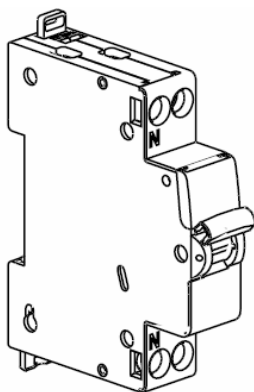


DNX Lexic 4500 A M.C.B. Phase + Neutral, neutral on left side

Cat (s) : 060 12 / 15 / 17 / 19 / 20 / 21 / 22, 061 01 / 02 / 03

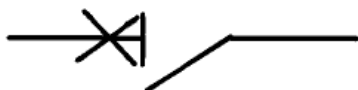


CONTENTS	PAGES
1. Description, use.....	1
2. Product range.....	1
3. Overall dimensions.....	1
4. Preparation / Connection.....	1
5. General characteristics.....	2
6. Conformities / Certificates.....	6
7. Curves.....	7
8. Equipments and accessories.....	12

1. DESCRIPTION - USE

"Entirely-visible-breaking" circuit-breaker for protection, control and isolation of electrical circuits

Symbol :



Technology :

- . Limiting device
- . Neutral contact opens before and closes after phase contact
- . Protection and isolation of phase circuit by phase pole
- . Isolation of neutral circuit by neutral pole
- . Phase + Neutral MCB in one single 17.8 mm module

2. PRODUCT RANGE

Pole :

- . 1 pole + neutral (1 module, 17.8 mm wide). Neutral pole is located on the left hand side of the MCB

Rated current :

- . 2 / 6 / 10 / 16 / 20 / 25 / 32 A

Magnetic tripping curves :

- . Curve C (between 5 and 10 In)
- . Curve D (between 10 and 14 In)

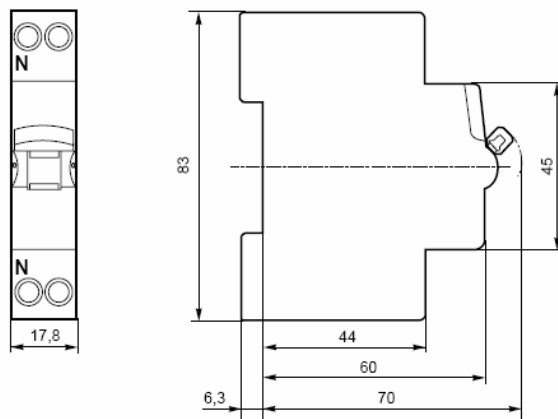
Rated voltage and frequency :

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

Breaking capacity :

- . In 230V ~ 50/60Hz single phase network
 - 4500 A according to IEC/EN/NF 60898-1
 - 4.5 kA according to IEC/EN 60947-2

3. OVERALL DIMENSIONS



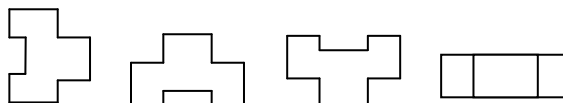
4. PREPARATION / CONNECTION

Fixing :

- . On symmetric rail EN 50-022

Operating position :

- . Vertical, horizontal, upside down, on the side



Connection :

- . Terminals protected against contact, IP 2xx, wired
- . Cage terminals with releasable and captive screws
- . Aligning and spacing of the terminals to allow busbar connection with other products in the range
- . Depth : upstream 14 mm / downstream : 13 mm
- . Terminal capacity (h x L) : 38 mm²
- . Screw head : combined, slotted and posidriv Z1
- . Tightening torque : mini : 1.2 Nm – Maxi : 2.8 Nm – Recommended : 1.6 to 2 Nm

DNX Lexic 4500 A M.C.B.

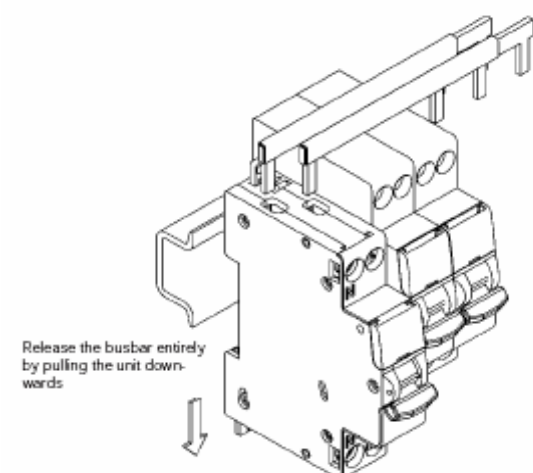
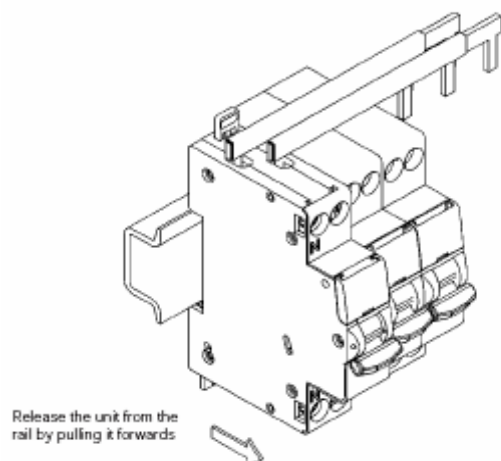
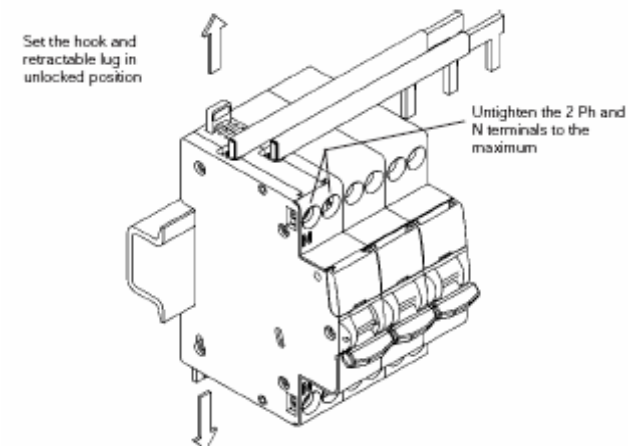
Phase + Neutral, neutral on left side

