Main characteristics

1

Molded case circuit breakers (MCCB)			XT1		
Frame size		[A]	125		
Rated		80% rated	■		
		100% rated TM	up to 100A		
		100% rated Ekip	-		
Poles		[No.]	3, 4		
Rated voltage	(AC) 50-60Hz	[V]	600Y/347		
	(DC)	[V]	500		
Versions			Fixed, Plug-in		
Interrupting ratings			**N**	**S**	**H**
240 V (AC)		[kA]	50	65	100
480 V (AC)		[kA]	25	35	65
600Y/347 V (AC)		[kA]	18	22	25
600 V (AC)		[kA]	–	–	–
250 V (DC) 2 poles in series		[kA]	35	42	50
500 V (DC) 3 poles in series		[kA]	–	–	–
500 V (DC) 4 poles in series		[kA]	35	50	50
600 V (DC) 3 poles in series		[kA]	–	–	–
Mechanical life		[No. Operations]	25000		
		[No. Hourly operations]	240		
Dimensions - Fixed (Width x Depth x Height)	3 poles	[mm]/[in]	[76,2 x 70 x 130] / [3 x 2.75 x 5.12]		
	4 poles	[mm]/[in]	[101,6 x 70 x 130] / [4 x 2.75 x 5.12]		
Weight	Fixed 3/4 poles	[kg]/[lbs]	[1,1 - 2.43] / [1,4 - 3.07]		
	Plug-in (EF) 3/4 poles	[kg]/[lbs]	[2,21 - 4.87] / [2,82 - 6.22]		
	Withdrawable (EF) 3/4 poles	[kg]/[lbs]	–		
Total opening time	CB with SOR	[ms]	15		
	CB with UVR	[ms]	15		
Trip units for power distribution					
TMF			■		
TMA					
Ekip LS/I					
Ekip LSI					
Ekip LSIG					
Ekip E-LSIG					

(1) Current Limiting circuit breaker in 480V AC and 600V AC
(2) 2-poles version available only as complete circuit breaker with TMF; 4-poles version available only as complete circuit breaker from In=80 to In=250 with TMF
(3) With F, EF, ES, FCCuAl installation
(4) 100kA up to 150A, 65kA from 175A up to 250A

Motor protection (1)			XT1
Frame size		[A]	125
Poles		[No.]	3
Rated service voltage	(AC) 50-60Hz	[V]	600Y/347
	(DC)	[V]	500
Versions			Fixed, Plug-in
Rating level			**H**
Trip units for motor protection			
MA (MCP)			■
Ekip M-LIU (MPCB)			
Ekip I			

(1) Available only as complete circuit breaker

Molded case disconnect switches (MCS)			XT1		
Frame Size		[A]	125		
Poles		[No.]	3, 4		
Rated voltage	(AC) 50-60Hz	[V]	600Y/347		
	(DC)	[V]	500 4p series / 3p CB up to 250V DC 2p series		
Versions			Fixed, Plug-in		
Rating level			**N**	**S**	**H**
Magnetic Override		[A]	1250		

