

**TYPE APPROVAL CERTIFICATE****This is to certify:****That the Class A and B Penetration**

with type designation(s)

**Roxtec RS and RS PPS/S sealing systems for pipes (Back-to-Back Arrangement),  
and Roxtec RS PPS for pipes (Back-to-Back Arrangement)**

Issued to

**Roxtec International AB  
Karlskrona, Sweden**

is found to comply with

**DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations****Application :****Penetration systems acceptable for use in watertight bulkhead divisions on passenger ships  
and SPS vessels in accordance with SOLAS Ch. II-1 Reg. 13.2.3 (2014 issue) and IMO  
MSC/Circ. 736 Paragraph 2.1, provided acceptance by Flag Administration in each case.  
For Application/Limitation see page 2.**Issued at **Høvik** on **2018-12-12**for **DNV GL**This Certificate is valid until **2019-03-31**.DNV GL local station: **Gothenburg**Approval Engineer: **Thorvald Furuseth**

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**Mårten Schei-Nilsson  
Head of Section**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.  
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.



Job Id: **262.1-013159-7**  
Certificate No: **TAF00000BR**  
Revision No: **2**

## Product description

"Roxtec RS and RS PPS/S sealing systems for pipes (Back-to-Back Arrangement)"

RS Sealing and RS PPS/S sealing systems consist of two seals installed in both sides of an extended sleeve or frame (minimum 600 mm) generating a "back-to-back arrangement". The sleeve or frame shall have a centred position in the bulkhead, and be welded to it.

"Roxtec RS PPS for pipes (Back-to-Back Arrangement)"

RS PPS sealing system consist of two seals installed in both sides of an extended sleeve or frame (minimum 700 mm) generating a "back-to-back arrangement". The sleeve or frame shall have a centred position in the bulkhead, and be welded to it. Two reels of intumescent material arranged within the closed void inside sleeve, positioned at each side of sleeve/seal.

Insulation for A-0 to A-60 has to be arranged based on already approved documentation, and according to the drawings mentioned under Type Examination documentation below.

## Application/Limitation

The systems are tested for watertightness with 2 bar test pressure for 30 minutes after a 60 minutes fire test with the following results:

Pipe system size	Pipe outer diam.	Type of pipes	Approved pressure (bar)
RS 43-150 (BTB)	16 - 114.3 mm	Steel pipes	1,33 no leakage
RS 31-150 (BTB)	10 - 108 mm	Copper pipes	1,33 no leakage
RS PPS/S (BTB) 43 -150	16 - 110 mm	Thermoplastic pipes: PVC, PP, PVDF, PB	1,33 no leakage
RS PPS/S (BTB) 43 -150	16 - 114 mm	Thermoplastic pipes: PPFR	1,33 no leakage
RS PPS/S (BTB) 75	32 mm	Thermoplastic pipes: PE/Alu/PE	1,33 no leakage
RS PPS/S (BTB) 150 *)	110 mm	Thermoplastic pipes: PE	1,33 no leakage
RS PPS (BTB) 300 - 400	225 - 315 mm	Thermoplastic pipes: PB, PE	1,33 no leakage

This certificate for back-to-back arrangements does not replace the need of having valid fire safety type approved certificates for the corresponding rated single penetrations.

## Application for passengers and SPS vessels

Penetration system acceptable for use in watertight bulkhead divisions on passengers and SPS vessels in accordance with SOLAS Ch. II-1 Reg. 13.2.3 (2014 issue) and IMO MSC/Circ. 736 Paragraph 2.1. Limited up to and including 110 mm outer diameter. Only piping type approved for use in essential systems (tested for internal and external pressure) could be used in such application. If the flag Administration has specific requirements this will prevail.

## Type Approval documentation

Examination in accordance with Class Programme DNVGL-CP-0338, September 2018.

### Fire resistance and water tightness test reports:

No. 101108 dated 16 February 2011, No. 101151 date 29 April 2011, No. 101198 dated 18 August 2011, No. 101199 dated 19 August 2011, No. 101434 dated 17 January 2012, No. 101636 dated 31 October 2012 and No. 101822 dated 19 February 2013. All reports from Roxtec International AB, Sweden.

\*) No. DOC-002317/A dated 4. Mai 2018 (ad hoc). Report from Roxtec International AB, Sweden.

### Survey Reports:

No. 40007014 dated 4 March 2011, No. 4007159 dated 14 April 2011, No. 40007360 dated 25 August 2011, No. 4007761 dated 17 January 2012, No. 40008393/2 dated 31 October 2012 and No. 40008662/1 dated 28 March 2013. All reports from DNV Malmø.

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Drawings for RS/RS OMD Steel pipe sealing system:  
Combination tested (fire + water pressure): S1026795 Rev. A

Drawings for RS/RS OMD Copper pipe sealing system:  
Combination tested (fire + water pressure): S1026800 Rev. A

\*) Drawings for RS PPS/S Thermoplastic pipe sealing system:  
Combination tested (fire + water pressure): S1026802 Rev. B

Drawings for RS PPS Thermoplastic pipe sealing system:  
Combination tested (fire + water pressure): S1035080 Rev. A

### **Tests carried out**

The systems have been pressure tested with water up to 2 bars immediately after an A-60 class bulkhead fire test. The fire test was based on the principles given in IMO FTPC Part 3 (IMO Res. A754(18)) except the furnace size.

Water pressure tested according to IMO MSC/Circ. 736 Paragraph 2.1 and DNVGL-CP-0165 Sec. 2 Ch. 4.  
\*) Tested in 2018 according to IMO Res. MSC.429(98) Reg. 13.2.3.4.

### **Marking of product**

The product or packing is to be marked with name of manufacturer, type designation and fire-technical rating.

### **Periodical assessment**

DNV GL's surveyor is to be given permission to perform Periodical Assessments at any time during the validity of this certificate and at least every second year. The arrangement is to be in accordance with procedure described in Class Programme DNVGL-CP-0338, Section 4.