DNV·GL

Certificate No:
TAM00000EN

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Reduction Gear for Diesel Propulsion

with type designation(s)
ZF 3060(NR, NR2), ZF 3055(NR; NR2), ZF 3050(NR, NR2), ZF 3000(NR, NR2)

Issued to
ZF Friedrichshafen AG
Friedrichshafen Baden-Württemberg, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships/High Speed and Light Craft

Application :

The approval is valid for propulsion duty.

Products approved by this certificate 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**

Issued at **Høvik** on **2017-02-14**
This Certificate is valid until **2018-12-31**.
DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Nadine Grace Mosteiro Halvorsen**

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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Product description

Single stage reduction gear with or without reversing gear with built-in clutch.

Application/Limitation

The approval is valid for main diesel propulsion corresponding to ZF application groups C, M and L. Max. power ratings according to ZF Selection Guide

Maximum application factor, K_A=1,20 for the following ratings:

Gear Type: ZF 3000(NR, NR2), ZF3050 (NR, NR2), ZF 3055 (NR, NR2), ZF 3060 (NR, NR2)

Reduction	Max.input speed RPM	Max. Input Torque Nm
1.000	2600	6400
1.093	2600	6400
1.250	2600	6400
1.441	2600	6400
1.500	2600	6400
1.563	2600	6400
1.645	2600	6400
1.700	2600	6400
1.733	2600	6400
1.800	2600	6000
1.828	2600	6400
2.037	2600	6400
2.240	2600	6400
2.375	2600	6400
2.500	2600	6400
2.609	2600	6000
2.773	2600	6070
2.952	2600	5475

Type Approval documentation

Marking of product

Manufacturer's name or trademark. Type number designation.

Periodical assessment

For retention of the Type Approval, a DNV 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. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's

own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking.

Other conditions

The approval does not cover:
- Connections to external shafts
- Fastening and foundation of the gearbox incl. chocking calculations

END OF CERTIFICATE