

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Circuit Breaker**with type designation(s)
MS 116

Issued to

ABB Stotz-Kontakt GmbH
HEIDELBERG, Germany

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****For installations inside switchboards / enclosures onboard ships and offshore units****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Rated voltage (V) 600 (690) AC****Rated current (A) 0.1 - 32**Issued at **Hamburg** on **2018-03-15**This Certificate is valid until **2023-03-14**.for **DNV GL**DNV GL local station: **Augsburg**Approval Engineer: **Thomas Hartmann**

Arne Schaarmann
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: **262.1-012289-3**
Certificate No: **TAE00002D1**

Name and place of manufacturer

ABB Stotz-Kontakt GmbH
HEIDELBERG, Germany

ABB Xinhui Low Voltage Switchgear Company Ltd
529100, JiangMen, Guangdong, China

Product description

Motor protection circuit breaker type: MS 116

Rated Voltage U_e : 600 (690)* V AC / 440 V DC

$U_{imp} = 6$ kV

Rated frequency: 40 - 60 Hz

Utilisation category: AC3

Tripping values, rated switching capacity:

Thermal tripping, setting ranges (A)	Instantaneous tripping range (A)	Rated short circuit capacity I_{cs} at $U_e=380/400$ V (kA)	Rated short circuit capacity I_{cs} at $U_e=440$ V (kA)	Rated short circuit capacity I_{cs} at $U_e=500$ V (kA)	Rated short circuit capacity I_{cs} at $e=690$ V* (kA)
0,1 - 0,16	1,25 - 1,87	50	50	30	30
0,16 - 0,25	1,95 - 2,93	50	50	30	30
0,25 - 0,4	3,12 - 4,68	50	50	30	30
0,4 - 0,63	4,91 - 7,37	50	50	30	30
0,63 - 1	9,20 - 13,80	50	50	30	30
1 - 1,6	14,72 - 22,08	50	50	30	30
1,6 - 2,5	23,00 - 34,50	50	10 / 25**	10 / 25**	5 / 25**
2,5 - 4	40,00 - 60,00	50	6 / 25**	6 / 25**	2 / 25**
4 - 6,3	63,00 - 94,50	50	6 / 63**	6 / 63**	2 / 40**
6,3 - 10	120,0 - 180,0	50	6 / 63**	6 / 63**	2 / 50**
8 - 12	144,0 - 126,0	25	6 / 63**	6 / 63**	2 / 50**
10 - 16	192,0 - 288,0	16 / 80**	4 / 63**	4 / 63**	2 / 63**
16 - 20	240,0 - 360,0	10	3	3	2
20 - 25	300,0 - 450,0	10	3	3	2
25 - 32	384,0 - 576,0	10	3	3	2

* See use of 690 V under Application

** In combination with upstream fuse.

Rated voltage auxiliary contacts U_e : 400 V AC

Application/Limitation

With $U_{imp} = 6$ kV the max. rated voltage is 600 V when used in a IT-grid (ship's mains). It can be used in applications with directly earthed systems with rated voltage of 400/690 V.

Suitable for use in an IT-grid (ship's mains) system with a capacity of 1.2 times the maximum trip current up to and including 600 V AC.

Type Approval documentation

Tests carried out

Type tests according to IEC 60947-2 Sequence I and II and Annex H. IEC 60947-4-1 Sequence I, II, III and V. Vibration test, Humidity, Dry heat test, Low temperature test, High voltage test and Insulation resistance test.

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Marking of product

ABB Stotz – Type designation – Voltage – Current – Breaking capacity – Manufacturing Place.

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