DNV·GL

Certificate No:
TAM00000XA

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Elastic Couplings

with type designation(s)
CENTAMAX - Types S, HTC and B

Issued to
CENTA Antriebe Kirschey GmbH
Haan, Nordrhein-Westfalen, Germany

is found to comply with
DNV GL rules for classification – Ships
DNV GL rules for classification – High speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Hamburg** on **2018-07-02**
This Certificate is valid until **2023-07-01**.
DNV GL local station: **Essen**

Approval Engineer: **Wolfgang Schütz**

for **DNV GL**

Burkhard Lilienthal
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Product description

Flexible natural rubber , Centalan HT and silicone couplings CENTAMAX type S, type HTC and type B.

The approval is also valid for the following Centamax coupling with flange housing for MTU engines:

FH-00-A-CM-10000	MTU 8V4000 M63
FH-00-A-CM-12000	MTU 12V4000 M63
FH-00-A-CM-18000	MTU 16V4000 M63

Application/Limitation

The couplings are approved for auxiliary and propulsion duty. Ratings and coupling charateristics according to catalogues CENTAMAX Rev. CM-EN-01-17 and D004-078 and with the limitations given below.

Permissible damping power and other coupling characteristics to be adjusted for the actual application according to the guidelines given in the approved catalogue.

Couplings for single propulsion plants have either to be fitted with an emergency claw device or other approved arrangement which could be monitoring and alarm system according to RU-Ships Pt.4, Ch.4, Sec.5 [5].

Maximum ambient temperature : 70°C for natural rubber couplings, 100°C for Centalan HT and 100°C for silicone couplings.

T_{KN} means the nominal torque. i.e. average torque which can be transmitted continuously over the entire speed range.

T_{kmax1} means the temporary peak torque (e.g. passing through resonances, clutching in, etc.). T_{kmax1} may occur 50.000 times alternating or 100.000 times swelling).

Type Approval documentation

Tests carried out

Type Testing Report dated 90-08-10 with amendments dated 1991 and test reports for CM 2600 and CM 5000 with silicone elements dated 98-04-02 and 98-04-01.
V-CM-03/08E – Test report dated 2008-01-18 – Power loss
V-CM-07/116E – Test report
V-CM-12/06E – Test report
V-CM-16/06E – Test report
V-CM-012/06E - Test report CM-18000-72 Sh dated 2006-10-25
V-CM-016/06E - Test report CM-8000-72 Sh dated 2006-10-31
V-CM-003/08E - Test report CM-5600-60 Sh HTC dated 2008-01-18
V-CM-007/11E - Test report CM-5000-75 Sh dated 2011-02-21
V-CM-001-17 - Test report CM-18000-80 Sh Centalan HT dated 2017-06-19

Marking of product

The product to be marked with manufacturer’s name or trademark and type number identification

Periodical assessment

For retention of the Type Approval, a DNV GL surveyor shall perform an assessment after 2 years and after 3.5 years to verify that the conditions of the Type Approval are complied with. A renewal assessment will be performed at renewal of the certificate.

The objective of the Periodical Assessment is to verify that the conditions for the Type Approval are not altered since the Type Approval Certificate was issued. The main scope of the Periodical Assessment will normally include:

- Verification of the Type Approval applicant's production and quality system w.r.t. ensuring continued consistent production of the Type Approved products at the Type Approval applicant's own premises and at other companies that are given the responsibility for manufacturing of the products
- Review of the Type Approval documentation and that this is still used as basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

In cases where the Type Approved product is manufactured at other companies, the Periodical Assessment shall verify that the Type Approval applicant has a quality control system for consistent production at their licensees/subcontractors. Furthermore Periodical Assessment shall be carried out randomly at these companies.

When a Type Approved product is manufactured at other companies, the Type Approval applicant takes the sole responsibility for the conformity of the product to the applicable requirements.

Other conditions

DNV GL Product certificate is not required for couplings for auxiliary/emergency duty with power rating below 500 kW and rated torque less than 5 kNm.

This certificate replaces DNV certificate no. M-12378 and GL certificate no. 15 653 - 00 HH.

END OF CERTIFICATE