

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Frequency Converter

with type designation(s)
A1000

Issued to

Yaskawa Europe GmbH
Eschborn, 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.

Issued at **Hamburg** on **2018-07-03**

This Certificate is valid until **2023-07-02**.

DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Carsten Hunsalz**

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Arne Schaarmann
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

Type: A1000

Rated input voltage: 200V 3AC
Overvoltage category III, $U_i = 300V$, Rated impulse withstand voltage U_{imp} : 4kV
Rated output current (HD) : 3,2A up to 415A with overl.cap. 150% for 1 min.
Rated output current (ND) : 3,5A up to 415A with overl. cap. 120% for 1 min.

Rated input voltage: 400V 3AC
Overvoltage category III, $U_i = 600V$, Rated impulse withstand voltage U_{imp} : 6kV
Rated output current (HD) : 1,8A up to 605A with overl. cap.150% for 1 min.
Rated output current (ND) : 2,1A up to 675A with overl. cap.120% for 1 min.

Application/Limitation

Degree of Protection: IP00, IP20, IP54
Pollution degree 2
Manufacturers EMC instructions to be observed.
EMC IT grid filters: Block HLD810-500 and HLD 803-500 series

Location Classes:
Temperature: B, Humidity: B, Vibration: A, EMC: A

Type Approval documentation

Test report : Serviceforce.Com GmbH: No. SFC_063_12E, No. SFC_064_12E, No. SFC_065_12E, No. SFC_066_12E, TÜV Süd: No.73517439, No. 73521751

Tests carried out

GL Guidelines for the Performance of Type Approvals Chapter 2, Edition 2012
IEC 61800-5-1 (2007)

Marking of product

Yaskawa - Type designation – Output – Input – IP degree

Place of Production

Yaskawa Electric Corporation, Yukuhashi and Yaskawa Electric UK Ltd, Glasgow

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE