

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Flame Screen Unit**

with type designation(s)
VFA 2273-1

Issued to

Pres-Vac Engineering A/S
Allerød Hovedstaden, Denmark

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: DN400

Issued at **Høvik** on **2017-12-19**

This Certificate is valid until **2022-12-18**.

DNV GL local station: **Copenhagen**

for **DNV GL**

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

Vertical efflux end-of-line device. Cylindrical flame screen supported by a grid and a housing connected to the standpipe by a flange.

Materials:

- Flame screen of stainless steel (AISI 316)
- Housing of carbon steel St 42.2 acc. to DIN 17100

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
- 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 may be used for crude oil, petroleum products and flammable chemicals with Maximum Experimental Safe Gap (MESG) of 0.65 or above (Apparatus Group IIB).

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 both positive and negative pressures, operating pressures, operating sensitivity, flow resistance and velocity.

Type Approval documentation

Tests carried out

Flow test, hydraulic pressure test, corrosion test, flash-back 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 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.