

# DX<sup>3</sup> STOP ARC 6000 A

## 2 Poles

Cat. N° (s) : 4 159 38

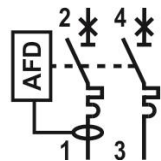


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### 1. DESCRIPTION - USE

. Arc fault detection device integrated with thermal-magnetic circuit breaker (MCB) with contact position indication for the protection of a unitary electrical circuit. Reduction of the fire ignition risk in the electrical circuit, protection against short-circuits and overloads, isolation of electrical circuits.

#### Symbol:



#### Technology:

. Limiting device

### 2. RANGE

#### Polarity:

. 2P

#### Width:

. 3 modules (54mm)

#### Rated currents, In:

. 16A C curve

#### Magnetic tripping curves:

. C curve (between 5 and 10 In)

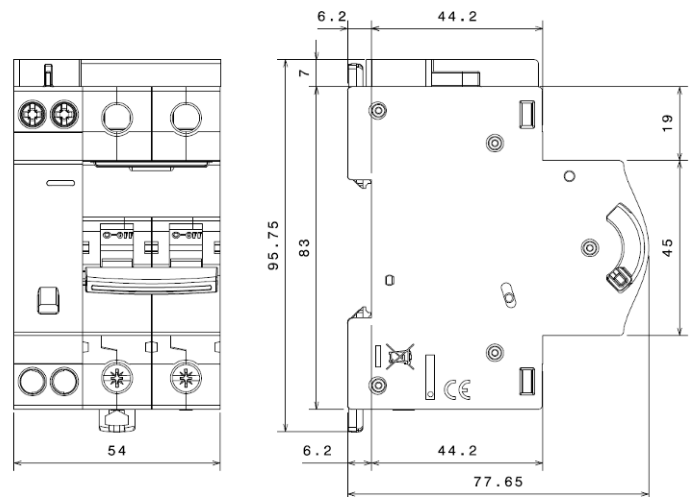
#### Rated Voltage and Frequency:

. 230 V ~ 50 Hz with standard tolerances

#### Breaking capacity:

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

### 3. OVERALL DIMENSIONS



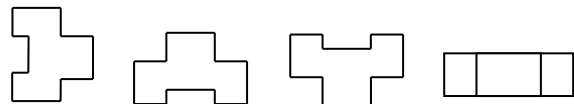
### 4. PREPARATION - CONNECTION

#### Fixing:

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

#### Operating positions:

. Vertical      Horizontal      Upside down      On the side



#### Power supply:

. From the bottom.

### 4. PREPARATION - CONNECTION *(continued)*

#### Connection:

- . Terminals protected against direct finger contact IP20 when wired device
- . Cage terminals, with release and captive screws
- . Terminals fitted with shutters preventing a cable being placed under the terminal, with the terminal partly open or closed
- . Alignment and spacing of the terminals permitting shutters with the other products via fork supply busbars

#### Terminal depth :

- . 12 mm at the top and 14 mm at the bottom

#### Stripping length recommended:

- . 12 mm

#### Screw head:

- . Mixed, slotted and Pozidriv 2.

#### Tightening torque:

- . Recommended: 2.5 Nm.
- . Mini : 2 Nm. Maxi : 2.8 Nm.

#### Connectable section:

	Without ferrule	With ferrule
Rigid cable	1 x 1.5 to 16 mm <sup>2</sup> 2 x 1.5 to 6 mm <sup>2</sup>	-
Flexible cable	1 x 1.5 to 10 mm <sup>2</sup> 2 x 1.5 to 4 mm <sup>2</sup>	1 x 1.5 to 10 mm <sup>2</sup>

#### Required tools:

- . For the terminals:
  - 5.5 mm blade screwdriver
  - Pozidriv n°2 screwdriver
- . For the latching:
  - 5.5 mm blade screwdriver recommended / 6 mm maximum

#### Manual actuation of the DX<sup>3</sup> STOP ARC:

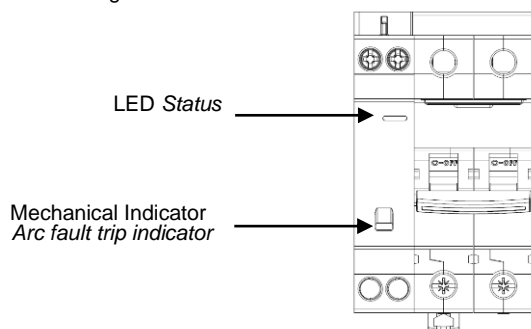
- . Ergonomic 2-position handle
- . "I-ON": Device closed
- . "O-OFF": Device open

#### 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

#### Arc fault device status display:

- . By both indicator light and mechanical indicator



### 4. POSITIONING - CONNECTION *(continued)*

#### Indicator meaning code

Indicators state	meaning
	No or incorrect electrical source or/and device switched off
	Normal running: The circuit is monitored and protected by the arc fault device
	Arc fault detected: The device tripped to avoid the risk of fire Installation has to be verified
	Abnormal running: The circuit is not protected by the arc default device.