Cat (s) : 060 12 / 15 / 17 / 19 / 20 / 21 / 22, 061 01 / 02 / 03

4. PREPARATION / CONNECTION (continued)

Supply :

- . From the top or the bottom



4. PREPARATION / CONNECTION (continued)

Type of wire :

- . Copper cables

	Without ferrule	With ferrule
Rigid cables	1 x 0.75 mm ² to 16 mm ² 2 x 0.75 mm ² to 6 mm ²	-
Flexible cables	1 x 0.75 mm ² to 10 mm ² 2 x 0.75 mm ² to 4 mm ²	1 x 0.75 mm ² to 10 mm ²

Tools required :

- . For terminals : 5.5 mm or PZ1 screwdriver recommended
- . To remove from the rail : 5.5 mm screwdriver recommended

Operating device :

- . By 2 positions ergonomic handle
- . I / ON : Closed circuit
- . O / OFF : Opened circuit

Display of contact status :

- . Green : Contacts opened : O-OFF
- . Red : Contacts closed : I-ON

Sealing :

- . Possible in ON (closed) and OFF (open) position

Locking possibility :

- . By 5 mm padlock (cat. N° 044 43) or 6 mm padlock (cat. N° 227 97) with padlock support (cat. N° 044 42)

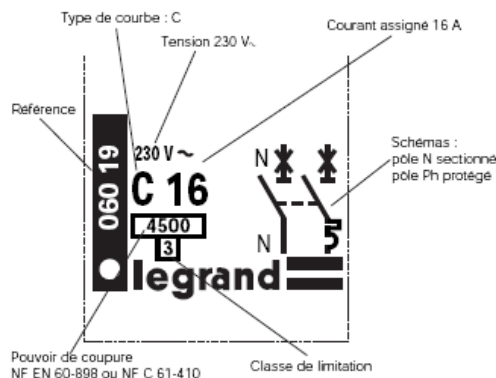
Labelling :

- . Circuit may be labelled by the mean of the label holder on the front face of the MCB

5. GENERAL CHARACTERISTICS

Marking :

- . Marking on front : by permanent pad printing



- . Upstream and downstream neutral pole terminals are marked with a N moulded close to the screw heads.

Phase + Neutral, neutral on left side

5. GENERAL CHARACTERISTICS (continued)

Breaking capacity :

. in single phase network (50 / 60 Hz A.C.)

Standard	Breaking capacity	Voltage between poles	Breaking capacity
EN 60898-1	Ics	127 V	6 kA
	Icn		6 kA
	Ics	230 V	4.5 kA
	Icn		4.5 kA
EN 60947-2	Ics	230 V	4.5 kA
	Icu		4.5 kA

Phase pole alone breaking capacity :

. at 400 V ~, according to I_{IT} EN 60947-2 – Annex H : 1.5 kA
 . at 230 V ~, according to Icn1 EN 60898-1 : 4.5 kA

Operating ambient temperature :

. Minimum = -25 °C Maximum = +60 °C

Storage ambient temperature :

. Minimum = -40 °C Maximum = +70 °C

Pollution degree :

. 2 according to EN 60898-1

Max operating voltage :

. U = 250 V~

Isolating voltage :

. Ui = 250 V~ according to EN 60898-1

Dielectric strength :

. 2 000 V~

Rated voltage of shock withstand:

. Uimp = 4 kV

Frequency :

. Magnetic tripping threshold in terms of frequency
 - from 16 2/3 Hz to 60 Hz : no derating
 - 400 Hz : magnetic threshold increases by 45%

Isolation :

. This MCB is suitable for isolation according to EN 60898-1 standard

Isolation distance :

. Handle in ON position, distance between contacts is greater than 5.5 mm on phase and 4.5 mm on neutral
 . The Phase pole protects and isolates phase circuit
 . The Neutral pole isolates neutral circuit

Earthing :

. IT, TT, TN

Operation at 400 Hz :

. Magnetic threshold increases by 45%

5. GENERAL CHARACTERISTICS (continued)

Direct current: operation :

. Do not exceed 60 V per unit
 . Breaking capacity : 4.5 kA at 60V
 . Magnetic thresholds are uprated as follows
 - type C from 5 to 15 In
 - type D from 10 to 20 In

