

TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE0000193
Revision No:
4

This is to certify:
that the Circuit Breaker

with type designation(s)
Tmax XT1, XT2, XT3, XT4, XT5, XT6 and XT7/XT7M

issued to
ABB S.p.A. - ABB Sace Division
Frosinone, FR, Italy

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

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

Rated voltage (V) 690
Rated current (A) 160 - 1600

Issued at **Høvik** on **2025-10-02**

This Certificate is valid until **2030-10-01**.

DNV local unit: **Italy/Malta CMC**

Approval Engineer: **Andreas Andrecht**



for **DNV**

Andreas Drimbell
This document has been digitally signed and will
therefore not have handwritten signature

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Moulded –case circuit breaker

Ratings			XT1				
Breaking capacity levels			B	C	N	S	H
Utilization category (IEC 60947-2)			A				
Poles		No.	3/4				
Method of installation			Fixed / Plug in				
Rated insulation voltage, Ui		V	1000				
Rated impulse withstand voltage, Uimp		kV	8				
Rated uninterrupted current Iu 40°C		A	160				
Rated service voltage, Ue	(AC) 50-60Hz	V	690				
	(DC)	V	500				
Rated ultimate short-circuit breaking capacity, Icu							
	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)							
	440 V AC	%	75	50	50	50	50
	690 V AC	%	100	100	75	50	50
Rated short-circuit making capacity, Icm							
	440 V AC	kA	30	52.5	75.6	105	143
	690 V AC	kA	4.5	6	9	13.6	17

Ratings			XT2				
Breaking capacity levels			N	S	H	L	V
Utilization category (IEC 60947-2)			A				
Poles		No.	3/4				
Method of installation			Fixed / Plug in / Withdrawable				
Rated insulation voltage, Ui		V	1000				
Rated impulse withstand voltage, Uimp		kV	8				
Rated uninterrupted current Iu 40°C		A	160				
Rated service voltage, Ue	(AC) 50-60Hz	V	690				
	(DC)	V	500				
Rated ultimate short-circuit breaking capacity, Icu							
	440 V AC	kA	36	50	65	100	150
	480 V AC	kA	--	--	--	--	75*
	690 V AC	kA	10	12	15	18	20
Rated service short-circuit breaking capacity, Ics (%Icu)							
	440 V AC	%	100	100	100	100	100
	690 V AC	%	100	100	100	100	100
Rated short-circuit making capacity, Icm							
	440 V AC	kA	75.6	105	143	220	440
	480 V AC	kA	--	--	--	--	165
	690 V AC	kA	17	24	30	36	40

*The breaker type XT2V for 480 V is only applicable for use when the I_{cs} value is not relevant.

Ratings			XT3	
Breaking capacity levels			N	S
Utilization category (IEC 60947-2)			A	
Poles	No.		3/4	
Method of installation			Fixed / Plug in	
Rated insulation voltage, U_i	V		800	
Rated impulse withstand voltage, U_{imp}	kV		8	
Rated uninterrupted current I_u 40°C	A		250	
Rated service voltage, U_e	(AC) 50-60Hz	V	690	
	(DC)	V	500	
Rated ultimate short-circuit breaking capacity, I_{cu}				
	440 V AC	kA	25	40
	690 V AC	kA	5	8
Rated service short-circuit breaking capacity, I_{cs} (% I_{cu})				
	440 V AC	%	75	50
	690 V AC	%	75	50
Rated short-circuit making capacity, I_{cm}				
	440 V AC	kA	52.5	84
	690 V AC	kA	8.5	13.6

Ratings			XT4					
Breaking capacity levels			N	S	H	L	V	X
Utilization category (IEC 60947-2)			A					
Poles	No.		3/4					
Method of installation			Fixed / Plug in / Withdrawable					
Rated insulation voltage, U_i	V		1000					
Rated impulse withstand voltage, U_{imp}	kV		8					
Rated uninterrupted current I_u 40°C	A		160/250					
Rated service voltage, U_e	(AC) 50-60Hz	V	690					
	(DC)	V	750					
Rated ultimate short-circuit breaking capacity, I_{cu}								
	440 V AC	kA	36	50	65	150	150	200
	690 V AC	kA	10	12	15	25	50	100
Rated service short-circuit breaking capacity, I_{cs} (% I_{cu})								
	440 V AC	%	100	100	100	100	100	100
	690 V AC	%	100	100	100	100	100	100
Rated short-circuit making capacity, I_{cm}								
	440 V AC	kA	75.6	105	143	330	330	440
	690 V AC	kA	17	24	30	52.5	105	220

