87045 LIMOGES Cedex
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Circuit-breaker DX³ 6000 A / 10 kA up to 63A (1 module per pole)

Cat. N° (s) : 407425 to 407438, 407502 to 407515, 407554 to 407567, 407662 to 407676, 407748 to 407762, 407792 to 407806, 407851 to 407865, 407920 to 407934, 407962 to 407977, 408022 to 408037, 408080 to 408095, 408143 to 408153

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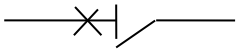
1. DESCRIPTION - USE:

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

Symbol:



Technology:

. Energy limiting circuit-breaker
. 1 Module (17,8 mm) per pole

2. RANGE

Polarity:

. 1P / 1P+N (only type C) / 2P / 3P / 4P

Rated currents, In:

. 1 / 2 / 3 / 4 / 6 / 10 / 13 / 16 / 20 / 25 / 32 / 40 / 50 / 63A B and C type.
. 0,5 / 1 / 2 / 3 / 4 / 6 / 10 / 13 / 16 / 20 / 25 / 32 / 40 / 50 / 63A D type.

Instantaneous tripping characteristics according to IEC/EN 60898-1:

. B type . C type . D type

Time-current characteristic according to IEC/EN 60898-1:

. Reference temperature: 30° C
. Non-tripping current (Int): 1,13 In.
. Tripping current (It): 1,45 In.

Instantaneous tripping characteristics according to IEC/EN 60947-2:

. B type = 4 In +/- 20%
. C type = 7 In +/- 20%
. D type = 12,5 In +/- 20%

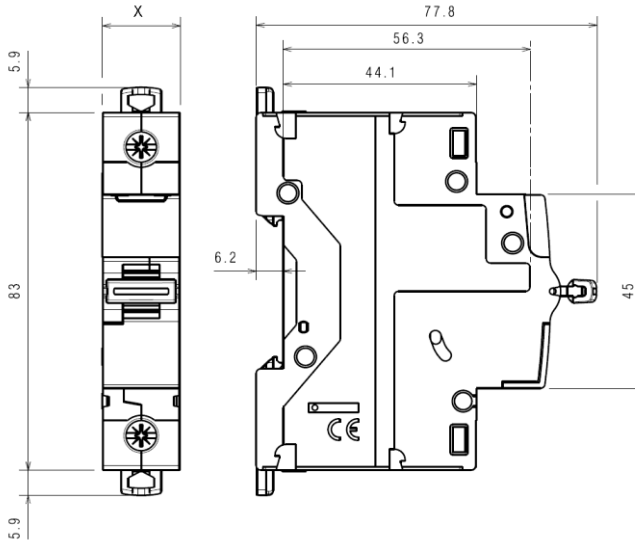
Time-current characteristic according to IEC/EN 60947-2:

. Reference temperature: 50° C
. Non-tripping current: 1,05 In.
. Tripping current: 1,3 In.

Breaking capacity and Rated voltage (50/60 Hz):

.6000 A according to IEC/EN 60898-1
230 V ~ / 400 V~
.10 kA cat. A according to IEC/EN 60947-2
240 V ~ / 415 V~

3. OVERALL DIMENSIONS:



	X
1P	**17.8 mm**
2P	**35.6 mm**
3P	**53.4 mm**
4P	**71.2 mm**

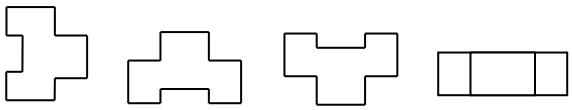
4. PREPARATION - CONNECTION

Fixing:

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

Operating positions:

. Vertical Horizontal Upside down On the side



Power supply:

. From the top or the bottom.

4. PREPARATION - CONNECTION *(continued)*

Connection:
. Inputs and outputs via screw-type terminals
The location of the terminals allows supplying by traditional HX³ pin busbar and fork 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 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:

	Copper cables	
	Without ferrule	With ferrule
Rigid cable	**1 x 1,5 mm² to 35 mm²** **2 x 1,5 mm² to 16 mm²**	**-**
Flexible cable	**1 x 1,5 mm² to 25 mm²** **2 x 1,5 mm² to 10 mm²**	**1 x 1,5 mm² to 25 mm²**

Aluminium cable with cross-section > 10 mm²: it is necessary to use the accessory with cat. N° 4 063 10.

Manual operation of the MCB:
. Ergonomic 2-position handle
. "I-ON": Device closed
. "O-OFF": Device open

Contact status display:
. By marking of the handle
- "O-OFF" in white on a green background = contacts open
- "I-ON" in white on a red background = contacts closed

Labelling:
. Identification of the circuit by insertion of a label in the label holder.

5. GENERAL CHARACTERISTICS:

Marking on the front side:
. By permanent ink pad printing:
- Trade name: DX³
- Tripping curve. [W]
- Rated current (in A) [XX].
- Icn in A rated breaking capacity according to IEC/EN 60898-1 (in a rectangle) [####]
- Energy limiting class “3”according to EN 60898-1 (in a square)
- Trademark: Legrand.
- Redline.
- Line + dot logo.
- Reference. [YYYY YY]

Marking on the side:
- Production information and COPY-TRACER
(The Copytracer number ensures that a product is traced and guarantees its production quality).
Info: http://www.legrand-copytracer.com/

Short-circuit breaking capacity:
. Alternate current 50/60Hz, single-phase or three-phase network, in accordance with standard: IEC/EN 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**

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

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

Un		1P / 1P+N	2P	3P / 4P
110 V~	**Icu**	**16 kA**	**32 kA**	**-**
230V~		**10 kA**	**25 kA**	**25 kA**
400V~		**-**	**10 kA**	**10 kA**

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

5. GENERAL CHARACTERISTICS *(continued)*

Short-circuit breaking capacity on one pole:

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

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

Minimum operating voltage:

. 12 V.

Rated impulse withstand voltage:

. Uimp = 4 kV

Insulation rated voltage:

. Ui = 500 V

Pollution degree:

. 2 according to IEC/EN 60898-1.
. 3 according to IEC/EN 60947-2.

Resistance to environmental conditions:

. according to IEC/EN 60068-2-30 (55° C, 90% RH)
. severity 2 (marine environment) in accordance with standard IEC/EN 60068-2-52.

Dielectric strength at power frequency:

. 2500 V

Operation at 400Hz:

. The instantaneous tripping threshold increase by 45%.

Force necessary to close and to open by the handle:

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

Mechanical and electrical endurance:

. 20000 operations without load.
. 10000 operations with load (under In*cos φ = 0,9).

Enclosure material:

. 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.

5. GENERAL CHARACTERISTICS *(continued)*

Volume when packed:

	Volume (dm³)
1P	**0,163**
2P	**0,334**
3P / 4P	**0,680**

Ambient operating temperature:

. Min. = -25° C. Max. = +70° C

Ambient storage temperature:

. Min. = -40° C. Max. = +70° C

Degree 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/EN 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): 0,7g (g=9,81 m/s²)

Recognition:

. Recognition of the circuits by label in the "label holder" on the front-side of the MCB

Power dissipated per pole (W):

. Type B Circuit-breakers

In	2 A	6 A	10 A	16 A	20 A	25 A	32 A
1P ÷ 4P	**2**	**1,1**	**1,8**	**2**	**2,2**	**2,7**	**3,2**

In	40 A	50A	63A
1P ÷ 4P	**4**	**4,5**	**5,5**

. Type C and D Circuit-breakers

In	0,5 A	1 A	2 A	3 A	4 A	6 A	10 A
1P ÷ 4P	**1,7**	**2**	**2**	**2**	**2**	**1,1**	**1,8**

In	16 A	20 A	25 A	32 A	40 A	50A	63A
1P ÷ 4P	**2**	**2,2**	**2,7**	**3,2**	**4**	**4,5**	**5,5**

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

5. GENERAL CHARACTERISTICS *(continued):*

Derating of circuit-breakers according to ambient temperature:

. The rated current of a circuit-breaker is 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 IEC/EN 60898-1

	Ambient Temperature / In									
In (A)	- 25° C	- 10° C	0° C	10° C	20° C	**30° C**	40° C	50° C	60° C	70° C
0.5	**0.62**	**0.6**	**0.57**	**0.55**	**0.52**	**0.5**	**0.47**	**0.42**	**0.40**	**0.38**
1	**1.5**	**1.4**	**1.3**	**1.2**	**1.1**	**1**	**0.9**	**0.8**	**0.7**	**0.6**
1.5	**1.9**	**1.8**	**1.7**	**1.7**	**1.6**	**1.5**	**1.5**	**1.4**	**1.4**	**1.3**
2	**2.8**	**2.6**	**2.5**	**2.3**	**2.2**	**2**	**2**	**1.9**	**1.8**	**1.7**
3	**3.8**	**3.6**	**3.5**	**3.3**	**3.2**	**3.0**	**2.9**	**2.8**	**2.7**	**2.6**
3.5	**4.5**	**4.2**	**4.0**	**3.9**	**3.7**	**3.5**	**3.4**	**3.3**	**3.2**	**3.1**
5	**6.4**	**6.0**	**5.8**	**5.5**	**5.3**	**5.0**	**4.8**	**4.7**	**4.5**	**4.6**
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**
13	**16.3**	**15.0**	**14.3**	**13.9**	**13.4**	**13.0**	**12.6**	**12.1**	**11.7**	**11.3**
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**

. Reference temperature: 50° C in accordance with IEC/EN 60947-2

	Ambient Temperature / In									
In (A)	- 25° C	- 10° C	0° C	10° C	20° C	30° C	40° C	50° C	60° C	70° C
0.5	**0,64**	**0.62**	**0.6**	**0.58**	**0.56**	**0.54**	**0.52**	**0.5**	**0.48**	**0.45**
1	**1.76**	**1.6**	**1.5**	**1.4**	**1.3**	**1.2**	**1.1**	**1**	**0.95**	**0.9**
1.5	**2,2**	**2.0**	**1.9**	**1.8**	**1.7**	**1.7**	**1.6**	**1.5**	**1.5**	**1.4**
2	**3,3**	**3.0**	**2.8**	**2.6**	**2.5**	**2.3**	**2.2**	**2**	**2**	**1.9**
3	**4,5**	**4.1**	**3.8**	**3.6**	**3.5**	**3.3**	**3.2**	**3.0**	**2.9**	**2.8**
3.5	**5.3**	**4.9**	**4.5**	**4.2**	**4.0**	**3.9**	**3.7**	**3.5**	**3.4**	**3.3**
5	**7.7**	**7.0**	**6.4**	**6.0**	**5.8**	**5.5**	**5.3**	**5.0**	**4.8**	**4.7**
6	**9**	**8.2**	**7.5**	**7.0**	**6.6**	**6.4**	**6.2**	**6.0**	**5.8**	**5.6**
10	**14.6**	**13.3**	**12.5**	**11.5**	**11.1**	**10.7**	**10.3**	**10.0**	**9.7**	**9.3**
13	**20**	**18.2**	**16.3**	**15.0**	**14.3**	**13.9**	**13.4**	**13.0**	**12.6**	**12.1**
16	**23.5**	**21.4**	**20.0**	**18.7**	**18.0**	**17.3**	**16.6**	**16.0**	**15.4**	**14.7**
20	**29.3**	**26.7**	**25.0**	**23.2**	**22.4**	**21.6**	**20.8**	**20.0**	**19.2**	**18.4**
25	**37**	**33.7**	**31.5**	**29.5**	**28.3**	**27.2**	**26.0**	**25.0**	**24.0**	**22.7**
30	**44.9**	**40.9**	**38.3**	**36.0**	**34.5**	**33.0**	**31.5**	**30.0**	**28.8**	**27.3**
32	**48.1**	**43.8**	**41.0**	**37.8**	**36.5**	**34.9**	**33.3**	**32.0**	**30.7**	**29.1**
40	**59.9**	**54.5**	**51.0**	**48.0**	**46.0**	**44.0**	**42.0**	**40.0**	**38.0**	**36.0**
50	**75.2**	**68.4**	**64.0**	**60.0**	**57.5**	**55.0**	**52.5**	**50.0**	**47.5**	**45.0**
63	**94.8**	**86.2**	**80.6**	**75.6**	**72.5**	**69.9**	**66.1**	**63.0**	**59.8**	**56.1**

5. GENERAL CHARACTERISTICS *(continued):*

Use of circuit-breakers in circuits including 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 be taken 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 strength	**3000 V**	**2500 V**	**2000 V**
Max operational Voltage	**400 V**	**400 V**	**400 V**
Derating at 30° C	**none**	**none**	**none**

Correction factor for the rated current in case of devices installed side by side:

When several circuit-breakers are installed side by side and operate simultaneously, the thermal evacuation of the poles is limited. This results in an increased operating temperature of the circuit-breakers which can cause unwanted trippings. To avoid unwanted trippings, it is recommended to apply the following correction factors to the rated currents.

Number of circuit-breakers installed side by side	Correction factor
2 - 3	**0.9**
4 – 5	**0.8**
6 - 9	**0.7**
≥ 10	**0.6**

These values are recommended by IEC/EN 60439-1.
To avoid using correction factors, it is necessary to allow a good ventilation and to separate the devices with 0.5 module spacing elements (cat. N° 4 063 07).

6. CONFORMITIES AND APPROVALS

In accordance with standards:

. IEC/EN 60898-1 with 6000 A breaking capacity
. IEC/EN 60947-2 with 10 kA breaking capacity
. EU guidelines: 2014/35/EU + 2014/30/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 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.

Precious metal:

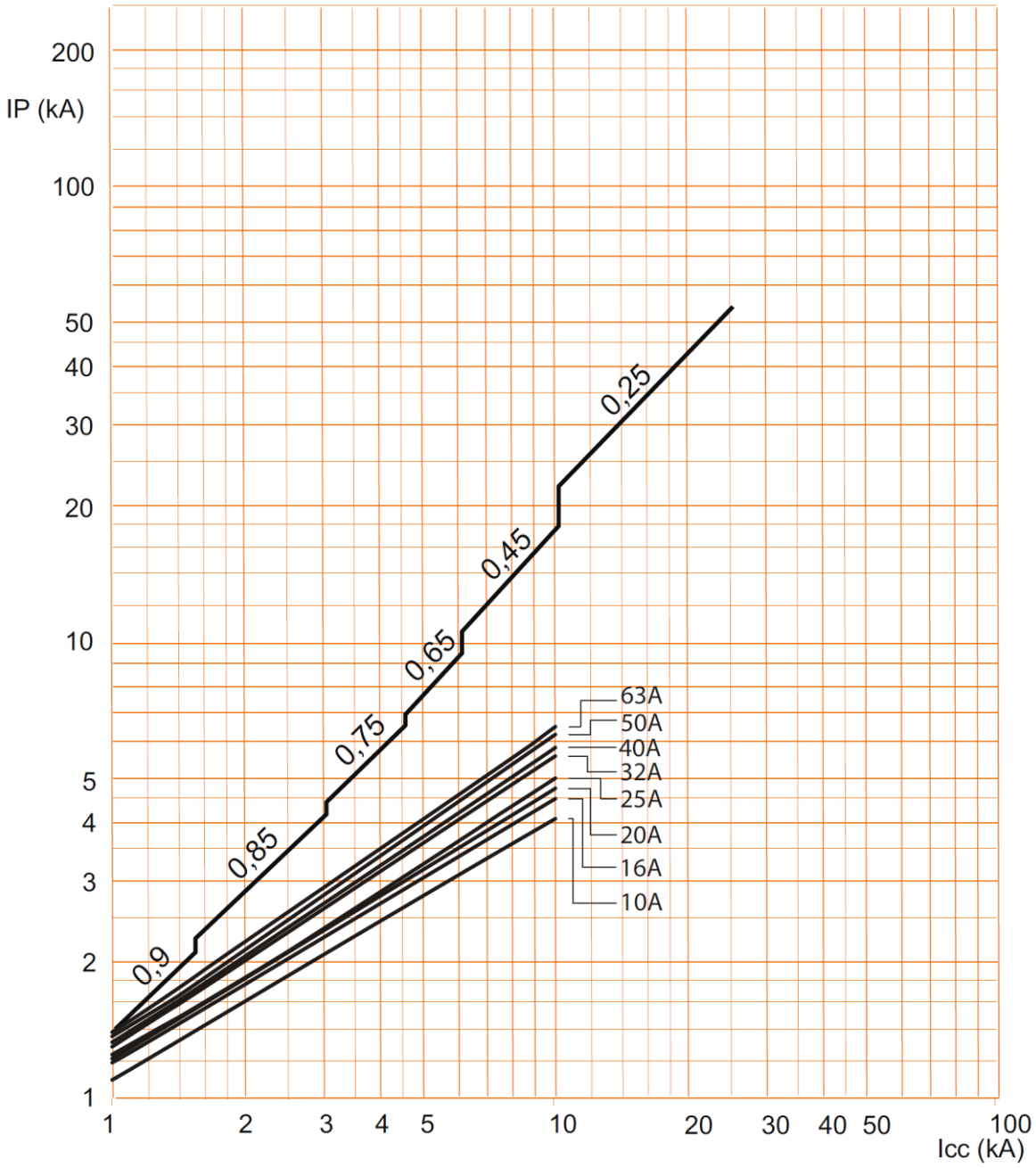
. Silver: 0,04 g per pole In ≤ 16 A; 0.08 g per pole In ≥ 20 A
. No gold

