



中国船级社
CHINA CLASSIFICATION SOCIETY

证书编号/Certificate No.
GB23PTB00036_02

型式认可证书
CERTIFICATE OF TYPE APPROVAL

兹证明本证书所述制造厂具备按照下列标准的要求生产本证书所列产品的能力和条件。

This is to certify that the manufacturer stated in the certificate meets the requirements of the standards listed below and is available with the ability and conditions to produce the products described in the certificate.

制造厂/Manufacturer

Roxtec International AB

地址/Address

Box 540,S-37123 Karlskrona,Sweden

产品名称/Product

管路贯穿装置
Pipe Penetrations

附加标志/Notations

无/Nil.

认可标准/Approval Standard

- 1974年SOLAS公约及其修正案第II-2章第3条和第9条
Regulations 3 and 9, Chapter II-2 of 1974 SOLAS Convention, as Amended
- IMO 2010年FTP规则附件1第3部分
IMO 2010 FTP Code Annex I Part 3

用于/Intended for

船舶/Ships



证书有效期至/This Certificate is valid until 2026年11月13日/Nov. 13,2026

发证机构/Issued by 中国船级社哥德堡办事处
CCS Gothenburg Office

签发日期/Date 2023年10月06日
Oct. 06,2023

本证书根据中国船级社规范和相关规定签发。所有证书页为一个整体，必须同时使用。纸质证书每页均须由本社盖章方为有效，电子证书含数字签名方为有效，本证书复印件无效。任何单位和个人不应摘录或节选本证书的部分内容。有关方对所持证书的真实性有疑问时，可以向本社检验机构咨询。This Certificate is issued pursuant to the Rules of the Society and related regulation. All pages of the certificate are taken as a whole and are used simultaneously. No paper certificate page is valid without bearing the stamp of the Society, no electronic certificates is valid without the digital signature, and no copied form of the certificate is regarded as valid. Any part of the certificate is not to be extracted or abridged by any unit or individual in any form. Related parties who are doubted about the authenticity of the certificate may inquire of the Society or its offices.



Form No: T01.

联系方式/Contact Us, 见本社官方网站/See official web site of the Society (<http://www.ccs.org.cn>)

UTN:P023-63028376

产品明细/Product Description**管路贯穿装置/Pipe Penetrations (M0001)**

名称/Name	属性(值)/Value	单位/Unit
型号/Type	详见附页/See additional page(s)	
规格/Specification	详见附页/See additional page(s)	
应用型式/Application Type	详见附页/See additional page(s)	
使用限制/Installation Limitations	详见附页/See additional page(s)	
装置围板/套管包覆用隔热材料/Insulation Material Bundled for Coaming Or Spigot of Pipe Penetrations	详见附页/See additional page(s)	
套管(薄片)材料/Sleeves(Sheets)	详见附页/See additional page(s)	
密封胶/Sealant	详见附页/See additional page(s)	
试验前试样液压试验压力(水密性)/Pressure of Hydraulic Before Test Specimen(Watertight)	详见附页/See additional page(s)	bar
试验前试样空气试验压力(气密性)/Pressure of Air Before Test Specimen(Airtight)	详见附页/See additional page(s)	mbar
甲板管路贯穿耐火等级/受火面/Fire Class of Deck Pipe Penetrations /Exposed Face	详见附页/See additional page(s)	
舱壁管路贯穿耐火等级/受火面/Fire Class of Bulkhead Pipe Penetrations /Exposed Face	详见附页/See additional page(s)	

批准的图纸/Approved Drawings

图纸批准号/Drawings Approval No.: 详见附页/See additional page(s)

产品认可试验报告/ Approval Test Report

试验报告编号/ Test Report No.: 详见附页/See additional page(s)

试验报告日期/ Test Report Date :

试验单位/ Laboratory: 详见附页/See additional page(s)

试验单位地址/ Test Address:

认可后的产品检验方式/ Method of Product Inspection after Approval

按规范只认可不进行产品检验的产品/The product approved only in term of the rules:

认可后的产品检验由制造厂按本社批准的产品检验计划进行检验, 经检验合格后由制造厂签发合格证明, 并连同该产品的本社认可证书复印件一并交付用户, 制造厂对产品符合公约、法规、本社规范和本社认可的标准规定负责。After approval, product inspection should be carried out by the Manufacturer in accordance with the product inspection scheme approved by the Society. Upon satisfactory inspection, and the Quality Certificate issued by the Manufacturer should be provided to the purchaser together with the copy of the approval certificate issued by the Society. The manufacturer should take responsibility for the product being in compliance with the convention, statutory regulation, the Society rules and the standard accepted by the Society.

认可保持条件/ Maintenance Requirements of Approval

1. 型式认可后, 如果产品及其重要零部件的设计、所用材料或制造方法有所改变, 且影响到产品的主要特性、特征; 或产品的性能指标有所更改, 且超过认可的范围, 则有关图纸和文件应经检验机构审批。并在检验机构认为必要时, 经本社检验人员见证有关试验和进行检查, 其结果应能证实仍符合认可条件。

After type approval, if there are changes to the design, materials used or manufacturing method of the product and important components and such changes affect major characteristics and properties of the product, or property indexes of the product are changed and exceed the scope of approval, related drawings and documents are to be examined and approved by the concerned survey office. Where deemed necessary by the survey office, the surveyor to the Society will go to witness relevant tests and conduct inspection and the results should be able to demonstrate compliance with the approval

conditions.