Dissipated power at In in W :

Rating	2 A	6 A	10 A	16 A	20 A	25 A	32 A
P (W)	2.4	2.5	1.6	3.4	3.7	4.2	3.7

Altitude influence :

	2000 m	3000 m	4000 m	5000 m
Dielectric strength	3000 V	2500 V	2000 V	1500 V
Maximal using voltage	230 V	230 V	230 V	230 V
Thermal derating at 30°C	None			

Average weight :

. 0.135 kg by device

Packaged volume in dm³ :

. 0.198 dm³ for individually packed units
 . 1.619 dm³ for units packed by 10

Protection class :

. Protection index against solid bodies and liquids : IP 20 conforming to standards IEC 529 – EN 60-259 and NF C 20-010
 . Protection index against mechanical impact : IK 02 conforming to standard NF EN 50-102 – NF C 20-015 (June 95)

Mechanical and electrical endurance :

. 20 000 operations without load
 . 10 000 operations with load (under In x Cos φ 0.9) (NF C 61-410 extended)

Closing and opening forces by handle :

. 0.2 kg at opening (every rated current)
 . 0.9 kg at closing (every rated current)

Contact :

. The neutral contact closes before or opens after the phase contact

Casing material :

. Polyamid
 . Characteristics of the material : fire-proof. Resistance to fire and heat in accordance with EN 60898-1 standard, glow wire test at 960°C for the case and 650°C for the handle

Resistance to sinusoidal vibration : (conforming IEC 68.2.6)

. Axes : x, y, z
 . Fréquence : 10 à 55 Hz
 . Acceleration : 2 g
 . Number of cycles : 10

Phase + Neutral, neutral on left side

5. GENERAL CHARACTERISTICS *(continued)*

MCB's derating when using fluorescent bulbs

Electronic and ferro-magnetic ballasts create a very high inrush current during a very short time. This current may trip the MCBs.

The max amount of ballasts as indicated in lamps and ballasts manufacturers catalogues must be taken into account to avoid unwanted tripping.

Derating in terms of numbers m.c.b.'s installed side by side :

. When several MCB's operate at the same time side by side, thermal exhaust may be limited and the temperature of the M.C.B.'s may increase high enough to produce unwanted tripping. Depending on the temperature inside the enclosure, it may be necessary to derate m.c.b.'s according to the table below (standards IEC/EN 60439). In order to avoid to use these derating factors, use spacing elements cat. N° 044 40 (0.5 module) or cat. N° 044 41 (1 module)

Number of MCBs mounted side by side	Coefficient
From 1 to 3	1
From 4 to 6	0.8
From 7 to 9	0.7
More than 10	0.6

Values are given by guideline IEC 439-1 and EN 60-439-1.

To avoid using coefficients, there must be good ventilation and the units must be separated with the spacing element cat. n° 044 40 / 41

Back-up protection of MCBs in 230 V (PH - N) network, according to IEC 60947-2 standard

In T.T. or T.N.S. neutral earthing system

MCB upstream

		DX (1) 6000 A – 10 kA Curve C		DX-h (1) 10000 A – 25 kA Curve C		DPX							
						Standard Version					EDF Version		
		1 A à 63 A	80 A à 125 A	6 A à 32 A	40 A à 63 A	DPX 125	DPX 160	DPX DX-h 250	DPX DX-h 630	DPX DX-h 1600	90 à 160 AB	170 et 240 AB	320 et 400 A
DX Ph + N 4500 A Curves C / D	2 to 10 A	25 kA	20 kA	50 kA	25 kA	30 kA	30 kA	30 kA	25 kA	20 kA	30 kA	30 kA	25 kA
	16 to 20 A	25 kA	20 kA	50 kA	25 kA	30 kA	25 kA	25 kA	25 kA	20 kA	25 kA	25 kA	25 kA
	25 A	25 kA	20 kA	50 kA	25 kA	25 kA	20 kA	20 kA	20 kA	15 kA	20 kA	20 kA	20 kA
	32 A	25 kA	20 kA		25 kA	15 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA	10 kA

(1) two pole or four pole MCB

Cartridge fuses upstream

MCB downstream		Type gG	
		20 A to 50 A	63 A to 125 A
DX Ph + N 4500 A / 4.5 kA Curve C and D	0.5 A to 40 A	50 kA	25 kA

In I.T. neutral earthing system : according to NF C 15-100 § 473-3-2-2 installation standard, P+N MCB can be installed if

- The neutral is protected upstream
- Or if there is an earth leakage module upstream : its sensitivity must be 0.15 times lower rating of the downstream Ph+N MCBs and the ratings must be the same for single and double poles (comment NF C 15-100 § 473-3-2-2)
- Moreover, in both cases, the max. authorised short-circuit current between phases must not exceed 10 000 A (C 3.2 of guide NF C 15-105 : the breaking capacity of the phase pole must be 0.15 times, higher than Icc at 400 V. The breaking capacity at 400 V of the Ph+N MCB (1 module) 0.5 A to 40 A is 1500 A, max. Icc3 is 1500/0.15 = 10 000 A)

Phase + Neutral, neutral on left side

5. GENERAL CHARACTERISTICS *(continued)*

MCB discrimination

Discrimination limit (average values in A)