Packaging:

. Design and manufacture of packaging in accordance with Directive 94/62/EC

7. CHARACTERISTIC CURVES

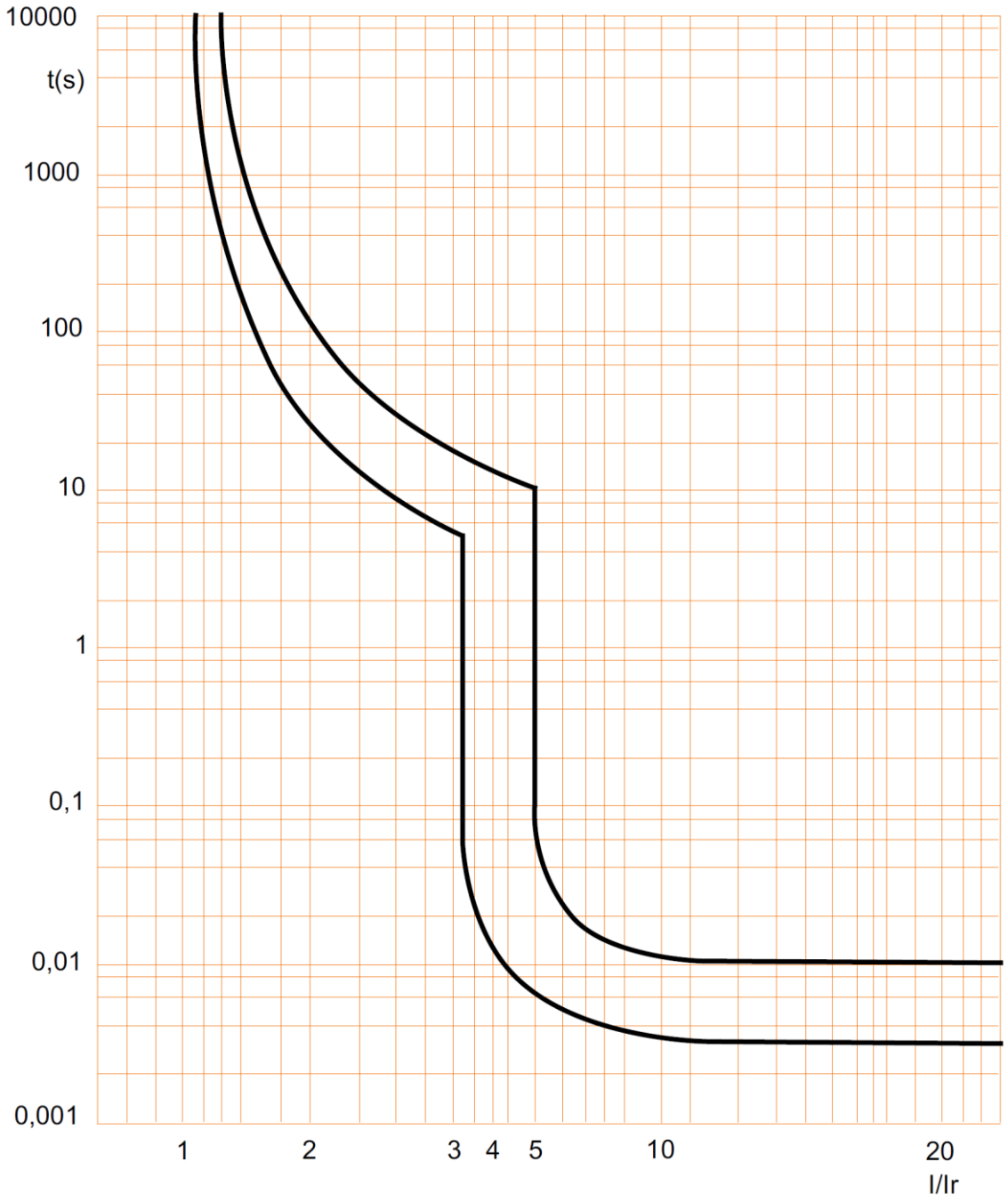
Limiting current curve: circuit-breakers B, C and D curves:



. Icc = Square value of symmetric component of the short circuit current (kA).
. IP = Max peak value (kA)

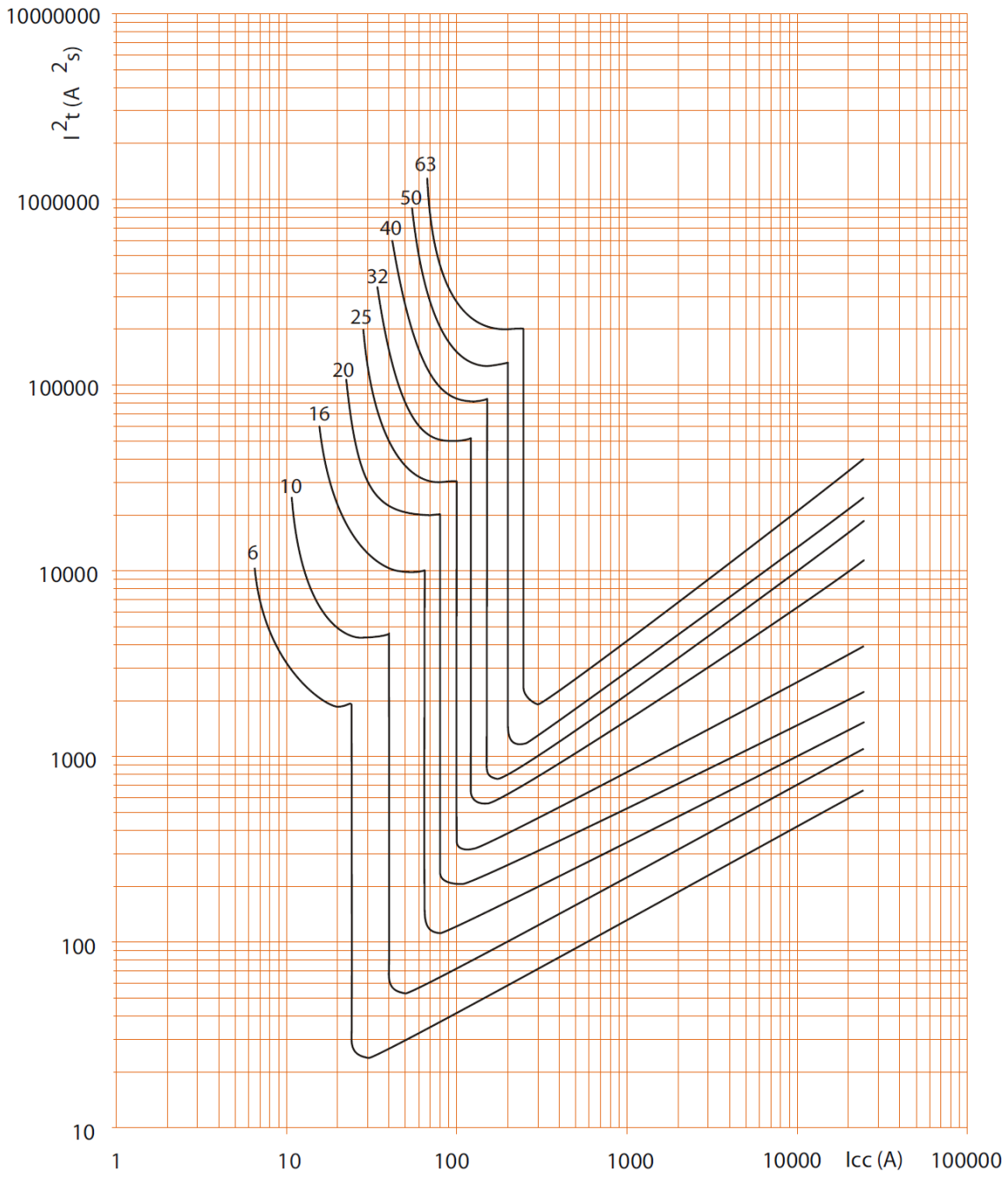
7. CHARACTERISTIC CURVES *(continued)*

Operating characteristic of circuit-breakers B curve:



7. CHARACTERISTIC CURVES *(continued)*

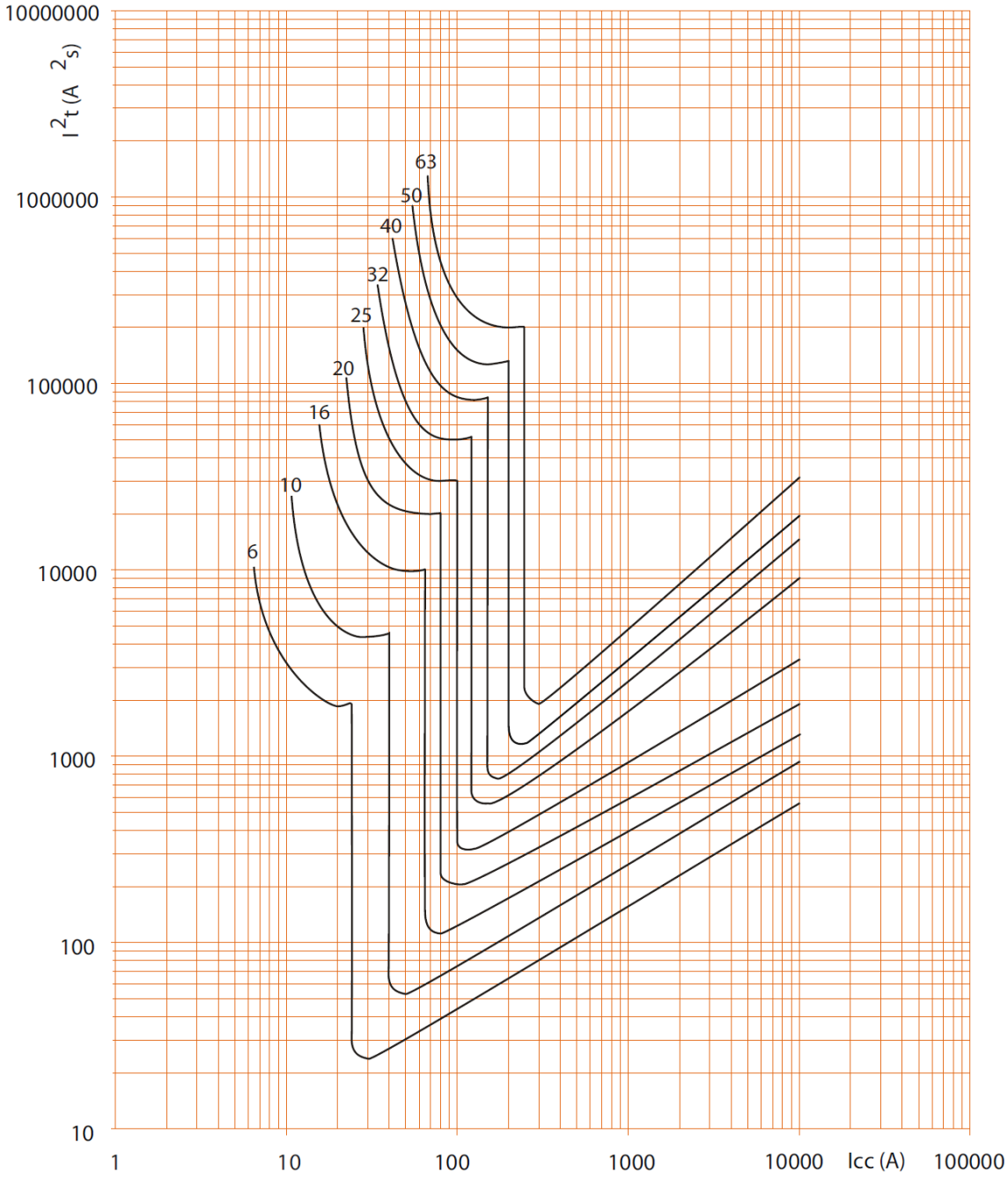
. Limiting thermal energy curve of circuit-breakers B curve, 2P (230V~ / 50Hz):



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

7. CHARACTERISTIC CURVES *(continued)*

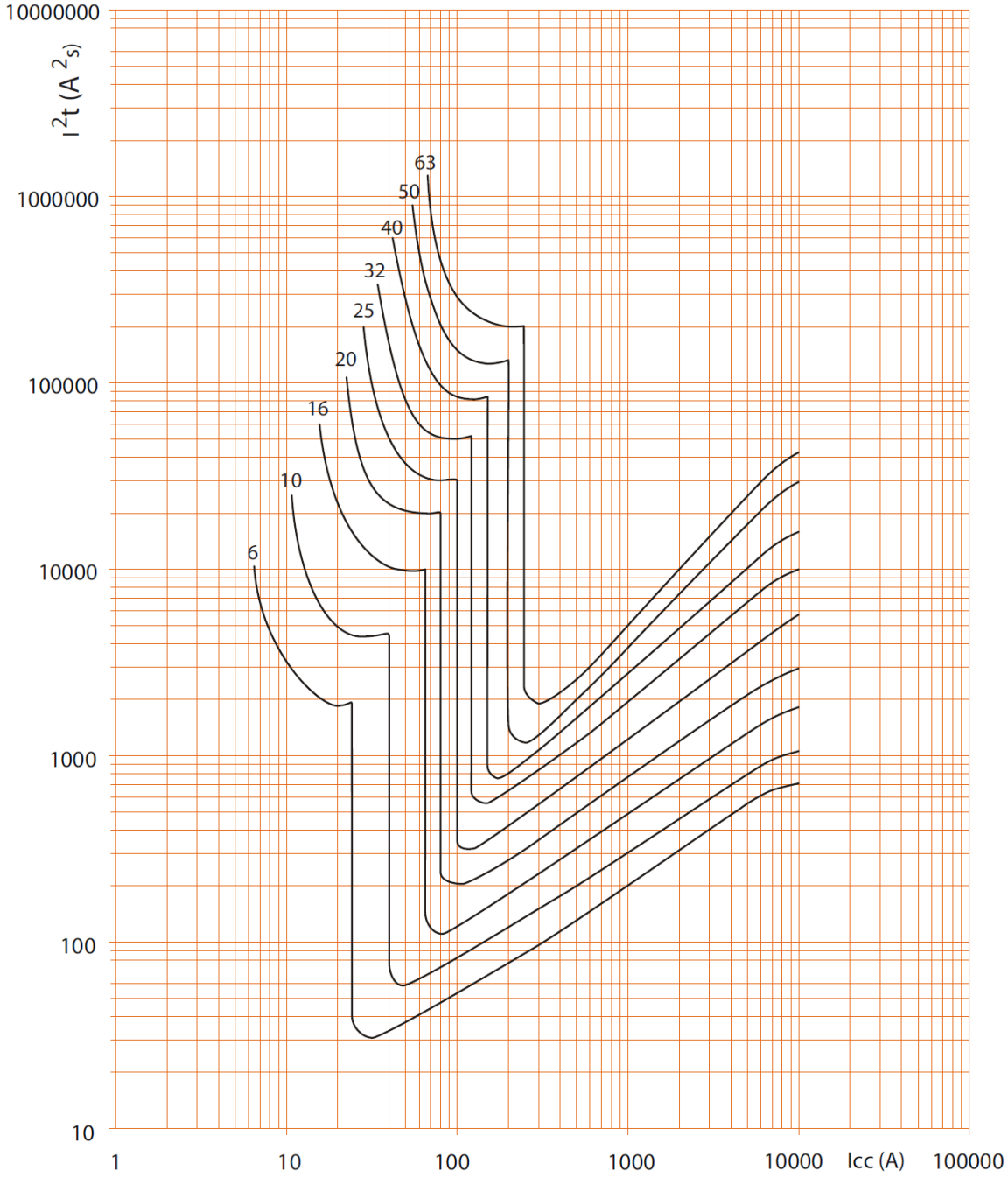
. Limiting thermal energy curve of circuit-breakers B curve, 2P (400V~ / 50Hz) :



