



Marine & Offshore

Certificate number: 12509/E0 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

A-0/A-60 Class Roxtec Sealing System with Multidiameter(TM) Technology:

RS-Series, RS PPS and RS PPS/S seals for steel divisions

(certified products, sleeve position and achieved performance - see §1)

Requirements:

Bureau Veritas Rules for the Classification of Steel Ships Part C Chapter 4

SOLAS 74, as amended, Regulations II-2/9

IMO Res. MSC.61(67)-(FTP Code) with IMO Res MSC.307(88) (2010 FTP Code) article 8

IMO Res. MSC.307(88) (2010 FTP Code)

IMO MSC.1/Circ. 1488

IMO MSC.1/Circ. 1276

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: 30 Nov 2028

For Bureau Veritas Marine & Offshore,

At BV GOTHENBURG, on 30 Nov 2023,

Hans-erik ERICSSON

This certificate was created electronically and is valid without signature



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BV Mod. Ad.E 530 June 2017

This certificate consists of 12 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Roxtec sealing system with Multidiameter™: RS-series in steel divisions

The Roxtec RS cable and pipe penetration seal consists of two halves with removable layers, making it adaptable to a single cable or pipe of different sizes. It is available in different versions, RS, RS OMD, RS PE, RS ES, RS BG, or RS EX, depending on application.

The RS-seal is installed into a steel sleeve that is either welded, bolted, attached through expansion (SLFRS X) or attached with a nut (SLA) onto the steel division.

Roxtec sealing system with Multidiameter™: RS PPS/S in steel divisions

The Roxtec RS PPS/S penetration seal consists of two halves with integrated intumescent and removable layers, making it adaptable to a single pipe of different size.

The RS PPS/S-seal is installed into a steel sleeve that is either welded or bolted onto the steel division.

Roxtec sealing system with Multidiameter™: RS PPS in steel divisions

The Roxtec RS PPS is a back-to-back solution, consisting of two seals and intumescent sealing strip. Each seal consists of two halves with removable layers, making it adaptable to single pipe of different size.

The RS PPS-sealing kit is installed into a steel sleeve that is either welded or bolted onto the steel division.

Additional insulation on penetrations and/or cables/pipes:

- should be approved as having the same level of performance as the penetrated division and expected classification of penetration,
- is to be fitted as shown in the referred Manufacturer's drawings (see §2) and also according to Manufacturer's insulation guidelines.

1.1 – Metal pipes and GRE pipes

1.1.1 – A-60 bulkhead

RS-Seals size	Sleeve type	Pipe material	Pipe diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 400	SLRS-Series (1)	Steel	6 – 330	35 - 65	4 - 7	Any	S1587909 Rev. B dated 20/11/23 ID 1-4
23 - 644	SLRS-Series (1)	Steel	6 - 558	35 - 65	4 – 7	Unexposed	S1587909 Rev. B dated 20/11/23 ID 5
23 - 300	SLRS-Series (1)	Copper	6 - 222	35 - 65	4 - 7	Any	S1587909 Rev. B dated 20/11/23 ID 6-9
25 - 500	SLRS-Series (1)	CuNi	10 - 420	35 - 65	4 - 7	Any	S1587909 Rev. B dated 20/11/23 ID 10-13
50 - 125	SLRS-Series (1)	GRE	25 - 1040	35 - 65	4 - 7	Any	S1587909 Rev. B dated 20/11/23 ID 14-15
25 - 100	SLRS-Series (1)	Bundle pipe (steel)	8 - 50	35 - 65	4 - 7	Any	S1587909 Rev. B dated 20/11/23 ID 16
23 - 150	SLRS-Series (2)	Steel	6 - 114	Up to 400	4 - 7	Any	S1587906 Rev. B dated 20/11/23 ID 1-3
23 - 150	SLRS-Series (2)	Copper	6 - 108	Up to 400	4 - 7	Any	S1587906 Rev. B dated 20/11/23 ID 4-6
25 - 150	SLRS-Series (2)	CuNi	10 - 108	Up to 400	4 - 7	Any	S1587906 Rev. B dated 20/11/23 ID 7-8
50 - 125	SLRS-Series (2)	GRE	25 -90	Up to 400	4 - 7	Any	S1587906 Rev. B dated 20/11/23 ID 9
25 - 100	SLRS-Series (2)	Bundle pipe (steel)	8 - 50	Up to 400	4 - 7	Any	S1587906 Rev. B dated 20/11/23 ID 10
25 - 75	SLA	Steel	6 - 30	47 - 86	4 - 6	Any	S1587910 Rev. A dated 29/05/23 ID 1
25 - 75	SLA	Copper	6 - 34	47 - 86	4 - 6	Any	S1587910 Rev. A dated 29/05/23 ID 2-4
25 - 75	SLA	CuNi	6 - 34	47 - 86	4 - 6	Any	S1587910 Rev. A dated 29/05/23 ID 5-7
25 - 200	SLFRS X	Steel	6 - 168	65	4 - 7	Unexposed	S1587913 Rev. A dated 26/05/23 ID 1-2