MCB downstream		MCB upstream	
		DPX 125 to 1600 A	DPX EDF version 90 to 400 A
DX Ph + N 4500 A / 4.5 kA Curve C and D	0.5 A to 40 A	TOTAL	TOTAL

MCB downstream		MCB upstream											
		DX Ph + N (1 module) 6000 A / 10 kA – Curve C											
		2 A	3 A	4 A	6 A	8 A	10 A	13 A	16 A	20 A	25 A	32 A	40 A
DX Ph + N 4500 A 4.5 kA Curves C and D	2 A		22	30	45	64	75	97	120	150	187	240	300
	6 A					64	75	97	120	150	187	240	300
	10 A							97	120	150	187	240	300
	16 A									150	187	240	300
	20 A										187	240	300
	25 A											240	300
	32 A												300

MCB downstream		MCB upstream														
		DX 6000 A / 10 kA or DX-h 10000 A / 25 kA														
		2P / 3P / 4P - Curve C														
		2 A	3 A	6 A	8 A	10 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A
DX Ph + N 4500 A 4.5 kA Curves C and D	2 A		22	45	64	75	120	150	187	240	300	375	472	1500	2000	3000
	6 A				64	75	120	150	187	240	300	375	472	1500	2000	3000
	10 A						120	150	187	240	300	375	472	1200	1800	2500
	16 A							150	187	240	300	375	472	900	1400	2000
	20 A								187	240	300	375	472	900	1400	2000
	25 A									240	300	375	472	700	900	1200
	32 A										300	375	472	700	900	1200

Phase + Neutral, neutral on left side

5. GENERAL CHARACTERISTICS *(continued)*

MCB discrimination

Discrimination limit (average values in A)

		MCB upstream													
		DX 6000 A / 15 kA													
		2P / 3P / 4P - Curve D													
MCB downstream		2 A	3 A	6 A	10 A	16 A	20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A
DX Ph + N 4500 A 4.5 kA Curves C and D	2 A		36	72	120	192	240	300	384	480	600	756	3000	4000	T
	6 A				120	192	240	300	384	480	600	756	3000	4000	T
	10 A					192	240	300	384	480	600	756	2500	3000	5000
	16 A						240	300	384	480	600	756	2000	2500	4000
	20 A							300	384	480	600	756	2000	2500	4000
	25 A								384	480	600	756	1200	1800	3000
	32 A									480	600	756	1200	1800	3000

		Cartouches gG upstream									
MCB downstream		20 A	25 A	32 A	40 A	50 A	63 A	80 A	100 A	125 A	160 A
DX Ph + N 4500 A 4.5 kA Curves C and D	2 A	1000	1200	1500	1500	2000	4000	5000	5000	5500	6000
	6 A	1000	1200	1500	1500	2000	4000	5000	5000	5500	6000
	10 A	800	1000	1200	1200	1500	3000	5000	5000	5500	6000
	16 A	800	1000	1200	1200	1400	2800	5000	5000	5500	6000
	20 A		800	1000	1500	1400	2800	5000	5000	5500	6000
	25 A			800	1000	1300	2000	4500	5000	5500	6000
	32 A				900	1200	2000	4500	4500	5000	6000

6. CONFORMITIES / CERTIFICATES

Compliance with standards :

- . EN 60898-1 / IEC 60898-1
 - « Circuit-breakers for overcurrent protection for household and similar applications – part 1 : circuit-breakers for a.c. operation »
- . IEC 60947-2
 - « Low-voltage switchgear and controlgear – circuit-breakers »

Certificates :

- . NF (France)

Tropicalization :