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

7. CHARACTERISTIC CURVES *(continued)*

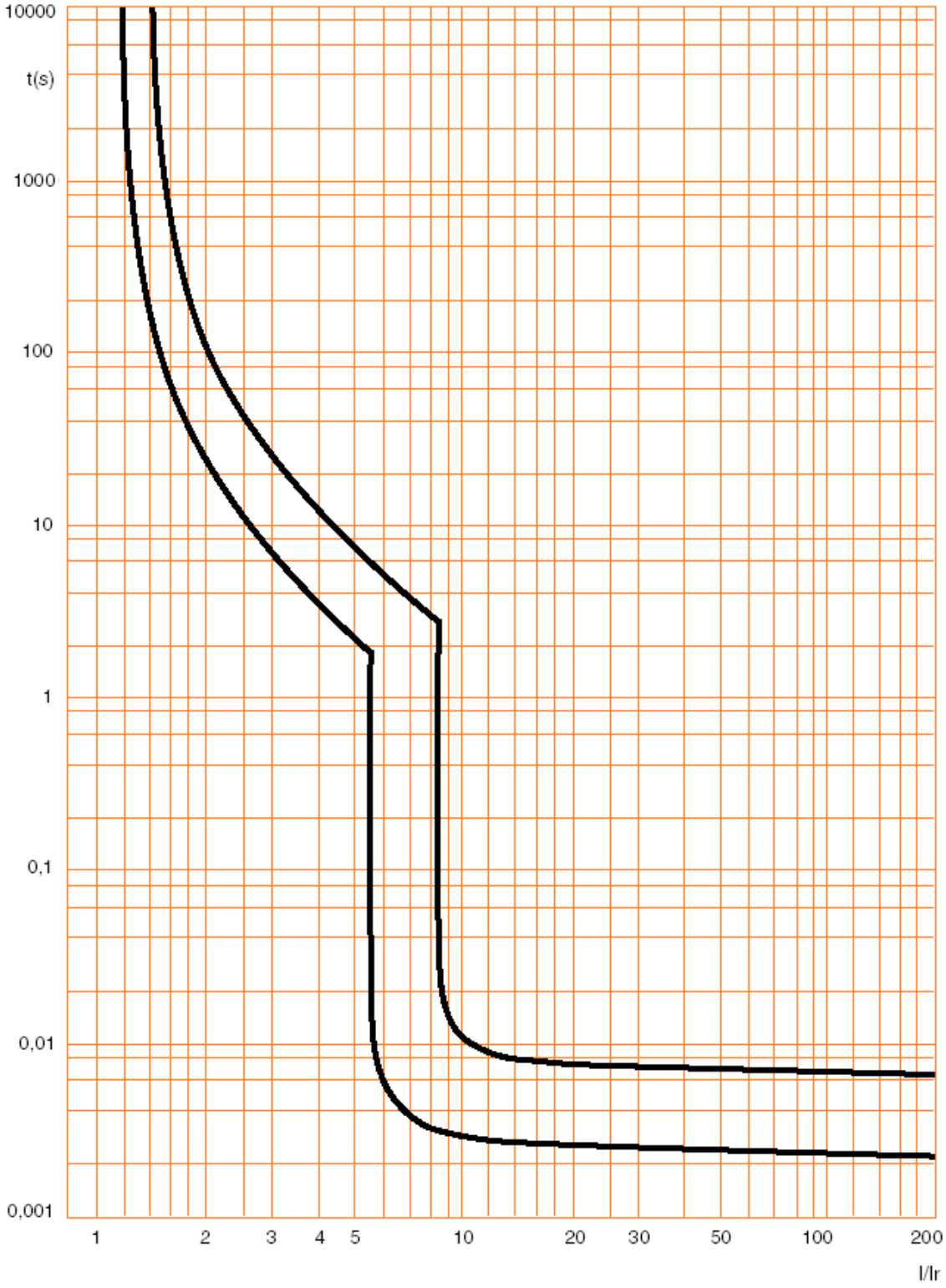
. Limiting thermal energy curve of circuit-breakers B curve, 3P / 4P (400V~ / 50Hz) :



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

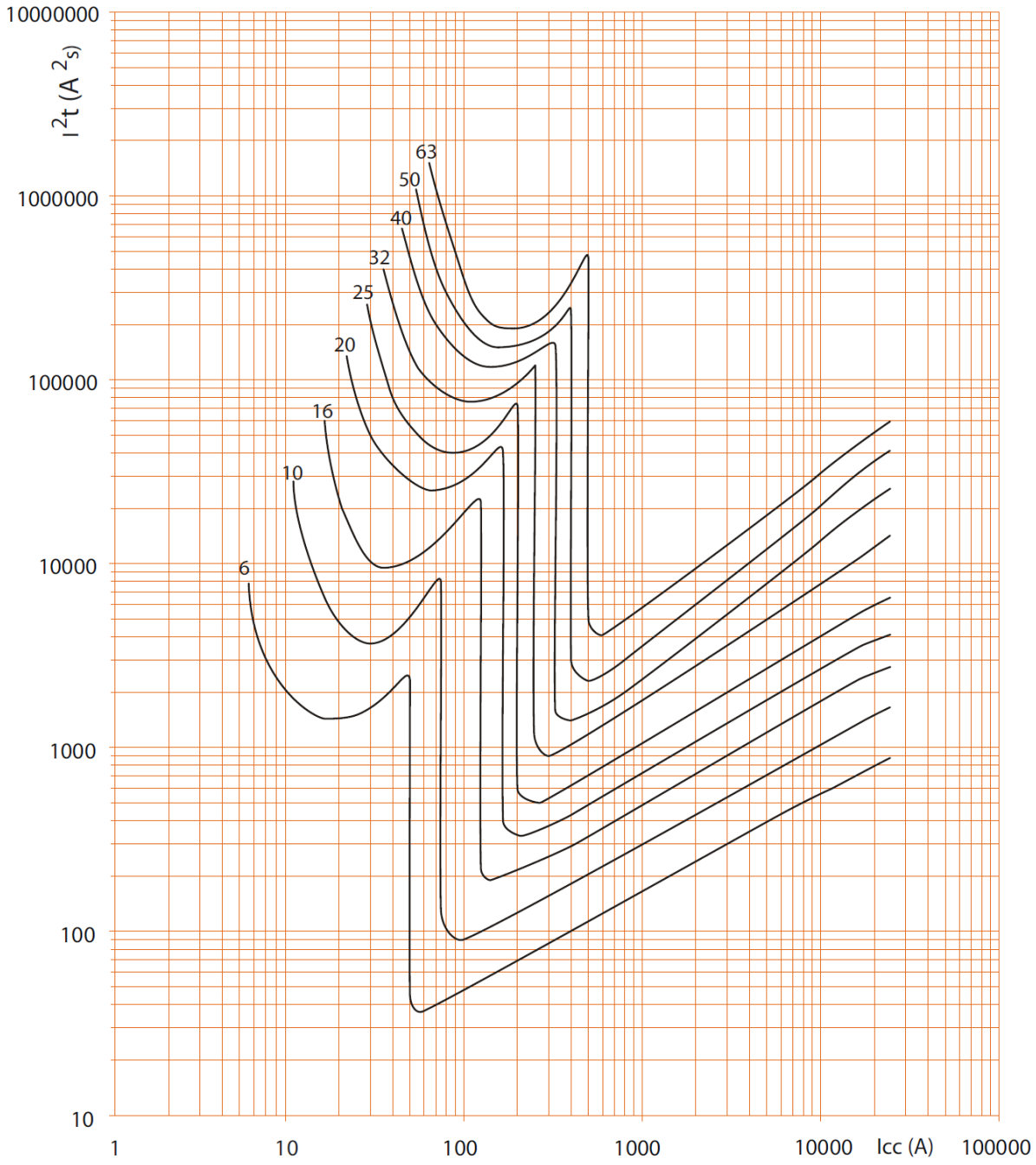
7. CHARACTERISTIC CURVES *(continued)*

Operating characteristic of circuit-breakers C curve:



7. CHARACTERISTIC CURVES *(continued)*

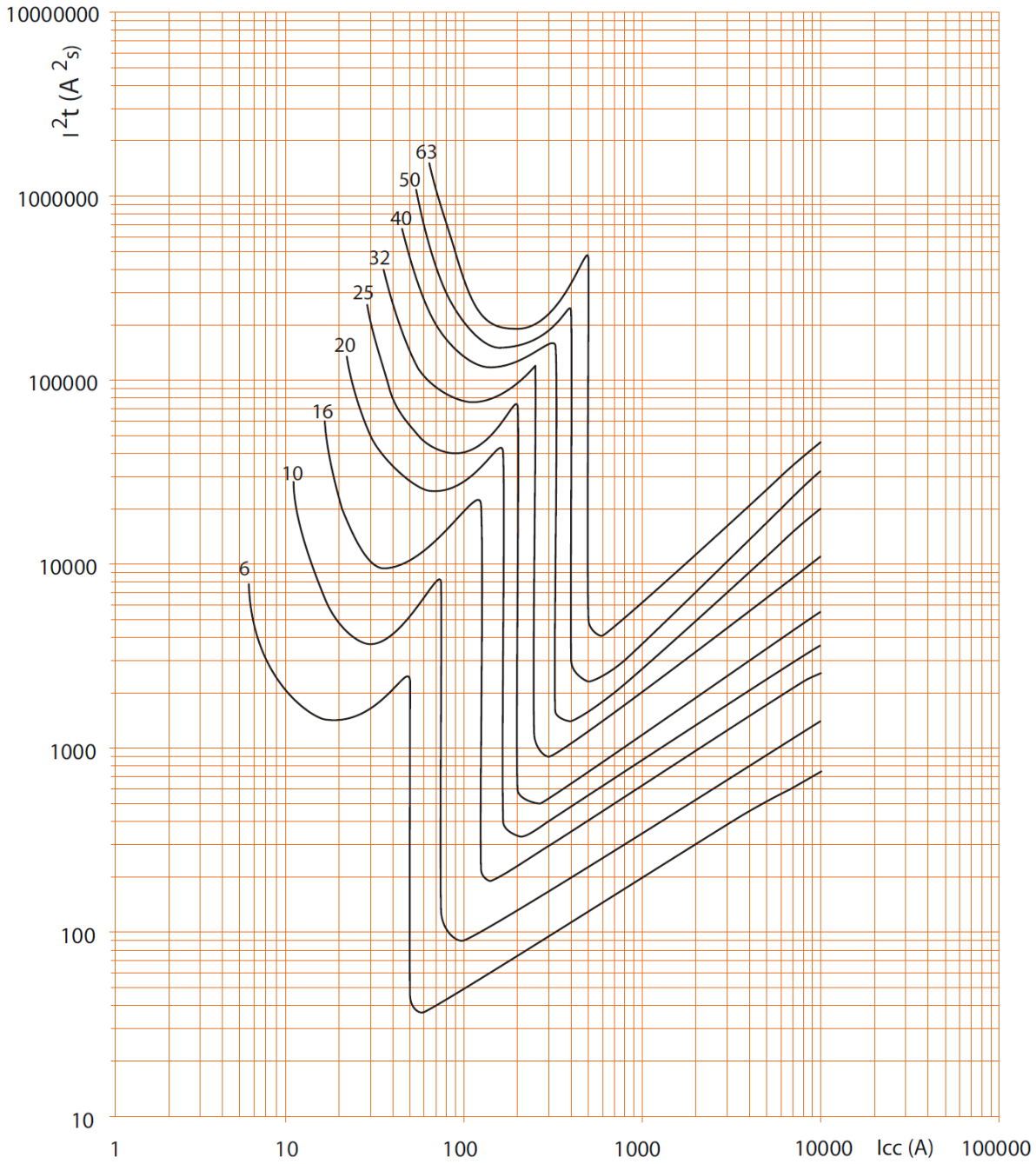
. Limiting thermal energy curve of circuit-breakers C curve , 2P (230V~ / 50Hz) :



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

7. CHARACTERISTIC CURVES *(continued)*

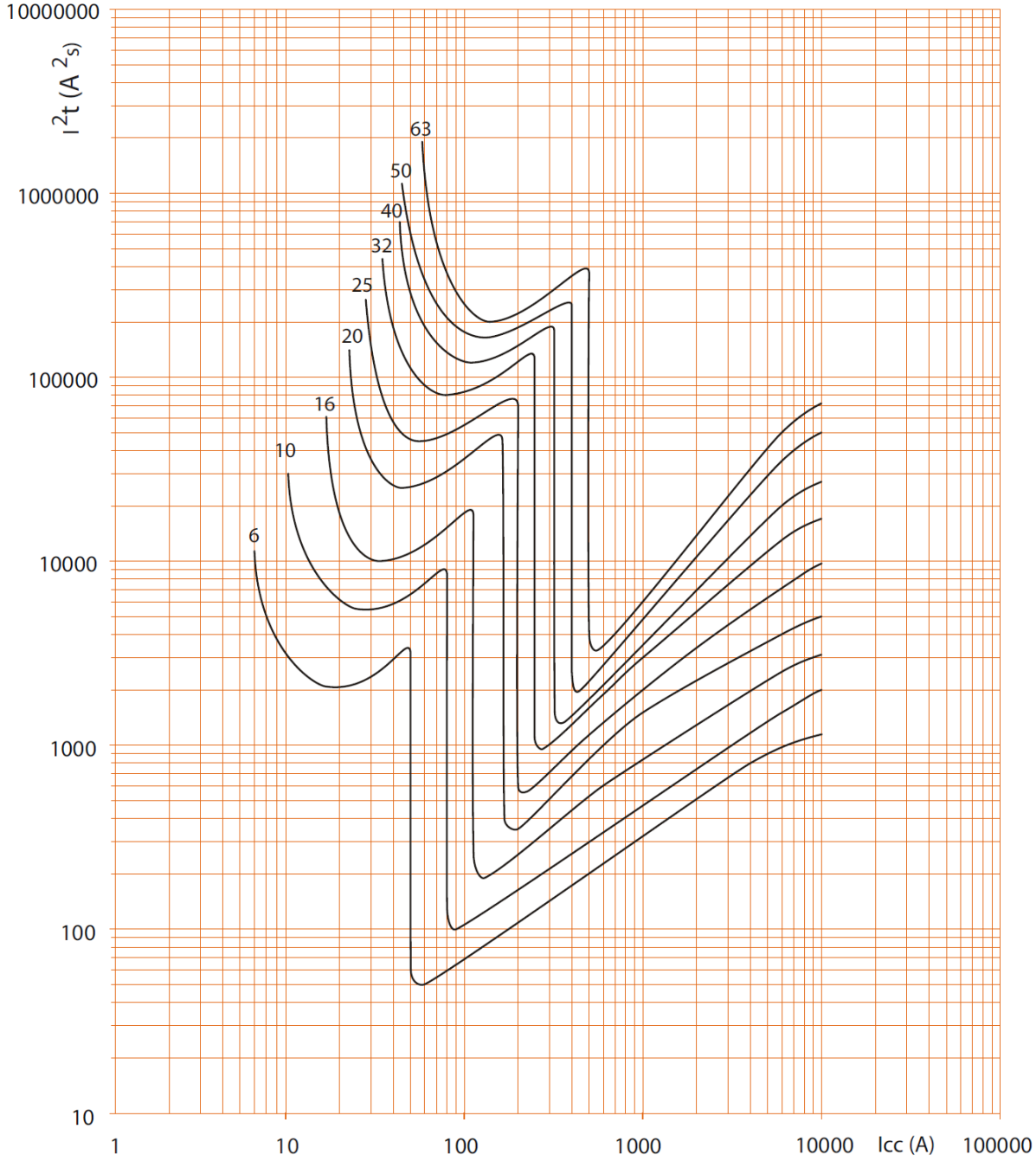
. Limiting thermal energy curve of circuit-breakers C curve , 2P (400V~ / 50Hz) :



