

TX³ MCB 6000 A up to 63 A (1 module per pole)

Cat. N° (s) : 4 035 74 to 4 036 32

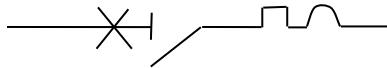


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1. DESCRIPTION - USE:

. Thermal-magnetic circuit breaker (MCB) with positive contact indication for control, protection against short-circuits and overloads, and isolation of electrical circuits.

Symbol:



Technology:

. Limiting device

2. RANGE

Polarity:

. 1P / 1P+N / 2P / 3P / 4P

Width:

. 1 module per pole. Each pole is 17,8 mm

Rated currents, In:

. 6 / 10 / 16 / 20 / 25 / 32 / 40 / 50 / 63A

Magnetic tripping curves:

. C Curve (between 5 and 10 In)

Thermal threshold according to IEC/EN 60898-1:

. Non operating current (In): 1.13 In.

. Operating current (If): 1.45 In.

Rated Voltage and Frequency:

. 230 V ~ / 400 V ~ - 50 / 60 Hz with standard tolerances

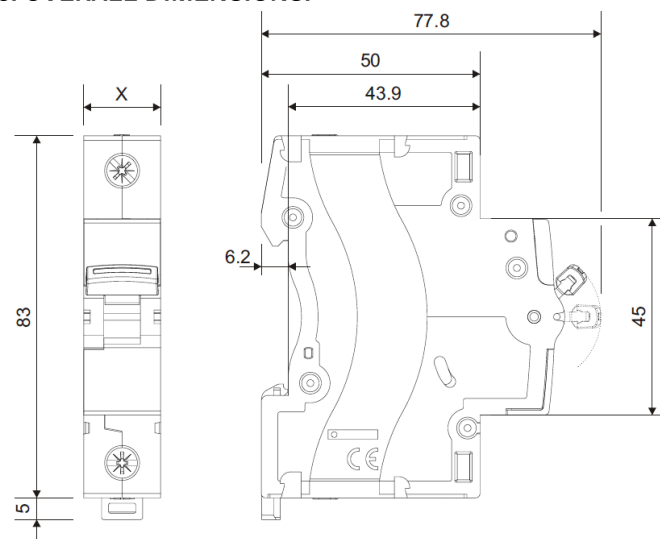
Maximum operating voltage:

. 440 V ~ with possible derating of the breaking capacity

Breaking capacity:

. 6000 A in accordance with standard EN/IEC 60898-1

3. OVERALL DIMENSIONS:



	X
1P	17.7 mm
1P+N / 2P	35.4 mm
3P	53.1 mm
4P	70.8 mm

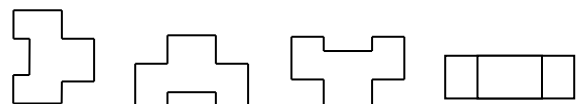
4. PREPARATION - CONNECTION

Fixing:

. On symmetrical rail EN/IEC 60715 or DIN 35 rail.

Operating positions:

. Vertical Horizontal Upside down On the side



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4. PREPARATION - CONNECTION *(continued)*

Power supply:

. From the top or the bottom.

Connection:

. Inputs and outputs via screw terminals
. The location of the terminals allows supplying by traditional HX³ pin busbar.

Terminal depth :

. 14 mm

Stripping length recommended:

. 11 mm

Screw head:

. Mixed, slotted and Pozidriv 2.

Tightening torque:

. Recommended: 2.5 Nm.
. Mini: 2 Nm. Maxi: 3 Nm.

Tools required:

. For the terminals: Pozidriv n° 2 or flat screwdriver 5.5 mm (6 mm maximum).
. For fixing: flat screwdriver 5.5 mm (6 mm maximum).

Connectable section:

. $I_n \leq 25A$

	Copper cables	
	Without ferrule	With ferrule
Rigid cable	1 x 1.5 mm ² to 25 mm ²	-
Flexible cable	1 x 1.5 mm ² to 16 mm ²	1 x 1.5 mm ² to 16 mm ²

. In from 32A up to 63A

	Copper cables	
	Without ferrule	With ferrule
Rigid cable	1 x 1.5 mm ² to 35 mm ²	-
Flexible cable	1 x 1.5 mm ² to 25 mm ²	1 x 1.5 mm ² to 25 mm ²

Manual actuation of the MCB:

. Ergonomic 2-position handle: ON and OFF

Contact status display:

. By front face marking:
- "O-OFF" = contacts open
- "I-ON" = contacts closed

Sealing:

. Possible in "Open" position (OFF) or "Close" position (ON).

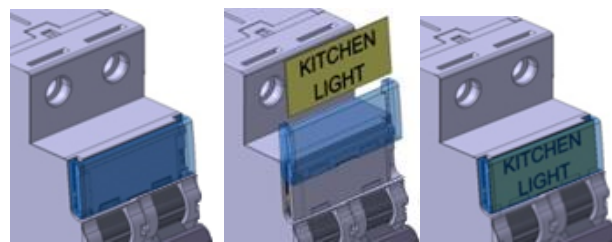
Locking:

. By 5 mm padlock (cat. N° 4 063 13) or 6 mm padlock (cat. N° 0 227 97) with padlock support (cat. N° 4 063 03).

4. PREPARATION - CONNECTION *(continued)*


Labelling:

. Circuit identification by way of a label inserted in the label holder situated on the front of the product



5. GENERAL CHARACTERISTICS:

Marking on the front side:

- . By permanent ink pad printing:
 - Trade name: TX³
 - Breaking curve
 - Rated current (in A)
 - Contact status.
 - Icn in A rated breaking capacity in accordance with IEC/EN 60898-1 (in a box)
 - Limiting class "3" (in a square)
 - Legrand reference code, and Logo 
 - Brand: Legrand.



Short-circuit breaking capacity:

. Alternate current 50/60Hz, single-phase or three-phase network, in accordance with standard: EN/IEC 60898-1

Un		1P / 1P+N	2P	3P / 4P
110 V~	Icn	10000 A	16000 A	-
230V~		6000 A	10000 A	10000 A
400V~		-	6000 A	6000 A

Un				
110 V~	Ics			
230V~		75% of Icn	75% of Icn	75% of Icn
400V~				

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5. GENERAL CHARACTERISTICS (continued)

. Alternate current 50/60Hz, single-phase or three-phase network, in accordance with standard: EN/IEC 60947-2

Un		1P / 1P+N	2P	3P / 4P
110 V~	Icu	10 kA	16 kA	-
230V~		6 kA	10 kA	10 kA
400V~		-	6 kA	6 kA

110 V~	Ics	75% of Icu	75% of Icu	75% of Icu
230V~				
400V~				

Short-circuit breaking capacity of only one pole:

- . Three-phase network 400 V~
 - in TN neutral system, Icn1 = 6 kA
 - in IT distribution system, lit = 3 kA
- . Three-phase network 230 V~
 - in TN neutral system, Icn1 = 10 kA
 - in IT distribution system, lit = 6 kA

Minimum operating voltage:

. 12 V .

Pulse rated voltage:

. Uimp = 4 kV

Insulation rated voltage:

. Ui = 500 V

Pollution degree :

. 2 in accordance with standard EN/IEC 60898-1.

Electric strength:

. 2500 V

Operation at 400 Hz:

. The magnetic thresholds increase by 45%.

Load to close and to open a pole through the handle:

- . 0.1 Nm per pole to close.
- . 0.075 Nm per pole to open.

Mechanical endurance:

- . 20000 operations without load.
- . 10000 operations with load (under $I_n \cdot \cos \varphi = 0.9$).

5. GENERAL CHARACTERISTICS (continued)

Enclosure material:

- . Polyester.
- . Glow-wire test at 960° C according to IEC/EN 60898-1 and IEC 60695-2-12
- . Halogens-free

Average weight per pole:

. 0.150 kg.

Volume when packed:

	Volume (dm ³)
Single pole (packed per 10)	1.628
Double pole (packed per 5)	1.628
Triple pole / Four pole	0.720

Ambient temperatures:

- . Operation: from - 25 °C to + 70 °C
- . Storage: from - 40 °C to + 70 °C

Degree or class of protection:

- . Degree of protection in the terminals area: IP 20, (in accordance with standards IEC/EN 60898-1 and IEC/EN 60529).
- . Degree of protection of the remaining parts: IP 40 (in accordance with standards IEC/EN 60529).
- . Protection index against mechanical shocks: IK 02 (in accordance with standards IEC/EN 62262).

