



## Confirmation of Product Type Approval

**Company Name:** ROXTEC SEALING SYSTEM (SHANGHAI) CO LTD

**Address:** GROUND FLOOR, BUILDING A, NO 875 QIUXIN ROADLINGANG NICHENG INDUSTRIAL AREA, PUDONG DISTRICT SHANGHAI China

**Product:** Penetration Device for Pipe Deck and Bulkhead Penetration Sealing

**Model(s):** Roxtec R Series Frames in A-Class Steel Divisions

### Endorsements:

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	24-2519751-PDA-DUP	23-APR-2024	22-APR-2029
Manufacturing Assessment (MA)	23-6047656	28-SEP-2023	27-SEP-2028
Product Quality Assurance (PQA)	NA	NA	NA

### Tier

3 - Type Approved, unit certification not required

### Intended Service

Multi and single pipe penetrations in Class A0, A15, A30 and A60 bulkheads and decks for ship or offshore applications. Penetrations of watertight and gastight steel bulkheads and decks up to the specified pressure.

### Description

Roxtec sealing system with multidiameter technology: R-series (Steel division). The R-Series sealing system consists of a rubber frame that are filled with Roxtec RM modules of different sizes depending on number/diameter of the pipes. It is available in standard and EMC versions depending on application. The R-seal is installed into a steel sleeve that is welded, bolted (only for deck) or attached by expansion (SLFR X) onto the steel division.

### Ratings

A-0, A-15, A-30 and A-60 Steel Bulkheads and Decks.

SLR-Series (Welded) - Watertightness 4 bar & Gas Tightness 2 bar.

SLFR-Series (Bolted) - Watertightness 2.5 bar & Gas Tightness 1 bar.

SLRF X (Expansion) - Watertightness 4 bar & Gas Tightness 2 bar.

SL-Series (Welded) - Watertightness 1.33 bar & Gas Tightness 0.67 bar.

### Service Restrictions

a) Minimum and maximum pipe outside diameters for bulkhead:

SLR-Series & SL-Series - 6mm up to 54 mm for steel and copper pipes, & 8mm up to 50mm for bundle pipes.

SLFR X - 6mm up to 53 mm for steel pipes.

b) Minimum and maximum pipe outside diameters for deck:

SLR-Series & SL-Series - 6mm up to 95 mm for steel pipes, 6mm up to 54 mm for copper pipes, & 8mm up to 50mm for bundle pipes.

SLFR X - 6mm up to 54 mm for steel pipes.

c) Minimum and maximum frame sizes tested:

SLR-Series & SL-Series - Size 50 up to size 200.

SLFR X - Size 70 up to Size 200.

d) Not for use in tank boundaries.

e) For fire class A-0, A-15 and A-30, sleeves are to be insulated as for class A-60 and in addition the division is to be insulated at least 200 mm around the penetration, except for sizes that are approved without insulation.

f) Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

g) Continued compliance with the statutory requirements requires maintenance of fully Type Approval (PDA+MA). The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

### Comments

a) All seal type should be installed in accordance with the manufacturer's instructions in accordance with ABS approved installation drawings.

b) Insulation material is to be A-60 approved type and properly installed in accordance with ABS approved drawings to the satisfaction of the Surveyors.

c) Watertight bulkheads or decks are to be tested as per ABS Marine Vessels Rules 3-7-1/Table 1.

d) When requested to be used in watertight bulkheads on passenger ships or special purpose ships, the penetration system has to comply with the requirements give in SOLAS Ch. 11-1 Reg. 13.2.3 (2020 Consolidated Edition).

e) This approval of penetrations passing through watertight bulkhead is not to be construed as a substitute for flag Administration's approval for the purpose of SOLAS (2020 Consolidated Edition).

f) The product or packing is to be marked with name of manufacturer, type designation and fire rating

g) Any component of penetration systems shall not be replaced by materials that have not been tested in accordance with the IMO FTP Code and/or accepted by the Flag Administration.

h) Installation of transits are only permissible where strength and fatigue characteristics are not diminished or where satisfactory structural compensation has been provided.

i) This certificate may not be used for EU and US flagged vessels (MED and/or USCG have their own specific requirements).

j) Approval not performed on behalf of any Flag Administration

k) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

**Notes, Drawings and Documentation**

## Test Reports:

## a) DBI Fire Test Reports:

PGA10723A dated 04 February 2016, PGA10724A dated 05 February 2016, PGA10799A dated 24 May 2016, PGA10800A dated 26 May 2016, PGA11301A dated 22 November 2018, PGA11302A dated 16 January 2019, PGB10046A dated 16 November 2020, PGB10118A dated 15 November 2021, PGB10174A dated 13 July 2022, and PGB10176A dated 04 November 2022.

