Bulkhead: up to 375	Deck: 100-450 Bulkhead: 100-450	S1527370 rev A (bulkhead)	S1527371 rev A (deck & bulkhead)
Bundle pipes	Deck: up to 50 Bulkhead: up to 50	Deck: 31-100 Bulkhead: 31-100	S1527051 rev A (deck & bulkhead)	S1527436 rev A (deck & bulkhead)

#### **1.2 - RS OC (Off Centre) with welded or bolted sleeves (SL, SLF and SLFO/RI) is approved for the following services:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Steel pipe	Deck: up to 273 Bulkhead: up to 10	Deck: 75-400 Bulkhead: 75	S1527542 rev A (deck & bulkhead)	S1527549 rev A (deck & bulkhead)

#### **1.3 - RS SLA sleeve is approved for the following services:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Cable	Deck: up to 32 Bulkhead: up to 32	Deck: 25-75 Bulkhead: 25-75	S1527399 rev A (deck & bulkhead)	S1527400 rev A (deck & bulkhead)
Steel pipe	Deck: up to 34 Bulkhead: -	Deck: 25-75 Bulkhead: -	S1527405 rev A (deck)	S1527406 rev A (deck)
Copper/ CuNi pipe	Deck: up to 34 Bulkhead: -	Deck: 25-75 Bulkhead: -	S1527424 rev A (deck)	S1527425 rev A (deck)

#### **1.4 - RS X (RS with SLX sleeve) is approved for the following services:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Cable	Deck: up to 168 Bulkhead: up to 168	Deck: 25-200 Bulkhead: 25-200	S1527454 rev A (deck & bulkhead)	S1527457 rev A (deck & bulkhead)
Steel pipe	Deck: up to 168 Bulkhead: up to 168	Deck: 25-200 Bulkhead: 25-200	S1527435 rev A (deck & bulkhead)	S1527452 rev A (deck & bulkhead)

#### **1.5 - RS PPS/S sealing system with welded or bolted sleeves (SL, SLF and SLFO/RI) is approved for the following service:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Thermoplastic pipes	Deck: up to 110 Bulkhead: up to 110	Deck: 31-150 Bulkhead: 31-150	S1527045 rev A (deck & bulkhead)	S1527462 rev B (deck & bulkhead)
PE/ALU/PE pipes	Deck: up to 63 Bulkhead: up to 63	Deck: 31-100 Bulkhead: 31-100	S1527619 rev A (deck & bulkhead)	S1527623 rev A (deck & bulkhead)

**1.6 - RS PPS sealing system with welded or bolted sleeves (SLPPS, SLFPPS) is approved for the following service:**

Service	Outer diameter (mm)	Seal size range (mm)	A-60 class (details of insulation)	A-0 class (details of insulation)
Thermoplastic pipes	Deck: up to 315 Bulkhead: up to 315	Deck: 31-400 Bulkhead: 31-400	S1527468 rev A (deck & bulkhead)	S1527469 rev A (deck & bulkhead)
PE/ALU/PE pipes	Deck: up to 110 Bulkhead: up to 110	Deck: 31-150 Bulkhead: 31-150	S1527534 rev A (deck & bulkhead)	S1527539 rev A (deck & bulkhead)

**2. DOCUMENTS AND DRAWINGS:**

As per the Manufacturer's drawings:

**2.1 - Insulation drawings N°:**

- S1526991 rev B	- S1527373 rev A	- S1527425 rev A	- S1527462 rev B
- S1527045 rev A	- S1527374 rev A	- S1527435 rev A	- S1527468 rev A
- S1527051 rev A	- S1527380 rev A	- S1527436 rev A	- S1527469 rev A
- S1527070 rev A	- S1527383 rev A	- S1527437 rev B	- S1527534 rev A
- S1527082 rev A	- S1527399 rev A	- S1527446 rev A	- S1527539 rev A
- S1527108 rev A	- S1527400 rev A	- S1527448 rev B	- S1527542 rev A
- S1527114 rev A	- S1527405 rev A	- S1527452 rev A	- S1527549 rev A
- S1527370 rev A	- S1527406 rev A	- S1527454 rev A	- S1527619 rev A
- S1527371 rev A	- S1527424 rev A	- S1527457 rev A	- S1527623 rev A

**2.2 - Assembly drawings N°:**

- S1005507 Rev D	- S1005510 Rev E	- S1007491 Rev B	- S1007536 Rev B
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**3. TEST REPORTS:****3.1 - Bulkhead:**

