

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Class A and B Penetration**with type designation(s)
HK-MG type spigot cable transit

Issued to

Shanghai Huoke New Material Co., Ltd.
Shanghai, China

is found to comply with

DNV GL rules for classification – Ships**DNV GL offshore standards****DNV GL class programme DNVGL-CP-0165 – Type approval – Cable and pipe penetrations****Application :****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2019-06-19**This Certificate is valid until **2024-06-18**.DNV GL local station: **Shanghai**for **DNV GL**Approval Engineer: **Thorvald Furuseth**

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 type spigot cable transit"

Consist of 3 mm thick steel sleeve, symmetrically welded to the bulkhead. HK-G type intumescent firestop sleeves are placed around the cables and HK-G intumescent firestop filler sleeves are filling the remaining space. At both ends 20 mm HK-M type intumescent firestop sealant is applied.

HK-G firestop sleeve around the cables:

Locating component to fix the distance between the cables. Firestop sleeves in dimension 5 mm to 63 mm and shall match with the outer diameter of the cable. Length of firestop sleeve is 110 mm. The sleeves are composed of EVM special rubber, rubber coupling agent, non-halogen expansion agent and expansion carbon-forming agent. Density 1400 kg/m³.

HK-G firestop filler sleeve:

Filling component between the steel sleeve and the cables. Firestop sleeves in two variations 27/19 and 19/12. Length of firestop filler sleeve is 110 mm. the sleeves are composed of EVM special rubber, rubber coupling agent, non-halogen expansion agent and expansion carbon-forming agent. Density 1400 kg/m³.

HK-M:

Intumescent fireproof sealant composed of 107 neuter organic silicon, composite curing agent, non-halogen expansion agent and expansion carbon-forming agent. Density 1300 kg/m³. Thickness of filling is 20 mm on both ends.

Insulation of sleeve – Class A-0 bulkhead and A-0 deck:

The sleeve is uninsulated.

Insulation of sleeve - Class A-60 bulkhead and A-60 deck:

The sleeve is partly insulated with 2 layers of 20 mm TG Type ceramic wool produced by Zhejiang Pusen New Material Technology Co., Ltd. with density 170 kg/m³.

For further details see drawings in test reports mentioned under Type Examination documentation.

Application/Limitation

Approved for use as a cable penetration system in class A-0 to A-60 steel bulkheads and decks.

Approved for use in class A0, A-15 and A-30 when the penetration system is insulated as for A-60.

Details for bulhead and deck penetrations are specified in Table 1 and Table 2 below.

Table 1: Bulkhead

Bulkhead				
Fire rating	A0	A0	A60	A60
Sleeve dimension [L x W] [mm]	600 x 400	60 x 40	800 x 400	60 x 40
Sleeve length [mm]	150	150	150	150
Sleeve thickness [mm]	3	3	3	3
Max. diameter of cable [mm]	60.5	24	62	24
Max. filling of cable	35.0 %	16.4 %	35.0 %	35.0 %
Min. distance between cables and cable to frame [mm]	5.0	5.0	5.0	5.0
Sleeve insulation	none	none	partially	partially

Table 2 : Deck

Deck				
Fire rating	A0	A0	A60	A60
Sleeve dimension [L x W] [mm]	600 x 400	60 x 40	800 x 400	60 x 40

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Sleeve length [mm]	150	150	150	150
Sleeve thickness [mm]	3	3	3	3
Max. diameter of cable [mm]	62	24	62	24
Max filling of cable	35.0 %	35.0 %	35.0 %	35.0 %
Min. distance between cables and cable to frame [mm]	5.0	5.0	5.0	5.0
Sleeve insulation	none	none	partially	partially

Approved for water tightness up to a design pressure of 0.13 MPa (1.3 bar), test pressure - 0.20 MPa (2.0 bar).

Approved for air tightness up to a design pressure of 0.067 MPa (0.67 bar), test pressure - 0.10 MPa (1.0 bar).

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

When requested to be used in watertight bulkheads on passenger ships and special purpose ships (SPS), the penetration system shall comply with the requirements given in SOLAS Ch. I-1 Reg. 13.2.3 (2014 issue). Penetrations passing through watertight bulkheads are subject for separate examination and approval (water tightness after a standard fire test). The Society shall be contacted for separate details of performing such additional testing.

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

Type Approval documentation

Certification in accordance with Class Programmes DNVGL-CP-0338, September 2018.

Test report nos.:

- FT18001 dated 24th February 2018 (A-0- Bulkhead)
- FT18002 dated 24th February 2018 (A-0 Deck)
- FT18003 dated 11th February 2018 (A-60 Bulkhead)
- FT18004 dated 11th February 2018 (A-60 Deck)
- FT18083 dated 11th February 2018 (A-0 bulkhead)

All from Far East Fire Testing Centre, Shanghai, China.

Report no. HK/WI-JS-09 Edition B/0 including drawing C01 – C14, J01 – J14 from Shanghai Huoke New Material Co., Ltd., Shanghai, China.

Gas tightness and water tightness test(s) witnessed by DNV GL surveyor:

Test Report No. WT/AT-2018-12-A "HK-MG type A0-A60 class spigot cable transit tightness test report" dated 2019-01-03 from Shanghai Huoke New Material Co., Ltd., Shanghai, China.

Tests carried out

Fire tested according to IMO 2010 FTP Code part 3.

Pressure tested according to Class Programme DNVGL-CP-0165 (Water and gas tightness)

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 Class Programme DNVGL-CP-0338, Section 4.