



20 years protecting you

1988 1989 1990
1991 1992 1993
1994 1995 1996
1997 1998 1999
2000 2001 2002
2003 2004 2005
2006 2007 2008

2009DF





DF, S.A. was created in the 80's as a result of the concern of a group of professionals in the electrical sector.

From the outset, **DF ELECTRIC** has represented the meeting point between the trust of our customers and suppliers and the motivation and hard work of the most highly qualified professionals.

What started out as a small project was affected by two events at the beginning of the 90's which turned **DF ELECTRIC** into the company as we know it today.

- First-time attendance at an electrical material fair as exhibitor (MATELEC'92).
- Installation of the first completely automated production line.

From then on, participation by **DF ELECTRIC** at international fairs has increased in proportion to growth of the company itself. DF currently attends the major trade fairs across the five continents, 85% being export market events, thus maintaining the spirit that has characterised it throughout its history.

As well as exhibiting at these fairs, constant investment of resources in automation and modernisation of production lines is what has differentiated **DF ELECTRIC** from its competitors, as few companies of our size have developed their own manufacturing technology.

This entrepreneurial spirit is reflected in all areas of the company. Throughout **DF ELECTRIC**'s history we have incorporated all the departments required to maintain our commitment to clients. These departments include export, quality, marketing, etc.

These features have made **DF ELECTRIC** what it is today. Its most notable figures for 2007 are the following:

- Workforce of over 100 people.
- 65% turnover in exports.
- Presence in over 60 countries.
- Catalogue with over 4,000 references.
- Investment in R&D&i of around 8% of turnover.
- Annual manufacturing of over 50 million units.
- 100% checking of products manufactured.

QUALITY

DF ELECTRIC is committed to quality management in each of the departments forming our company.

The guidelines resulting from this policy boost the essence of our company: customer satisfaction. To achieve this we seek excellence in our products, based on requirements stipulated in the ISO standard 9001:2000, RoHS and fulfilment of quality objectives, through continuous improvement in all corporate processes.

Our vision for the future is to achieve a leadership position in manufacturing and marketing of our products, strengthening our presence around the world and building ourselves up as an organisation that incorporates the values of a large modern company managing resources with efficacy and efficiency.



RESEARCH AND DEVELOPMENT

In the R&D and innovation department we have a great professional team and cutting-edge technology and equipment to help us successfully achieve our mission. In particular, we have some of the most powerful and versatile computer design programmes available.

Laboratory equipment enables us to carry out a large number of electrical and mechanical tests during development of our products and also periodical controls of those already in the manufacturing stage.

This means we can always offer the customer top quality electrical material products.



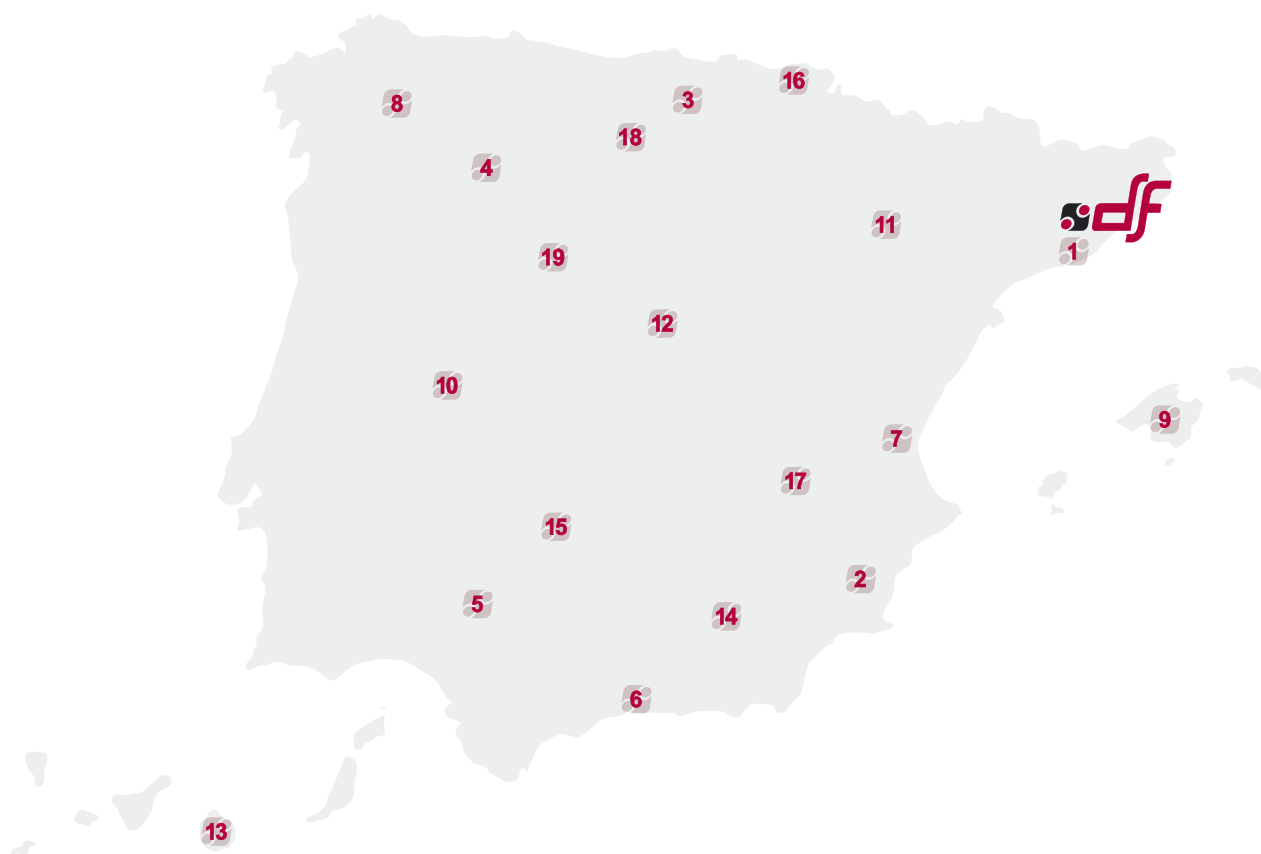
AUTOMATED PRODUCTION

The manufacturing process is underlined by the high technological level achieved and developed by DF ELECTRIC thanks to the constant injections of funds provided to the department.

The production process is completely integrated in our facilities. We purchase raw materials that are immediately transferred to the automated production chain. The process consists of producing each part included in the final product up to output itself, in line with the strictest quality standards and applying the RoHS directive.

This means we can offer our customers a top quality competitive product.





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INTERNATIONAL COMMERCIAL NETWORK

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USA

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EL SALVADOR
GUATEMALA
PANAMA
REPUBLICA DOMINICANA

SOUTH AMERICA

ARGENTINA
BRASIL
CHILE
COLOMBIA
ECUADOR
PERU
URUGUAY
VENEZUELA

EUROPE

BELGIUM
CZECH REPUBLIC
DENMARK
FINLAND
FRANCE
GERMANY
GREECE
IRELAND
ITALY
LUXEMBURG
MALTA
PORTUGAL
RUSSIA
SPAIN
SWITZERLAND
TURKEY
UK

AFRICA

ALGERIA
EGYPT
IVORY COAST
KENYA
MOROCCO
SENEGAL
SOUTH AFRICA
TOGO
TUNISIA

MIDDLE EAST

IRAN
JORDANIA
KUWAIT
LEBANON
OMAN
QATAR
SAUDI ARABIA
SYRIA
UNITED ARAB EMIRATES

ASIA

CHINA
HONG KONG
INDIA
INDONESIA
JAPAN
KOREA
MALAYSIA
PAKISTAN
PHILIPPINES
SINGAPORE
TAIWAN
THAILAND

OCEANIA

AUSTRALIA
NEW ZEALAND

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FUSE LINKS

**MINIATURE FUSES
WITH GLASS BODY**

12-17

**INDUSTRIAL CYLINDRICAL
FUSE LINKS**

18-29

SEMICONDUCTOR FUSE LINKS

30-37

NH FUSE LINKS (HRC)

38-63

DOMESTIC FUSE LINKS

64-71

D FUSE LINKS

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DO FUSE LINKS

78-81



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FUSE HOLDERS AND BASES

**FUSE HOLDERS AND BASES
FOR MINIATURE FUSES**

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**INDUSTRIAL MODULAR
FUSE HOLDERS**

90-105

NH FUSE BASES

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DOMESTIC FUSE HOLDERS

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D FUSE HOLDERS

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DO FUSE HOLDERS

132-137



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TRANSFORMERS

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FUSE LINKS

MINIATURE FUSES WITH GLASS BODY

12-17

INDUSTRIAL CYLINDRICAL FUSE LINKS

18-29

SEMICONDUCTOR FUSE LINKS

30-37

NH FUSE LINKS (HRC)

38-63

DOMESTIC FUSE LINKS

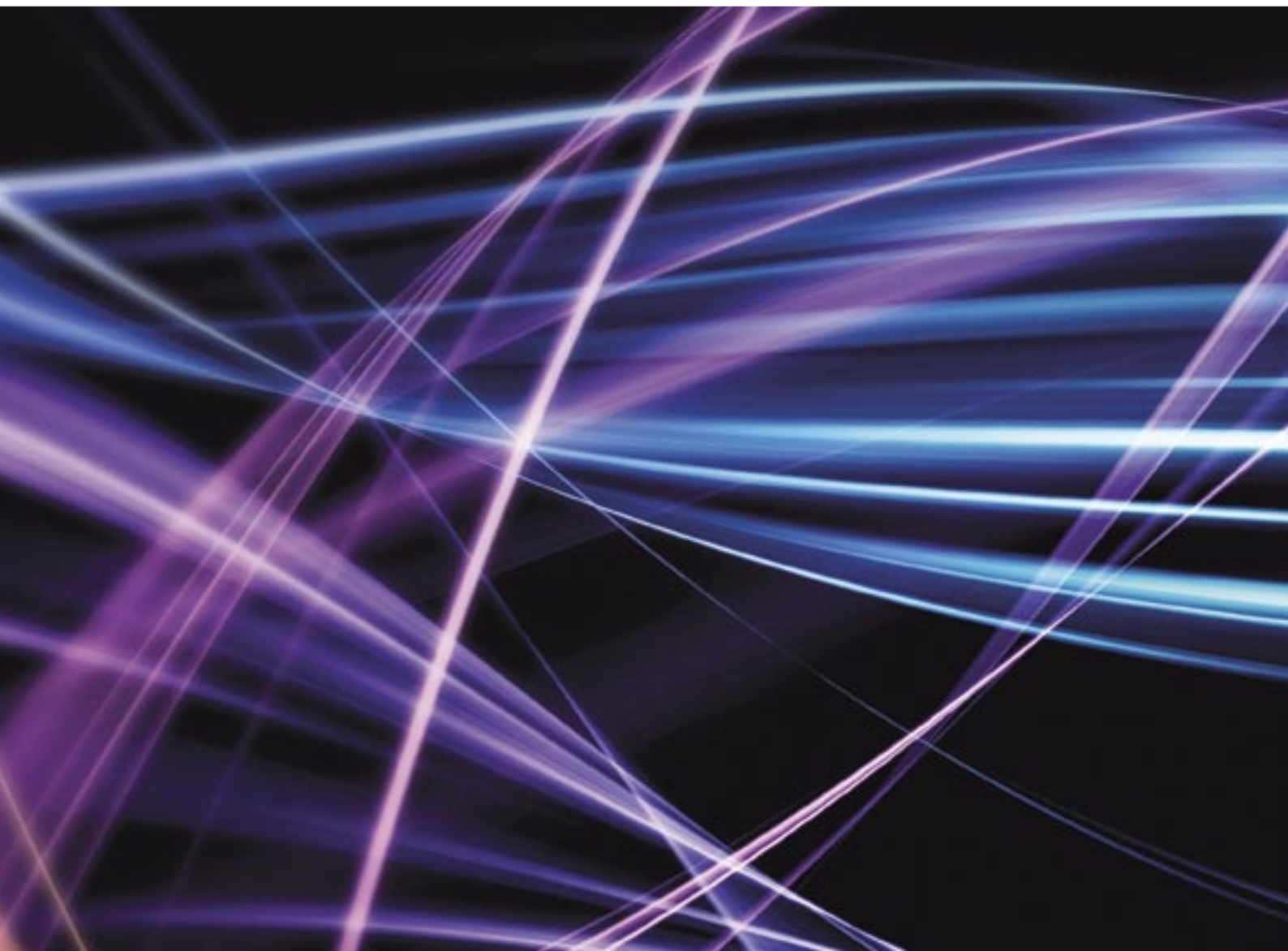
64-71

D FUSE LINKS

72-77

DO FUSE LINKS

78-81





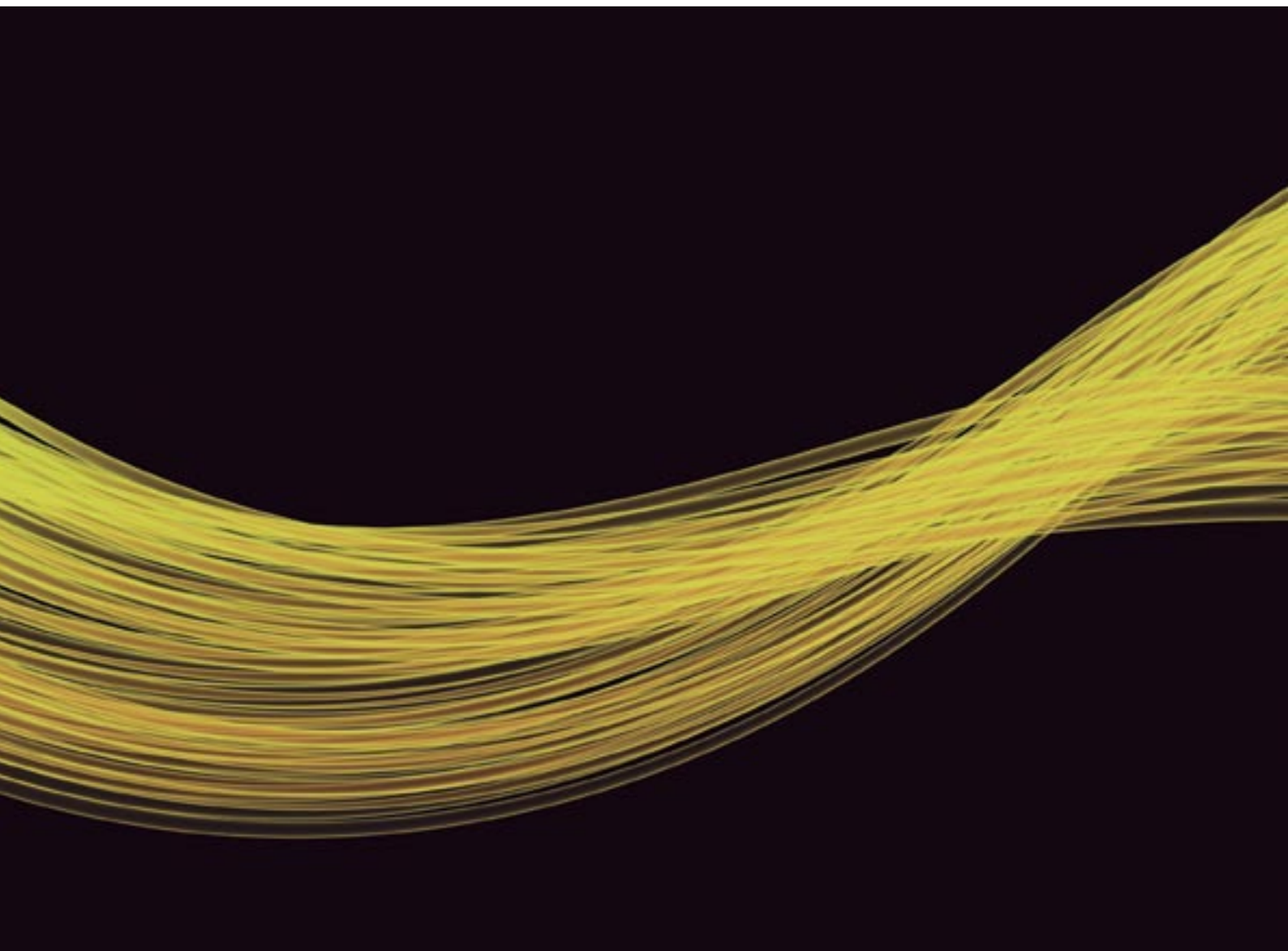
MINATURE FUSES WITH GLASS BODY

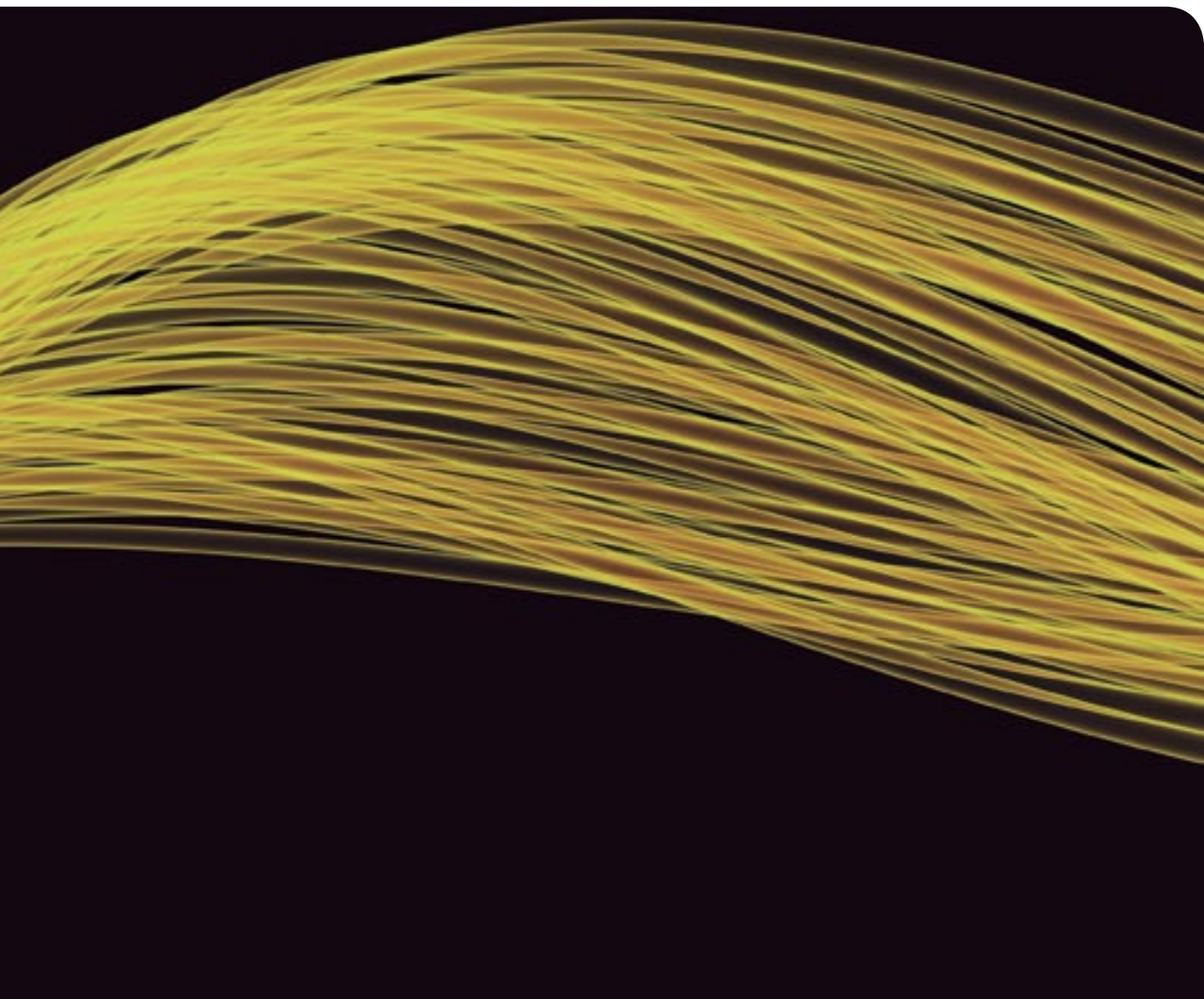
MINATURE FUSES WITH GLASS BODY

14-15

TECHNICAL DATA

16-17





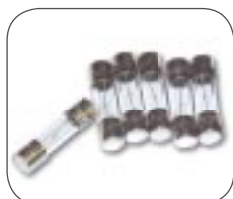
FUSE LINKS

MINIATURE FUSES WITH GLASS BODY

5x20 MINIATURE FUSES

5x20

Glass miniature fuse links with low breaking capacity, intended for small currents. Provide protection against overloads and short circuits in electronic equipment, household, telecommunications and small transformers or motors. Available in sizes 5x20 and 6x32 with quick acting (F) or Time lag (T) characteristics. Manufactured according to IEC and EN standards with glass tube and nickel plated copper alloy contact caps.



MINIATURE FUSES 5x20 (GLASS BODY)

I _n	REFERENCE				U	BREAKING CAPACITY	PACKING
(A)	FAST ACTING (F)		TIME LAG (T)		(V)	(A)	
	bulk standard	box standard	bulk standard	box standard			
0,1	5000010	5020010	5300010	5320010	250	35	10/100/1000
0,125	5000012	5020012	5300012	5420012	250	35	10/100/1000
0,16	5000016	5020016	5300016	5420016	250	35	10/100/1000
0,20	5000020	5120020	5300020	5420020	250	35	10/100/1000
0,25	5000025	5120025	5300025	5420025	250	35	10/100/1000
0,315	5000031	5120031	5300031	5420031	250	35	10/100/1000
0,4	5000040	5120040	5300040	5420040	250	35	10/100/1000
0,5	5000050	5120050	5300050	5420050	250	35	10/100/1000
0,63	5000063	5120063	5300063	5420063	250	35	10/100/1000
0,8	5000080	5120080	5300080	5420080	250	35	10/100/1000
1	5000100	5120100	5300100	5420100	250	35	10/100/1000
1,25	5000125	5120125	5300125	5420125	250	35	10/100/1000
1,6	5000160	5120160	5300160	5420160	250	35	10/100/1000
2	5000200	5120200	5300200	5420200	250	35	10/100/1000
2,5	5000250	5120250	5300250	5420250	250	35	10/100/1000
3,15	5000315	5120315	5300315	5420315	250	35	10/100/1000
4	5000400	5120400	5300400	5420400	250	10 x I _n	10/100/1000
5	5000500	5120500	5300500	5420500	250	10 x I _n	10/100/1000
6,3	5000630	5120630	5300630	5420630	250	10 x I _n	10/100/1000
7*	5000700	5020700	5300700	5320700	250	10 x I _n	10/100/1000
8*	5000800	5020800	5300800	5320800	250	10 x I _n	10/100/1000
10*	5001000	5021000	5301000	5321000	250	10 x I _n	10/100/1000
12*	5001200	5021200	5301200	5321200	250	10 x I _n	10/100/1000
15*	5001500	5021500	5301500	5321500	250	10 x I _n	10/100/1000
16*	5001600	5021600	5301600	5321600	250	10 x I _n	10/100/1000

(*) Overrating fuses

FUSE LINKS

MINATURE FUSES WITH GLASS BODY

6x32 MINIATURE FUSES

6x32



FUSE LINKS

MINIATURE FUSES 6x32 (GLASS BODY)

I _n		REFERENCE				U	BREAKING CAPACITY	PACKING
(A)		FAST ACTING (F)		TIME LAG (T)		(V)	(A)	
		bulk standard	box standard	bulk standard	box standard			
0,1		6000010	6030010	6300010	6330010	250	35	10/100/1000
0,125		6000012	6030012	6300012	6330012	250	35	10/100/1000
0,16		6000016	6030016	6300016	6330016	250	35	10/100/1000
0,20		6000020	6030020	6300020	6330020	250	35	10/100/1000
0,25		6000025	6030025	6300025	6330025	250	35	10/100/1000
0,315		6000031	6030031	6300031	6330031	250	35	10/100/1000
0,4		6000040	6030040	6300040	6330040	250	35	10/100/1000
0,5		6000050	6030050	6300050	6330050	250	35	10/100/1000
0,63		6000063	6030063	6300063	6330063	250	35	10/100/1000
0,8		6000080	6030080	6300080	6330080	250	35	10/100/1000
1		6000100	6030100	6300100	6330100	250	35	10/100/1000
1,25		6000125	6030125	6300125	6330125	250	35	10/100/1000
1,6		6000160	6030160	6300160	6330160	250	35	10/100/1000
2		6000200	6030200	6300200	6330200	250	35	10/100/1000
2,5		6000250	6030250	6300250	6330250	250	35	10/100/1000
3,15		6000315	6030315	6300315	6330315	250	35	10/100/1000
4		6000400	6030400	6300400	6330400	250	10 x I _n	10/100/1000
5		6000500	6030500	6300500	6330500	250	10 x I _n	10/100/1000
6,3		6000630	6030630	6300630	6330630	250	10 x I _n	10/100/1000
7*		6000700	6030700	6300700	6330700	250	10 x I _n	10/100/1000
8*		6000800	6030800	6300800	6330800	250	10 x I _n	10/100/1000
9*		6000900	6030900	6300900	6330900	250	10 x I _n	10/100/1000
10*		6001000	6031000	6301000	6331000	250	10 x I _n	10/100/1000
12*		6001200	6031200	6301200	6331200	250	10 x I _n	10/100/1000
15*		6001500	6031500	6301500	6331500	250	10 x I _n	10/100/1000

(*) Overrating fuses



STANDARDS
IEC 60127
EN 60127

DIMENSIONS

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†-I CHARACTERISTICS

17

15



FUSE LINKS

MINIATURE FUSES WITH GLASS BODY

5x20 NEUTRAL LINK
MINIATURE FUSES SET
DIMENSIONS

5x20

6x32



510001

NEUTRAL LINK 5x20

REFERENCE	PACKING
510001	10/100



510002

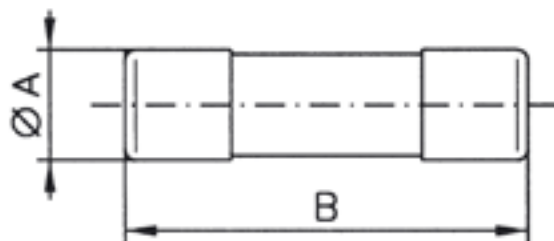
MINIATURE FUSES SET

REFERENCE			PACKING
	FAST ACTING (F)	TIME LAG (T)	
5x32	510002*	510003*	1/10
6x32	510004*	—	1/10

(*) This set contains 20 glass fuses of every rated current.

In (A): 125 mA | 160 mA | 200 mA | 250 mA | 315 mA | 400 mA | 500 mA | 630 mA | 800 mA
1 A | 1,25 A | 1,6 A | 2 A | 2,5 A | 3,15 A | 4 A | 5 A | 6,3 A

DIMENSIONS



SIZE	A	B
5 x 20	5	20
6 x 32	6	32

FUSE LINKS

MINATURE FUSES WITH GLASS BODY

t-I CHARACTERISTICS

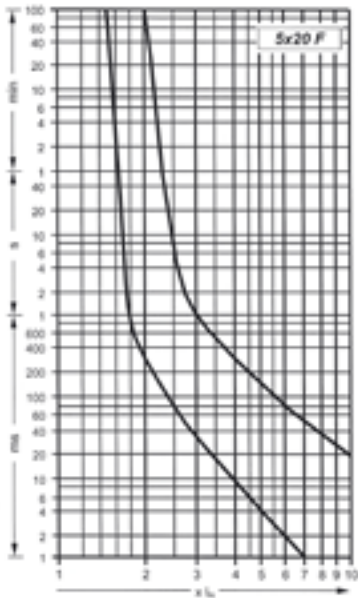


FUSE LINKS

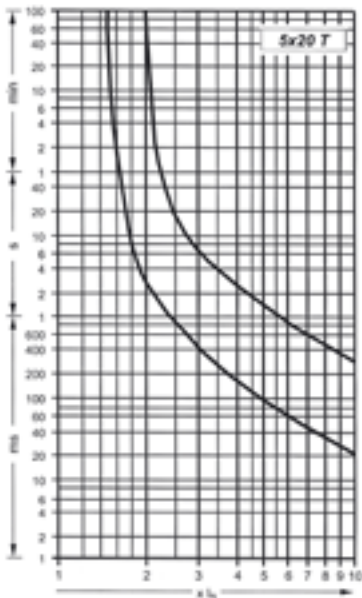
5x20

6x32

t-I CHARACTERISTICS - 5x20

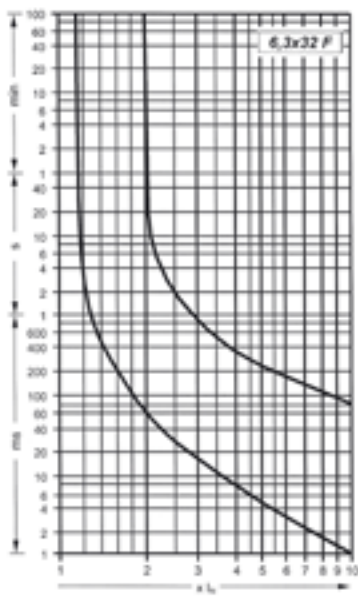


CLASS F (fast acting)

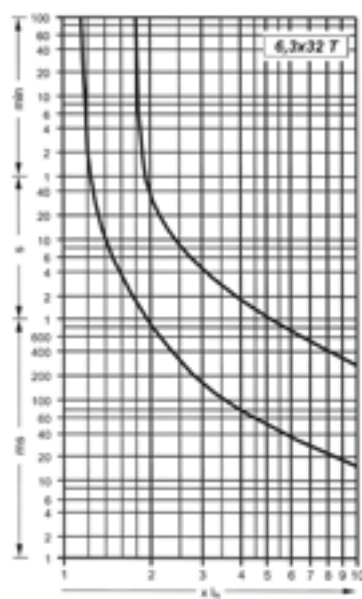


CLASS T (time lag)

t-I CHARACTERISTICS - 6x32



CLASS T (time lag)



CLASS T (time lag)

FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

20-24

gG INDUSTRIAL CYLINDRICAL FUSE LINKS

20-21

aM INDUSTRIAL CYLINDRICAL FUSE LINKS

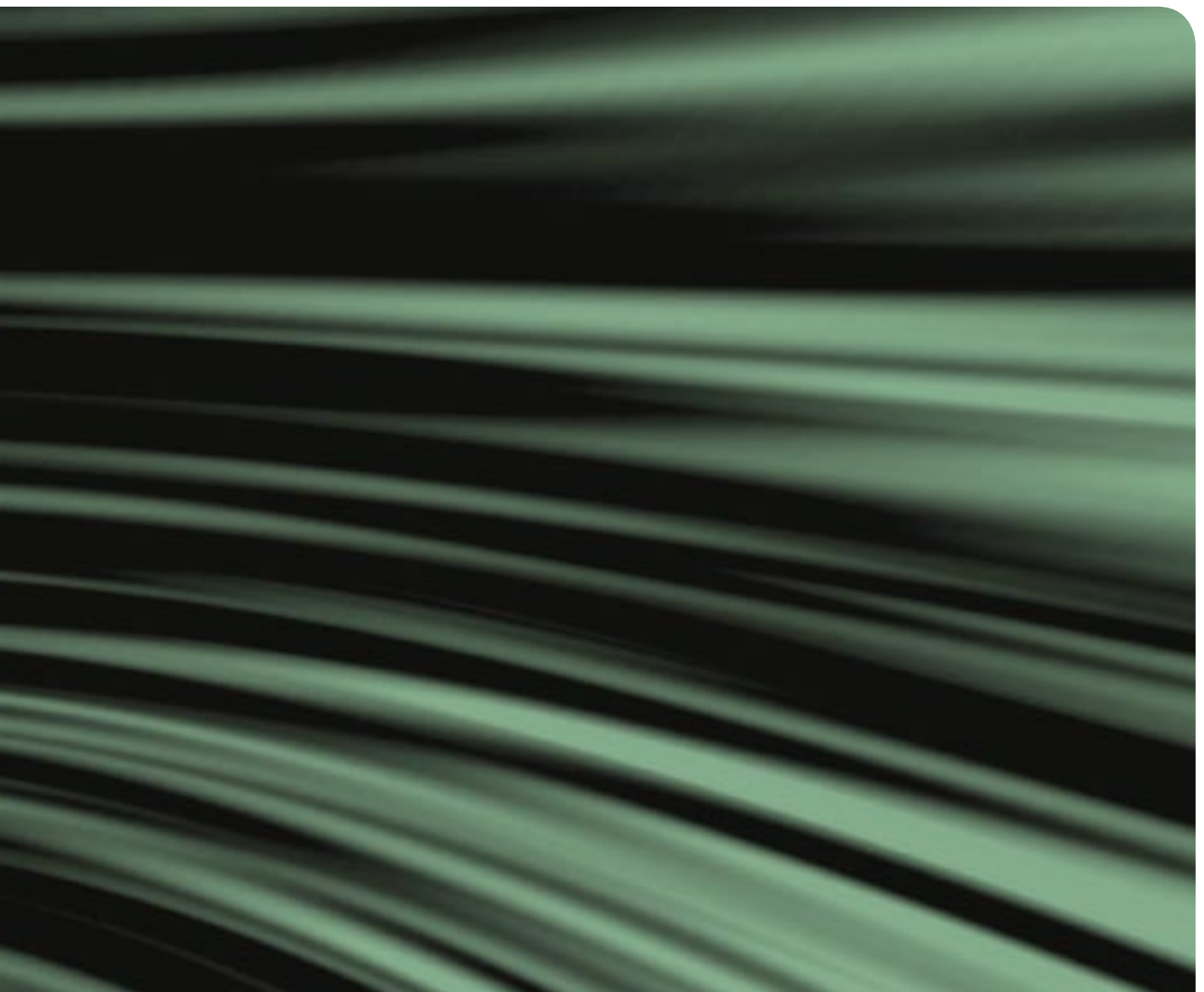
22-23

gR FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS

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TECHNICAL DATA

25-29





FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

gG INDUSTRIAL CYLINDRICAL FUSE LINKS



Cylindrical fuse links gG class for use as general protection against overloads and short circuits, intended as protection of cables, power lines and equipment. Made of ceramic tube with high withstand to internal pressure and thermal shock, that allow a high breaking capacity in a reduced physical space.

