

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Frequency Converter**with type designation(s)
ACS880-01

Issued to

**ABB Oy, Drives
Helsinki, Finland**is found to comply with
DNV GL rules for classification – Ships and offshore units**Application :****Frequency converters for use in marine and offshore applications.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.**Issued at **Høvik** on **2020-04-03**for **DNV GL**This Certificate is valid until **2025-04-01**.DNV GL local station: **Finland CMC**Approval Engineer: **Tommi Juhani Rifaat**

**Marta Alonso Pontes
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Product description

- I) ACS880-01 (with option +C132) frequency converter. Option +C132 denotes marine approved option package.

Power*	Input Voltage	Output voltage	Output frequency	Ingress Protection**
0,55 – 250 kW	3~230 V 3~400 V 3~440 V 3~500 V 3~690 V	0 - U_{input}	0-500Hz	IP 20/21/55

* Max. applicable motor output to be de-rated according to ABB document 3AXD50000010521 Rev A (EN)

** Limitation of location on the vessels applies for the IP20 and IP21 enclosure, see below.

Application/Limitation

Electro Magnetic Compatibility:

- EMC filter option E200, E202 to be used in TN-system.
- EMC filter option E201 to be used in IT-system.

Converter to be installed in "special distribution zone" and "general power distribution zone", in accordance with IEC 60533 provided measures are taken to attenuate these effects on the distribution system.

EMC in the range 2 GHz to 6 GHz according to DNVGL-CG-0339, December 2019 has not been documented. EMC up to 6 GHz must additionally be documented for installation on ships contracted for construction on or after 2022-01-01

Pollution degree:

To be installed in an enclosure with an IP degree in accordance with DNV GL Rules w.r.t. location. IP 20 and 21 versions are limited to be used in pollution protected rooms (maximum pollution degree II).

Vibration:

Vibration dampers (Option +C131) are to be used as specified by manufacturer.

Product certification:

Frequency converters larger than 100kW serving important or essential equipment is subjected for additional case by case based product certification. Documents for the actual application are to be submitted for approval in each case in accordance with DNV GL Rules Pt.4, Ch.8, Sec.1, Table 2 including reference to this type approval certificate and confirmation that the correct marine options and power ratings are used.

Job Id: **262.1-019525-4**
Certificate No: **TAE00000SJ**
Revision No: **2**

Type Approval documentation

ABB test reports nos. 3AXD10000508543 dated 2016-06-01, 03AXD10000603111 dated 2017-03-31, 3AXD10000603369 dated 2017-06-20, 3AXD10000613080 dated 2017-05-12, 3AXD10000614135 dated 2017-05-17, 3AXD10000637143 dated 2017-08-14, 3AXD10000665893 dated 2017-11-10.
SGS test reports nos (EMC). 285151-2-1 & 285151-2-2 dated 2016-11-22, 290245-1-1 dated 2017-09-29 290542-1 dated 2018-01-02.
SGS Fimko Ltd test report no. 286948-1 dated 2017-08-08
VTT test reports no VTT-S-03562-17 dated 2017-06-20.
Test reports as per ABB document 3AXD10000114572.
Voltage updating in accordance with ABB letter dated 2015-09-22.

Tests carried out

General type tests in accordance with IEC 61800-1 and 61800-5-1 including Full Current Test and Heat run test.

Environmental tests including Power Supply Variation, Power Supply Failure, Dielectric, EMC (immunity and emission), Vibration, Low temperature and Damp heat.

Marking of product

ABB Oy – Type designation – Output – Input – IP degree

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type Approval is 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 Routines (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.

Assessment to be performed at 2 and 3.5 year and at renewal.