

MARINE DIVISION

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Certificate number: 11727/B0 BV

File number : ACE 02/034/13

Product code : 2634H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

TYPE APPROVAL CERTIFICATE

as per Bureau Veritas Classification Rules

This certificate is issued to

ABB AB, Cewe-Control

Västerås - SWEDEN

for the type of product

CONTACTORS (LOW VOLTAGE)

AF-Series: AF 400 - AF 460 - AF 580 and AF 750.

Regulations and standards :

Bureau Veritas Rules for the Classification of Steel Ships.
IEC 60947-1 - IEC 60947-4-1.

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements of the Regulations and standards mentioned above.

This certificate is valid until : 02 Dec 2013

At Neuilly, on : 02 Dec 2008

For BUREAU VERITAS,
By order of the Secretary

Approval office

Local office : BV GOTHENBURG
Surveyor : M. Moller

L.COURREGELONGUE



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine Division. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Contactor type: AF400, AF460, AF580 and AF750.

- Rated voltage: 400 to 690 VAC
- Frequency: 50 - 60 Hz
- Rated current: Refer to table
- Number of poles: 3
- Rated insulation voltage (Ui): 1000V
- Rated impulse withstand voltage (Uimp): 8 kV
- Terminal material: Cu/Sn

CONTACTOR TYPE	Utilization Category	Operational Voltage - Ue (in VAC)	Operational Current - Ie (in A)	Remarks
AF 400	AC-1		= I _{The} : 500A	
	AC-3	400 VAC	400 A	
	AC-3	440 VAC	400 A	
	AC-3	690 VAC	350 A	
AF 460	AC-1		= I _{The} : 600A	
	AC-3	400 VAC	460 A	
	AC-3	440 VAC	460 A	
	AC-3	690 VAC	400 A	
AF 580	AC-1		= I _{The} : 700A	
	AC-3	400 VAC	580 A	
	AC-3	440 VAC	580 A	
	AC-3	690 VAC	500 A	
AF 750	AC-1		= I _{The} : 760A	
	AC-3	400 VAC	750 A	
	AC-3	440 VAC	750 A	
	AC-3	690 VAC	650 A	

2. DOCUMENTS AND DRAWINGS :

Manufacturer's catalogue n° 1SBC 0094 00 R1001.
Documents are filed in ACE 02/034/13.

3. TEST REPORTS :

- Type Tests: Refer to SEMKO test reports n° 0138172/01 on 02/10/2001 (AF 400), 0004129 and 004130 on 04/07/2001 (AF 460), 0138173/01 on 02/10/2001 (AF 580), 0033085 and 0033083 on 29/03/2001 (AF 750).
- Electromagnetic Tests: Refer to DELTA Development Technology AB test reports n° REC-020A07 on 19/06/2000 and REC-035A07 on 09/11/2000.
- Mechanical and environmental tests: Refer to SEMKO test report n° 0208170/1 dated on 22/05/2002.

4. APPLICATION / LIMITATION :

- According to BV Rules for the Classification of Steel Ships.
- IEC 60947 series.

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The Contactors **AF 400, AF 460, AF 580 and AF 750** are to be manufactured, examined and tested by **ABB AB, Cewe-Control** in accordance with the type described in this certificate and Bureau Veritas Rules for the Classification of Steel Ships.

5.2 - Production sites are to be recognized by Bureau Veritas as per NR320 for HBV products. To this end **ABB AB, Cewe-Control** has to make the necessary arrangements for a Society's Surveyor to perform visits and product audits at the production sites.

5.3 - **ABB AB, Cewe-Control** has declared to Bureau Veritas that the type of product described in this certificate are manufactured at the following production site :

ABB AB, Cewe-Control
Motorgränd 20
Västerås
S-721 61 Västerås
SWEDEN

6. MARKING OF PRODUCT :

- According to IEC 60947 specifications.
- Trade mark ABB.

7. OTHERS :

7.1 - This approval is given on the understanding that the manufacturers **ABB AB, Cewe-Control** will accept full responsibility for informing shipbuilders or their sub-contractors of the proper methods of fitting and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This Certificate supersedes The Type Approval Certificate n° 11727/A0 BV issued on 24/01/2003 by the Society.

*** END OF CERTIFICATE ***