

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Contactor**

with type designation(s)
VSC 7..., VSC 12...,

Issued to

ABB S.p.A. - Distribution Solutions
Dalmine, BG, Italy

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.

Type	Rated voltage (V)	Rated current (A)	Frequency (Hz)
VSC 7..., VSC 12...	7200 & 12000	400	50 / 60

Issued at **Hamburg** on **2018-09-21**

This Certificate is valid until **2023-09-20**.

DNV GL local station: **Milan**

for **DNV GL**

Approval Engineer: **Harald Amberger**

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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

Contact VSC 7 and Contact VSC 12 medium voltage vacuum contactors with models as listed below:

Type:	Description
VSC 7 and VSC 12	Fixed contactor with permanent magnets
VSC 7/P and VSC 12/P	Withdrawable contactor with permanent magnets for UniGear
VSC 7/PN and VSC 12/PN	Withdrawable contactor with permanent magnets for UniGear Motor Control Center (MCC)

Electrical characteristics:

	VSC 7, VSC 7/P VSC 7/PN	VSC 12, VSC 12/P VSC 12/PN
Rated voltage, U_r [kV]	7,2	12
Rated current, I_e [A]	400*	400*
Impulse withstand voltage, U_i [kV]	60	75
Rated frequency, [Hz]	50 - 60	50 - 60
Short-time current for 1s [A]	6000	6000
Short-time current for 30s [A]	2500	2500
Rated breaking capacity [A]	4000	4000
Rated making capacity [A]	4000	4000
- opening operations [No.]	25	25
- closing operations [No.]	100	100
Utilisation category	AC-4	AC-4
Coupled fuses [A]	63 - 315	63 - 200
Type of electronic board of actuator	MAC ED1 or MAC R2	

*Depending of the size of the coordinated fuse

Application/Limitation

The medium voltage contactors are to be installed according to DNVGL Rules for Ships and offshore units.

Type Approval documentation

Tests carried out

Electrical tests according to IEC 62271-106 and IEC 62271-1:

Temperature tests, mechanical endurance, rated making and braking capabilities, three-phase single and back-to-back capacitor bank breaking tests.

Environmental tests:

Insulation resistance, power supply variation, power supply failure, high voltage, static inclination, dynamic inclination, humidity test, dry heat test, vibration test, EMC Class A.

Marking of product

Acc. IEC 62271-106 subclause 5.10

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