Sinusoidal vibration resistance in accordance with IEC 60068.2.6:

- . Axis: x, y, z.
- . Frequency range: 5 ÷ 100 Hz ; duration 90 minutes
- . Displacement (5 ÷ 13,2 Hz) : 1mm
- . Acceleration (13,2 ÷ 100 Hz) : 0,7 (g=9,81 m/s²)

Power dissipated per pole (W) :

. Circuit breaker B and C curves

In	6 A	10 A	16 A	20 A
1P ÷ 4 P	1.1	1.8	2.2	2.4

In	25 A	32 A	40 A	50A	63A
1P ÷ 4 P	3.0	3.2	4	4.5	5.5

. Impedance per pole (Ω) = $\frac{P \text{ dissipated}}{I_n^2}$

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5. GENERAL CHARACTERISTICS *(continued)*:

Derating of circuit-breakers according to ambient temperature :

. The nominal characteristics of a circuit breaker are modified according to the ambient temperature inside the cabinet or the enclosure where the circuit breaker is located.

. Reference temperature: 30 ° C in accordance with EN/IEC 60898-1

In (A)	Ambient Temperature / In									
	- 25° C	- 10° C	0° C	10° C	20° C	30° C	40° C	50° C	60° C	70° C
6	7.5	7.0	6.6	6.4	6.2	6.0	5.8	5.6	5.4	5.3
10	12.5	11.5	11.1	10.7	10.3	10.0	9.7	9.3	9.0	8.7
16	20.0	18.7	18.0	17.3	16.6	16.0	15.4	14.7	14.1	13.5
20	25.0	23.2	22.4	21.6	20.8	20.0	19.2	18.4	17.6	16.8
25	31.5	29.5	28.3	27.2	26.0	25.0	24.0	22.7	21.7	20.7
30	38.3	36.0	34.5	33.0	31.5	30.0	28.8	27.3	26.1	24.9
32	41.0	37.8	36.5	34.9	33.3	32.0	30.7	29.1	27.8	26.5
40	51.0	48.0	46.0	44.0	42.0	40.0	38.0	36.0	34.0	32.0
50	64.0	60.0	57.5	55.0	52.5	50.0	47.5	45.0	42.5	40.0
63	80.6	75.6	72.5	69.9	66.1	63.0	59.8	56.1	52.9	49.7

Derating of MCB for use with fluorescent lights:

Ferromagnetic and electronic ballasts have a high inrush current for a short time. These currents can cause the tripping of circuit breakers.

At the time of the installation, it should take into account the maximum number of ballasts per circuit breaker that the manufacturers of lamps and ballasts indicate in their catalogues.

Influence of the altitude:

	≤2000 m	3000 m	4000 m
Dielectric holding	3000 V	2500 V	2000 V
Max operational Voltage	400 V	400 V	400 V
Derating at 30° C	none	none	none

Derating of MCBs function of the number of devices side by side:

When several MCBs are juxtaposed and operate simultaneously, the thermal evacuation of the poles is limited. This results in an increase in operating temperature of the circuit breakers which can cause unwanted tripping. It is recommended to apply the following coefficients to the rated currents.

Number of circuit breakers side by side	Coefficient
2 - 3	0.9
4 - 5	0.8
6 - 9	0.7
≥ 10	0.6

These values are given by the recommendation of IEC 61439-1, NF C 63421 and EN 61439-1 standards.

To avoid using these coefficients, it is necessary to allow a good ventilation and to separate the devices with 0.5 module spacing elements (cat. N° 4 063 07).

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6. COMPLIANCE AND APPROVALS

In accordance with standards:

- . IEC/EN 60898-1 with 6000 A breaking capacity
- . EU guidelines: 2014/35/EU
- . Legrand circuit-breakers can be used under the conditions of use as defined by IEC/EN 60947.
- . The performance of circuit-breakers can be influenced by particular climates: hot dry, cold dry, hot humid, salt fog atmosphere.

Classification according to Annex Q (standard IEC/EN 60947-1):

- . Category C with a range test temperature -25 ° C / +70 ° C
- . Salt fog atmosphere according to IEC 60068-2-52

Environment respect – Compliance with EU directives:

- . Compliance with Directive 2011/65/EU of 08/06/11 (RoHS) and subsequent modifications and integrations.

