

# 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**

for **DNV GL**

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

DNV GL local station: **Augsburg**

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