2. 工厂的质量管理体系应保持有效运行，并且与认可时一致。如果质量管理体系发生改变，应经原体系认证机构审核并报本社批准。

The quality management system of the factory shall be ensure effective operation, and shall be the same as the situation of approval. If there are any changes to the quality management system, auditing of the original certification organization for quality management system and the society's approval shall be obtained.

3. 认可证书有效期内，如果出现可能导致本社取消认可的情况，工厂应及时采取有效的纠正措施。

Within the validity of the approval certificate, if cases occur that may cause the Society to withdraw the approval, the manufacturer should take corrective actions in a prompt and effective manner.

4. 在认可证书有效期内，本社检验人员可在未经事先通知的情况下对工厂的产品制造过程进行审核，以验证产品的生产是否符合业经本社批准的图纸和文件。工厂应予以配合。

Within the validity of the approval certificate, the surveyor to the Society may pay unannounced audit to the manufacturing process of the product in order to confirm whether it is in compliance with the drawings and documents approved by the Society. The factory should provide an active cooperation and necessary for the surveyor.

5. 如果属于获得型式认可B 模式证书，且无需颁发船用产品证书/等效证明文件的情况，证书获得者应接受本社每年一次的定期审核，定期审核日为认可证书期满之日对应的每一周年日，检查工作应在周年日的前后三个月内进行。

If belong to the situation of the product has type approval mode B certificate, and marine product certificate/equivalent document is not necessary, those who have obtained the certificate should be subject to periodical audit every year. The date of periodical audit shall be each anniversary date which corresponds to the date of expiry of the relevant certificate and the periodical audit shall be done within a time span of three months before and after the annual surveillance date.

备注/Remarks

1. 本社已审核了产品厂无石棉声明，但本社的审核不免除产品厂按照合同关系向订货方保证产品无石棉的责任。The declaration of asbestos-free submitted by manufacturer has been reviewed by the Society. However, liability of the manufacturer to guarantee the products are asbestos-free to purchaser under contract will not be exempted.

2. 本证书由原型式认可证书 (No. GB22PTB00041_02) 变更并替代原证书。
This Certificate is modified from and supersedes the previous Type Approval Certificate No. GB22PTB00041_02.

3. This cert was issued to Roxtec International AB.
Besides production site at Karlskrona, Sweden, Roxtec Sealing System (Shanghai) Co., Ltd (address: Ground floor, Building A, No. 875 Qiuxin Road, Lingang Nicheng Industrial Area, Pudong District Shanghai, P.R.China) is the assessed production site for the following components of the approved products:
R-series: Sleeve
RS-series: Sleeve
S-series: Frame, Stayplates
G-series: Frame Stayplates

4. 本证书认可产品应根据制造厂安装手册和批准图纸安装。
The approved products shall be installed as per the manufacuter's installation instructions and the approved drawings.

中国船级社哥德堡办事处
CCS Gothenburg Office

注：本证书含有附页，共11页
Note: The certificate is attached with additional 11 page(s)

产品明细 Product Description

产品名称/Product name	管路贯穿装置 Pipe Penetrations				
	S Series	R Series	RS Series	G Series	SPM Seals
规格 Specification	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”
图纸批准号 Drawings approval No.	GB17A00007, NP18A01797	GB17A00007, NP18A01797	GB17A00007, NP18A01797	NP23PPP00217	GB17A00006
管路材质 Material of pipe	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”
界面（甲板/舱壁）材质 Material of divisions(deck/bulkhead)	aluminum/steel Bulkhead and Deck	aluminum/steel Bulkhead and Deck	aluminum/steel Bulkhead and Deck	steel Bulkhead and Deck	aluminum/steel Bulkhead and Deck
贯穿装置与舱壁或甲板连接方式 Connection method of penetration device to bulkhead or deck	焊接/welded 螺栓链接/bolted	焊接/welded 螺栓链接/bolted Attached by expansion (SLFR X) or with a nut (SLA)	焊接/welded 螺栓链接/bolted attached by expansion (SLFRS X) or with a nut (SLA)	焊接/welded 螺栓链接/bolted	attached by expansion
框架或套筒材料 Material of frame or sleeve	aluminum/steel	aluminum/steel	aluminum/steel	steel	No sleeve/frame
框架或套筒包覆盖隔热材料 Insulation material bundled for frame or sleeve	A-60 approved type	A-60 approved type	A-60 approved type	A-60 approved type	A-60 approved type
舱壁贯穿耐火等级/受火面 Fire class of bulkhead transits /Exposed face	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”
甲板贯穿耐火等级/受火面 Fire class of deck transits/Exposed face	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”
试验前试样空气试验压力(气密性) Pressure of air before test specimen(Airtight)	Bolted: 1.67 bar Welded: 2.67 bar	Bolted: 1.67 bar Welded: 2.67 bar Long sleeves: 1 bar	Bolted: 1.67 bar Welded: 2.67 bar	Bolted: 1.67 bar Welded: 2.67 bar	0.67 bar
试验前试样液压试验压力(水密性) Pressure of hydraulic before test specimen(Watertight)	Bolted: 3.33 bar Welded: 4 bar	Bolted: 3.33 bar Welded: 4 bar Long sleeves: 2 bar	Bolted: 3.33 bar Welded: 4 bar	Bolted: 3.33 bar Welded: 4 bar	1.00 bar

