

Certificate Of Fire Approval

This is to certify that the product detailed below will be accepted for compliance with the applicable Lloyd's Register Rules and Regulations and with the International Convention for the Safety of Life at Sea, (SOLAS), 1974, as amended, for use on ships and offshore installations classed with Lloyd's Register, and for use on ships and offshore installations when authorised by contracting governments to issue the relevant certificates, licences, permits etc.

Manufacturer	Roxtec International AB
Address	Box 540, Karlskrona, 371 23, Sweden
Type	CABLE AND PIPE PENETRATION (STANDARD FIRE TEST)
Description	Multi Cable and Pipe Penetration Types: RS Frame in steel and aluminium divisions
Trade Name	RS Frame
Specified Standard	IMO Res. MSC.307(88) (2010 FTP Code) Annex 1 Part 3, 11 and section 8. IMO Res. MSC.61(67) IMO FTP Code Annex 1 Part 3 IMO/MSC/Circ. 1120 & 1488

This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Lloyd's Register North America, Inc. of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document and its supplementary Type Approval Terms and Conditions form part of this Certificate.

This certificate remains valid unless cancelled or revoked, provided the conditions in the attached Design Appraisal Document are complied with and the equipment remains satisfactory in service.

1330 Enclave Parkway, Houston, Texas, 77077,
United States

Bruce McDonald

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Register North America, Inc.
A member of the Lloyd's Register group

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DESIGN APPRAISAL DOCUMENT

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR21217042SF

The undernoted documents have been appraised for compliance with the relevant requirements of International Conventions, and this Design Appraisal Document forms part of the Certificate.

This Design Appraisal Document forms part of the Certificate.

This Certificate is a Renewal of Certificate Number SAS F160140 & SAS F160163

FIRE TEST REPORTS

SP Technical research institute of Sweden (RISE). Test report numbers ;

6P02249 dated 17th August 2016, 6P10024 dated 7th March 2017, 8P07092rev 1 dated 16th January 2020, 8P07094rev1 dated 16th January 2020, 4P06068 dated 17th January 2015, 4P07023 dated 4th February 2015, 6P04351 dated 28th June 2016, 4P08662 dated 8th June 2015, 6P02999 dated January 23rd 2007, 7P02167 dated 7th August 2017, PX05454rev1 dated 8th September 2011, P603000 dated 27th January 2007.

Research Institute of Maritime Engineering (RIME) Test Report Numbers;

09-346(E) dated 11December 2009, 09-345(E) dated 11th December 2009,

DBI Danish Institute of Fire and Security Testing. Test report numbers ;

PGA11371A dated 20th February 2019, PGA10870A dated 13th November 2016, PGA10800A dated 26th May 2016, PG10871Arev2 dated 16th January 2018, PGB10031A dated 09th July 2020, PGA10723A dated 4thFebruary 2016, PG10652 dated 3rd July 2015, PGA 11302A dated 16th January 2019, PGA10047A dated 30th November 2020, PGB10032A dated 1st July 2020, PGA11611A dated 11th January 2020, PGA11301A dated 22nd November 2018, PGB10020A dated 5th May 2020, PGA10650 dated 18th May 2015, PGA10649 dated 18th May 2015, PGA11610A dated 18th December 2019

Centrum Techniki Okretowej (Ship Design and Research centre S.A Gdansk) Test reports numbers;

RS-18/B-022/E dated, 29th January 2018, RS-18/B-484/E dated 10th December 2018, RS-18/B-485/E dated 10th December 2018, RS-17/B-396/E dated 31st October 2017, RS-18/B-023/E dated 29th January 2018, RS-19/B-224/E dated 1st August 2019, RS-17/B-395/E dated 30th October 2017, RS-18/B-555/E dated 15th January 2018, RS-20/B-017/E dated 23rd January 2020, RS-17/B-210/E dated 2nd June 2017, RS-20/B-191/E dated 5th June 2020, RS-18/B292/E dated 13th September 2018, RS-18/B293/E dated 13th September 2018, RS-18/B-181/E dated 7th May 2018, RS-20/B-181/E dated 31st March 2020, RS-19/B-356/E dated 18th October 2019, RS-19/B-355/E dated 16th October 2019, RS-20/B-410/E dated 17th December 2020, RS-19/B-020/E dated 27th May 2019.

PRESSURE TEST REPORTS

Pressure witness reports, N141EX8Z dated 10th August 2017, N1421782 dated 1st September 2020.

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CONDITIONS OF CERTIFICATION

1. "Roxtec sealing system with multidiameter technology: RS-series (steel/aluminium)" consisting of a sleeve, bolted, welded or attached through expansion (SL X) to a steel/aluminium section. Sleeve is fitted with a Roxtec RS series seal (standard, Ex or EMC) in sizes 23-644.
2. Penetration details are defined below in Tables 1-6
3. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype
4. The certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties
5. The test laboratory is solely responsible for all tests performed within the scope of this certificate and to ensure that the testing is conducted in full compliance with the relevant test standard, approved operational procedures, statutory regulations and Lloyd's Register requirements as applicable and to meet client objectives as per contractual agreements
6. Production items are to be manufactured in accordance with a quality control system which shall be maintained to ensure that items are of the same standard as the approved prototype
7. The certificate holder is solely responsible for the products supplied under this Certificate and to ensure that their products, whether manufactured by themselves or their licensee manufacturers, if agreed by Lloyd's Register, are fully compliant with the relevant statutory regulations and Lloyd's Register Class rules as applicable and designed, manufactured and installed to the same quality and specifications as the prototype tested, including components that are designed and manufactured by third parties
8. The test laboratory is solely responsible for all tests performed within the scope of this certificate and to ensure that the testing is conducted in full compliance with the relevant test standard, approved operational procedures, statutory regulations and Lloyd's Register requirements as applicable and to meet client objectives as per contractual agreements

ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR21217042SF

Steel Bulkheads A-60					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS23-RS125	Cable	10-88	Centre-line, exposed or unexposed.	S1561774
SL	RS23-RS400	Steel Pipe	6-330	Centre-line, exposed or unexposed.	S1561020
SL	R23-RS644	Steel Pipe	6-558	Unexposed	S1561020
SL	RS23-RS300	Copper Pipe	6-225	Centre-line, exposed or unexposed.	S1561052
SL	RS25-RS500	CuNi 90:10 Pipe	10-420	Centre-line, exposed or unexposed.	S1561128
SL	RS50-RS600	Fiberglass Composite Pipe	25-520	Centre-line, exposed or unexposed.	S1561063
SL	RS43-RS100	Pipe Bundle (steel)	16-50	Centre-line, exposed or unexposed.	S1561205
SL A	RS25-RS75	Cable	10-32	Exposed or Unexposed	S1561776
SL A	RS25-RS75	Steel Pipe	6-30	Exposed or unexposed	S1561137
SL A	RS 25-RS75	Copper Pipe	6-34	Exposed	S1561142
SL A	RS 25-RS75	Copper Pipe	6	Unexposed	S1561142
SL X	RS25-RS200	Steel Pipe	6-168	Unexposed	S1561185
SL X	RS25	Steel Pipe	6	Exposed	S1561185

Table 1 RS series A-60 penetrations in Steel bulkheads

Steel Decks A-60					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS23-RS125	Cable	10-88	Centre-line, exposed or unexposed.	S1561774
SL	RS23-RS400	Steel Pipe	6-330	Centre-line, exposed or unexposed.	S1561020
SL	RS23-RS644	Steel Pipe	6-558	Unexposed	S1561020
SL	RS23-RS300	Copper Pipe	6-225	Centre-line, exposed or unexposed.	S1561052
SL	RS25-RS500	CuNi 90:10 Pipe	10-420	Centre-line, exposed or unexposed.	S1561073
SL	RS50-RS600	Fiberglass Composite Pipe	25-520	Centre-line, exposed or unexposed.	S1561063
SL	RS43-RS100	Pipe Bundle (steel)	16-50	Centre-line, exposed or unexposed.	S1561205
SL A	RS25-RS75	Cable	10-32	Exposed or Unexposed	S1561776
SL A	RS25-RS75	Steel Pipe	6-30	Unexposed	S1561137
SL A	RS25-RS75	Copper Pipe	6-34	Unexposed	S1561142
SL X	RS25-RS200	Steel Pipe	6-168	Exposed or Unexposed	S1561185

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Table 2 RS series A-60 penetrations in Steel Decks

