Certificate No:
TAP00002JG

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Deflagration Flame Arrester

with type designation(s)
Deflagration in-line flame arrester (short time burning) types: FA-02, FA-03, FA-04, FA-06, FA-08, FA-10, FA-12

Issued to
Prosave Co.,Ltd.
Gimhae-si, Gyeongsangnam-do, Korea, Republic of

is found to comply with
DNV rules for classification – Ships Pt.5 Ch.5 Oil tankers
DNV 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.
Sizes: see page 2

Issued at **Høvik** on **2022-11-09**
This Certificate is valid until **2027-11-08**.
DNV local station: **Gimhae Station**

Approval Engineer: **Maheshraja Venkatesan**

for **DNV**

Sinisa Sedlan
Head of Section

Product description

Static deflagration in-line flame arresters with flanged connections according to ASME B16.5 Cl.150, made from materials listed below:

Description		*Material*
Body	:	ASTM A216-WCB / A351-CF8 / A351-CF8M / A351-CF3M
Element Housing	:	ASTM A240-304 / A240-316L
Element	:	A240-316L
Element gasket	:	TEFLON (Non-asbestos)

Design conforming to:

1- **IMO MSC/Circ. 677** (as amended by MSC.1/Circ. 1009 and MSC.1/Circ. 1324) – Revised standards for design, testing and locating of devices to prevent the passage of flame into cargo tanks
2- **ISO 16852:2016** - Flame arresters, Performance requirements, test methods and limits for use

Manufacturing location
PROSAVE CO. LTD.,
115-22, Takenunobaelli 1-ro, Gimhaes-si, Gyeongsangnam-do, Republic of Korea

Application/Limitation

The products covered by this certificate are approved to be used as in-line deflagration flame arresting devices on tanks carrying apparatus group IIA with Maximum Experimental Safety Gap (MESG) equal or greater than 0.90.

Flame arresters covered by this certificate are only to be installed on cargo tanks fitted with inert gas system in accordance with SOLAS Regulation II-2/62.

Model no.	Size ID (mm)	Max operational temperature, T_0	Burning time, t_{BT} (min)		
FA-02	50	-20°C ≤T_0 ≤ 60°C	1		
FA-03	80				
FA-04	100				
FA-06	150				
FA-08	200				
FA-10	250				
FA-12	300				

Materials and material protection chosen for the specific system shall provide necessary corrosion resistance for the intended medium and environmental conditions.

Products covered by this certificate shall not be used as an end-of-line device.

A copy of the instruction manual shall be kept on board which shall include:

- installation instructions;
- operating instructions;
- maintenance requirements, including cleaning;
- copy of the laboratory report;
- flow test data, including flow rates under both positive and negative pressures, operating sensitivity, flow resistance and velocity, should be provided.

Type approval documentation

Tests carried out

Pressure test, leak test, flow measurement (air), deflagration test, short time burning test

Marking of product

For traceability to this type approval, each flame arrester and elements shall be marked in accordance with ISO 16852:2016 [12.2] and MSC/Circ.677 [4.1].

Periodical assessment

For retention of the Type Approval, a DNV 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 DNV-CP-0338.