The melting elements are silver plated in order to avoid aging and thus maintain unalterable the electrical characteristics. Contact caps are made of silver plated copper. Versions available with fusing indicator or with striker for use in fuse holders with microswitch.

gG INDUSTRIAL CYLINDRICAL FUSE LINKS

SIZE	I _n (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	REFERENCE WITH striker 	U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator 	WITH indicator 						
8x31 	0,5	420500	—	400	20				10/100
	1	420501	—	400	20				10/100
	2	420502	420602	400	20				10/100
	4	420504	420604	400	20				10/100
	6	420506	420606	400	20				10/100
	8	420508	420608	400	20				10/100
	10	420510	420610	400	20				10/100
	12	420512	420612	400	20				10/100
	16	420516	420616	400	20				10/100
	20	420720	420820	400	20				10/100
10x38 	0,5	420000	—	500	120				10/100
	1	420001	—	500	120				10/100
	2	420002	420102	500	120				10/100
	4	420004	420104	500	120				10/100
	6	420006	420106	500	120				10/100
	8	420008	420108	500	120				10/100
	10	420010	420110	500	120				10/100
	12	420012	420112	500	120				10/100
	16	420016	420116	500	120				10/100
	20	420020	420120	500	120				10/100
	25	420025	420125	500	120				10/100
	32*	420032	420132	400	120				10/100
14x51 	1	421001	—	690	80	—	—	—	10/50
	2	421002	421102	690	80	421202	500	120	10/50
	4	421004	421104	690	80	421204	500	120	10/50
	6	421006	421106	690	80	421206	500	120	10/50
	8	421008	421108	690	80	421208	500	120	10/50
	10	421010	421110	690	80	421210	500	120	10/50
	12	421012	421112	690	80	421212	500	120	10/50
	16	421016	421116	690	80	421216	500	120	10/50
	20	421020	421120	690	80	421220	500	120	10/50
	25	421025	421125	690	80	421225	500	120	10/50
	32	421032	421132	500	120	421232	500	120	10/50
	40	421040	421140	500	120	421240	500	120	10/50
	50	421050	421150	400	120	421250	400	120	10/50

(*) Overrating fuses

FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

gG INDUSTRIAL CYLINDRICAL FUSE LINKS
NEUTRAL LINKS

Cd-Pb
FREE

gG



FUSE LINKS

gG INDUSTRIAL CYLINDRICAL FUSE LINKS

SIZE	I _n (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	REFERENCE WITH striker	U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator 	WITH indicator 						
22x58	2	422002	422102	690	80	—	—	—	10/50
	4	422004	422104	690	80	422204	690	80	10/50
	6	422006	422106	690	80	422206	690	80	10/50
	8	422008	422108	690	80	422208	690	80	10/50
	10	422010	422110	690	80	422210	690	80	10/50
	12	422012	422112	690	80	422212	690	80	10/50
	16	422016	422116	690	80	422216	690	80	10/50
	20	422020	422120	690	80	422220	690	80	10/50
	25	422025	422125	690	80	422225	690	80	10/50
	32	422032	422132	690	80	422232	690	80	10/50
	40	422040	422140	690	80	422240	690	80	10/50
	50	422050	422150	690	80	422250	690	80	10/50
	63	422063	422163	690	80	422263	690	80	10/50
	80	422080	422180	500	120	422280	500	120	10/50
	100	422000	422100	500	120	422200	500	120	10/50
	125*	422015	422115	400	120	422215	400	120	10/50



422002

(*) Overrating fuses

NEUTRAL LINKS

SIZE	I _n (A)	REFERENCE	PACKING
8x31	N	430000	10/100
10x38	N	431000	10/100
14x51	N	432000	10/50
22x58	N	433000	10/50



430000

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

DIMENSIONS

23

t_{ti} AND CUT-OFF CHARACTERISTICS

26

I_t² CHARACTERISTICS AND POWER DISSIPATION

27

DC APPLICATIONS FOR DF ELECTRIC FUSE LINKS

176

21



FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

aM INDUSTRIAL CYLINDRICAL FUSE LINKS



aM

Cylindrical fuse links aM class are intended for short circuit protection in motors, transformer and other load with high inrush currents. Excellent protection of switchgear (contactor, thermal switch) due to the good current limiting capability and low I^2t values. These fuse links must be associated to an overload device protection as a thermal switch. Made of ceramic tube with high withstand to internal pressure and thermal shock, that allow a high breaking capacity in a reduced physical space. The melting elements are silver plated in order to avoid the aging and thus keep unalterable the electric characteristics. Contacts caps are made of silver plated copper. Available versions with fusing indicator or with striker for use in fuse holders with microswitch.

INDUSTRIAL CYLINDRICAL FUSE LINKS aM

SIZE	I _n (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	REFERENCE WITH striker 	U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator 	WITH indicator 						
8x31	1	411101	411201	400	20				10/100
	2	411102	411202	400	20				10/100
	4	411104	411204	400	20				10/100
	6	411106	411206	400	20				10/100
	8	411108	–	400	20				10/100
	10	411110	411210	400	20				10/100
10x38	0,16	440031	–	500	120				10/100
	0,25	440033	–	500	120				10/100
	0,5	440000	–	500	120				10/100
	1	440001	440101	500	120				10/100
	2	440002	440102	500	120				10/100
	4	440004	440104	500	120				10/100
	6	440006	440106	500	120				10/100
	8	440008	440108	500	120				10/100
	10	440010	440110	500	120				10/100
	12	440012	440112	500	120				10/100
	16	440016	440116	500	120				10/100
	20*	440020	440120	400	120				10/100
	25*	440025	440125	400	120				10/100
14x51	0,25	441031	–	690	80	–	–	–	10/50
	0,5	441000	–	690	80	–	–	–	10/50
	1	441001	441101	690	80	441201	500	120	10/50
	2	441002	441102	690	80	441202	500	120	10/50
	4	441004	441104	690	80	441204	500	120	10/50
	6	441006	441106	690	80	441206	500	120	10/50
	8	441008	441108	690	80	441208	500	120	10/50
	10	441010	441110	690	80	441210	500	120	10/50
	12	441012	441112	690	80	441212	500	120	10/50
	16	441016	441116	690	80	441216	500	120	10/50
	20	441020	441120	690	80	441220	500	120	10/50
	25	441025	441125	690	80	441225	500	120	10/50
	32	441032	441132	500	120	441232	500	120	10/50
	40	441040	441140	500	120	441240	500	120	10/50
	45	441045	441145	500	120	441245	400	120	10/50
	50*	441050	441150	400	120	441250	400	120	10/50

(*) Overrating fuses



411102



440001



441140

FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

aM INDUSTRIAL CYLINDRICAL FUSE LINKS
NEUTRAL LINKS
gG/aM DIMENSIONS

Cd-Pb
FREE

aM



FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS aM

SIZE	I _n (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	REFERENCE WITH striker	U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator	WITH indicator						
22x58	2	442002	442102	690	80	442202	690	80	10/50
	4	442004	442104	690	80	442204	690	80	10/50
	6	442006	442106	690	80	442206	690	80	10/50
	8	442008	442108	690	80	442208	690	80	10/50
	10	442010	442110	690	80	442210	690	80	10/50
	12	442012	442112	690	80	442212	690	80	10/50
	16	442016	442116	690	80	442216	690	80	10/50
	20	442020	442120	690	80	442220	690	80	10/50
	25	442025	442125	690	80	442225	690	80	10/50
	32	442032	442132	690	80	442232	690	80	10/50
	40	442040	442140	690	80	442240	690	80	10/50
	50	442050	442150	690	80	442250	690	80	10/50
	63	442063	442163	690	80	442263	690	80	10/50
	80	442080	442180	500	120	442280	500	120	10/50
	100	442000	442100	500	120	442200	500	120	10/50
	125*	442015	442115	400	120	442215	400	120	10/50



442063

(*) Overrating fuses

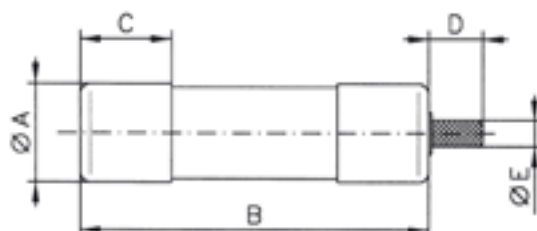
NEUTRAL LINKS

SIZE	I _n (A)	REFERENCE	PACKING
8x31	N	430000	10/100
10x38	N	431000	10/100
14x51	N	432000	10/50
22x58	N	433000	10/50



430000

DIMENSIONS



SIZE	A	B	C	D	E
8,5x31,5	8,5	31,5	6,3	—	—
10,3x38	10,3	38	10	—	—
14,3x51	14,3	51	13	8	4
22,2x58	22,2	58	16	8	4

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

t-I AND CUT-OFF CHARACTERISTICS

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Pt CHARACTERISTICS AND POWER DISSIPATION

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FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

gR FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS

NEW



PV fuse-links for photovoltaic installations from DF Electric have been developed to offer a compact, safety and economic protection solution in photovoltaic installations where, due to the increase of the power and technologic evolution, no-load voltages up to 900V DC are reached. Also meet the requirements for instruments (multimeters) and traction equipment auxiliary circuits.

The range comprises 10x38 fuse-links with rated currents between 4A and 20A.

Rated voltage is 900 V DC (direct current).

Provide protection against overloads as well as short-circuits.

Made with ceramic tube with high withstand to internal pressure and thermal shock, that allows a high breaking capacity in a reduced physical space. Contacts are made of silver plated copper and melting elements are made of pure silver in order to avoid the aging and thus keep unalterable the electric characteristics.

For these fuse-links we recommend the utilization of PMF 1000V fuse holders in single pole version (ref. 481033) or two-pole version (ref.481233).

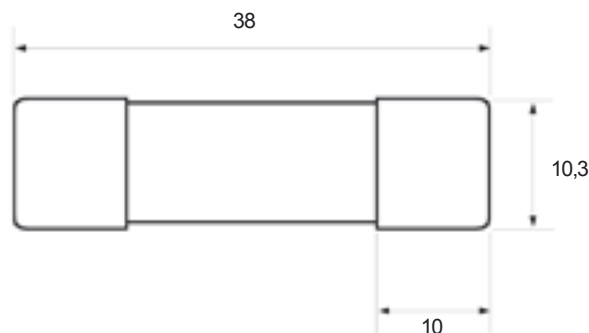


491635

gR FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
10x38	4	491605	900	30	10/100
	6	491610	900	30	10/100
	8	491615	900	30	10/100
	10	491620	900	30	10/100
	12	491625	900	30	10/100
	16	491630	900	30	10/100
	20	491635	900	30	10/100

DIMENSIONS



FUSE LINKS

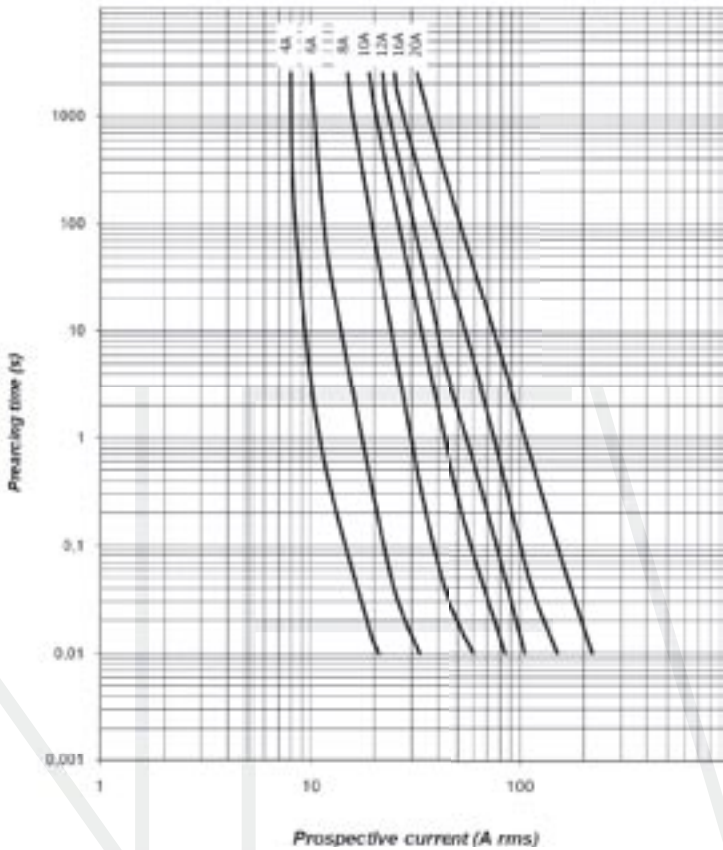
INDUSTRIAL CYLINDRICAL FUSE LINKS

gR FUSE-LINKS FOR PHOTOVOLTAIC APPLICATIONS



FUSE LINKS

t-I CHARACTERISTICS



TECHNICAL DATA

RATED CURRENT	REFERENCE	POWER DISSIPATION	POWER DISSIPATION	PREARcing I ² t	OPERATING I ² t 900V
(A)		(W @ 0,8 I _n)	(W @ I _n)	(A ² s)	(A ² s)
4	491605	1,10	1,85	4	15
6	491610	1,45	2,50	9	42
8	491615	0,95	1,60	12	49
10	491620	1,25	2,15	19	69
12	491625	1,40	2,40	28	97
16	491630	1,80	3,10	48	178
20	491635	2,20	3,80	69	248



FUSE LINKS

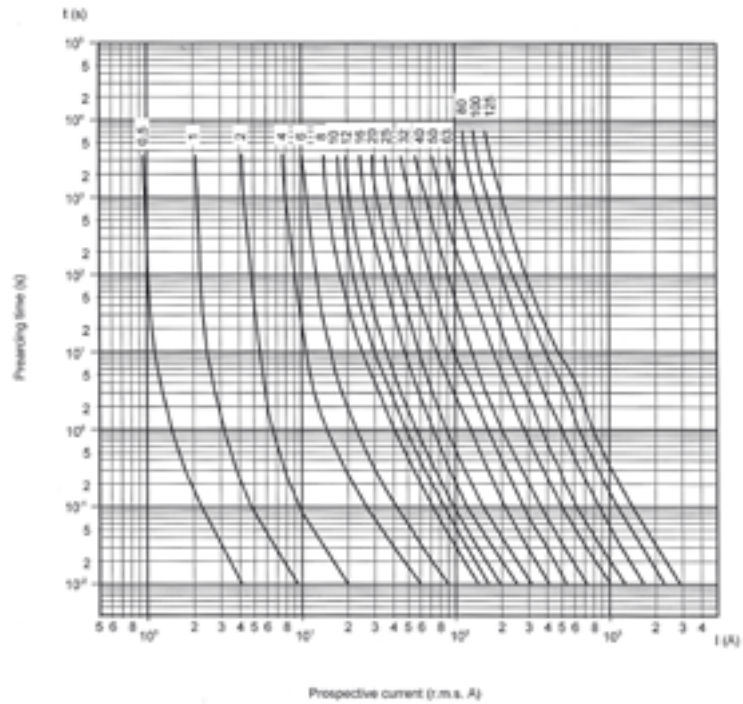
INDUSTRIAL CYLINDRICAL FUSE LINKS

t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

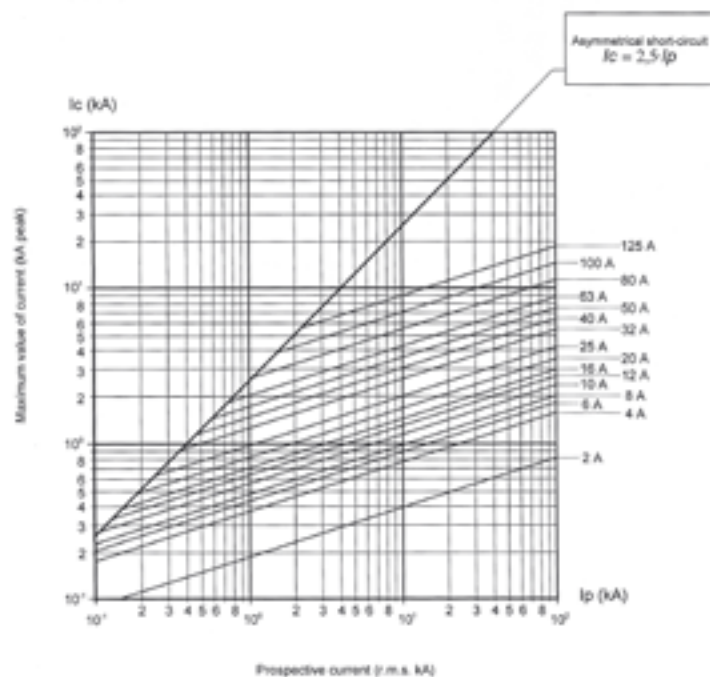
Cd-Pb
FREE

gG

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

I²t CHARACTERISTICS
POWER DISSIPATION

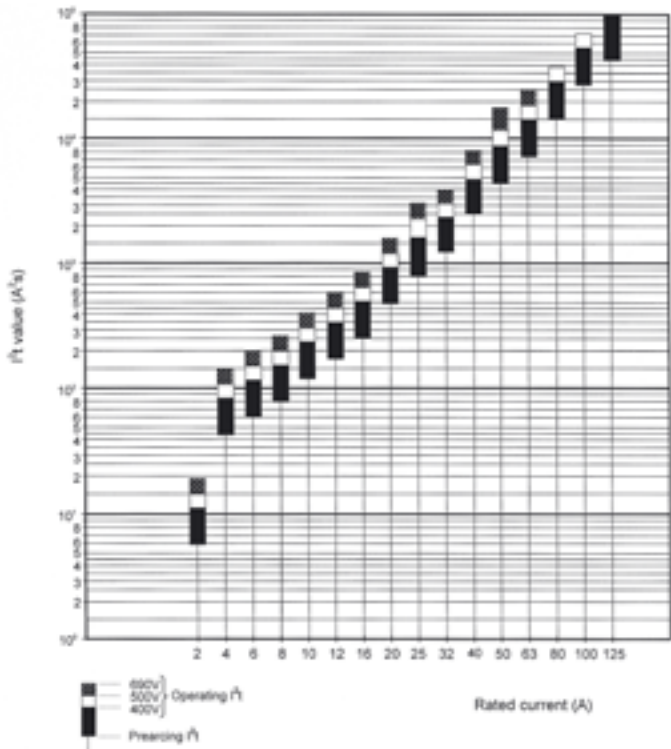
Cd-Pb
FREE

gG



FUSE LINKS

I²t CHARACTERISTICS



POWER DISSIPATION (W)

I _n (A)	SIZE			
	8,5x31,5 (W)	10x38 (W)	14x51 (W)	22x58 (W)
0,5	1,2	1,43	—	—
1	2,0	2,77	3,90	—
2	0,5	0,60	0,90	1,00
4	0,8	0,70	1,00	1,10
6	1,1	0,85	1,15	1,30
8	1,3	0,75	1,00	1,10
10	1,0	1,00	1,30	1,50
12	1,2	1,30	1,70	1,80
16	1,5	1,60	2,00	2,10
20	2,0	2,00	2,50	2,70
25	—	2,60	3,30	3,30
32	—	2,90	3,50	3,50
40	—	—	4,75	4,00
50	—	—	4,80	5,50
63	—	—	—	6,90
80	—	—	—	7,80
100	—	—	—	9,00
125	—	—	—	11,4

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2



FUSE LINKS

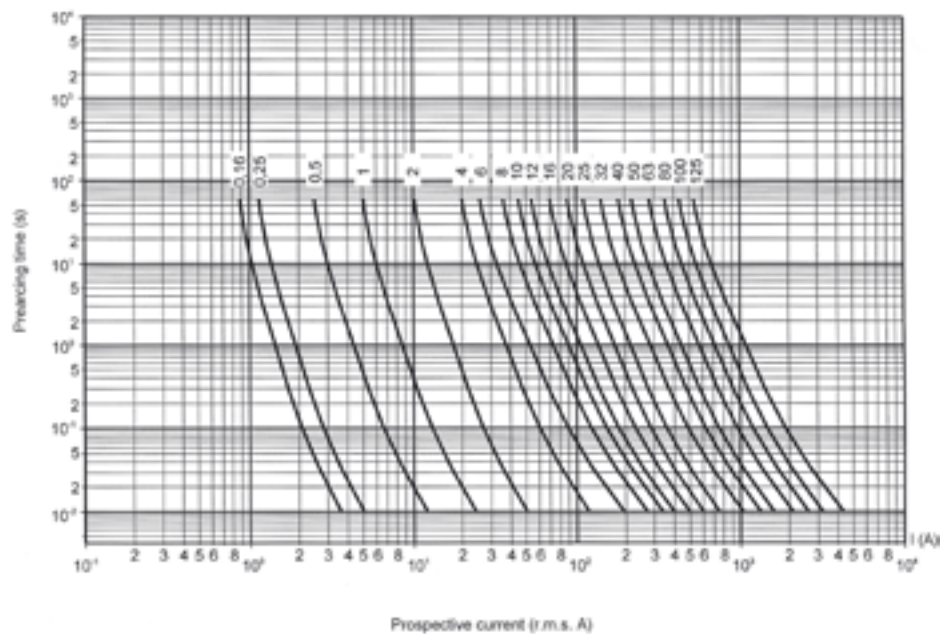
INDUSTRIAL CYLINDRICAL FUSE LINKS

t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

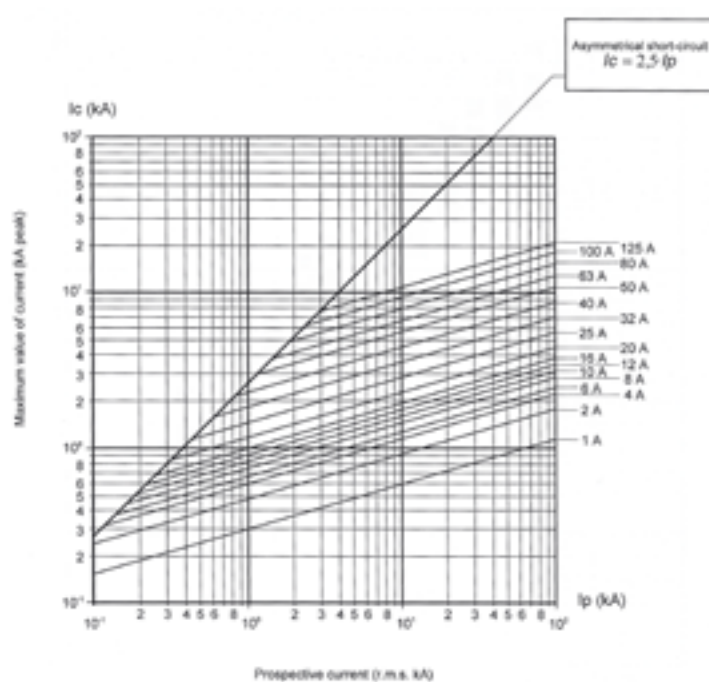
Cd-Pb
FREE

aM

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



FUSE LINKS

INDUSTRIAL CYLINDRICAL FUSE LINKS

I²t CHARACTERISTICS
POWER DISSIPATION

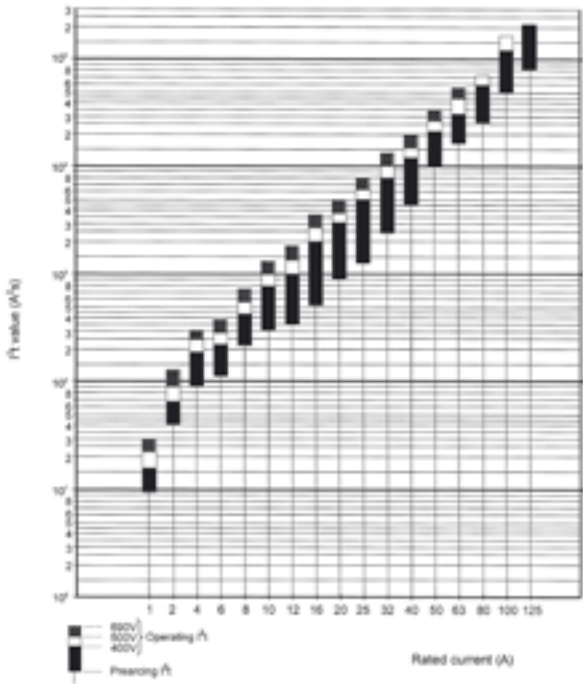
Cd-Pb
FREE

aM



FUSE LINKS

I²t CHARACTERISTICS



POWER DISSIPATION (W)

In (A)	SIZE			
	8,5x31,5 (W)	10x38 (W)	14x51 (W)	22x58 (W)
0,16	—	0,24	—	—
0,25	—	0,36	0,41	—
0,5	—	0,49	0,69	—
1	0,10	0,10	0,14	—
2	0,16	0,18	0,24	0,29
4	0,25	0,31	0,45	0,48
6	0,35	0,32	0,42	0,47
8	0,40	0,52	0,70	0,73
10	0,65	0,55	0,53	0,74
12	—	0,63	0,88	0,83
16	—	0,92	1,16	1,21
20	—	0,96	1,23	1,29
25	—	1,40	1,46	1,53
32	—	—	2,04	2,13
40	—	—	2,60	3,40
45	—	—	2,85	—
50	—	—	2,90	3,48
63	—	—	—	4,46
80	—	—	—	5,86
100	—	—	—	6,61
125	—	—	—	8,42

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

SEMICONDUCTOR FUSE LINKS

SEMICONDUCTOR FUSE LINKS

aR SEMICONDUCTOR FUSE LINKS

gR SEMICONDUCTOR FUSE LINKS

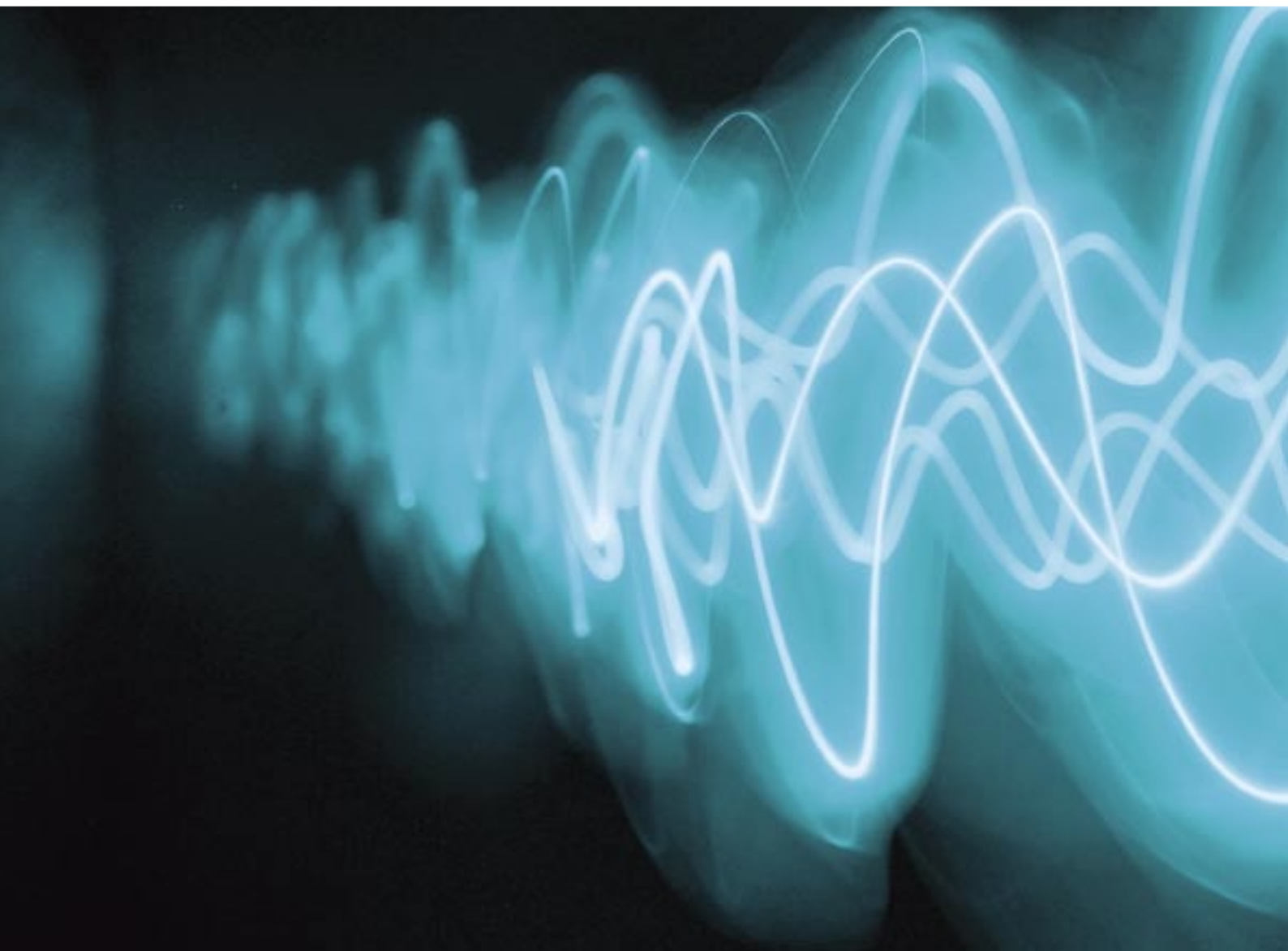
32-33

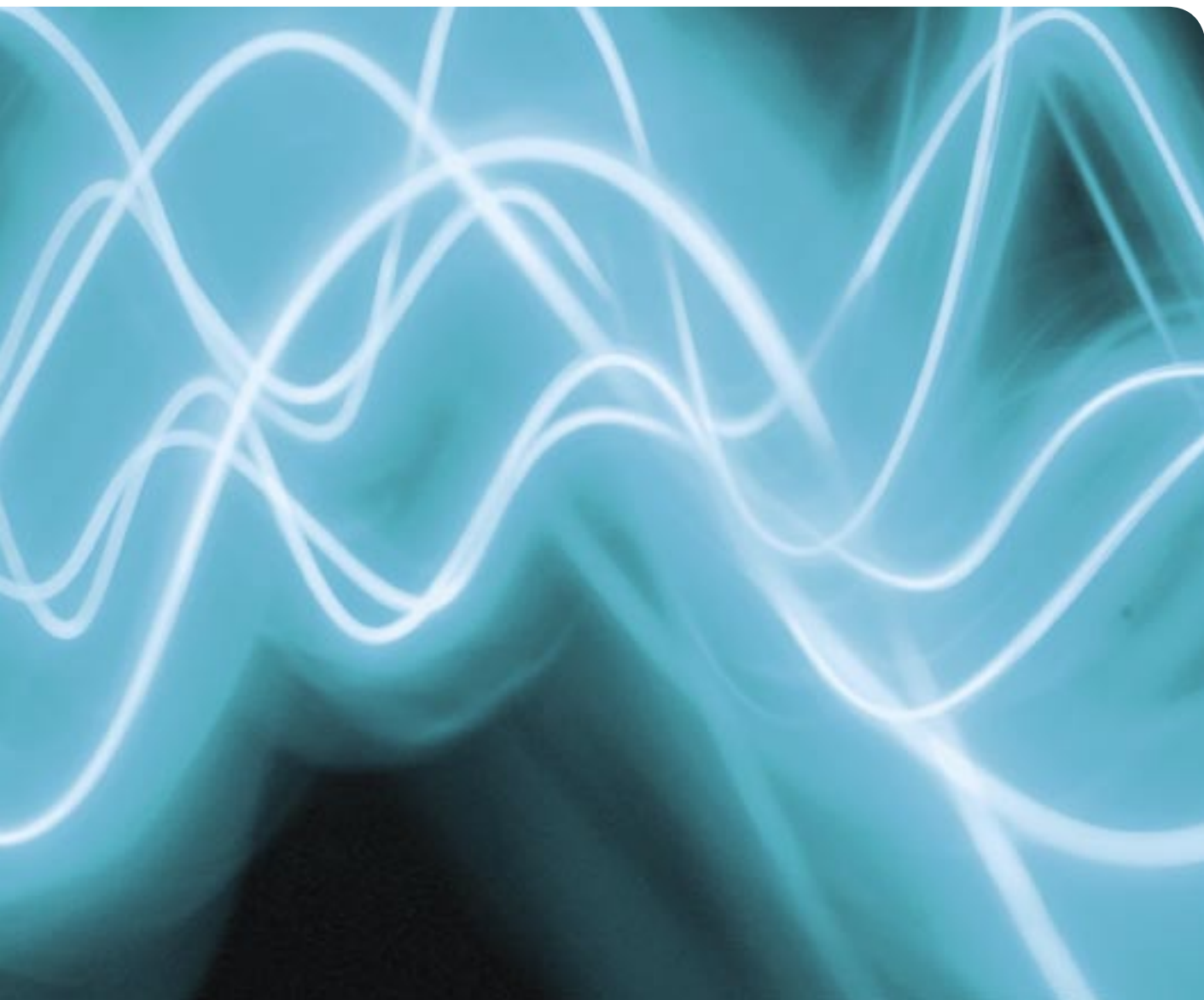
32

33

TECHNICAL DATA

34-37







FUSE LINKS

SEMICONDUCTOR FUSE LINKS

aR SEMICONDUCTOR FUSE LINKS

aR

Cylindrical high speed fuse links are intended for the protection of semiconductor devices. The melting elements are specially designed to obtain low values of I^2t , reduced arc voltages and to maintain unalterable the electrical characteristics. Wide range of rated currents. Made of ceramic tube with high withstand to internal pressure and thermal shock, that allow a high breaking capacity in a reduced physical space. Contacts caps are made of silver plated copper.