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

7. CHARACTERISTIC CURVES *(continued)*

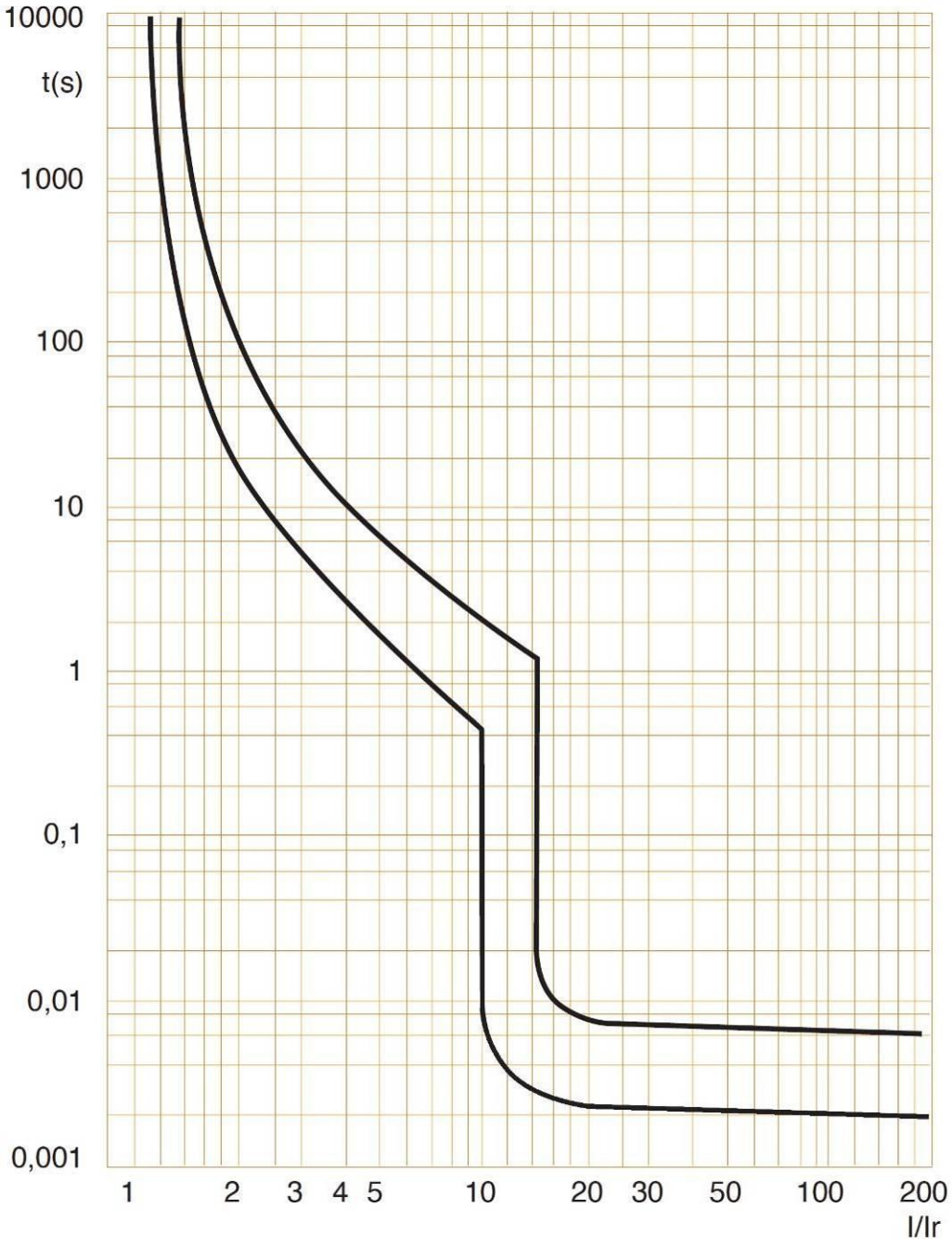
. Limiting thermal energy curve of circuit-breakers C curve , 1P / 3P / 4P (400V~ / 50Hz) :



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

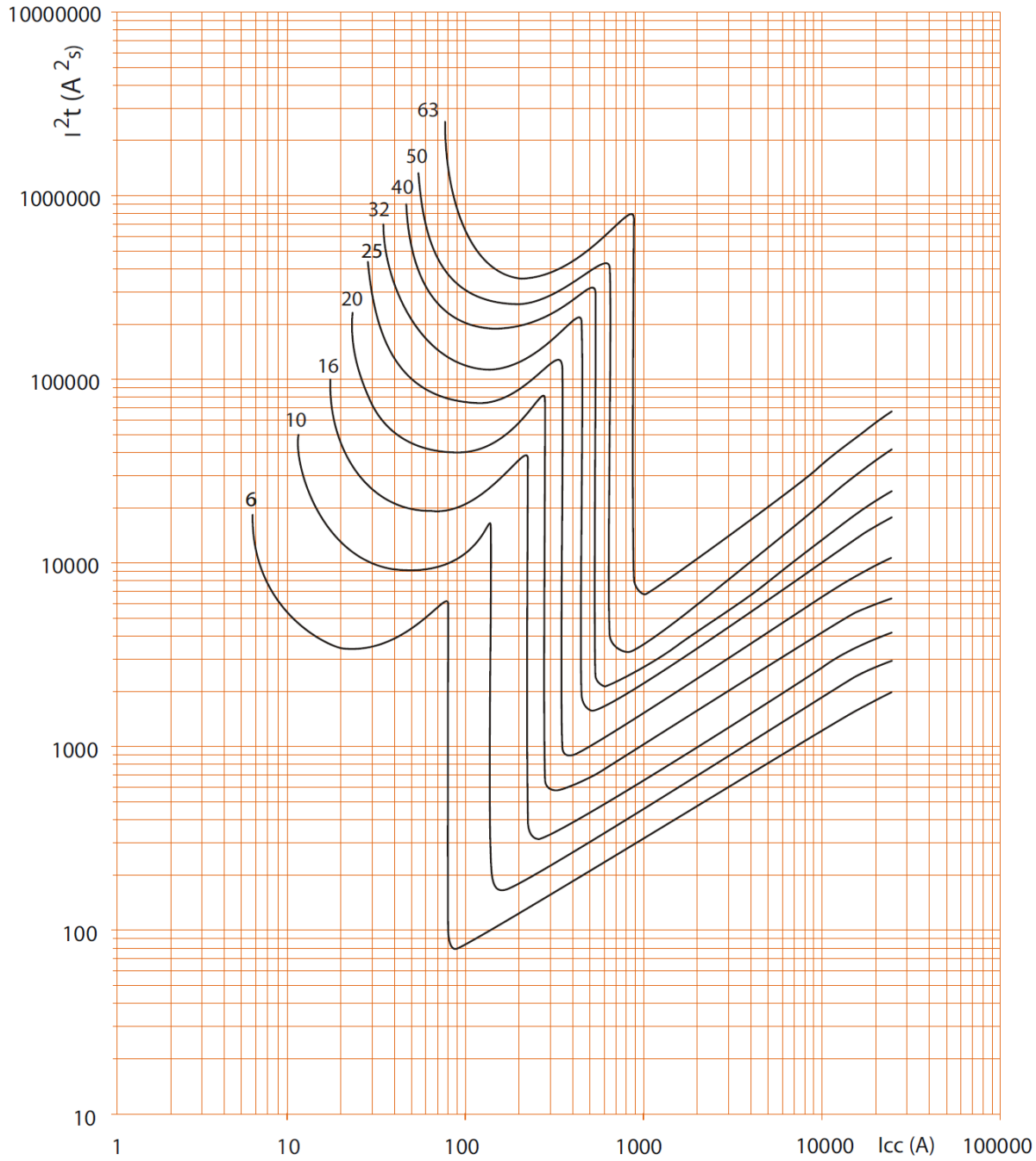
7. CHARACTERISTIC CURVES *(continued)*

Operating characteristic of circuit-breakers D curve :