- . execution II (all climates) according to U.T.E. C 63-100 guide

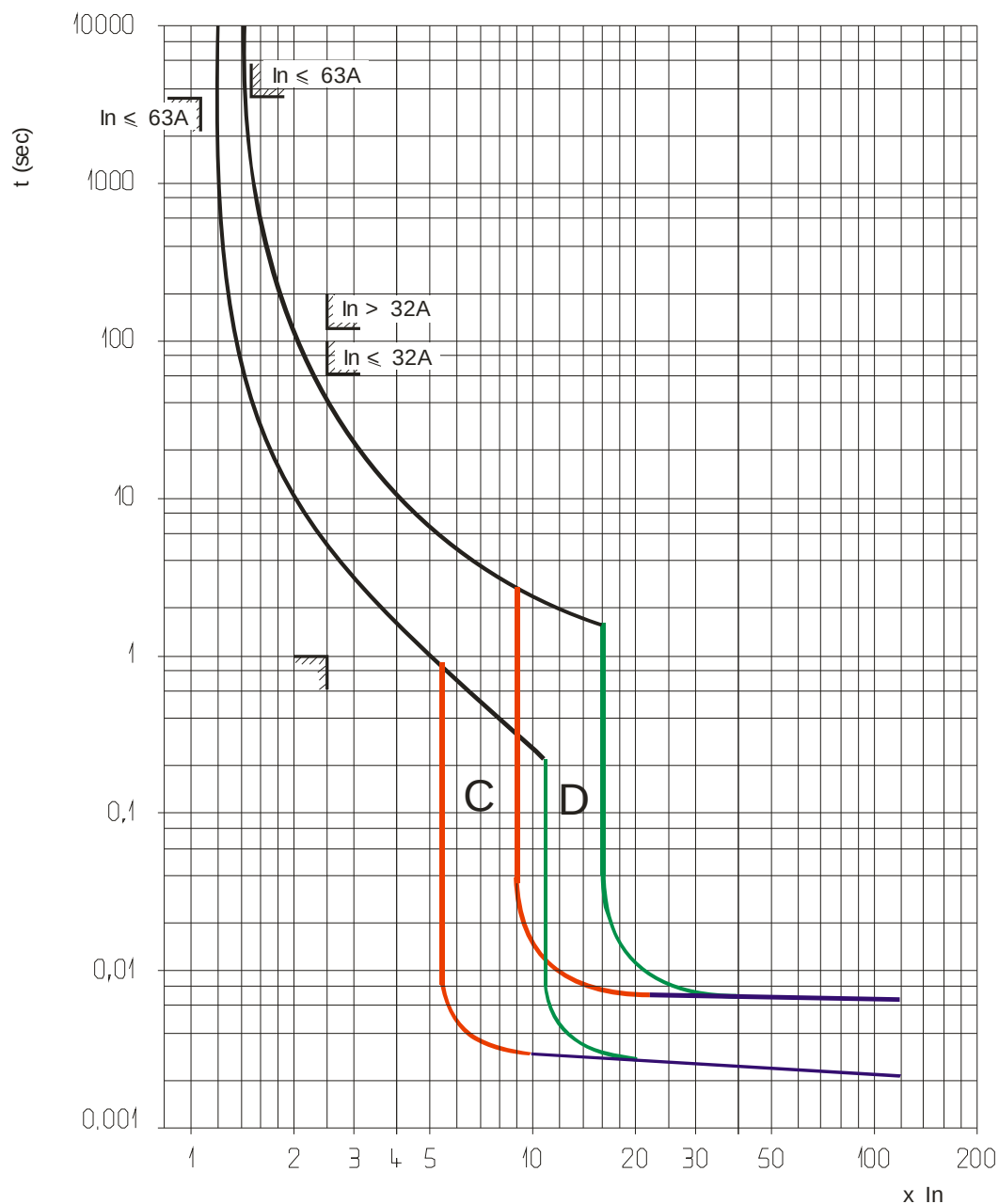
Environment :

- . complying with RoHS. DNX M.C.B.'s do not contain the substances targeted by the European directive 2002/95/CE dated 27 January 2003 relating to the restriction of hazardous substances in electrical and electronical equipment.
- . complying with DEEE
- . No halogen or silicone in these MCBs

Phase + Neutral, neutral on left side

7. CURVES

THERMAL MAGNETIC TRIPPING ZONE : MCBs curves C and D



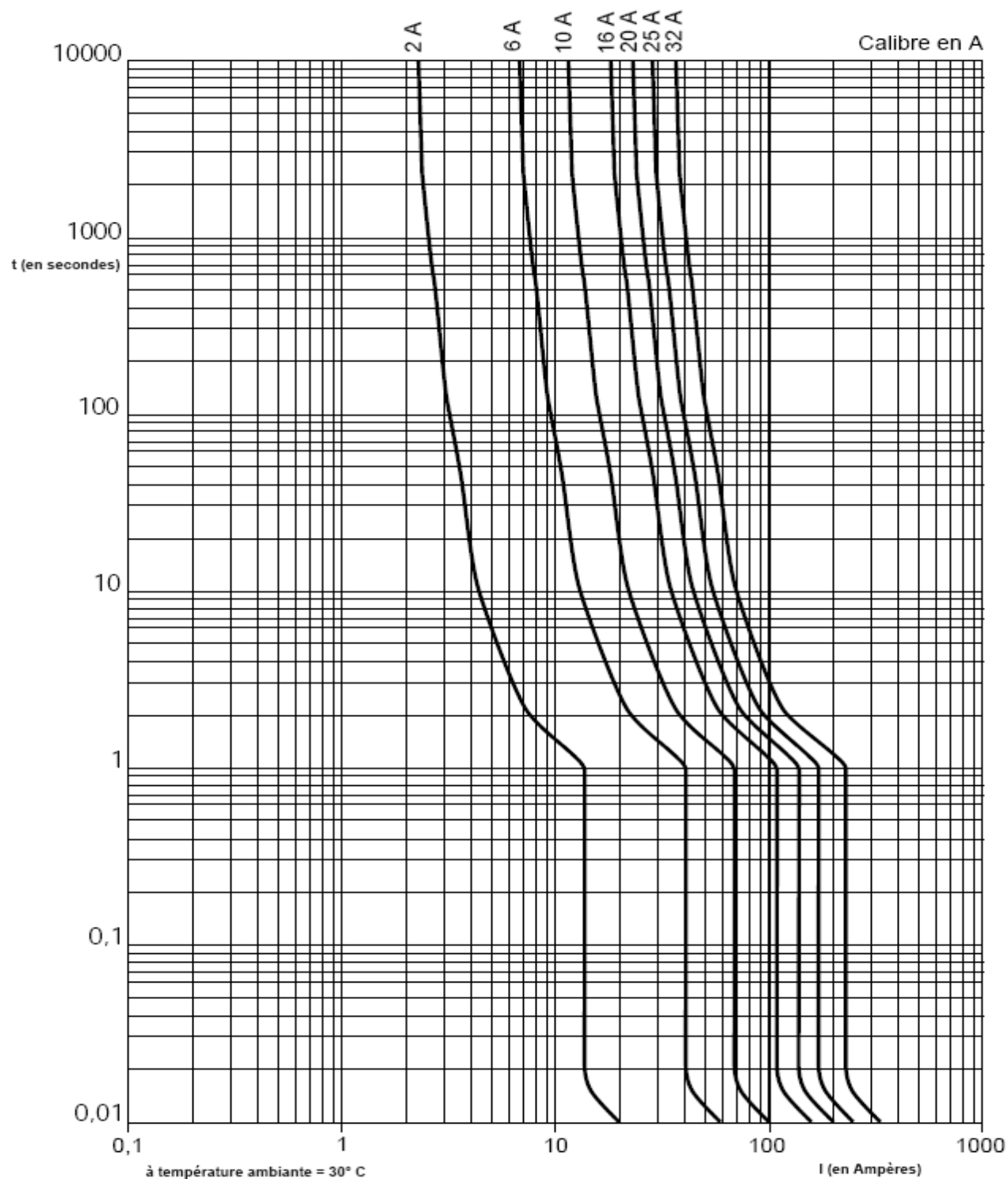
Thermal tripping at ambient température = 30°C