Laboratory	Test report	Dated	Fire Rating	As per
SINTEF, Norway	103070.25A	27/02/2003	A-0	IMO FTP Code Annex 1 Part 3 [test standard: IMO Resolution A.754(18)]
SINTEF, Norway	103070.29A	16/10/2003	A-60	
SP, Sweden	P502921	20/11/2005	A-60	
SP, Sweden	P600993	24/03/2006	A-60	
SP, Sweden	P602999	25/10/2006	A-60	
SP, Sweden	P605253	22/01/2007	A-60	
RIME, Japan	09-345E	24/02/2009	A-60	
SP, Sweden	P902394	04/05/2009	A-60	
SP, Sweden	PX05454	30/09/2010	A-60	
SP, Sweden	4P06068	26/11/2014	A-60	
DBI, Denmark	PGA10650	20/03/2015	A-60	IMO 2010 FTP Code Annex 1 Part 3
SP, Sweden	4P08662	08/05/2015	A-60	
DBI, Denmark	PGA10652	15/06/2015	A-0	
SP, Sweden	6P04351	15/06/2016	A-60	
DBI, Denmark	PGA10870A	01/11/2016	A-60	
SP, Sweden	6P10024	31/01/2017	A-60	
SP, Sweden	7P02024	16/05/2017	A-60	
CTO, Poland	RS-17/B-396/E	31/10/2017	A-60	
DBI, Denmark	PGA11301A	22/11/2018	A-0	
RISE, Sweden	8P07094 rev.1	16/01/2020	A-0	

**3.2 - Deck:**

Laboratory	Report	Dated	Fire Rating	As per
SINTEF, Norway	103070.25B	27/02/2003	A-0	IMO FTP Code Annex 1 Part 3 [test standard: IMO Resolution A.754(18)]
SINTEF, Norway	103070.27B	12/06/2003	A-60	
SINTEF, Norway	103070.29B	16/10/2003	A-60	
SP, Sweden	P502922	10/11/2005	A-60	
SP, Sweden	P603000	25/10/2006	A-60	
SP, Sweden	P701755	12/06/2007	A-60	
RIME, Japan	09-346E	27/02/2009	A-60	
DBI, Denmark	PGA10025	24/10/2011	A-60	
DBI, Denmark	PGA10141	29/06/2012	A-60	IMO 2010 FTP Code Annex 1 Part 3
SP, Sweden	4P07023	22/01/2015	A-60	
DBI, Denmark	PGA10649	08/03/2015	A-60	
DBI, Denmark	PGA10651	15/06/2015	A-0	
SP, Sweden	5P03457	15/10/2015	A-60	
DBI, Denmark	PGA10723A	15/12/2015	A-0	
DBI, Denmark	PGA10800A	18/04/2016	A-60	
SP, Sweden	6P02249	17/05/2016	A-60	
DBI, Denmark	PGA10871A	31/10/2016	A-60	
SP, Sweden	7P02167	19/06/2017	A-60	
DBI, Denmark	PGA11302A rev.1	16/01/2019	A-0	
DBI, Denmark	PGA11388A	14/08/2019	A-0	
RISE, Sweden	8P07092 rev.1	16/01/2020	A-0	

**4. APPLICATION / LIMITATION:**

4.1 - Approval valid for use in A-0, A-15, A-30 and A-60 class divisions.

4.2 - The arrangement of cable and pipe penetrations (with fire insulation, if any) is subject to approval in each case.

4.3 - The insulation material shall comply with the requirements of the relevant Bureau Veritas rules and be type approved:

4.4 - The tests have been carried out with various types of insulation materials; any alternative A-class insulation material, previously proven and approved, giving at least an equivalent insulation performance, can be used.

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

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The "RS series seals" 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° 12509/D0 BV issued on 29/06/2018 by the Society.

7.3 - Testing of the penetrations for gastightness and watertightness as per following inspection reports, witnessed by Third Party surveyor (DNV):

Product	Class	Report	Dated
SL A	DNV-GL	N141EX8Z	10/08/2017
SLFO/RI	DNV	MLM090673	08/10/2009
RS PPS	DNV	MLM060511, MLM070656	28/02/2006 18/04/2007
SLX	DNV	MLM030473-1	27/01/2003
Bolted sleeve	DNV	MLM020401	25/03/2002

Outcomes of those inspection reports are the following:

Product	Test pressure water tightness	Test pressure gas tightness
RS series seals	6 bar	3 bar
Welded SL, SLF, SLPPS, SLFPPS sleeve	6 bar	3 bar
SLX sleeve	6 bar	3 bar
Bolted SLF, SLFPPS sleeve	5 bar	2.5 bar
SL A sleeve	4 bar	1.5 bar
SLFO/RI sleeve	2 bar	1 bar

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