RS-Seals size	Sleeve type	Pipe material	Pipe diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
25 - 150	SLFRS X	Copper	6 - 108	65	4 - 7	Unexposed	S1587913 Rev. A dated 26/05/23 ID 3-4
25 - 150	SLFRS X	CuNi	6 - 108	65	4 - 7	Unexposed	S1587913 Rev. A dated 26/05/23 ID 5-6

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

1.1.2 – A-60 deck

RS-Seals size	Sleeve type	Pipe material	Pipe diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 400	SLRS-Series (1)	Steel	6 - 323	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 1-3
23 - 644	SLRS-Series (1)	Steel	6 - 558	35 - 65	4 - 7	Unexposed	S1587914 Rev. A dated 26/05/23 ID 4
23 - 150	SLRS-Series (1)	Copper	6 - 108	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 5-7
25 - 300	SLRS-Series (1)	Copper	6 - 225	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 8
25 - 500	SLRS-Series (1)	CuNi	10 - 420	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 9-13
50 - 1125	SLRS-Series (1)	GRE	25 - 1040	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 14-16
25 - 100	SLRS-Series (1)	Bundle pipe (steel)	8 - 50	35 - 65	4 - 7	Any	S1587914 Rev. A dated 26/05/23 ID 17
23 - 150	SLRS-Series (2)	Steel	6 - 114	Up to 400	4 - 7	Any	S1587915 Rev. A dated 25/01/23 ID 1-2
23 - 150	SLRS-Series (2)	Copper	6 - 108	Up to 400	4 - 7	Any	S1587915 Rev. A dated 25/01/23 ID 3-5
25 - 150	SLRS-Series (2)	CuNi	10 - 108	Up to 400	4 - 7	Any	S1587915 Rev. A dated 25/01/23 ID 6-8
25 - 100	SLRS-Series (2)	Bundle pipe (steel)	8 - 50	Up to 400	4 - 7	Any	S1587915 Rev. A dated 25/01/23 ID 9
25 - 75	SLA	Steel	6 - 30	47 - 86	4 - 6	Unexposed	S1587929 Rev. A dated 14/06/23 ID 1
25 - 75	SLA	Copper	6 - 34	47 - 86	4 - 6	Unexposed	S1587929 Rev. A dated 14/06/23 ID 2-3
25 - 75	SLA	CuNi	6 - 34	47 - 86	4 - 6	Unexposed	S1587929 Rev. A dated 14/06/23 ID 4-5
25 - 200	SLFRS X	Steel	6 - 168	65	4 - 7	Any	S1587931 Rev. A dated 29/05/23 ID 1-2
25 - 150	SLFRS X	Copper	6 - 108	65	4 - 7	Any	S1587931 Rev. A dated 29/05/23 ID 3-4
25 - 150	SLFRS X	CuNi	6 - 108	65	4 - 7	Any	S1587931 Rev. A dated 29/05/23 ID 5-6