#### Insulation tests:

- . Very important:  
Disconnect output wires and handle must be OFF.

#### Arc fault detection tests:

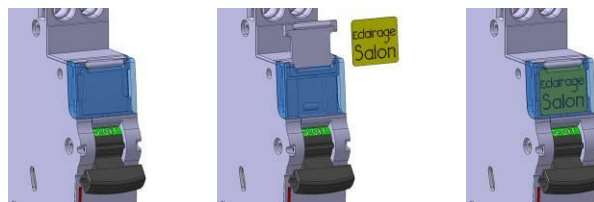
- . The DX<sup>3</sup> STOP ARC is equipped with an auto-test function running continuously. The LED indicates if an abnormal running is detected.

#### Sealing:

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

#### Labelling:

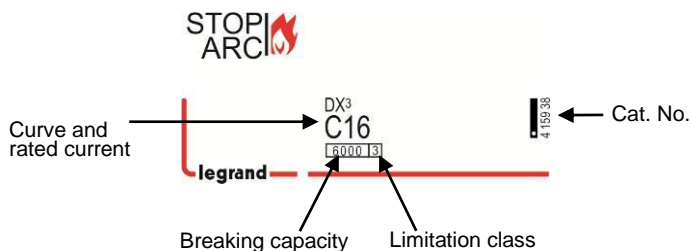
- . Identification of the circuit by insertion of a label in the label holder.



## 5. GENERAL CHARACTERISTICS

### Marking on the front side:

- By permanent ink pad printing



### Marking on the upper panel:

- By permanent ink pad printing



### Minimum operating voltage:

- U = 70 V (without auxiliaries)
- U = 95 V (with auxiliaries)

### Maximum operating voltage:

- U = 250 V

### Breaking capacity:

- With a single-phase network (with alternating current 50 Hz)

Standard	Breaking capacity	Voltage between poles	Breaking capacity
EN/IEC 60898-1	Ics	230 V	6 kA
	Icn		6 kA

### Pulse rated voltage:

- U<sub>imp</sub> = 4 kV

### Insulation voltage:

- U<sub>i</sub> = 400 V in accordance with standard EN/IEC 60898-1

### Pollution degree :

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

### Dielectric strength:

- 2000 V

## 5. GENERAL CHARACTERISTICS (continued)

### Installation requirements:

- The device is intended for unitary circuit protection as per the installation and operating conditions defined by the product standard and shall not be installed upstream of a group of circuit breakers or multiple circuits.

### Degree or class of protection:

- Protection index of terminals against solid and liquid bodies: IP 20 (wired terminals), (in accordance with standards IEC 529, EN 60529 and NF C 20-010).
- Front side protected against direct contact: IP40
- Protection index against mechanical shocks: IK 02 (in accordance with standards EN 50102 and NF C 20-015).

### Plastic materials:

- Polyamide, polyester and P.B.T.

### Enclosure heat and fire resistance:

- Characteristics of this material: self extinguishing, heat and fire resistant according to EN 60898-1, glow-wire test at 960°C for external parts made of insulating material necessary to retain in position current-carrying parts and parts of protective circuit (650°C for all other external parts made of insulating material).

### Closing and opening force via the handle:

- 5 N on opening
- 14 N on closing

### Mechanical endurance:

- Compliant with standard EN/IEC 60898-1 & EN/IEC 62606
- Tested with 20,000 operations with no load

### Electrical endurance:

- Compliant with standard EN/IEC 60898-1 & EN/IEC 62606
- Tested with 10,000 operations with load (at  $I_n \times \cos \phi$  0.9)

### 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) : 0,7g (g=9,81 m/s<sup>2</sup>)

### Ambient temperatures:

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

### EMC Compatibility:

The design of DX<sup>3</sup> STOP ARC with its intelligent signal analysis of the power grid avoids any interference with PLC signal.

Tests according to IEC 61000 guarantee electromagnetic compatibility with other devices on the power grid.

### Packaged volume:

Packaging	Volume (dm <sup>3</sup> )
Per 1	0.52

### Average unit weight per catalogue number:

- 0.35 kg

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### 5. GENERAL CHARACTERISTICS (continued)

#### Power dissipated per pole (W) :

. with In/Un

Rated current	16 A
Power (W) dissipated	4.4

#### Derating of DX<sup>3</sup> STOP ARC 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
16	20.0	18.7	18.0	17.3	16.6	16.0	15.4	14.7	14.1	13.5

#### Derating of DX<sup>3</sup> STOP ARC for use with fluorescent lights:

LEDs and electronic or ferromagnetic ballasts provide a high inrush current for a very short time. These currents are liable to cause tripping of the circuit breaker.

The maximum number of ballasts per RCBO stated by the lamp and ballast manufacturers in their catalogues should be taken into account during installation.

#### Impact of height:

	≤2000 m	3000 m	4000 m	5000 m
Dielectric holding	2,000 V	1,750 V	1,500 V	1,250 V
Max operational Voltage	230 V	230 V	230 V	230 V
Derating at 30°C	none	none	none	none

#### Derating of DX<sup>3</sup> STOP ARC 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 DX <sup>3</sup> STOP ARC 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 60439-1, NF C 63421 and EN 60439-1 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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### 5. GENERAL CHARACTERISTICS *(continued)*

Coordination between DX<sup>3</sup> STOP ARC and fuses, three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

m.c.b. downstream		Fuse upstream									
		gG Type									
		≤20A	25A	32A	40A	50A	63A	80A	100A	125A	160A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	100kA	100kA	100kA	100kA	100kA	100kA	100kA	100kA	40kA

m.c.b. downstream		Fuse upstream									
		aM Type									
		≤20A	25A	32A	40A	50A	63A	80A	100A	125A	160A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	100kA	100kA	100kA	100kA	100kA	100kA	100kA	100kA	40kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the threshold and to the size of upstream fuses which must necessarily be higher.

m.c.b. downstream		m.c.b. upstream									
		DX <sup>3</sup> 10000A									
		B and C Curves					D Curve				
		≤25A	32A	40A	50A	63A	≤25A	32A	40A	50A	63A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	25kA	25kA	25kA	25kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream									
		DX <sup>3</sup> 10000A									
		B and C Curves					D Curve				
		≤25A	32A	40A	50A	63A	≤25A	32A	40A	50A	63A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	25kA	25kA	25kA	25kA	25kA	25kA	25kA	25kA	25kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.

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## 2 Poles

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### 5. GENERAL CHARACTERISTICS *(continued)*

Coordination between DX<sup>3</sup> STOP ARC, three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 10000/16kA							
		B, C and D Curves							
		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	32kA	32kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 10000/16kA							
		D Curve							
		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	32kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 10000/16kA							
		D Curve							
		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	32kA	32kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 25kA							
		B, C and D Curves							
		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA	25kA	25kA	25kA	25kA	25kA	25kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.

# DX<sup>3</sup> STOP ARC 6000 A

## 2 Poles

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### 5. GENERAL CHARACTERISTICS (continued)

Coordination between DX<sup>3</sup> STOP ARC, three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 25kA							
		B and C Curves							
m.c.b. downstream		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	50kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream							
		DX <sup>3</sup> 25kA							
		D Curve							
m.c.b. downstream		≤25A	32A	40A	50A	63A	80A	100A	125A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA	25kA	25kA	25kA	25kA	25kA	25kA

m.c.b. downstream		m.c.b. upstream										
		DX <sup>3</sup> 36kA						DX <sup>3</sup> 50kA				
		C Curve						B, C and D Curves				
m.c.b. downstream		≤25A	32A	40A	50A	63A	80A	≤25A	32A	40A	50A	63A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA	50kA

m.c.b. downstream		m.c.b. upstream										
		DX <sup>3</sup> 36kA						DX <sup>3</sup> 50kA				
		C Curve						B and C Curves				
m.c.b. downstream		≤25A	32A	40A	50A	63A	80A	≤25A	32A	40A	50A	63A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	50kA	50kA	50kA	50kA	50kA	-	50kA	50kA	50kA	50kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.