Plastic materials:

- . Halogens-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

Packaging:

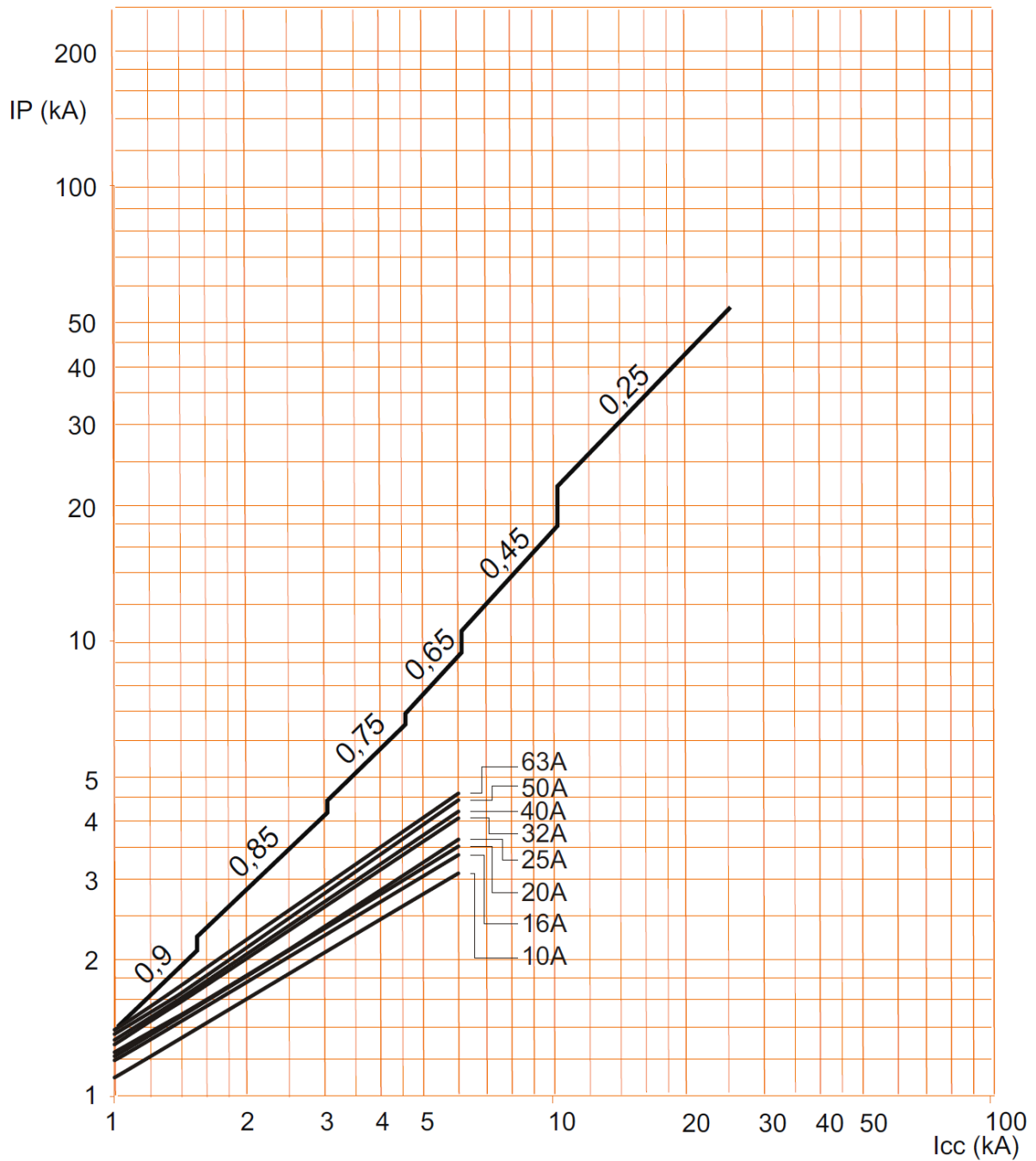
- . Design and manufacture of packaging in accordance with Decree 98-638 of 07.20.98 and Directive 94/62/EC

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7. CHARACTERISTIC CURVES

Limiting current curve: circuit breakers C curve:



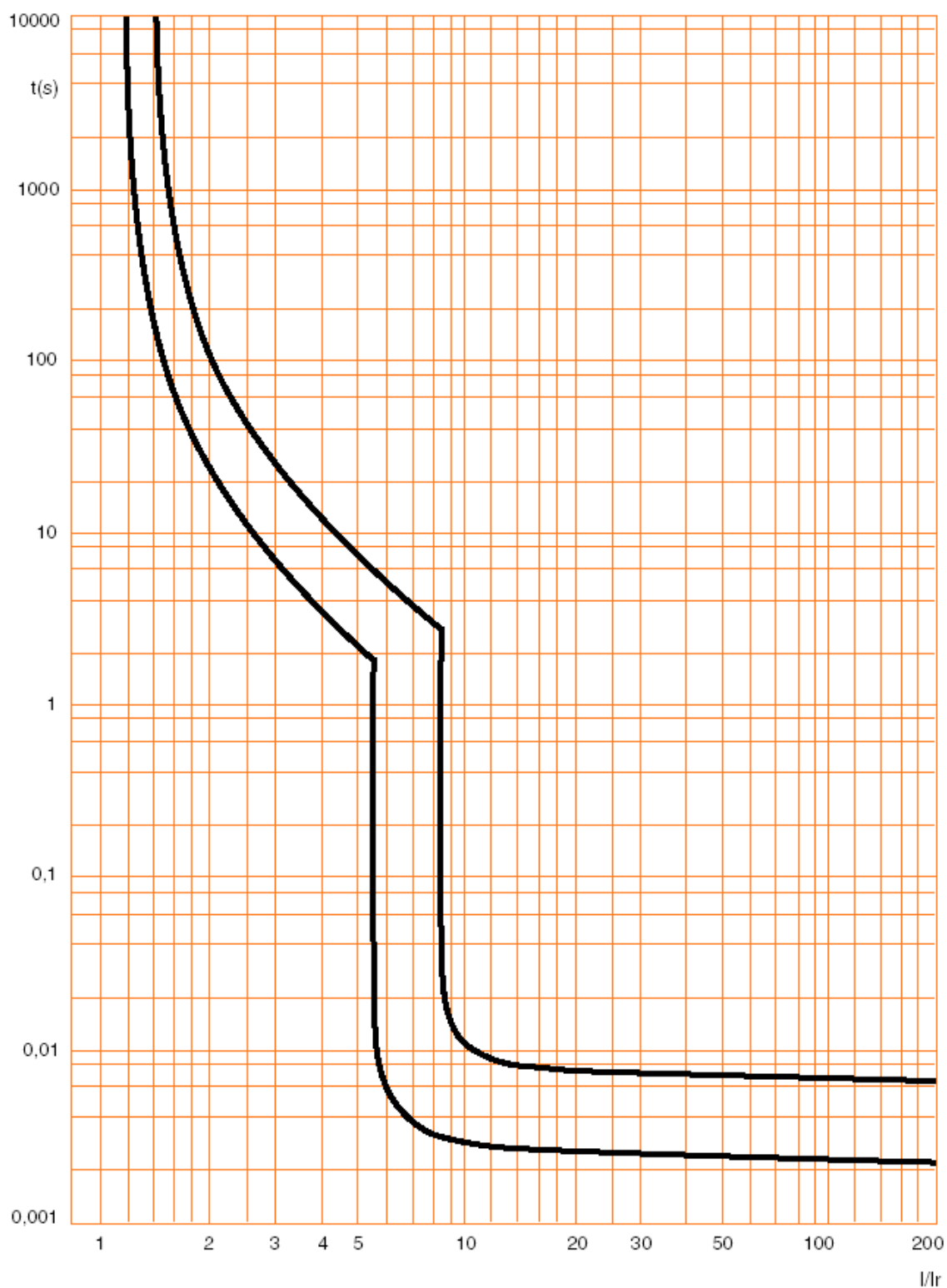
. I_{cc} = Square value of symmetric component of the short circuit current (kA).
 . IP = Max peak value (kA)

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7. CHARACTERISTIC CURVES *(continued)*

Operating characteristic of circuit breakers C curve:

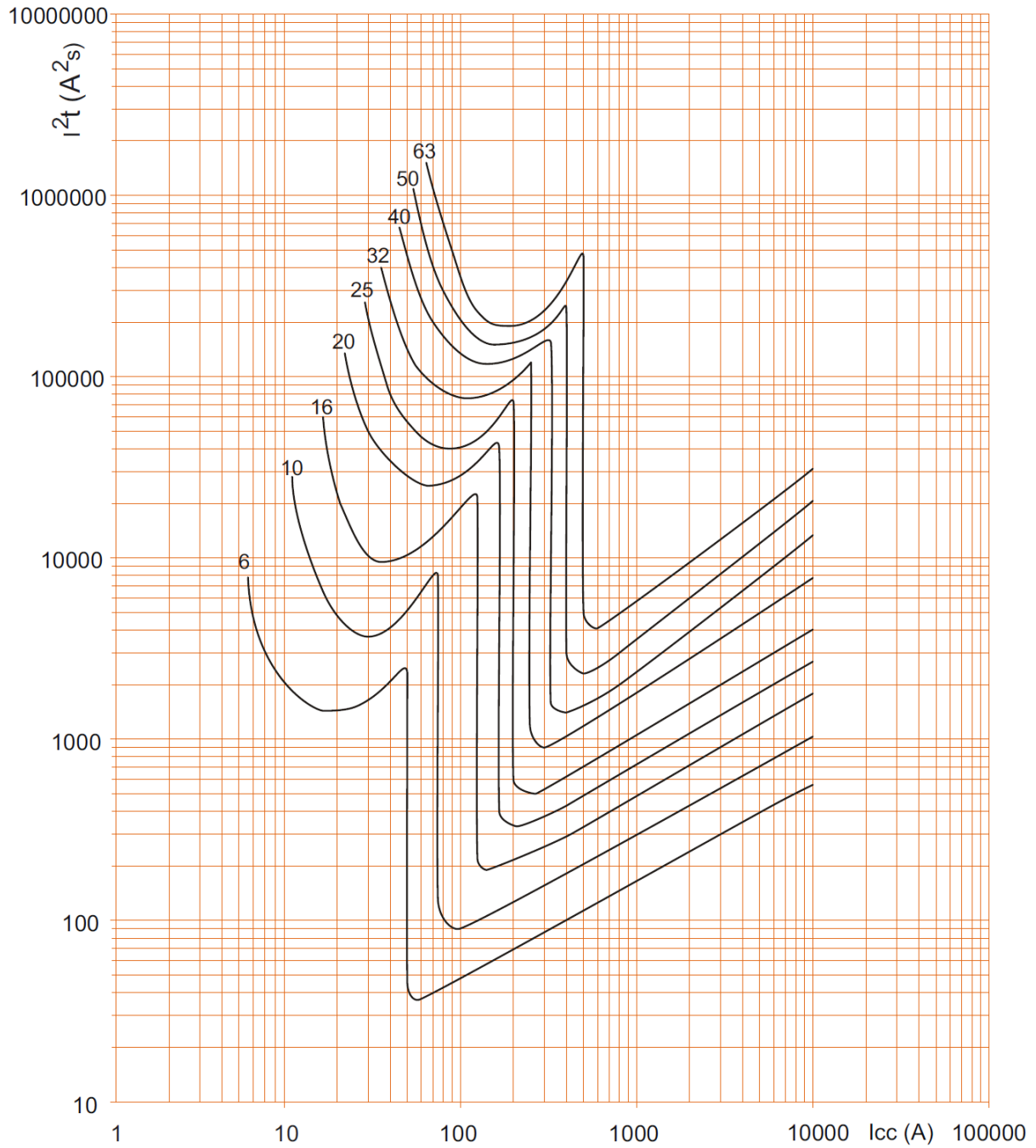


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7. CHARACTERISTIC CURVES *(continued)*

. Limiting thermal energy curve of circuit breakers C curve, 2P (230 V~ / 50 Hz) :