Steel Bulkheads A-0					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS43-125	Cable	10-86	Centre-line, exposed or unexposed.	S1561780
SL	RS23-RS400	Steel Pipe	6-330	Centre-line, exposed or unexposed.	S1561212
SL	RS23-RS644	Steel Pipe	6-558	Unexposed	S1561212
SL	RS23-RS300	Copper Pipe	6-225	Centre-line, exposed or unexposed.	S1561217
SL	RS23-RS500	CuNi 90:10 Pipe	6-420	Centre-line, exposed or unexposed.	S1561349
SL	RS50-RS600	Fibreglass Compostite Pipe	25-520	Centre-line, exposed or unexposed.	S1561360
SL	RS43-RS100	Bundle Pipe (steel)	16-50	Centre-line, exposed or unexposed.	S1561500
SL A	RS25-75	Cable	10-32	Exposed or Unexposed	S1561783
SL A	RS25-RS75	Steel Pipe	6-30	Exposed or Unexposed	S1561494
SL A	RS25-RS75	Copper Pipe	6-34	Exposed or Unexposed	S1561495
SL A	RS25	Copper Pipe	6	Unexposed	S1561495
SL X	RS25-RS200	Steel Pipe	6-168	Unexposed	S1561497
SL X	RS25	Steel Pipe	6	Exposed	S1561497

Table 3 RS series A-0 penetrations in Steel bulkheads

Steel Decks A-0					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS23-RS125	Cable	10-86	Centre-line, exposed or unexposed.	S1561780
SL	RS23-RS400	Steel Pipe	6-330	Centre-line, exposed or unexposed.	S1561212
SL	RS23-RS644	Steel Pipe	6-558	Unexposed	S1561212
SL	RS43-RS300	Copper Pipe	6-225	Centre-line, exposed or unexposed.	S1561217
SL	RS23-RS500	CuNi 90:10 Pipe	6-420	Centre-line, exposed or unexposed.	S1561242
SL	RS50-RS600	Fibreglass Compostite Pipe	25-520	Centre-line, exposed or unexposed.	S1561360
SL	RS43-RS100	Bundle Pipe (steel)	16-50	Centre-line, exposed or unexposed.	S1561500
SL A	RS25-75	Cable	10-32	Exposed or Unexposed	S1561783
SL A	RS25-RS75	Steel Pipe	6-30	Unexposed	S1561495
SL A	RS25-RS75	Copper Pipe	6-34	Unexposed	S1561495
SL X	RS25-RS200	Steel Pipe	6-168	Exposed or Unexposed	S1561497

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Table 4 RS series A-0 penetrations in Steel Decks

Aluminium Bulkheads A-60					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS23-RS125	Cable	10-88	Centre-line, exposed or unexposed.	S1561775
SL A	RS25-RS100	Cable	10-50	Exposed or Unexposed	S1561779

Table 5. Rs series penetrations in Aluminium Bulkheads

Aluminium Decks A-60					
Sleeve Type	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Collar Position	Drawing Reference
SL	RS23-RS125	Cable	10-86	Centre-line, exposed or unexposed.	S1561775
SL A	RS25-RS100	Cable	10-50	Unexposed	S1561779

Table 6. RS series A-60 penetrations in Aluminium Decks

Notes

1. Penetrations underwent a hydrostatic and pneumatic pressure test as detailed below;
- 2.

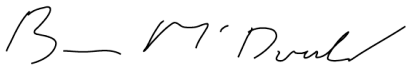
Penetration type / sleeve	Hydrostatic Pressure	Pneumatic Pressure
RS23-RS644	6bar	3bar
SL Sleeve	6bar	3bar
SL A Sleeve	4bar	1.5bar
SL X Sleeve	6bar	3bar
Bolted sleeve	5 bar	2.5bar

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PLACE OF PRODUCTION

Roxtec International AB
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Fire & Safety Lead Specialist to Lloyd's
Register North America, Inc.
A member of the Lloyd's Register group

Supplementary Type Approval Terms and Conditions

This certificate and Design Appraisal Document relates to type approval, it certifies that the prototype(s) of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein, it does not mean or imply approval for any other use, nor approval of any products designed or manufactured otherwise than in strict conformity with the said prototype(s).