TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE00000DY
Revision No:
2

This is to certify:

that the Contactor

with type designation(s)
AF contactors

issued to
ABB Electrification Sweden AB, Motor Starting & Safety
Västerås, **Sweden**

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.

Rated voltage (V)	**400 - 1000**
Rated current (A)	**160 - 600**
Frequency (Hz)	**50 - 60**

Issued at **Høvik** on **2024-07-05**
This Certificate is valid until **2029-04-08**.
DNV local unit: **Sweden CMC**

for **DNV**

Approval Engineer: **Nicolay Horn**

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.

Name and place of manufacturer

ABB AB, Control Products Västerås, Sweden	ABB Xinhui Low Voltage Switchgear Co. Ltd Xinhui, China
ABB INDIA LIMITED Bangalore Karnataka 562123 INDIA	

Product description

Low voltage contactors

Technical data 3-pole:

Contactor type		**AF116-30**				**AF140-30**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	160				200			
Utilization category		AC3			AC1	AC3			AC1
Ambient temperature	°C	-	60	60	40	-	60	60	40
Rated operational voltage (U_e)	U	-	690	440	690	-	690	440	690
Rated operational current (I_e)	I	-	65	116	160	-	80	140	200

Contactor type		**AF146-30**				**AF190-30**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	225				275			
Utilization category		AC3			AC1	AC3			AC1
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U_e)	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I_e)	I	60	93	146	225	85	135	190	250

Contactor type		**AF205-30**				**AF265-30**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	350				400			
Utilization category		AC3			AC1	AC3			AC1
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U_e)	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I_e)	I	100	165	205	275	113	250	265	350

Contactor type		**AF305-30**				**AF370-30**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	500				600			
Utilization category		AC3			AC1	AC3			AC1
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U_e)	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I_e)	I	131	290	305	375	141	315	370	400

Technical data 4-pole:

Contactor type		**AF116-40**				**AF140-40**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	160				200			
Utilization category		AC3	AC1			AC3	AC1		
Ambient temperature	°C	60	40	60	-	60	40	60	-
Rated operational voltage (U_e)	U	440*	690	690	-	440*	690	690	-
Rated operational current (I_e)	I	116	160	145	-	140	200	175	-

Contactor type		**AF190-40**				**AF205-40**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	275				350			
Utilization category		AC3	AC1			AC3	AC1		
Ambient temperature	°C	60	40	60	40	60	40	60	40
Rated operational voltage (U_e)	U	440*	690	690	1000	440*	690	690	1000
Rated operational current (I_e)	I	190	275	250	250	205	350	300	275

Contactor type		**AF265-40**				**AF305-40**			
Rated insulation voltage (U_i)	V	1000				1000			
Rated impulse withstand voltage	kV	8				8			
Rated Frequency	Hz	50/60				50/60			
Degree of protection	IP	00				00			
Rated thermal current (I_{th})	A	400				500			
Utilization category		AC3	AC1			AC3	AC1		
Ambient temperature	°C	60	40	60	40	60	40	60	40
Rated operational voltage (U_e)	U	440*	690	690	1000	440*	690	690	1000
Rated operational current (I_e)	I	265	400	350	350	305	500	400	375

Contactor type		**AF370-40**			
Rated insulation voltage (U_i)	V	1000			
Rated impulse withstand voltage	kV	8			
Rated Frequency	Hz	50/60			
Degree of protection	IP	00			
Rated thermal current (I_{th})	A	525			
Utilization category		AC3	AC1		
Ambient temperature	°C	60	40	60	40
Rated operational voltage (U_e)	U	440*	690	690	1000
Rated operational current (I_e)	I	370	525	425	400

* The voltage range is from 220 V to 440V

Technical data auxiliary contacts:

Auxiliary contacts CAL19	1(2)NO + 1(2)NC
Rated control circuit voltage	24 – 690 V AC
Rated impulce withstand voltage Uimp	6 kV
Conventional thermal current Ith	16 A

Rated control supply voltage, Uc: 24-500VAC / 20-500VDC
100-500VAC/DC with PLC

Type Approval documentation

Tests carried out

Type tests according to IEC 60947-4-1 Sequence I and II, Power supply variations, Inclination test, Vibration test, Insulation resistance test, Damp heat test, Dry heat test, Low temperature test and high voltage test.

Marking of product

ABB – Type designation – Rated voltage – Breaking capacity.

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 survey are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routines (RT) checked (if not available tests according 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.

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

END OF CERTIFICATE