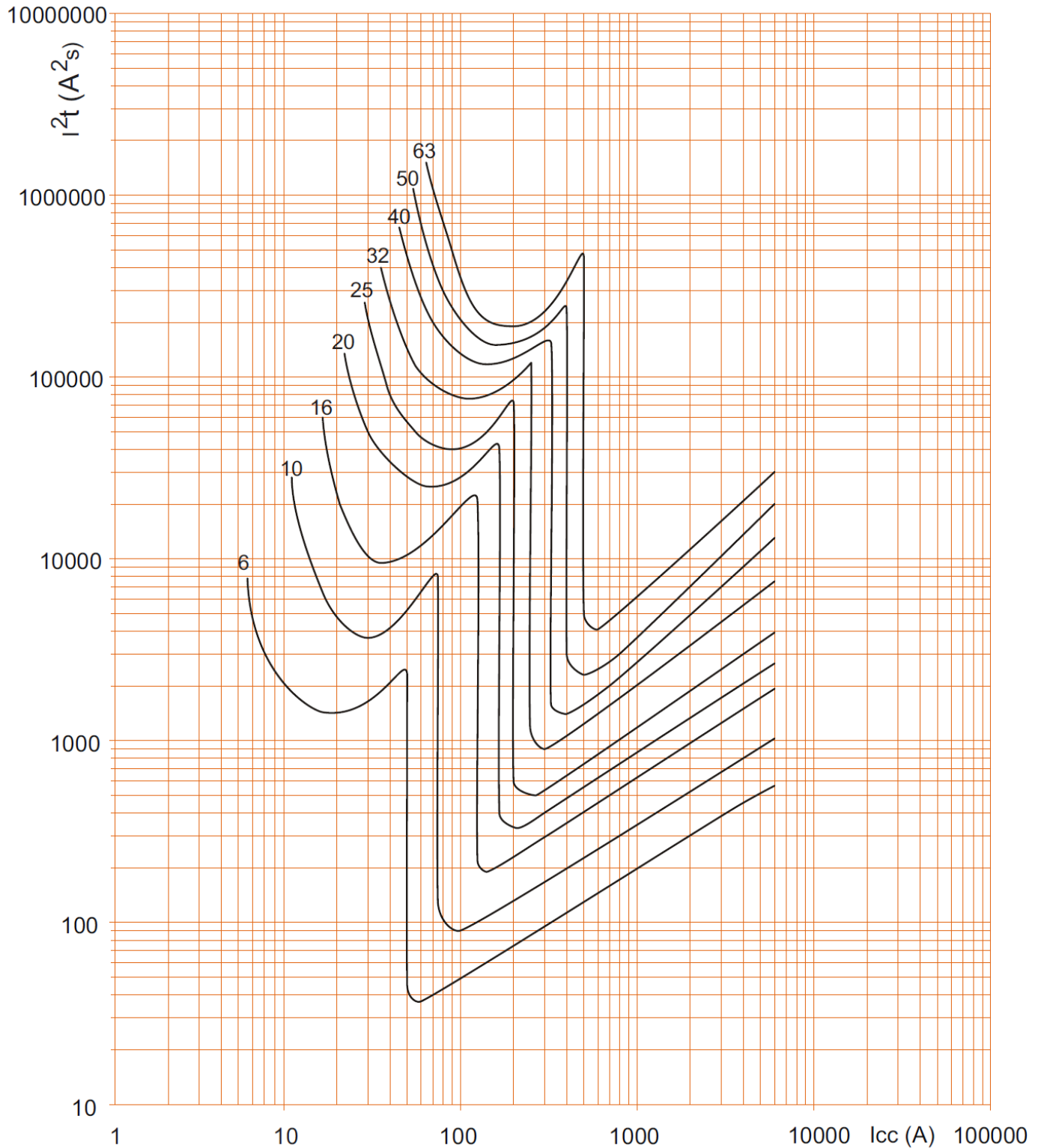
. I_{cc} = Square value of symmetric component of the short circuit current (kA).
 . I²t = Thermal energy limited (A²s).

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7. CHARACTERISTIC CURVES (continued)

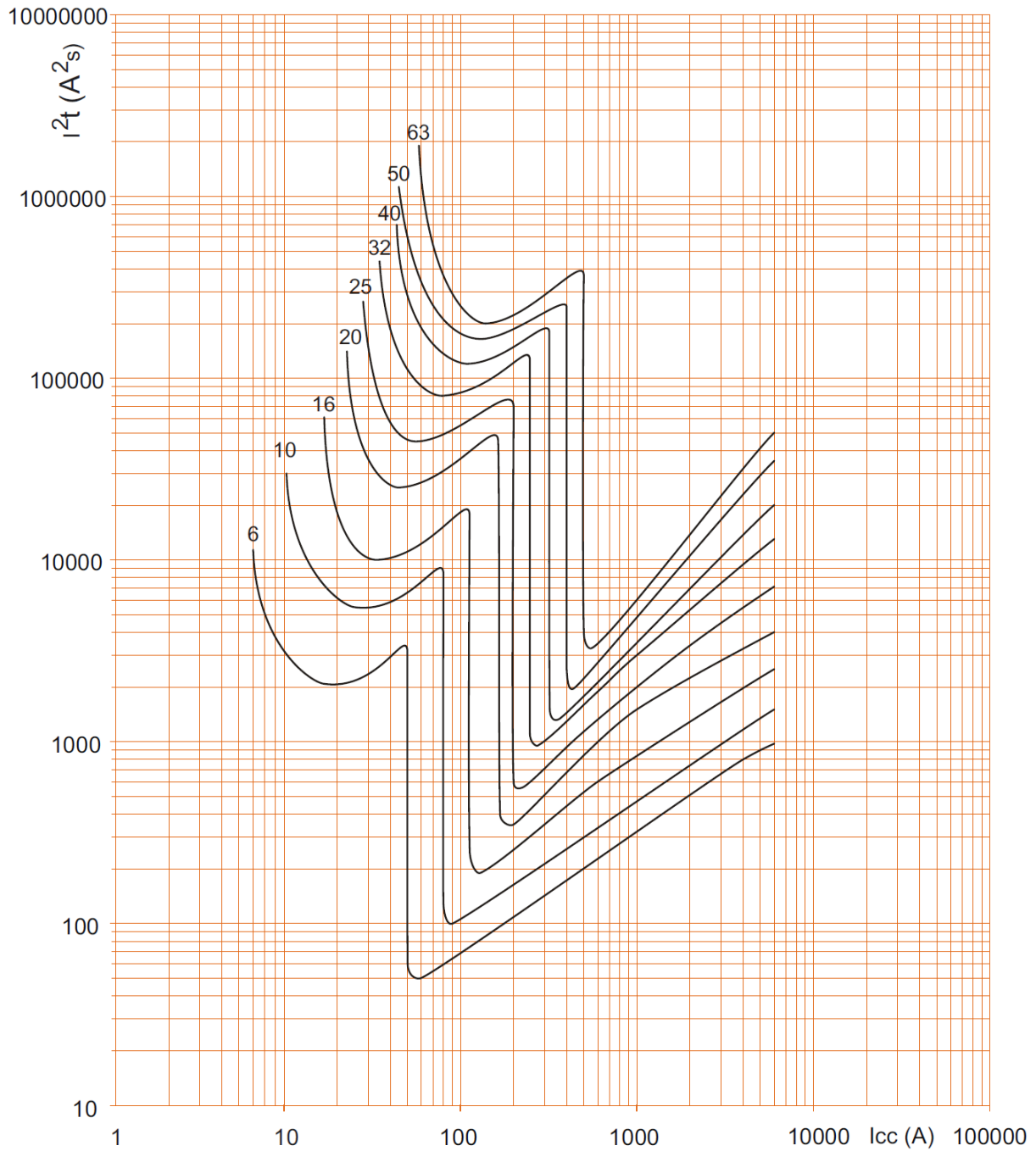
. Limiting thermal energy curve of circuit breakers C curve, 2P (400 V~ / 50 Hz) :