# DX<sup>3</sup> STOP ARC 6000 A

## 2 Poles

Cat. N° (s) : 4 159 38

### 5. GENERAL CHARACTERISTICS *(continued)*

#### Coordination between DX<sup>3</sup> STOP ARC, three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

m.c.b. downstream		m.c.b. upstream				
		DX <sup>3</sup> 50kA				
		D Curve				
		≤25A	32A	40A	50A	63A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA	50kA	50kA	50kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.

#### Coordination between DX<sup>3</sup> STOP ARC and M.C.C.Bs (Moulded Case Circuit Breakers), three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

m.c.b. downstream		m.c.c.b. upstream							
		DPX <sup>3</sup> 160 / DPX <sup>3</sup> 160 + diff.							
		16kA							
		16A	25A	40A	63A	80A	100A	125A	160A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	25kA	25kA	25kA	25kA	25kA	25kA	25kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.



# DX<sup>3</sup> STOP ARC 6000 A

## 2 Poles

Cat. N° (s) : 4 159 38

### 5. GENERAL CHARACTERISTICS *(continued)*

Coordination between DX<sup>3</sup> STOP ARC and M.C.C.Bs (Moulded Case Circuit Breakers), three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:

		m.c.c.b. upstream							
		DPX <sup>3</sup> 160 / DPX <sup>3</sup> 160 + diff.							
		25kA							
m.c.b. downstream		16A	25A	40A	63A	80A	100A	125A	160A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	40kA	40kA	40kA	40kA	40kA	40kA	40kA

		m.c.c.b. upstream							
		DPX <sup>3</sup> 160 / DPX <sup>3</sup> 160 + diff.							
		36 - 50kA							
m.c.b. downstream		16A	25A	40A	63A	80A	100A	125A	160A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	-	50kA	50kA	50kA	50kA	50kA	50kA	50kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic threshold and to the size of upstream circuit breakers which must necessarily be higher.

# DX<sup>3</sup> STOP ARC 6000 A

## 2 Poles

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### 5. GENERAL CHARACTERISTICS *(continued)*

**Coordination between DX<sup>3</sup> STOP ARC and M.C.C.Bs (Moulded Case Circuit Breakers), three-phase network (+ neutral) 230 / 240 V~ according to IEC/EN 60947-2:**

		m.c.c.b. upstream							
		DPX <sup>3</sup> 250 / DPX <sup>3</sup> 250+diff. (Thermal-magnetic & electronic)				DPX <sup>3</sup> 250 / DPX <sup>3</sup> 250+diff. (Thermal-magnetic & electronic)			
		25kA				36 – 50 - 70kA			
m.c.b. downstream		100A	160A	200A	250A	100A	160A	200A	250A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	40kA	40kA	40kA	40kA	50kA	50kA	50 kA	50kA

		m.c.c.b. upstream				
		DPX <sup>3</sup> 630 (Thermal-magnetic & electronic)				
		36 - 70 – 100kA				
m.c.b. downstream		250A	320A	400A	500A	630A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA	50kA	50kA	50kA

		m.c.c.b. upstream	
		DPX <sup>3</sup> 1250 (Thermal-magnetic)	DPX <sup>3</sup> 1600 (electronic)
		50 – 70 – 100kA	36 – 70kA
m.c.b. downstream		500 to 1250A	630 to 1600A
DX <sup>3</sup> STOP ARC 6000 A C curve	16A	50kA	50kA

All these values are also valid for circuit breakers associated to RCD add-on modules.

According to the curves and ratings of circuit breakers, attention to the magnetic (or electronic) threshold and to the size of upstream circuit breakers which must necessarily be higher.

## 6. COMPLIANCE AND APPROVALS

### In accordance with standards:

- . IEC/EN 60898-1
- . IEC/EN 62606

### Usage in special conditions:

- . Category C compliant (testing temperature range from -25°C to +70°C, resistant to salt spray) in accordance with the classification defined in Appendix Q of standard IEC 60947-1

### Respect for the environment – Compliance with European Union Directives:

- . Compliance with Directive 2002/95/EC of 27/01/03 called "RoHS" which provides for the banning of hazardous substances such as lead, mercury, cadmium, hexavalent chromium, brominated flame retardants polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) from 1<sup>st</sup> July 2006
- . Compliance with Directive 91/338/CEE of 18/06/91 and Decree 94-647 of 27/07/04