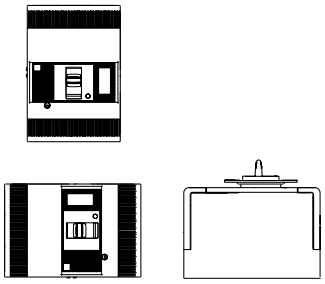
XT2						XT3		XT4					
125						225		250					
■						■		■					
up to 100A						fixed version only		up to 250A [3]					
■						-		up to 250A [3]					
3, 4						3, 4		2 (for N version) 3, 4					
600						600Y/347		600					
500						500		600					
Fixed, Plug-in, Withdrawable						Fixed, Plug-in		Fixed, Plug-in, Withdrawable					
N	**S**	**H[1]**	**L[1]**	**V[1]**	**X**	**N**	**S**	**N**	**S**	**H[1]**	**L[1]**	**V[1]**	**X**
65	100	150	200	200	200	50	65	65	100	150	200	200	200
25	35	65	100	150	200	25	35	25	35	65	100	150	200
–	–	–	–	–	–	10	10	–	–	–	–	–	–
18	22	25	35	42	45	–	–	18	22	25	50	65	100/65 [4]
35	50	65	75	85	85	25	35	35	42	50	85	100	–
35	50	65	75	85	85	25	35	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	35	50	65	75	85	–
25000						25000		25000					
240						240		240					
[90 x 82,5 x 130] / [3.54 x 3.25 x 5.12]						[105 x 70 x 150] / [4.13 x 2.75 x 5.90]		[105 x 82,5 x 160] - [4.13 x 3.25 x 6.3]					
[120 x 82,5 x 130] / [4.72 x 3.25 x 5.12]						[140 x 70 x 150] / [5.51 x 2.75 x 5.90]		[140 x 82,5 x 160] - [5.51 x 3.25 x 6.3]					
[1,2 - 2.65] / [1,6 - 3.53]						[1,7 - 3.37] / [2,1 - 4.63]		[2,5 - 5.51] / [3,5 - 7.72]					
[2,54 - 5.60] / [3,27 - 7.21]						[3,24 - 7.14] / [4,1 - 9.04]		[4,19 - 9.24] / [5,52 - 12.17]					
[3,32 - 7.32] / [4,04 - 8.91]								[5 - 11.02] / [6,76 - 14.90]					
15						15		15					
15						15		15					
■						■		■					
■								■					
■								■					
■								■					
■								■					
								■					

XT2			XT3		XT4		
125			225		250		
3			3		3		
600			600Y/347		600		
500			500		600		
Fixed, Plug-in, Withdrawable			Fixed, Plug-in		Fixed, Plug-in, Withdrawable		
H			**S**		**H**		
■			■		■		
■					■		
■					■		

XT2				XT3		XT4				
125				225		250				
3, 4				3, 4		3, 4				
600				600Y/347		600				
500 3p series				500 3p series		600 3p series				
Fixed, Plug-in, Withdrawable				Fixed, Plug-in		Fixed, Plug-in, Withdrawable				
N	**H**	**L**	**V**	**N**	**S**	**N**	**S**	**H**	**L**	**V**
1250				2250		2500				

Main characteristics

Positive operation



Installation positions

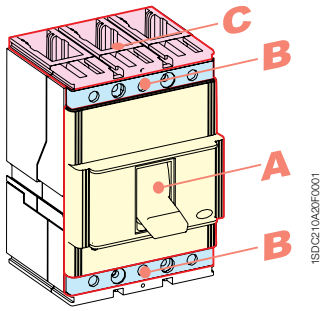
The references in round brackets (Gx.x) refer to the Glossary in the final chapter of the technical catalog.

All circuit breakers in the SACE Tmax XT family are made with the following construction characteristics:

- double insulation(G1.5);
- positive operation(G1.6);
- isolation behavior(G1.7);
- electromagnetic compatibility(G1.8);
- tropicalization(G1.9);
- impact and vibration resistance(G1.10);
- power supply from the top towards the bottom or vice versa, except for over 480V on XT2 and over 600V on XT4;
- installation versatility. Circuit breaker can be mounted in a horizontal or vertical position or laid flat without any derating of rated characteristics;
- no nominal performance derating for use up to an altitude of 2000m/6561ft. Above 2000m/6561ft, atmospheric properties (air composition, dielectric strength, cooling power and pressure) change, affecting the main parameters that define the circuit breaker. The table below shows changes to the main performance parameters:

Altitude		2000m/ 6561ft	3000m/ 9842ft	4000m/ 13123ft	5000m/ 16404ft
Rated employ voltage, Ue	[V AC]	600	528	468	408
Rated uninterrupted current	%	100	98	93	90

- SACE Tmax XT circuit breakers can be used in ambient temperatures between -25°C/-13°F and +70°C/158°F and stored in ambient temperatures between -40°C/-40°F and +70°C/158°F. For temperatures outside these ranges, see the “Temperature performance” paragraph of the “Typical curves and technical information” chapter;
- different degrees of IP (International Protection)(G 1.11)(2);



Protection degrees

Circuit-breaker	With front	Without front(1)	With front for lever -FLD-	With rotary handles	With extended rotary handle and accessory IP54	With high terminal covers HTC	With low terminal covers LTC
A	IP40	IP20	IP40	IP40	IP54	IP40	IP40
B	IP20	IP20	IP20	IP20	IP20	IP40	IP40
C	NC	NC	NC	NC	NC	IP40	IP30

