



CERTIFICATE NUMBER
EFFECTIVE DATE
EXPIRY DATE
ABS TECHNICAL OFFICE

21-2170909-PDA
29-Sep-2021
28-Sep-2026
Genoa Engineering Department

CERTIFICATE OF Product Design Assessment

This is to certify that a representative of this Bureau did, at the request of

ABB S.P.A. - ABB SACE DIVISION

located at

**ACCOUNTING SERVICES, VIA L. LAMA, 33, SESTO S. GIOVANNI
(MI), Italy, 20099**

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate.

Product: **Circuit Breaker**
Model: **Tmax XT1, XT2, XT3, XT4, XT5, XT6 and XT7 (IEC 60947-2 Version)**
Endorsements:
Tier: **2 - PDA Issued**

This Product Design Assessment (PDA) Certificate remains valid until 28/Sep/2026 or until the Rules and/or Standards used in the assessment are revised or until there is a design modification warranting design reassessment (whichever occurs first).

Acceptance of product is limited to the "Intended Service" details prescribed in the certificate and as per applicable Rules and Standards.

This Certificate is valid for installation of the listed product on ABS units which exist or are under contract for construction on or previous to the effective date of the ABS Rules and standards applied at the time of PDA issuance. Use of the Product for non-ABS units is subject to agreement between the manufacturer and intended client.

American Bureau Of Shipping

G. Barbini

Giorgio Barbini, Engineer/Consultant

NOTE: This certificate evidences compliance with one or more of the Rules, Guides, standards or other criteria of ABS or a statutory, industrial or manufacturer's standards. It is issued solely for the use of ABS, its committees, its clients or other authorized entities. Any significant changes to the aforementioned product without approval from ABS will result in this certificate becoming null and void. This certificate is governed by ABS Rules 1-1-A3/5.9 Terms and Conditions of the Request for Product Type Approval and Agreement (2010)

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Tier: 2 - PDA Issued

Product: Circuit Breaker
Model: Tmax XT1, XT2, XT3, XT4, XT5, XT6 and XT7 (IEC 60947-2 Version)
Endorsements:

Intended Service:
Circuit Breakers for installation in electrical switchboards and panels for marine and offshore installations.

Description:
Low Voltage Moulded Case Circuit Breakers with electronic and thermal-magnetic release.

Rating:
Rated Service Voltage 690 Vac - 500 Vdc
Rated Frequency 50 - 60 Hz
Rated Current 160 - 1600 A
Data are given @ +40°C: Rated currents for thermal magnetic releases @ +45°C to be derated 4% (electronic releases need no deration)
(Refer to the attachment for details about breaking and making capacities).

Service Restriction:
- Unit Certification is not required for this product.
- If the manufacturer or purchaser's request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.
- The scope of Type Approval is to comply with MSC.1/Circ.1221 dated 11 December 2006.

Comments:
The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product.

Notes/Drawing/Documentation:
Technical Catalog Tmax XT_IEC No 1SDC210100D0206 Ed 2021-04
INTERTEK IEC EE CB Scheme Certificate No SE-101369A1 for XT5N-S-H-L 630 dated 24 June 2020
INTERTEK IEC EE CB Scheme Certificate No SE-101371A1 for XT5V-X 630 dated 24 June 2020
INTERTEK IEC EE CB Scheme Certificate No SE-101368 for XT5N-S-H-L 400 dated 09 June 2020
INTERTEK IEC EE CB Scheme Certificate No SE-101370 for XT5V-X 400 dated 06 June 2020
INTERTEK IEC EE Test Report No 1817203STO-001 for Tmax XT5 dated 2020.04.10 in Sweden
INTERTEK Test Report No 200026776UDI-EMC (6GHz) dated 09 July 2020 in Udine (ITALY)
UL Test Report No 19-4788923674-1-1-0-EMC-XT5_4P_Ekip Dip LS_I-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788923674-2-1-0-EMC-XT5_4P_Ekip Dip LSIG-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788844257-2-1-0-EMC-XT5_4P_Ekip Dip LSIG-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788844257-1-1-0-EMC-XT5_4P_Ekip Dip LS_I-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788844257-3-1-0-EMC-XT5_4P_Ekip Touch-abb dated 2019-03-29 in Milan (ITALY)
UL Test Result Summary Report No Rel19-4788844257-1-0-EMC-XT5_XT6_4P-abb dated 29 March 2019 in Milan (ITALY)
UL Test Result Summary Report No Rel19-4788923674-1-0-EMC-XT5_XT6_4P-abb (Marine) dated 29 March 2019 in Milan (ITALY)
UL Test Report No 19-4788923674-3-1-0-EMC-XT5_4P_Ekip Touch-abb dated 2019-03-29 in Milan (ITALY)
ABB TEST REPORT LBRP No 18335_00 Rev0 dated 2019-09-09 in Bergamo (Italy) for XT5 climatic
ABB TEST REPORT LBRP No 18340_01 Rev0 dated 2019-11-21 in Bergamo (Italy) for XT5 shock
ABB TEST REPORT LBRP No 18338_00 Rev0 dated 2019-11-05 in Bergamo (Italy) for XT5 vibration
ABB TEST REPORT LBRP No 18339_01 Rev0 dated 2019-11-21 in Bergamo (Italy) for XT5 shock
ABB TEST REPORT LBRP No 18340_00 Rev0 dated 2019-11-08 in Bergamo (Italy) for XT5 vibration
ABB TEST REPORT LBRP No 18336_00 Rev0 dated 2019-09-09 in Bergamo (Italy) for XT5 climatic