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

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1.1.3 – A-0 bulkhead

RS-Seals size	Sleeve type	Pipe material	Pipe diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 400	SLRS-Series (1)	Steel	6 - 323	35 - 65	4 - 7	Any	S1587933 Rev. B dated 16/11/23 ID 1-3
23 - 644	SLRS-Series (1)	Steel	6 - 558	35 - 65	4 - 7	Unexposed	S1587933 Rev. B dated 16/11/23 ID 4
23 - 300	SLRS-Series (1)	Copper	6 - 222	35 - 65	4 - 7	Any	S1587933 Rev. B dated 16/11/23 ID 5-7
25 - 500	SLRS-Series (1)	CuNi	10 - 420	35 - 65	4 - 7	Any	S1587933 Rev. B dated 16/11/23 ID 8-11
50 - 1125	SLRS-Series (1)	GRE	25 - 1040	35 - 65	4 - 7	Any	S1587933 Rev. B dated 16/11/23 ID 12-13
25 - 100	SLRS-Series (1)	Bundle pipe (steel)	8 - 50	35 - 65	4 - 7	Any	S1587933 Rev. B dated 16/11/23 ID 14
23 - 150	SLRS-Series (2)	Steel	6 - 114	Up to 400	4 - 7	Any	S1587935 Rev. B dated 16/11/23 ID 1-3
23 - 150	SLRS-Series (2)	Copper	6 - 108	Up to 400	4 - 7	Any	S1587935 Rev. B dated 16/11/23 ID 4-6
25 - 150	SLRS-Series (2)	CuNi	10 - 108	Up to 400	4 - 7	Any	S1587935 Rev. B dated 16/11/23 ID 7-8
50 - 125	SLRS-Series (2)	GRE	25 - 90	Up to 400	4 - 7	Any	S1587935 Rev. B dated 16/11/23 ID 9
25 - 100	SLRS-Series (2)	Bundle pipe (steel)	8 - 50	Up to 400	4 - 7	Any	S1587935 Rev. B dated 16/11/23 ID 10
25 - 75	SLA	Steel	6 - 30	47 - 86	4 - 6	Any	S1587938 Rev. A dated 29/05/23 ID 1
25 - 75	SLA	Copper	6 - 34	47 - 86	4 - 6	Any	S1587938 Rev. A dated 29/05/23 ID 2-4
25 - 75	SLA	CuNi	6 - 34	47 - 86	4 - 6	Any	S1587938 Rev. A dated 29/05/23 ID 5-7
25 - 200	SLFRS X	Steel	6 - 168	65	4 - 7	Unexposed	S1587940 Rev. A dated 29/05/23 ID 1-2
25 - 150	SLFRS X	Copper	6 - 108	65	4 - 7	Unexposed	S1587940 Rev. A dated 29/05/23 ID 3-4
25 - 150	SLFRS X	CuNi	6 - 108	65	4 - 7	Unexposed	S1587940 Rev. A dated 29/05/23 ID 5-6

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

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1.1.4 – A-0 deck

RS-Seals size	Sleeve type	Pipe material	Pipe diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 400	SLRS-Series (1)	Steel	6 - 323	35 - 67	4 - 7	Any	S1587941 Rev. B dated 16/11/23 ID 1-4
23 - 644	SLRS-Series (1)	Steel	6 - 558	35 - 65	4 - 7	Unexposed	S1587941 Rev. B dated 16/11/23 ID 5
23 - 300	SLRS-Series (1)	Copper	6 - 225	35 - 65	4 - 7	Any	S1587941 Rev. B dated 16/11/23 ID 6-9
25 - 500	SLRS-Series (1)	CuNi	10 - 420	35 - 65	4 - 7	Any	S1587941 Rev. B dated 16/11/23 ID 10-14
50 - 1125	SLRS-Series (1)	GRE	35 - 1040	35 - 65	4 - 7	Any	S1587941 Rev. B dated 16/11/23 ID 15-17
25 - 100	SLRS-Series (1)	Bundle pipe (steel)	8 - 50	35 - 65	4 - 7	Any	S1587941 Rev. B dated 16/11/23 ID 18
23 - 150	SLRS-Series (2)	Steel	6 - 114	Up to 400	4 - 7	Any	S1588591 Rev. A dated 29/05/23 ID 1-2
23 - 150	SLRS-Series (2)	Copper	6 - 108	Up to 400	4 - 7	Any	S1588591 Rev. A dated 29/05/23 ID 3-5
25 - 150	SLRS-Series (2)	CuNi	10 - 108	Up to 400	4 - 7	Any	S1588591 Rev. A dated 29/05/23 ID 6-8
25 - 100	SLRS-Series (2)	Bundle pipe (steel)	8 - 50	Up to 400	4 - 7	Any	S1588591 Rev. A dated 29/05/23 ID 9
25 - 75	SLA	Steel	6 - 30	47 - 86	4 - 6	Unexposed	S1588541 Rev. A dated 14/06/23 ID 1
25 - 75	SLA	Copper	6 - 34	47 - 86	4 - 6	Unexposed	S1588541 Rev. A dated 14/06/23 ID 2-3
25 - 75	SLA	CuNi	6 - 34	47 - 86	4 - 6	Unexposed	S1588541 Rev. A dated 14/06/23 ID 4-5
25 - 200	SLFRS X	Steel	6 - 168	65	4 - 7	Any	S1588592 Rev. A dated 29/05/23 ID 1-2
25 - 150	SLFRS X	Copper	6 - 108	65	4 - 7	Any	S1588592 Rev. A dated 29/05/23 ID 3-4
25 - 150	SLFRS X	CuNi	6 - 108	65	4 - 7	Any	S1588592 Rev. A dated 29/05/23 ID 5-6

