Confirmation of Product Type Approval

Company Name: ROXTEC INTERNATIONAL AB

Address: ROMBVAGEN 2 SE 371 65 Sweden

Product: Penetration Device for Bulkhead and Deck Firetight and Watertight Penetrations

Model(s): Roxtec RS Seals

Certificate Type	Certificate Number	Issue Date	Expiry Date
Product Design Assessment (PDA)	19-LD1835887-PDA	17-JUN-2019	16-JUN-2024
Manufacturing Assessment (MA)	18-GB3595269	07-DEC-2018	08-JAN-2024
Product Quality Assurance (PQA)	NA	NA	NA

Tier
3

Intended Service
Single pipe and cable penetrations in Class H-60/-120 bulkheads and decks. Penetrations of watertight and gastight steel bulkheads and decks up to the specified pressure.

Description
"Roxtec cable sealing system with multidiameter technology" composed of steel sleeves (welded or bolted) with RS- type (EMC versions included) halogen free rubber sealings mounted in steel decks or bulkheads.

Ratings
H-60/-120 Bulkheads and Decks- For Steel Pipes and Cables

H-60/-120 Bulkheads- For Fibreglass composite pipes

H-60/H120 Bulkheads and Decks - For Titanium Pipes with RS23 seal

H-60 Bulkheads and Decks - For Titanium Pipes with RS50 seal

Watertight test pressure 6 bar (except bolted versions test pressure at 5 bar)

Gastight test pressure 4 bar (except bolted versions test pressure at 2.5 bar and 3 bar test pressure for penetrations installed with fibreglass composite pipes)

Service Restrictions
a) Maximum tested cable diameter is 96 mm, maximum tested steel pipe outside diameter is 323 mm, maximum tested fibreglass composite pipe outside diameter is 90 mm, maximum tested Titanium pipe outside diameter is 26.7 mm.

b) Maximum and Minimum tested seal sizes:

- 23-150 for cable penetrations (bulkhead)

- 23-125 for cable penetrations (Deck)

- 23-400 for steel pipe services

- 68 -125 for fibreglass composite pipe services.(Bulkhead)

- 23-50 for Titanium Pipes

c) For cables penetration on H60/ H120 bulkheads, fire is to be from insulated side only.

d) Tested with Marine Power/ Instrumentation/Control Cables.

e) Not for use in tank boundaries

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.

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

b) Insulation material is to be H-60/-120 approved type and properly installed to the satisfaction of the Surveyors. (Insulation drawings: S1014898 Rev A, S1014894 Rev A, S1014895 Rev A, S1014896 Rev A , S1014897 Rev A, S1014899 Rev A).

c) Watertight or fire rated bulkheads or decks for cable penetrations are to be examined and tested as per ABS Marine Vessels Rules 3-7-1/Table1 and 4-8-4/29.15.

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 given in SOLAS Ch. II -1 Reg. 13.2.3 (Consolidated Edition 2014). 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 (2014 Consolidated Edition).

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

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

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

Notes, Drawings and Documentation
CTO Fire Test Reports: RS-19-B-036-E & RS-19-B-037-E.both dated 21 March 2019

SP Swedish National Testing & Research Institute - Fire Test Reports: P703775 dated 7 December 2007 , P601739 dated 28 June 2006, P601740 dated 28 June 2006

DNV Inspection Report Nos.:MLM 010235,dated 21 August 2001, MLM 020133 dated 27 January 2003, , MLM 060561 dated 1 December 2006, MLM 010247 dated 21 August 2001 and SKM-04-4088.

Drawings:

Drawing No. S1014894, H60 STEEL BULKHEAD, PIPES, Revision: A,

Drawing No. S1014895, H120 STEEL BULKHEAD, PIPES, Revision: A,

Drawing No. S1014896, H60 STEEL DECK, PIPES, Revision: A,

Drawing No. S1014897, H120 STEEL DECK,PIPES, Revision: A,

Drawing No. S1014898, H60/H120 STEEL DECK/BULKHEAD, CABLE

Drawing No. S1014899, H60/H120 STEEL BULKHEAD, GRP/GRE PIPES

Term of Validity
This Product Design Assessment (PDA) Certificate 19-LD1835887-PDA, dated 17/Jun/2019 remains valid until 16/Jun/2024 or until the Rules or specifications used in the assessment are revised (whichever occurs first).

This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product.

Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA.

Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

ABS Rules
2019 Marine Vessels Rules 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-6-2/9.7, 4-8-4/21.13, 4-8-4/29.15

2019 Facilities on Offshore Installations Rules 1-1-4/9.7, 1-1-A2, 1-1-A3, 3-8/9.13, 3-8/9.15

2019 Mobile Offshore Unit Rules 1-1-4/9.7, 1-1-A2, 1-1-A3, 4-2-1/11.15, 4-3-3/5.13.1, 5-1-1/3.5

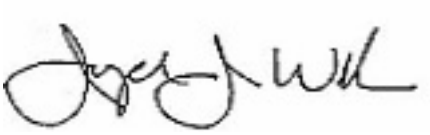
International Standards
IMO 2010 FTP Code (2012 Edition) , Annex 1, Part 3 with Norwegian Petroleum Directorate H Class Temperature Curve

EU-MED Standards
NA

National Standards
NA

Government Standards
This PDA conforms to Transport of Canada requirements as per Transport Canada Policy Letter A8706-1 RDIMS#1961446.

Other Standards
Acts, Regulations and Provisions for the Petroleum Activities, Volume 2, Norwegian Petroleum Directorate, Issue June 1, 1999- For H Class Temperature Curve



Corporate ABS Programs
American Bureau of Shipping
Print Date and Time: 08-Jul-2019 2:57

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.