Certificate No:
TAF00001TK

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Class A and B Penetration

with type designation(s)
HK-Antifire Type A-60 Class Pipe Penetration

Issued to
Shanghai Huoke New Material Co., Ltd.
Shanghai, **China**

is found to comply with
DNV statutory interpretations DNV-SI-0364 – SOLAS interpretations, Edition July 2021
DNV rules for classification – Ships
DNV offshore standards

Application :

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

This certificate is recognized by Transport Canada.

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

Issued at **Høvik** on **2023-05-30**
This Certificate is valid until **2028-05-29**.
DNV local unit: **Shanghai**

Approval Engineer: **Marcin Tobiasz**

for **DNV**

Jowita Permoda
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

"HK-Antifire Type A-60 Class Pipe Penetration",
is a multi (rectangular) or single (circular) pipe penetration composed of a 180 mm long steel sleeve welded to the steel bulkhead/deck.

The sleeve is packed with 150 mm thick HK-S type fire stop belt (manufactured by Shanghai Huoke New Material) and sealed at both ends with 15 mm thick Antifire type firestop sealant (manufactured by Shanghai Huoke New Material).

For further details, see drawings mentioned under Type Approval documentation below.

Application/Limitation

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

Class A-0, A-15 and A-30 shall be insulated as for A-60 and the division is to be fitted with A-60 insulation for a minimum distance of 200 mm around the penetration.

Table 1 Approved pipe penetration in A-60 steel bulkhead.

Type	Pipe material	Pipe diameter (OD) [mm]	Sleeve size [mm]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
HK-Antifire/A60/C	PVC-C	20 - 160	156x106 – 1006x306	180	3	Symmetric	Partially insulated
	PP-R	20 - 160		180	3	Symmetric	Partially insulated
	Steel pipe	6 - 114		180	3	Symmetric	Partially insulated*
	PB	20 - 90	Ø42.2 - Ø141.3	180	3 - 6	Symmetric	Partially insulated
	PE-100	20 - 160	Ø42.2 – Ø219	180	3 - 6	Symmetric	Partially insulated
	PE-RT	20 - 110	Ø42.2 – Ø159	180	3 - 6	Symmetric	Partially insulated
	PP-R	20 - 160	Ø42.2 – Ø219	180	3 - 6	Symmetric	Partially insulated
	PVC-U	20 - 160	Ø42.2 – Ø219	180	3 - 6	Symmetric	Partially insulated

* steel pipe to be insulated in addition with 400 mm along pipe from one side with A-60 insulation

Table 2 Approved pipe penetration in A-60 steel deck.

Type	Pipe material	Pipe diameter (OD) [mm]	Sleeve size [mm]	Sleeve length [mm]	Sleeve Thickness [mm]	Sleeve position	Penetration insulation
HK-Antifire/A60/J	PVC-C	20 - 160	156x106 – 1006x306	180	3	Underside, symmetric	Partially insulated
	PP-R	20 - 160		180	3	Underside, symmetric	Partially insulated
	Steel pipe	6 - 114		180	3	Underside, symmetric	Partially insulated*
	PB	20 - 90	Ø42.2 - Ø141.3	180	3 - 6	Underside, symmetric	Partially insulated
	PE-100	20 - 160	Ø42.2 – Ø219	180	3 - 6	Underside, symmetric	Partially insulated
	PE-RT	20 - 110	Ø42.2 – Ø159	180	3 - 6	Underside, symmetric	Partially insulated
	PP-R	20 - 160	Ø42.2 – Ø219	180	3 - 6	Underside, symmetric	Partially insulated
	PVC-U	20 - 160	Ø42.2 – Ø219	180	3 - 6	Underside, symmetric	Partially insulated

* steel pipe to be insulated in addition with 400 mm along pipe from one side with A-60 insulation

Min. distance between pipes: 10 mm
Min. distance between pipe and sleeve: 3 mm

Approved for water tightness up to a design pressure of 1.67 bar.
Approved for air tightness up to a design pressure of 0.67 bar.

Penetration systems are generally not to be used for penetrating boundaries of tanks.

Each product is to be supplied with its manual for installation and use.

Type Approval documentation

Certification in accordance with Class Programme DNV-CP-0338, September 2021.

Test report No. 2020210583-E dated 7 December 2020 from NFTC, Shanghai, China.
Test report No. KOMERI-0402-19T2621(E)-A dated 25 March 2022 (initial: 30 December 2020) from KOMERI, Busan, Korea.
Test report No. KOMERI-0402-19T2622(E)-A dated 25 March 2022 (initial: 30 December 2020) from KOMERI, Busan, Korea.
Test report No. 2022200036 dated 24 January 2021 from NFTC, Shanghai, China.
Test report No. 2021210217-E dated 1 April 2021 from NFTC, Shanghai, China.
Test report No. 2021211111-E dated 24 December 2021 from NFTC, Shanghai, China.
Test report No. 2021211110-E dated 23 December 2021 from NFTC, Shanghai, China.
Test report No. 2022201084-E dated 3 January 2023 from NFTC, Shanghai, China.
Test report No. 2022201083-E dated 4 January 2023 from NFTC, Shanghai, China.

Test report No. WT/AT-2023-01 dated 2 March 2023 from maker.

Drawing No. C01 dated 1 May 2019 from maker.
Drawing No. C02 dated 1 May 2019 from maker.
Drawing No. C05 dated 1 May 2019 from maker.
Drawing No. C06 dated 1 May 2019 from maker.
Drawing No. C15 dated 1 May 2019 from maker.
Drawing No. C16 dated 1 May 2019 from maker.
Drawing No. C18 dated 1 May 2019 from maker.
Drawing No. C19 dated 1 May 2019 from maker.
Drawing No. C20 dated 1 May 2019 from maker.
Drawing No. C21-1 dated 23 December 2019 from maker.
Drawing No. C02-1 dated 2 September 2021 from maker.
Drawing No. C03 dated 2 September 2021 from maker.
Drawing No. C14 dated 2 September 2021 from maker.
Drawing No. C15 dated 2 September 2021 from maker.
Drawing No. C16 dated 2 September 2021 from maker.
Drawing No. C17 dated 2 September 2021 from maker.
Drawing No. J02 dated 2 September 2021 from maker.
Drawing No. J03 dated 2 September 2021 from maker.
Drawing No. J06 dated 2 September 2021 from maker.
Drawing No. J12 dated 4 November 2022 from maker.
Drawing No. J13 dated 2 September 2021 from maker.
Drawing No. J14 dated 2 September 2021 from maker.
Drawing No. J15 dated 2 September 2021 from maker.
Drawing No. J16 dated 2 September 2021 from maker.
Drawing No. J17 dated 2 September 2021 from maker.
Drawing No. J18 dated 2 September 2021 from maker.
Drawing No. J19 dated 2 September 2021 from maker.
Drawing No. J20 dated 2 September 2021 from maker.
Drawing No. J21 dated 2 September 2021 from maker.

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Marking of product

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

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled “Procedures for Approval of Life-Saving Appliances, Fire Safety Systems, Equipment and Products (TP14612)", DNV confirms that the product/s listed in this certificate is/are in accordance with Transport Canada's requirements.

Periodical assessment

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 DNV-CP-0338 Section 4.