DNV·GL

Certificate No:
TAE00000DY

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Contactor

with type designation(s)
AF contactors

Issued to
ABB AB
Västerås, Sweden

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Rated Voltage (V)	**400 - 1000**
Rated Current (A)	**160 - 600**
Frequency (Hz)	**50 - 60**

This Certificate is valid until **2018-12-31**.

Issued at **Høvik** on **2015-09-23**

DNV GL local station: **Stockholm** for **DNV GL**

Approval Engineer: **Nicolay Horn**

Marit Laumann
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.

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Job Id: **262.1-016617-3**
Certificate No: **TAE00000DY**

Name and place of manufacturer

ABB AB, Control Products Västerås, Sweden	ABB Xinhui Low Voltage Switchgear Co. Ltd Xinhui, China

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	100	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	100	290	305	375	100	315	370	400

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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 Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and 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 least every second year.

END OF CERTIFICATE