(1) During the installation of electrical accessories
NC Not classifiable
(2) IEC only

Accessories	Motor operator MOD, MOE or MOE-E	Residual current devices	Residual current from switchboard RCQ020	Automatic transfer switch ATS021 and ATS022
On Front	IP30	IP40	IP41	IP40

Test pushbutton

- all circuit breakers in the XT family have a pushbutton for performing the release test. The circuit breaker must be closed, with no current, while the test is being performed.

Regulations and reference standards

Hologram

Conformity with Standards

SACE Tmax XT circuit breakers and their accessories are constructed in conformity with:

- Standard[G6.1]:
  - UL 489;
  - CSA C22.2 No. 5;
  - IEC 60947-2;
- Directives[G6.2]:
  - EC “Low Voltage Directive” (LVD) N° 2006/95/EC (replacing 73/23/EEC and subsequent amendments);
  - EC “Electromagnetic Compatibility Directive” (EMC) 2004/108/CE;
- Naval Registers[G6.3] (ask ABB SACE for the versions available):
  - ABS.

Naval Registers

Certification of conformity with the product Standards is carried out in the ABB SACE test laboratory (accredited by SINAL) in respect of the EN 45011 European Standard, by the Italian certification body ACAE (Association for Certification of Electrical Apparatus), member of the European LOVAG organization (Low Voltage Agreement Group) and by the Swedish certification body SEMKO belonging to the International IECEE organization.
The SACE Tmax XT series has a hologram on the front, obtained using special anti-forgery techniques. This ensures the quality and authenticity of the circuit breaker as a genuine ABB SACE product.

Company Quality System

The ABB SACE Quality System conforms to the following Standards:

- ISO 9001 International Standard;
- EN ISO 9001 (equivalent) European Standards;
- UNI EN ISO 9001 (equivalent) Italian Standards;
- IRIS International Railway Industry Standard.

The ABB SACE Quality System attained its first certification with the RINA certification body in 1990.

Environmental management system, social responsibility and ethics

For ABB SACE, environmental protection is a top priority, as evidenced when ours was the first industry in Italy’s electromechanical sector to have obtained the RINA’s Environmental Management System certification in recognition of the company’s commitment in conformity with the International ISO 14001 Standard.
In 1999, the Environmental Management System and the Occupational Health and Safety Management System were integrated according to the OHSAS 18001 Standard. In 2005, the SA 8000 (Social Accountability 8000) Standard was integrated, committing itself to respect business ethics and working conditions.
Our commitment to environmental protection is solidified through:

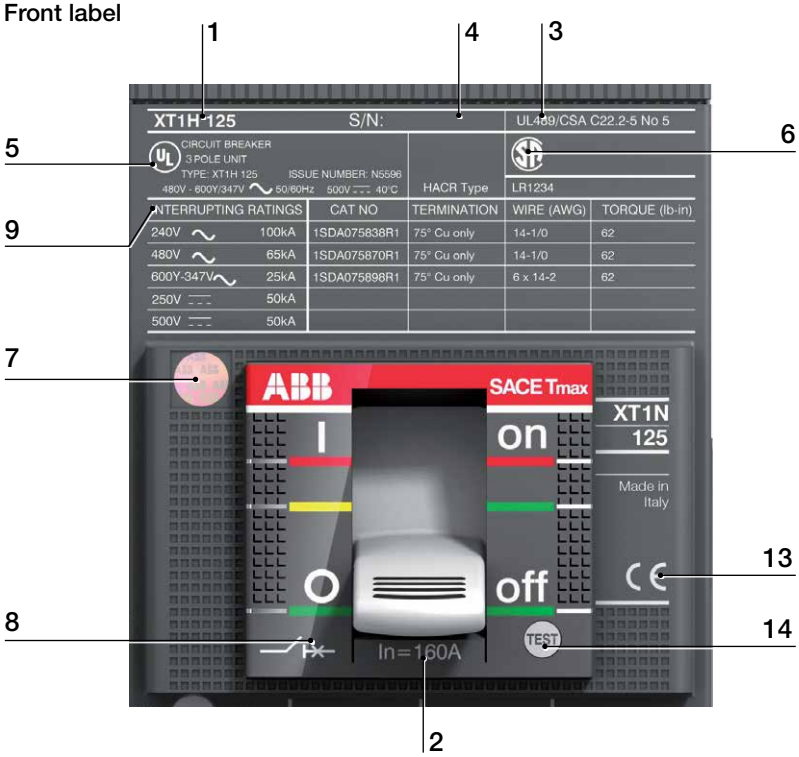
- selection of materials, processes and packaging which mitigate the true environmental impact of the product;
- use of recyclable materials;
- voluntary adherence to the RoHS directive[G6.4].

