



DET NORSKE VERITAS TYPE APPROVAL CERTIFICATE

CERTIFICATE NO. E-9148

This Certificate consists of 3 pages

This is to certify that the

Circuit Breaker

823.10

with type designation(s)

Emax X1

Holder of certificate

ABB S.P.A. - ABB SACE DIVISION

BERGAMO BG, Italy

is found to comply with

Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft
and Det Norske Veritas' Offshore Standards

Application

Rated Voltage (V)	440 V - 690 V (AC)
Rated Current (A)	630 - 1600
Frequency (Hz)	50 - 60

Place and date
Høvik, 2008-11-21
for Det Norske Veritas
AS

This Certificate is valid until
2012-12-31

Trond Sjøvåg
Head of Section

Local Office
DNV Milan

Nicolay Horn
Surveyor

Name and place of manufacturer

ABB SpA - ABB Sace Division

Frosinone, ITALY

Product description

Type: Emax

Low voltage moulded case circuit breaker for protection, insulation and switching of circuits. Delivered with releases PR 331 / PR332 & PR333 and different types of accessories.

Technical data:

	Emax X1 B	Emax X1 N	Emax X1 L
Rated insulation voltage Ui (V)	800	800	800
Rated impulse withstand voltage Uimp (kV)	8	8	8
Rated current Iu (A) at 40 °C	630 - 1600	630 - 1600	630 - 1250
Rated voltage Ue (V)	230 - 690	230 - 690	230 - 690
Rated frequency AC (Hz)	50-60	50-60	50-60
Breaking current (kA) I_{CU} , 230/380/415 V (kA)	42	65	150
Breaking current (kA) I_{CU} , 440 V (kA)	42	65	130
Breaking current (kA) I_{CU} , 500/525V (kA)	42	50	100
Breaking current (kA) I_{CU} , 690 V AC (kA)	42	50	60
Breaking current (kA) I_{CS} , 230/380/415 V (kA)	42	50	150

Breaking current (kA) I_{CS} , 440 V (kA)	42	50	130
Breaking current (kA) I_{CS} , 500/525 V (kA)	42	42	100
Breaking current (kA) I_{CU} , 690 V (kA)	42	42	45
Breaking current I_{CW} (kA)	42	42	15
Utilisation category	B	B	B
Rated Short-circuit making capacity I_{cm} , 230/380/415 V (kA)	88,2	143	330
Rated Short-circuit making capacity I_{cm} , 440 V (kA)	88,2	143	286
Rated Short-circuit making capacity I_{cm} , 500 V (kA)	88,2	105	220
Rated Short-circuit making capacity I_{cm} , 690 V (kA)	88,2	105	132

Application/Limitation

Suitable for use in an IT system with a capacity of 1.2 times the maximum trip current at 690 V AC.

Type Approval documentation

Tests carried out

Type tests according to IEC 60947-2 sequence I, II, III and Annex H. Vibration, inclination, EMC, dry heat, damp heat and low temperature test.

Marking of product

ABB SACE - Type designation - Electrical data

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

Notice: This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.

If any person suffers loss or damage which is proved to have been caused by any negligent act or omission of Det Norske Veritas, then Det Norske Veritas shall pay compensation to such person for his proved direct loss or damage. 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.

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