

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Ejector Pump (Eductor)**

with type designation(s)

TSE-HP-1 1/2-2-2-2 1/2, TSE-HP-2-2 1/2-3, TSE-HP-2-3-3, TSE-HP-3-4-4, TSE-HP-4-5-5

Issued to

**Tanktech Co., Ltd.
Busan, Republic of Korea**

is found to comply with

DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems**Application :****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**

Type:	Size Driving:	Size Suction:	Size Discharge:
TSE-HP-1 1/2-2-2-2 1/2	40 mm	50 mm	65 mm
TSE-HP-2-2 1/2-3	50 mm	65 mm	80 mm
TSE-HP-2-3-3	50 mm	80 mm	80 mm
TSE-HP-3-4-4	80 mm	100 mm	100 mm
TSE-HP-4-5-5	100 mm	125 mm	125 mm

Issued at **Hamburg** on **2017-10-16**This Certificate is valid until **2022-10-15**.for **DNV GL**

DNV GL local station:

Approval Engineer: **Christian Kaemmer**

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Olaf Drews
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: **262.1-022664-1**
Certificate No: **TAP000014A**

Product description

High pressure eductor, consisting of mixing chamber, throat, nozzle, bolt, plug.
Side connection type.

Materials: AISI 316; 316L; AISI 304; JIS 5101 Grade SC480; JIS H5120; CAC406

Nominal pressure: PN 10

Application/Limitation

Eductors to be used for bilge systems in marine applications.

Eductor pumps shall be hydrostatically tested by a pressure of 1.5 times the design pressure.
Eductor capacities shall be checked by running at design condition in the presence of a DNVGL-Surveyor.
However, capacity tests may be dispensed with for eductors produced in series when previous satisfactory tests have been carried out and witnessed by a DNVGL Surveyor.

Type Approval documentation

Tests carried out

Marking of product

For traceability to this type approval, each ejector pump is to be marked with:

Manufacturer's name or trade mark
Type designation
Nominal pressure [bar]
Job No. / Serial No.

Job Id: **262.1-022664-1**
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Periodical assessment

For retention of the type approval certificate periodical assessments shall be carried out at production places by DNVGL surveyor.

The objective of the periodical assessment is to verify that the design and production conditions for the type approval have not been altered.

Main scope of the assessment:

- verification of the production and quality control system
- review of quality control documentation of recent deliveries
- review of drawings in production to verify any design changes which may have an impact on data specified in the type approval certificate, performance and range of application
- verification of the product marking

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.