aR SEMICONDUCTOR FUSE LINKS

SIZE	I_n (A)	REFERENCE	U (V AC)	BREAKING CAPACITY (kA)	PACKING
10x38	3	491110	600	100	10
	6	491115	600	100	10
	8	491120	600	100	10
	10	491125	600	100	10
	12	491130	600	100	10
	16	491135	600	100	10
	20	491140	600	100	10
	25	491145	600	100	10
	32	491155	600	100	10

700V DC / BREAKING CAPACITY 30kA

14x51	1	491200	690	100	10
	2	491205	690	100	10
	3	491210	690	100	10
	4	491215	690	100	10
	5	491220	690	100	10
	6	491225	690	100	10
	10	491235	690	100	10
	15	491240	690	100	10
	20	491245	690	100	10
	25	491250	690	100	10
	30	491255	690	100	10
	32	491260	690	100	10
	40	491265	690	100	10
	50	491270	690	100	10

700V DC / BREAKING CAPACITY 30kA

22x58	20	491300	690	100	10
	25	491305	690	100	10
	32	491310	690	100	10
	40	491315	690	100	10
	50	491320	690	100	10
	63	491325	690	100	10
	80	491330	690	100	10
	100	491335	690	100	10

700V DC / BREAKING CAPACITY 30kA



491125



491215



491355

FUSE LINKS

SEMICONDUCTOR FUSE LINKS

gR SEMICONDUCTOR FUSE LINKS



gR

Cylindrical high speed fuse-links intended for the optimum protection of semiconductor devices (Thyristors, triacs, diodes, rectifiers, static relays, etc). gR class allows protection in whole range of over-currents, overloads as well as short-circuits, protecting semiconductor devices and conductors and other switchgear installations. Typical applications comprise protection in rectifiers, UPS, converters, motor drives, soft starters and inverters. Melting elements are specially designed to obtain low I^2t values, reduced arc voltages and an adequate selective coordination with upstream fuse-links. Wide range of rated currents and striker versions for use in fuse bases with micro-switch. Made of ceramic tube with high withstand to internal pressure and thermal shock, that allow a high breaking capacity in a reduced physical space. Contacts caps are made of silver plated copper.

gR SEMICONDUCTOR FUSE LINKS

SIZE	I _n (A)	REFERENCE		U (V AC)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT striker	WITH striker			
10x38	4	492003	—	690	100	10
	6	492004	—	690	100	10
	8	492005	—	690	100	10
	10	492006	—	690	100	10
	12	492007	—	690	100	10
	16	492008	—	690	100	10
	20	492009	—	690	100	10
	25	492010	—	690	100	10
	32	492011	—	690	100	10

440V DC / BREAKING CAPACITY 30kA



492006

14x51	4	492014	—	690	100	10
	6	492015	—	690	100	10
	8	492016	492116	690	100	10
	10	492017	492117	690	100	10
	12	492018	492118	690	100	10
	16	492019	492119	690	100	10
	20	492020	492120	690	100	10
	25	492021	492121	690	100	10
	32	492022	492122	690	100	10
	40	492023	492123	690	100	10
	50	492024	492124	690	100	10

440V DC / BREAKING CAPACITY 30kA



492014

22x58	20	492033	492133	690	100	10
	25	492034	492134	690	100	10
	32	492035	492135	690	100	10
	40	492036	492136	690	100	10
	50	492037	492137	690	100	10
	63	492038	492138	690	100	10
	80	492039	492139	690	100	10
	100	492040	492140	690	100	10

440V DC / BREAKING CAPACITY 30kA



492040

STANDARDS

IEC 60269-1
IEC 60269-4
EN 60269-1
EN 60269-4

FUSE LINKS

SEMICONDUCTOR FUSE LINKS

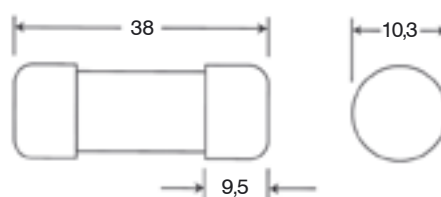
DIMENSIONS AND TECHNICAL DATA



aR

10x38

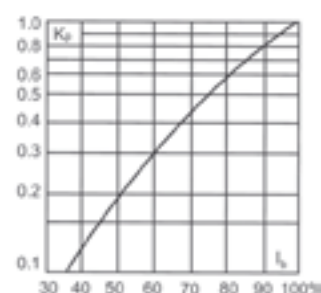
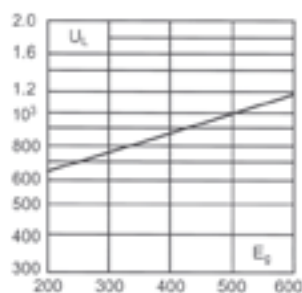
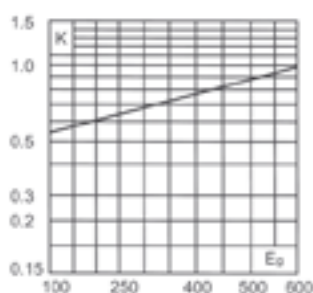
DIMENSIONS AND TECHNICAL DATA - aR 10x38



I^2t Total clearing (K)

Arc voltage (U_L)

Power loose



I_n	I^2t (A ² S)	I^2t (A ² S)	WATTS LOSS
(A)	(V) Prearcing	(kA) Clearing at 600V	(W) I_n
3	—	—	—
6	4	30	1,5
8	6	50	2,0
10	9	70	2,5
12	15	120	3,0
16	25	150	3,5
20	34	260	4,8
25	60	390	6,0
32	95	600	7,5

I^2t Total clearing (K). The total clearing I^2t at rated voltage and at power factor of 0,15 are given in the electrical characteristics. For other voltages, the clearing I^2t is found by multiplying by correction factor, K, given as a function of applied working voltage, E_g (RMS).

Arc voltage (U_L). This curve gives the peak arc voltage, U_L , which may appear across the fuse during its operation as a function of the applied working voltage, E_g (RMS) at a power factor of 0,15.

Power loose. Watts loss at rated current are given in the electrical characteristics. The curve allows the calculation of the power losses at load currents lower than the rated value. The correction factor K_p , is given as a function of the RMS load current I_b in % of the rated current.

FUSE LINKS

SEMICONDUCTOR FUSE LINKS

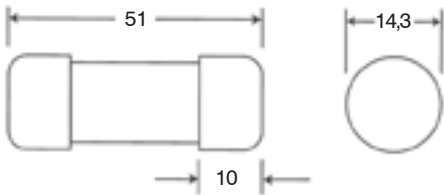
DIMENSIONS AND TECHNICAL DATA



FUSE LINKS

aR 14x51

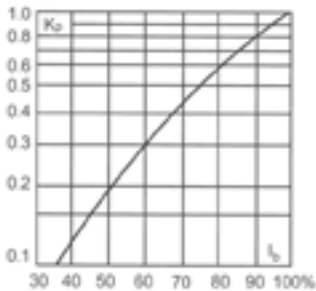
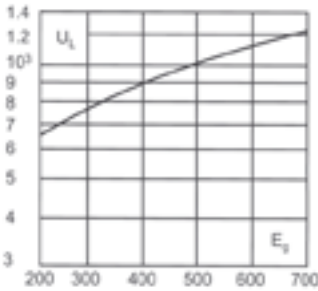
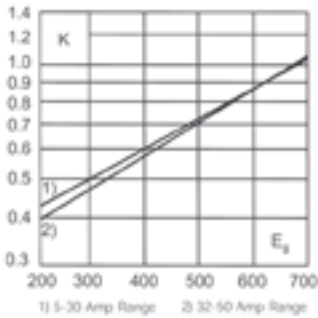
DIMENSIONS AND TECHNICAL DATA - aR 14x51



I^2t Total clearing (K)

Arc voltage (U_L)

Power loose



I_n	I^2t (A²S)	I^2t (A²S)	WATTS LOSS
(A)	(V) Prearcing	(kA) Clearing at 600V	(W) I_n
1	0,035	0,41	5,7
2	0,08	0,11	8,6
3	0,11	0,26	2,8
4	0,10	0,26	3,0
5	1,6	11	1,5
6	—	—	—
10	3,6	22	4,0
15	10	75	5,5
20	26	180	6,0
25	44	320	7,0
30	58	450	9,0
32	68	600	7,6
40	84	750	8,0
50	200	1800	9,0

STANDARDS

IEC 60269-1
IEC 60269-4
EN 60269-1
EN 60269-4



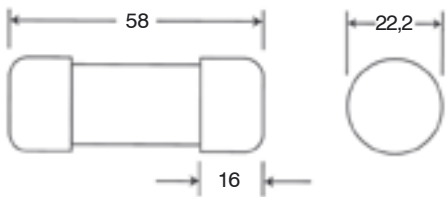
FUSE LINKS

SEMICONDUCTOR FUSE LINKS

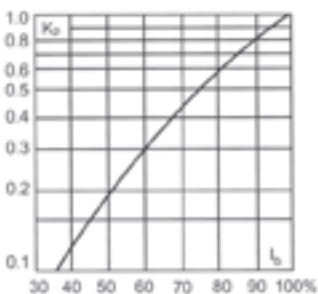
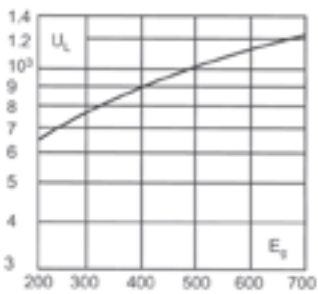
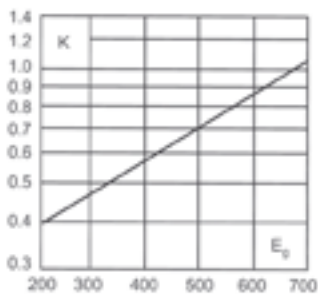
DIMENSIONS AND TECHNICAL DATA

aR 22x58

DIMENSIONS AND TECHNICAL DATA - aR 22x58



I^2t Total clearing (K) Arc voltage (U_L) Power loose



I_n	I^2t (A ² S)	I^2t (A ² S)	WATTS LOSS
(A)	(V) Prearcing	(kA) Clearing at 600V	(W) I_n
20	23	260	5,6
25	37	410	5,6
32	55	605	7,0
40	68	750	8,5
50	155	1600	9,5
63	280	3080	11,0
80	600	6600	13,5
100	1100	12500	16,0

STANDARDS

IEC 60269-1
IEC 60269-4
EN 60269-1
EN 60269-4

aR

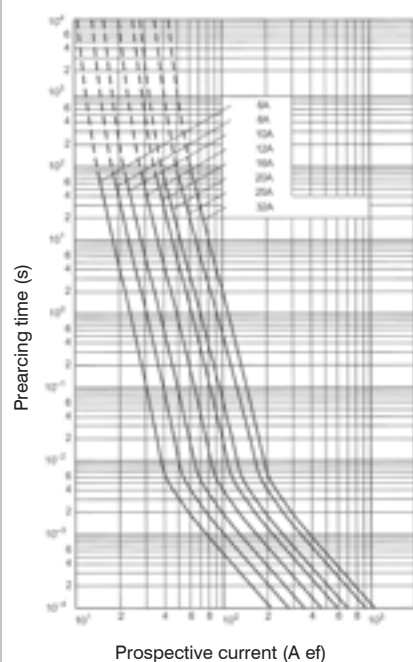
10x38

14x51

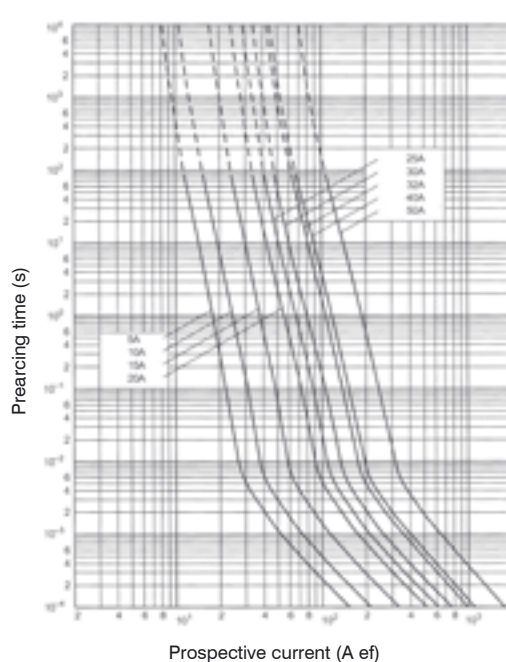
22x58

t-I CHARACTERISTICS

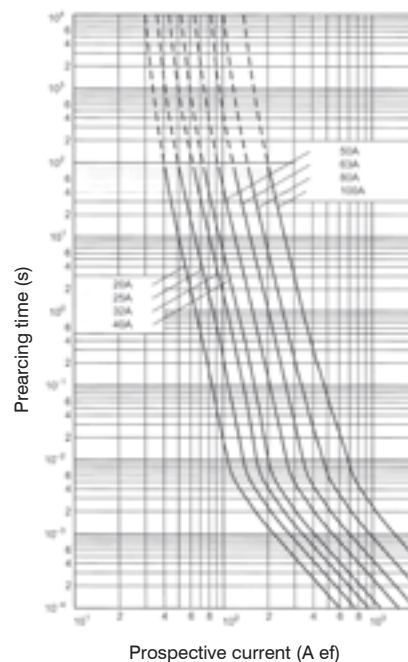
10x38



14x51

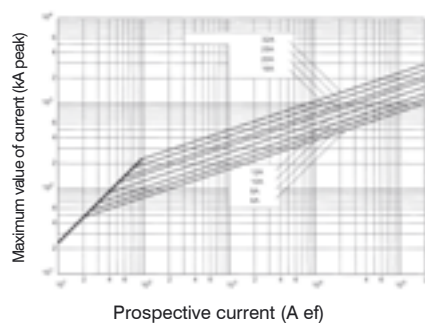


22x58

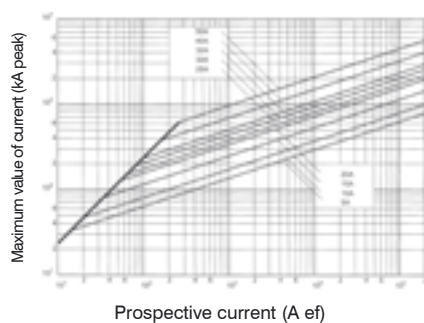


CUT-OFF CHARACTERISTICS

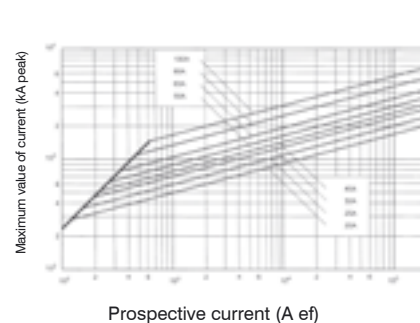
10x38



14x51



22x58



FUSE LINKS

NH FUSE LINKS (HRC)

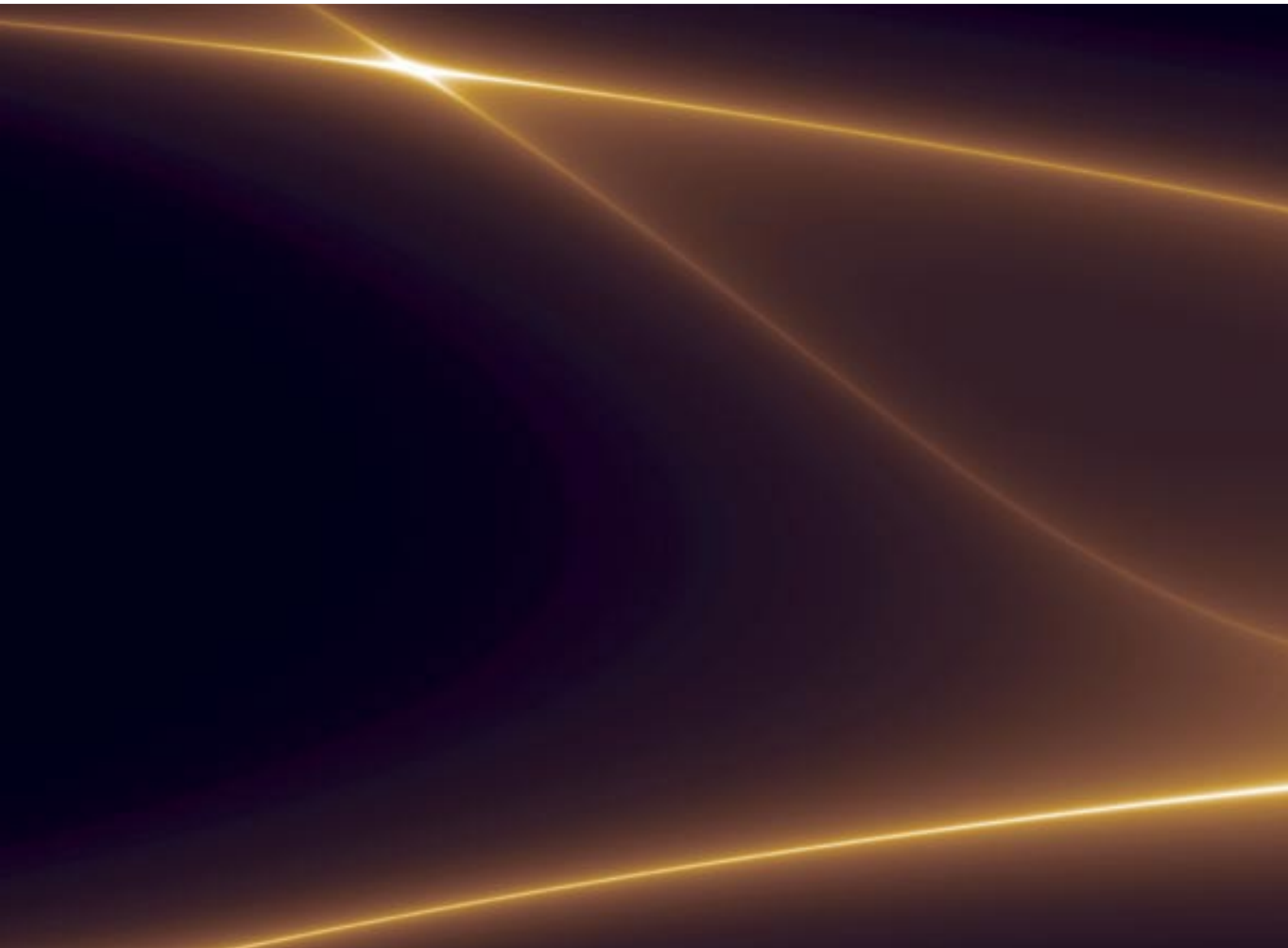
NH FUSE LINKS (HRC)

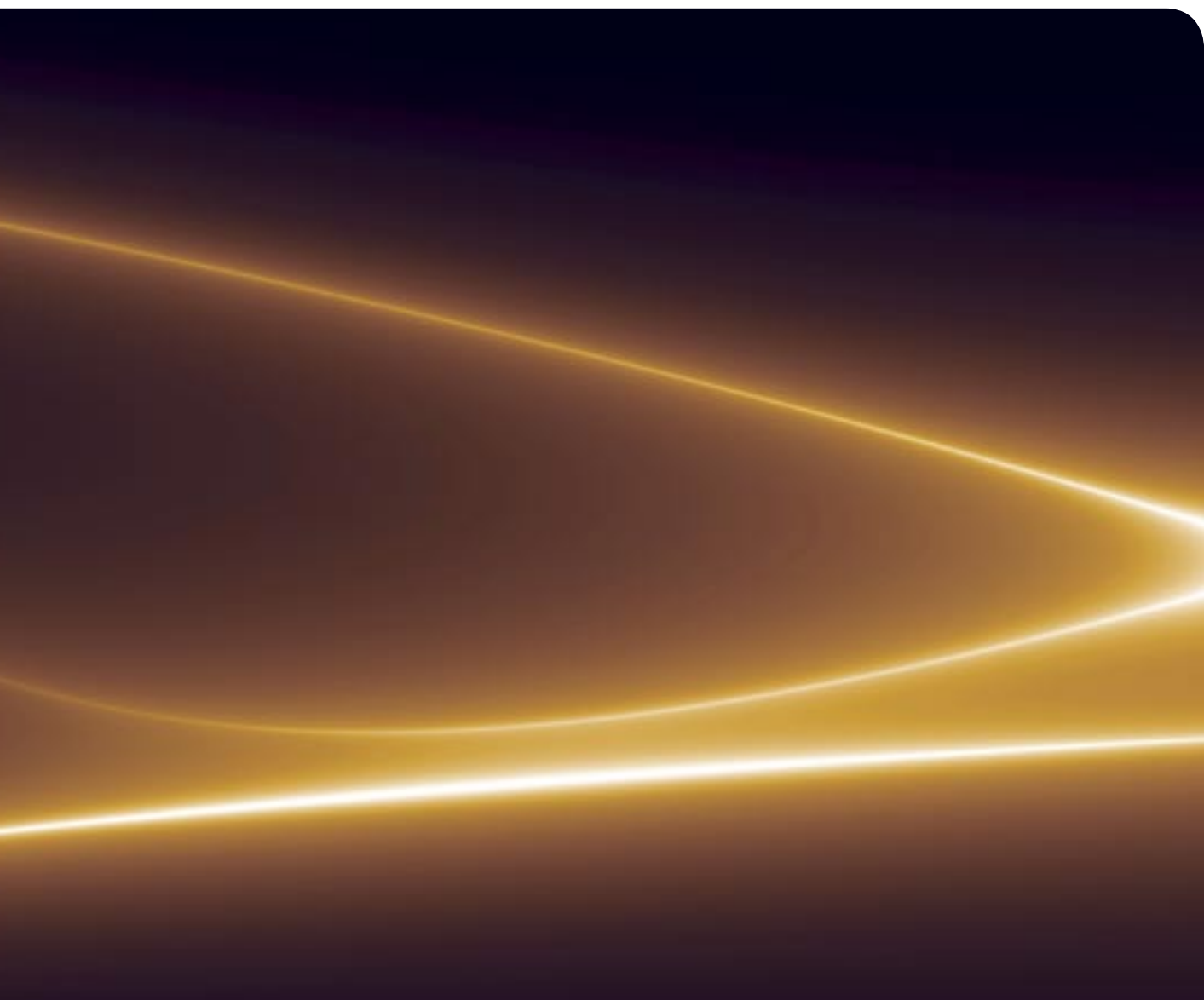
40-51

NH FUSE LINKS gG 500V TOP INDICATOR	40-41
NH FUSE LINKS gG 500V DUAL INDICATOR	42-43
NH FUSE LINKS gG 690V DUAL INDICATOR	44-45
NH FUSE LINKS aM 500V and 690V DUAL INDICATOR	46-47
NH FUSE LINKS gG 500V and 690V WITH STRIKER	48-49
NH FUSE LINKS aM 500V and 690V WITH STRIKER	50-51

TECHNICAL DATA

52-63







FUSE LINKS

NH FUSE LINKS (HRC)

TOP INDICATOR



gL/gG 500V

NH fuse links gG class with high breaking capacity, for use as general protection against overloads and short circuits, intended as protection for cables, power lines and equipment with rated voltage up to 500V. Compact versions in low rated currents of every size. Fusing indicator in the top of the fuse link. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allow a high breaking capacity. Manufactured according IEC, EN, VDE and DIN standards. VDE approval.

NH FUSE LINKS gG 500V TOP INDICATOR

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
T-00					
NH000	2	381000	500	120	3/120
	4	381005	500	120	3/120
	6	381010	500	120	3/120
	10	381015	500	120	3/120
	16	381020	500	120	3/120
	20	381025	500	120	3/120
	25	381030	500	120	3/120
	32	381035	500	120	3/120
	35	381040	500	120	3/120
	40	381045	500	120	3/120
	50	381050	500	120	3/120
	63	381055	500	120	3/120
	80	381060	500	120	3/120
	100	381065	500	120	3/120
NH00	125	381070	500	120	3/60
	160	381075	500	120	3/60



381045

T-0					
NH0	6	381110	500	120	3/36
	10	381115	500	120	3/36
	16	381120	500	120	3/36
	20	381125	500	120	3/36
	25	381130	500	120	3/36
	32	381135	500	120	3/36
	35	381140	500	120	3/36
	40	381145	500	120	3/36
	50	381150	500	120	3/36
	63	381155	500	120	3/36
	80	381160	500	120	3/36
	100	381165	500	120	3/36
	125	381170	500	120	3/36
	160	381175	500	120	3/36
NH0 S	200	381180	500	120	3/60
	224	381185	500	120	3/60
	250	381190	500	120	3/60



381165

FUSE LINKS

NH FUSE LINKS (HRC)

TOP INDICATOR



FUSE LINKS



gL/gG 500V

NH FUSE LINKS gG 500V TOP INDICATOR

SIZE	In	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-1					
C1	50	381230	500	120	3/36
	63	381235	500	120	3/36
	80	381240	500	120	3/36
	100	381245	500	120	3/36
	125	381250	500	120	3/36
NH1	160	381255	500	120	3/36
	200	381260	500	120	3/36
	224	381265	500	120	3/36
	250	381270	500	120	3/36



381255

T-2					
C2	63	381325	500	120	3/30
	80	381330	500	120	3/30
	100	381335	500	120	3/30
	125	381340	500	120	3/30
	160	381345	500	120	3/30
	200	381350	500	120	3/30
	224	381355	500	120	3/30
	250	381360	500	120	3/30
NH2	315	381370	500	120	3/30
	355	381375	500	120	3/30
	400	381380	500	120	3/30



381370

T-3					
C3	250	381435	500	120	3/24
	315	381445	500	120	3/24
	355	381450	500	120	3/24
	400	381455	500	120	3/24
NH3	500	381465	500	120	3/24
	630	381470	500	120	3/24



381455

T-4					
NH4	315	376505	500	120	1/6
	400	376510	500	120	1/6
	500	376515	500	120	1/6
	630	376520	500	120	1/6
	800	376525	500	120	1/6
	900	376527	500	120	1/6
	1000	376530	500	120	1/6
	1250	376535	500	120	1/6



376525

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

52

t-I AND CUT-OFF
CHARACTERISTICS

54

t-I CHARACTERISTICS
AND POWER DISSIPATION

55

DC APPLICATIONS FOR
DF ELECTRIC FUSE LINKS

176

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FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR



gL/gG 500V

NH fuse links gG class with high breaking capacity, for use as general protection against overloads and short circuits, intended as protection for cables, power lines and equipment with rated voltage up to 500V. Compact versions in low rated currents of every size. Fusing indicator in the top of the fuse link. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allow a high breaking capacity. Manufactured according IEC, EN, VDE and DIN standards. VDE approval.

NH FUSE LINKS gG 500V DUAL INDICATOR

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
T-00					
NH000 C00	2	376000	500	120	3/60
	4	376005	500	120	3/60
	6	376010	500	120	3/60
	10	376015	500	120	3/60
	16	376020	500	120	3/60
	20	376025	500	120	3/60
	25	376030	500	120	3/60
	32	376035	500	120	3/60
	35	376040	500	120	3/60
	40	376045	500	120	3/60
	50	376050	500	120	3/60
	63	376055	500	120	3/60
	80	376060	500	120	3/60
	100	376065	500	120	3/60
NH00	125	376070	500	120	3/60
	160	376075	500	120	3/60



376075

T-0					
NH0	6	376110	500	120	3/30
	10	376115	500	120	3/30
	16	376120	500	120	3/30
	20	376125	500	120	3/30
	25	376130	500	120	3/30
	32	376135	500	120	3/30
	35	376140	500	120	3/30
	40	376145	500	120	3/30
	50	376150	500	120	3/30
	63	376155	500	120	3/30
	80	376160	500	120	3/30
	100	376165	500	120	3/30
	125	376170	500	120	3/30
	160	376175	500	120	3/30



376120

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

DIMENSIONS

t-I AND CUT-OFF CHARACTERISTICS

Pt CHARACTERISTICS AND POWER DISSIPATION

DC APPLICATIONS FOR DF ELECTRIC FUSE LINKS

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR



FUSE LINKS



gL/gG 500V

NH FUSE LINKS gG 500V DUAL INDICATOR

SIZE	I _n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-1					
C1	50	376230	500	120	3/30
	63	376235	500	120	3/30
	80	376240	500	120	3/30
	100	376245	500	120	3/30
	125	376250	500	120	3/30
	160	376255	500	120	3/30
	200	376260	500	120	3/30
	224	376265	500	120	3/30
	250	376270	500	120	3/30
	315*	376280	500	120	3/60
NH1	355*	376285	500	120	3/60



376245

T-2					
C2	63	376325	500	120	3/30
	80	376330	500	120	3/30
	100	376335	500	120	3/30
	125	376340	500	120	3/30
	160	376345	500	120	3/30
	200	376350	500	120	3/30
	224	376355	500	120	3/30
	250	376360	500	120	3/30
	315	376370	500	120	3/15
	355	376375	500	120	3/15
NH2	400	376380	500	120	3/15
	425*	376385	500	120	3/24
	500*	376390	500	120	3/24



376340

T-3					
C3	250	376435	500	120	3/15
	315	376445	500	120	3/15
	355	376450	500	120	3/15
	400	376455	500	120	3/15
NH3	500	376465	500	120	3/12
	630	376470	500	120	3/12
	800*	376475	500	120	3/18



376470

(*) Ovrerrating fuses

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

52

t-I AND CUT-OFF
CHARACTERISTICS

56

t-I CHARACTERISTICS
AND POWER DISSIPATION

57

DC APPLICATIONS FOR
DF ELECTRIC FUSE LINKS

176

43



FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR

Cd-Pb
FREE

gL /gG 690V

NH fuse links gG class with high breaking capacity, for use as general protection against overloads and short circuits, intended as protection for cables, power lines and equipment with rated voltage up to 690V.
Dual indicator centre/top for good indication both in open fuse bases as well as closed fuse rails or fuse switch-disconnectors. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allows a high breaking capacity. Manufactured according IEC, EN, VDE and DIN standards.

NH FUSE LINKS gG 690V DUAL INDICATOR

SIZE	I _n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-00					
NH000	2	377000	690	80	3/60
	4	377005	690	80	3/60
	6	377010	690	80	3/60
	10	377015	690	80	3/60
	16	377020	690	80	3/60
	20	377025	690	80	3/60
	25	377030	690	80	3/60
	32	377035	690	80	3/60
	35	377040	690	80	3/60
	40	377045	690	80	3/60
NH00	50	377050	690	80	3/126
	63	377055	690	80	3/126
	80	377060	690	80	3/126
	100	377065	690	80	3/126



377035

T-0					
NH0	6	377110	690	80	3/30
	10	377115	690	80	3/30
	16	377120	690	80	3/30
	20	377125	690	80	3/30
	25	377130	690	80	3/30
	32	377135	690	80	3/30
	35	377140	690	80	3/30
	40	377145	690	80	3/30
	50	377150	690	80	3/78
	63	377155	690	80	3/78
	80	377160	690	80	3/78
	100	377165	690	80	3/78



377155

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR



FUSE LINKS

Cd-Pb
FREE

gL/gG 690V

NH FUSE LINKS gG 690V DUAL INDICATOR

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
T-1					
NH1	50	377230	690	80	3/60
	63	377235	690	80	3/60
	80	377240	690	80	3/60
	100	377245	690	80	3/60
	125	377250	690	80	3/60
	160	377255	690	80	3/60
	200	377260	690	80	3/60



377255

T-2					
NH2	63	377325	690	80	3/24
	80	377330	690	80	3/24
	100	377335	690	80	3/24
	125	377340	690	80	3/24
	160	377345	690	80	3/24
	200	377350	690	80	3/24
	224	377355	690	80	3/24
	250	377360	690	80	3/24
	315	377370	690	80	3/24



377370

T-3					
NH3	250	377435	690	80	3/18
	315	377445	690	80	3/18
	355	377450	690	80	3/18
	400	377455	690	80	3/18
	425	377460	690	80	3/18
	500	377465	690	80	3/18



377465

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

52

t-I AND CUT-OFF
CHARACTERISTICS

58

I²t CHARACTERISTICS
AND POWER DISSIPATION

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DC APPLICATIONS FOR
DF ELECTRIC FUSE LINKS

176

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FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR

Cd-Pb
FREE

aM 500V | 690 V

NH fuse links aM class, intended for short circuit protection in motors, transformer and other load with high inrush currents. Excellent protection of switchgear (contactor, thermal switch) due to the good current limiting capability and low I^2t values. These fuse links must be associated to overload device protection such as thermal switch. Dual indicator centre/top for good indication both in open fuse bases as well as closed fuse rails or fuse switch-disconnectors. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allow a high breaking capacity. The melting elements are silver plated in order to avoid aging and thus maintain unalterable the electrical characteristics. Manufactured according IEC, EN, VDE and DIN standards.