密封胶 Sealant	No sealant	No sealant	No sealant	No sealant	No sealant
应用型式 Application Type	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”	See “Detailed Parameters”
使用限制 Installation limitation	<ol style="list-style-type: none">1. Approved for pipe penetration in decks or bulkheads with “A” class divisions (including A-0, A-15, A-30, A-60). For A-15 and A-30 applications, the penetration shall be insulated as for A-60 and the division is to be fitted with A60 insulation for a minimum distance of 200 mm around the penetration.2. Not for use in tank boundaries.3. More details please see “Detailed Parameters” .				

Detailed Parameters

1. S series

1.1 Product description

Roxtec sealing system with multidiameter™ technology, S-series 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 or bolted to the steel/aluminum sections. Also included in the S-series is 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 a 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. & *2.). Assembled with Roxtec Wedge, Roxtec ES Wedge, Roxtec Ex Wedge or Roxtec ES Ex Wedge and corresponding stayplates.

*1. Standard RM, RM Ex, RM PPS, RM FOC, 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

*2. RMX, RX BG, RX BG B.

1.2 Application limitation

S-Series

Application for (Steel, Cu, CuNi & Bundle) pipes in terms of deck and bulkhead

Type	Division	Size	Pipe Material	Pipe diameter (OD) [mm]	Frame length [mm]	Frame position	Frame insulation Drawing No.
S series.	A60 Steel Bulkhead/Deck	1-8 and combination thereof.	Steel	6-54	60	All positions	S1582862 Rev A
S series	A60 Steel Bulkhead/Deck		Copper & CuNi	6-54	60	All positions	S1582883 Rev A
S series	A60 Steel Bulkhead/Deck		Bundle	8-50	60	All positions	S1582886 Rev A
S series	A0 Steel Bulkhead/Deck		Copper & CuNi	6-54	60	All positions	S1582893 Rev A
S series	A0 Steel Bulkhead/Deck		Bundle	8-50	60	All positions	S1582896 Rev A
S series	A0 Steel Bulkhead/Deck		Steel	6-54	60	All positions	S1582899 Rev A
S series	A60 Aluminum Bulkhead/Deck		Steel	6-54	60	All positions	S1582903 Rev A
S series	A60 Aluminum Bulkhead/Deck		Copper & CuNi	6-54	60	All positions	S1583246 Rev A

1.3 list of type test reports

No.	Test report no.	Division material	Division orientation	Fire rating	Test report date	Testing organization
1	PG11898	Aluminum	Bulkhead	A60	2009-04-17	DBI, Hvidovre, Denmark
2	PG11955	Aluminum	Deck	A60	2009-04-17	DBI, Hvidovre, Denmark
3	PGB10077A	Aluminum	Deck	A60	2020-12-10	DBI, Hvidovre, Denmark
4	RS-18/B-485/E	Steel	Bulkhead	A60	2018-12-10	CTO, Gdansk, Poland
5	RS-20/B-081/E	Steel	Bulkhead	A0	2020-03-31	CTO, Gdansk, Poland
6	6P02249	Steel	Deck	A60	2016-08-17	SP, Borås, Sweden.
7	RS-17/B-395/E	Steel	Deck	A60	2017-10-30	CTO, Gdansk, Poland
8	RS- 18/B-484/E	Steel	Deck	A60	2018-12-10	CTO, Gdansk, Poland

9	RS-21 B-242E	Steel	Bulkhead	A60	2021-06-30	CTO, Gdansk, Poland
10	PGB10174A	Steel	Deck	A60	2022-07-13	DBI, Hvidovre, Denmark

1.4 Watertightness/gastightness test reports

No.	Test report no.	Testing organization	Test report date
1.	MLM 020133	DNV, Malmö, Sweden	2002-02-26
2.	MLM 020400	DNV, Malmö, Sweden	2002-03-25
3.	MLM 050410	DNV, Malmö, Sweden	2005-05-20
4.	MLM 060561	DNV, Malmö, Sweden	2006-12-01

2. R Series

2.1 Product description

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

The R-Series sealing system consist of a rubber frame filled with Roxtec RM modules of different sizes depending on diameter and configuration of the cables/pipes. It is available in standard, Ex and EMC versions depending on application.

The R-seal is installed into an aluminum/steel sleeve that is welded/bolted, attached by expansion (SLFR X) or with a nut (SLA) onto the aluminum/steel division.

2.2 Application limitation

R-series.

Application for (Steel, Cu, CuNi & Bundle) pipes in terms of deck and bulkhead.