### Plastic materials :

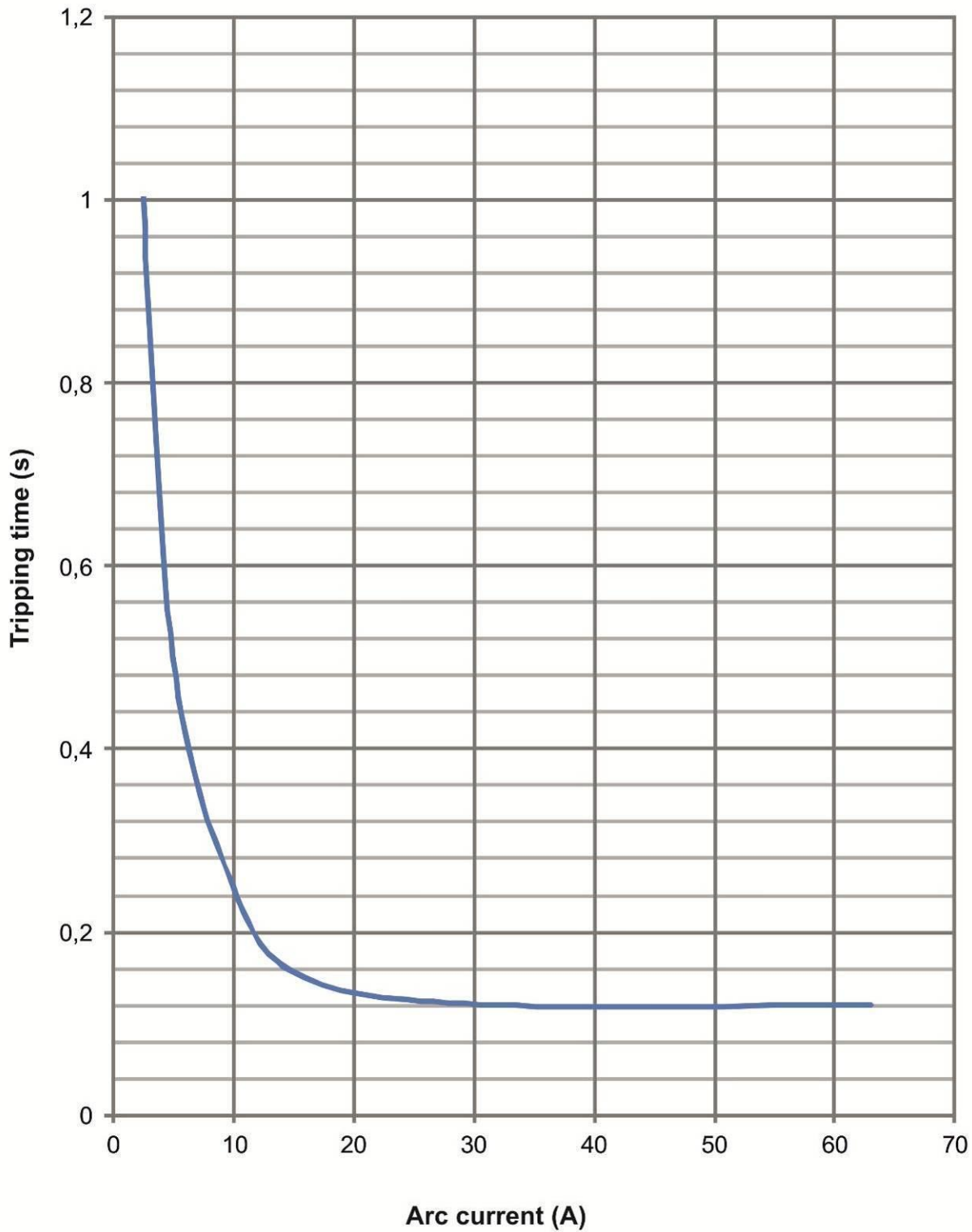
- . Halogens-free plastic materials.
- . Marking of parts according to ISO 11469 and ISO 1043.