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

1.2 – Plastic pipes**1.2.1 – A-60 bulkhead**

RS-Seals size	Sleeve Type	Pipe material	Pipe diameter (mm)	Sleeve position	Insulation drawing
31 - 450	RS PPS	Thermoplastic*	16 - 355	Any	S1587873 Rev. A dated 05/06/23 ID 1-2
31 - 150	RS PPS	PE/ALU/PE	16 - 110	Any	S1587873 Rev. A dated 05/06/23 ID 3-4
125 - 400	RS PPS	Pre-insulated thermoplastic pipe	90 - 315	Any	S1587873 Rev. A dated 05/06/23 ID 5
31 - 150	RS PPS/S	Thermoplastic*	16 - 110	Any	S1587875 Rev. A dated 05/06/23 ID 1
31 - 100	RS PPS/S	PE/ALU/PE	16 - 63	Any	S1587875 Rev. A dated 05/06/23 ID 2
125 - 150	RS PPS/S	Pre-insulated thermoplastic pipe	75 - 110	Any	S1587875 Rev. A dated 05/06/23 ID 3-4
100 - 125	RS PPS/S	Pre-insulated plastic bundle pipe	67 - 96	Any	S1587875 Rev. A dated 05/06/23 ID 5

*PP, PVC, PB, ABS, PE, PVDF

1.2.2 – A-60 deck

RS-Seals size	Sleeve Type	Pipe material	Pipe diameter (mm)	Sleeve position	Insulation drawing
31 – 450	RS PPS	Thermoplastic*	16 - 355	Any	S1587874 Rev. A dated 07/06/23 ID 1-2
31 -150	RS PPS	PE/ALU/PE	16 – 110	Unexposed	S1587874 Rev. A dated 07/06/23 ID 3
125 - 400	RS PPS	Pre-insulated thermoplastic pipe	90 - 315	Any	S1587874 Rev. A dated 07/06/23 ID 4
100 – 125	RS PPS	Pre-insulated plastic bundle pipe	67 - 96	Unexposed	S1587874 Rev. A dated 07/06/23 ID 5
31 – 150	RS PPS/S	Thermoplastic*	16 – 110	Any	S1587876 Rev. B dated 16/11/23 ID 1
31 – 125	RS PPS/S	PE/ALU/PE	16 - 75	Any	S1587876 Rev. B dated 16/11/23 ID 2-3
31 – 75	RS PPS/S	PE/ALU/PE with armaflex	16 - 50	Any	S1587876 Rev. B dated 16/11/23 ID 4
68 – 100	RS PPS/S	Plastic bundle pipe	36 – 60	Any	S1587876 Rev. B dated 16/11/23 ID 5
100 – 125	RS PPS/S	Pre-insulated plastic bundle pipe	67 – 96	Any	S1587876 Rev. B dated 16/11/23 ID 6
125 – 150	RS PPS/S	Pre-insulated thermoplastic pipe	75 – 110	Any	S1587876 Rev. B dated 16/11/23 ID 7