I_n = rated current of the MCB

Phase + Neutral, neutral on left side

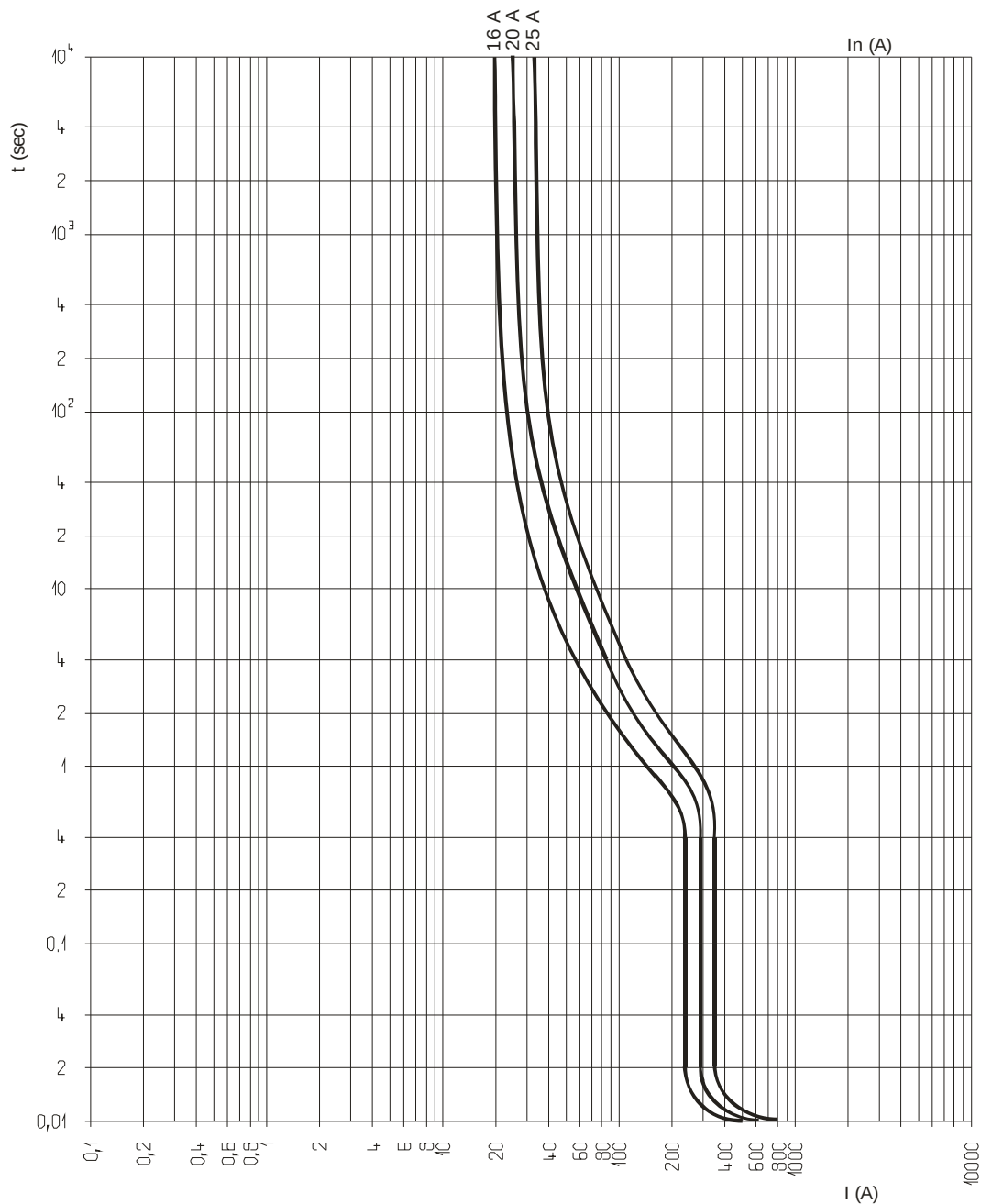
7. CURVES (continued)

