



Certificate No. 02-002811/024781

TYPE APPROVAL CERTIFICATE

This is to certify that this product complies with the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products.

TYPE AND DESCRIPTION OF PRODUCT:

Marine Reduction Gearboxes for Diesel Propulsion – type W350-1

MANUFACTURER:

ZF Padova S.r.l.

Via Penghe 48
35030 Caselle di Selvazzano (PD)
Italia

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

CRS: Rules for the classification of ships, Part 9. - Machines.

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

APPROVAL IS VALID UNTIL: **2023-08-30**

Place and date: Split, 2019-08-30

Seal _____

Marinko Popović, dipl.ing.

NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.

DETAILED PRODUCT DESCRIPTION:

Marine reduction gearboxes ZF W350-1, with built-in hydraulic clutch, direct and reverse drives.

APPLICATION / LIMITATIONS:

The approval status is based on application factor 1,30.

Duty Ratio	Continuous @ 2100 rpm		Medium @ 2300 rpm	
	MCR, kW	Torque, Nm	MCR, kW	Torque, Nm
3.026	435	1978	547	2271.2
3.500	435	1978	547	2271.2
3.968	435	1978	547	2271.2
4.536	435	1978	547	2271.2
4.962	435	1978	547	2271.2
5.458	435	1978	547	2271.2
5.955	435	1978	547	2271.2
6.409	374	1701	478	1984.7

TYPE APPROVAL DOCUMENTATION:

Drawings and calculations approved by CRS with letter: 708/023065 (2011-04-12)
1343/023783 (2015-07-07)
2469/024781 (2019-08-30)

MARKING OF PRODUCT:

- **manufacturer's mark**
- **serial No.**
- **location and year of final fitting**
- **CRS mark**

CONDITIONS FOR CERTIFICATION:

The manufacturer shall make arrangements for the CRS Surveyor to attend the relevant tests and examinations at manufacturer's works or to perform the relevant audits in case an alternative survey scheme has been approved. Relevant CRS certificate for each particular reduction gearbox will be issued after satisfactory completion of the procedure.

Measuring devices, sensors and alarms shall be subject to CRS approval in each particular case and will depend on service applied and the degree of automation of the propulsion plant.