NH FUSE LINKS aM 500V and 690V DUAL INDICATOR

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
T-00					
NH000 C00	6	379010	690	80	3/216
	10	379015	690	80	3/216
	16	379020	690	80	3/216
	20	379025	690	80	3/216
	25	379030	690	80	3/216
	32	379035	690	80	3/216
	35	379040	690	80	3/216
	40	379045	690	80	3/216
NH00	50	379050	690	80	3/126
	63	379055	690	80	3/126
	80	379060	690	80	3/126
	100	379065	690	80	3/126
	125	378070	500	120	3/126
	160	378075	500	120	3/126



378075

T-0					
NH0	6	379110	690	80	3/78
	10	379115	690	80	3/78
	16	379120	690	80	3/78
	20	379125	690	80	3/78
	25	379130	690	80	3/78
	32	379135	690	80	3/78
	35	379140	690	80	3/78
	40	379145	690	80	3/78
	50	379150	690	80	3/78
	63	379155	690	80	3/78
	80	379160	690	80	3/78
	100	379165	690	80	3/78
	125	378170	500	120	3/78
	160	378175	500	120	3/78
NH0 S *	125	384170	690	80	3/60
	160	384175	690	80	3/60
	200	383180	500	120	3/60



379145

(*) Top indicator

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR

Cd-Pb
FREE

aM 500V | 690 V



FUSE LINKS

NH FUSE LINKS aM 500V and 690V DUAL INDICATOR

SIZE	I _n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-1					
NH1	63	379235	690	80	3/60
	80	379240	690	80	3/60
	100	379245	690	80	3/60
	125	379250	690	80	3/60
	160	379255	690	80	3/60
	200	379260	690	80	3/60
	224	378265	500	120	3/60
	250	378270	500	120	3/60



379260

T-2					
NH2	125	379340	690	80	3/24
	160	379345	690	80	3/24
	200	379350	690	80	3/24
	250	379360	690	80	3/24
	315	379370	690	80	3/24
	355	379375	690	80	3/24
	400	378380	500	120	3/24



379370

T-3					
NH3	315	379445	690	80	3/18
	355	379450	690	80	3/18
	400	379455	690	80	3/18
	425	379460	690	80	3/18
	500	379465	690	80	3/18
	630	378470	500	120	3/18



378470

T-4					
NH4 *	315	378505	500	120	1/6
	400	378510	500	120	1/6
	500	378515	500	120	1/6
	630	378520	500	120	1/6
	800	378525	500	120	1/6
	1000	378530	500	120	1/6
	1250	378535	500	120	1/6



378525

(*) Top indicator

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

52

t-I AND CUT-OFF
CHARACTERISTICS

60

I²t CHARACTERISTICS
AND POWER DISSIPATION

61

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FUSE LINKS

NH FUSE LINKS (HRC)

WITH STRIKER

Cd-Pb
FREE

gL / gG 500V | 690 V

NH fuse links gG class with high breaking capacity, for use as general protection against overloads and short circuits, intended as protection for cables, power lines and equipment with rated voltage up to 500V or 690V. Fuse links with striker for use in fuse bases with microswitch. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allows a high breaking capacity. Manufactured according IEC, EN, VDE and DIN standards.

NH FUSE LINKS gG 500V and 690V WITH STRIKER

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
T-0					
NH0 S	32	396135	690	80	3/60
	35	396140	690	80	3/60
	40	396145	690	80	3/60
	50	396150	690	80	3/60
	63	396155	690	80	3/60
	80	396160	690	80	3/60
	100	396165	690	80	3/60
	125	395170	500	120	3/60
	160	395175	500	120	3/60
	200	395180	500	120	3/60



396155

T-1					
NH1	63	396235	690	80	3/60
	80	396240	690	80	3/60
	100	396245	690	80	3/60
	125	396250	690	80	3/60
	160	396255	690	80	3/60
	200	396260	690	80	3/60
	250	395270	500	120	3/60
	315*	395280	500	120	3/60
	355*	395285	500	120	3/60



396260

FUSE LINKS

NH FUSE LINKS (HRC)

WITH STRIKER

Cd-Pb
FREE

gL / gG 500V | 690 V



FUSE LINKS

NH FUSE LINKS gG 500V and 690V WITH STRIKER

SIZE	I _n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-2					
NH2	125	396340	690	80	3/24
	160	396345	690	80	3/24
	200	396350	690	80	3/24
	250	396360	690	80	3/24
	315	396370	690	80	3/24
	355	395375	500	120	3/24
	400	395380	500	120	3/24
	425*	395385	500	120	3/24
	500*	395390	500	120	3/24



395380

T-3					
NH3	315	396445	690	80	3/18
	355	396450	690	80	3/18
	400	396455	690	80	3/18
	425	396460	690	80	3/18
	500	396465	690	80	3/18
	630	395470	500	120	3/18



395470

T-4					
NH4	315	395505	500	120	1/6
	400	395510	500	120	1/6
	500	395515	500	120	1/6
	630	395520	500	120	1/6
	800	395525	500	120	1/6
	900	395527	500	120	1/6
	1000	395530	500	120	1/6
	1250*	395535	500	120	1/6



395535

(*) Overrating fuses

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

53

tI AND CUT-OFF
CHARACTERISTICS

62

I_t CHARACTERISTICS
AND POWER DISSIPATION

63

DC APPLICATIONS FOR
DF ELECTRIC FUSE LINKS

176



FUSE LINKS

NH FUSE LINKS (HRC)

WITH STRIKER

Cd-Pb
FREE

aM 500V | 690 V

NH fuse links aM class with striker, intended for short circuit protection in motors, transformer and other loads with high inrush currents. Excellent protection of switchgear (contactor, thermal switch) due to the good current limiting capability and low I^2t values. Fuse links with striker for use in fuse bases with microswitch. These fuse links must be associated to an overload device protection such as thermal switch. Manufactured with ceramic body with high withstand to internal pressure and thermal shock, that allow a high breaking capacity. The melting elements are silver plated in order to avoid the aging and thus maintain unalterable the electrical characteristics. Manufactured according IEC, EN, VDE and DIN standards.

NH FUSE LINKS aM 690V WITH STRIKER

SIZE	I_n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-0					
NH0 S	32	398135	690	80	3/60
	35	398140	690	80	3/60
	40	398145	690	80	3/60
	50	398150	690	80	3/60
	63	398155	690	80	3/60
	80	398160	690	80	3/60
	100	398165	690	80	3/60
	125	398170	690	80	3/60
	160	398175	690	80	3/60
	200	397180	500	120	3/60



398175

T-1					
NH1	80	398240	690	80	3/60
	100	398245	690	80	3/60
	125	398250	690	80	3/60
	160	398255	690	80	3/60
	200	398260	690	80	3/60
	250	397270	500	120	3/60



398250

50

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

DIMENSIONS

53

I-t AND CUT-OFF CHARACTERISTICS

60

Pt CHARACTERISTICS AND POWER DISSIPATION

61

FUSE LINKS

NH FUSE LINKS (HRC)

WITH STRIKER



FUSE LINKS

Cd-Pb
FREE

aM 500V | 690 V

NH FUSE LINKS aM 690V WITH STRIKER

SIZE	I _n	REFERENCE	U	BREAKING CAPACITY	PACKING
	(A)		(V)	(kA)	
T-2					
NH2	125	398340	690	80	3/24
	160	398345	690	80	3/24
	200	398350	690	80	3/24
	250	398360	690	80	3/24
	315	398370	690	80	3/24
	355	398375	690	80	3/24
	400	397380	500	120	3/24



398360

T-3					
NH3	400	398455	690	80	3/18
	425	398460	690	80	3/18
	500	398465	690	80	3/18
	630	397470	500	120	3/18



398455

T-4					
NH4	315	397505	500	120	1/6
	400	397510	500	120	1/6
	500	397515	500	120	1/6
	630	397520	500	120	1/6
	800	397525	500	120	1/6
	1000	397530	500	120	1/6
	1250	397535	500	120	1/6



397530

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS
53

t_i AND CUT-OFF
CHARACTERISTICS
60

i_t CHARACTERISTICS
AND POWER DISSIPATION
61



FUSE LINKS

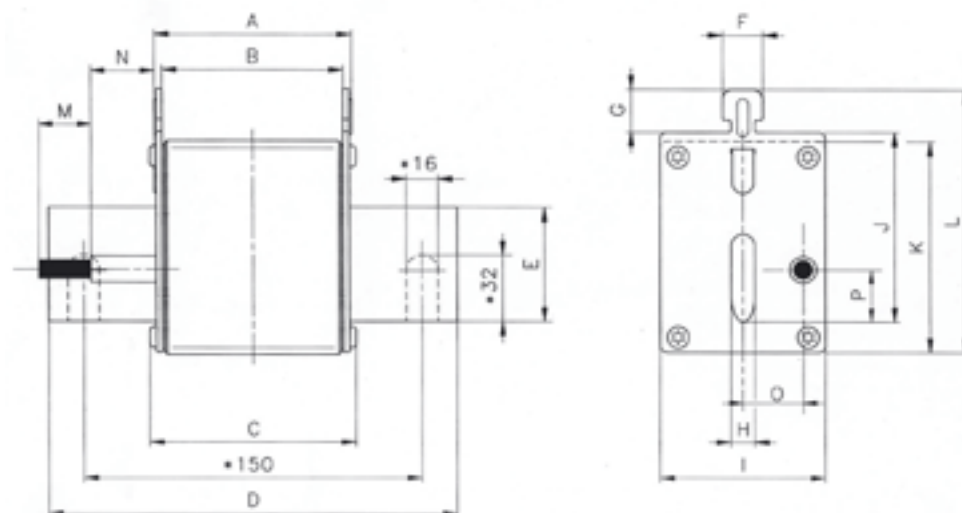
NH FUSE LINKS (HRC)

DIMENSIONS

gL/gG

aM

DIMENSIONS



(*) NH4 Fuse link

NH FUSE LINKS gG 500V TOP INDICATOR

SIZE	A	B	C	D	E	F	G	H	I	J	K	L
NH000	49	44,5	53	78,5	15	9,8	9,2	6	21	35	40	50
NH00	49	45	53	78,5	15	9,8	9,2	6	30	35	45	59
NH0	68	62	67	125	15	9,8	9,2	6	30	35	45	59
NH0 S	66	62	66,5	125	15	9,8	9,5	6	39	35	47	59
NHC1	68	62	68	135	20	9,8	9,2	6	30	40	45	64
NH1	68	62	71	135	20	9,8	9,2	6	50	40	50	64
NHC2	68	62	71	150	20	9,8	9,2	6	50	58	50	72
NH2	68	62	71	150	25	9,8	9,2	6	58	58	58	72
NHC3	68	62	71	150	26	9,8	9,2	6	58	60	58	84
NH3	68	62	72	150	32	9,8	9,2	6	67	60	67	82
NH4	68	62	76	200	50	9,8	10	8	102	87	105	120

NH FUSE LINKS gG/aM 500V DUAL INDICATOR

SIZE	A	B	C	D	E	F	G	H	I	J	K	L
NH000	49	45	53	79	15	9,8	9,5	6	21	35	41	53
NH00	49	44	53	79	15	9,8	9,5	6	30	35	47	59
NH0	66	61	67	125	15	9,8	9,5	6	30	35	47	60
NHC1	68	62	70	135	15	9,8	9,5	6	30	40	47	65
NH1	68	62	72	135	20	9,8	9,2	6	40	40	52	64
NHC2	68	62	72	150	20	9,8	9,5	6	40	48	52	72
NH2	68	62	72	150	25	9,8	9,5	6	54	48	60	72
NHC3	68	62	72	150	26	9,8	9,5	6	54	60	60	85
NH3	68	62	72	150	32	9,8	9,5	6	70	60	75	86

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

FUSE LINKS

NH FUSE LINKS (HRC)

DIMENSIONS



gL /gG

aM

gG/aM NH FUSE LINKS WITH STRIKER

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
NH0S	66	62	66,5	125	15	9,8	9,5	6	39	35	47	59	15	29	14,5	14
NH1	68	62	72	135	20	9,8	9,5	6	43	40	52	64	15	29	16	14,5
NH2	68	62	71,5	150	25	9,8	9,5	6	54	48	60	72	15	29	19	14,5
NH3	68	61,5	72	150	32	9,8	9,5	6	70	60	75	86	15	29	24	14,5
NH4	68	62	76	200	50	9,8	10	8	102	87	105	120	15	39	27,5	14,5

NH FUSE LINKS (HRC)

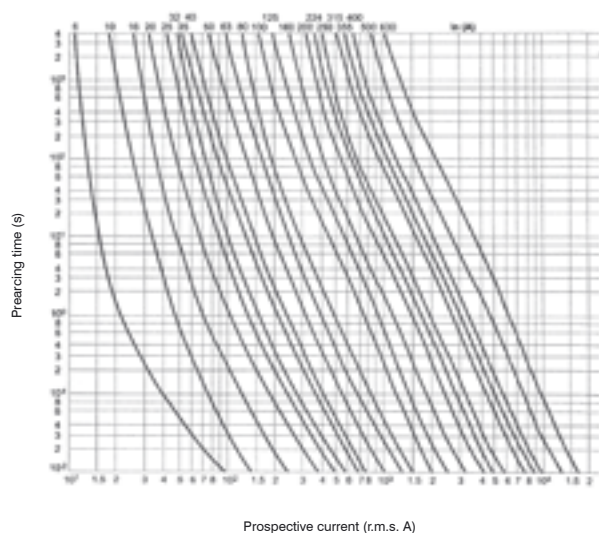
TOP INDICATOR
t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS



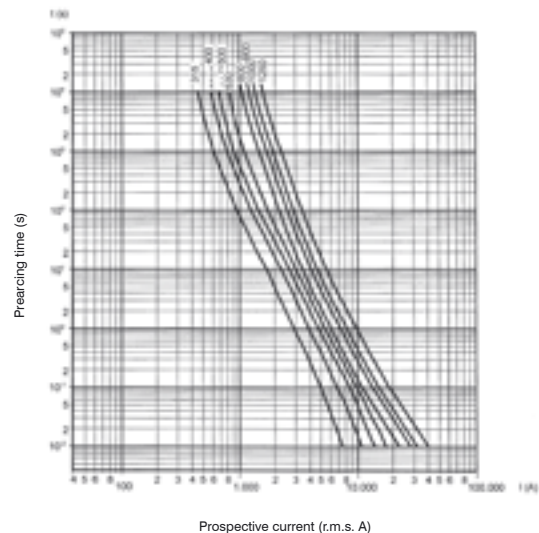
Cd-Pb
FREE

gL/gG 500V

t-I CHARACTERISTICS

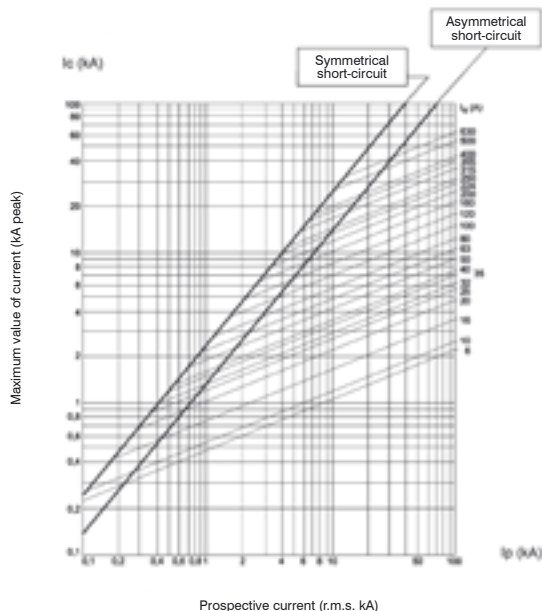


NH000/NH00/NH0/NH1/NH2/NH3

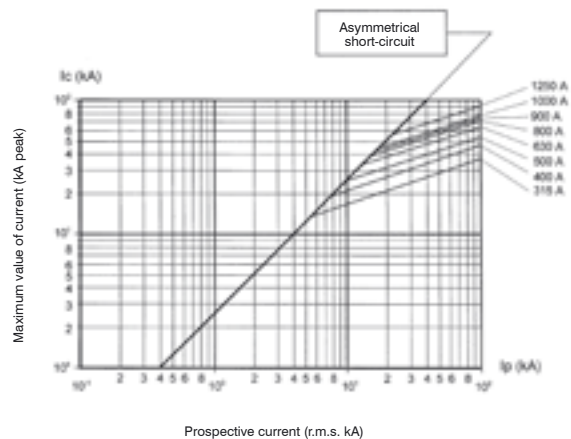


NH4

CUT-OFF CHARACTERISTICS



NH000/NH00/NH0/NH1/NH2/NH3



NH4

STANDARDS

FUSE LINKS

NH FUSE LINKS (HRC)

TOP INDICATOR
I²t CHARACTERISTICS
POWER DISSIPATION

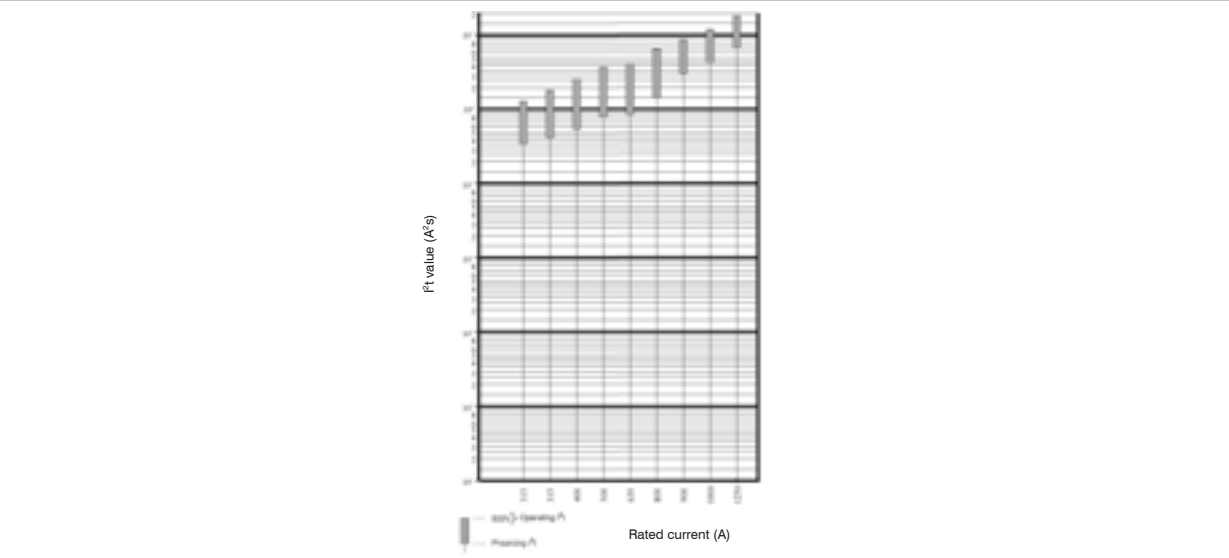


gL/gG 500V



FUSE LINKS

I²t CHARACTERISTICS



NH4

POWER DISSIPATION (W)

I _n	SIZE						
(A)	NH000	NH00	NH0	NH1	NH2	NH3	NH4
2	0,7	–	–	–	–	–	–
4	1,7	–	–	–	–	–	–
6	1,4	–	1,8	–	–	–	–
10	1,1	–	1,4	–	–	–	–
16	1,7	–	2,2	–	–	–	–
20	1,8	–	2,3	–	–	–	–
25	2,2	–	2,9	–	–	–	–
32	3,2	–	4,5	–	–	–	–
35	2,9	–	3,9	–	–	–	–
40	3,5	–	5,1	–	–	–	–
50	3,5	–	4,5	4,5	–	–	–
63	4,6	–	6,1	6,1	5,9	–	–
80	5,6	–	6,9	6,9	6,7	–	–
100	7,1	–	8,5	8,5	8,2	–	–
125	–	7,8	9,6	9,6	9,3	–	–
160	–	10,9	12,8	12,8	12,5	–	–
200	–	–	–	15,9	15,9	–	–
224	–	–	–	18,4	18,4	–	–
250	–	–	–	20,4	20,4	20,2	–
315	–	–	–	–	25,0	25,0	26,1
355	–	–	–	–	29,5	29,5	–
400	–	–	–	–	33,5	33,5	32,7
425	–	–	–	–	–	36,9	–
500	–	–	–	–	–	40,6	37,0
630	–	–	–	–	–	47,0	47,0
800	–	–	–	–	–	–	68,0
900	–	–	–	–	–	–	76,0
1000	–	–	–	–	–	–	80,0
1250*	–	–	–	–	–	–	108,0

(*) Overrating fuses

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620



FUSE LINKS

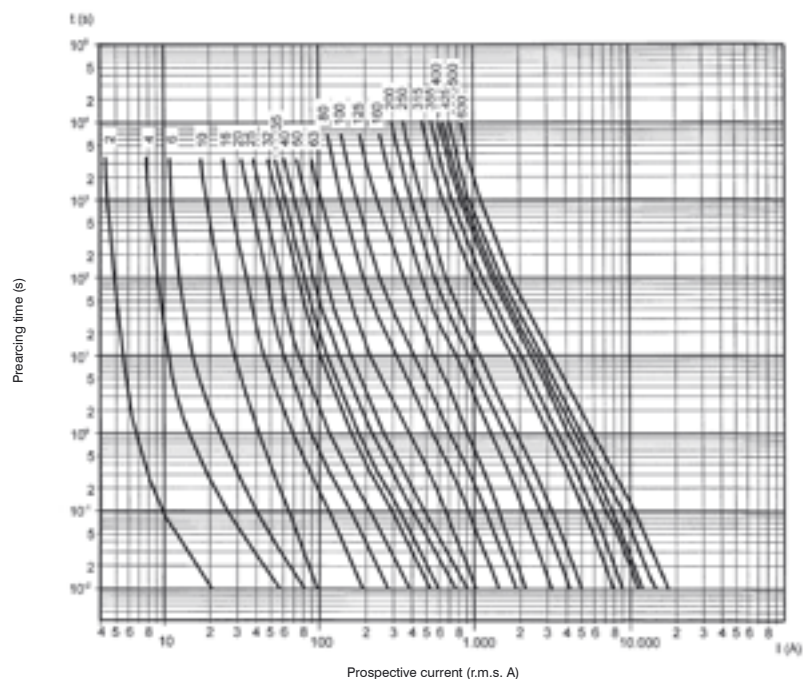
NH FUSE LINKS (HRC)

DUAL INDICATOR
t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

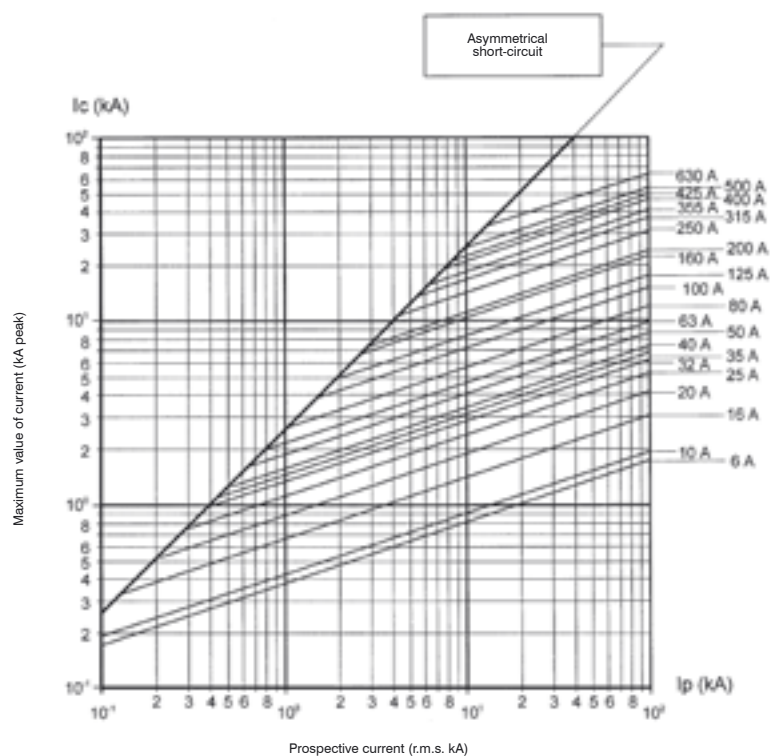


gL/gG 500V

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR
I²t CHARACTERISTICS
POWER DISSIPATION

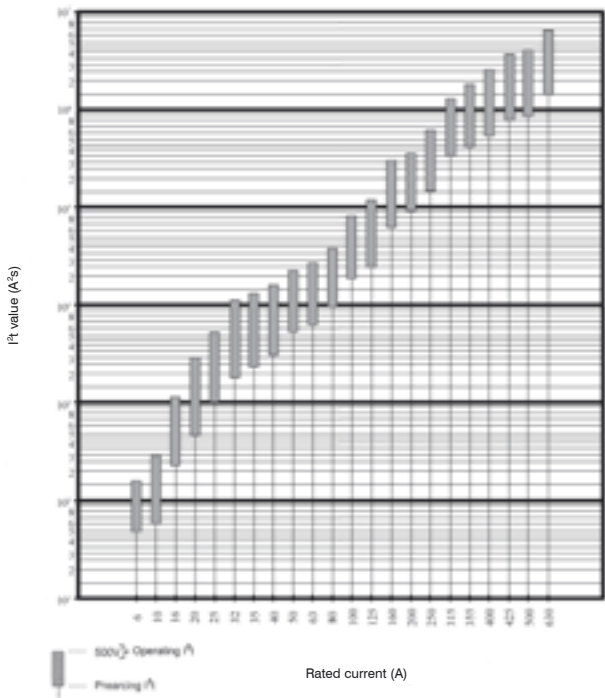


gL/gG 500V



FUSE LINKS

I²t CHARACTERISTICS



POWER DISSIPATION (W)

I _n (A)	SIZE					
	NH000	NH00	NH0	NH1	NH2	NH3
2	0,8	—	—	—	—	—
4	1,4	—	—	—	—	—
6	2,2	—	2,4	—	—	—
10	1,5	—	1,7	—	—	—
16	2,3	—	3,0	—	—	—
20	2,2	—	3,2	—	—	—
25	2,8	—	3,2	—	—	—
32	3,7	—	4,8	—	—	—
35	3,7	—	4,4	—	—	—
40	4,0	—	4,7	—	—	—
50	—	4,7	5,5	5,8	—	—
63	—	5,7	6,6	6,7	7,5	—
80	—	6,7	7,6	8,2	8,9	—
100	—	9,5	10,2	9,3	9,9	—
125	—	—	—	12,7	12,3	—
160	—	—	—	14,0	14,2	—
200	—	—	—	16,0	17,1	—
224	—	—	—	—	21,2	—
250	—	—	—	—	23,5	23,1
315	—	—	—	—	30,5	30,0
355	—	—	—	—	—	33,0
400	—	—	—	—	—	38,0
425	—	—	—	—	—	41,0
500	—	—	—	—	—	44,2

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620



FUSE LINKS

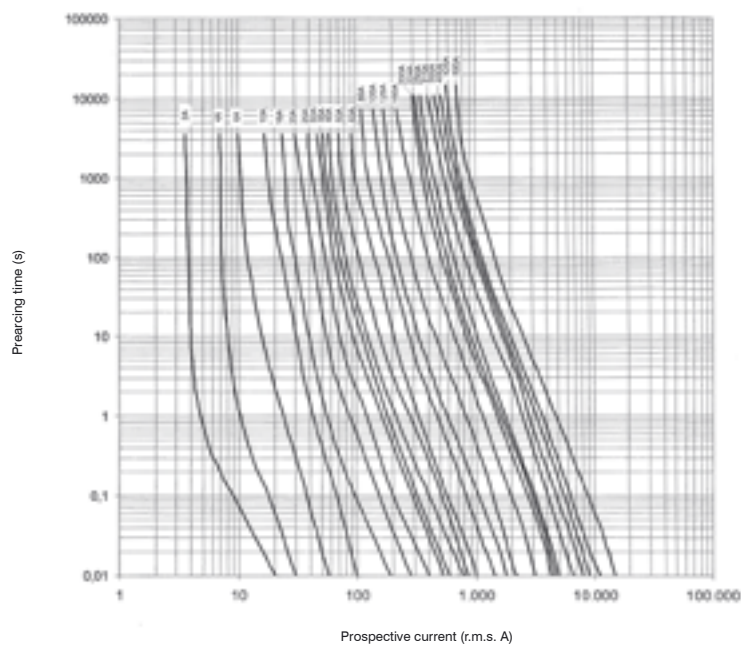
NH FUSE LINKS (HRC)

DUAL INDICATOR
t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

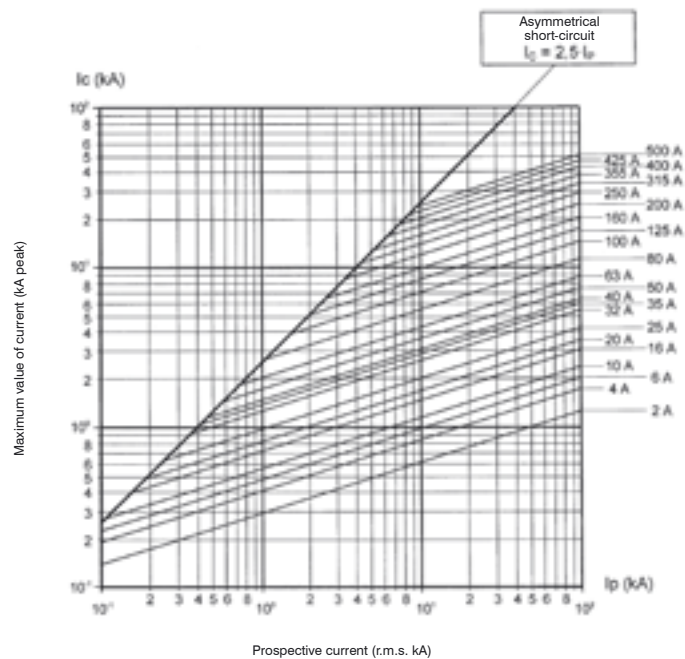
Cd-Pb
FREE

gL/gG 690V

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR
I²t CHARACTERISTICS
POWER DISSIPATION

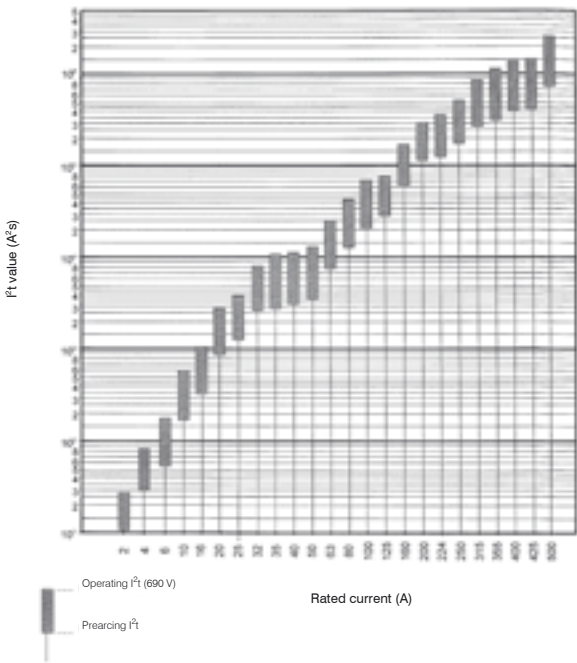
Cd-Pb
FREE

gL/gG 690V



FUSE LINKS

I²t CHARACTERISTICS



POWER DISSIPATION (W)

I _n (A)	SIZE				
	NH000/00	NH00	NH1	NH2	NH3
2	0,68	—	—	—	—
4	0,72	—	—	—	—
6	0,80	1,1	—	—	—
10	1,2	1,4	—	—	—
16	1,7	2,0	—	—	—
20	2,5	2,8	—	—	—
25	2,7	3,2	—	—	—
32	3,0	3,9	—	—	—
35	3,2	4,1	—	—	—
40	3,6	4,4	—	—	—
50	4,5	5,2	4,3	—	—
63	5,3	6,2	5,9	5,9	—
80	6,5	7,5	6,7	6,7	—
100	7,4	8,7	8,2	8,1	—
125	—	—	9,3	9,2	—
160	—	—	12,5	12,4	—
200	—	—	15,9	15,8	—
250	—	—	—	20,5	21,3
315	—	—	—	25,0	28,8
355	—	—	—	—	29,5
400	—	—	—	—	32,3
425	—	—	—	—	37,0
500	—	—	—	—	47,7

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620



FUSE LINKS

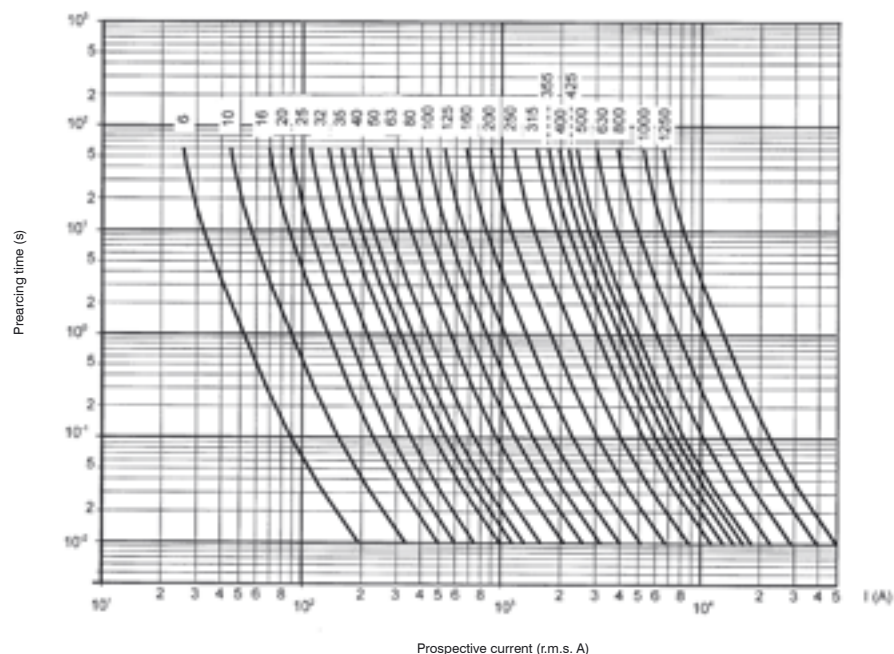
NH FUSE LINKS (HRC)