AVERAGE TYPICAL OPERATING CURVES : MCBs curve C from 2 A to 32 A



7. CURVES (continued)

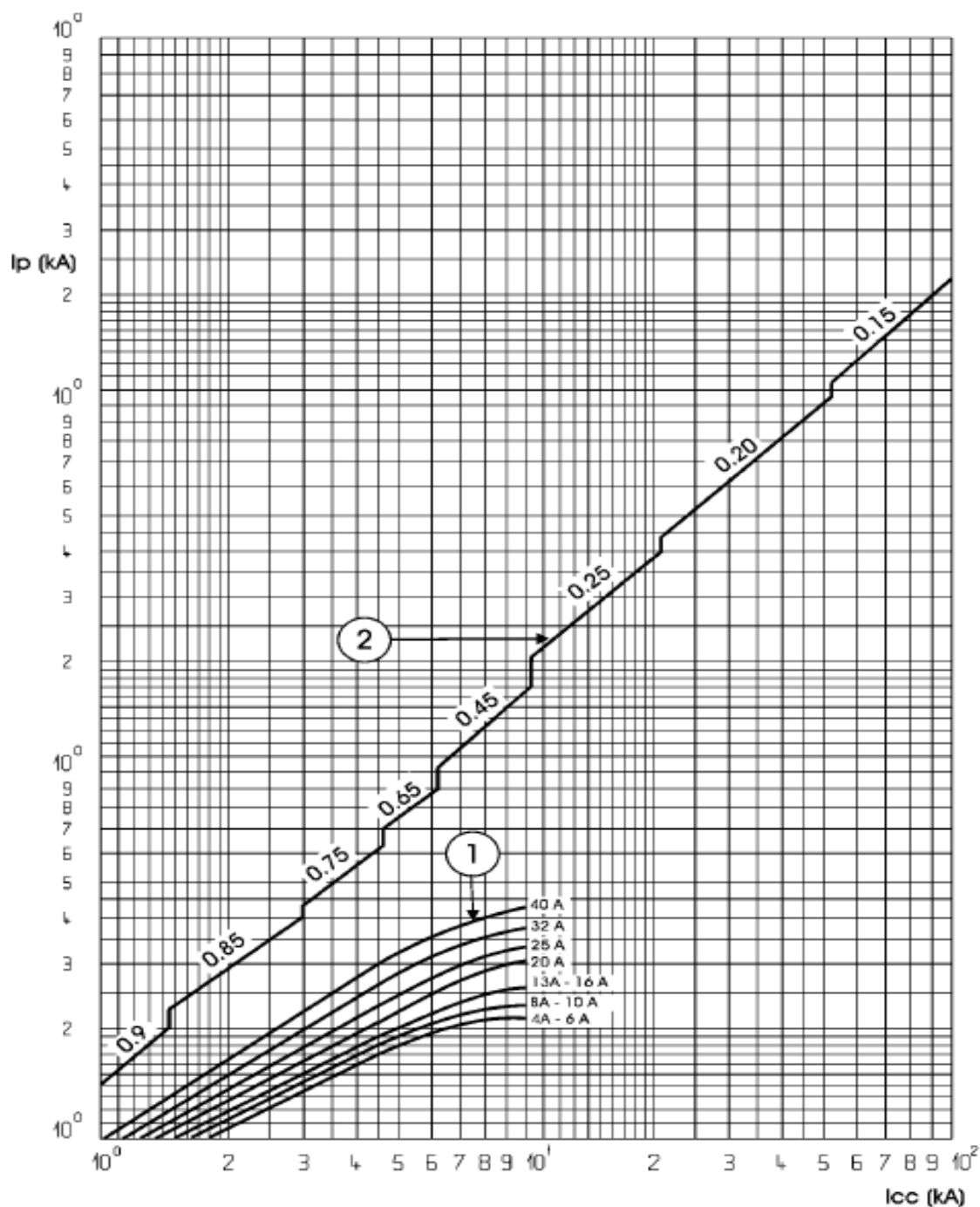
AVERAGE TYPICAL OPERATING CURVES : MCBs curve D from 16 A to 25 A



