

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Class A and B Penetration**with type designation(s)
HK-MG Multi and Single Pipe Penetration

Issued to

Shanghai Huoke New Material Co., Ltd.
Shanghai, Chinais found to comply with
DNV GL offshore standards
DNV GL rules for classification – Ships
DNV GL statutory interpretations DNVGL-SI-0364 – SOLAS interpretations**Application :****Approved for use as a multi pipe penetration system in class A-60 steel bulkheads/deck.****Approved for use as a single pipe penetration system in class A-60 steel bulkheads/deck.****This certificate is recognized by Transport Canada.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2018-09-28**This Certificate is valid until **2023-09-27**.DNV GL local station: **Shanghai**for **DNV GL**Approval Engineer: **Synnøve Bolstad Eri**

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

"HK-MG Multi or Single Pipe Penetration"

is a multi (rectangular) or single (circular) pipe penetration composed of a 3 mm thick 180 mm long steel sleeve welded to the steel bulkhead/deck.

The sleeve is packed with "HK-B marine fireproof blanket" of density 96 kg/m³ (manufactured by Luyang Energy-saving Materials Co Ltd.) and sealed at both ends with 20 mm thick "HK-M" intumescent sealant manufactured by Shanghai Huoke New Material Co., Ltd.

Sleeve shall be partly insulated. Insulation to be extended along the pipe according to table below.

For further details, see drawings in test report listed 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.

Approved for use in class A-0, A-15 and A-30 when the penetration system is insulated as A-60 and in addition the division is to be insulated with A-60 insulation at least 200 mm around the penetration.

Approved Multi penetration:

Sleeve Size (L x W) [mm]	Pipe dimension [mm]	Filling rate [%]	Min. pipe insulation [mm]	Drawing No.
60 x 40	Ø 8 (Steel) Ø 8 (Copper)	4.2	No insulation	J07, C07
min. 60 x 40 – max. 700 x 300	Ø 8 – 219 (Steel) Ø 8 – 105 (Copper)	min. 4.2 – max. 22.0	300 (Steel) 400 (Copper)	J06, C06

Approved Single penetration:

Sleeve dimensions [mm]	Sleeve thickness [mm]	Pipe dimensions [mm]	Pipe category	Min. pipe insulation [mm]	Drawing No.
Ø 32	3	Ø 22	Steel	200	J02, C02
Ø 32 - 367	3 - 8	Ø 22 - 273	Steel	400	J03, C03
Ø 32	3	Ø 15	Copper	200	J04, C04
Ø 32 - 207	3 - 6	Ø 15 - 168	Copper	800	J05, C05

Approved for water tightness up to a design pressure of 1.7 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.

Min. distance between pipes: 10 mm

Min. distance between pipe and sleeve: 10 mm

Each product shall be supplied with its manual for installation and maintenance.

Type Approval documentation

Certification in accordance with Class Programmes DNVGL-CP-0338, October 2017 and DNVGL-CP-0165, October 2017.

Test Report No. FT 18007 dated 30 January 2018 from Far East Fire Testing Centre, China.

Test Report No. FT 18008 dated 30 January 2018 from Far East Fire Testing Centre, China.

Water- and gas tightness report No. WT/AT-2017-11 dated 10 May 2018 from maker and witnessed by DNV GL.

Job Id: **262.1-028890-1**
Certificate No: **TAF00000ZZ**

Drawing Nos. J02, C02, J03, C03, J04, C04, J05, C05, J06, C06, J07, C07 in drawing collection No. HK/WI-JS-10 edition B/0 dated 1 August 2017 from the manufacturer.

Tests carried out

Tested according to IMO 2010 FTP Code part 3.

Pressure tests with water and air according to Class Programme DNVGL-CP-0165.

Marking of product

The product shall be marked with the name of the manufacturer, type designation and fire technical rating.

Transport Canada Approval

Based on the procedures laid down in the Transport Canada Publication entitled "Approval Procedures for, Life Saving Equipment and Structural Fire Protection Products (TP 14612)", DNV GL confirms that the product listed in this certificate is in accordance with Transport Canada's requirements.

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 Class Programme DNVGL-CP-0338, Section 4.