ISO 14001, 18001 and SA8000 recognitions together with ISO 9001 made it possible for ABB SACE to obtain RINA BEST FOUR CERTIFICATION.

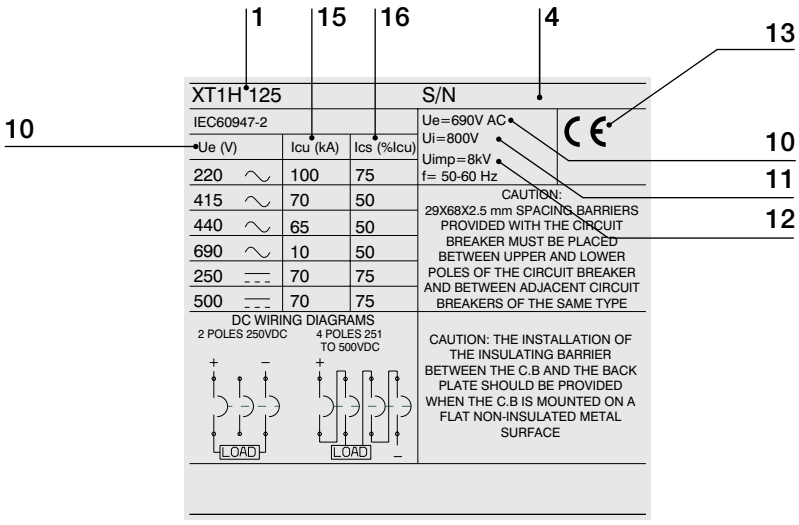
Identification of the SACE Tmax XT circuit breakers

The specifications of each circuit breaker appear on the rating name plate on both the front and side of the unit.

Front label



Side label



1	Name and performance level
2	In: rated current
3	Reference standard UL489/CSA22.2
4	Serial number
5	UL marking
6	CSA marking
7	Anti-forgery logo
8	Symbol of isolation behavior
9	Interrupting ratings
10	Rated service voltage
11	Rated insulation voltage
12	Rated impulse withstand voltage
13	CE marking
14	Test pushbutton
15	Rated ultimate short-circuit breaking capacity
16	Rated short-circuit duty breaking capacity

Nomenclature of the trip units

The tables below outline the logic behind the naming of each thermal magnetic and electronic trip unit.

Magnetic trip units		
Family name		**Protection**
M: magnetic	+	A: with adjustable threshold

Thermal magnetic trip units		
Family name		**Protection**
TM: thermal magnetic	+	F: with fixed threshold A: with adjustable thermal and magnetic threshold

Example:

- MA: magnetic only trip unit, with adjustable protection threshold (MCP);
- TMF: thermal magnetic trip unit, with fixed thermal and fixed magnetic protection threshold;

Electronic trip units				
Family name		**Application**		**Protection**
Ekip	+	….: Distribution M: Motor protection E: Energy measurements	+	I LS/I LSI LSIG LIU

Example:

- Ekip LS/I: electronic trip unit for distribution networks protection, with “L” against overload and either “S” protection function against delay short circuit or “I” protection function against instantaneous short circuit;
- Ekip M-LIU: electronic trip unit for motor protection, with LIU protection functions.

Residual current protection devices[1]		
Family name		**Typology**
RC	+	Inst: instantaneous type ‘A’ Sel: selective type ‘A’ Sel 200: selective type ‘A’ reduced to 200mm B Type: selective type ‘B’

[1] IEC only