DUAL INDICATOR - STRIKER
t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

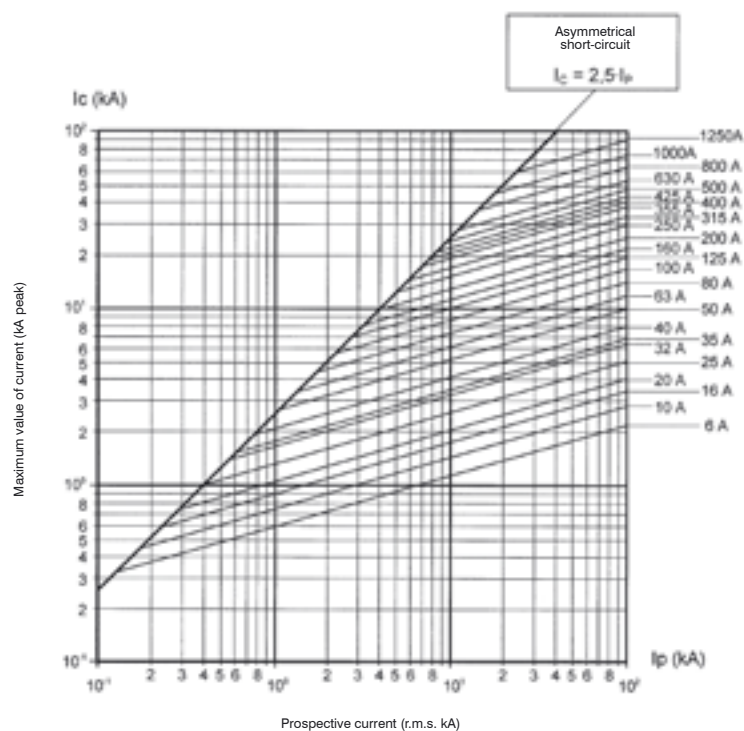
Cd-Pb
FREE

aM 500V | 690 V

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

FUSE LINKS

NH FUSE LINKS (HRC)

DUAL INDICATOR - STRIKER
I²t CHARACTERISTICS
POWER DISSIPATION

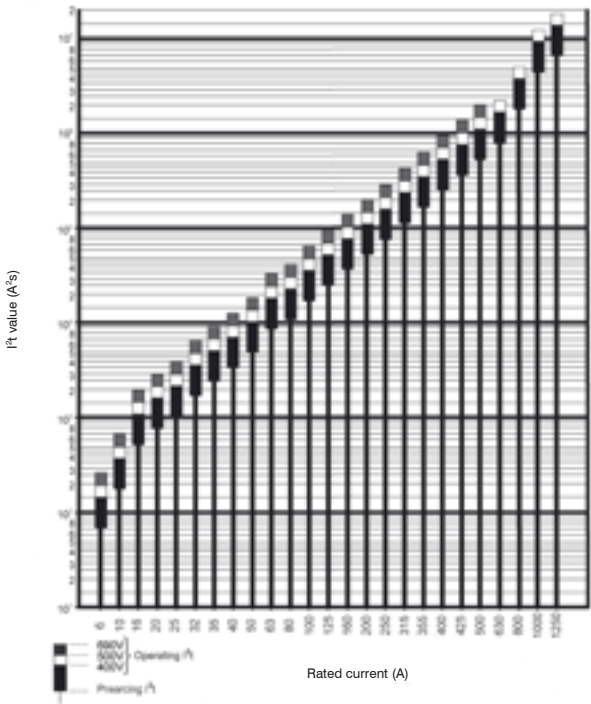


FUSE LINKS

Cd-Pb
FREE

aM 500V | 690 V

I²t CHARACTERISTICS



POWER DISSIPATION (W)

I _n (A)	SIZE						
	NH000	NH00	NH0/0S	NH1	NH2	NH3	NH4
6	0,33	–	0,42	–	–	–	–
10	0,52	–	0,67	–	–	–	–
16	0,81	–	0,98	–	–	–	–
20	0,92	–	1,04	–	–	–	–
25	1,08	–	1,17	–	–	–	–
32	1,42	–	1,67	–	–	–	–
35	1,58	–	1,72	–	–	–	–
40	1,68	–	1,91	–	–	–	–
50	–	2,28	2,51	–	–	–	–
63	–	2,90	3,35	3,2	–	–	–
80	–	4,19	4,93	4,6	–	–	–
100	–	5,09	5,72	5,7	–	–	–
125	–	6,29	7,30	6,98	7,6	–	–
160	–	7,73	9,5	9,2	9,7	–	–
200	–	–	12,3	13,7	13,9	–	–
224	–	–	–	14,0	14,0	–	–
250	–	–	–	15,3	17,0	–	–
315	–	–	–	–	26,0	20,6	18,8
355	–	–	–	–	25,2	23,9	–
400	–	–	–	–	29,3	26,5	23,5
425	–	–	–	–	–	28,3	–
500	–	–	–	–	–	35,8	34
630	–	–	–	–	–	56,9	49
800	–	–	–	–	–	–	70
1000	–	–	–	–	–	–	80
1250	–	–	–	–	–	–	108

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620



FUSE LINKS

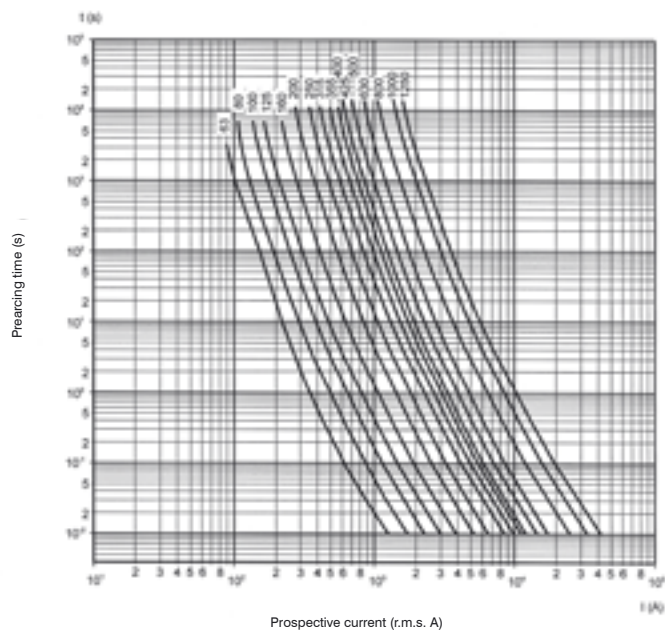
NH FUSE LINKS (HRC)

WITH STRIKER
t-I CHARACTERISTICS
CUT-OFF CHARACTERISTICS

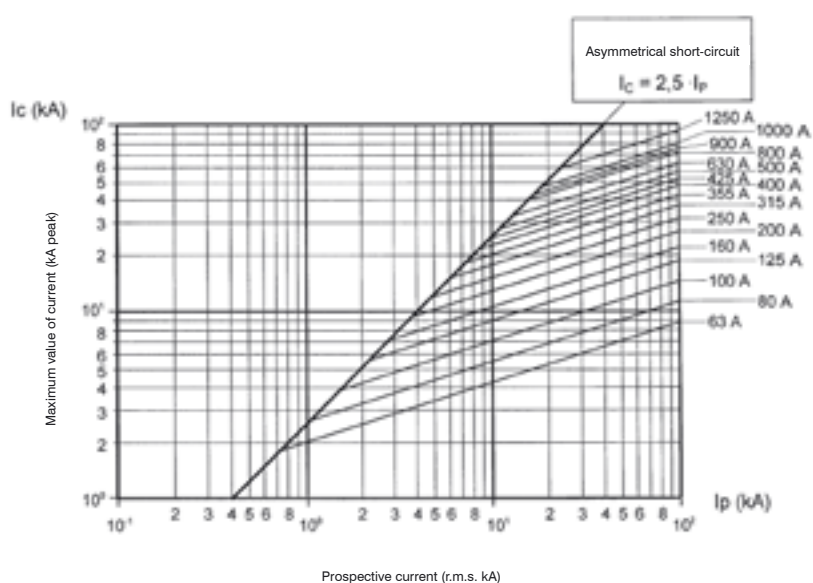
Cd-Pb
FREE

gL / gG 500V | 690 V

t-I CHARACTERISTICS



CUT-OFF CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

FUSE LINKS

NH FUSE LINKS (HRC)

WITH STRIKER
I²t CHARACTERISTICS
POWER DISSIPATION

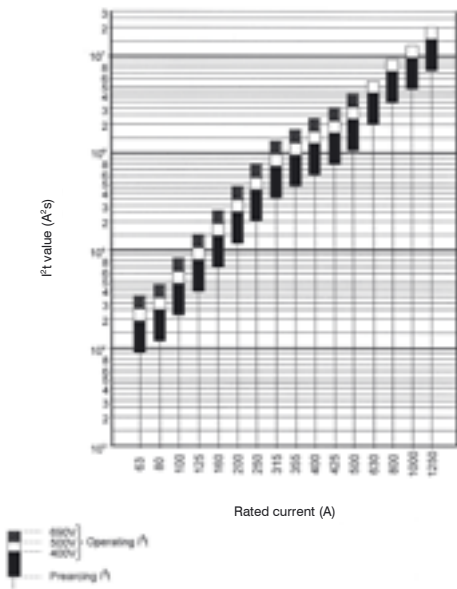
Cd-Pb
FREE

gL / gG 500V | 690 V



FUSE LINKS

I²t CHARACTERISTICS



POWER DISSIPATION (W)

In (A)	SIZE			
	1	2	3	4
63	6,4	6,4	—	—
80	7,5	7,5	—	—
100	9,0	9,0	—	—
125	10,9	10,9	—	—
160	12	12	—	—
200	15	15	—	—
250	19	19	18	—
315	25	25	24	26,1
355	25,3	25,3	24	—
400	—	28	27	32,7
425	—	30	31	—
500	—	38	38	37,0
630	—	—	43	47,0
800	—	—	57	68,0
900	—	—	—	76,0
1000	—	—	—	80,0
1250	—	—	—	108*

(*) Ovrerrating fuses

FUSE LINKS

DOMESTIC FUSE LINKS

DOMESTIC FUSE LINKS

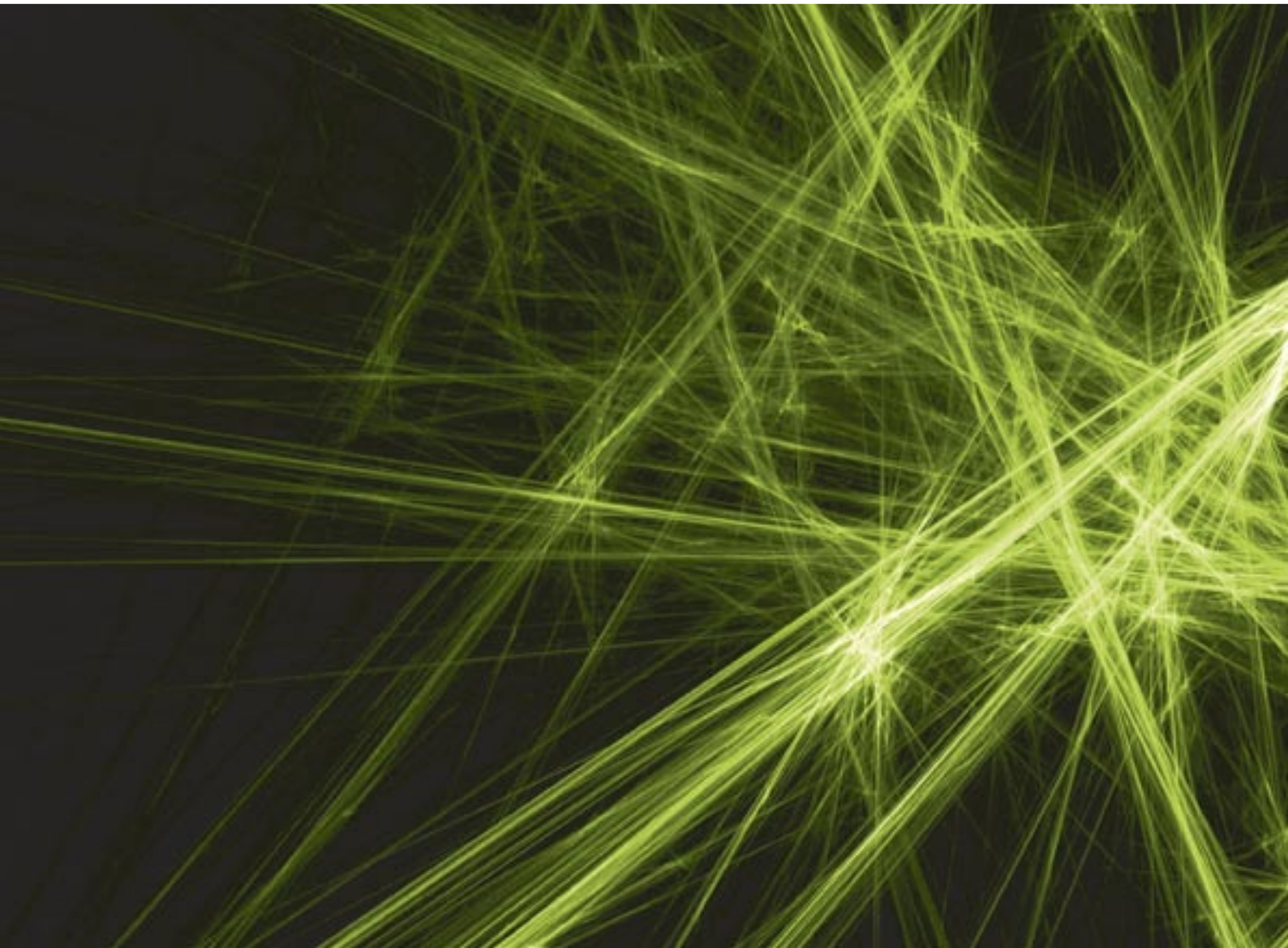
66-67

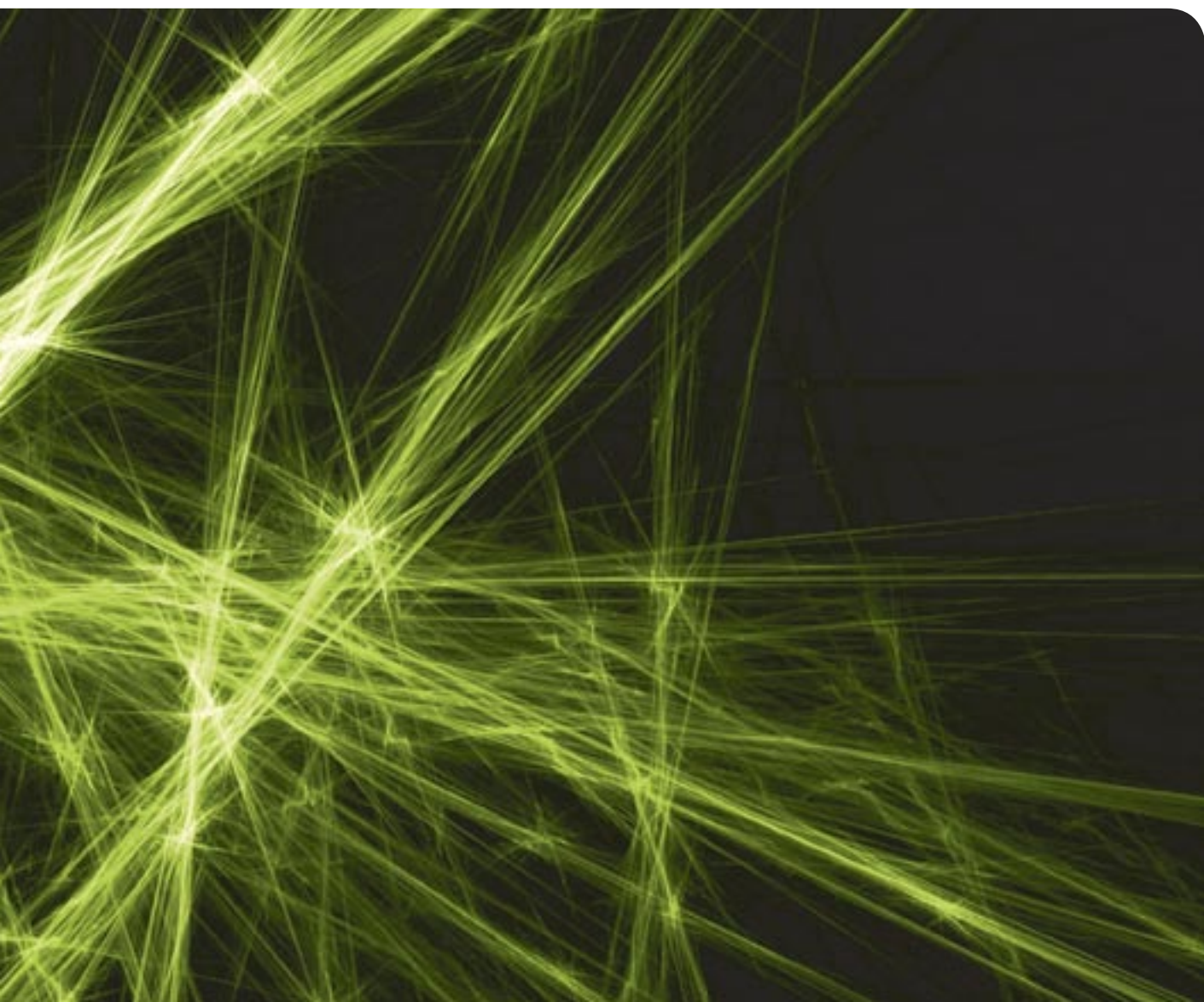
AD FUSE LINKS

68

TECHNICAL DATA

69-71







FUSE LINKS

DOMESTIC FUSE LINKS

FRENCH STANDARD
gG DOMESTIC FUSE LINKS



This product is specially designed for the domestic protection in French market and other countries with the same electrical distribution system.

gG DOMESTIC FUSE LINKS

SIZE	I _n (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator	WITH indicator			
6x23	2	400002		230	6	10/100
	4	400004		230	6	10/100
	6	400006		230	6	10/100
	10*	400010		230	6	10/100
8x23	2	400012	400112	230	6	10/100
	4	400014	400114	230	6	10/100
	6	400016	400116	230	6	10/100
	10	400018	400118	230	6	10/100
	16*	400020	400120	230	6	10/100
10x25	6	400022	400122	230	6	10/100
	10	400024	400124	230	6	10/100
	16	400026	400126	230	6	10/100
8x31	0,5	420500	—	400	20	10/100
	1	420501	—	400	20	10/100
	2	420502	420602	400	20	10/100
	4	420504	420604	400	20	10/100
	6	420506	420606	400	20	10/100
	8	420508	420608	400	20	10/100
	10	420510	420610	400	20	10/100
	12	420512	420612	400	20	10/100
	16	420516	420616	400	20	10/100
	20	420520	420620	400	20	10/100

(*) Overrating fuses



400006



400018



400120



420520

FUSE LINKS

DOMESTIC FUSE LINKS

FRENCH STANDARD
gG DOMESTIC FUSE LINKS
ASSORTMENT BOX



FUSE LINKS

gG DOMESTIC FUSE LINKS

SIZE	In (A)	REFERENCE		U (V)	BREAKING CAPACITY (kA)	PACKING
		WITHOUT indicator 	WITH indicator 			
10x31	16	400028	400128	400	20	10/100
	20	400030	400130	400	20	10/100
	25	400032 	400132 	400	20	10/100



400032

10x38	25	400034	400134	400	20	10/100
	32	400036 	400136 	400	20	10/100



400034

8x36	2	400038	400138	400	20	10/100
	4	400040	400140	400	20	10/100
	6	400042	400142	400	20	10/100
	10	400044	400144	400	20	10/100
	16	400046	400146	400	20	10/100
	20	400048	400148	400	20	10/100
	25	400050	400150	400	20	10/100
	32	400052	400152	400	20	10/100



400038

ASSORTMENT BOX (110 standard fuses)

REFERENCE	CONTENT	PACKING
490008	30 uni.(10A)/30 uni.(16A)/30uni.(20A)/5uni.(25A)/15 uni.(32A)	WITHOUT indicator
490010	30 uni.(10A)/30 uni.(16A)/30uni.(20A)/5uni.(25A)/15 uni.(32A)	WITH indicator



490008

STANDARDS

IEC 60269-1
IEC 60269-3
EN 60269-1
EN 60269-3

DIMENSIONS

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t-I CHARACTERISTICS

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POWER DISSIPATION

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FUSE LINKS

DOMESTIC FUSE LINKS

AD FUSE LINKS
NEUTRAL LINKS



AD

AD FUSE LINKS

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	PACKING
10x38	15	460015	440	20	10/100
14x51	15	461015	440	32	10/50
	30	461030	440	32	10/50
22x58	15	462015	440	32	10/50
	30	462030	440	32	10/50
	45	462045	440	32	10/50
	60	462060	440	32	10/50
NH 00	30	319030	440	32	3
	45	319045	440	32	3
	60	319060	440	32	3
	90	319090	440	32	3



462015



319045

NEUTRAL LINKS

SIZE	I _n (A)	REFERENCE	PACKING
10x38	32	431000	10/100
14x51	50	432000	10/50
22x58	125	433000	10/50
T00	160	341100	3
T2 115mm	400	341400	3



431000



341100

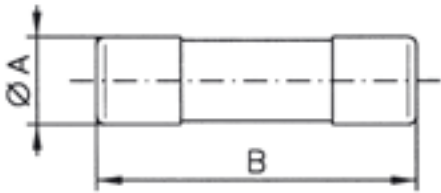
FUSE LINKS

DOMESTIC FUSE LINKS

FRENCH STANDARD
DIMENSIONS

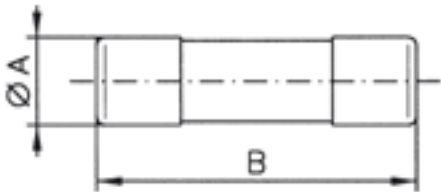


DIMENSIONS - gG DOMESTIC FUSE LINKS



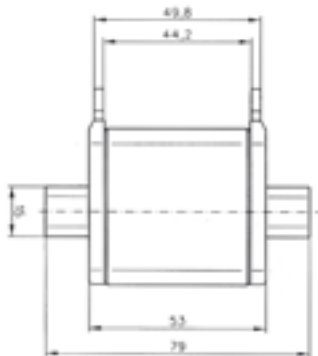
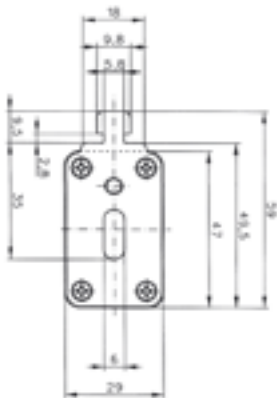
SIZE	A	B	C
6x23	6,3	23	5
8,5x23	8,5	23	5
8,5x31,5	8,5	31,5	6,3
8,5x36	8,5	36	6,3
10,3x25,8	10,3	25,8	6,3
10,3x31,5	10,3	31,5	6,3
10,3x38	10,3	38	10

DIMENSIONS - AD FUSE LINKS



SIZE	A	B	C
10,3x38	10,3	38	10
14,3x51	14,3	51	13
22,2x58	22,2	58	16

DIMENSIONS - AD FUSE LINKS



DOMESTIC FUSE LINKS



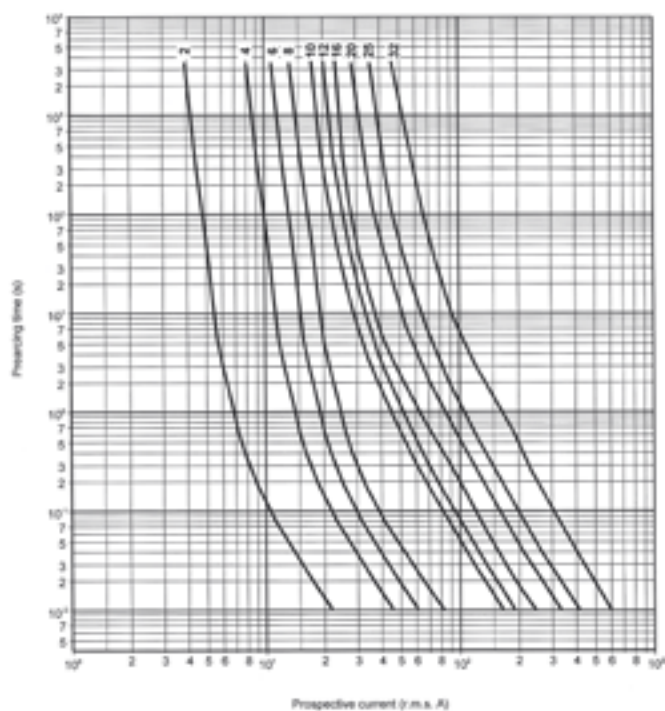
FRENCH STANDARD t-I CHARACTERISTICS



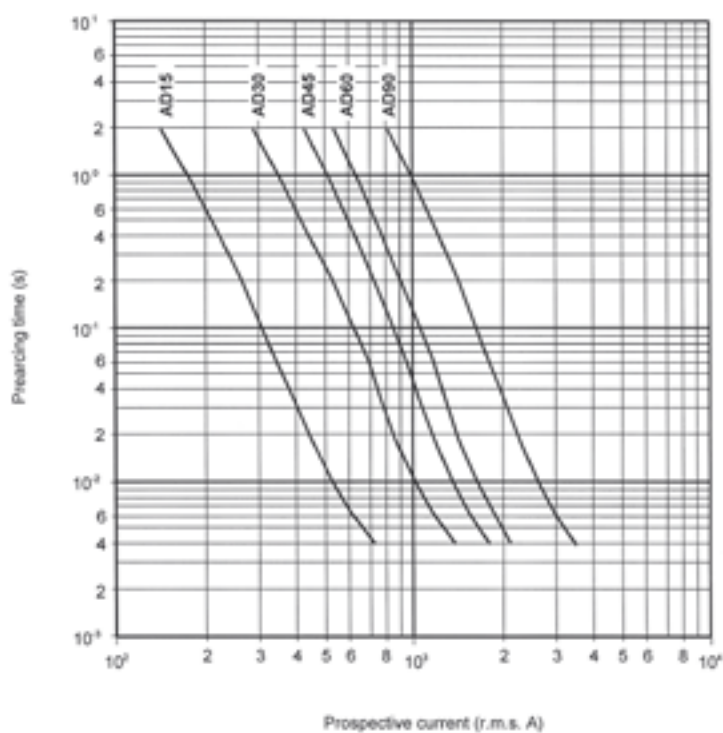
gG

AD

t-I CHARACTERISTICS - DOMESTIC FUSE LINKS gG



t-I CHARACTERISTICS - AD FUSE LINKS



STANDARDS

IEC 60269-1
IEC 60269-3
EN 60269-1
EN 60269-3

FUSE LINKS

DOMESTIC FUSE LINKS

FRENCH STANDARD
POWER DISSIPATION



gG

AD



POWER DISSIPATION (W) - gG DOMESTIC FUSE LINKS

I_n	SIZE						
(A)	6,3x23 (W)	8,5x23 (W)	10,3x25,8 (W)	8,5x31,5 (W)	10,3x31,5 (W)	10,3x38 (W)	8,5x36 (W)
0,5	–	–	–	1,2	–	–	–
1	–	–	–	2,0	–	–	–
2	0,4	0,4	–	0,5	–	–	0,64
4	0,6	0,6	–	0,8	–	–	0,92
6	0,9	0,9	1,00	1,1	–	–	1,4
8	–	–	–	1,3	–	–	–
10	1,3	0,7	0,9	1,0	–	–	1,0
12	–	–	–	1,2	–	–	–
16	–	1,2	1,3	1,9	1,9	–	1,6
20	–	–	–	2,0	2,0	–	2,3
25	–	–	–	–	2,6	2,4	2,1
32	–	–	–	–	–	2,9	2,7

POWER DISSIPATION (W) - AD FUSE LINKS

I_n	SIZE			
(A)	10x38 (W)	14x51 (W)	22x58 (W)	NH00 (W)
15	0,6	0,7	0,8	–
30	–	1,6	1,7	1,3
45	–	–	2,8	1,9
60	–	–	4,4	3,1
90	–	–	–	4,6

FUSE LINKS

D FUSE LINKS

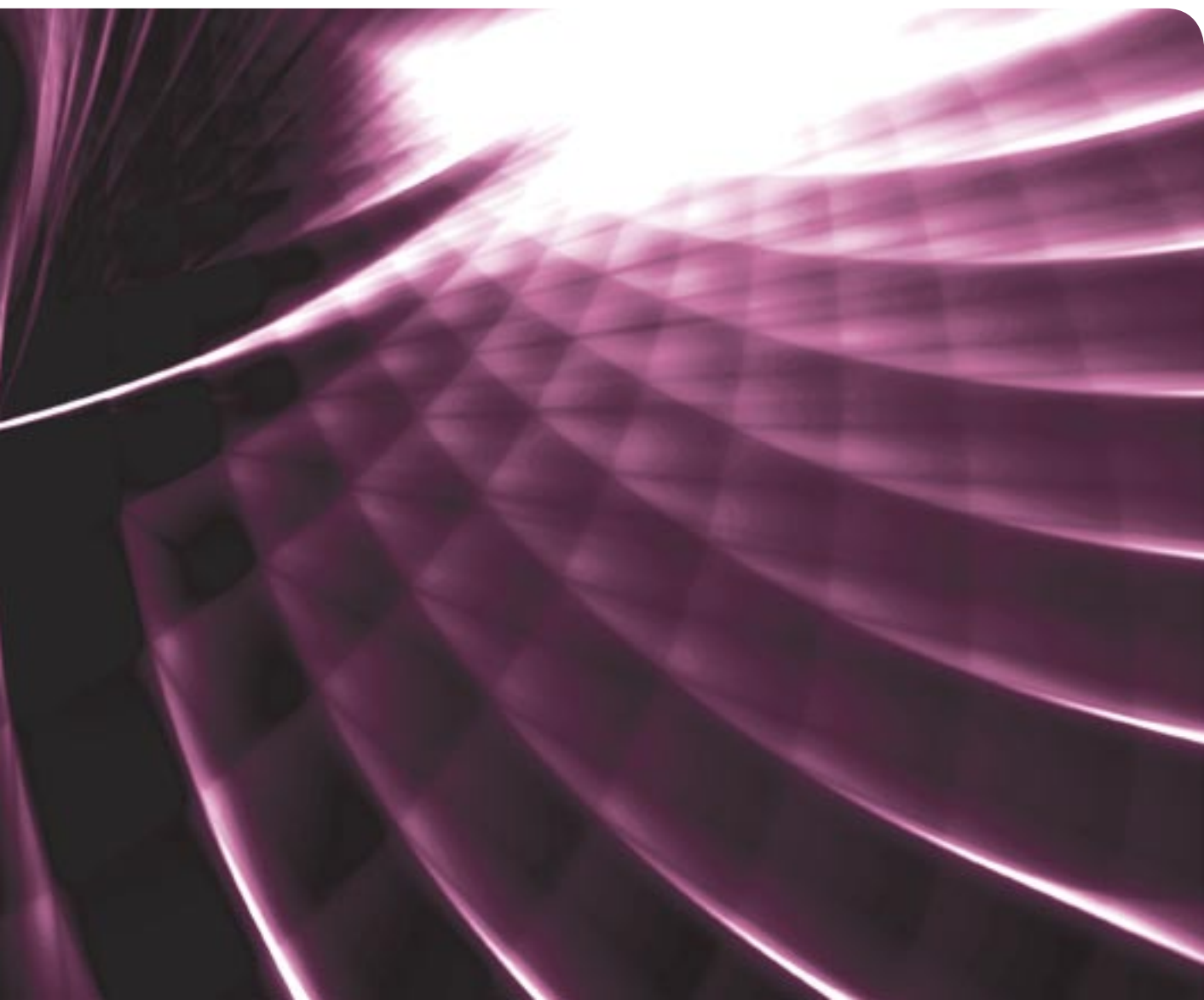
D FUSE LINKS AND ACCESSORIES

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TECHNICAL DATA

75-77







FUSE LINKS

D FUSE LINKS

D FUSE LINKS

gL/gG

D fuse links gG class for use as general protection against overloads and short circuits, intended as domestic protection or in some industrial equipment. They are available in four sizes (DI, DII, DIII and DIV) with ratings from 2A to 100A and rated voltage of 500V AC. The D fuse links have a indicator device. Manufactured according IEC, EN and VDE standards, with ceramic body and copper or brass contact caps.

