

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Fire Seal**

with type designation(s)
HPT Pipe Penetration Seal - H-60 - Double sided

Issued to
Trelleborg Offshore Norway AS
KROKSTADELVA, Norway

is found to comply with
DNV GL offshore standards

Application :

Approved for use as steel pipe penetration system in class H-60 bulkheads and decks.

Issued at **Høvik** on **2017-05-31**

This Certificate is valid until **2022-05-30**.

DNV GL local station: **Oslo Maritime and CAP**

for **DNV GL**

Approval Engineer: **Kathrine Ilje Nerland**

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Mårten Schei-Nilsson
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.



Product description

"HPT Pipe Penetration seal – H-60 – Double sided",
Consisting of a steel sleeve symmetrically welded to the bulkhead/deck and two flexible collars "HPT Seal" covering the gap between the steel pipe and the steel sleeve fitted on both sides of the bulkhead/deck. The length of the steel sleeve is 300 mm in bulkhead and 200 mm in deck.

The collar "HPT Seal" consists of reinforced rubber and is fixed to the pipe and the sleeve by use of steel bands as follows:

- $\frac{1}{2}''$ (21 mm) $\leq$ OD pipe $\leq$ 12'' (324 mm): one steel band
- 12'' (324 mm) $<$ OD pipe $\leq$ 36'' (914 mm): two steel bands

Pipes and sleeves have to be insulated on both sides of the bulkhead/deck with 80 mm FireMaster Marine Plus 70 kg/m³ (or equivalent approved H-60 insulation material) as shown on following drawings:

Pipe Diameter (Ø)	Bulkhead	Deck
$\frac{1}{2}'' \leq \text{Ø} < 12''$	KRO-000941 Rev. 01	KRO-000944 Rev. 01
$12'' \leq \text{Ø} \leq 36''$	KRO-001603 Rev. 05	KRO-001602 Rev. 03

Application/Limitation

Approved for use as steel pipe penetration system in class H-60 bulkheads and decks for steel pipes of minimum OD $\frac{1}{2}''$ (21 mm) and maximum OD 36'' (914 mm).

This approval refers only to the fire resistance properties of the system.

Each product is to be supplied with its manual for application/installation and maintenance.

Type Approval documentation

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

Test Report No. 150072:04T5 dated 23 February 2017 from SP Fire Research AS, Trondheim, Norway.
Test Report No. 150072-04T6 dated 17 February 2017 from SP Fire Research AS, Trondheim, Norway.
Test Report No. 150072-04T6-2 dated 22 March 2017 from SP Fire Research AS, Trondheim, Norway.
Test Report No. 103070.68-TR4 dated 31 March 2014 from SINTEF NBL, Trondheim, Norway.
Test Report No. 103070.68-TR4.1 dated 3 April 2014 from SINTEF NBL, Trondheim, Norway.
Test Report No. 103070.68-TR3 dated 7 March 2014 from SINTEF NBL, Trondheim, Norway.
Assessment Report No. 103205.28A dated 25 April 2014 from SINTEF NBL, Trondheim, Norway.

Trelleborg Offshore drawings Nos. KRO 001602 Rev. 03 and KRO 001603 Rev. 05. Trelleborg Offshore drawings Nos. KRO-000941 Rev. 01, KRO-000942 Rev. 01, KRO-000943 Rev. 01, KRO-000944 Rev. 01, KRO-000945 Rev. 01 and KRO-000946 Rev. 01, all dated 30 April 2014.

Tests carried out

Tested according to IMO 2010 FTP Code Part 3 (IMO Res. A.754(18)) and the hydrocarbon time/temperature curve as described in ISO 834-3.

Marking of product

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

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.