

TYPE APPROVAL CERTIFICATE

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

with type designation(s)

RISE, RIACNOF AND RISE/NOFIRNO - MULTI CABLE PENETRATION

Issued to

**BEELE Engineering bv/CSD International bv
AALTEN, Netherlands**

is found to comply with

Det Norske Veritas' Interpretation of SOLAS 1974 Convention as Amended**Det Norske Veritas' Rules for Classification of Ships****Det Norske Veritas' Offshore Standards****Application :****Approved for use as a cable penetration in steel bulkheads and decks of class A-0 / A-60****This certificate is recognized by Transport Canada**This Certificate is valid until **2019-06-30**.Issued at **Høvik** on **2015-02-24**DNV GL local station: **Rotterdam**Approval Engineer: **Patrick Aubert**for **DNV GL**

Digitally Signed By: Hoff, Øyvind
Location: DNV GL Høvik, Norway
Signing Date: 24.02.2015, on behalf of

**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.

Certificate No: **F-21031**
File No: **471.19**
Job Id: **262.1-002403-10**

Product description

"RISE, RIACNOF and RISE/NOFIRNO - Multi Cable Penetration"
composed of a steel sleeve (minimum length 180 mm) welded or bolted to steel bulkhead or deck.

Alt. 1: RISE/NOFIRNO:

RISE Insert Sleeves wrapped around the cables and filling the remaining space in the conduit with RISE or NOFIRNO filler sleeves.

The penetration is sealed on both sides with a layer of 20 mm FIWA or NOFIRNO sealant.

Alt. 2: RIACNOF:

RISE Insert Sleeves wrapped around the cables and filling the remaining space in the conduit with ACTIFOAM filler sheets and strips.

The penetration is sealed on both sides with a layer of 20 mm NOFIRNO sealant.

Application/Limitation

Approved for cable (incl. CLX and LAN cables) penetration in steel bulkheads and decks of class A-0 to A-60, for cable up to \varnothing 105 mm ($3 \times 400 \text{ mm}^2$), and for bundle of cables (up to 25 cables, max. bundle size 35mm; up to cable size 15 mm OD, max. bundle size: 50 mm).

Maximum size of penetration: 600 mm x 300 mm (or 1800 cm^2).

For bolted sleeve, NOFIRNO gasket to be placed underneath the flange.

The installation of the penetrations is to be in accordance with the following enclosed drawings Nos. R0268E, R0270E, R0271E, R0272E, R0273E and R0274E, all Rev. 1 dated 22.08.08, R0292E Rev.1 dated 23.02.10 and N0051E Rev.1 dated 16.12.2014.

The insulation to be fitted on the sleeve has to be of minimum nominal density 110 kg/m^3 and minimum thickness 25 mm.

For bolted sleeves, a 5 mm thick NOFIRNO rubber gasket as to be placed between the flange and the bulkhead/deck.

Minimum sleeve length for uninsulated A-0 penetration: 200 mm (Drwg. R0292E).

Blind penetration:

The penetration using NOFIRNO filler sleeves and sealant may be installed as blind penetration (without cable or pipe passing through) in A-0 – A-60 rated divisions. The sleeve (minimum length 180 mm) is to be insulated with A-60 insulation on exposed side for deck and on unexposed side for bulkhead.

Maximum size: 300 mm x 150 mm (or 450 cm^2).

For sizes above 300 mm x 150 mm (or 450 cm^2), the sleeve is to be splitted with partitions (drwg. N0051E Rev.1 dated 16.12.2014). Total maximum sleeve size: 600 mm x 300 mm (or 1800 cm^2).

Watertight/gastight penetration (blind or with cables):

Approved for watertight penetrations up to a pressure of 2 bar and for gastight penetrations up to a pressure of 1.0 bar.

Cable bundles are not allowed in watertight penetrations.

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

Penetrations passing through watertight bulkheads are subject for separate examination and approval by actual flag administration.

Type Approval documentation

Certification in accordance with Standard for Certification No. 1.2, Type Approval, January 2013.

Fire test reports:

WARRES No. 114524 dated 20 September 2000 from Warrington Fire Research Center, UK.

WARRES No. 114525\A Issue 2 dated 21 September 2000 from Warrington Fire Research Center, UK.

No. 2008-Efectis-R0209 dated July 2008 from Efectis Nederland BV.

Certificate No: **F-21031**
File No: **471.19**
Job Id: **262.1-002403-10**

No. 2008-Efectis-R0325 dated July 2008 from Efectis Nederland BV.
No. 2008-Efectis-R0556 dated July 2008 from Efectis Nederland BV.
No. 0007-B020 dated 04.07.2000 from Beele Engineering.

No. 0009-B030 dated 15.09.2000 from Beele Engineering.
No. 0012-B039 dated 08.12.2000 from Beele Engineering.
No. 0405-031 dated 10 May 2004 from Beele Engineering.
No. 0406-033 dated 7 June 2004 from Beele Engineering.
No. 0706-069 dated 6 June 2007 from Beele Engineering.
No. 1002-096 dated 25 February 2010 from Beele Engineering.
No. 1412-144 dated 18 December 2014 from Beele Engineering.

Statement Ref. TQS-RAP-07-355/idl dated 13 February 2007 from TNO Quality Services BV, The Netherlands.

Pressure test reports No. WT 1312-127 dated 2 December 2013, No. WT 1404-133 dated 28 April 2014
And No. 9903-D004 dated 19 March 1999 from Beele Engineering.
Shock test/pressure test report No. QINETIQ/FST/CMT/012216/01 dated 11 September 2001 from Qinetiq, UK.
Evaluation No. TC-BRF-C6-22414/gge dated 23 August 2006 from TNO Science and Industry, The Netherlands.
Statement No. BE-120325 dated 25 March 2012 from Beele Engineering.

Tests carried out

Fire tested according to IMO 2010 FTP Code part 3 and IMO Resolution A.754 (18), and in compliance with IMO 2010 FTP Code ch.8.

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' surveyor is to be given permission to perform 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 Standard for Certification No. 1.2 Type Approval item 4.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "*Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)*", DNV GL confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.