## b) SP Fire Test Reports:

8P04039 dated 06 August 2018, 8P04040 dated 13 August 2018, and 4P08662 dated 08 June 2015.

## c) CTO Fire Test Reports:

RS-18/B-292/E dated 13 September 2018, RS-19/B-225/E dated 01 August 2019, RS-22/B-153/E dated 04 May 2022, RS-22/B-336/E dated 28 October 2022, RS-22/B-337/E dated 28 October 2022, RS-22/B-338/E dated 28 October 2022, RS-22/B-395/E dated 28 November 2022, RS-23/B-339/E dated 03 November 2023, and RS-23/B-340/E dated 03 November 2023.

## d) DNV Water and Gas Tightness Test Reports:

N1429Y4V dated 21 March 2022, N142G50V dated 11 November 2022, and N142JK51 dated 27 February 2023.

## Drawings:

a) Drawing No. S1598932, Rev. A, Roxtec R-Series with Pipes - A-60 Class Steel Bulkhead/Deck - SLR-Series.

b) Drawing No. S1598934, Rev. A, Roxtec R-Series with Pipes - A-0 Class Steel Bulkhead/Deck - SLR-Series.

c) Drawing No. S1598936, Rev. A, Roxtec R-Series with Pipes - A-60 Class Steel Deck/Bulkhead - SL-Series.

d) Drawing No. S1598938, Rev. A, Roxtec R-Series with Pipes - A-0 Class Steel Deck/Bulkhead - SL-Series.

e) Drawing No. S1598967, Rev. B, Roxtec R-Series with Pipes - A-60 Class Steel Bulkhead/Deck - SLFR X.

f) Drawing No. S1598968, Rev. A, Roxtec R-Series with Pipes - A-0 Class Steel Bulkhead/Deck - SLFR X.

**Term of Validity**

This Product Design Assessment (PDA) Certificate remains valid until 22/Apr/2029 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

**ABS Rules**

2024 ABS Rules for Building and Classing Marine Vessels 1-1-4/7.7, 1-1-A3, 1-1-A4, and 4-6-2/9.7.

2024 ABS Rules for Conditions of Classification - Offshore Unit and Structures 1B-1-4/9.7, 1B-1-A2, and

1B-1-A3.

2024 ABS Rules for Building and Classing Mobile Offshore Units 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-1/11.15

**International Standards**

Regulation II-2/ 9.3.1 of SOLAS (2020 Consolidated Edition).

IMO Resolution MSC.307(88) - (2010 FTP Code), Annex I: Part 3, adopted on 3 December 2010

**EU-MED Standards**

NA

**National Standards**

NA

**Government Standards**

The products comply with the following sections of the Canadian Vessel Fire Safety Regulations (SOR/2017-14): Part 2 - 209 & 227, Part 3 - 325 (1) and C.R.C., c. 1431 Canada Consolidation Hull Construction Regulations (Last amended 20 Dec. 2023), Part 1 / Section 14(7)(b), and when produced at a facility with an ABS manufacturing assessment (MA) is approved on behalf of the Minister of Transport in accordance with TP14612E - Procedures for Approval of Life-Saving Appliances and Fire Safety Systems, Equipment and Products (4th Ed., Feb. 2019 - Ch. 2).

**Other Standards**

NA



A handwritten signature in black ink, appearing to read 'James J. White'.

Corporate ABS Programs  
American Bureau of Shipping  
Print Date and Time: 29-Apr-2024 5:40

ABS has used due diligence in the preparation of this certificate, and it represents the information on the product in the ABS Records as of the date and time the certificate is printed.

If the Rules and/or standards used in the PDA evaluation are revised or if there is a design modification (whichever occurs first), a PDA revalidation may be necessary.

The continued validity of the MA is dependent on completion of satisfactory audits as required by the ABS Rules. The validity of both PDA and MA entitles the product to receive a **Confirmation of Product Type Approval**.