Ratings			XT5					
Breaking capacity levels			N	S	H	L	V	X
Utilization category (IEC 60947-2)			A (up to 630 A), B (up to 500 A)					
Poles		No.	3/4					
Method of installation			Fixed / Plug in / Withdrawable					
Rated insulation voltage, Ui		V	1000					
Rated impulse withstand voltage, Uimp		kV	8					
Rated uninterrupted current Iu 40°C		A	400/630					
Rated service voltage, Ue	(AC) 50-60Hz	V	1000					
	(DC)	V	500					
Rated ultimate short-circuit breaking capacity, Icu			S400, S630				X630	
	440 V AC	kA	36	50	65	90	180	200
	690 V AC	kA	20	25	40	70	80	100
Rated service short-circuit breaking capacity, Ics (%Icu)								
	440 V AC	%	100	100	100	100	100	100
	690 V AC	%	100	100	75	50	50	50
690 V AC (In up to 500 A)		%	100	100	100	100	100	100
Rated short-circuit making capacity, Icm								
	440 V AC	kA	75.6	105	143	200	400	440
	690 V AC	kA	40	52,5	84	154	176	220
Rated short-time withstands current, Icw								
	1s	kA	6 for XT5 630 / 5 for XT5 400					

Ratings			XT6		
Breaking capacity levels			N	S	H
Utilization category (IEC 60947-2)			A (up to 1000A), B (up to 800A)		
Poles	No.	3/4			
Method of installation		Fixed / Withdrawable			
Rated insulation voltage, Ui	V	1000			
Rated impulse withstand voltage, Uimp	kV	8			
Rated uninterrupted current Iu 40°C	A	600 to 1000			
Rated service voltage, Ue	(AC) 50-60Hz	V	1000		
	(DC)	V	750		
Rated ultimate short-circuit breaking capacity, Icu					
	440 V AC	kA	30	45	50
	690 V AC	kA	20	22	25
Rated service short-circuit breaking capacity, Ics (%Icu)					
	440 V AC	%	100	100	100
	690 V AC	%	100	100	100
Rated short-circuit making capacity, Icm					
	440 V AC	kA	63	94,5	110
	690 V AC	kA	40	46,2	52,5
Rated short-time withstands current, Icw					
	1s	kA	10		

Ratings			XT7 and XT7M		
Breaking capacity levels			S	H	L
Utilization category (IEC 60947-2)			B		
Poles	No.		3/4		
Method of installation			Fixed / Withdrawable		
Rated insulation voltage, U_i	V		1000		
Rated impulse withstand voltage, U_{imp}	kV		8		
Rated uninterrupted current I_u 40°C	A		400 to 1600		
Rated service voltage, U_e	(AC) 50-60Hz	V	690		
	(DC)	V	750		
Rated ultimate short-circuit breaking capacity, I_{cu}					
	440 V AC	kA	50	65	100
	690 V AC	kA	30	42	50
Rated service short-circuit breaking capacity, I_{cs} (% I_{cu})					
	440 V AC	%	100	100	100
	690 V AC	%	100	100	75
Rated short-circuit making capacity, I_{cm}					
	440 V AC	kA	110	143	220
	690 V AC	kA	66	92,4	110
Rated short-time withstands current, I_{cw}					
	1s	kA	20		

Further ratings acc. manufacturer documentation.

Application/Limitation

Location Classes:

Temperature: B, Humidity: B, Vibration: A, EMC: A

XT4X 250:

100kA at 690VAC ($I_{cs}=25kA$ for $I_n>200$ A when equipped with terminals: Front, FCCu and FCCuAl).

XT4X 160:

100kA at 690VAC (suitable only for $I_n\geq 32$ A).

XT4V 250:

50kA at 690VAC ($I_{cs}=25kA$ for $I_n>200$ A when equipped with terminals: Front, FCCu and FCCuAl).
 For $I_n<32$ A, $I_{cu}=25kA$, $I_{cs}=20kA$).

XT4V 160:

$I_{cu}=I_{cs}=100kA$ at 690VAV (For $I_n<32$ A, $I_{cu}=25kA$, $I_{cs}=20kA$).

XT1 and XT3 only equipped with thermal-magnetic release, XT2, XT4, XT5 and XT6 are equipped with both Electronic and thermal-magnetic release. XT7, XT7M is equipped with electronic release.

Release data is given for 40°C. For ship application thermal magnetic releases to be derated in accordance with manufacturer document 1SDC210099D0206 (electronic releases need no deration).

Operating instruction of the manufacturer to be observed

Type Approval documentation

CD "TEST REPORTS ABB SACE Tmax XT – DNV APPROVAL"

SE-90444, SE-90445, SE-101368, SE-101370, SE-101371A1, SE-101369A1, CN50672

LBRP 11955/03 rev 01, LBRP 16568/00, LBRP 16569/00, LBRP 16917/00, LBRP 16917/01, LBRP 16918/00
LBRP 16918/01, LBRP 16920/00, LBRP 18334/00, LBRP 18335/00, LBRP 18336/00, LBRP 18337/00, LBRP 18338/00
LBRP 18338/01, LBRP 18339/00, LBRP 18339/01, LBRP 18340/00, LBRP 18340/01, LBRP 18341/00, LBRP 18341/01
LBRP 18334/00, LBRP 18342/00, LBRP 18343/00, LBRP 18344/00, LBRP 18749/00, LBRP 18750/00, LBRP 19037/01

200019647UDI-EMCb, 200019647UDI-EMCd

Rel19-4788844257-1-0-EMC, Rel19-4788923674-1-0-EMC, 200026776UDI-EMC

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

Name and place of manufacturer

ABB SpA – ABB Sace Division
Frosinone, ITALY

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