Type	Division	Size	Pipe Material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve position	Sleeve insulation Drawing No.
R series with SLFR X	A60 Steel Bulkhead/Deck	70-200	Steel	6-54	55	Exposed/Unexposed	S1582059 Rev A
R series with SLR/SLFR	A60 Steel Bulkhead/Deck	50-200	Steel	6-95	55	All positions	S1582060 Rev A
R series with SLR/SLFR	A60 Steel Bulkhead/Deck	50-200	Copper & CuNi	6-54	55	All positions	S1582062 Rev A
R series with long sleeves	A60 Steel Deck	50-200	Steel	6-54	55-400	All positions	S1582065 Rev A
R series with SLR/SLFR	A0 Steel Deck	50-200	Steel	6-95	55	All positions	S1582061 Rev A
R series with SLR/SLFR	A0 Steel Bulkhead/Deck	50-200	Copper & CuNi	6-54	55	All positions	S1582063 Rev A
R series with SLR/SLFR	A0 Steel Bulkhead	50-200	Steel	6-54	55	All positions	S1582064 Rev A
R series with SLFR X	A0 Steel Bulkhead/Deck	70-200	Steel	6-54	55	Exposed/Unexposed	S1582066 Rev A
R series with long sleeves	A0 Steel Deck	50-200	Steel	6-54	55-400	All positions	S1582067 Rev A
R series with SLR/SLFR	A60 Aluminum Bulkhead/Deck	50-200	Steel	6-54	55	All positions	S1581874 Rev A
R series with SLR/SLFR	A60 Aluminum Bulkhead/Deck	50-200	Copper & CuNi	6-54	55	All positions	S1583673 Rev A
R series with SLR/SLFR	A60 Steel Bulkhead/Deck	50-200	Bundle	8-50	55	All positions	S1588399 Rev A
R series with SLR/SLFR	A0 Steel Bulkhead/Deck	50-200	Bundle	8-50	55	All positions	S1588403 Rev A

The R-series can be installed into sleeves equal to Roxtec dimensions specified in drawing S1587721.

2.3 list of type test reports

No.	Test report no.	Division material	Division orientation	Fire rating	Test report date	Testing organization
1	RS-20/B-408/E	Aluminum	Bulkhead	A60	2020-12-17	CTO, Gdansk, Poland
2	RS-21/B-446/E	Aluminum	Bulkhead	A60	2021-10-07	CTO, Gdansk, Poland
3	RS-20/B-410/E	Aluminum	Bulkhead	A60	2020-12-17	CTO, Gdansk, Poland
4	PGB10016A	Aluminum	Deck	A60	2022-06-29	DBI, Hvidovre, Denmark
5	PGB10077A	Aluminum	Deck	A60	2020-12-10	DBI, Hvidovre, Denmark
6	PG11955	Aluminum	Deck	A60	2009-04-17	DBI, Hvidovre, Denmark
7	4P08662	Steel	Bulkhead	A60	2015-06-08	SP, Borås, Sweden.
8	8P04039	Steel	Bulkhead	A60	2018-08-06	SP, Borås, Sweden.
9	PGB10046A	Steel	Bulkhead	A60	2020-11-16	DBI, Hvidovre, Denmark
10	PGB10176A	Steel	Bulkhead	A60	2022-11-04	DBI, Hvidovre, Denmark
11	PGA11301A	Steel	Bulkhead	A0	2018-11-22	DBI, Hvidovre, Denmark
12	PGA10724A	Steel	Bulkhead	A0	2016-05-05	DBI, Hvidovre, Denmark
13	PGA10800A	Steel	Deck	A60	2016-05-26	DBI, Hvidovre, Denmark
14	8P04040	Steel	Deck	A60	2018-08-13	SP, Borås, Sweden.
15	RS_19_B_225_E	Steel	Deck	A60	2019-08-01	CTO, Gdansk, Poland
16	PGB10174A	Steel	Deck	A60	2022-07-23	DBI, Hvidovre, Denmark
17	6P07563	Steel	Deck	A60	2016-12-20	SP, Borås, Sweden.
18	PGB10118A	Steel	Deck	A60	2021-11-15	DBI, Hvidovre, Denmark
19	PGA10723A	Steel	Deck	A0	2016-02-04	DBI, Hvidovre, Denmark
20	PGA11302A	Steel	Deck	A0	2019-01-16	DBI, Hvidovre, Denmark
21	RS-22/B-336/E	Steel	Bulkhead	A60	2022-10-28	CTO, Gdansk, Poland
22	RS-22/B-337/E	Steel	Deck	A60	2022-10-28	CTO, Gdansk, Poland

2.4 Watertightness/gastightness test reports

No.	Test report no.	Testing organization	Test report date
1.	MLM 030473-1	DNV, Malmö, Sweden	2003-01-27
2.	N1429Y4V	DNV, Gothenburg, Sweden	2022-03-21
3.	N142G50V	DNV, Gothenburg, Sweden	2022-11-11

3. RS Series

3.1 Product description

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

The RS cable/pipe penetration seal consist of two halves with removable layers making it adaptable to a single cable/pipe 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 an steel/aluminum sleeve that is either welded, bolted, attached through expansion (SLFRS X) or attached with a nut (SLA) onto the steel/aluminum division.

3.2 Application limitation

RS-series.

