DNV·GL

Certificate No:
TAS00000TW

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Winch - General Application

with type designation(s)
Winches KSW550, KSW700 & KSW1000

Issued to
Liebherr-Components Biberach GmbH
Biberach an der Riß, Baden-Württemberg, Germany

is found to comply with
DNV GL standard DNVGL-ST-0378 – Standard for offshore and platform lifting appliances

Application :

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

This Certificate is valid until **2024-01-20**.

Issued at **Høvik** on **2019-01-21**
DNV GL local station: **Augsburg** for **DNV GL**

Approval Engineer: **Antonio Sendin Alvarez**

Aldo Matteucci
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.

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Product description

Winches type KSW550, KSW700 and KSW1000 including gears and brakes.
The line pull figures listed below include a dynamic amplification factor of 1.3
Design temperature: -20 °C

Application/Limitation

1. All materials are to be delivered with 3.1 certificates, documenting mechanical properties and chemical composition in accordance with the type approval documentation.
2. These winches are not intended for personnel lifting.
3. Welding and NDT as specified in the type approval documentation are to be carried out by certified personel.
4. It is the responsibility of the holder of the certificate to ensure that both design and production are in compliance with rules, standards and/or regulations listed on page 1 of this type approval certificate.
5. 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.
6. Our gear calculations are based on that optimum hardening depths have been achieved according to recognised standards and manufacturer's experience. Material fatigue values based on 90% reliability of survival have been applied according to the requirements for lifting appliances in our rules. Load distribution factors as stated by the manufacturer (based on his experience and testing) have been used and we have not considered these.Load distribution factors as stated by the manufacturer (based on Liebherr experience and proven via testing) have been used and we have not considered these.
7. We have not evaluated the bearing lifetime and the bearings chosen are assumed to be delivered documenting sufficient capacity.

Type Approval documentation

Tests carried out

The prototype test is considered not required. In order to obtain a DNV GL Product Certificate, testing is to be carried out according to DNVGL-ST-0378 "Standard for offshore and platform lifting appliances" Ed. May 2016 Table 14-1.

For delivery according to DNVGL-ST-0378, the gear unit is to be function tested according section 14 of the Rules before a DNV GL product certificate can be issued.

Marking of product

The product shall be marked according to the DNVGL-ST-0378 "Standard for offshore and platform lifting appliances" Ed. May 2016 Clause 14.5.

Periodical assessment

For retention of the Type Approval, a DNV GL 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 DNVGL-CP-0338.

END OF CERTIFICATE