

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

Roxtec RS PPS/S sealing systems 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-74 (2014 issue) Ch. II-1 Reg. 13.2.3 and IMO Resolution MSC.429(98) Regulation 13.2.3.4. For Application/Limitation see page 2.**Issued at **Høvik** on **2019-03-29**This Certificate is valid until **2024-03-28** .for **DNV GL**DNV GL local unit: **Gothenburg**Approval Engineer: **Thorvald Furuseth**

**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.



Product description

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

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

The Back-to-Back Arrangement is partly insulated on both sides with additional cookie of A-60 insulation (OD 250 mm) on exposed side.

Insulation to be according to drawing no. S1026802 Rev.B "RS PPS/S Plastic pipe".

Application/Limitation

The system is approved for watertightness after 60 minutes A-class fire test.

Tightness test pressure is applied to the same side of the division which is exposed to the fire test. The following results have been achieved:

Pipe system size	Pipe outer diam.	Type of pipes	Approved pressure [bar]
RS PPS/S (BTB) 43 -150	16 – 110 mm	Thermoplastic pipes: PB, PP, PVC, PVDF, ABS	1,33
RS PPS/S (BTB) 43 -150	20 – 110 mm	Thermoplastic pipes: PE	1,33

This certificate for back-to-back arrangements does not cover fire rating, hence shall be accompanied by separate valid type approval certificate for this.

Class A-0, A-15 and A-30 shall be insulated as class A-60.

Application for passengers and SPS vessels

Penetration system acceptable for use in watertight bulkhead divisions on passengers and SPS vessels in accordance with SOLAS-74 Ch. II-1 Reg. 13.2.3 (2014 issue) and IMO Resolution MSC.429(98) Regulation 13.2.3.4. 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

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

Fire resistance and Water tightness Survey and Test Reports:

Test report DOC-002562 dated 2018-10-31

Test report DOC-002621 dated 2019-01-23

Test report DOC-002676 dated 2019-03-05

Test report DOC-002700 dated 2019-03-06

Test report DOC-002718 dated 2019-03-13

Test report DOC-002719 dated 2019-03-13

Test report DOC-002736 dated 2019-03-15

All reports from Roxtec, Sweden and witnessed by DNV GL.

Drawing no. S1026802 Rev.B "RS PPS/S Plastic pipe" from Roxtec.

Survey Reports:

N141NBR5 dated 2018-11-05

N141RA6Z dated 2019-01-24

N141S7E5 dated 2019-03-10

N141SGZW dated 2019-03-10

N141SMF7 dated 2019-03-15

Job Id: **262.1-031148-1**
Certificate No: **TAF000016B**

N141SMF8 dated 2019-03-15
N141SRGA dated 2019-03-15
All reports from DNV GL Malmö.

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 2010 FTP Code Part 3, except the furnace size.

The pressure test was based on the test procedures described in resolution MSC.429(98) for compliance with regulation II-1/13.2.1 and 13.2.3 of SOLAS-74 (2014 issue).

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.