

TYPE APPROVAL CERTIFICATE

This is to certify:

That the RPM sensor

with type designation(s)

Digital tachometer sensor/ Incremental encoder HOG 11/11G, Encoder MHGX xxx xx xxxx

Issued to

**Baumer Hübner GmbH
BERLIN, Germany**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Type	Temperature	Humidity	Vibration	EMC	Enclosure
Encoder HOG 11/11G					
Encoder MHGX xxx xx xxxx	D	B	B	B	C

This Certificate is valid until **2021-11-30**.

Issued at **Hamburg** on **2016-12-01**

DNV GL local station: **Magdeburg**

Approval Engineer: **Didier Girardin**

for **DNV GL**

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Duy Nam Le
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

Designation	Type
Optical Incremental encoder	HOG 11 HOG11G (Twin encoder)
Magnetic rotary encoder ²⁾	MHGX xxx xx xxxx ¹⁾

¹⁾ "X" is an placeholder for variable configurations of the same product. For example, wheel size, magnetic pole width wheel fixing and bore diameter.

²⁾ Rotary encoder for detection of speed and position of shafts (Sensor head and wheel)

Application/Limitation

The Type Approval covers hardware listed under Product description. When the hardware is used in applications to be classed by DNV GL, documentation for the actual application is to be submitted for approval by the manufacturer of the application system in each case by inclusion in an instrument list. Reference is made to DNV GL Rules for Ships Pt.4 Ch.9 Control and Monitoring System.

Type Approval documentation

HOG 11/ HOG11G

Drawing HM03M26490 rev. b

Technical data sheet 2012-11-08

Environmental Test Report Aucoteam 4535 / 04

EMC Test Report D/08/3511/21 dated 2012-08-21

Installation and operating instructions MB072c 16A2

DNV GL Hamburg periodical assessment report for A-12921 + A-14045, dated 2016-11-27.

MHGX xxx xx xxxx

Drawing HM08M28799 g, 2014-03-24

Technical data sheet Encoders without bearing No. MHGE 200- HDmag, 2016-09-06

01 Function Description dated 2010-09-15

02 Definition of Model Series dated 2010-09-15

03 to 09 Tests performed at Baumer dated 2010-09-15

Aucoteam Test report No. 7996.01/10 dated 2010-08-25

Aucoteam Test report No. 7996.02/10 dated 2010-09-01

Aucoteam Test report No. 7996.03/10 dated 2010-09-08

Aucoteam Test report No. 7996.04/10 dated 2010-09-08

EMC Test Report D/08/3511/04 dated 2008-08-07 (for information only)

EMC Test Report D/08/3511/16 dated 2010-07-21

Installation and operating instructions magnetic rotary encoder No.

MHGE 200 ... MB201T1-(16A3), 2016-09-08

DNV GL Hamburg periodical assessment report for A-12921 + A-14045, dated 2016-11-27.

Tests carried out

Applicable tests according to DNV Standard for Certification No. 2.4, April 2006.

Marking of product

The products to be marked with:

- Type name
- Manufacturer name
- Serial number

Job Id: **262.1-006268-5**
Certificate No: **TAA00000WS**

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the type are complied with, and that no alterations are made to the product design or choice of systems, software versions, components and/or materials.

The main elements of the assessment are:

- Ensure that type approved documentation is available
- Inspection of factory samples, selected at random from the production line (where practicable)
- Review of production and inspection routines, including test records from product sample tests and control routines
- Ensuring that systems, software versions, components and/or materials used comply with type approved documents and/or referenced system, software, component and material specifications
- Review of possible changes in design of systems, software versions, components, materials and/or performance, and make sure that such changes do not affect the type approval given
- Ensuring traceability between manufacturer's product type marking and the type approval certificate

Periodical assessment is to be performed at least every second year and at renewal of this certificate.

END OF CERTIFICATE