

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Pumps**

with type designation(s)
Chopper Pumps 3" - 6" VWW / S / SE / Wet Well Series

Issued to

Vaughan Company, Inc.
Montesano, WA, USA

is found to comply with
DNV GL rules for classification – Ships Pt.4 Ch.6 Piping systems
DNV GL class programme DNVGL-CP-0505 – Type approval – Pumping units

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2018-07-12**

This Certificate is valid until **2023-07-11**.

DNV GL local station: **Seattle**

for **DNV GL**

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.



Product description

Vertical, wet well or submersible centrifugal pump for handling water, bilge water, sanitary drain water, oil sludge and fish processing waste materials. Solid materials are chopped and conditioned by cutter bars as an integrated part of the pumping action. Covered by 3 sizes the casing is available as either tangential casing, centreline casing or back pull-out casing. Connection type: ANSI Class 125, 150. Flange: 3", 4", or 6". Main components are: Casing, Impeller, Cutter bar plate, Pump Shafting, Bearing, Pump mechanical seal.

Series	Model
3" – 6" Vertical Wet Well	V3F/V3G V3L/V3M V3P V3V/V3W V4K/V4L V4S/V4T V4V V6U/V6X
3" – 6" S - Series Submersible	S3F/S3G S3L/S3M S3P S3V/S3W S4K/S4L S4S/S4T S4V S6U
3" – 6" SE - Series Submersible	SE3F/SE3G SE3L/SE3M SE3P SE3V/SE3W SE4K/SE4L SE4S/SE4T SE6X/SE6W
Key Component Materials	Materials
Impeller, Cutter Bar / Upper Cutter / Cutter Nut	Cast alloy steel
Casing, Back Pull-Out Plate	Ductile cast iron
Mechanical Seal	Silicon carbide or tungsten carbide and stainless steel sleeve
Shaft	Heat treated alloy steel
Design Pressure	125 psig
Speed [rpm]	1170 / 1750 / 3510

Application/Limitation

The Vaughan Chopper-pumps are type-approved for class III-piping systems for:

- Water, Bilge water, sanitary drain water (human waste)
- Oil sludge
- Fish processing waste materials

Pump housings shall be hydrostatically tested at a pressure of 1.5 times the design pressure.

The design pressure shall be the design pressure head on the head-capacity curve.

Pumps listed in DNVGL Rules "Ships" - Part 4 Chapter 6 Sec.1 Table 4 shall be delivered with the DNVGL-product certificate.

Type Approval documentation

Marking of product

- Manufacturer`s name
- County of origin
- Serial number

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
- witness of burst testing on selected sizes from production.

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.