



## 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.

<b>Manufacturer</b>	<b>Roxtec International AB</b>
<b>Address</b>	Box 540, S-37123 Karlskrona, Sweden
<b>Type</b>	CABLE AND PIPE PENETRATION (STANDARD FIRE TEST)
<b>Description</b>	Multi Cable and Pipe Penetration Types: "S, R, RS, and RS PPS/S" for use in fibre reinforced composite bulkheads and decks
<b>Trade Name</b>	"S, R, RS and RS PPS/S"
<b>Specified Standard</b>	IMO Res.MSC.307(88) (2010 FTP Code) Annex 1 Part 3 IMO Res.MSC.307(88) (2010 FTP Code) Annex 1 Part 11. IMO/MSC/Circ. 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 EMEA 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.

71 Fenchurch Street, London, EC3M 4BS, United Kingdom

**Keith Taylor**

Team Lead Fire & Safety to Lloyd's Register  
EMEA  
A member of the Lloyd's Register group

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**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2386976SF**

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.

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**TEST REPORTS**

Marine Advanced Research Centre, Gdansk, Poland Test reports RS-20\_B\_253\_E dated 9 July 2020, RS-20\_B\_254\_E dated 4 August 2020, RS-20\_B\_341\_E dated 22 October 2020, RS-20\_B\_417\_E dated 19 January 2021 and RS-20\_B\_426\_E dated 23 November 2020.

Witness reports N142177N dated 1 September 2020, N142846G dated 2 November 2021 and N141XE2C dated 19 February 2020

**CONDITIONS OF CERTIFICATION**

- For use in fibre reinforced composite divisions.
- Sleeve/frame types SFHM, SRC, SL, SLFRS and SLFR composed of aluminium/steel or GRP with penetrations seal type S, R, RM, RS and RS PPS/S.
- Tables below give key parameters for installation in A-60 fibre reinforced composite bulkheads and decks.

Fiber Reinforced Composite Bulkheads A-60					
Sleeve/Frame type	Sleeve/Frame material	Penetration size	Cable/Pipe	Cable/Pipe Outer diameter (OD) [mm]	Drawing Reference
SL	GRP	R 50 - R 200	Single/Multi- Cable	Up to 82	S1559171
SL	GRP	RS 25 - RS 125	Single Cable	Up to 90	S1559244
SL	GRP	RS 25 - RS 150	Steel/Titanium Pipe	6-114	S1559174
SL	GRP	RS 25 - RS 150	Copper Pipe	6-108	S1559174
SL	GRP	RS PPS/S 50 - RS PPS/S 150	Thermoplastic Pipe*	16-110	S1559249
SL	GRP	RS PPS/S 50 - RS PPS/S 125	PE/ALU/PE Pipe	16-75	S1559249
SRC	GRP	4x1 - 6x1	Single/Multi- Cable	Up to 90	S1559156
SRC	GRP	4x1 - 6x1	Steel/Titanium Pipe	6-30	S1564191
SLFR	Aluminium/Steel	R 50 - R 200	Single/Multi- Cable	Up to 82	S1559126
SLFRS	Aluminium/Steel	RS 23 - RS 150	Steel Pipe	6-114	S1559205
SLFRS	Aluminium/Steel	RS 23 - RS 150	Copper Pipe	6-108	S1559205
SLFRS	Aluminium/Steel	RS PPS/S 31 - RS PPS/S 150	Thermoplastic Pipe*	16	S1559252
SLFRS	Aluminium/Steel	RS PPS/S 31 - RS PPS/S 125	PE/ALU/PE Pipe	16-75	S1559252
SLFRS	Aluminium/Steel	RS 50 - RS 450	Fiberglass Composite Pipe	30-360	S1559245
SFHM	Aluminium/Steel	1x1 - 8x1	Single/Multi- Cable	Up to 82	S1559116

\*Thermoplastic pipe types: (PB, PP/PPR/PPML/PPFR, PE/HDPE & PVC/uPVC/cPVC)

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Fiber Reinforced Composite Decks A-60					
Sleeve/Frame type	Sleeve/Frame material	Penetration size	Cable/Pipe type	Cable/Pipe Outer diameter (OD) [mm]	Drawing Reference
SL	GRP	R 50 - R 200	Single/Multi- Cable	Up to 82	S1559171
SL	GRP	RS 25 - RS 125	Single Cable	Up to 90	S1559244
SL	GRP	RS 25 - RS 150	Steel/Titanium Pipe	6-114	S1559174
SL	GRP	RS 25 - RS 150	Copper Pipe	6-108	S1559174
SL	GRP	RS PPS/S 50 - RS PPS/S 150	Thermoplastic Pipe*	16-110	S1559249
SL	GRP	RS PPS/S 50 - RS PPS/S 125	PE/ALU/PE Pipe	16-75	S1559249
SRC	GRP	4x1 - 6x1	Single/Multi- Cable	Up to 82	S1559156
SLFR	Aluminium/Steel	R 50 - R 200	Single/Multi- Cable	Up to 82	S1559126
SLFRS	Aluminium/Steel	RS 23 - RS 150	Steel Pipe	6-114	S1559205
SLFRS	Aluminium/Steel	RS 23 - RS 150	Copper Pipe	6-108	S1559205
SLFRS	Aluminium/Steel	RS PPS/S 31 - RS PPS/S 150	Thermoplastic Pipe*	16-110	S1559252
SLFRS	Aluminium/Steel	RS PPS/S 31 - RS PPS/S 125	PE/ALU/PE Pipe	16-75	S1559252
SLFRS	Aluminium/Steel	RS 50 - RS 450	Fiberglass Composite Pipe	30-360	S1559245
SFHM	Aluminium/Steel	1x1 - 8x1	Single/Multi- Cable	Up to 82	S1559116

\*Thermoplastic pipe types: (PB, PP/PPR/PPML/PPFR, PE/HDPE & PVC/uPVC/cPVC)

## 4. Sample penetrations underwent hydrostatic and pneumatic pressure testing as follows;

Penetration	Pneumatic Pressure (Helium gas)	Hydrostatic Pressure
SRC R20 GRP	1.5 bar	3 bar
R 50	1.5 bar	3 bar
R 200	1.5 bar	3 bar
RS 25	1.5 bar	3 bar
RS 200	1.5 bar	3 bar
RS PPS/S 50	1.5 bar	3 bar
RS PPS/S 150	1.5 bar	3 bar

- Penetrations are suitable for use in fibre reinforced composite bulkheads and decks with a heat deflection temperature of 78°C or above.
- The construction and constituent materials of all the components of the system shall be as listed in the approval documentation and are to be manufactured in accordance with recognised national or international standards, and in all cases shall be to the satisfaction of the attending Surveyor.
- 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.
- 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.

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**DESIGN APPRAISAL DOCUMENT**

Page 4 of 4  
Certificate No: LR2386976SF  
Issue Date: 01/03/2023  
Expiry Date: 29/02/2028  
Reference: UKITSO/FIRE/TA/BM/WP45611213/PRJ11100353791

**ATTACHMENT TO CERTIFICATE OF TYPE APPROVAL No. LR2386976SF**

**PLACE OF PRODUCTION**

Roxtec International AB  
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Sweden

Keith Taylor  
Team Lead, Fire & Safety  
Fire & Safety, Statutory Discipline Team  
UK&I Technical Support Office, Marine & Offshore  
Lloyd's Register EMEA

**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)*

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