

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Contactor**with type designation(s)  
**AF contactors**

Issued to

**ABB AB**  
**Västerås, Västmanlands Län, Sweden**is found to comply with  
**DNV GL 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 GL.****Rated voltage (V) 400 - 1000****Rated current (A) 160 - 600****Frequency (Hz) 50 - 60**Issued at **Høvik** on **2019-01-10**for **DNV GL**This Certificate is valid until **2023-12-31**.DNV GL local station: **Stockholm**Approval Engineer: **Nicolay Horn**

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**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.



Job Id: **262.1-016617-4**  
 Certificate No: **TAE00000DY**  
 Revision No: **1**

## Name and place of manufacturer

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

Low voltage contactors

Technical data 3-pole:

Contactor type		AF116-30				AF140-30			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	160				200			
Utilization category		AC3		AC1	AC3		AC1		
Ambient temperature	°C	-	60	60	40	-	60	60	40
Rated operational voltage (U <sub>e</sub> )	U	-	690	440	690	-	690	440	690
Rated operational current (I <sub>e</sub> )	I	-	65	116	160	-	80	140	200

Contactor type		AF146-30				AF190-30			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	225				275			
Utilization category		AC3		AC1	AC3		AC1		
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U <sub>e</sub> )	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I <sub>e</sub> )	I	60	93	146	225	85	135	190	250

Contactor type		AF205-30				AF265-30			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	350				400			
Utilization category		AC3		AC1	AC3		AC1		
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U <sub>e</sub> )	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I <sub>e</sub> )	I	100	165	205	275	100	250	265	350

Contactor type		AF305-30				AF370-30			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	500				600			
Utilization category		AC3		AC1	AC3		AC1		
Ambient temperature	°C	60	60	60	40	60	60	60	40
Rated operational voltage (U <sub>e</sub> )	U	1000	690	440	1000	1000	690	440	1000
Rated operational current (I <sub>e</sub> )	I	100	290	305	375	100	315	370	400

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Technical data 4-pole:

<b>Contacteur type</b>		<b>AF116-40</b>				<b>AF140-40</b>			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	160				200			
Utilization category		AC3		AC1		AC3		AC1	
Ambient temperature	°C	60	40	60	-	60	40	60	-
Rated operational voltage (U <sub>e</sub> )	U	440*	690	690	-	440*	690	690	-
Rated operational current (I <sub>e</sub> )	I	116	160	145	-	140	200	175	-

<b>Contacteur type</b>		<b>AF190-40</b>				<b>AF205-40</b>			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	275				350			
Utilization category		AC3		AC1		AC3		AC1	
Ambient temperature	°C	60	40	60	40	60	40	60	40
Rated operational voltage (U <sub>e</sub> )	U	440*	690	690	1000	440*	690	690	1000
Rated operational current (I <sub>e</sub> )	I	190	275	250	250	205	350	300	275

<b>Contacteur type</b>		<b>AF265-40</b>				<b>AF305-40</b>			
Rated insulation voltage (U <sub>i</sub> )	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 <sub>th</sub> )	A	400				500			
Utilization category		AC3		AC1		AC3		AC1	
Ambient temperature	°C	60	40	60	40	60	40	60	40
Rated operational voltage (U <sub>e</sub> )	U	440*	690	690	1000	440*	690	690	1000
Rated operational current (I <sub>e</sub> )	I	265	400	350	350	305	500	400	375

<b>Contacteur type</b>		<b>AF370-40</b>			
Rated insulation voltage (U <sub>i</sub> )	V	1000			
Rated impulse withstand voltage	kV	8			
Rated Frequency	Hz	50/60			
Degree of protection	IP	00			
Rated thermal current (I <sub>th</sub> )	A	525			
Utilization category		AC3		AC1	
Ambient temperature	°C	60	40	60	40
Rated operational voltage (U <sub>e</sub> )	U	440*	690	690	1000
Rated operational current (I <sub>e</sub> )	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 impulse withstand voltage U <sub>imp</sub>	6 kV
Conventional thermal current I <sub>th</sub>	16 A

Rated control supply voltage, U<sub>c</sub>: 24-500VAC / 20-500VDC  
 100-500VAC/DC with PLC

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## Type Approval documentation

### Technical info:

« Technical data for AF-contactors » and « Technical data for AF-contactors (4-pole) updated.

### Test reports:

Intertek type test reports no. 1411354VAS-001, 1411356VAS-001 & 1411357VAS-001 issued 2014-09-23. Intertek EMC Test Reports no. 1220391-1 / 2/ 3 Ed 1 issued 2012-10-16, no. 1307371-1 Ed 1 issued 2013-06-24.

Intertek test reports nos. 1314307-1, 1314307-3 & 1314307-4 issued 2014-04-11

DELTA test reports REC-E703770\_1 & REC-E703770\_2 dated 2014-01-07, Intertek- SEMCO test report nos. 1215933-1, 1215933-2 dated 2012-09-26, 1220489 dated 2013-01-23, 1301147-1 dated 2013-03-04. 1308699-1 dated 2013-07-04 and 1314369 dated 2013-12-18

## 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