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or prior to the effective date of the ABS Rules and standards applied at the time of PDA issuance. ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. The manufacturer is responsible to maintain compliance with all specifications applicable to the product design assessment. Unless specifically indicated in the description of the product, certification under type approval does not waive requirements for witnessed inspection or additional survey for product use on a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.

Table 1: A-60 Bulkhead

R-series Size	Sleeve Type	Pipe Material	Pipe Diameter (OD)[mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve Position	Insulation Arrangement
50 - 200	SLR-Series <sup>1</sup>	Steel	6 – 54	55	4 – 7	Symmetric, Insulated side	S1598932 Rev A No. 8 – 10
50 - 200	SLR-Series <sup>1</sup>	Cu	6 – 54	55	4 – 7	Symmetric	S1598932 Rev A No. 11 – 12
50 - 200	SLR-Series <sup>1</sup>	CuNi	6 – 54	55	4 – 7	Symmetric	S1598932 Rev A No. 11 – 12
50 - 200	SLR-Series <sup>1</sup>	Bundle Pipe	8 – 50	55	4 – 7	Symmetric	S1598932 Rev A No. 13
50 - 200	SLR-Series <sup>1</sup>	No Service	N/A	55	4 – 7	Symmetric	S1598932 Rev A No. 14
70 - 200	SLFR X	Steel	6 – 53	55	5 – 6	Any	S1598967 Rev A No. 3
50 – 200	SL-Series <sup>2</sup>	Steel	6 – 54	Up to 400	4 – 7	Any	S1598936 Rev A No. 7 – 8
50 – 200	SL-Series <sup>2</sup>	Cu	6 – 54	Up to 400	4 – 7	Any	S1598936 Rev A No. 9 – 10
50 – 200	SL-Series <sup>2</sup>	CuNi	6 – 54	Up to 400	4 – 7	Any	S1598936 Rev A No. 9 – 10
50 – 200	SL-Series <sup>2</sup>	Bundle Pipe	8 – 50	Up to 400	4 – 7	Any	S1598936 Rev A No. 11

1) SLR-Series includes the following sleeve types: SLR, SLR EX or sleeves equal to dimensions specified in drawing S1587721.

2) SL-series are longer versions of sleeves in SLR-series.

Table 2: A-60 Deck

R-series Size	Sleeve Type	Pipe Material	Pipe Diameter (OD)[mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve Position	Insulation Arrangement
50 - 200	SLR-Series <sup>1</sup>	Steel	6 – 95	55	4 – 7	Any	S1598932 Rev A No. 1 – 3
50 - 200	SLR-Series <sup>1</sup>	Cu	6 – 54	55	4 – 7	Any	S1598932 Rev A No. 4 – 5
50 - 200	SLR-Series <sup>1</sup>	CuNi	6 – 54	55	4 – 7	Any	S1598932 Rev A No. 4 – 5
50 - 200	SLR-Series <sup>1</sup>	Bundle Pipe	8 – 50	55	4 – 7	Any	S1598932 Rev A No. 6
50 - 200	SLR-Series <sup>1</sup>	No Service	N/A	55	4 – 7	Symmetric, Top	S1598932 Rev A No. 7
70 - 200	SLFR X	Steel	6 – 54	55	5 – 6	Any	S1598967 Rev A No. 1 – 2
50 – 200	SL-Series <sup>2</sup>	Steel	6 – 95	Up to 400	4 – 7	Any	S1598936 Rev A No. 1 – 3
50 – 200	SL-Series <sup>2</sup>	Cu	6 – 54	Up to 400	4 – 7	Any	S1598936 Rev A No. 4 – 5
50 – 200	SL-Series <sup>2</sup>	CuNi	6 – 54	Up to 400	4 – 7	Any	S1598936 Rev A No. 4 – 5
50 – 200	SL-Series <sup>2</sup>	Bundle Pipe	8 – 50	Up to 400	4 – 7	Any	S1598936 Rev A No. 6

1) SLR-Series includes the following sleeve types: SLR, SLR EX, SLFR, SLFR Ex or sleeves equal to dimensions specified in drawing S1587721.

