Certificate no.:
TAS00004A5

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Winch - General Application

with type designation(s)
SW45V GF ATB

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

Application:

See next page

Issued at **Høvik** on **2024-09-12**
This Certificate is valid until **2029-09-11**.
DNV local unit: **Italy/Malta CMC**

for **DNV**

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.

Product description
Offshore Winch type SW45V GF ATB including gearbox, multidisc negative brakes.

Application/Limitation
The Offshore Winch SWR30 NK2 is approved for the following conditions:

Max static load on Rope, all layers	29430N
Not for personnel lifting	
Dynamic Amplification Factor	1.3
Number of wire layers	3
Wire pitch diameter, outer layer	390mm
Gear ratio, total	21.09
FEM class	M5- L3/T4
Rope diameter	14mm
Minimum design temperature	-20deg

The gearbox is approved for the following conditions:

Stage 1 ratio	4.00
Stage 2 ratio	5.33
Overall ratio	20.332
Service lifetime 6300hrs	
Maximum Static output torque	13622Nm

Load Spectrum Dynamic torque

Load case	Output Torque Nm	Output Speed rpm	Running Life %
I	6660	85.75	25
II	5328	85.75	33
III	4529	85.75	30
IV	333	85.75	11.99
V	12650	85.75	0.01

The brake is approved for the following conditions:

Brake torque	614399 Nmm
Number of brake discs	3
Number of brake springs, disc springs	2

Note:
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. All load-bearing materials are to be delivered with 3.1 certificates, documenting mechanical properties and chemical composition in accordance with the DNV-ST-0378 Sec.3.
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
5. Brake friction factor has not been evaluated, the value is provided by the manufacturer.
6. Control system is not part of the Type Approval
7. Bolts/screws shall be preloaded according to the manufacturer's recommendations.
8. There shall be always min.5 turns of the wire left on the drum at any conditions.

Type Approval documentation

Certification
In order to obtain a DNV Product Certificate, the winch 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.

Marking of product
Each Winch 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.