### Packaging:

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

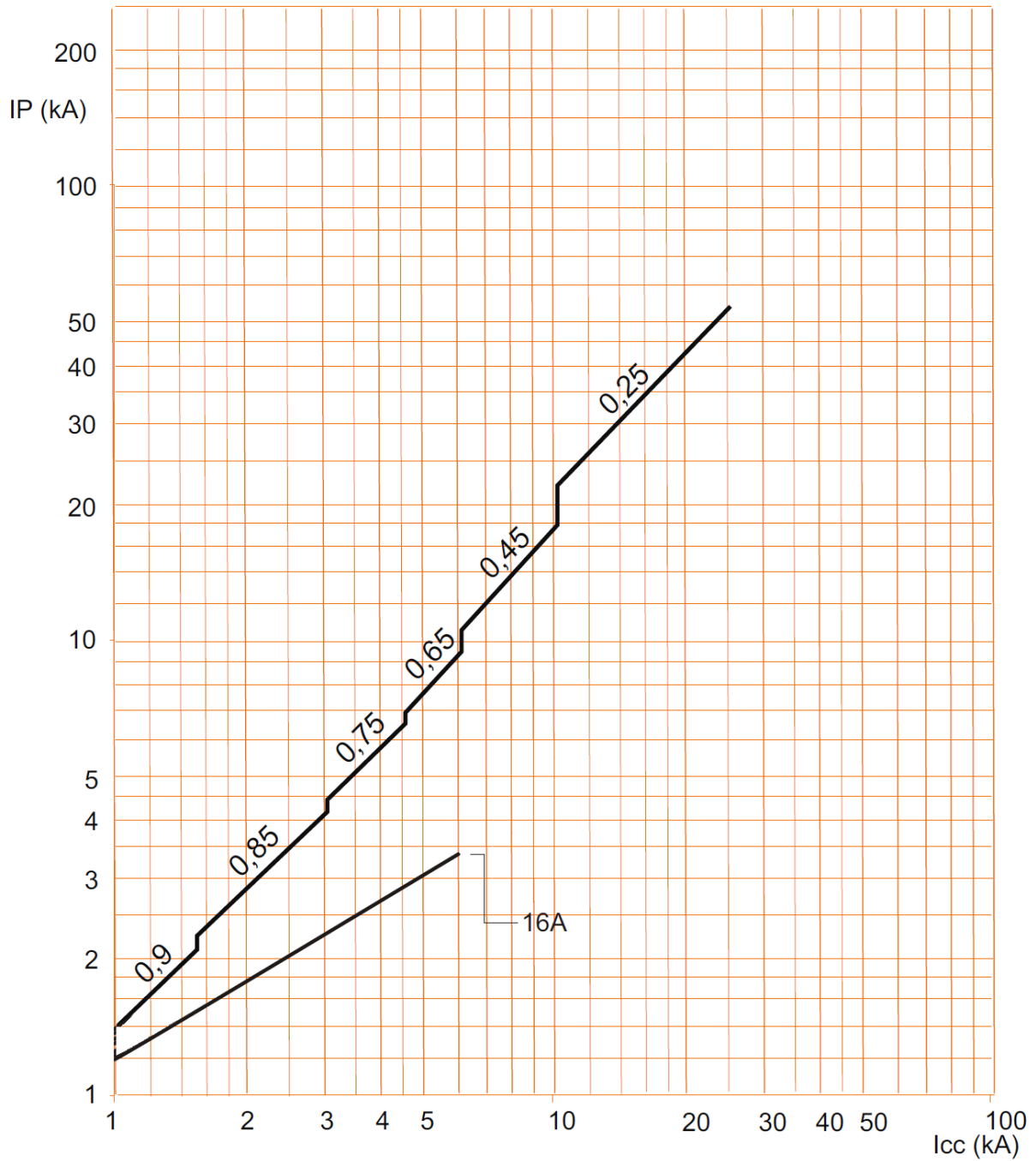
**7. CURVES**

**Arc tripping time curve**



7. CURVES (continued)