D FUSE LINKS

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	THREAD	PACKING
D I	2	101002	500	50	E 16	20
	4	101004	500	50	E 16	20
	6	101006	500	50	E 16	20
	10	101010	500	50	E 16	20
	16	101016	500	50	E 16	20
	20	101020	500	50	E 16	20
	25	101025	500	50	E 16	20
D II	2	101102	500	50	E 27	5/25
	4	101104	500	50	E 27	5/25
	6	101106	500	50	E 27	5/25
	10	101110	500	50	E 27	5/25
	16	101116	500	50	E 27	5/25
	20	101120	500	50	E 27	5/25
	25	101125	500	50	E 27	5/25
D III	35	101135	500	50	E 33	5/25
	50	101150	500	50	E 33	5/25
	63	101163	500	50	E 33	5/25
D IV	80	101180	500	50	1 1/4	10
	100	101100	500	50	1 1/4	10



101002



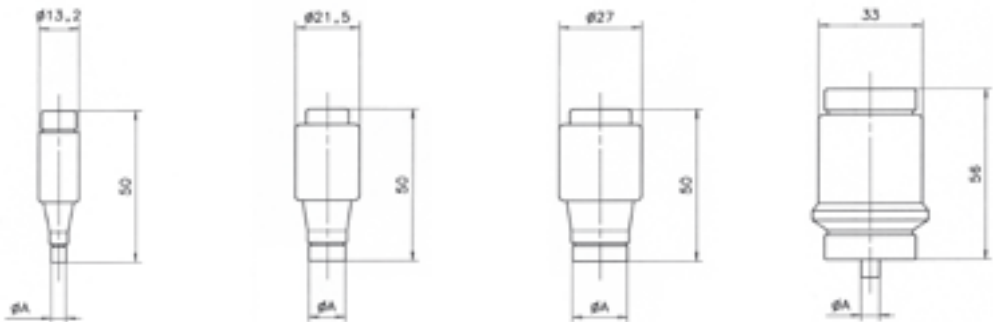
101104



101163

gL/gG

DIMENSIONS - D FUSE LINKS



SIZE	D I					D II					D III			D IV	
I _n (A)	2-4-6	10	16	20	25	2-4-6	10	16	20	25	35	50	63	80	100
Ø A	6	8	10	12	14	6	8	10	12	14	16	18	20	5	7



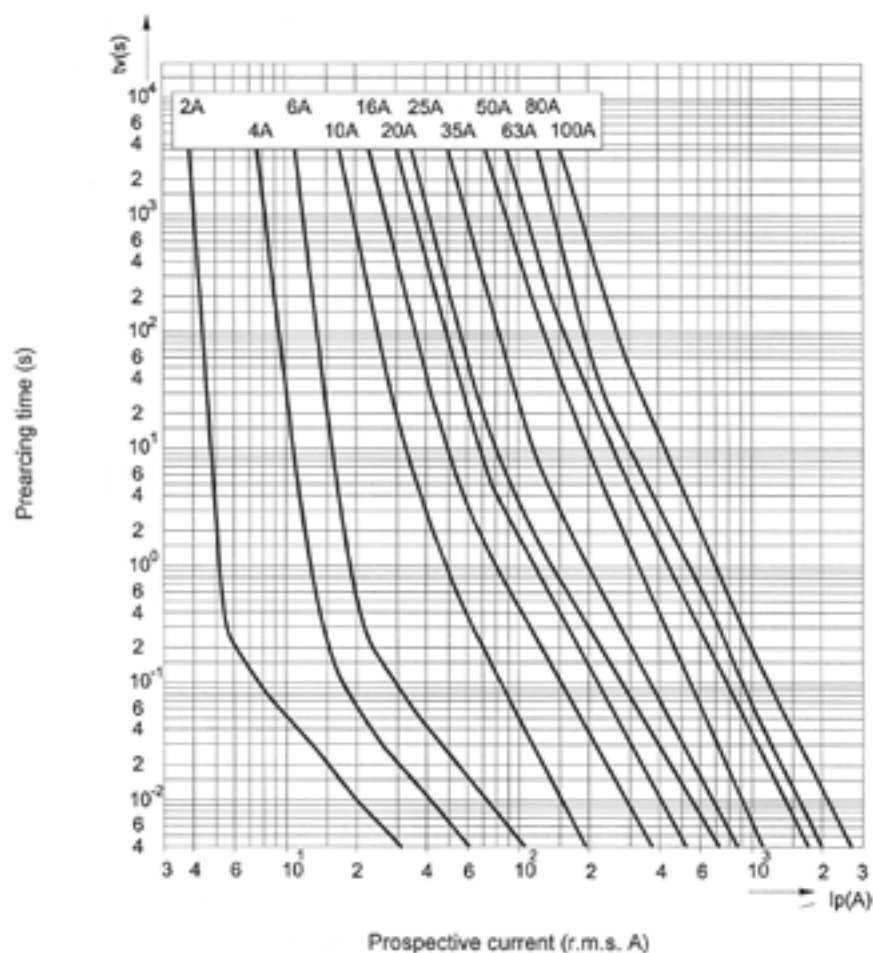
FUSE LINKS

D FUSE LINKS

t-I CHARACTERISTICS

gL/gG

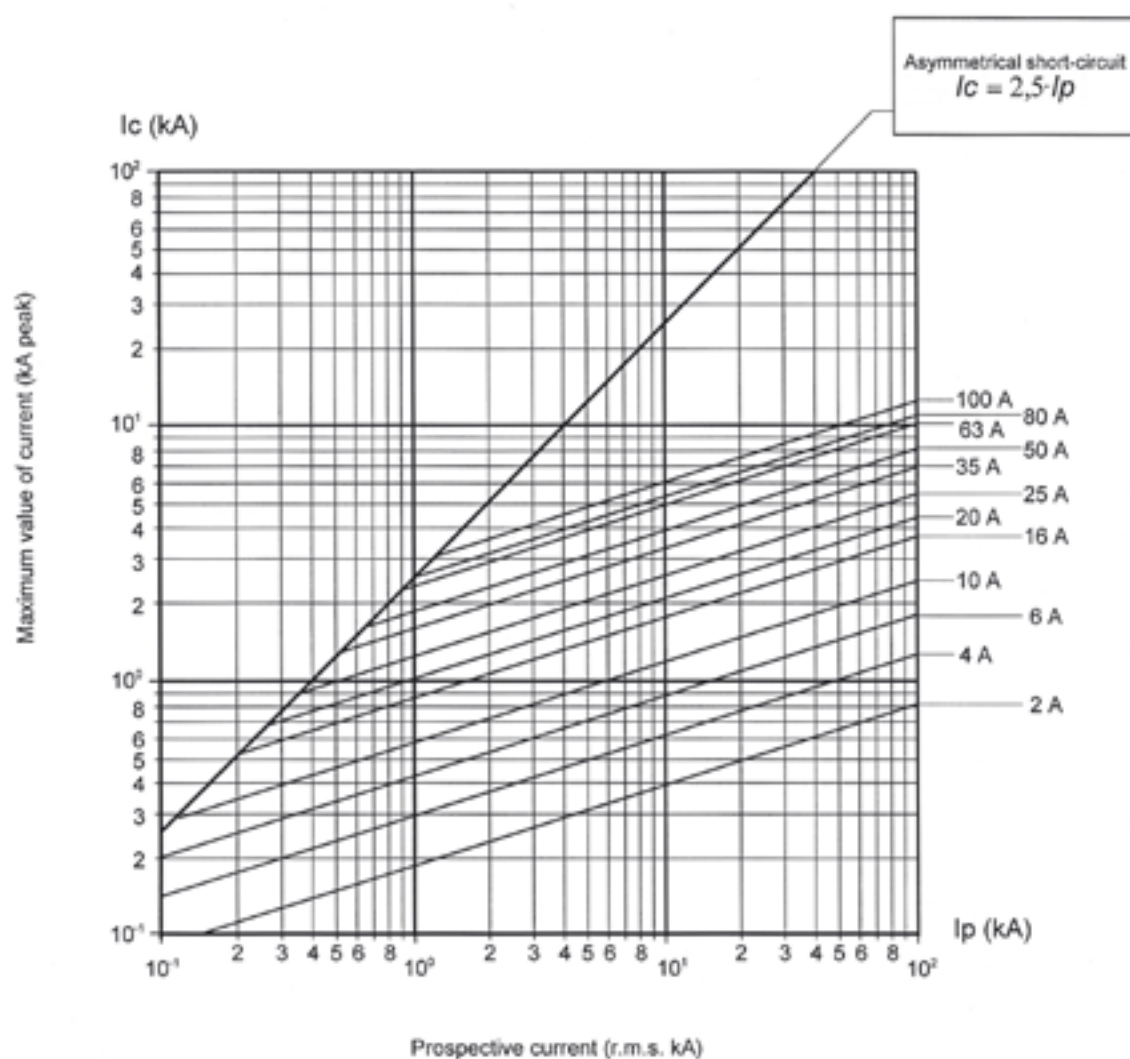
t-I CHARACTERISTICS



STANDARDS

IEC 60269-1
IEC 60269-3
EN 60269-1
EN 60269-3
VDE 0636

CUT-OFF CHARACTERISTICS



FUSE LINKS

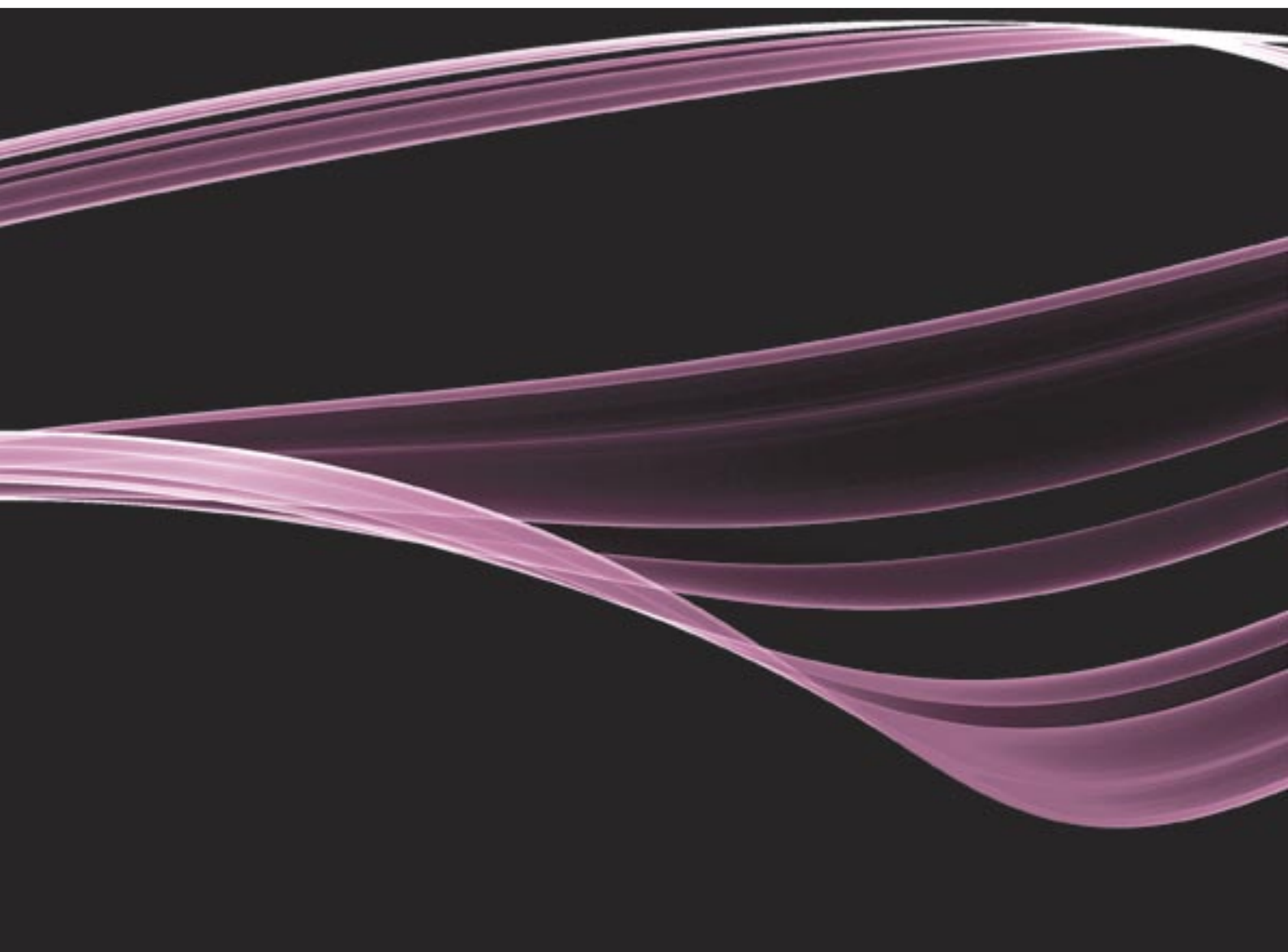
DO FUSE LINKS

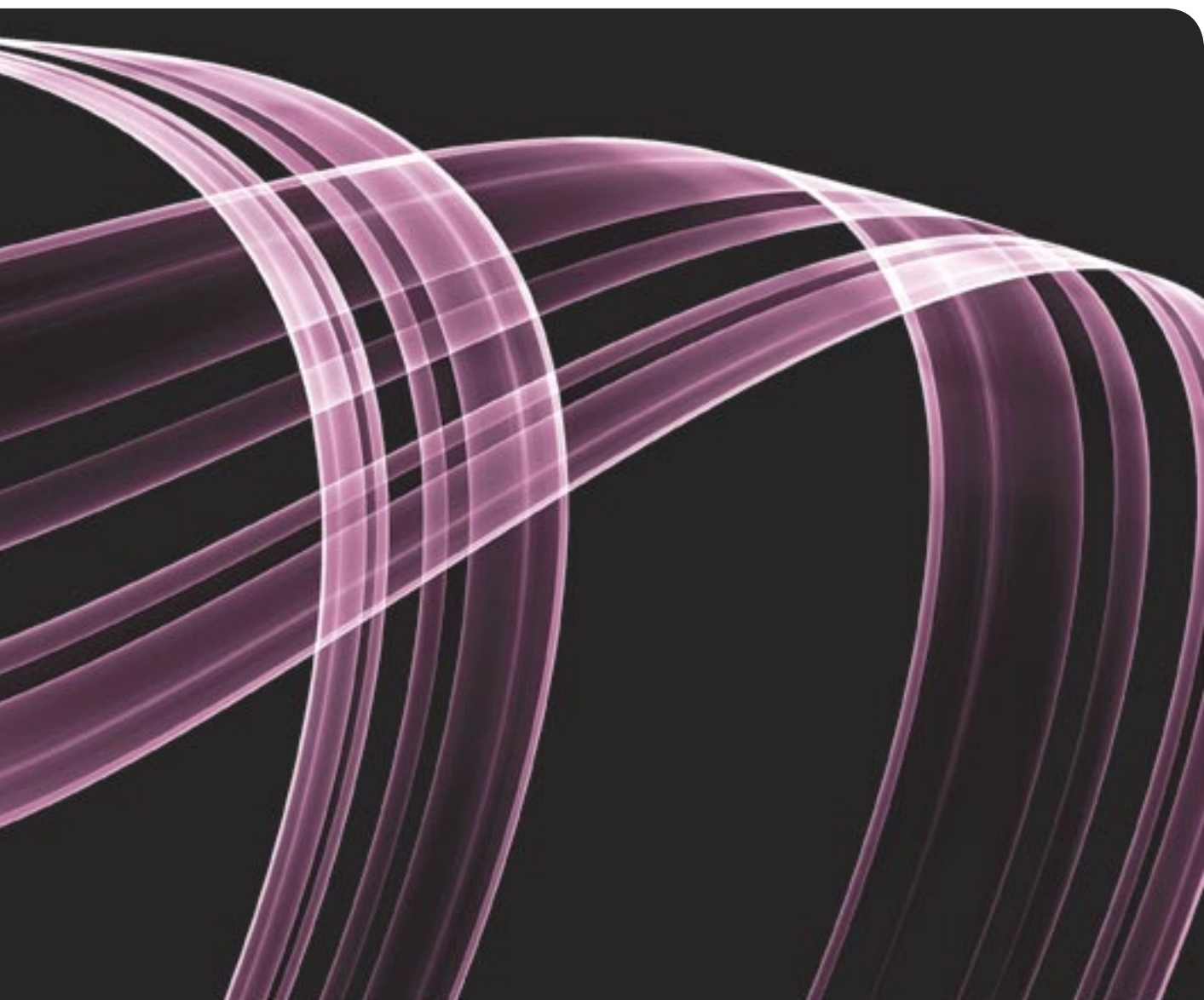
DO FUSE LINKS AND ACCESSORIES

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TECHNICAL DATA

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FUSE LINKS

DO FUSE LINKS

DO FUSE LINKS

gL/gG

DO fuse links gG class for use as general protection against overloads and short circuits, intended as domestic protection or in some industrial equipment. They are available in three sizes (DO1, DO2 and DO3) with ratings from 2A to 100A and rated voltage of 400V AC (250V DC). The DO fuse links have a indicator device. Manufactured according IEC, EN and VDE standards, with ceramic body and copper or brass contact caps.

DO FUSE LINKS

SIZE	I _n (A)	REFERENCE	U (V)	BREAKING CAPACITY (kA)	THREAD	PACKING
DO 1	2	201102	400	50	E 14	10
	4	201104	400	50	E 14	10
	6	201106	400	50	E 14	10
	10	201110	400	50	E 14	10
	16	201116	400	50	E 14	10



201116

DO 2	20	201120	400	50	E 18	10
	25	201125	400	50	E 18	10
	35	201135	400	50	E 18	10
	50	201150	400	50	E 18	10
	63	201163	400	50	E 18	10



201163

DO 3	80	201180	400	50	M 30	10
	100	201100	400	50	M 30	10



201100

FUSE LINKS

DO FUSE LINKS

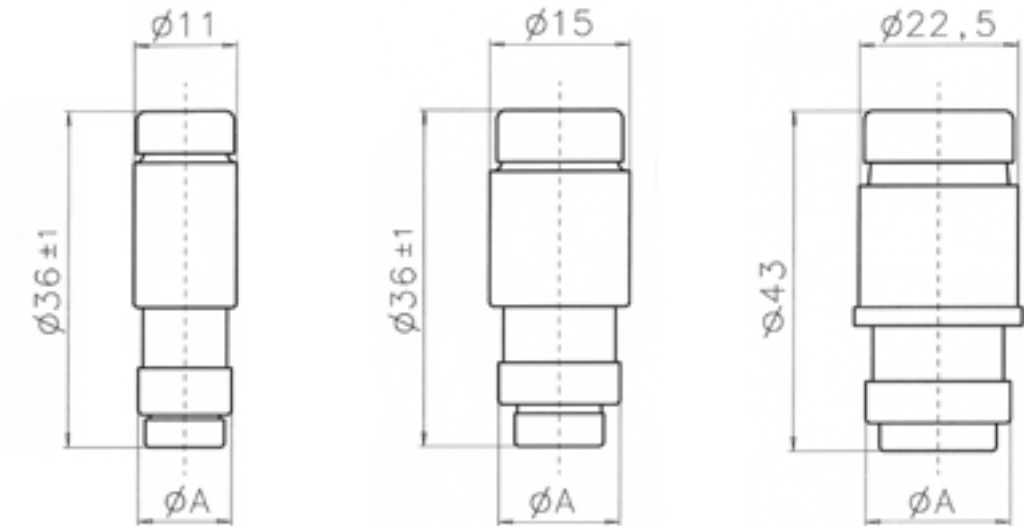
DIMENSIONS
t-I CHARACTERISTICS



FUSE LINKS

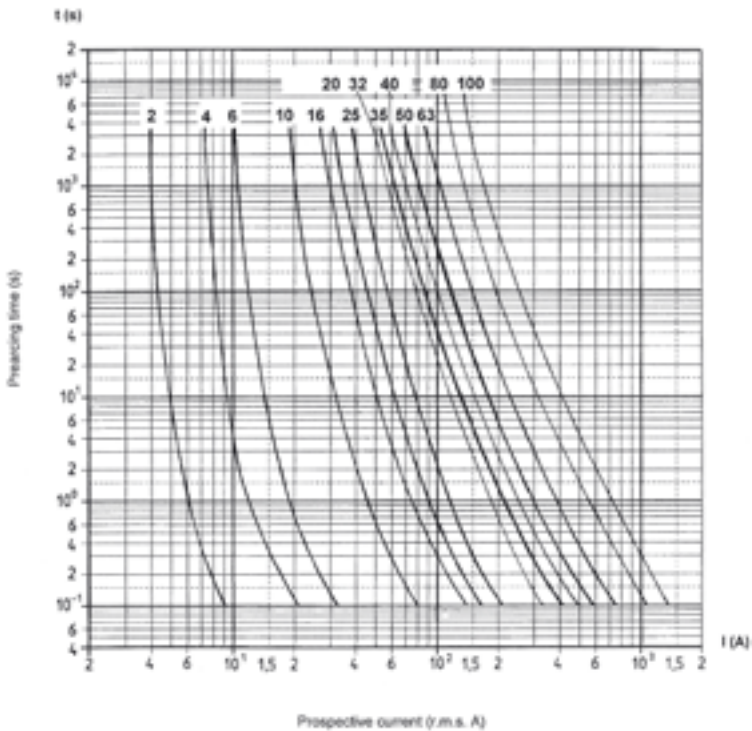
gL/gG

DIMENSIONS



SIZE	DO 1	DO 2	DO 3
In (A)	2-4-6	10 16 20 25 35 50 63	80 100
Ø A	7,3 8,5 9,7	10,9 12,1 13,3 14,5 15,9	21,4 24,4

t-I CHARACTERISTICS



STANDARDS
IEC 60269-1
IEC 60269-3
EN 60269-1
EN 60269-3
VDE 0636

FUSE HOLDERS AND BASES

FUSE HOLDERS AND BASES FOR MINIATURE FUSES

84-89

INDUSTRIAL MODULAR FUSE HOLDERS

90-105

NH FUSE BASES

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DOMESTIC FUSE HOLDERS

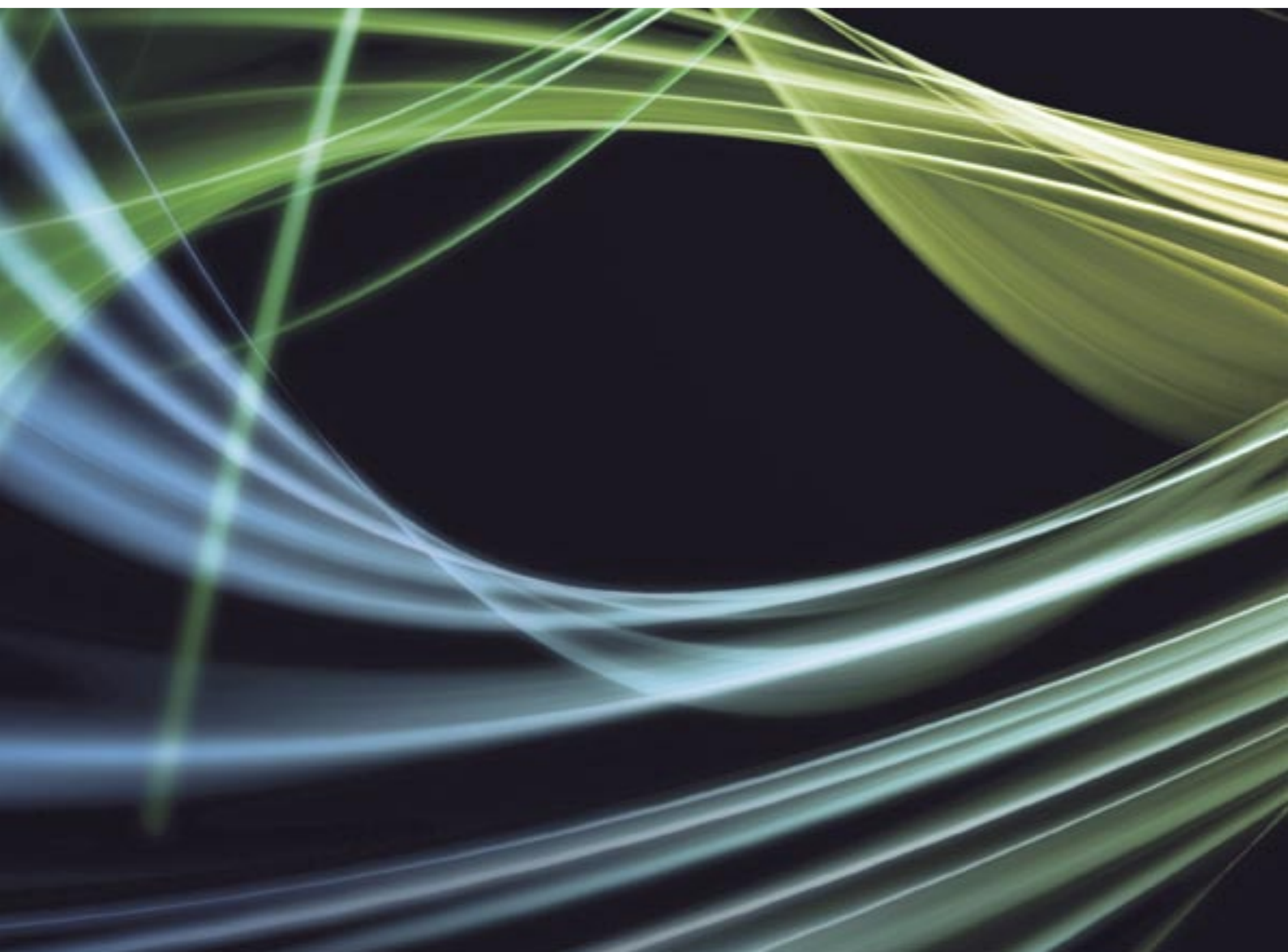
122-125

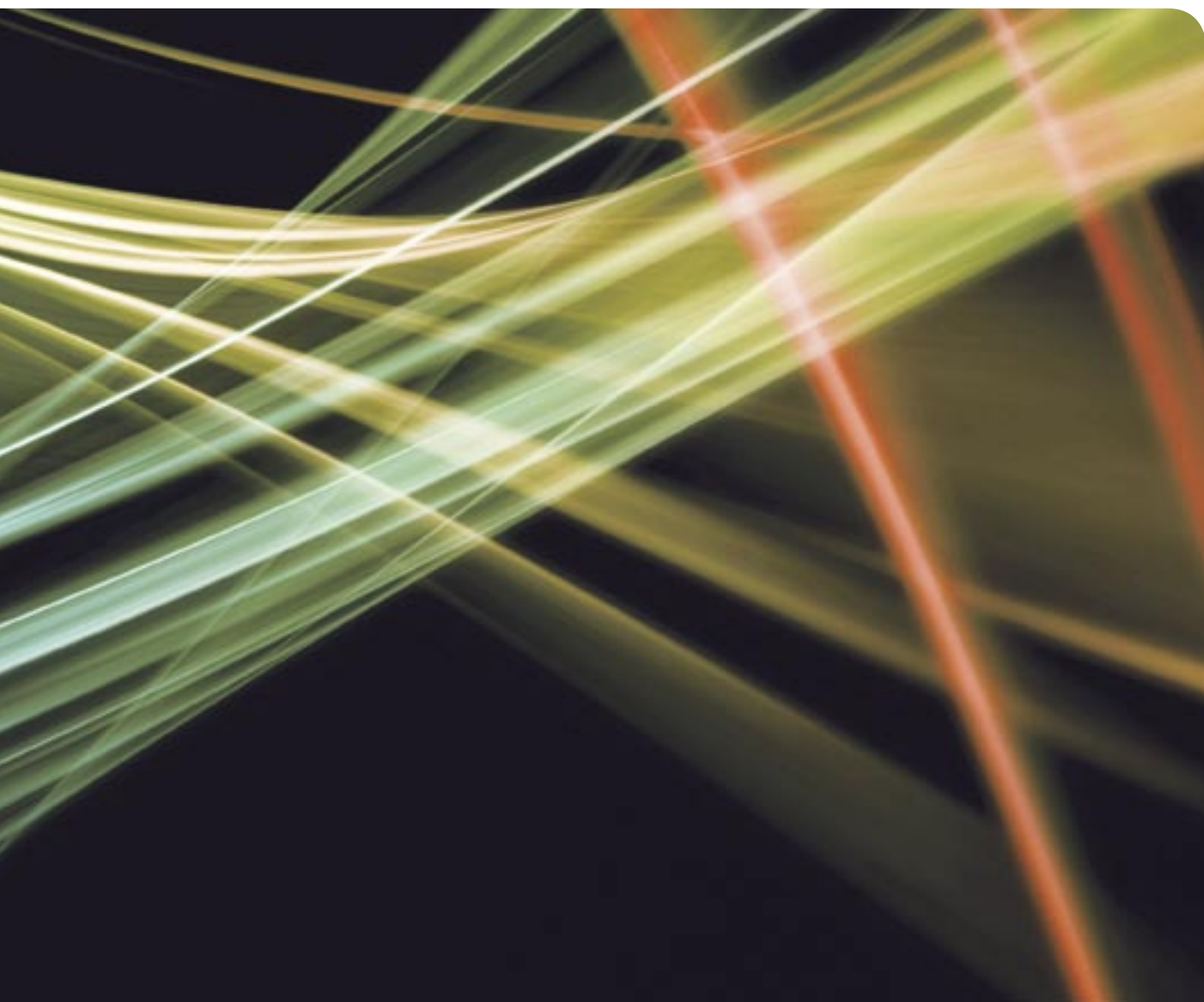
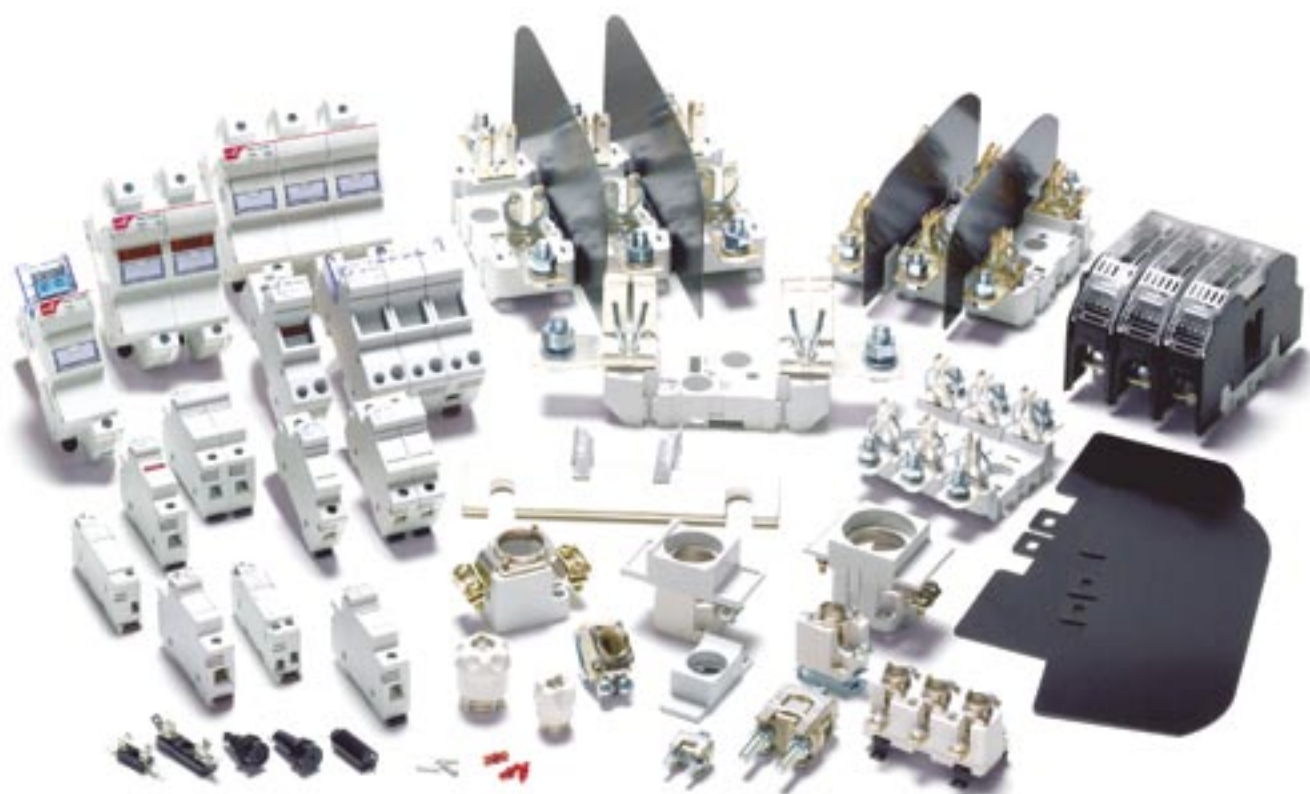
D FUSE HOLDERS

