

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Bulkhead/Deck Penetration

with type designation(s)
Roxtec TB-series seals with fixed or multidiameter technology

Issued to

Roxtec International AB
Karlskrona, Sweden

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Cable penetrations approved for water tightness in steel division of bulkheads or decks.

May also be installed in tank boundaries based on approval in each case.

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2021-07-13**

This Certificate is valid until **2026-07-12**.

for **DNV**

DNV local station: **Gothenburg FIS**

Approval Engineer: **Ivar Bull**

Marta Alonso Pontes
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

Roxtec TB-series seals with fixed or multidiameter technology.

TB 65/30 & 105/54 for fixed diameter inserts

TB 65/8-30 & TB 105/24-54 with multidiameter peelable inserts (8-30mmØ or 24-54mmØ cables/pipes)

Consisting of Roxtec TB circular steel sleeves 65mm or 105mm welded into steel bulkhead or deck, or tank boundary, see special limitations below. Rubber seals with two half circle metallic front fitting plates locked into a groove in sleeve are fixed with four axial compression bolts. Multidiameter variants have layers and fixed diameter variants is combined with fixed diameter inserts.

Application/Limitation

Standard installation

Cable and pipe penetrations approved for water-and gas tightness in steel bulkheads or decks limited to a pressure of 2/3 or test pressure:

- 11 bar water tightness (test pressure 16.5 Bar 1 hour)
- 2 bar gas tightness (test pressure 3 Bar Helium)

Cable and pipe penetrations approved for water-and gas tightness in tanks are limited to a 40% of test pressure:

- 6,6 bar water tightness (test pressure 16.5 Bar 1 hour)
- 1,2 bar gas tightness (test pressure 3 Bar Helium)

Penetration of tank boundaries (DNVGL-CP-0165. October 2017).

Penetration systems are generally not to be used for penetrating boundaries of tanks. When a penetration system is requested for penetrating tanks, an approval may be given on a case by case basis. The penetration system is only to be used at the top of tanks, both vertically and horizontally, and as high up as practical. The penetration system shall be compatible with the liquid medium in the tank. The approval is subject to approval for each individual newbuilding or conversion. Please contact the Society in advance of testing

When used in High Speed and Light Crafts the penetrations are subject for approval in each case.

The penetration system is generally not to be used for penetrating boundaries of tanks.

When requested to be used in watertight bulkheads on passenger ships and Special Purpose Ships (SPS), the penetration system has to comply with the requirements given in SOLAS Ch. II-1 Reg. 13.2.3 (2009 issue). Penetrations passing through watertight bulkheads are subject for separate examination and approval by actual flag administration.

Each product is to be installed with its manual for installation and use.

Type Approval documentation

Tests carried out

Vibration test according to DNVGL-CG-0339 Sec 3-6 Vibration Class A. Two TB seals has been tested:

- One with applied spring pressure of 5000N equivalent to an applied pressure of 6.6Bar with a pipe/cable diameter of 38mm.
- One seal without pressure in case this would be more sensitive to vibration. After successful vibration test, both seals were applied 6,6 Bar water pressure. No water leaks registered within a test period of 6 hours.

Pressure tests with water and helium according to DNV GL class programme DNVGL-CP-0165 dated 2017-10.

Marking of product

The product or packing is to be marked with name of manufacturer and type designation.

Periodical assessment

The scope of the periodical assessments to verify that the conditions stipulated for the Type approval is complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to be carried out)
- Review of type approval documentation



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- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at 2 and 3.5 year and at renewal.

END OF CERTIFICATE