DNV·GL

Certificate No:
TAF00000DW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class H Penetration

with type designation(s)
ROXTEC SEALING SYSTEM WITH MULTIDIAMETER TECHNOLOGY, S-& EMC S-SERIES FRAMES

Issued to
Roxtec International AB
KARLSKRONA, Sweden

is found to comply with
DNV GL offshore standards

Application :

Approved as penetration in
-class H-0/H-60/H-120 decks/bulkheads for approved ship cables
-class H60/H120 decks/bulkheads for steel pipes

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2016-09-29**

for **DNV GL**

DNV GL local station: **Malmö**

Approval Engineer: **Ivar Bull**

Petter Langnes
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.

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Product description

"Roxtec Sealing System with Multidiameter Technology, S- & EMC S- Series"
consisting of Roxtec S-series steel frames (S, SO, SF, SFO, SR, SK, SRC r20, SRC r40 and SBTB) in sizes 1-8, and combinations thereof, bolted or welded to a steel section. The S frame is filled with Roxtec (standard or EMC, PE, ES, BG, BGB) halogen free RM modules. Assembled with Roxtec Wedge kit or Roxtec EMC Wedge kit.

Application/Limitation

Approved as cable penetration in
- class H-0/H-60/H-120 decks/bulkheads

for approved ship cables including metal cables (CLX/TECK) up to OD 103 mm. (Ref. approved H-class as stated in the drawings mentioned under Type Approval documentation below)

Approved as pipe penetrations in
- class H-60/H-120 decks and bulkheads

for steel pipes in sizes OD 14mm to OD 51 mm. (Ref. approved H-class as stated in the drawings mentioned under Type Approval documentation below)

Deck or bulkhead to be insulated according to classification covering the edge of the steel frame. The penetrations are to be insulated in accordance with approved and stamped drawings listed under Type Approval documentation.

Cable and pipe penetrations approved for water- and gas tightness in steel bulkheads or decks, limited to a pressure of 4 bar water tightness and 2,67 bar gas tightness.
For bolted versions with gasket and self-tapping screws, the pressure is limited to 3,33 bar water tightness and 1,67 bar gas tightness.

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

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

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

Each product is to be supplied with its manual for installation/application and maintenance. The manual shall include the relevant drawings listed under type approval documentation.

Type Approval documentation

Certification in accordance with Class Programme DNVGL-CP-0338, October 2015.

Test Report No (Cables):
250000.20/90.313, dated 9 November 1990 and
250000.47/94.062-A dated 20 June 1994 from Sintef, Norway.
10027 from Roxtec International AB, approved by DNV 20 November 2000 (SRCr20 and SRCr 40 frames).
846007.06 dated 19 September 1997 from SINTEF Energy (deck).
P400834 dated 31 March 2004 and PX07235 dated 15 December 2010 from SP, Sweden (S frame CLX cable).
P703775 dated 7 December 2007 from SP, Sweden (H-60/90 Steel Bulkhead).
PG11199 Serial number 9138 dated 4 July 2003 from DIFT, Denmark (H-120 Steel Bulkhead)
N0. 22N007.12C dated 16 September 1999 from SINTEF, Norway (H-0/400 Steel Bulkhead)
No. PGA10024 dated 21 December 2011 and PGA1025 dated 22 December 2011(Reference tests for BG and BGB modules)
4P02192 dated 2014-06-30 from SP (H0 steel deck, 11x multi-cable transits)

6P02536 dated 2016-07-12 from SP (H0 steel deck, 6x cable penetration seals)

Test Report No (Steel pipes):
P601740 (H-60/H-120 deck) dated 28 June 2006 from SP Sweden (Steel pipe)
10528 (H-120 bulkhead) dated 18 April 2007 from Roxtec International AB, witnessed by DNV (Steel pipe).

Test Report No (Water and gas tightness):
MLM 020133 dated 2002-02-26,
MLM 020400 and
MLM 020401 dated 2002-03-25,
MLM 050410 dated 2005-05-20,
MLM 020106 dated 2001-12-19,
MLM 020408 dated 2002-06-03
SKM 04-4088 dated 2004-06-16 from DNV Malmö.

Drawings (Cable penetrations):

Class H-60, H-120 Deck	Drawing S1008896
Class H-0 to H-120 Bulkhead	Drawing S1019867 Rev. B.
Class H-60 Bulkhead	Drawing S1022732, Rev. B (S frame CLX cable).
Class H-0 Steel deck	Drawing S1514453 Rev C

Drawings (Steel pipe penetrations):

Class H-60 Deck/Bulkhead	Drawing S1009999
Class H-120 Deck/Bulkhead	Drawing S1010000

Tests carried out
Tested according to IMO Res. A.754 (18), IMO 2010 FTP Code Part 3 and with the hydrocarbon time-temperature curve specified in ISO 834-3.

Pressure tests with water and Helium according to Type Approval Programme 8-471.19-1 dated May 2001.

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 DNVGL-CP-0338 Section 4.