126-131

DO FUSE HOLDERS

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FUSE HOLDERS AND BASES

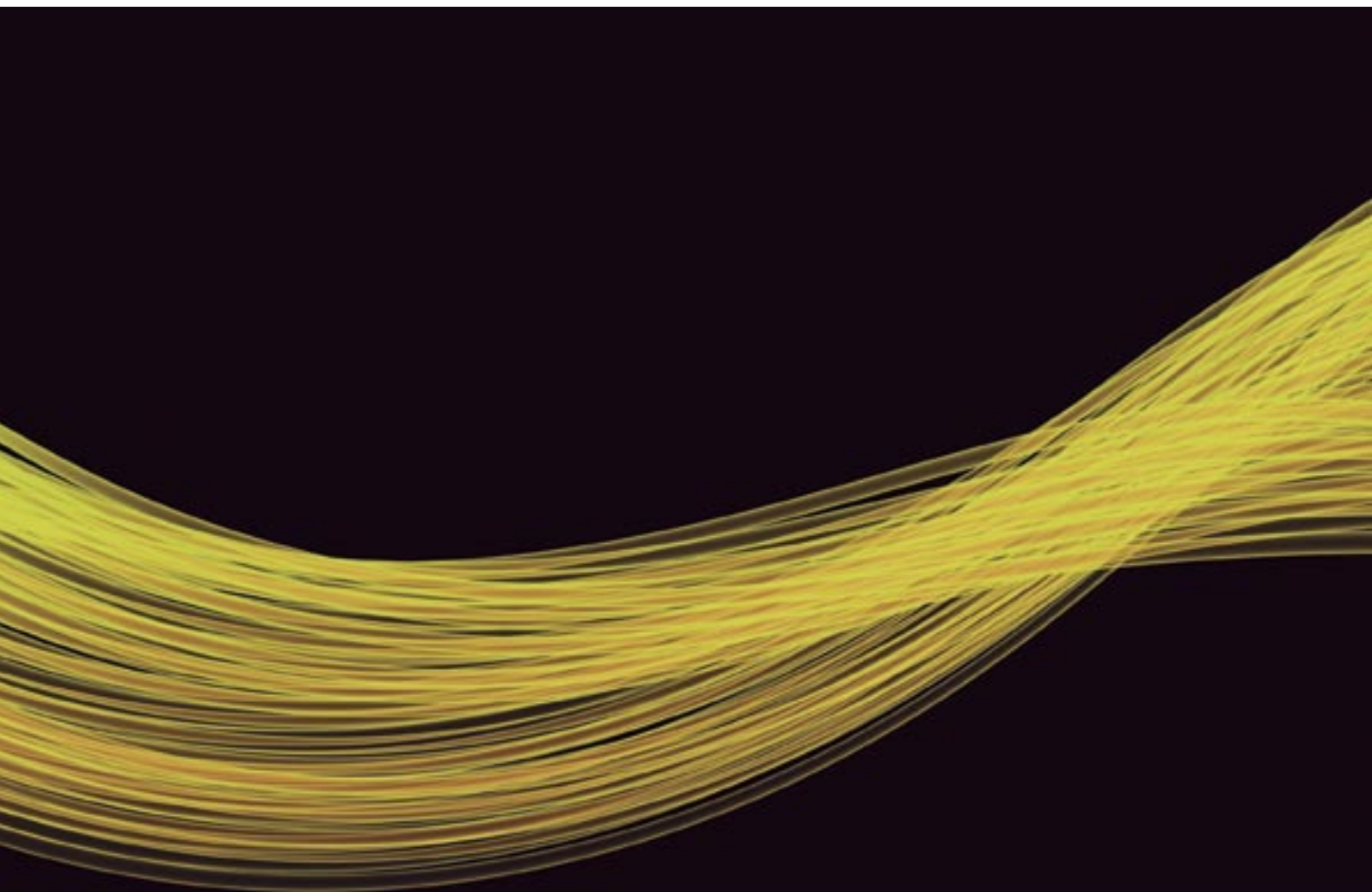
FUSE HOLDERS AND BASES FOR MINIATURE FUSES

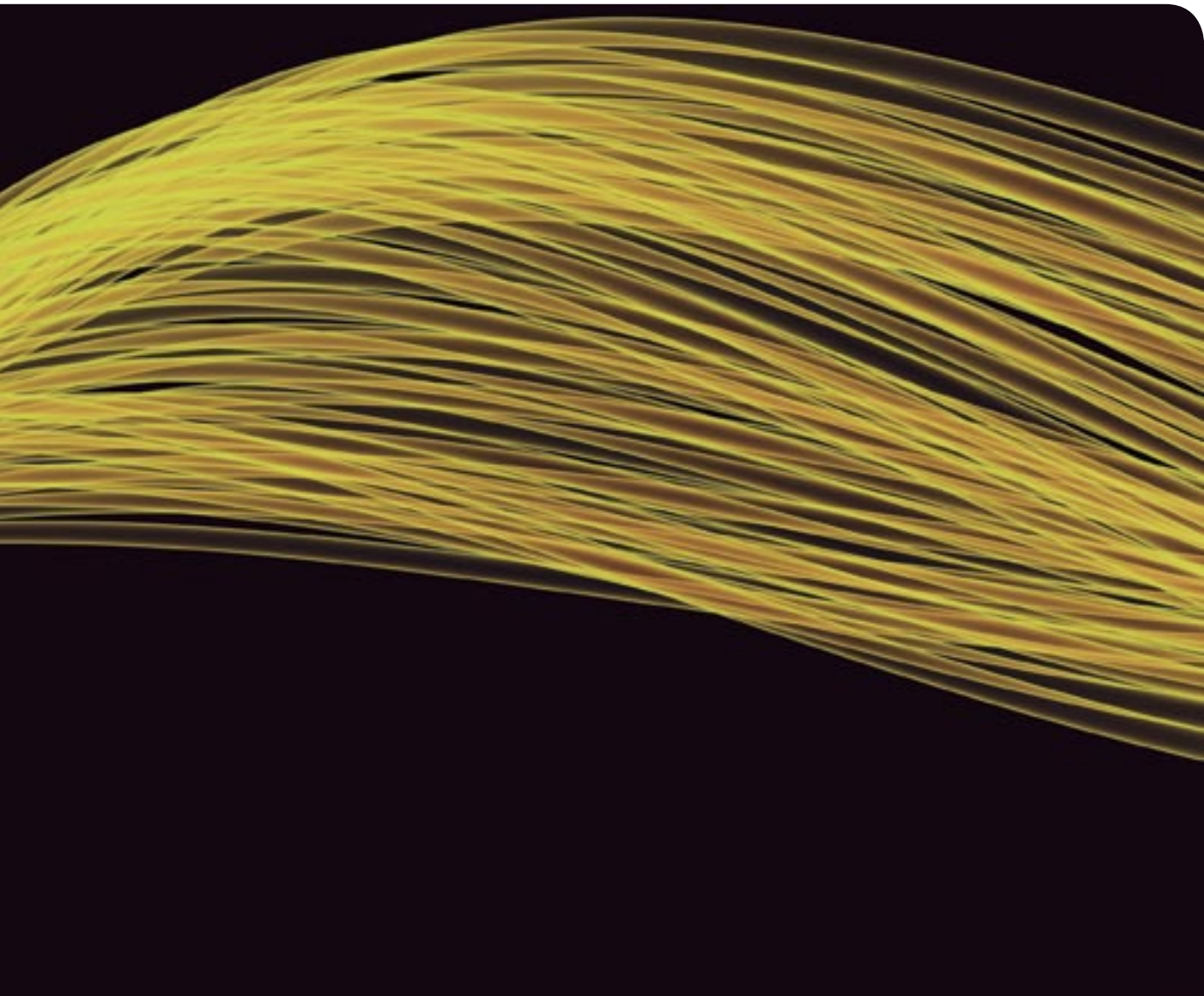
MINIATURE FUSE BASES AND HOLDERS

86-87

DIMENSIONS

88-89





FUSE HOLDERS AND BASES

FUSE HOLDERS AND BASES FOR MINIATURE FUSES

5x20 FUSE HOLDERS AND BASES

5x20

Fuse holders for miniature fuses.
Models with fuse clip contacts, for mounting panel or in-line.
Available in sizes 5x20 or 6x32.

5x20 FUSE HOLDERS AND BASES

REFERENCE	FIXING TYPE/DESCRIPTION	I _n (A)	U (V)	PACKING
 515020	PANEL MOUNTING/SCREW FUSE CARRIER	6,3	250	10/100
 515025	PANEL MOUNTING/SCREW FUSE CARRIER	6,3	250	10/100
 515030	SCREW CONNECTION/CLIP CONTACT	6,3	250	10/100
 515045	PRINTED CIRCUIT BOARD/BAYONET FUSE CARRIER (M)	6,3	250	10/100
 515050	PRINTED CIRCUIT BOARD/BAYONET FUSE CARRIER (H)	6,3	250	10/100
 515055	PANEL MOUNTING/BAYONET FUSE CARRIER	6,3	250	10/100
 515060	PRINTED CIRCUIT BOARD	6,3	250	10/100

FUSE HOLDERS AND BASES

FUSE HOLDERS AND BASES FOR MINIATURE FUSES

6x32 FUSE HOLDERS AND BASES
5x20 AND 6x32 FUSE HOLDERS

5x20

6x32



6x32 FUSE HOLDERS AND BASES

REFERENCE	FIXING TYPE/DESCRIPTION	I _n (A)	U (V)	PACKING
516032	PANEL MOUNTING/SCREW FUSE CARRIER	16	250	10/100
516035	SCREW MOUNTING	25	250	10/100



516032



516035

FUSE HOLDER FOR 5x20 and 6x32 FUSE LINKS

REFERENCE	FIXING TYPE/DESCRIPTION	I _n (A)	U (V)	PACKING
516045*	IN LINE FUSE HOLDER WITH CABLE (bayonet)	6,3	250	10/100



516045

(*) This fuse holder accepts miniature fuse links 5x20 and 6x32.

FUSE HOLDERS AND BASES

FUSE HOLDERS AND BASES FOR MINIATURE FUSES

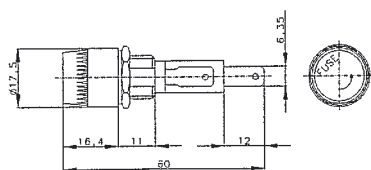
DIMENSIONS

5x20

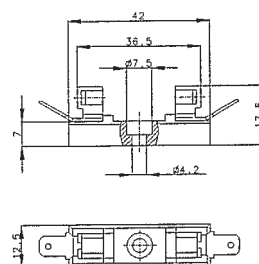
6x32



DIMENSIONS - 6x32 FUSE HOLDERS AND BASES

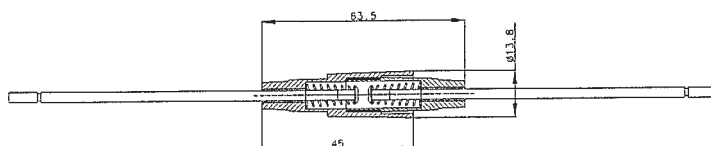


516032



516035

DIMENSIONS - FUSE HOLDER FOR 5x20 and 6x32 FUSE LINKS



516045

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

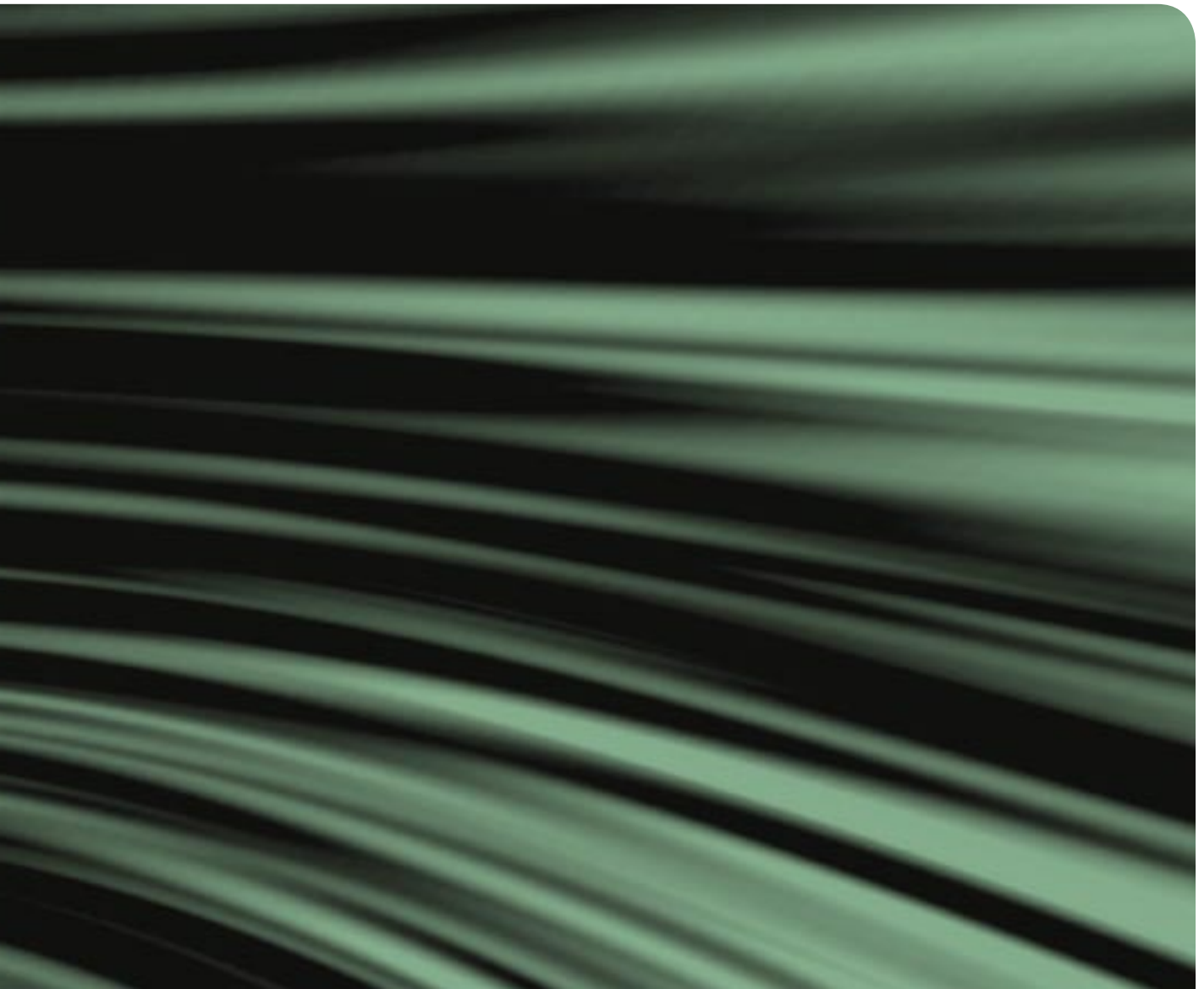
INDUSTRIAL MODULAR FUSE HOLDERS

92-98

PMF INDUSTRIAL MODULAR FUSE HOLDERS	92-94
PMX INDUSTRIAL MODULAR FUSE HOLDERS <i>NEW!</i>	95-96
PMC INDUSTRIAL COMPACT MODULAR FUSE HOLDERS	97
CC CLASS INDUSTRIAL MODULAR FUSE HOLDERS	97
SC SCREW FIXING FUSE HOLDERS	97
BAC FUSE HOLDERS <i>NEW!</i>	98

TECHNICAL DATA

99-105



FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMF



Modular fuse holders for industrial cylindrical fuse links. For mounting on DIN/EN rail. Single phase models, single-phase+neutral in only one module and multi-pole types. Available with fusing indicator or with microswitch for use with fuse links with striker (only fusing detection or fusing+pre-breaking+fuse link detection). Multi-pole units can be made of connection accessories. PMF fuse holders are made of self-extinguishable materials and have silver plated copper contacts. UL and CSA approvals.

PMF INDUSTRIAL MODULAR FUSE HOLDERS

SIZE	POLES	MODULES	REFERENCE		I _n	U	PACKING
		17,5 mm	WITHOUT indicator	WITH indicator	(A)	(V)	
8x31	I	1	480020	480020 I	25	400	12/192
	N	1	480032 N	—	32	690	12/192
	I + N	1	480125	480125 I	25	400	12/192
	I + N	2	480120	480120 I	25	400	6/96
	2	2	480220	480220 I	25	400	6/96
	3	3	480320	480320 I	25	400	4/64
	3 + N	3	480325	480325 I	25	400	4/64
	3 + N	4	480420	480420 I	25	400	3/48
	4	4	480520	480520 I	25	400	3/48
10x38	I	1	480032 	480032 I 	32	690	12/192
	N	1	480032 N 	—	32	690	12/192
	I + N	1	480135	480135 I	32	400	12/192
	I + N	2	480132 	480132 I 	32	690	6/96
	2	2	480232 	480232 I 	32	690	6/96
	3	3	480332 	480332 I 	32	690	4/64
	3 + N	3	480335	480335 I	32	400	4/64
	3 + N	4	480432 	480432 I 	32	690	3/48
	4	4	480532 	480532 I 	32	690	3/48
14x51	I	1,5	480050 	480050 I 	50	690	6/90
	N	1,5	480050 N 	—	50	690	6/90
	I + N	3	480150 	480150 I 	50	690	3/45
	2	3	480250 	480250 I 	50	690	3/45
	3	4,5	480350 	480350 I 	50	690	2/30
	3 + N	6	480450 	480450 I 	50	690	1/20
	4	6	480550 	480550 I 	50	690	1/20
22x58	I	2	450125 		125*	690	6/36
	N	2	450125 N 		125*	690	6/36
	I + N	4	451125 		125*	690	3/18
	2	4	452125 		125*	690	3/18
	3	6	453125 		125*	690	2/12
	3 + N	8	454125 		125*	690	1/6
	4	8	455125 		125*	690	1/6

(*) 125A intermittent use (100A continuous use)



480020



480135 I



480050 I



450125

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

IEC 60947-3
EN 60947-3

TECHNICAL DATA

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PMF FUSE HOLDERS ASSEMBLY

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DIMENSIONS

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USE OF RAPIDPLUS FUSES IN MODULAR FUSE HOLDERS

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FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMF 24VDC
PMF WITH MICROSWITCH
PMF ACCESSORIES



PMF



PMF 24VDC WITH INDICATOR INDUSTRIAL MODULAR FUSE HOLDERS

SIZE	POLES	REFERENCE	I _n (A)	U (V)	PACKING
10x38	I	481032 I	32	24	12
	II	481232 I	32	24	12
	III	481332 I	32	24	12



481032 I

PMF INDUSTRIAL MODULAR FUSE HOLDERS WITH MICROSWITCH

SIZE	POLES	REFERENCE	DESCRIPTION	I _n (A)	U (V)	PACKING
14x51	I	480090	PREBREAKING/FUSING/PRESENCE	50	690	6/90
	3	480091	PREBREAKING/FUSING/PRESENCE	50	690	2/30
	3 + N	480092	PREBREAKING/FUSING/PRESENCE	50	690	1/20
	1	480050 M	ONLY FUSING	50	690	6/90
	3	480350 M	ONLY FUSING	50	690	2/30
	3 + N	480450 M	ONLY FUSING	50	690	1/20
22x58	I	480080	PREBREAKING/FUSING/PRESENCE	125*	690	6/36
	3	483180	PREBREAKING/FUSING/PRESENCE	125*	690	2/12
	3 + N	484180	PREBREAKING/FUSING/PRESENCE	125*	690	1/6



480090



480091

(*) 125A intermittent use (100A continuous use)

PMF ACCESSORIES

Assembly pins and handle ties for PMF modular fuse holders. With these accessories it is possible to assemble multi-pole units using several single-pole fuse holders. Microswitches for PMF14x51 single phase or three-phase fuse holders. For fusion detection when fuse links with striker are used. Microswitch with NO/NC contacts 5 A 250 V.

SIZE	REFERENCE	DESCRIPTION	PACKING
8x31 10x38 14x51	480005	PINS FOR MULTIPOLE ASSEMBLY	12
8x31 10x38	480006	HANDLE TIES FOR MULTIPOLE ASSEMBLY	12
14x51	480007	HANDLE TIES FOR MULTIPOLE ASSEMBLY	12
14x51 UNIPOLAR	480008	MICROSWITCH/ONLY FUSING	5
14x51 TRIPOLAR	480009	MICROSWITCH/ONLY FUSING	2



480005



480006



480008



480009

STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

TECHNICAL DATA

99

PMF FUSE HOLDERS ASSEMBLY

100

DIMENSIONS

101-102

USE OF RAPIDPLUS FUSES IN MODULAR FUSE HOLDERS

177

93

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMF 1000VDC

NEW

PMF



481033

PMF 1000VDC INDUSTRIAL MODULAR FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS

SIZE	POLES	MODULES	REFERENCE	DESCRIPTION	I _n (A)	U (V)	PACKING
10x38	1	1	481033	SINGLE-POLE	32	1000	12/192
	2	2	481233	MULTI-POLE	32	1000	6/96



FUSE LINKS AND FUSE HOLDERS FOR PHOTOVOLTAIC APPLICATIONS




PHOTOVOLTAIC

Photovoltaic, or PV for short, is a technology that converts light directly into electricity. Photovoltaic is also the field of study relating to this technology and there are many research institutes devoted to work on photovoltaic.

Due to the growing need for solar energy, the manufacture of solar cells and solar photovoltaic arrays has expanded dramatically in recent years. Photovoltaic production has been doubling every two years, increasing by an average of 48 percent each year since 2002, making it the world's fastest-growing energy technology. At the end of 2007, according to preliminary data, cumulative global production was 12,400 megawatts.

Financial incentives, such as preferential feed-in tariffs for solar-generated electricity and net metering, have supported solar PV installations in many countries including Germany, Japan and the United States.

SOLUTIONS FOR PHOTOVOLTAIC INSTALLATIONS

df ELECTRIC launch a new photovoltaic modular fuse holder and fuse Pk for photovoltaic applications.

The first feature that this new products offers is the assigned voltages; in one hand the fuse holder with 1000V DC and in the other hand the fuse with 900V DC. They have been developed to offer a compact, safety and economic protection solution in photovoltaic installations where due to the increase of the power and technological evolution, no-load voltages up to 900V DC.

The fuses can be also used to meet the requirements for instruments (multimeters) and traction equipment auxiliary circuits.

FUSE HOLDERS

Material body and handle: thermoplastic high resistance to the temperature, Flammability: UL 94-V0 a 1,6mm
Glow Wire Test: (IEC 60695)-960°C a 1,6mm
Colour: = Ra17035
Material of contacts: electrolytic silver plated copper.
All the materials are according to the European Directive 2002/95/EC RoHS

TECHNICAL DATA

Rated current/voltage	32A-600V AC / 1000V DC
Protection index	IP20
Opening degree on charge	AC-21B-600V y DC20B 1000V DC
Maximum rated power acceptance	40W
Service temperature	-20 °C ... 70 °C
Store temperature	-40 °C ... 80 °C
Correction of available current based of temperature	20 °C → 1 30 °C → 0,95 40 °C → 0,90 50 °C → 0,80
Connection 1 wire	SOLID → 0,75 ... 25 mm² (AWG 12 ... 4) STRANDED → 0,75 ... 16 mm² (AWG 16 ... 14)
Maximum tightening torque up to	2,5 Nm
Screw	GROOVE + DIN 7962 (h)
Fitting for symmetrical rail DIN STANDARD 46277/1/3 (EN 50022)	
Weight	REF. 481033 - 1 POLE 62 gr REF. 481233 - 2 POLES 124 gr

STANDARD

IEC/EN 60269 | IEC/EN 60947 | 2002/95/EC RoHS



STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

IEC 60947-3
EN 60947-3

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMX
PMX WITH MICROSWITCH
PMX ACCESSORIES

EXPECTED
2009



PMX-14

PMX INDUSTRIAL MODULAR FUSE HOLDERS

SIZE	POLES	MODULES	REFERENCE		I _n (A)	U (V)	PACKING
			WITHOUT indicator	WITH indicator			
14x51	1	2	485201	485208	125	690	6/36
	N	2	485202	—	125	690	6/36
	1 + N	4	485203	485209	125	690	3/18
	2	4	485204	485210	125	690	3/18
	3	6	485205	485211	125	690	2/12
	3 + N	8	485206	485212	125	690	1/6
	4	8	485207	485213	125	690	1/6
14x51 24VDC	1	2	—	485214	125	24	6/36
	1+N	4	—	485215	125	24	3/18
	2	4	—	485216	125	24	3/18



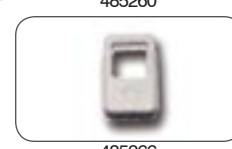
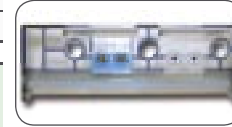
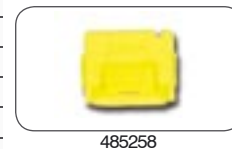
PMX INDUSTRIAL MODULAR FUSE HOLDERS WITH MICROSWITCH

SIZE	POLES	MODULES	REFERENCE		I _n (A)	U (V)	PACKING
			PREBREAKING FUSING PRESENCE	ONLY FUSION			
14x51	1	2	485220	485226	125	690	6/36
	1 + N	4	485221	485227	125	690	3/18
	2	4	485222	485228	125	690	3/18
	3	6	485223	485229	125	690	2/12
	3+N	8	485224	485230	125	690	1/6
	4	8	485225	485231	125	690	1/6



PMX ACCESSORIES

SIZE	REFERENCE	DESCRIPTION	PACKING
14x51	480005	PINS FOR MULTIPOLE ASSEMBLY	12
	485356	HANDLE TIES FOR MULTIPOLE ASSEMBLY	12
	485357	PINS FOR MULTIPOLE ASSEMBLY	12
	485258	LOCK SUPPORT	5
	485259	MICROSWITCH 1P *	5
	485260	MICROSWITCH 3P *	2
	485261	MICROSWITCH 3P (2M) *	2
	485262	MICROSWITCH UNIPOLAR EXTENSION	5
	485263	MICROSWITCH TRIPOLAR EXTENSION	2
	485264	REPLACEMENT FUSING INDICATOR NEON 120/690 VAC	3
	485265	REPLACEMENT FUSING INDICATOR LED 24 VDC	3
	485266	SPECIAL PROTECTION IP20 ACCESSORIE PMX-14	12



(*) To convert standard base on microswitch base only FUSING and as microswitch PMX spare PREBREAKING/ FUSING /PRESENCE

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

IEC 60947-3
EN 60947-3

TECHNICAL DATA

99

PMX FUSE HOLDERS ASSEMBLY
MICROSWITCH MOUNTING
IDENTIFICATION BY LABEL

100/105

DIMENSIONS

103

USE OF RAPIDPLUS FUSES
IN MODULAR FUSE HOLDERS

177

95

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMX
PMX WITH MICROSWITCH
PMX ACCESSORIES

NEW

PMX-22



485308



485305



485320



485323



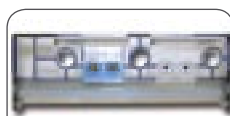
485356



480005



485358



485360



485366

PMX INDUSTRIAL MODULAR FUSE HOLDERS

SIZE	POLES	MODULES	REFERENCE		I _n (A)	U (V)	PACKING
			WITHOUT indicator	WITH indicator			
22x58	I	2	485301	485308	125	690	6/36
	N	2	485302	—	125	690	6/36
	I + N	4	485303	485309	125	690	3/18
	2	4	485304	485310	125	690	3/18
	3	6	485305	485311	125	690	2/12
	3 + N	8	485306	485312	125	690	1/6
22x58 24VDC	4	8	485307	485313	125	690	1/6
	1	2	—	485314	125	24	6/36
	1+N	4	—	485315	125	24	3/18
	2	4	—	485316	125	24	3/18

PMX INDUSTRIAL MODULAR FUSE HOLDERS WITH MICROSWITCH

SIZE	POLES	MODULES	REFERENCE		I _n (A)	U (V)	PACKING
			PREBREAKING FUSING PRESENCE	ONLY FUSION			
22x58	I	2	485320	485326	125	690	6/36
	I + N	4	485321	485327	125	690	3/18
	2	4	485322	485328	125	690	3/18
	3	6	485323	485329	125	690	2/12
	3+N	8	485324	485330	125	690	1/6
	4	8	485325	485331	125	690	1/6

PMX ACCESSORIES

SIZE	REFERENCE	DESCRIPTION	PACKING
22x58	480005	PINS FOR MULTIPOLE ASSEMBLY	12
	485356	HANDLE TIES FOR MULTIPOLE ASSEMBLY	12
	485357	PINS FOR MULTIPOLE ASSEMBLY	12
	485358	LOCK SUPPORT	5
	485359	MICROSWITCH 1P *	5
	485360	MICROSWITCH 3P *	2
	485361	MICROSWITCH 3P (2M) *	2
	485362	MICROSWITCH UNIPOLAR EXTENSION	5
	485363	MICROSWITCH TRIPOLAR EXTENSION	2
	485364	REPLACEMENT FUSING INDICATOR NEON 120/690 VAC	3
	485365	REPLACEMENT FUSING INDICATOR LED 24 VDC	3
	485366	SPECIAL PROTECTION IP20 ACCESSORIE PMX-22	12

(*) To convert standard base on microswitch base only FUSING and as microswitch PMX spare PREBREAKING/ FUSING /PRESENCE

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

IEC 60947-3
EN 60947-3

TECHNICAL DATA

99

PMX FUSE HOLDERS ASSEMBLY
MICROSWITCH MOUNTING
IDENTIFICATION BY LABEL

100/105

DIMENSIONS

103

USE OF RAPIDPLUS FUSES
IN MODULAR FUSE HOLDERS

177

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

PMC
SC
CC CLASS



PMC

CC

SC



PMC INDUSTRIAL COMPACT MODULAR FUSE HOLDERS

SIZE	POLES	MODULES	REFERENCE	I _n	U	PACKING
		17,5 mm		(A)	(V)	
8x31	I	1	483000	25	400	12/336
	N	1	483002	32	690	12/336
	I + N	1	483004	25	400	12/336
	I + N	2	483006	25	400	6/168
	2	2	483008	25	400	6/168
	3	3	483010	25	400	4/112
	3 + N	3	483012	25	400	4/112
	3 + N	4	483014	25	400	3/84
	4	4	483016	25	400	3/84
10x38	I	1	483030	32	690	12/336
	N	1	483002	32	690	12/336
	I + N	1	483034	32	500	12/336
	I + N	2	483036	32	690	6/168
	2	2	483038	32	690	6/168
	3	3	483040	32	690	4/112
	3 + N	3	483042	32	500	4/112
	3 + N	4	483044	32	690	3/84
	4	4	483046	32	690	3/84



483004



483002

PMC ACCESSORIES

SIZE	REFERENCE	PACKING
8x31 10x38	483050	PINS FOR MULTIPOLE ASSEMBLY 12
8x31 10x38	483052	HANDLE TIES FOR MULTIPOLE ASSEMBLY 12



483052

CC CLASS INDUSTRIAL MODULAR FUSE HOLDERS

SIZE	POLES	REFERENCE		I _n	U	PACKING
		WITHOUT indicator	WITH indicator	(A)	(V)	
CC CLASS	I	460008 	460008 I 	30	600	12
	II	460009 	460009 I 	30	600	12
	III	460010 	460010 I 	30	600	12



460009

SC SCREWING FIXING FUSE HOLDERS

SIZE	POLES	MODULES	REFERENCE	I _n	U	PACKING
		17,5 mm		(A)	(V)	
8x31	I	1	451025	25	400	12
	N	1	451025 N	25	400	12
10x38	I	1	451032	32	500	12
	N	1	451032 N	32	500	12
14x51	I	1	451050	50	690	12
	N	1	451050 N	50	690	12
22x58	I	1	451100	100	690	6
	N	1	451100 N	100	690	6



451032

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

IEC 60947-3
EN 60947-3

TECHNICAL DATA

99

PMC FUSE HOLDERS ASSEMBLY

100

DIMENSIONS

104

USE OF RAPIDPLUS FUSES IN MODULAR FUSE HOLDERS

177

97

Open bases for cylindrical fuses. The bases BAC for cylindrical fuses are particularly suitable for semiconductor fuses with high power dissipation and therefore needed to be mounted on open bases to facilitate the heat dissipation. Fixation on panel by screw. Made of thermosetting self extinguishing material.

