

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Windlass**

with type designation(s)

M1 Aluminum Anchor Winch

Issued to

**SDK Industries Co., Inc
Busan, Republic of Korea**

is found to comply with

Det Norske Veritas' Rules for Classification of High Speed, Light Craft and Naval Surface Craft**Application :****The windlass is approved for a synthetic fibre rope diameter of Ø12mm corresponding to chains Ø16mm grade K2 and Ø17.5mm grade K1, with minimum breaking strengths of 150kN and 127kN**This Certificate is valid until **2018-12-31**.Issued at **Høvik** on **2014-12-12**DNV GL local station: **Pusan**Approval Engineer: **Chi Wan Bang**for **DNV GL**

**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.

Certificate No: **S-8453**
File No: **687.50**
Job Id: **262.1-016642-2**

Product description

M1 Aluminum anchor winch for a synthetic fibre rope diameter of Ø12mm corresponding to chains Ø16mm grade K2 and Ø17.5mm grade K1.

A synthetic fibre rope Ø12mm is used and specified rope breaking strength of 15.4 metric tons.

SDK Industries Co., Inc is responsible for manufacturing and assembling the product based on the written acceptance from the owner of the design, NABRICO.

In all cases SDK Industries Co., Inc shall take the sole responsibility for the conformity of the product to the applicable requirements.

Application/Limitation

1. Support and foundation of the windlass to the ship's deck structure are not included in this type approval.
2. Gearbox and motor are not covered by this approval. Electric motors shall comply with the requirements of Pt.4 Ch.8.
3. All materials to be delivered in grades as stated on approved drawings and with certificates according to the rules in question.
4. Welding to be carried out by approved welders and according to approved welding procedures specification. Extent of non-destructive testing of welds to comply with the Rules in question.
5. Load-carrying bolts are to be pre-stressed according to a procedure acceptable to the surveyor and secured to the attending surveyor's entire satisfaction.
6. Steel and aluminium components should be isolated from one another due to risk of corrosion.
7. The Manufacturer is required to have a DNV surveyor witness all important production and test as required.

Type Approval documentation

The following documentation is stamped 2014-12-02 :

Drawing No.	Rev.	Title	Status
M1-000-00	4	DNV TYPE APPROVAL CERTIFICATE CALCULATIONS AND DRAWING SUBMITTAL	Type Approved

Tests carried out

Testing of windlass according to Rules for HSLC (Pt.3 Ch.5, Sec.3) was carried out 09-25-2014, witnessed by DNV Pusan station. Shop test report No. SDK-140925-1.

Marking of product

Each windlass is to be marked with manufacturer's name or trademark and type number identification.

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Periodical assessment

For retention of the Type Approval, DNV GL surveyor shall perform a survey every second year and before expire date of this certificate to verify that the conditions of the type approval are complied with.

END OF CERTIFICATE