

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Flame Screen Unit

with type designation(s)
KSFV-3/ -400/ -500/ -600/ -700

Issued to

TANKTECH CO., LTD.
Busan, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.5 Ch.6 Chemical tankers
DNV GL rules for classification – Ships Pt.5 Ch.5 Oil tankers

Application :

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

Sizes: 80, 400, 500, 600 and 700 mm

This Certificate is valid until **2020-12-31**.

Issued at **Høvik** on **2016-04-18**

DNV GL local station: **Pusan**

Approval Engineer: **Adel Samiei**

for **DNV GL**

Marianne Spæren Marveng
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

Cylindrical flame screen mounted on a flanged pipe and protected with weather hood.

Material:

- Body and Cover: Nodular cast iron FCD 450 – JIS G5502
Stainless steel SCS13A/ 14A – JIS G5121
- Flame Screen: Stainless steel SUS316L – JIS G4315

Designed and tested to following standards:

- IMO MSC/Circ.677 (as amended by MSC/Circ.1324) - Revised standards for design, testing and locating of devices to prevent the passage of flame into cargo tanks
- NS-EN ISO 16852:2010 Flame arresters - Performance requirements, test methods and limits for use

Application/Limitation

The flame screen is approved as end of line device for openings to atmosphere on tanks on board ships having class notations "Tanker for Oil", "Tanker for Oil Products" and "Tanker for Chemicals". The flame screen unit may be used for products having an MESG of 0.9 mm and greater (Apparatus Group IIA).

Products covered by this certificate shall only be used on tankers protected by inert gas system (Reference is made to IMO MSC/Circ.677 [1.2.2]).

A copy of the instruction manual shall be kept on board. It shall at least contain the following information:

- Installation instructions
- Operating instructions
- Maintenance requirements including cleaning
- A copy of the laboratory report
- Flow test data, incl. flow rates under positive and negative pressures, operating pressures, operating sensitivity, flow resistance and velocity

Type Approval documentation

Tests carried out

Corrosion test, flash back test, flow condition test, hydraulic pressure test, deflagration test

Marking of product

For traceability to this type approval, each flame screen is at least to be marked with:

- Manufacturer's name or trade mark
- Type designation
- Additional marking acc. IMO MSC/Circ. 677 sec. 4.1.

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform a survey – every second year before the expiry date of this certificate - to verify that the conditions for the type approval are complied with.