Application for (steel, Cu, CuNi, GRE & Bundle) pipes in terms of deck and bulkhead.

Type	Division	Pipe Material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve position	Sleeve insulation Drawing No.
RS series SLRS/SLFRS in size 23-664.	A60 Steel Bulkhead	Steel	6-558	35-65	All positions	S1582643 Rev A
RS series SLRS/SLFRS in size 23-664.	A60 Steel Deck	Steel	6-558	35-65	All positions	S1582664 Rev A
RS series SLRS/SLFRS in size 23-664.	A0 Steel Deck	Steel	6-558	35-65	All positions	S1582695 Rev A
RS series SLRS/SLFRS in size 23-664.	A0 Steel Bulkhead	Steel	6-558	35-65	All positions	S1582700 Rev A
RS series SLFRS X in size 25-200.	A60 Steel Bulkhead/Deck	Steel	6-168	65	Exposed/ Unexposed	S1582703 Rev A
RS series SLA in size 25-75.	A60 Steel Bulkhead/Deck	Steel	6-30	77-124	Exposed/ Unexposed	S1582705 Rev A
RS series SLA in size 25-75.	A0 Steel Bulkhead/Deck	Steel	6-30	77-124	Exposed/ Unexposed	S1582714 Rev A
RS series SLFRS X in size 25-200.	A0 Steel Bulkhead/Deck	Steel	6-168	65	Exposed/ Unexposed	S1582764 Rev A
RS series SLA in size 25-75.	A60 Steel Bulkhead/Deck	Copper & CuNi	6-34	77-124	Exposed/ Unexposed	S1581910 Rev A
RS series SLRS/SLFRS in size 23-300.	A60 Steel Bulkhead/Deck	Copper	6-225	35-65	All positions	S1581884 Rev A
RS series SLFRS X in size 25- 150.	A60 Steel Bulkhead/Deck	Copper & CuNi	6-108	65	Exposed/ Unexposed	S1582686 Rev A
RS series SLRS/SLFRS in size 23-300.	A0 Steel Deck	Copper	6-225	35-65	All positions	S1582701 Rev A
RS series SLRS/SLFRS in size 23-300.	A0 Steel Bulkhead	Copper	6-225	35-65	All positions	S1582702 Rev A
RS series SLA in size 25-75.	A0 Steel Bulkhead/Deck	Copper & CuNi	6-34	77-124	Exposed/ Unexposed	S1582716 Rev A
RS series SLFRS X in size 25- 150.	A0 Steel Bulkhead/Deck	Copper & CuNi	6-108	65	Exposed/ Unexposed	S1582750 Rev A
RS series SLRS/SLFRS in size 25-500.	A60 Steel Bulkhead	CuNi	10-420	35-65	All positions	S1582712 Rev A
RS series SLRS/SLFRS in size 25-500.	A60 Steel Deck	CuNi	10-420	35-65	All positions	S1582713 Rev A
RS series SLRS/SLFRS in size 25-500.	A0 Steel Deck	CuNi	10-420	35-65	All positions	S1582744 Rev A
RS series SLRS/SLFRS in size 25-500.	A0 Steel Bulkhead	CuNi	10-420	35-65	All positions	S1582745 Rev A
RS series SLRS/SLFRS in size 50- 1125.	A60 Steel Bulkhead	GRE	25-1040	35-65	All positions	S1582692 Rev A

RS series SLRS/SLFRS in size 50- 1125.	A60 Steel Deck	GRE	25-1040	35-65	All positions	S1582694 Rev A
RS series SLRS/SLFRS in size 50- 1125.	A0 Steel Deck	GRE	25-1040	35-65	All positions	S1582709 Rev A
RS series SLRS/SLFRS in size 50- 1125.	A0 Steel Bulkhead	GRE	25-1040	35-65	All positions	S1582743 Rev A
RS series SLRS/SLFRS in size 25- 100.	A60 Steel Bulkhead/Deck	Bundle	8-50	35-65	All positions	S1582690 Rev A
RS series SLRS/SLFRS in size 25- 100.	A0 Steel Bulkhead/Deck	Bundle	8-50	35-65	All positions	S1582747 Rev A
RS series SLRS/SLFRS in size 23-664.	A60 Aluminum Bulkhead	Steel	6-558	35-65	All positions	S1582791 Rev A
RS series SLA in size 25–75.	A60 Aluminum Bulkhead/Deck	Steel	6-30	77-124	Exposed/ Unexposed	S1582792 Rev A
RS series SLRS/SLFRS in size 23-664.	A60 Aluminum Deck	Steel	6-558	35-65	All positions	S1582801 Rev A
RS series SLRS/SLFRS in size 23- 150.	A60 Aluminum Bulkhead	Copper	6-108	35-65	All positions	S1582805 Rev A
RS series SLA in size 25–75.	A60 Aluminum Bulkhead/Deck	Copper & CuNi	6-34	77-124	Exposed/ Unexposed	S1582807 Rev A
RS series SLFRS X in size 25- 150.	A60 Aluminum Bulkhead/Deck	Copper & CuNi	6-108	65	Exposed/ Unexposed	S1582813 Rev A
RS series SLRS/SLFRS in size 23- 150.	A60 Aluminum Deck	Copper	6-108	35-65	All positions	S1582818 Rev A
RS series SLRS/SLFRS in size 23-500.	A60 Aluminum Deck	CuNi	10-420	35-65	All positions	S1582817 Rev A
RS series SLRS/SLFRS in size 23-500.	A60 Aluminum Bulkhead	CuNi	8-420	35-65	All positions	S1582821 Rev A
RS series SLRS/SLFRS in size 68- 1125.	A60 Aluminum Bulkhead	GRE	35-1040	35-65	All positions	S1582852 Rev A
RS series SLRS/SLFRS in size 68-600.	A60 Aluminum Deck	GRE	35-520	35-65	All positions	S1582853 Rev A