*PP, PVC, PB, ABS, PE, PVDF

1.2.3 – A-0 bulkhead

RS-Seals size	Sleeve Type	Pipe material	Pipe diameter (mm)	Sleeve position	Insulation drawing
31 - 450	RS PPS	Thermoplastic*	16 - 355	Any	S1587877 Rev. A dated 07/06/23 ID 1-2
31 - 150	RS PPS	PE/ALU/PE	16 – 110	Any	S1587877 Rev. A dated 07/06/23 ID 3-4
125 - 400	RS PPS	Pre-insulated thermoplastic pipe	90 - 315	Any	S1587877 Rev. A dated 07/06/23 ID 5
31 – 150	RS PPS/S	Thermoplastic*	16 – 110	Any	S1587879 Rev. A dated 15/06/23 ID 1-2
31 – 100	RS PPS/S	PE/ALU/PE	16 - 63	Any	S1587879 Rev. A dated 15/06/23 ID 3
125 –150	RS PPS/S	Pre-insulated thermoplastic pipe	75 – 110	Any	S1587879 Rev. A dated 15/06/23 ID 4-5
100 – 125	RS PPS/S	Pre-insulated plastic bundle pipe	67 - 96	Any	S1587879 Rev. A dated 15/06/23 ID 6

*PP, PVC, PB, ABS, PE, PVDF

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1.2.4 – A-0 deck

RS-Seals size	Sleeve Type	Pipe material	Pipe diameter (mm)	Sleeve position	Insulation drawing
31 – 450	RS PPS	Thermoplastic*	16 - 355	Any	S1587878 Rev. A dated 07/06/23 ID 1-2
31 – 150	RS PPS	PE/ALU/PE	16 - 32	Any	S1587878 Rev. A dated 07/06/23 ID 3-4
125 – 400	RS PPS	Pre-insulated thermoplastic pipes	90 - 315	Any	S1587878 Rev. A dated 07/06/23 ID 5
100 - 125	RS PPS	Pre-insulated plastic bundle pipe	67 - 96	Unexposed	S1587878 I Rev. A dated 07/06/23 ID 6
31 - 150	RS PPS/S	Thermoplastic*	16 - 110	Any	S1587080 Rev. A dated 07/06/23 ID 1
31 - 125	RS PPS/S	PE/ALU/PE	16 - 75	Any	S1587080 Rev. A dated 07/06/23 ID 2-3
31 – 125	RS PPS/S	PE/ALU/PE with armaflex	16 - 75	Any	S1587080 Rev. A dated 07/06/23 ID 4
68-100	RS PPS/S	Plastic bundle pipes	36 - 60	Any	S1587080 Rev. A dated 07/06/23 ID 5
100-125	RS PPS/S	Pre-insulated plastic bundle pipe	67 - 96	Any	S1587080 Rev. A dated 07/06/23 ID 6
125-150	RS PPS/S	Pre-insulated thermoplastic pipe	75 - 110	Any	S1587080 Rev. A dated 07/06/23 ID 7

*PP, PVC, PB, ABS, PE, PVDF

1.3 – Cables**1.3.1 – A-60 bulkhead**

RS-Seals size	Sleeve type	Cable	Cable diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 150	SLRS-Series (1)	Marine Cable	Up to 100	47 - 86	4 - 7	Any	S1587074 Rev. A dated 30/05/23 ID 1-2
25 - 75	SLA	Marine Cable	Up to 32	47 - 86	4 - 6	Any	S1587072 Rev. A dated 30/05/23 ID 1-3
23 – 125	SLFRS-X	Marine Cable	Up to 86	65	4 - 7	Unexposed	S1587076 Rev. A dated 30/05/23 ID 1
25 - 125	SLRS-Series (2)	Marine Cable	Up to 90	Up to 400	4 - 7	Any	S1587078 Rev. A dated 30/05/23 ID 1

