

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Circuit Breaker

with type designation(s)
Tmax XT1, XT2, XT3 and XT4

Issued to

ABB SpA - ABB Sace Division
Bergamo, Italy

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Rated Voltage (V) 690
Rated Current (A) 160 - 250
Frequency (Hz) 50-60

This Certificate is valid until **2021-06-30**.

Issued at **Hamburg** on **2016-07-12**

DNV GL local station: **Milan**

Approval Engineer: **Harald Amberger**

for **DNV GL**

Duy Nam Le
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.

Name and place of manufacturer

ABB SpA – ABB Sace Division
Frosinone, ITALY

Product description

Moulded –case circuit breaker

	XT1				
	B	C	N	S	H
Rated insulation voltage Ui (V)	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8
Rated current Iu (A) at 40 °C (See application/limitation)	160	160	160	160	160
Rated service voltage Ue (V)	690 AC	690 AC	690 AC	690 AC	690 AC
Rated frequency AC (Hz)	50-60	50-60	50-60	50-60	50-60
Rated ultimate short-circuit breaking capacity (kA) Icu					
230 V AC (kA)	25	40	65	85	100
440 V AC (kA)	15	25	36	50	65
690 V AC (kA)	3	4	6	8	10
Rated service short-circuit breaking capacity Ics (%Icu)					
230 V AC (kA)	100 %	100 %	75 (50) %	75 %	75 %
440 V AC (kA)	75 %	50 %	50 %	50 %	50 %
690 V AC (kA)	100 %	100 %	75 %	50 %	50 %
Utilisation category	A	A	A	A	A
Rated short-circuit making capacity Icm					
230 V AC (kA)	52.5	84	143	187	220
440 V AC (kA)	30	52.5	75.6	105	143
690 V AC (kA)	4.5	6	9	13.6	17

	XT2				
	N	S	H	L	V
Rated insulation voltage Ui (V)	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8
Rated current Iu (A) at 40 °C (See application/limitation)	160	160	160	160	160
Rated service voltage Ue (V)	690 AC	690 AC	690 AC	690 AC	690 AC
Rated frequency AC (Hz)	50-60	50-60	50-60	50-60	50-60
Rated ultimate short-circuit breaking capacity (kA) Icu					
230 V AC (kA)	65	85	100	150	200
440 V AC (kA)	36	50	65	100	150
480 V AC (kA)*	NA	NA	NA	NA	75*
690 V AC (kA)	10	12	15	18	20
Rated service short-circuit breaking capacity Ics (%Icu)					
230 V AC (kA)	100 %	100 %	100 %	100 %	100 %
440 V AC (kA)	100 %	100 %	100 %	100 %	100 %
690 V AC (kA)	100 %	100 %	100 %	100 %	75 %
Utilisation category	A	A	A	A	A
Rated short-circuit making capacity Icm					
230 V AC (kA)	143	187	220	330	440
440 V AC (kA)	75.6	105	143	220	440
480 V AC (kA)	NA	NA	NA	NA	165
690 V AC (kA)	17	24	30	36	40

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Certificate No: **TAE0000193**

	XT3	
	N	S
Rated insulation voltage Ui (V)	1000	1000
Rated impulse withstand voltage Uimp (kV)	8	8
Rated current Iu (A) at 40 °C (See application/limitation)	250	250
Rated service voltage Ue (V)	690 AC	690 AC
Rated frequency AC (Hz)	50-60	50-60
Rated ultimate short-circuit breaking capacity (kA) Icu		
230 V AC (kA)	50	85
440 V AC (kA)	25	40
690 V AC (kA)	5	8
Rated service short-circuit breaking capacity Ics (%Icu)		
230 V AC (kA)	75 %	50 %
440 V AC (kA)	75 %	50 %
690 V AC (kA)	75 %	50 %
Utilisation category	A	A
Rated short-circuit making capacity Icm		
230 V AC (kA)	105	187
440 V AC (kA)	52.5	84
690 V AC (kA)	8.5	13.6

	XT4				
	N	S	H	L	V
Rated insulation voltage Ui (V)	1000	1000	1000	1000	1000
Rated impulse withstand voltage Uimp (kV)	8	8	8	8	8
Rated current Iu (A) at 40 °C (See application/limitation)	160/250	160/250	160/250	160/250	160/250
Rated service voltage Ue (V)	690 AC	690 AC	690 AC	690 AC	690 AC
Rated frequency AC (Hz)	50-60	50-60	50-60	50-60	50-60
Rated ultimate short-circuit breaking capacity (kA) Icu					
230 V AC (kA)	65	85	100	150	200
440 V AC (kA)	36	50	65	100	150
690 V AC (kA)	10	12	15	20	25
Rated service short-circuit breaking capacity Ics (%Icu)					
230 V AC (kA)	100 %	100 %	100 %	100 %	100 %
440 V AC (kA)	100 %	100 %	100 %	100 %	100 %
690 V AC (kA)	100 %	100 %	100 %	100 %	75 %
Utilisation category	A	A	A	A	A
Rated short-circuit making capacity Icm					
230 V AC (kA)	143	187	220	330	440
440 V AC (kA)	75.6	105	143	220	330
690 V AC (kA)	17	24	30	40	52.5

* See application limitation

Application/Limitation

XT1 and XT3 only equipped with thermal-magnetic release, XT2 and XT4 is equipped with both Electronic and thermal-magnetic release.

The breaker type XT2V for 480 V is only applicable for use when the Ics value is not relevant.

Release data is given for 40° C. For ship application thermal magnetic releases to be derated in accordance with following table (electronic releases need no deration):

XT1		XT2		XT3		XT4	
40 °C	45 °C	40 °C	45 °C	40 °C	45 °C	40 °C	45 °C
In	In	In	In	In max	In max	In	In max
160	154	160	154	160	154	160	154
-	-	-	-	250	240	250	240

Type Approval documentation

Tests carried out

Type tests according to IEC 60947-2 sequence I, II, III and Annex H. Vibration & shock, inclination, EMC, dry heat, damp heat and low temperature test. UL 489 (ed.11, 2009) for breaker type XT2V for 480V /icu.

Marking of product

ABB SACE – Type designation – Electrical data

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 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.
- Assessment to be performed at least every 2½ year.

END OF CERTIFICATE