

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Thruster Components

with type designation(s)

Pinions for Thruster Steering

Issued to

Dinamic Oil S.p.A.
Bomporto MO, Italy

is found to comply with

DNV GL rules for classification – Ships

DNV GL rules for classification – High speed and light craft

Application :

Pinions for Thruster Steering (see page 2 for details)

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2018-03-14**

for **DNV GL**

This Certificate is valid until **2023-03-13**.

DNV GL local station: **Venice**

Approval Engineer: **Christof Kotzmann-Bendrien**

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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

Pinions for Thruster Steering

Application/Limitation

Gearbox unit	Gear module	Gearmesh	Max pinion torque (relief valve setting) [kNm]	Max continuous pinion torque [kNm]	Max dynamic pinion torque (auto pilot) [kNm]
RE 810 FS	10	15/99	8,33	5,56	1,39
RE 810 FS	10	15/99	9,40	6,54	1,45

Type Approval documentation

dwg. no. 025710313DNT-00 – Pinion M12 Z15 H231
dwg. no. 025710313-00 – Pinion M12 Z15 H231
dwg. no. 02571022DNT-00 – Pinion M12 Z15
dwg. no. 02571022-00 – Pinion M12 Z15
Gear Data Sheet acc. DNV GL dated 2018-01-30 and dated 2014-01-14

Marking of product

The product 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 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. 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

Slewing ring is included for information only in this certificate and shall be submitted for approval for each installation with relevant gear data sheet for gear calculation.

END OF CERTIFICATE