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ABB TEST REPORT LBRP No 18334_00 Rev0 dated 2019-09-09 in Bergamo (Italy) for XT5 climatic
ABB TEST REPORT LBRP No 18338_01 Rev0 dated 2019-11-21 in Bergamo (Italy) for XT5 shock
ABB TEST REPORT LBRP No 18337_00 Rev0 dated 2019-10-18 in Bergamo (Italy) for XT5 climatic
ABB TEST REPORT LBRP No 18339_00 Rev0 dated 2019-11-11 in Bergamo (Italy) for XT5 vibration
ABB TEST REPORT LBRP No 18341_00 Rev0 dated 2019-11-07 in Bergamo (Italy) for XT5 vibration
ABB TEST REPORT LBRP No 18341_01 Rev0 dated 2019-11-22 in Bergamo (Italy) for XT5 shock
ABB TEST REPORT LBRP No 18342_00 Rev0 dated 2019-11-14 in Bergamo (Italy) for XT5 inclination
ABB TEST REPORT LBRP No 18344_00 Rev0 dated 2019-11-18 in Bergamo (Italy) for XT5 inclination
ABB TEST REPORT LBRP No 18343_00 Rev0 dated 2019-11-15 in Bergamo (Italy) for XT5 inclination
UL Test Report No 19-4788844257-5-1-0-EMC-XT6_4P_Ekip Dip LSIG-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788844257-4-1-0-EMC-XT6_4P_Ekip Dip LS_I-abb dated 2019-03-29 in Milan (ITALY)
UL Test Report No 19-4788923674-4-1-0-EMC-XT6_4P_Ekip Dip LS_I-abb dated 2019-03-29 in Milan (ITALY)
CHINA QUALITY CERTIFICATION CENTER IECCE CB Scheme Test Certificate No CN50672 for SACE XT6 dated 14 July 2020
UL Test Report No 19-4788923674-5-1-0-EMC-XT6_4P_Ekip Dip LSIG-abb dated 2019-03-29 in Milan (ITALY)
STIEE IECCE Test Report No 00901-CB2019CQC-087756 for SACE XT6 dated 2020-05-28 in China
ABB TEST REPORT LBRP No 18750_00 Rev0 for shock (XT6 EKIP DIP LSIG) dated 2021-02-08 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 18355_00 Rev0 for inclination (XT6 EKIP LS-I) dated 2019-11-26 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 19307_00 Rev0 for climatic (XT6 EKIP DIP LS-I) dated 2020-09-22 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 18749_00 Rev0 for vibration (XT6 EKIP DIP LSIG) dated 2021-02-05 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16918_01 Rev0 (inclination XT7 M) dated 2018-06-25 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16918_00 Rev0 (inclination XT7) dated 2018-06-25 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16568_00 Rev0 (XT7 Ekip DIP LS-I - shipping register) dated 2018-06-08 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16569_00 Rev0 (XT7 M Ekip DIP LIG - shipping register) dated 2018-06-12 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16917_00 Rev0 (Tmax XT7 M) dated 2018-09-13 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 16917_01 Rev0 (Tmax XT7) dated 2018-09-13 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 17218_01 Rev0 (XT7 shock 15g 11ms) dated 2018-09-27 in Bergamo (ITALY)
ABB TEST REPORT LBRP No 17218_00 Rev0 (XT7 M shock 15g 11ms) dated 2018-09-27 in Bergamo (ITALY)
INTERTEK IECCE CB Scheme Test Certificate No SE-90444 dated 12 April 2018 for Tmax XT7
INTERTEK Test Report No 200019647UDI-EMCa XT7 M Annex N dated 15 February 2018 in Udine (ITALY)
INTERTEK IECCE CB Scheme Test Certificate No SE-90445 dated 12 April 2018 for Tmax XT7 M
INTERTEK Test Report No 200019647UDI-EMC XT7M Ekip LIG dated 15 February 2018 in Udine (ITALY)
INTERTEK Test Report No 200019647UDI-EMCd Ekip LS-I shipping approval dated 15 February 2018 in Udine (ITALY)
INTERTEK Test Report No 200019647UDI-EMCc XT7 Ekip LS-I dated 15 February 2018 in Udine (ITALY)
INTERTEK Test Report No 200019647UDI-EMCb XT7 M Ekip LIG shipping approval dated 15 February 2018 in Udine (ITALY)
INTERTEK IECCE Test Report No 1806441STO-001 dated 2018-03-27 in Sweden for Tmax XT7
INTERTEK IECCE Test Report No 1806443STO-001 dated 2018-03-27 in Sweden for Tmax XT7 M
INTERTEK Test Report No 200029764UDI-EMC (6 GHz) dated 14 June 2021 in Udine (ITALY)

