DNV·GL

Certificate No:
TAF000007M

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class H Penetration

with type designation(s)
LAMBDA PIPE PENETRATION SEAL H-60

Issued to
Bilfinger Industrier AS
Stavanger, Norway

is found to comply with
DNV GL offshore standards

Application :

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

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-10-17**.

Issued at **Høvik** on **2016-10-18**
DNV GL local station: **Stavanger** for **DNV GL**

Approval Engineer: **Piotr Orzechowski**

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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Job Id:
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Product description

"Lambda Pipe Penetration Seal H-60"
Single- or multi-pipe penetration system for steel pipes, composed of steel sleeve of minimum length 250 mm and minimum thickness 6 -10 mm, bolted or welded to the deck/bulkhead.
"Lambda Inner Anklet" to be wrapped around pipe and sleeve on each side of deck/bulkhead for single- and multi-pipes and for single-pipes can be wrapped only from unexposed side.
Sealed with "Conlit Silicone" where required.
The steel sleeve shall be insulated around with division insulation (for single pipe, not-symmetrical penetration)
Stainless steel bands are used to clamp the anklet around pipe and sleeve. Outside of pipe and sleeve to be insulated with "Lambda Pipe Jacket" and "Lambda Sleeve Collar", respectively.

The "Lambda Pipe Jacket" to be wrapped around the pipe on each side of bulkhead/deck, for references please see approved drawing from Type Approval documentation below.

Finally the "Lambda outer Anklet" to be wrapped around pipe, jacket and collar.
Stainless steel bands are to be used to clamp the anklet around pipe, jacket and collar.

Maximum distance between sleeve and pipe (void) in a single-pipe penetration system: 135 mm.
Minimum distance between outer walls of adjacent pipes in a multi-pipe penetration system: 50mm

For further detalis see drawings mentioned under Type Approval documentation below.

Application/Limitation

Approved for use as pipe penetration system in H-60 class bulkheads and decks. Other applications are subject to case-by-case approval.

The bulkhead/deck shall be insulated on fire exposed side to Class H-60.

Pipe sizes:	Ø 33.4 - 609.6 mm	(single-pipe)
	max Ø 609.6 mm	(multi-pipe)
Sleeve size:	Ø 114.3 – 711.2 mm	
	Max 750 x 1500 mm	(W x L)

Each product/system is to be supplied with its manual for installation, use and maintenance.

Type Approval documentation

Certification in accordance with Class Programmes DNVGL-CP-0338, October 2015 and DNVGL-CP-0165, February 2016.

Test Reports Nos. from SINTEF, Trondheim, Norway:
- 103070.38A and B both dated 23 September 2005
- 103070.53A dated 26 June 2009
- 22N007.24 dated 20 November 2000
- 22N007.20A and B both dated 19 September 2000

Assessment letter (Ref 103070.38B) dated 3 October 2005 from SINTEF, Norway.

Assessment report No. SPFR Report 150101-12A 4 October 2016 from SP Fire Research AS, Norway.

Drawing LPPS-DNV-H60-004 Rev.5 (15 sheets) dated 10 October 2016 from manufacturer.

Tests carried out

Tested according to IMO Res. A.754 (18) and the hydrocarbon time-temperature curve specified in EN 1363-2/ ISO 834-3 (NPD HC curve).

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.