Certificate no.:
TAS00004GW

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Gears

with type designation(s)
Gearbox for offshore transfer gangway

issued to
Dana Motion Systems Italia S.r.l.
Reggio Emilia RE, **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.

Issued at **Høvik** on **2024-11-20**
This Certificate is valid until **2029-11-19**.
DNV local unit: **Italy/Malta CMC**

for **DNV**

Approval Engineer: **Thomas Henrik Tranesen**

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 USD 300 000.

Product description
SLW25004/277,8 4-stage gearbox intended for offshore transfer gangway mechanism.

Application/Limitation

Min design temperature	-20°C
Overall Ratio	277,825
Radial Load peak (Output):	0,00 (N)
Radial Load peak (Input):	0,00 (N)
FEM class utilization	M8 (T9-L3)
Load spectrum	L3
Gearbox lifetime:	550.8h
Torque, peak	647.89Nm @ 416.74rpm

Duty cycle

Share (%)	Torque (Nm)	speed (rpm)	Power (kW)
5	180.000,00	1,50	28,27
45	132.000,00	1,50	20,74
50	120.000,00	1,50	18,85

Type Approval documentation

Tests carried out
- Materials with 3.1 certificates are to be used when manufacturing load carrying parts. Traceability is assumed taken care of by the manufacturer's quality system.
- Upon final installation of gear unit to foundation/frame the fastening bolts are to be pre-stressed according to procedures acceptable to the attending surveyor. We have assumed that the load carrying bolts are of 8.8 quality or higher where indicated.
- The approval is based on that optimum hardening depths have been achieved according to recognized standards and manufacturer's experience.
- Load distribution factors as stated by the manufacturer have been used and we have not evaluated these.
- Bearing lifetime was evaluated. It is assumed the bearings are delivered documenting sufficient capacity. The relevance of the class of utilization and load spectrum was evaluated.
- After completion, the gears are to be functionally tested prior to issuance of a DNV product certificate.

Marking of product
Each product shall be marked with manufacturer’s name/trademark and type number identification.

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.

END OF CERTIFICATE