DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **F-20489**

This is to certify that the
Class H Penetration

with type designation(s)
RISE AND RISE/NOFIRNO - MULTI CABLE PENETRATION H-0 / H-120

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

is found to comply with
Det Norske Veritas' Offshore Standards

Application
Approved for use as a cable penetration in bulkheads and decks of class H-0 / H-120 for approved ship and offshore cables.

This Certificate is valid until **2017-12-31**.

Issued at **Høvik** on **2013-10-18**

DNV local station: **Rotterdam**

Approval Engineer: **Patrick Aubert**

for **Det Norske Veritas AS**

Digitally Signed By: Langnes, Petter
Location: DNV Høvik, Norway
Signing Date: 2013-11-04

Petter Langnes
Head of Section

Product description

"RISE and RISE NOFIRNO - Multi Cable Penetration – H-0 / H-120"
composed of a steel sleeve (length 250 mm) welded or bolted to steel bulkhead or deck,

- for RISE penetration, RISE Insert Sleeves around the cables and RISE filler sleeves filling the remaining space between sleeves and cables.
The penetration is sealed on both sides with a layer of 20 mm FIWA Sealing Putty.

- for RISE/NOFIRNO penetration, RISE insert sleeves around the cables and NOFIRNO filler sleeves filling the remaining space between sleeves and cables.
The penetration is sealed on both sides with a layer of 20 mm NOFIRNO Sealing Putty.

The steel sleeve may be fitted with a flange and bolted to either side of the bulkhead/deck.
A 5 mm thick NOFIRNO gasket shall be placed between the flange and the bulkhead/deck plate.

The steel sleeve with flange may be longitudinally splitted (consists of 2 parts bolted with a 5 mm NOFIRNO gasket).

The sleeve and the pipes/cables are to be insulated as described on the drawings listed below.

Application/Limitation

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

The installation of the penetration is to be in accordance with the following enclosed approved drawings:
- for RISE penetration:
Bulkheads: Drawing No. R0103E, dated 08.03.01.
Decks: Drawings Nos. R0104E and R0105E dated 08.03.01.
The sleeve is to be insulated as for H-60 when applied in H-0 partition.
Maximum cable outside diameter: 85 mm
The RISE penetration with welded sleeve is approved for watertight penetration up to a pressure of 1.66 bar and for gastight penetrations up to a pressure of 1.0 bar
- for RISE/NOFIRNO penetration:
Bulkheads: Drawing No. R0293E and R0294E dated 26.10.09.
Decks: Drawings Nos. R0295E dated 26.10.09.
Bulkheads and decks: No. N0043E dated 17.04.2012 and N0046E dated 07.06.12
No insulation on sleeve required for H-0 penetration.
Maximum cable outside diameter: 105 mm

Type Approval documentation

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

Test reports Nos. 2001-CVB-R03121 and 2001-CVB-R03122 dated 10 April 2001 from TNO Building and Construction Research, Delft, The Netherlands.
Test report No. 0910-093 dated 20 October 2009, No. 1204-103 dated 17 April 2012 and No. 1206-105 dated 8 June 2012 from Beele Engineering.
Pressure test reports No. 9909-d009 dated 10.09.1998 and No. 9909-D011 dated 01.09.1999 form the manufacturer.

Test carried out

Tested according to IMO FTPC Part 3, IMO Resolution A.754(18) and the hydrocarbon fire time/temperature curve stipulated by ISO 834-3 (NPD HC fire temperature curve)

Marking of product

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

Periodical Assessments for Retention of the Type Approval Certificate

DNV'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 Standard for certification No. 1.2 Type Approval Item 4.