2) SL-series are longer versions of sleeves in SLR-series

Table 3: A-0 Bulkhead

R-series Size	Sleeve Type	Pipe Material	Pipe Diameter (OD)[mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve Position	Insulation Arrangement
50 - 200	SLR-Series <sup>1</sup>	Steel	6 – 54	55	4 – 7	Symmetric, Insulated Side	S1598934 Rev A No. 9 – 12
50 - 200	SLR-Series <sup>1</sup>	Cu	6 – 54	55	4 – 7	Symmetric	S1598934 Rev A No. 13 – 14
50 - 200	SLR-Series <sup>1</sup>	CuNi	6 – 54	55	4 – 7	Symmetric	S1598934 Rev A No. 13 – 14
50 - 200	SLR-Series <sup>1</sup>	Bundle Pipe	8 – 50	55	4 – 7	Symmetric	S1598934 Rev A No. 15
50 - 200	SLR-Series <sup>1</sup>	No Service	N/A	55	4 – 7	Symmetric	S1598934 Rev A No. 16
70 - 200	SLFR X	Steel	6 – 53	55	5 – 6	Any	S1598968 Rev A No. 3
50 – 200	SL-Series <sup>2</sup>	Steel	6 – 54	Up to 400	4 – 7	Any	S1598938 Rev A No. 7 – 8
50 – 200	SL-Series <sup>2</sup>	Cu	6 – 54	Up to 400	4 – 7	Any	S1598938 Rev A No. 9 – 10
50 – 200	SL-Series <sup>2</sup>	CuNi	6 – 54	Up to 400	4 – 7	Any	S1598938 Rev A No. 9 – 10
50 – 200	SL-Series <sup>2</sup>	Bundle Pipe	8 – 50	Up to 400	4 – 7	Any	S1598938 Rev A No. 11

1) SLR-Series includes the following sleeve types: SLR, SLR EX or sleeves equal to dimensions specified in drawing S1587721.

2) SL-series are longer versions of sleeves in SLR-series



Table 4: A-0 Deck

R-series Size	Sleeve Type	Pipe Material	Pipe Diameter (OD) [mm]	Sleeve Length [mm]	Sleeve Thickness [mm]	Sleeve Position	Insulation Arrangement
50 - 200	SLR-Series <sup>1</sup>	Steel	6 – 95	55	4 – 7	Any	S1598934 Rev A No. 1 – 4
50 - 200	SLR-Series <sup>1</sup>	Cu	6 – 54	55	4 – 7	Any	S1598934 Rev A No. 5 – 6
50 - 200	SLR-Series <sup>1</sup>	CuNi	6 – 54	55	4 – 7	Any	S1598934 Rev A No. 5 – 6
50 - 200	SLR-Series <sup>1</sup>	Bundle Pipe	8 – 50	55	4 – 7	Any	S1598934 Rev A No. 7
50 - 200	SLR-Series <sup>1</sup>	No Service	N/A	55	4 – 7	Symmetric, Top	S1598934 Rev A No. 8
70 - 200	SLFR X	Steel	6 – 54	55	5 – 6	Any	S1598968 Rev A No. 1 – 2
50 – 200	SL-Series <sup>2</sup>	Steel	6 – 95	Up to 400	4 – 7	Any	S1598938 Rev A No. 1 – 3
50 – 200	SL-Series <sup>2</sup>	Cu	6 – 54	Up to 400	4 – 7	Any	S1598938 Rev A No. 4 – 5
50 – 200	SL-Series <sup>2</sup>	CuNi	6 – 54	Up to 400	4 – 7	Any	S1598938 Rev A No. 4 – 5
50 – 200	SL-Series <sup>2</sup>	Bundle Pipe	8 – 50	Up to 400	4 – 7	Any	S1598938 Rev A No. 6

1) SLR-Series includes the following sleeve types: SLR, SLR EX, SLFR, SLFR Ex or sleeves equal to dimensions specified in drawing S1587721.

2) SL-series are longer versions of sleeves in SLR-series

Table 5: Water and Gas Tightness Performance

Sleeve Type	Mounting Option	Watertightness	Gas tightness
SLR-Series <sup>1</sup>	Welded	4 bar	2 bar
SLFR-Series <sup>2</sup>	Bolted	2.5 bar	1 bar
SLFR X	Expansion	4 bar	2 bar
SL-Series <sup>3</sup>	Welded	1.33 bar	0.67 bar

1) SLR-Series includes the following sleeve types: SLR, SLR EX or sleeves equal to dimensions specified in drawing S1587721.

2) installed with pre-punched gasket and sealing washers on both sides of the division.

3) SL-series are longer versions of sleeves in SLR-series.