

TYPE APPROVAL CERTIFICATE

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

with type designation(s)
Brakes BA-43, BA-63, BA-85, Spare parts for brake BA-84

Issued to

Bosch Rexroth AB
Mellansel, Sweden

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.

Issued at **Høvik** on **2017-12-19**

This Certificate is valid until **2022-12-18**.

DNV GL local station: **Gothenburg**

for **DNV GL**

Approval Engineer: **Antonio Sendin Alvarez**

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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.



Product description

Parking and emergency brakes

Brake cylinder BCI: maximum pressure = 250 bar

Band brake BA-43: minimum static braking torque = 73500 Nm

Band brake BA-63: minimum static braking torque = 96400 Nm

Band brake BA-85: minimum static braking torque = 195599 Nm

Spare parts for BA-84: minimum static braking torque = 195500 Nm

Design temperature: -20 deg

Application/Limitation

1. The friction coefficient = 0.3 has been provided by the manufacturer.
2. The brake shall exert a torque not less than 80% in excess of the maximum torque on the winch caused by the loads being regarded as static loads. The brake capacity must be considered in conjunction with the current dynamic coefficient.
3. Load-bearing materials are to be delivered with 3.1 certificates (EN 10204:2004), to be reviewed by the attending surveyor.
4. The brakes are type approved as single acting brakes only.

Type Approval documentation

Tests carried out

In order to obtain a DNV GL Product Certificate, testing proving that the minimum braking torque is reached to be witnessed by the DNV GL surveyor.

Marking of product

Each brake shall be marked according to DNVGL-ST-0378 Sec. 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