7. CHARACTERISTIC CURVES *(continued)*

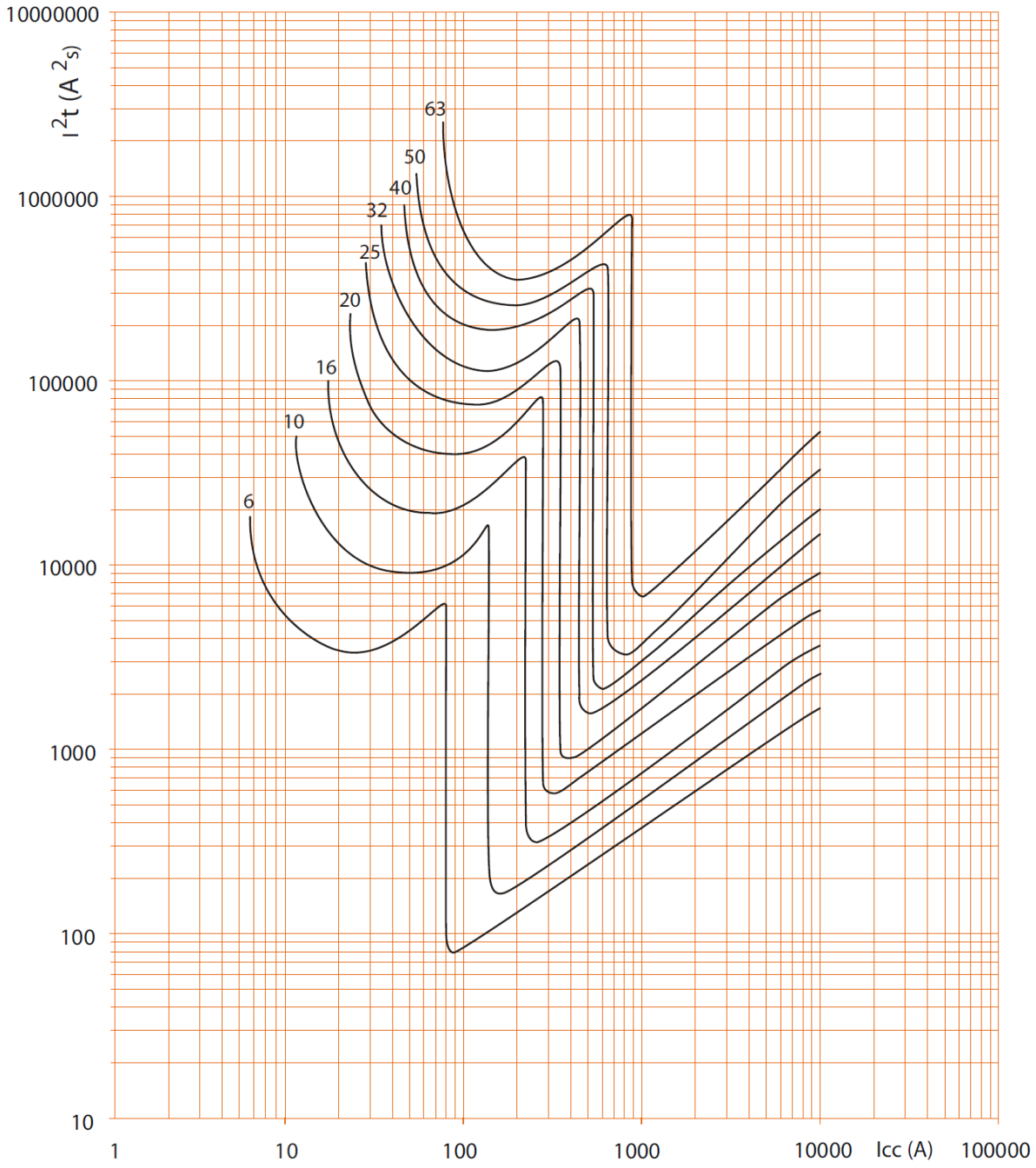
. Limiting thermal energy curve of circuit-breakers D curve, 2P (230V~ / 50Hz) :



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

7. CHARACTERISTIC CURVES *(continued)*

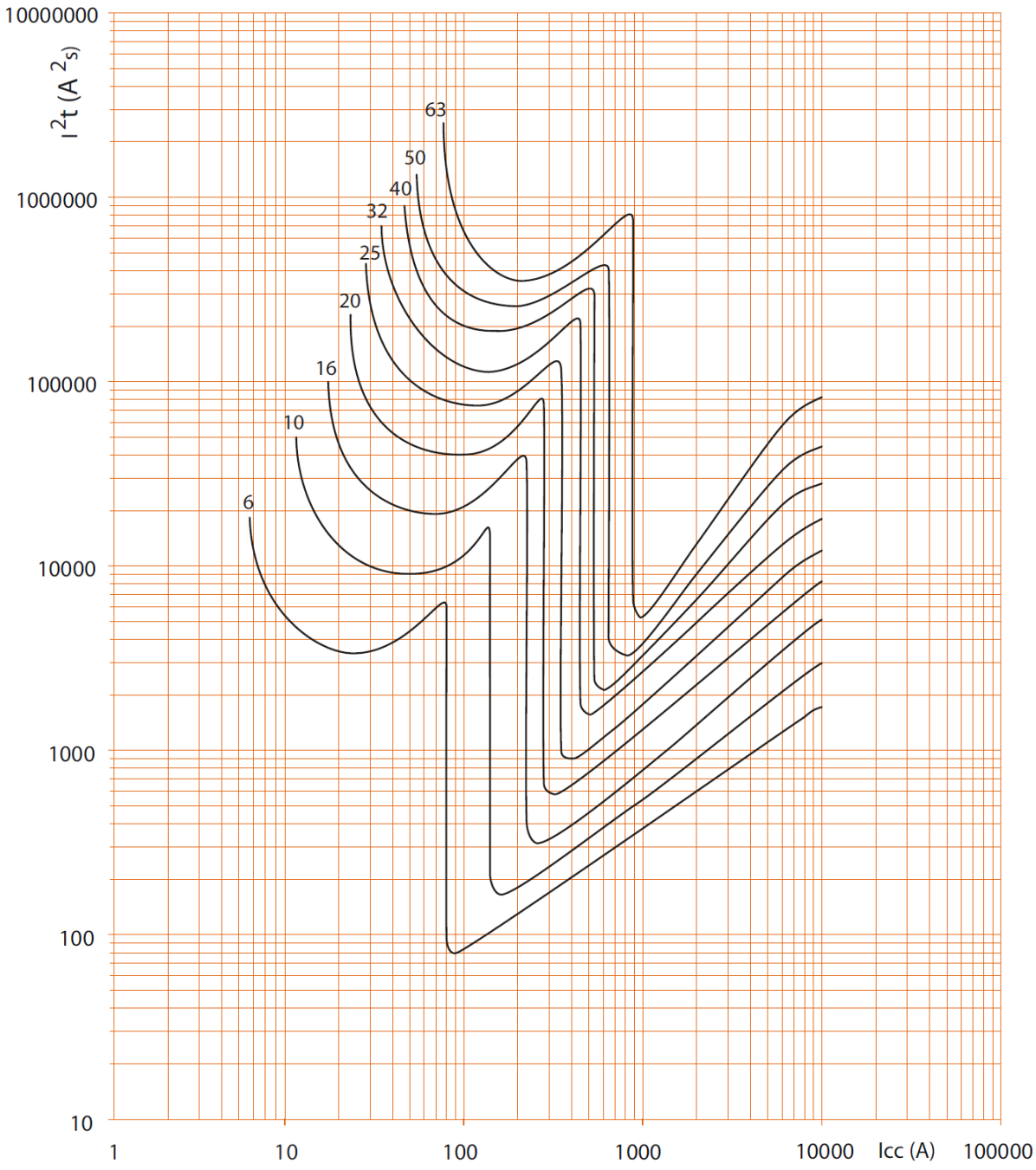
. Limiting thermal energy curve of circuit-breakers D curve, 2P (400V~ / 50Hz) :



. Icc = 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 D curve, 1P / 3P / 4P (400V~ / 50Hz) :



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

8. AUXILIARIES AND ACCESSORIES

Coupling with RCD add-on modules:

	RCD add-on module		
circuit-breaker	2P	3P	4P
2P	X	-	-
3P	-	X	-
4P	-	-	X

Wiring accessories:

. Fork busbar (on lower side only)
. Pin busbar HX³ traditional.
. Sealable screw cover (cat n° 4 063 04).
. Insulating shields (cat n° 4 063 05)
. Dispatcher row HX³.
. Terminal for aluminium cable (10 mm² to 50 mm²) necessary use (cat n° 4 063 10).

Signalling 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).

Signalling auxiliaries - prong busbar adapted:

. 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).
. Overvoltage release POP (1 module - cat n° 4 062 86)
. Autonomous shunt trip for NC push-button (1 module - cat n° . 4 062 84 / 87).

Motor driven control modules:

. Motor driven control 24-48V / 230V (1 module – cat n° 4 062 90 / 91)
. Motor driven control module with automatic resetting integrated (2 modules – cat n° 4 062 93 / 95)

STOP & GO automatic resetting:

. Automatic reclosers STOP & Go (2 modules – cat n° 4 062 88 /89).
. Automatic reclosers connected STOP & Go (4 modules – cat n° 4 149 54).

8. AUXILIARIES AND ACCESSORIES *(continued)*

Possible combinations of circuit-breaker and auxiliaries:

. Only the association of an MCB with signalling auxiliaries guarantees the functionality of the “Great Dispatcher” DIN rail clamp.
. Auxiliaries are clipped on the left of the circuit-breaker
. Maximum number of auxiliaries for one circuit-breaker: 3.
. Two signalling auxiliaries max. (cat. n° 4 062 50 /52 /56 /64).
. Only one control auxiliary (cat. n° 4 062 76 / 78 / 80 / 82 / 84 / 86 /87).
. One remote motor driven remote control or one STOP & GO automatic resetting.
. If signalling and control auxiliaries are associated on the same circuit-breaker, the auxiliary must be placed to the left of the signal auxiliary

Front external rotary handle

. Black handle (cat n° 4 063 19)
. Yellow and red handle (cat n° 4 063 20)

Supply Invertor

. Manual supply invertor for 2P devices (cat. n° 4 063 14)

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) in “Open” position (OFF).

Installation software:

. XL PRO³

9. USE IN DIRECT CURRENT

. Refer to F03693EN