The RS-seal can be installed into sleeves equal to Roxtec dimensions specified in drawing S1586454.

3.3 list of type test reports

No.	Test report no.	Division material	Division orientation	Fire rating	Test report date	Testing organization
1	RS- 17/B-555/E	Aluminum	Bulkhead	A60	2018-01-15	CTO, Gdansk, Poland
2	RS- 19/B-020/E	Aluminum	Bulkhead	A60	2019-05-27	CTO, Gdansk, Poland
3	RS-20/B-408/E	Aluminum	Bulkhead	A60	2020-12-17	CTO, Gdansk, Poland
4	RS-20/B-082/E	Aluminum	Bulkhead	A60	2020-04-21	CTO, Gdansk, Poland
5	PG11898	Aluminum	Bulkhead	A60	2019-04-17	DBI, Hvidovre, Denmark
6	RS-21_B- 189E	Aluminum	Bulkhead	A60	2021-06-04	CTO, Gdansk, Poland
7	PGB10031A	Aluminum	Bulkhead	A60	2020-07-09	DBI, Hvidovre, Denmark
8	RS-20/B-410/E	Aluminum	Bulkhead	A60	2020-12-17	CTO, Gdansk, Poland
9	RS-21/B-446/E	Aluminum	Bulkhead	A60	2021-10-07	CTO, Gdansk, Poland
10	PGB10015A	Aluminum	Bulkhead	A0	2020-06-08	DBI, Hvidovre, Denmark
11	RS- 18/B- 179/E	Aluminum	Deck	A60	2018-06-25	CTO, Gdansk, Poland
12	PGB10016A	Aluminum	Deck	A60	2022-06-29	DBI, Hvidovre, Denmark
13	PGB10077A	Aluminum	Deck	A60	2020-12-10	DBI, Hvidovre, Denmark
14	RS- 19/B-224/E	Aluminum	Deck	A60	2019-08-01	CTO, Gdansk, Poland
15	PG11955	Aluminum	Deck	A60	2019-04-17	DBI, Hvidovre, Denmark
16	PGB10076A	Aluminum	Deck	A60	2020-12-09	DBI, Hvidovre, Denmark