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

1.3.2 – A-60 deck

RS-Seals size	Sleeve type	Cable	Cable diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 – 150	SLRS-Series (1)	Marine Cable	Up to 100	47 - 86	4 - 7	Any	S1587074 Rev. A dated 30/05/23 ID 3
25 – 75	SLA	Marine Cable	Up to 32	47 - 86	4 - 6	Any	S1587072 Rev. A dated 30/05/23 ID 4-6
25 – 125	SLFRS-X	Marine Cable	Up to 90	65	4 - 7	Exposed	S1587076 Rev. A dated 30/05/23 ID 2
25 - 125	SLRS-Series (2)	Marine Cable	Up to 90	Up to 400	4 - 7	Any	S1587078 Rev. A dated 30/05/23 ID 2

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

1.3.3 – A-0 bulkhead

RS-Seals size	Sleeve type	Cable	Cable diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 – 150	SLRS-Series (1)	Marine Cable	Up to 100	47 - 86	4 - 7	Any	S1587063 Rev. B dated 16/11/23 ID 1
25 - 75	SLA	Marine Cable	Up to 33	47 - 86	4 - 6	Any	S1587065 Rev. A dated 09/06/23 ID 1-3
23 – 125	SLFRS-X	Marine Cable	Up to 86	65	4 - 7	Unexposed	S1587079 Rev. A dated 30/05/23 ID 1
25 - 125	SLRS-Series (2)	Marine Cable	Up to 90	Up to 400	4 - 7	Any	S1588275 Rev. A dated 30/05/23 ID 1

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

1.3.4 – A-0 deck

RS-Seals size	Sleeve type	Cable	Cable diameter (mm)	Sleeve length (mm)	Sleeve thickness (mm)	Sleeve position	Insulation drawing
23 - 125	SLRS-Series (1)	Marine Cable	Up to 86	47 - 86	4 - 7	Any	S1587063 Rev. B dated 16/11/23 ID 2
25 - 75	SLA	Marine Cable	Up to 32	47 - 86	4 - 6	Any	S1587065 Rev. A dated 09/06/23 ID 4-6
25 – 125	SLFRS-X	Marine Cable	Up to 90	65	4 - 7	Exposed	S1587079 Rev. A dated 30/05/23 ID 2
25 - 125	SLRS-Series (2)	Marine Cable	Up to 90	Up to 400	4 - 7	Any	S1588275 Rev. A dated 30/05/23 ID 2

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to dimensions specified in drawing S1586454 Rev A

(2) SL-series are longer versions of the sleeves in SLRS-series

2. DOCUMENTS AND DRAWINGS:

As per the Manufacturer's insulation drawings quoted in tables in §1.

3. TEST REPORTS:**3.1 – Metal pipes****3.1.1.1 – A-60 bulkhead**

Test report N°	Dated	Laboratory
PX05454	8th September 2011	SP, Sweden
PGA10650	18th May 2015	DBI, Denmark
4P08662	8th June 2015	SP, Sweden
4P06068	17th January 2015	SP, Sweden
6P04351	22nd June 2016	SP, Sweden
RS-18/B-022/E	29th January 2018	CTO, Poland
RS-18/B-485/E	10th December 2018	CTO, Poland
RS-19/B-035/E	25th February 2019	CTO, Poland
RS-19/B-355/E	16th October 2019	CTO, Poland
RS-20/B-017/E	23rd January 2020	CTO, Poland
PGB10020A	5th May 2020	DBI, Denmark
RS-20/B-191/E	5th June 2020	CTO, Poland
RS-21/B-241/E	30th June 2021	CTO, Poland
RS-21/B-445/E	7th October 2021	CTO, Poland
RS-21/B-519/E	15th December 2021	CTO, Poland
RS-22/B-336/E	28th October 2022	CTO, Poland

Test report N°	Dated	Laboratory
RS-22/B-395/E	15th November 2022	CTO, Poland
PGB10233A	12th December 2022	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3

3.1.2 – A-60 deck

Test report N°	Dated	Laboratory
09-346E	11th December 2009 *	RIME, Japan
4P07023	4th February 2015	SP, Sweden
PGA10649	18th May 2015	DBI, Denmark
PGA10800A	26th May 2016	DBI, Denmark
6P02249	17th August 2016	SP, Sweden
7P02167	7th August 2017	SP, Sweden
PGA10871A	17th November 2017	DBI, Denmark
RS-18/B-023/E	29th January 2018	CTO, Poland
RS-18/B-484/E	10th December 2018	CTO, Poland
RS-19/B-356/E	18 October 2019	CTO, Poland
PGA11611A	11th January 2020	DBI, Denmark
PGB10032A	1st July 2020	DBI, Denmark
PGB10047A	30th November 2020	DBI, Denmark
PGB10111A rev.1	20th September 2021	DBI, Denmark
PGB10118A	15th November 2021	DBI, Denmark
PGB10172A	3rd May 2022	DBI, Denmark
RS-22/B-337/E	28th October 2022	CTO, Poland

