

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Crankcase Explosion Relief Valve

with type designation(s)
Sigma 98 ESR, Sigma 162 ESR

Issued to

Penn-Troy Manufacturing, Inc.
Troy PA, USA

is found to comply with
DNV GL rules for classification – Ships

Application :

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

Issued at **Hamburg** on **2018-01-24**

This Certificate is valid until **2023-01-23**.

DNV GL local station: **New York**

for **DNV GL**

Approval Engineer: **Sven Neddenien**

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Burkhard Lilienthal
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.



Job Id: **262.1-026445-1**
Certificate No: **TAM00000SU**

Product description

Crankcase explosion relief valve with flame arrestor.

Application/Limitation

Quick acting and self closing explosion relief valve with flame arrestor to pressure relief a combustion engine crankcase or gear case in the event of an internal explosion and to prevent passage of flames.

The installation orientation is vertical.

Type Approval documentation

Tests carried out

Test reports issued by Physical Technical Testing Institute, Ostrava-Radvanice, National Authority no. 210, EU Notified Body no. 1026:

- 17.0332-47 dated 2017-11-27, Gas explosion test
- 17.208/1-47 dated 2017-08-04, Explosion test of protective system

All tests have been performed in accordance with IACS UR M66.

Marking of product

The product to be marked with manufacturer's name or trademark, designation, size, month / year of manufacture and approved installation orientation.

Periodical assessment

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval certificate was issued.

In case where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

Other conditions

The complete flame arrestor has to be replaced after a crankcase explosion.

END OF CERTIFICATE