17	PX05454	Steel	Bulkhead	A60	2011-09-08	SP, Borås, Sweden
18	4P06068	Steel	Bulkhead	A60	2015-01-17	SP, Borås, Sweden
19	4P08662	Steel	Bulkhead	A60	2015-06-08	SP, Borås, Sweden
20	RS- 18/B- 181/E	Steel	Bulkhead	A60	2018-05-07	CTO, Gdansk, Poland
21	RS- 19/B-355/E	Steel	Bulkhead	A60	2019-10-16	CTO, Gdansk, Poland
22	RS-20/B-017/E	Steel	Bulkhead	A60	2020-01-23	CTO, Gdansk, Poland
23	RS-20/B- 191/E	Steel	Bulkhead	A60	2020-06-05	CTO, Gdansk, Poland
24	RS-21_B-241E	Steel	Bulkhead	A60	2021-06-30	CTO, Gdansk, Poland
25	RS-21/B-519/E	Steel	Bulkhead	A60	2021-12-15	CTO, Gdansk, Poland
26	RS- 18/B-485/E	Steel	Bulkhead	A60	2018-12-10	CTO, Gdansk, Poland
27	PGB10112A	Steel	Bulkhead	A60	2021-09-20	DBI, Hvidovre, Denmark
28	RS- 19/B-035/E	Steel	Bulkhead	A60	2019-02-25	CTO, Gdansk, Poland
29	PGA10650	Steel	Bulkhead	A60	2015-05-18	DBI, Hvidovre, Denmark
30	6P04351	Steel	Bulkhead	A60	2016-06-28	SP, Borås, Sweden
31	RS-21/B-445/E	Steel	Bulkhead	A60	2021-10-07	CTO, Gdansk, Poland
32	PGB10020A	Steel	Bulkhead	A60	2020-05-05	DBI, Hvidovre, Denmark
33	RS-21/B-517/E	Steel	Bulkhead	A0	2021-12-15	CTO, Gdansk, Poland
34	RS- 18/B-292/E	Steel	Bulkhead	A0	2018-08-13	CTO, Gdansk, Poland
35	PGA11610A	Steel	Bulkhead	A0	2020-01-10	DBI, Hvidovre, Denmark
36	RS-20/B-081/E	Steel	Bulkhead	A0	2020-03-31	CTO, Gdansk, Poland
37	PGA11301A	Steel	Bulkhead	A0	2018-11-22	DBI, Hvidovre, Denmark
38	RS- 18/B-023/E	Steel	Deck	A60	2018-01-29	CTO, Gdansk, Poland
39	PGA10871A	Steel	Deck	A60	2018-01-16	DBI, Hvidovre, Denmark
40	6P02249	Steel	Deck	A60	2016-08-17	SP, Borås, Sweden
41	4P07023	Steel	Deck	A60	2015-02-04	SP, Borås, Sweden
42	09-346E	Steel	Deck	A60	2009-12-11	Research institute of Marine Engineering, Tokyo, Japan
43	7P02167	Steel	Deck	A60	2017-08-07	SP, Borås, Sweden
44	PGB10047A	Steel	Deck	A60	2020-11-30	DBI, Hvidovre, Denmark
45	PGB10118A	Steel	Deck	A60	2021-11-15	DBI, Hvidovre, Denmark
46	PGA10800A	Steel	Deck	A60	2016-05-26	DBI, Hvidovre, Denmark
47	RS- 18/B-484/E	Steel	Deck	A60	2018-12-10	CTO, Gdansk, Poland
48	PGA10649	Steel	Deck	A60	2015-05-18	DBI, Hvidovre, Denmark
49	RS- 19/B-356/E	Steel	Deck	A60	2019-10-18	CTO, Gdansk, Poland
50	PGA11611A	Steel	Deck	A60	2020-01-11	DBI, Hvidovre, Denmark
51	5P03457	Steel	Deck	A60	2015-11-12	SP, Borås, Sweden
52	PGB10032A	Steel	Deck	A60	2020-07-01	DBI, Hvidovre, Denmark
53	PGB10111A REV1	Steel	Deck	A60	2021-09-20	DBI, Hvidovre, Denmark
54	RS- 18/B-292/E	Steel	Deck	A0	2018-09-13	CTO, Gdansk, Poland
55	PGB10119A	Steel	Deck	A0	2021-11-15	DBI, Hvidovre, Denmark
56	PGA11302A	Steel	Deck	A0	2019-01-16	DBI, Hvidovre, Denmark
58	PGB10110A	Steel	Deck	A60	2021-04-27	DBI, Hvidovre, Denmark

3.4 Watertightness/gastightness test reports

No.	Test report no.	Testing organization	Test report date
1.	MLM 010247	DNV, Malmö, Sweden	2001-09-28
2.	MLM 030473-1	DNV, Malmö, Sweden	2003-01-27
3.	MLM 060561	DNV, Malmö, Sweden	2006-12-01
4.	N1421782	DNV, Gothenburg, Sweden	2020-05-27
5.	N14254FG	DNV, Gothenburg, Sweden	2020-11-26

4. G Series

4.1 Product description

“Roxtec sealing system with multidiameter™ technology: G-series (steel)” consisting of Roxtec G-series steel frames (G, GO and GHM) in sizes 1-8 and combinations thereof, bolted or welded to a steel section. The G frame is filled with Roxtec (standard or Ex, EMC of type PE, ES and BG, BGB) halogen free RM modules. Assembled with Roxtec wedge kit or Roxtec EMC wedge kit.

4.2 Application limitation

G-series

Application for steel pipes in terms of deck and bulkhead.

Type	Division	Size	Pipe Material	Pipe diameter (OD) [mm]	Frame length [mm]	Frame position	Frame insulation Drawing No.
G series	A60 Steel Bulkhead/Deck	1-8 and combination thereof.	Steel	6-54	60	All positions	S1582458 Rev A
G series.	A0 Steel Bulkhead/Deck	1-8 and combination thereof.	Steel	6-54	60	All positions	S1582478 Rev A

4.3 list of type test reports

No.	Test report no.	Division material	Division orientation	Fire rating	Test report date	Testing organization
1	PGB10030A	Steel	Bulkhead	A60	2020-07-16	DBI, Hvidovre, Denmark
2	RS- 17/B-395/E	Steel	Deck	A60	2017-10-30	CTO, Gdansk, Poland
3	RS- 18/B-023/E	Steel	Deck	A60	2018-01-29	CTO, Gdansk, Poland

4.4 Watertightness/gastightness test reports

No.	Test report no.	Testing organization	Test report date
1.	MLM 020133	DNV, Malmö, Sweden	2002-02-26
2.	MLM 020401	DNV, Malmö, Sweden	2002-03-25
3.	MLM 030491	DNV, Malmö, Sweden	2002-06-03
4.	MLM 050410	DNV, Malmö, Sweden	2005-05-20

5. SPM seals

5.1 Product description

“Roxtec sealing system, Roxtec SPM series consisting of halogen free rubber seal in size 39-279 attached through expansion to aluminum/steel division.

5.2 Application limitation

SPM-seal series.

Application for (Steel, Cu & CuNi) pipes in terms of deck and bulkhead.