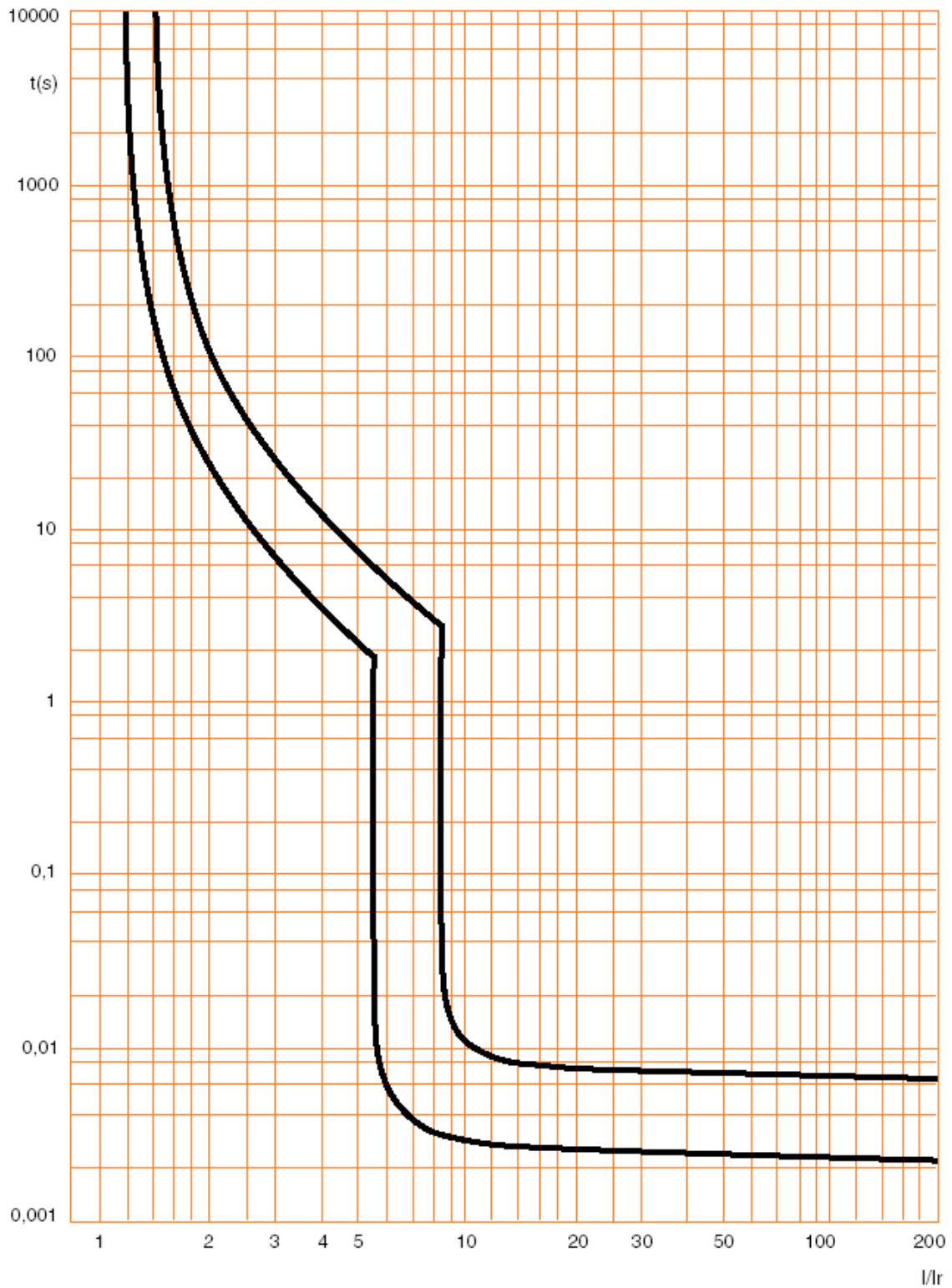
Limiting current curve:



. I<sub>cc</sub> = Square value of symmetric component of the short circuit current ( kA ).  
 . IP = Max peak value ( kA )

