

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Reduction Gear for Propulsion

with type designation(s)

ZF (W)5300, (W)5350, (W)5355, 5311, 5351, 5356, 5360, 5361 - Version NR / NR2

Issued to

ZF Friedrichshafen AG

Friedrichshafen, Baden-Württemberg, Germany

is found to comply with

DNV GL rules for classification – Ships

DNV GL rules for classification – High speed and light craft

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

Issued at **Hamburg** on **2018-05-18**

This Certificate is valid until **2023-05-17**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Olaf Richter**

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Burkhard Lilienthal
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

Single stage reduction gear, with or without reversing gear, with built-in clutch(es)
Ratios $i = 2.587:1, 2.947:1, 3.108:1, 3.314:1, 3.471:1, 4.033:1, 4.464:1, 5.040:1, 5.500:1$

Application/Limitation

Gear types ZF (W)5300, (W)5350, (W)5355, 5311, 5351, 5356, 5360, 5361 - Version NR / NR2
The approval is valid for main Diesel propulsion systems, maximum application factor $K_A = 1.20$

Approved ratings according to ZF selection guide:

	MCR power [kW]	input speed [rpm]	input torque [Nm]	ratios [-]
Continuous duty				
ZF 5300, W5300	1044	2000	5250	all except 5.500:1
ZF 5350, W5350	1200	2000	6035	all except 5.500:1
ZF 5355, W5355	1362	2000	7001	all except 5.500:1
ZF 5355, W5355	1267	2000	6370	5.500:1
Medium duty				
ZF 5300, 5311	1500	2600	6370	all except 5.500:1
ZF 5350, 5351	1697	2600	7130	all except 5.500:1
ZF 5355, 5356	2003	2600	8505	all except 5.500:1 and 5.040:1
ZF 5355, 5356	1884	2600	8000	5.040:1
ZF 5355, 5356	1675	2600	7112	5.500:1
Light duty				
ZF 5300, 5311	1726	2600	7170	all except 5.500:1
ZF 5350, 5351	2106	2600	8745	all except 5.500:1
ZF 5360, 5361	2239	2600	9300	all except 5.500:1 and 5.040:1
ZF 5360, 5361	2170	2600	9010	5.040:1
ZF 5360, 5361	2004	2600	8325	5.500:1
Pleasure duty				
ZF 5300	2067	2600	8060	all except 5.500:1
ZF 5350	2311	2600	9010	all except 5.500:1
ZF 5360	2462	2600	9600	all except 5.500:1
ZF 5360	2231	2600	8700	5.500:1

Type Approval documentation

Marking of product

Manufacturer's name or trademark. Type number designation.

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.

Job Id: **262.1-028566-1**
Certificate No: **TAM00000VX**

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

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.

When a Type Approved product is manufactured at other companies, the Type Approval applicant takes the sole responsibility for the conformity of the product to the applicable requirements.

Other conditions

The present Type Approval is valid in connection with the "Special Agreements" between ZF Friedrichshafen and DNVGL, Supplement 01 to MSA0000AF4.

The approval does not cover:

- Fastening and foundation of the gearbox incl. chocking calculations
- Lubrication / hydraulic diagram incl. instrumentation (measuring devices, sensors and alarms)

END OF CERTIFICATE