



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. **F-20490**

This is to certify that the
Class H Penetration

with type designation(s)
RISE AND RISE/NOFIRNO PIPE 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 pipe penetration in bulkheads and decks of class H-0 / H-120.

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

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.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.

Product description

“RISE and RISE/NOFIRNO Pipe Penetration H-0 / H-120”

composed of a steel sleeve of length 250 mm, welded or bolted to steel bulkhead or deck and,

- for RISE penetration (H-0 / H-120), two or more layers of RISE rubber sheets type FRR/EHF wrapped around the pipe and RISE filler sleeves filling the remaining space between steel sleeve and pipe. The penetration is sealed on both sides with a layer of 20 mm FIWA sealant.

- for RISE/NOFIRNO penetration (H-0 / H-120), NOFIRNO filler sleeves filling the remaining space between steel sleeve and pipe. The penetration is sealed on both sides with a layer of 20 mm NOFIRNO sealant.

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 pipe are to be insulated as described on the drawings listed below.

Application/Limitation

Approved for use as multi-pipe penetration in steel bulkheads and decks for steel pipes of diameter up to 219 mm OD in H-0 to H-120 class divisions and for single pipe penetration for steel/stainless steel up to 1016 mm.

Approved for GRP pipes of diameter up to 408 mm OD, in H-0 to H-120 class divisions with RISE/NOFIRNO and up to 222 mm OD with RISE.

Maximum approved steel sleeves/coamings for multi-pipe penetration: Rectangular 1000 x 300 mm or equivalent to 3000 cm².

The sleeve and ducted pipe of RISE penetrations to be insulated as for H-60 when applied in H-0 partitions.

For RISE/NOFIRNO penetrations for steel/stainless steel and GRP pipes up to 408 mm no insulation is needed for H-0 class.

For RISE/NOFIRNO penetrations for steel pipes >408 mm OD the sleeve and ducted pipe to be insulated as for H-60.

The installation/insulation of the penetration is to be in accordance with the enclosed approved drawings:

Nos. R0285E, R0286E and R287E (RISE) and N0036E, N0037E and N0038E, all dated 14.02.09, and No. N0043E dated 17.04.2012 and N0046E dated 07.06.12, (RISE/NOFIRNO) for steel and Stainless steel pipes.

R0288E, R0289E and R0290E (RISE) for GRP pipes.

N0033E Rev. 1, N0034E Rev.1 and N0035E rev.1 for steel/stainless steel and GRP pipes up to 408 mm OD (RISE/NOFIRNO)

N0032E Rev. 2 for steel and GRP pipes up to 408 mm OD in H-0 partitions (RISE/NOFIRNO).

N0045E dated 04.06.12 for steel pipes up to 219 mm OD in H-0 partitions (RISE/NOFIRNO).

The penetration system with welded sleeve is approved for watertight penetrations up to a design pressure of 1.66 bar and for airtight penetration up to a design pressure of 1.0 bar.

Type Approval documentation

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

Test reports Nos. 2001-CVB-R03229 & -R03230 dated 10 April 2001 from TNO, The Netherlands.

Test report No. 0611-059 dated 30 November 2006, No. 0704-064 dated 11 April 2007, No. 0807-083 dated 23 July 2008, No. 0808-084 dated 27 July 2008, No. 0810-085 dated 14 October 2008, No. 1005-097 dated 25 May 2010, No. 1204-103 dated 17 April 2012, No. 1206-104 dated 5 June 2012 and No. 1206-105 dated 8 June 2012 from Beele Engineering.

Assessment report No. IFCA/01204 dated August 2001 from International Fire Consultants Ltd, Buckinghamshire, England.

Adhesion test No. 11/04.01006/sec dated 16 February 2004 from TNO.

Pressure test report No. 95-41D/42D/43D dated 27 October 1995 and No. 9909-D014 dated 1. September 1999 from Beele Engineering.

Statement Ref. TQS-RAP-07-335/idl dated 13 February 2008 and test report No. TQS-RAP-07-484/idl dated 26 February 2007, both from TNO, Netherlands.

Statement ref. No. TQS-RAP-09-6211 dated 20 February 2009 from TNO Quality Services B.V, The Netherlands.

Statement ref. IFC Letter Report FSA/10555/01 dated 25 June 2010 from International Fire Consultant Ltd, UK.

Test carried out

Tested according to 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)

Certificate No.: F-20490
File No.: 471.78
Job Id.: 262.1-002403-12

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.