Type	Division	Pipe Material	Pipe diameter (OD) [mm]	Sleeve length [mm]	Sleeve position	Sleeve insulation Drawing No.
SPM in size 39-279.	A60 Steel Deck	Steel	8-222	44-58	Exposed/Unexposed	S1583093 Rev A
SPM in size 39-279.	A0 Steel Deck	Steel	8-222	44-58	Exposed/Unexposed	S1582531 Rev A
SPM in size 39-279.	A60 Steel Bulkhead	Steel	8-222	44-58	Exposed/Unexposed	S1582516 Rev A
SPM in size 39-279.	A0 Steel Bulkhead	Steel	8-222	44-58	Exposed/Unexposed	S1582546 Rev A
SPM Blind in size 39-92.	A60 Steel Bulkhead/Deck	NA	NA	44-50	Exposed/Unexposed	S1582554 Rev A
SPM Blind in size 39-92.	A0 Steel Bulkhead/Deck	NA	NA	44-50	Exposed/Unexposed	S1582555 Rev A
SPM in size 39-279.	A60 Steel Deck	Copper & CuNi	8-222	44-58	Exposed/Unexposed	S1582594 Rev A
SPM in size 39-279.	A60 Steel Bulkhead	Copper & CuNi	8-222	44-58	Exposed/Unexposed	S1582596 Rev A
SPM in size 39-279.	A0 Steel Deck	Copper & CuNi	8-222	44-58	Exposed/Unexposed	S1582598 Rev A
SPM in size 39-279.	A0 Steel Bulkhead	Copper & CuNi	8-222	44-58	Exposed/Unexposed	S1582599 Rev A
SPM in size 39-279.	A60 Aluminum Deck	Steel	8-222	44-58	Exposed/Unexposed	S1582604 Rev A
SPM in size 39- 157.	A60 Aluminum Deck	Copper & CuNi	8-110	44-51	Exposed/Unexposed	S1582611 Rev A
SPM in size 39-279.	A60 Aluminum Bulkhead	Steel	8-222	44-58	Exposed/Unexposed	S1582606 Rev A
SPM in size 39- 157.	A60 Aluminum Bulkhead	Copper & CuNi	8-110	44-51	Exposed/Unexposed	S1582619 Rev A

5.3 list of type test reports

No.	Test report no.	Division material	Division orientation	Fire rating	Test report date	Testing organization
1	RS- 17/B-210/E	Aluminum	Deck	A60	2017-06-02	CTO, Gdansk, Poland
2	RS- 18/B- 179/E	Aluminum	Deck	A60	2018-06-25	CTO, Gdansk, Poland
3	PGA11371A	Aluminum	Deck	A60	2019-02-20	DBI, Hvidovre, Denmark
4	RS- 17/B-209/E	Aluminum	Bulkhead	A60	2017-06-02	CTO, Gdansk, Poland
5	RS- 18/B- 180/E	Aluminum	Bulkhead	A60	2018-06-25	CTO, Gdansk, Poland
6	PGA11370A	Aluminum	Bulkhead	A60	2019-02-20	DBI, Hvidovre, Denmark
7	RS- 18/B- 181/E	Steel	Bulkhead	A60	2018-05-07	CTO, Gdansk, Poland
8	PGA10870A	Steel	Bulkhead	A60	2016-12-13	DBI, Hvidovre, Denmark
9	PGB10046A	Steel	Bulkhead	A60	2020-11-16	DBI, Hvidovre, Denmark
10	6P05990	Steel	Bulkhead	A60	2016-11-16	SP, Borås, Sweden

11	5P03451	Steel	Bulkhead	A60	2015-11-03	SP, Borås, Sweden
12	PGB10046A	Steel	Bulkhead	A60	2020-11-16	DBI, Hvidovre, Denmark
13	5P08346	Steel	Bulkhead	A60	2015-12-21	SP, Borås, Sweden
14	5P03457	Steel	Deck	A60	2015-11-12	SP, Borås, Sweden
15	5P08343	Steel	Deck	A60	2015-12-21	SP, Borås, Sweden
16	5P08395	Steel	Deck	A60	2016-03-17	SP, Borås, Sweden
17	6P05989	Steel	Deck	A60	2016-10-24	SP, Borås, Sweden
18	RS- 17/B- 177/E	Steel	Deck	A0	2017-05-26	CTO, Gdansk, Poland
19	PGA11302A	Steel	Deck	A0	2019-01-16	DBI, Hvidovre, Denmark
20	PGA11388A	Steel	Deck	A0	2019-08-14	DBI, Hvidovre, Denmark
21	RS- 18/B-022/E	Steel	Bulkhead	A60	2018-01-29	CTO, Gdansk, Poland
22	RS- 18/B- 181/E	Steel	Bulkhead	A60	2018-05-07	CTO, Gdansk, Poland
23	RS- 18/B-023/E	Steel	Deck	A60	2018-01-29	CTO, Gdansk, Poland
24	PGA10870A	Steel	Bulkhead	A60	2016-12-13	DBI, Hvidovre, Denmark

5.4 Watertightness/gastightness test reports

No.	Test report no.	Testing organization	Test report date
1.	N1417RRN	DNV, Malmö, Sweden	2016-01-29
2.	N1419WS4	DNV, Malmö, Sweden	2016-06-22
3.	N141805C	DNV, Malmö, Sweden	2017-11-22