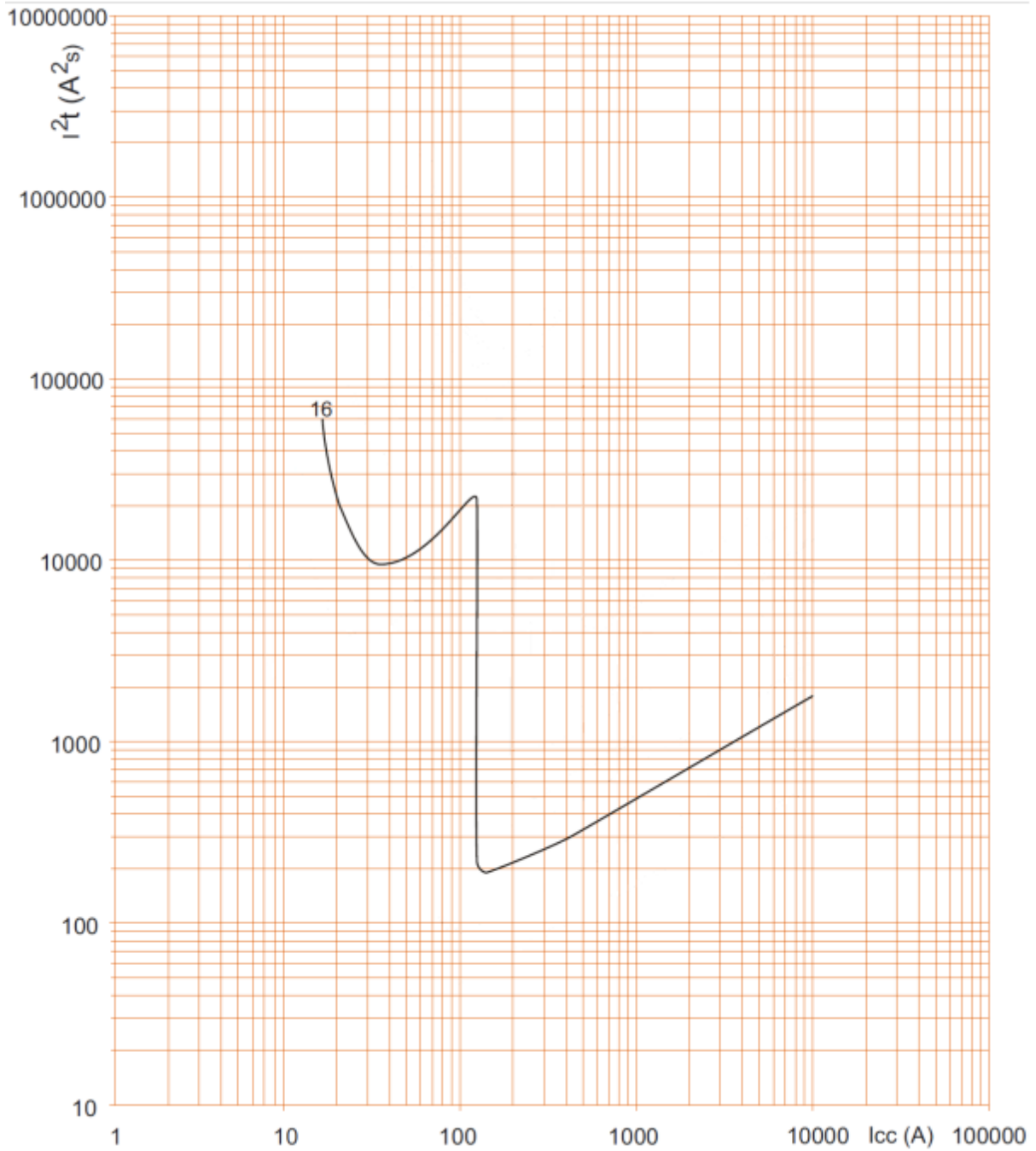
**7. CURVES** (continued)

Operating characteristic of DX<sup>3</sup> STOP ARC C curve:



**7. CURVES** (continued)

. Limiting thermal energy curve of DX<sup>3</sup> STOP ARC C curve , 2P (230V~ / 50Hz) :



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

## 8. AUXILIARIES AND ACCESSORIES

### Wiring accessories:

- . Sealable screw cover (Cat. No. 4 063 04)

### Signal auxiliaries:

- . Auxiliary contact (0.5 module, Cat. No. 4 062 50)
- . Fault signalling contact (0.5 module, Cat. No. 4 062 52)
- . Auxiliary contact that can be changed into fault signalling contact (0.5 module, Cat. No. 4 062 56)
- . Auxiliary contact + fault signalling contact that can be changed into 2 auxiliary contacts (1 module, Cat. No. 4 062 64)

### Control auxiliaries:

#### Only possible with a signalling auxiliary positioned between the control auxiliary and the DX<sup>3</sup> STOP ARC

- . Shunt trip (1 module, Cat. No. 4 062 76 / 78)
- . Under voltage release (1 module, Cat. No. 4 062 80 / 82)
- . Autonomous shunt trip release for N/C push-button (1.5 module, Cat. No. 4 062 87)
- . Power Overvoltage Protection (1 module, Cat. No. 4 062 86)

### Possible combinations of auxiliaries and the DX<sup>3</sup> STOP ARC:

- . The auxiliaries are installed to the left of the DX<sup>3</sup> STOP ARC
- . Maximum number of auxiliaries = 2
- . Maximum number of 1 module signalling auxiliaries = 1

### Locking options:

- . Via padlock 5 mm in diameter (Cat. No. 4 063 13) or padlock 6 mm in diameter (Cat. No. 0 227 97) and padlock support (Cat. No. 4 063 03)

### Installation software:

- . XL PRO<sup>3</sup>