DNV·GL

Certificate No:
TAM00000KS

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Reduction Gear for Auxiliary Purpose

with type designation(s)
TSD45SX

Issued to
Flender-Graffenstaden SAS France
ILLKIRCH, France

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

Application :

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

Issued at **Høvik** on **2017-07-10**
This Certificate is valid until **2022-07-09**.
DNV GL local station: **Le Havre**

for **DNV GL**

Approval Engineer: **Geir Olav Moen**

Oddvar Deinboll
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.

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Job Id: **262.1-011999-2**
Certificate No: **TAM00000KS**

Product description
Single input – twin output, single stage step-up gear for compressor drive.

Application/Limitation
The gearbox has been type approved for the following gear ratio:

Ratio	Max. output torque	Input speed	Application factor, K_A
1:8,317 (41/341)	135,5 Nm (2x)	3600 rpm	1,2
1:6,578 (45/296)	173,8 Nm (2x)	3600 rpm	1,2

Other conditions
The type approval does not cover connection to external shafts.

Schematic hydraulic system diagram including list of alarms and monitoring instrumentation of the gearbox is not covered by this type approval and must be submitted for approval in each case.

Type Approval documentation

Marking of product
The product to be marked with the manufacturer's name or trademark and type number identification.

Periodical assessment
For retention of the Type Approval, a DNV GL surveyor shall perform an assessment after 2 years and after 3.5 years to verify that the conditions of the type approval are complied with. 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 cases 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.

END OF CERTIFICATE