Terms of Validity:

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STANDARDS

ABS Rules:

2021 Rules for Marine Vessels Rules: 1-1-4/7.7, 1-1-A3, 1-1-A4, 4-8-3-/1.3, 4-8-3/1.7, 4-8-3/5.3.3

2021 Rules for Conditions of Classification, Part 1 – Offshore Units and Structures: 1-1-4/9.7, 1-1-A2 and 1-1-A3, 6-1-7/13.1

2021 Facilities on Offshore Installations: 1-1-4/9.7, 1-1-A2 and 1-1-A3, 3-6/11.3.3

National:

NA

International:

IEC 60947-2 Edition 5.1 (2019-07)

Government:

NA

EUMED:

NA

OTHERS:

NA

Applicant: ABB S.P.A. - ABB SACE DIVISION (836124)
Attachment to Certificate No.21-2170909-PDA
dated 29 September 2021 expiring on 28 September 2026

IEC 60947-2	XT1				
	B	C	N	S	H
Rated insulation voltage Ui (V)	1000				
Rated impulse withstand voltage Uimp (kV)	8				
Rated current Iu (A) at 40°C	160				
Rated service voltage Ue (V)	690Vac-500Vdc				
Rated frequency AC (Hz)	50-60Hz				
Rated ultimate short-circuit breaking capacity (kA) Icu					
230Vac	25	40	65	85	100
440Vac	15	25	36	50	65
690Vac	3	4	6	8	10
250Vdc (2 poles in series)	18	25	36	50	70
500Vdc (3 poles in series)	18	25	36	50	70
Rated service short-circuit breaking capacity (% Icu) Ics					
230Vac	100%	100%	75%(50)	75%	75%
440Vac	75%	50%	50%	50%	50%
690Vac	100%	100%	75%	50%	50%
250Vdc (2 poles in series)	100%	100%	100%	75%	75%
500Vdc (3 poles in series)	100%	100%	100%	75%	75%
Utilization category	A				
Rated short-circuit making capacity Icm					
230Vac	52,5	84	143	187	220
440Vac	30	52,5	75,6	105	143
690Vac	4,5	6	9	13,6	17

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IEC 60947-2	XT2				
	N	S	H	L	V
Rated insulation voltage Ui (V)	1000				
Rated impulse withstand voltage Uimp (kV)	8				
Rated current Iu (A) at 40°C	160				
Rated service voltage Ue (V)	690Vac-500Vdc				
Rated frequency AC (Hz)	50-60Hz				
Rated ultimate short-circuit breaking capacity (kA) Icu					
230Vac	65	85	100	150	200
440Vac	36	50	65	100	150
690Vac	10	12	15	18	20
250Vdc (2 poles in series)	36	50	70	85	100
500Vdc (3 poles in series)	36	50	70	85	100
Rated service short-circuit breaking capacity (% Icu) Ics					
230Vac	100%	100%	100%	100%	100%
440Vac	100%	100%	100%	100%	100%
690Vac	100%	100%	100%	100%	75%
250Vdc (2 poles in series)	100%	100%	100%	100%	100%
500Vdc (3 poles in series)	100%	100%	100%	100%	100%
Utilization category	A				
Rated short-circuit making capacity Icm					
230Vac	143	187	220	330	440
440Vac	75,6	105	143	220	330
690Vac	17	24	30	36	40

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IEC 60947-2	XT3	
	N	S
Rated insulation voltage Ui (V)	1000	
Rated impulse withstand voltage Uimp (kV)	8	
Rated current Iu (A) at 40°C	250	
Rated service voltage Ue (V)	690Vac	
Rated frequency AC (Hz)	50-60Hz	
Rated ultimate short-circuit breaking capacity (kA) Icu		
230Vac	50	85
440Vac	25	40
690Vac	5	8
Rated service short-circuit breaking capacity (% Icu) Ics		
230Vac	75%	50%
440Vac	75%	50%
690Vac	75%	50%
Utilization category	A	
Rated short-circuit making capacity Icm		
230Vac	105	187
440Vac	52,5	84
690Vac	8,5	13,6