Phase + Neutral, neutral on left side

7. CURVES (continued)

CURRENT LIMITATION CURVES : MCBs curves C and D from 0.5 A to 32 A

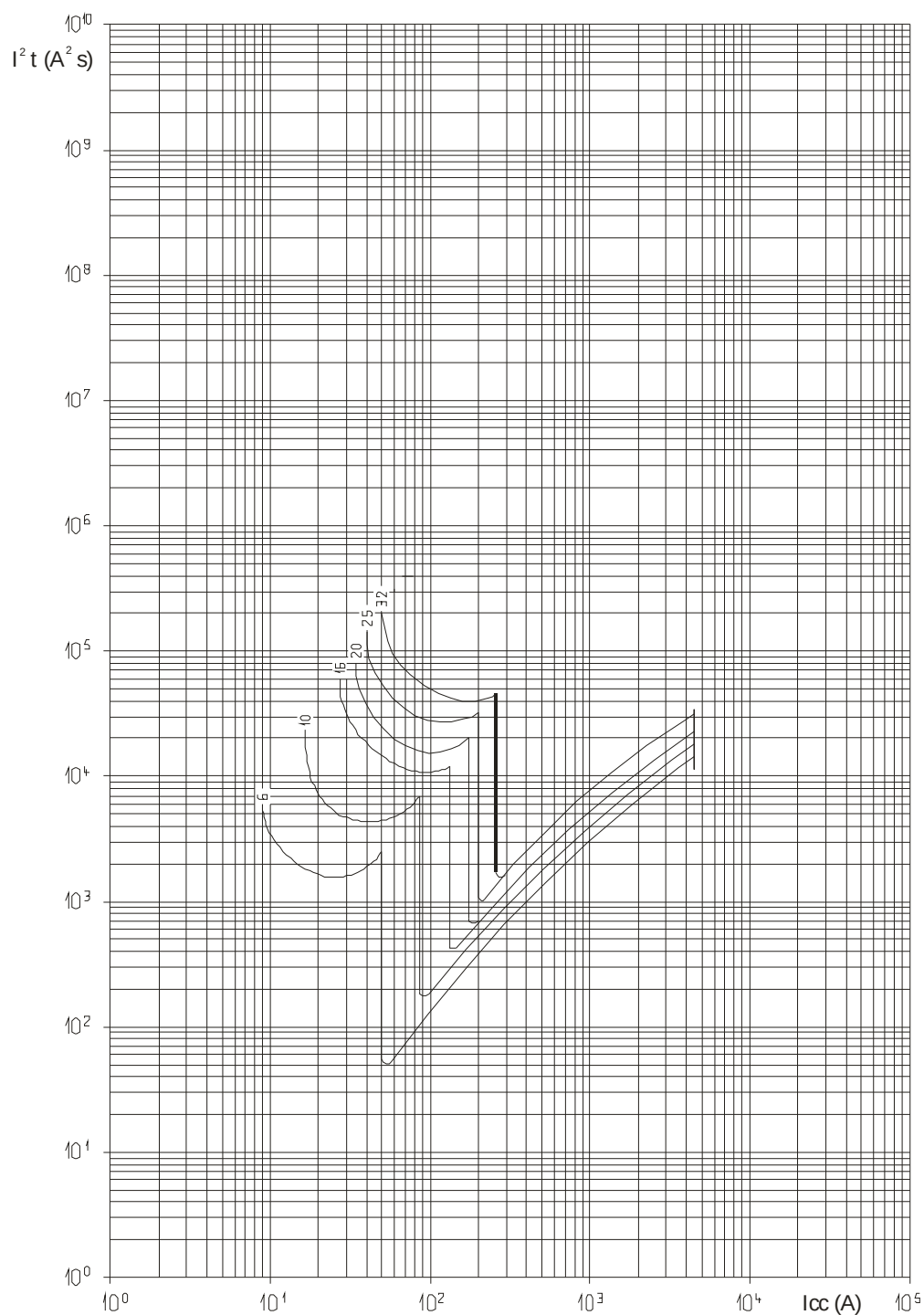
 I_{cc} = prospective short-circuit current (rms values in kA) I_p = max. peak value (in kA) Φ = max. peak rms short-circuit currents Φ = unlimited peak current (max.), corresponding to power factors mentioned above (0.15 to 0.9)

(for ratings 0.5 A, 1 A, 2 A, 3 A limited values are lower than 1 kA)

Phase + Neutral, neutral on left side

7. CURVES *(continued)*

THERMAL STRESS LIMITATION CURVES : MCBs curve C from 2 A to 32 A



Phase + Neutral, neutral on left side

8. EQUIPMENTS AND ACCESSORIES

Wiring accessories :

- . Prong-type supply busbar (cat. 049 26)
- . Sealable terminal shield (cat. 044 44)
- . LEXICLIC row distribution block (cat. 048 70) + wires

List of auxiliaries :

Signalling auxiliaries :

- . Auxiliary changeover switch, half module wide (cat. n° 073 50)
- . Fault signalling changeover switch, half module wide (cat. n° 073 51)
- . Auxiliary changeover switch – can be modified to fault signalling changeover switch, half module wide (cat. n° 073 53)
- . Auxiliary changeover switch + fault signalling changeover switch – can be modified to 2 auxiliary changeover switches, one module wide (cat. n° 073 54)

Control auxiliaries :

- . Shunt trip, one module wide (cat. n° 073 60 / 61)
- . Under voltage release, one module wide (cat. n° 073 65 / 66 / 68)
- . Autonomous shunt trip, one module wide (cat. n° 073 69)

Maximum amount of auxiliaries :

- . 3 is the maximum (eg : 1 shunt trip + 2 auxiliary changeover switch + 1 MCB)

Maximum amount of signalling auxiliaries (cat. n° 073 5x) :

- . 2 signalling auxiliaries but only one half module wide auxiliary

Maximum amount of control auxiliaries (cat. n° 073 6x) :

- . 1 control auxiliary
- . Control auxiliary must be located on the left of signalling auxiliaries in case auxiliaries of these two kinds are used with the same m.c.b.

Assembling auxiliaries :

- . Auxiliaries are clipped on the left hand side of the m.c.b.

Sealing :

- . Possible in ON or OFF position

Padlocking :

- . With padlocking accessories cat. n° 044 42

Installation software :

- . XL PRO²