



TYPE APPROVAL CERTIFICATE

Certificate No:
TAE00000MS
Revision No:
3

This is to certify:

That the Frequency Converter

with type designation(s)
ACS880-04

Issued to
ABB Oy, Drives
Helsinki, Finland

is found to comply with
DNV 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.

Issued at **Høvik** on **2022-11-28**

for **DNV**

This Certificate is valid until **2025-10-29**.

DNV local unit: **Finland CMC**

Approval Engineer: **Andreas Andrecht**

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 AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") 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

The ACS880-04 is a drive module for controlling asynchronous AC induction motors, permanent magnet motors, AC induction servomotors and ABB synchronous reluctance motors (SynRM motors)

Type code designation +C132 for marine applications.

Voltage:	400V – 690V
Voltage tolerance:	Steady state $\pm 10\%$, transient state -15% to +20% of nominal AC voltage
Frequency:	50/60 Hz
Frequency tolerance:	Steady state $\pm 5\%$, transient state $\pm 10\%$
Ambient temperature:	0-45°C
Humidity:	0-95%, no condensation
Vibration class:	A
EMC class:	IEC 61800-3 (see application limitation)

RATING (at 45°C)									
Drive type ACS880-04-	Frame size	Input rating	Max. current	Output ratings					
				Nominal use		Light-overload use		Heavy-duty use	
				I_N	P_N	I_{Ld}	P_{Ld}	I_{Hd}	P_{Hd}
		A	A	A	kW	A	kW	A	kW
$U_N = 400\text{ V}$ (Range 380...415 V)									
505A-3	R10	480	560	480	250	461	250	343	160
585A-3	R10	556	730	556	315	550	315	408	200
650A-3	R10	621	730	621	355	602	315	453	250
725A-3	R11	689	1020	689	355	679	355	538	250
820A-3	R11	779	1020	779	400	770	400	594	315
880A-3	R11	836	1100	836	450	822	450	689**	355
$U_N = 500\text{ V}$ (Range 380...500 V)									
460A-5	R10	437	560	437	250	428	250	314	200
503A-5	R10	480	560	478	315	459	315	343	200
583A-5	R10	556	730	554	355	544	355	393	250
635A-5	R10	618	730	603	400	592	400	453	315
715A-5	R11	689	850	679	450	670	450	538	355
820A-5	R11	779	1020	779	500	767	500	594	400
880A-5	R11	836	1100	836	560	814	560	662	450
$U_N = 690\text{ V}$ (Range 525...690 V)									
330A-7	R10	314	480	314	250	304	250	242	200
370A-7	R10	352	520	352	315	342	315	309	250
430A-7	R10	409	520	409	400	399	355	342*	315
470A-7	R11	447	655	447	400	432	400	394	355
522A-7	R11	496	655	496	450	480	450	432	400
590A-7	R11	561	800	561	500	542	500	480	450
650A-7	R11	618	820	618	560	599	560	542*	500
721A-7	R11	685	820	685	630	670	630	542*	500

U_N	Supply voltage range
I_{1N}	Nominal input current (rms)
I_{max}	Maximum output current. Available for 10 seconds at start, otherwise as long as allowed by drive temperature
I_N	Continuous rms output current. No overload capability
P_N	Typical motor power in no-overload use
I_{Ld}	Continuous rms output current allowing 10% overload for 1 minute every 5 minutes
P_{Ld}	Typical motor power for light-overload use
I_{Hd}	Continuous rms output current allowing 50% overload for 1 minute every 5 minutes
*	Continuous rms output current allowing 44% overload for 1 minute every 5 minutes
**	Continuous rms output current allowing 40% overload for 1 minute every 5 minutes
P_{Hd}	Typical motor power for heavy-duty use

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 DNV-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 Rules w.r.t. location. IP 20 and 21 versions are limited to be used in pollution protected rooms (maximum pollution degree II).

Product certification:

Frequency converters larger than 100kW serving important or essential equipment are 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 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.

Type Approval documentation

Techdocs in job ID [262.1-020129-1/-2](#)

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

Additional place of production

ABB Beijing Drive Systems Co. Ltd.

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 periodical 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.

Periodical assessment to be performed at least every second year.