

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flame Screen Unit**with type designation(s)
SFA

Issued to

Se-Won Ind. Co., Ltd.
Haman-gun, Gyeongsangnam-do, Republic of Korea

is found to comply with

DNV GL rules for classification – Ships Pt.5 Ch.5 Oil tankers**DNV GL rules for classification – Ships Pt.5 Ch.6 Chemical tankers****Application :****Product(s) approved by this certificate is/are accepted for installation on vessels classed by DNV GL.****Sizes: 300-500 (Group IIB) / 550-800 (Group IIA)**Issued at **Høvik** on **2018-11-06**This Certificate is valid until **2023-06-30**.for **DNV GL**DNV GL local station: **Changwon**Approval Engineer: **Adel Samiei**

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

Design: Flanged with circular, double wire mesh as flame screen.

Material of Body: SS400/SUS316. Screen is made of SUS 316 and cover is made of SUS 304/SUS316.

Devices covered by this certificate are designed and tested according to:

- IMO MSC/Circ. 677 (as amended by MSC.1/Circ. 1324) Revised Standards for The Design, Testing and Locating of Devices to Prevent the Passage of Flame into Cargo Tanks in Tankers
- ISO 16852:2016 : Flame arresters - Performance requirements, test methods and limits for use

Application/Limitation

Devices covered by this certificate may be used as vents on tanks for cargo on board ships having class notation "Tanker for Oil", "Tanker for Oil Products" or "Tanker for Chemicals" in different apparatus group:

Sizes	Aparatus Group	MSEG
300A, 350A, 400A, 450A, 500A	Group IIB	MSEG $\geq$ 0.65
550A, 600A, 650A, 700A, 750A, 800A	Group IIA	MSEG $\geq$ 0.90

Sizing and location to be in accordance with the latest revision of MSC/Circ. 731.

Installation on board of vessels with class notation of "Tanker for oil" or "Tanker for oil Products" is to comply with the DNV GL Rules Pt.5 Ch.5 & Pt.5 Ch.6, where applicable.

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.

No product certificate will be required.

Type Approval documentation

Tests carried out

Hydraulic pressure test, Corrosion test, Dimensional check test and Flash-back test.

Marking of product

For traceability to this type approval the products are to be marked with:

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

Periodical assessment

For retention of the Type Approval, a DNV GL Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNVGL-CP-0338.