Certificate No:
TAE00004TT

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Contactor

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

Issued to
ABB S.p.A.
Dalmine BG, **Italy**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Products approved by this certificate are accepted for installation on all vessels classed by DNV

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

Issued at **Høvik** on **2024-06-17**
This Certificate is valid until **2029-06-16**.
DNV local unit: **Italy/Malta CMC**

for **DNV**

Approval Engineer: **Nicolay Horn**

Frederik Tore Elter
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

Medium Voltage Vacuum Contactors fixed and withdrawable type ConVac listed below:

Type:	**Description**
ConVac 7 and ConVac 12	Fixed contactor
ConVac 7/P	Withdrawable contactor

Electrical characteristics:

		ConVac 7 / ConVac 7/P	ConVac 12
Rated voltage, U_r	[kV]	7,2	12
Rated current, I_e	[A]	400*	400*
Impulse withstand voltage, Ui	[kV]	60	75
Rated frequency,	[Hz]	50 / 60	50 / 60
Short-time current for 1s	[A]	6000	6000
Short-time current for 30s	[A]	2400	2400
Rated breaking capacity	[A]	5000	6000
Rated making capacity	[A]	13000	15600
Utilisation category		AC-4	AC-4
Coupled fuses	[A]	63 - 315	63 - 200
Type of electronic board of actuator		DU 110÷125V and DU 220÷240V	

*Depending of the size of the coordinated fuse

Application/Limitation

The medium voltage contactors are to be installed according to DNV 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 6.11

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