DNV·GL

Certificate No:
TAM0000079

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Reduction Gear for Diesel Propulsion

with type designation(s)
G23F

Issued to
Finnøy Gear & Propeller AS
HARØY, Norway

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.

Input torque	**See page 2**
Input speed	**See page 2**
Reduction ratio	**See page 2**

This Certificate is valid until **2021-04-28**.

Issued at **Høvik** on **2016-04-29**

for **DNV GL**

DNV GL local station: **Kristiansund N**

Approval Engineer: **Kristine Prøsch**

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: **262.1-009439-4**
Certificate No: **TAM0000079**

Product description

Single stage reduction gear with built-in clutch (Ortlinghaus) and servo cylinder for CP-mechanism.

Application/Limitation

The type approval is valid for the following main data:

Gear ratio (Z1/Z2)	Engine speed [rpm]	Power [kW]
2,52 (25/63)	1800	464
3,05 (22/67)	1800	450
3,62 (21/76)	1900	470
4,05 (22/89)	1900	365
4,48 (23/103)	1900	330
5,14 (22/113)	1900	235

Max. application factor: 1,25
Clutch type: Ortlinghaus 0-002-833-47-000
FZG class of oil: 12 or better
Max temperature for lub.oil. 50 °C
Ice class Nil - Not included

The hydraulic clutch pressure is to be adjusted according to the following formula with maximum pressure limited to 24 bar:

$$8{,}7 \cdot T_0 + 2{,}7 \le p \le 11{,}1 \cdot T_0 + 2{,}7$$

where:

T_0 - maximum continuos rated input torque in [kNm] = 30/π*Power [kW] / Engine speed [rpm]
p - clutch pressure in [bar]

For single line propulsion the optional standby pump, filter and non-return valve for the oil system gear box shall be provided. Pt4. Ch. 4 Sec 2.9.

The type approval does not cover:

- the flexible coupling
- ice class notations
- electric wiring, instrumentation and automation
- connection to input and output shafts
- fastening and foundation of the gearbox including chocking calculations

Type Approval documentation

Marking of product

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

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform a survey every second year and before the expiry date of this certificate to verify that the conditions of the type approval are complied with. 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.