



DET NORSKE VERITAS

TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-9271
This Certificate consists of 3 pages

This is to certify that the
Circuit Breaker
with type designation(s)
MS 116

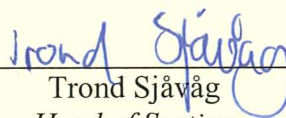
Manufactured by
ABB Stotz-Kontakt GmbH
HEIDELBERG, Germany

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det
Norske Veritas' Offshore Standards
IEC 60947-2 (2006-05)
IEC 60947-4-1 (2002-12)

Application
For installations inside switchboards / enclosures onboard ships and offshore units

Rated Voltage (V)	600 (690) AC
Rated Current (A)	0.1 - 16
Frequency (Hz)	40 - 60

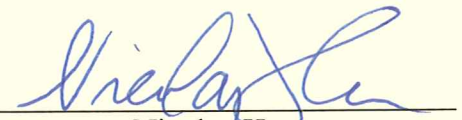

Place and date
Høvik, 2008-12-22
for DET NORSKE VERITAS AS


Trond Sjøvåg
Head of Section



Local Office
DNV Essen

This Certificate is valid until
2012-12-31


Nicolay Horn
Surveyor 

Notice: 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.

However, the compensation shall not exceed an amount equal to ten times the fee charged for the service in question, provided that the maximum compensation shall never exceed USD 2 million. In this provision "Det Norske Veritas" shall mean the Foundation Det Norske Veritas as well as all its subsidiaries, directors, officers, employees, agents and any other acting on behalf of Det Norske Veritas.



Cert. No.: E-9271
File No.: 823.10

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)	Magnetic trip-ing operating current (A)	Rated short circuit capacity I_{cs} at $U_e=380/400V$ (kA)	Rated short circuit capacity I_{cs} at $U_e=440V$ (kA)	Rated short circuit capacity I_{cs} at $U_e=500V$ (kA)	Rated short* circuit capacity I_{cs} at $U_e=690V$ (kA)
0,1 - 0,16	1,6	50	50	30	30
0,16 - 0,25	2,5	50	50	30	30
0,25 - 0,4	4	50	50	30	30
0,4 - 0,63	6,3	50	50	30	30
0,63 - 1	12	50	50	30	30
1 - 1,6	19	50	50	30	30
1,6 - 2,5	30	50	10 / 25**	10 / 25**	5 / 25**
2,5 - 4	48	50	6 / 25**	6 / 25**	2 / 25**
4 - 6,3	75	50	6 / 63**	6 / 63**	2 / 40**
6,3 - 10	108	50	6 / 63**	6 / 63**	2 / 50**
10 - 16	192	16 / 80**	4 / 63**	4 / 63**	2 / 63**

* 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 (ship) net. It can be used in applications with directly earthed systems with rated voltage of 400/690 V.

Suitable for use in an IT (ship) system with a capacity of 1.2 times the maximum trip current up to ind including 600 V AC.



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Type Approval documentation

Technical info:

ABB-Technical Catalogue "Manual Motor Starter MS 116.

Test reports:

Paconsult Nr. 90/02 dated 2002-11-11. KEMA reports 2024892.50 issued 2002-12-01, 2024892.51 issued 2002-11-15 & 2024892.52 issued 2003-06-18. ABB Stotz report no. 4483/08 issued 2008-07-02.

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.

Marking of product

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

Certificate retention survey

The scope of the retention/renewal survey 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