



Certificate No:  
**TAF00001TW**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Class A and B Penetration**

with type designation(s)  
**Single Cable Transit system - FRS series**

Issued to

**Shanghai Fan You Sealing Technology 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 single cable 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 **2023-07-05**

This Certificate is valid until **2028-07-04**.

for **DNV**

DNV local unit: **Shanghai**

Approval Engineer: **Helge Bjørnara**

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**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.



Form code: TA 251

Revision: 2022-12

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## Product description

Single Cable Transit System - FRS series, consists of round steel sleeve in sizes 32 to 52 mm (OD) of depth 35 or 65 mm filled with FRS seal with multi-diameter technology of size 25 to 43. Sleeve is welded on the top side of the deck and on the insulated side of the bulkhead.

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

## Application/Limitation

Approved for use as a single cable 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 class A-60 and in addition the division is to be insulated at least 200 mm around the penetration.

Approved cable penetration in A-60 steel bulkhead:

| Type | Size    | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve insulation   |
|------|---------|--------------------------|--------------------|-----------------------|-----------------|---------------------|
| FRS  | 25 - 43 | 23                       | 35 - 65            | 3 - 5                 | Insulated side  | Partially insulated |

Approved cable penetration in A-60 steel deck:

| Type | Size    | Max. cable diameter [mm] | Sleeve length [mm] | Sleeve thickness [mm] | Sleeve position | Sleeve insulation                |
|------|---------|--------------------------|--------------------|-----------------------|-----------------|----------------------------------|
| FRS  | 25 - 43 | 23                       | 35 - 65            | 3 - 5                 | Top             | Partially insulated on underside |

Approved for water- and gastightness up to a design pressure of 2.67 bar (test pressure of 4.0 bar).

The penetration systems shall not be used for penetrating boundaries of tanks.

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

## Type Approval documentation

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

Test report no. FT13045 dated 1 March 2013 from FEFTC, Shanghai, China.

Test report no. FT13046 dated 4 March 2013 from FEFTC, Shanghai, China.

Letter dated 26 February 2018 from FEFTC, Shanghai, China.

Drawing No. FCS08 dated 26 January 2018 from manufacturer.

Drawing No. FCS2012-B-11 dated 30 January 2013 from manufacturer.

Drawing No. FCS2012-B-13 dated 30 January 2013 from manufacturer.

Drawing No. FCS2012-D-11 dated 30 January 2013 from manufacturer.

Drawing No. FCS2012-D-13 dated 30 January 2013 from manufacturer.

### Watertight and gastight:

Test report No. ST1301 dated 1 February 2013 from manufacturer.

## Tests carried out

Tested according to IMO 2010 FTP Code Part 3.

Pressure test with water and air according to DNVGL-CP-0165.

## 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.



Job Id: **262.1-028564-2**  
Certificate No: **TAF00001TW**

### **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 Class Programme DNV-CP-0338, Section 4.