. I_{cc} = Square value of symmetric component of the short circuit current (kA).
 . I^2t = Thermal energy limited (A^2s).

7. CHARACTERISTIC CURVES *(continued)*

. Limiting thermal energy curve of circuit breakers C curve, 1P / 3P / 4P (400 V~ / 50 Hz) :



. Icc = Square value of symmetric component of the short circuit current (kA).
 . I²t = Thermal energy limited (A²s).

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8. AUXILIARIES AND ACCESSORIES

Wiring accessories:

- . Pin busbar HX³ traditional.
- . Sealable screw cover (cat n° 4 063 04)
- . Insulating shields (cat n° 4 063 05)
- . Dispatcher row Lexiclic
- . Dispatcher row HX³

Signal auxiliaries:

- . Auxiliary contact (½ module – cat n° 4 062 58).
- . Fault signalling changeover switch (½ module – cat n° 4 062 60).
- . Auxiliary contact modifiable in default signal (½ module – cat n° 4 062 62).
- . Auxiliary contact + fault signalling switch - can be modified to 2 auxiliary contacts (1 module - cat n° 4 062 66).

Control auxiliaries:

- . Shunt releases (1 module - cat n° 4 062 76 /78)
- . Under voltage release (1 module - cat n° 4 062 80 /82)
- . Autonomous shunt trip for NC push-button (1 module - cat n° 4 062 84).
- . Power Overvoltage Protection (1 module – cat n° 4 062 86)

Motor driven control modules

- . Motor driven control module (1 module – cat n° 4 062 91)
- . Motor driven control module with automatic resetting integrated (2 modules – cat n° 4 062 93 /95)

Possible combinations of m.c.b and auxiliaries:

- . Auxiliaries are clipped on the left of the m.c.b.
- . Maximum number of auxiliaries for one circuit-breaker: 3.
- . Two signalling auxiliaries max. (cat. n° 4 062 58 /60 /62 /66).
- . Only one control auxiliary (cat. n° 4 062 76 /78 /80 /82 / 84).
- . One remote control or Stop & Go motor driven remote control
- . If signalling and control auxiliaries are associated on the same circuit breaker, the command auxiliary must be placed to the left of the signal auxiliary

Sealing:

- . Possible in "Open" position (OFF) or "Close" position (ON).

Locking:

- . By 5 mm padlock (cat. N° 4 063 13) or 6 mm padlock (cat. N° 0 227 97) with padlock support (cat. N° 4 063 03).

Installation software:

- . XL PRO³

9. USE IN DIRECT CURRENT

- . Refer to F03693EN