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IEC 60947-2	XT4				
	N	S	H	L	V
Rated insulation voltage Ui (V)	1000				
Rated impulse withstand voltage Uimp (kV)	8				
Rated current Iu (A) at 40°C	250				
Rated service voltage Ue (V)	690Vac-500Vdc				
Rated frequency AC (Hz)	50-60Hz				
Rated ultimate short-circuit breaking capacity (kA) Icu					
230Vac	65	85	100	150	200
440Vac	36	50	65	100	150
690Vac	10	12	15	20	25
250Vdc (2 poles in series)	36	50	70	85	100
500Vdc (3 poles in series)	36	50	70	85	100
Rated service short-circuit breaking capacity (% Icu) Ics					
230Vac	100%	100%	100%	100%	100%
440Vac	100%	100%	100%	100%	100%
690Vac	100%	100%	100%	100%	75%(20)
250Vdc (2 poles in series)	100%	100%	100%	100%	100%
500Vdc (3 poles in series)	100%	100%	100%	100%	100%
Utilization category	A				
Rated short-circuit making capacity Icm					
230Vac	143	187	220	330	440
440Vac	75,6	105	143	220	330
690Vac	17	24	30	40	52.5

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IEC 60947-2	XT5					
	N	S	H	L	V	X
Rated insulation voltage Ui (V)	1000					
Rated impulse withstand voltage Uimp (kV)	8					
Rated current Iu (A) at 40°C	400-630					
Rated service voltage Ue (V)	690					
Rated frequency AC (Hz)	50-60					
Rated ultimate short-circuit breaking capacity (kA) Icu						
230Vac	70	85	100	150	200	200
440Vac	36	50	65	100	180	200
690Vac	20	25	40	70	80	100
500Vdc (2 poles in series)	25	35	50	70	85	100
750Vdc (3 poles in series)					85	100
Rated service short-circuit breaking capacity (% Icu) Ics						
230Vac	100%	100%	100%	100%	100%	100%
440Vac	100%	100%	100%	100%	100%	100%
690Vac	100%	100%	100% ⁽²⁾	100% ⁽³⁾	100% ⁽³⁾	100% ⁽³⁾
500Vdc (2 poles in series)	100%	100%	100%	100%	100%	100%
750Vdc (3 poles in series)					100%	100%
Utilization category	A (In>500 A) – B (up to 500 A)					
Rated short-circuit making capacity Icm						
230Vac	154	187	220	330	440	440
440Vac	75,6	105	143	220	396	440
690Vac	40	52,5	84	154	176	220

(2) Ics=75% for In>500 A. (3) Ics=50% for In>500 A

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IEC 60947-2	XT6		
	N	S	H
Rated insulation voltage Ui (V)	1000		
Rated impulse withstand voltage Uimp (kV)	8		
Rated current Iu (A) at 40°C	800-1000		
Rated service voltage Ue (V)	690		
Rated frequency AC (Hz)	50-60		
Rated ultimate short-circuit breaking capacity (kA) Icu			
230Vac	70	85	100
440Vac	30	45	50
690Vac	20	22	25
250Vdc (2 poles in series)	35	50	70
500Vdc (3 poles in series)	20	35	50
750Vdc (3 poles in series)	18	24	36
Rated service short-circuit breaking capacity (% Icu) Ics			
230Vac	100%	100%	100%
440Vac	100%	100%	100%
690Vac	100%	100%	100%
250Vdc (2 poles in series)	100%	50%	50%
500Vdc (2 poles in series)	100%	50%	50%
750Vdc (3 poles in series)	100%	75%	50%
Utilization category	A (In>800A) – B (up to 800A)		
Rated short-circuit making capacity Icm			
230Vac	154	187	220
440Vac	63	94,5	105
690Vac	40	46,2	52,5

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IEC 60947-2	XT7		
	S	H	L
Rated insulation voltage Ui (V)	1000		
Rated impulse withstand voltage Uimp (kV)	8		
Rated current Iu (A) at 40°C	800-1000-1250-1600		
Rated service voltage Ue (V)	690		
Rated frequency AC (Hz)	50-60		
Rated ultimate short-circuit breaking capacity (kA) Icu			
230Vac	85	100	200
440Vac	50	65	100
690Vac	30	42	50
Rated service short-circuit breaking capacity (% Icu) Ics			
230Vac	100%	100%	100%
440Vac	100%	100%	100%
690Vac	100%	100%	100%
Utilization category	B		
Rated short-circuit making capacity Icm			
230Vac	187	220	440
440Vac	105	143	220
690Vac	63	88,2	105