All tests as per IMO 2010 FTP Code, Annex 1, part 3, except * as per per IMO FTP Code, Annex 1, part 3 [test standard:IMO Resolution A.754(18)].

3.1.3 – A-0 bulkhead

Test report N°	Dated	Laboratory
RS-20/B-081/E	31st March 2020	CTO, Poland
RS-21/B-517/E	10th November 2021	CTO, Poland
PGB10178A	4th November 2022	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3.

3.1.4 – A-0 deck

Test report N°	Dated	Laboratory
RS-18/B-292/E	13th September 2018	CTO, Poland
PGA11302A	16th January 2019	CTO, Poland
PGA11610A	10th January 2020	DBI, Denmark
PGB10110A	27th April 2021	DBI, Denmark
PGB10119A	15th November 2021	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3.

**** Following on next page****

3.2 – Plastic pipes**3.2.1 – A-60 bulkhead**

Test report N°	Dated	Laboratory
P902394	25th May 2009 *	SP, Sweden
6P10024	7th Mars 2017	SP, Sweden
RS_19_B_355_E	16th October 2019	CTO, Poland
RS_19_B_424_E	27th November 2019	CTO, Poland
8P07094	16th January 2020	SP, Sweden
RS-20_B-083E	20th April 2020	CTO, Poland
PGB10030A	16th July 2020	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3, except * as per per IMO FTP Code, Annex 1, part 3 [test standard:IMO Resolution A.754(18)].

3.2.2 – A-60 deck

Test report N°	Dated	Laboratory
09-346E	27th February 2009 *	RIME, Japan
PGA10025	22nd December 2011 *	DBI, Denmark
PGA10141	10th July 2012	DBI, Denmark
7P02167	7th August 2017	SP, Sweden
RS-18_B-023_E	29th January 2018	CTO, Poland
8P04040	16th August 2018	SP, Sweden
RS-18_B-484_E	10th December 2018	CTO, Poland
RS_19_B_256_E	20th August 2019	CTO, Poland
RS_19_B_356_E	18th October 2019	CTO, Poland
PGB10113A	23rd July 2021	DBI, Denmark
PGB10116A	2nd August 2021	DBI, Denmark
PGB10118A	15th November 2021	DBI, Denmark
PGB10177A	4th November 2022	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3, except * as per per IMO FTP Code, Annex 1, part 3 [test standard:IMO Resolution A.754(18)].

3.2.3 – A-0 bulkhead

Test report N°	Dated	Laboratory
RS-18_B-291_E	20th August 2018	CTO, Poland
RS-18_B-293_E	13th September 2018	CTO, Poland
PGA11301A	22nd November 2018	DBI, Denmark
8P07094	23rd September 2019	DBI, Denmark
RS-21_B-240E	30th June 2021	CTO, Poland

All tests as per IMO 2010 FTP Code, Annex 1, part 3.

3.2.4 – A-0 deck

Test report N°	Dated	Laboratory
RS-18_B-292_E	13th September 2018	CTO, Poland
PGA11302A	16th January 2019	DBI, Denmark

All tests as per IMO 2010 FTP Code, Annex 1, part 3.

4. APPLICATION / LIMITATION:**4.1 - Approved for use:**

- in A-15, A-30, A-60 class steel divisions, with fire insulation as described in §1,
- in A-0 class steel divisions, with local fire insulation arrangement (on the penetration itself as described in §1 and 200 mm around) or without fire insulation.

