



Certificate no.:
TAS00004A4

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Gears

with type designation(s)
RE 2523 DBS, RE 4803 DBS1

issued to

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

is found to comply with

DNV standard DNV-ST-0378 – Offshore and platform lifting appliances
DNV standard DNV-ST-0358 – Offshore gangways

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.
Planetary gear units and brakes for slewing and hoist application. Design Temperature, TD, according to above standard -20 degrees Celsius

Issued at **Høvik** on **2024-07-04**

This Certificate is valid until **2029-07-03**.

for **DNV**

DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Peder Bendik Møll**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2023-09

www.dnv.com

Page 1 of 2

Product description

Gearbox Type: RE4803 DBS1
Gear ratio 203.569

Gearbox Type: RE2523DBS1
Gear ratio 141.431

Application/Limitation

The Gearbox type RE4803 DBS1 is approved for the following conditions:

Gear ratio 203.569
Service lifetime 30000hrs
Maximum Static output torque 86600Nm

Load Spectrum	Dynamic torque		
Load case	Output Torque	Output Speed	Running Life
	Nm	rpm	%
I	43300	8	3
II	25980	8	10
III	21650	8	52
IV	12557	8	34.98
V	86600	8	0.02

The Gearbox type RE2523DBS1 is approved for the following conditions:

Gear ratio 141.431
Service lifetime 10000hrs
Maximum Static output torque 36100Nm

Load Spectrum	Dynamic torque		
Load case	Output Torque	Output Speed	Running Life
	Nm	rpm	%
I	18100	10	3
II	10860	10	10
III	9050	10	52
IV	5249	10	34.98
V	36100	10	0.02

Type Approval documentation

Tests carried out

In order to obtain a DNV Product Certificate, the Gearbox shall be tested according to the DNV-ST-0378 Table 14-1 and NDT to be carried out according to DNV-ST-0378 Sec.3.

General Comments

1. The gearboxes have been designed in accordance with the recognised standard ISO 6336 and the min safety factors as per DNV-ST-0378.
2. Load carrying parts shall be manufactured of materials with 3.1 certificates. Traceability is assumed taken care of by the manufacturer's quality system.
3. Gear calculations are based on assumption that optimum hardening depths have been achieved according to recognized standards and manufacturer's experience.
4. Bearings lifetime has not been evaluated. It is assumed the bearings are delivered with sufficient capacity documented.

Marking of product

Each Gearbox is to be marked according to DNV-ST-0378 Sec.14.5

Periodical assessment

For retention of the Type Approval, a DNV Surveyor shall perform periodical assessment after two years (+/- 90 days) and after 3.5 years (+/- 90 days) to verify that the conditions for the approval are complied with. Reference is made to DNV-CP-0338.