4.2 - The pipe penetration system has only been evaluated with regard to its fire resistance only. For installation in watertight bulkhead below the bulkhead deck, specific rules may require to subject the pipe penetrations to a prototype test of watertightness after having undergone the standard fire test for A-class divisions described in IMO 2010 FTP Code Annex 1 Part 3.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The "**A-Class Single-Cable or Single-Pipe Sealing System with Multidiameter Technology, 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 recognized 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/D1 BV issued on 29/01/2020 by the Society.

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

7.3.1 – Metal pipes

Statement N14254FG	dated 30/04/2021 issued by DNV	Welded sleeves - GRE pipe, RS 1125
Statement N1421782	dated 01/09/2021 issued by DNV	Welded sleeves – Steel pipes, RS 23-64
Inspection report MLM060561	dated 01/12/2006 issued by DNV	Welded sleeves - GRE pipe, RS 68-500 / Bundle pipes, RS 43-100
Inspection report MLM 030473-1	dated 27/01/2003 issued by DNV	SLFRS X – RS 223-200, test of expansion sleeve function
Inspection report MLM090673 sleeves	dated 08/10/2009 issued by DNV	SLFO/RI sleeve, RS 23-644, test for bolted openable
Statement N142G50V	dated 11/11/2022 issued by DNV	Welded long sleeves - Steel pipes, RS 23-150
Statement N141EX8Z rev.2	dated 10/08/2017 issued by DNV	SLA sleeve, RS 25-100
Statement N142JK51	dated 27/02/2023 issued by DNV	Bolted sleeves – RS 23-150/SLFRS

7.3.2 – Plastic pipes

Inspection report MLM060511	dated 28/02/2006 issued by DNV	Plastic pipes, RS-400
Inspection report MLM070656	dated 18/04/2007 issued by DNV	Plastic pipes, RS PPS 31-175
Statement N141ZEM0	dated 15/05/2020 issued by DNV	Thermoplastic pipes, RS PPS/S 31-150
Statement N141ZEM1	dated 15/05/2020 issued by DNV	Pre-insulated thermoplastic pipes, RS PPS 125-400
Statement N141ZEM2	dated 15/05/2020 issued by DNV	Pre-insulated thermoplastic pipes, RS PPS/S 125-150
Statement N142299W rev.1	dated 09/11/2020 issued by DNV	Thermoplastic pipes, RS PPS 31-450
Survey report SKM-04-4088	dated 16/06/2004 issued by DNV	Plastic pipes, RS PPS 31-150

7.3.3 – Cables

Inspection report MLM010235	dated 21/08/2001 issued by DNV	Cables, RS 23-50 and RS 125
Inspection report MLM020133	dated 26/02/2002 issued by DNV	Cables, RS 23-150 OMD
Inspection report MLM020406	dated 07/05/2002 issued by DNV	Cables, RS 23-125
Inspection report MLM030473	dated 27/01/2003 issued by DNV	Cables, SLFRS X, RS 23-200
Statement N141EX8Z rev.2	dated 10/08/2017 issued by DNV	SLA sleeve, RS 25-100

Statement N142G50V
Statement N1428HVZ

dated 11/11/2022 issued by DNV Long sleeves - Cables, RS 23 -150
dated 24/11/2021 issued by DNV Cables, RS BG 25-150

Tightness performances:

Sleeve type	Mounting option	Watertightness	Gastightness
SLRS-Series (1)	Welded	6 bar	3 bar
SLFRS-Series (2)	Bolted	3,75 bar	1.5 bar
SLFO-Series (2)	Bolted openable	2 bar	1 bar
SLFRS X	Expansion	6 bar	3 bar
SLA	Bolted	4.5 bar	1.5 bar
SL-Series (3)	Welded	3 bar	1.5 bar

Sleeve type	Pipe material	Watertightness	Gas tightness
SL PPS	Thermoplastic	6 bar	3 bar
SL PPS/S	Thermoplastic	6 bar	3 bar
SL PPS	Pre-insulated thermoplastic	3 bar	1,5 bar
SL PPS/S	Pre-insulated thermoplastic	3 bar	1,5 bar

(1) SLRS-series includes the following sleeve types: SLRS, SLRS Ex or sleeves equal to Roxtec dimensions specified in drawing S1586454 Rev A

(2) Installed with pre-punched gasket

(3) SL-series are longer versions of the sleeves in SLRS-series

*** END OF CERTIFICATE ***