BAC FUSE HOLDERS

SIZE	REFERENCE	I _n (A)	U (V)	PACKING
10x38	451210	32	690	20/300



451210

14x51	451220	50	690	10/240
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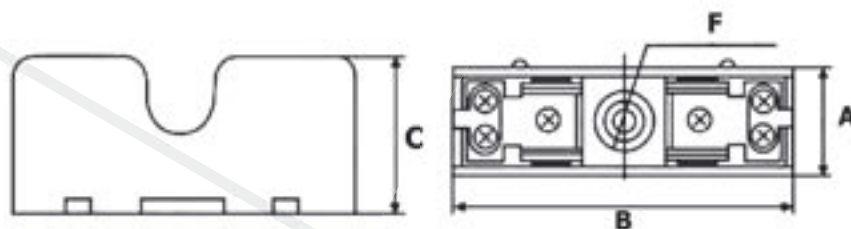
451220

22x58	451230	100	690	10/120
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451230

DIMENSIONS - BAC FUSE HOLDERS



SIZE	A	B	C	ØF
10x38	24	81	35	4
14x51	30	91	37	5
22x58	37	108	48	6

NORMAS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

FUSE HOLDERS

INDUSTRIAL MODULAR FUSE HOLDERS

TECHNICAL DATA
PMF - PMC - PMX



PMF

PMC

PMX

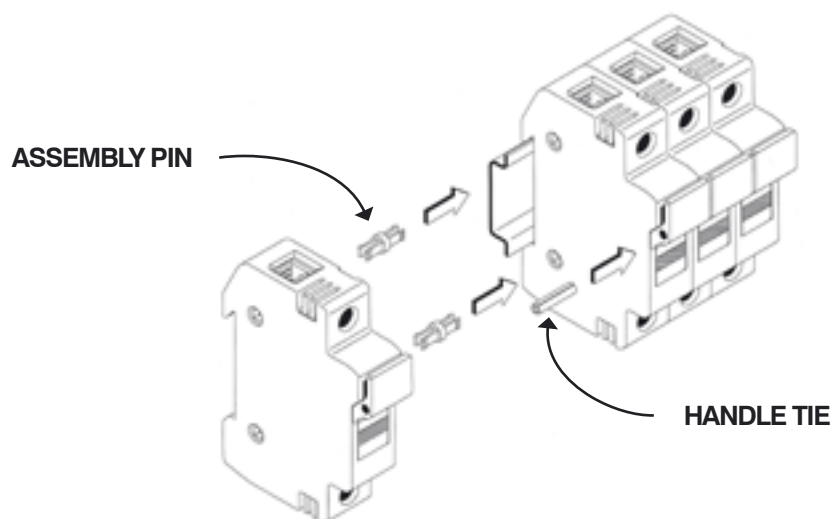
INDUSTRIAL MODULAR FUSE HOLDERS "CYLINDRICAL"										
TECHNICAL DATA	PMF 8x31	PMF 10x38	PMCC	PMF 14x51	PMF 22x58	PMC 8x31	PMC 10x38	PMC 14	PMC 22	
	25	32	30	50	125	25	32	50	125	
RATED CURRENT (A)	400	690	600	690	690	400	690	690	690	
RATED VOLTAGE (V)	3 W	3 W	3 W	5 W	9,5 W	3 W	3 W	5 W	9,5 W	
RATED POWER DISSIPATION	AC-22B 400V AC-21B 690 V	AC-22B 500V AC-21B 690 V	AC-22B 500V AC-21B 690 V	AC-22B 500V AC-21B 690 V	AC-21B 690 V	AC-20	AC-20	AC-22B 500V AC-21B 690 V	AC-22B 500V AC-21B 690 V	
UTILIZATION CATEGORY	IP-20	IP-20	IP-20	IP-20	IP-20	IP-20	IP-20	IP-20	IP-20	
PROTECTION DEGREE	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	-20 - 70 °C	
OPERATING TEMPERATURE	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	-40 - 80 °C	
STORAGE TEMPERATURE	1	1	1	1	1	1	1	1	1	
DERATING TEMPERATURE	20 °C	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	
	30 °C	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	
	40 °C	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	
	50 °C	1	1	1	1	1	1	1	1	
DERATING Nº OF POLES	1 - 3	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	
	4 - 6	0,7	0,7	0,7	0,7	0,7	0,7	0,7	0,7	
	7 - 9	0,6	0,6	0,6	0,6	0,6	0,6	0,6	0,6	
	> 10	•	•	•	•	•	•	•	•	
FIXING	RAIL DIN / EN	•	•	•	•	•	•	•	•	
	SCREW	—	—	•	•	—	—	—	—	
MAX. CONNECTING WIRE	1 x 16 mm² STRANDED 1 x 25 mm² SOLID	1 x 16 mm² STRANDED 1 x 25 mm² SOLID	1 x 16 mm² STRANDED 1 x 25 mm² SOLID	1 x 25 mm² STRANDED 1 x 35 mm² SOLID	1 x 50 mm²	1 x 10 mm² STRANDED 1 x 16 mm² SOLID	1 x 10 mm² STRANDED 1 x 16 mm² SOLID	1 x 25 mm² STRANDED 1 x 35 mm² SOLID	1 x 35 mm² STRANDED 1 x 50 mm² SOLID	
	1 x 10 mm² STRANDED (1P+N 1M) 1 x 16 mm² SOLID (1P+N 1M)	120/690V AC 24V DC	120/690V AC 24V DC	230/690V AC	230/690V AC	—	—	230/690V AC	24 VDC 60 VDC	
WITH LIGHTNING INDICATOR	25 Nm 2 Nm (1P+N 1M)	25 Nm 2 Nm (1P+N 1M)	25 Nm	3 Nm	4 Nm	2 Nm	2 Nm	3 Nm	4 Nm	
MAX. TIGHTENING TORQUE	—	—	—	•	—	—	—	•	•	
WITH MICROSWITCH SA-250V	—	—	—	•	•	—	—	•	•	
MULTIPOLAR UNION WITH ACCESSORIES	•	•	•	•	—	•	•	•	•	
LABEL HOLDER	—	—	—	—	—	—	—	•	•	
LOCKING ACCESSORIES	—	—	—	—	—	—	—	•	•	

STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 IEC 60947-3
EN 60269-1
EN 60269-2

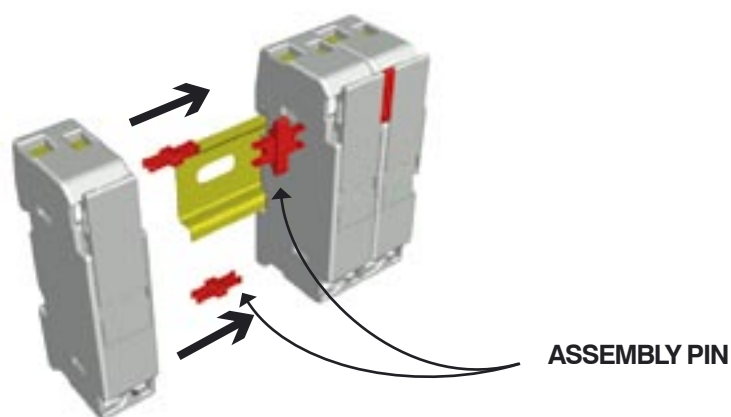
PMF/PMCC/PMX FUSE HOLDERS ASSEMBLY

PMF(8x31 | 10x38 | 14x51), PMCC & PMX FUSE HOLDERS MULTI-POLE ASSEMBLY



PMC FUSE HOLDERS ASSEMBLY

PMC FUSE HOLDERS MULTI-POLE ASSEMBLY



For multipole assemblies of fuse holders are necessary several accessories.

Examples:

A bipolar PMF or PMC fuse holder: 2 assembly pins and 1 handle tie.

A three-pole PMF or PMC fuse holder: 4 assembly pins and 2 handle tie.

STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

FUSE HOLDERS

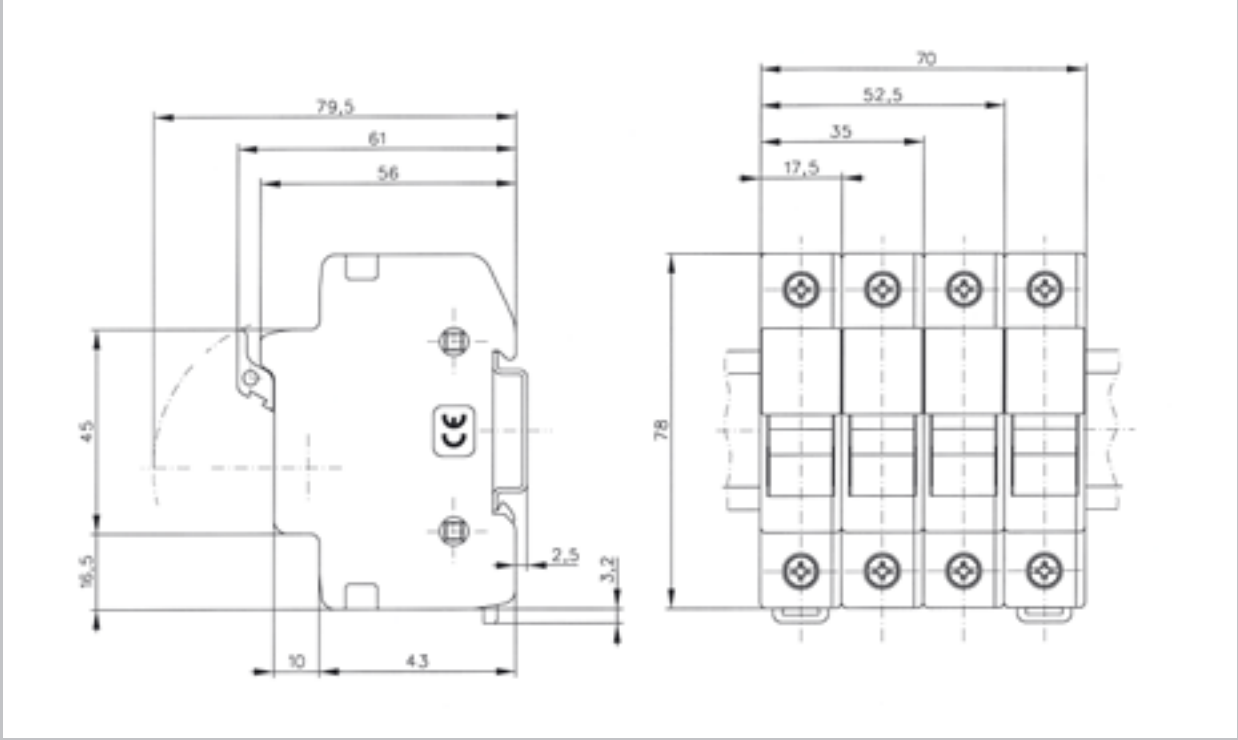
INDUSTRIAL MODULAR FUSE HOLDERS

DIMENSIONS - PMF/PMCC FUSE HOLDERS

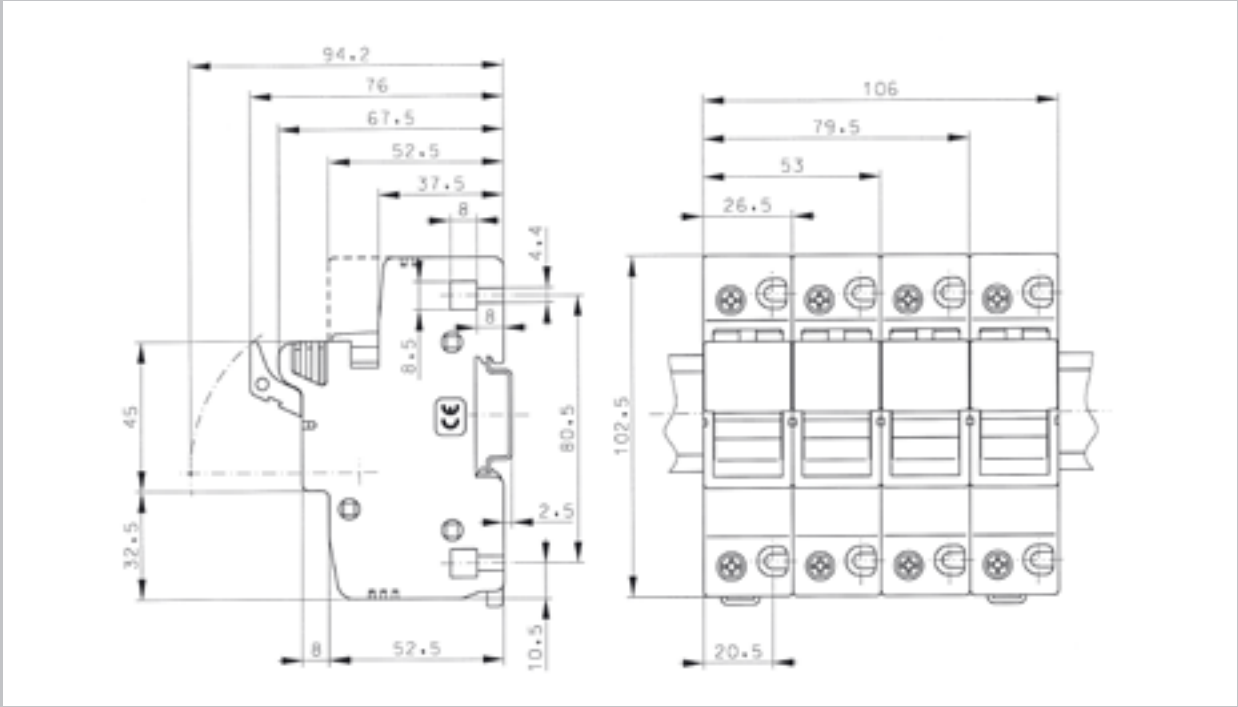


PMF CC

DIMENSIONS - PMF(8x31 | 10x38) & PMCC FUSE HOLDERS



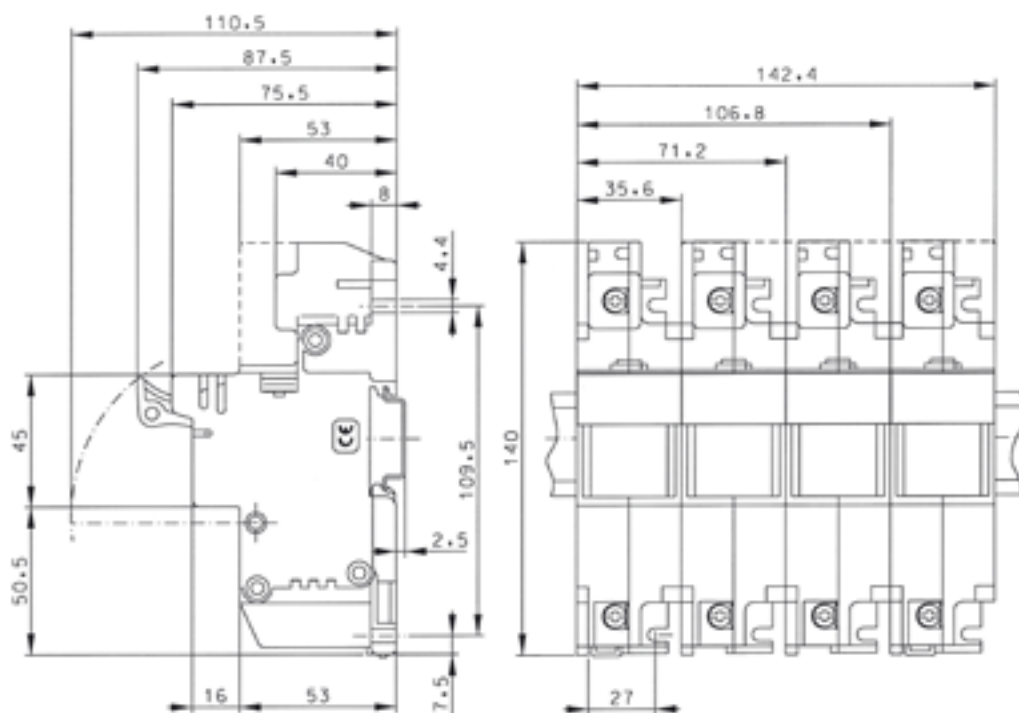
DIMENSIONS - PMF 14x51 FUSE HOLDERS



STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

DIMENSIONS - PMF 22x58 FUSE HOLDERS



STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

FUSE HOLDERS

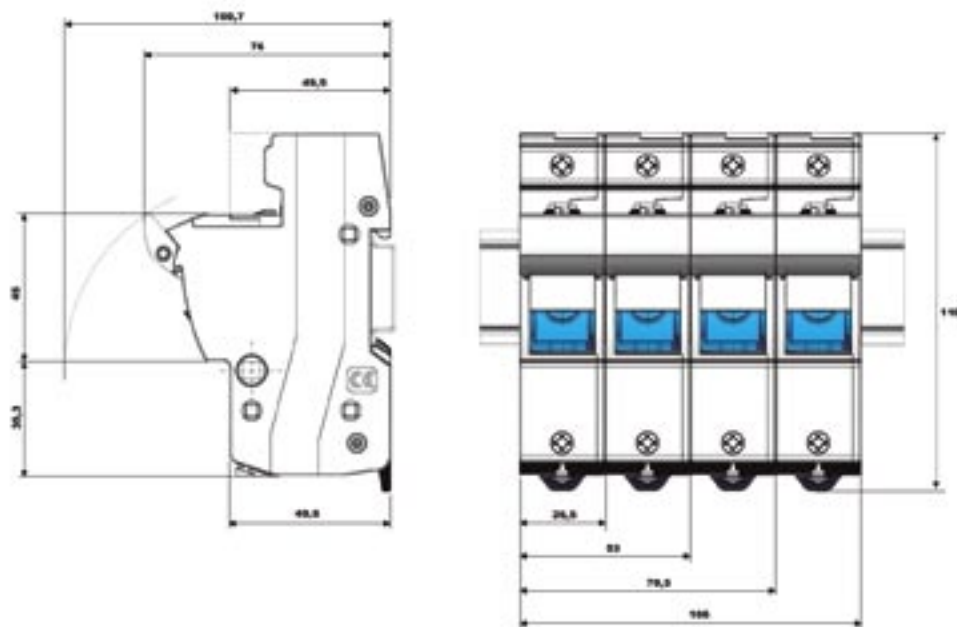
INDUSTRIAL MODULAR FUSE HOLDERS

DIMENSIONS - PMX FUSE HOLDERS



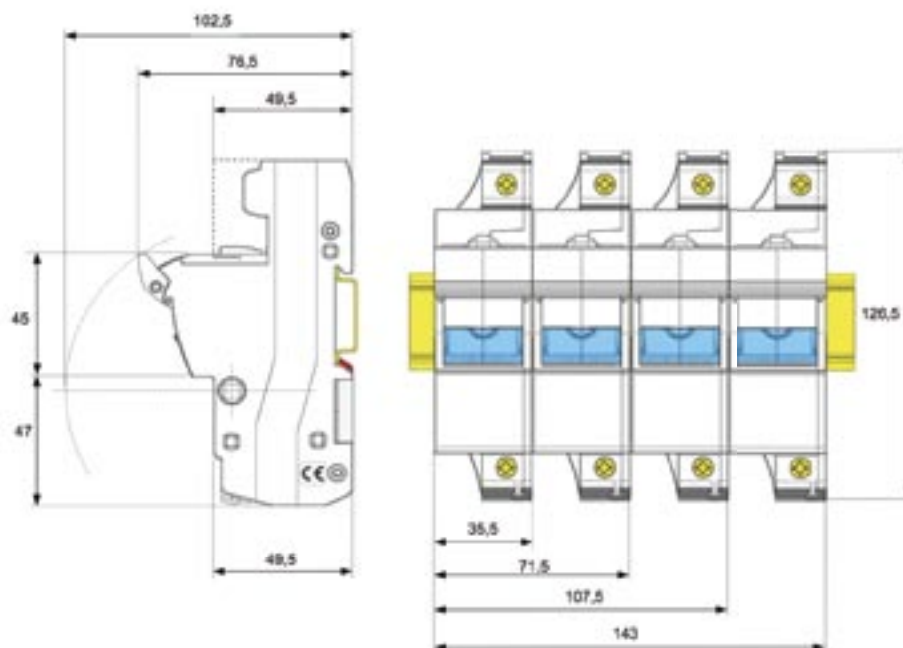
PMX

DIMENSIONS - PMX 14x51 FUSE HOLDER



FUSE HOLDERS AND BASES

DIMENSIONS - PMX 22x58 FUSE HOLDER



STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

FUSE HOLDERS

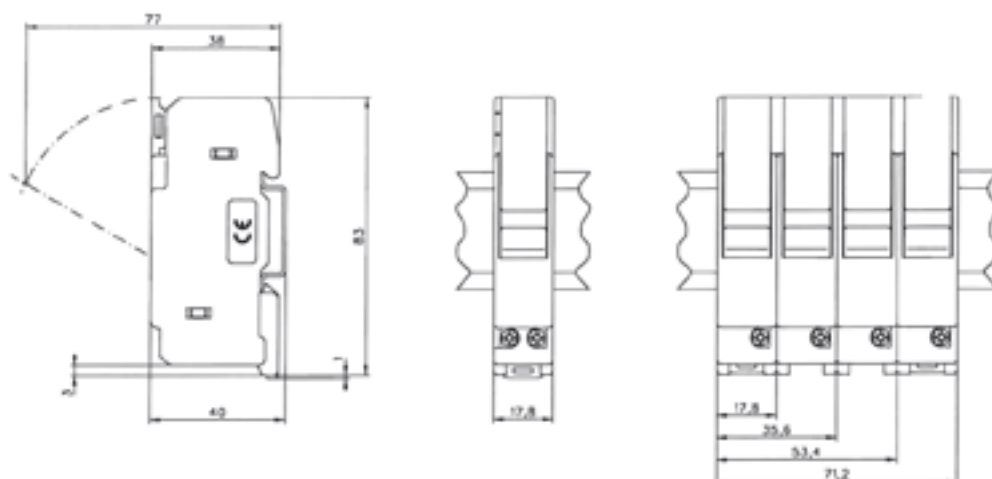
INDUSTRIAL MODULAR FUSE HOLDERS

DIMENSIONS - PMC/SC FUSE HOLDERS

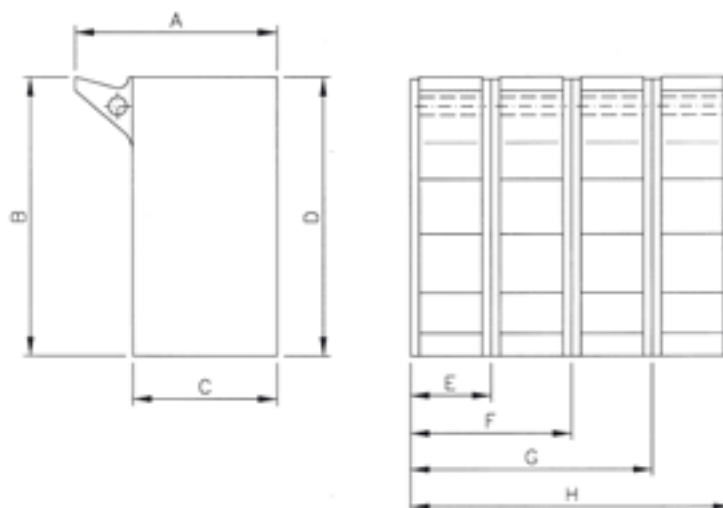
PMC

SC

DIMENSIONS - PMC FUSE HOLDERS



DIMENSIONS - SC FUSE HOLDERS



SIZE	A	B	C	D	E	F	G	H	I	ØJ	K
8,5x31	45	61	32	61	18	36	54	72	33,5	4,5	–
10x38	50	78	34	75	21	42	63	84	40,5	4,5	–
14x51	58	98	42	95	30	60	90	120	52	5	12
22x58	71	108	56	108	36	72	108	144	59	5,5	18

STANDARDS

IEC 60269-1 IEC 60947-3
IEC 60269-2 EN 60947-3
EN 60269-1
EN 60269-2

FUSE HOLDERS

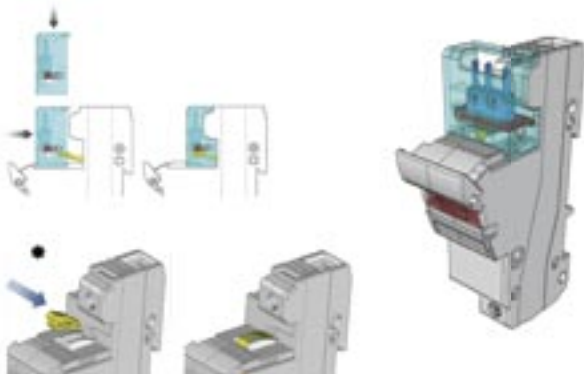
INDUSTRIAL MODULAR FUSE HOLDERS

PMX FUSE HOLDERS
MICROSWITCH MOUNTING - IDENTIFICATION BY LABEL
LOCKING MEANS A PADLOCK



PMX

MICROSWITCH MOUNTING - PMX FUSE HOLDERS



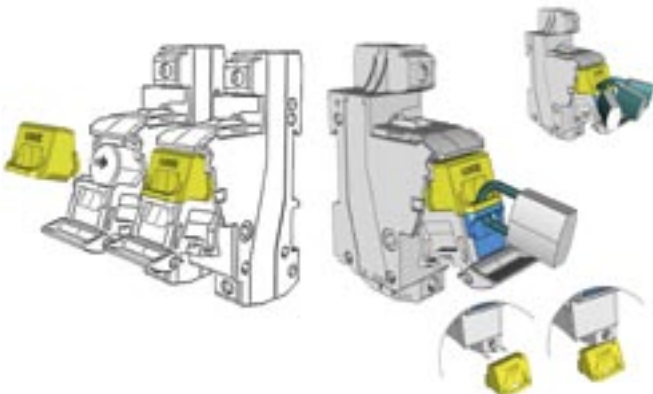
Put on the microswitch on the guides, and push in horizontal movement to the final position.
* For ONLY FUSION accessory, first mount the lifter in his place.

IDENTIFICATION BY LABEL - PMX FUSE HOLDERS



Open the label-holder part when the fuse holder is totally closed or totally open, put on the label and close.

LOCKING MEANS A PADLOCK - PMX FUSE HOLDERS



To avoid the operation and connection when the fuse holder is open, put on the accessory “Padlock support” sliding it for the guides, and covering the fuse link zone. (Is possible the use with or without fuse link) Introduce the fuse link through the simmetrical holes and close it.

FUSE BASES

NH FUSE BASES

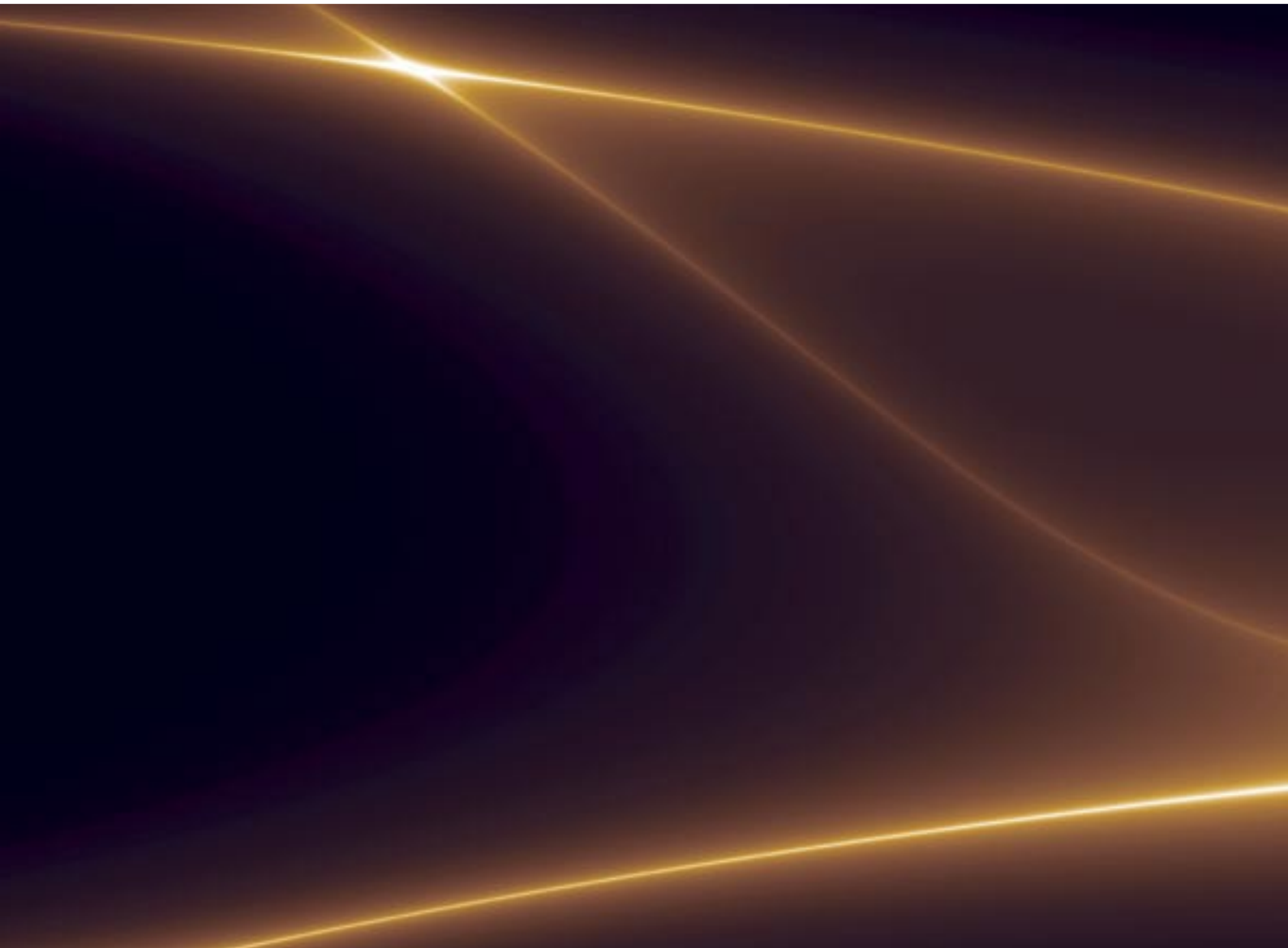
NH FUSE BASES

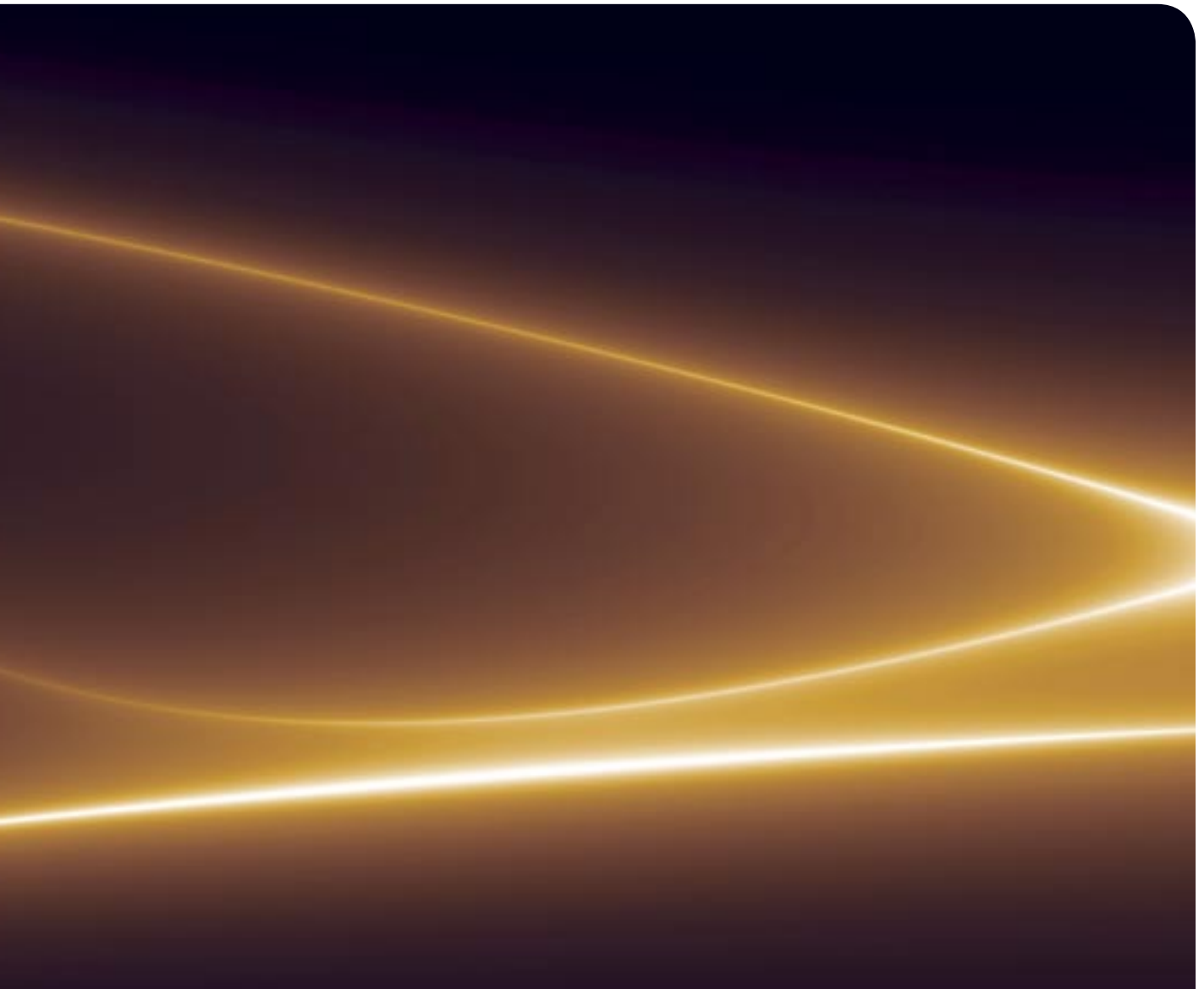
108-114

ST NH FUSE BASES 690V	108-109
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TECHNICAL DATA

115-121





Fuse bases for NH fuse links. For mounting on DIN/EN rail or with screw fixing. Single-phase or three-pole type. Connection by screws, fixed nut or clamps. Wide range of accessories (contact covers, fuse link covers, partition walls) that enables IP20 protection index. Multi-pole units can be made with connection accessories. NH ST fuse bases are made of self-extinguishable materials and have silver plated copper contacts. There are two contact styles, one of them with double spring in order to obtain an optimum operation. Manufactured according IEC, EN, VDE and DIN standards and have AENOR approval.

ST NH FUSE BASES 690V

SIZE	DESCRIPTION	REFERENCE	U	PACKING
			(V)	
NH00 160A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION	354100 	690	3
	CLAMP CONNECTION	354105	690	3
	CLAMP-SCREW CONNECTION	354110	690	3
	FIXED SCREW CONNECTION	354115	690	3
	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION	352100 	690	3
	CLAMP CONNECTION	352105	690	3
	CLAMP-SCREW CONNECTION	352110	690	3
	FIXED SCREW CONNECTION	352115	690	3
	THREE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION	353102	690	1
	CLAMP CONNECTION	353105	690	1
	CLAMP-SCREW CONNECTION	353110	690	1
	FIXED NUT CONNECTION	353115	690	1
	THREE POLE RAIL+SCREW FIXING WITH CONTACTS			
	SCREW CONNECTION	335120	690	1
	CLAMP CONNECTION	335125	690	1
	CLAMP-SCREW CONNECTION	335130	690	1
	FIXED NUT CONNECTION	335135	690	1
	THREE POLE RAIL+SCREW FIXING IP20 PROTECTION			
	SCREW CONNECTION	334717	690	1
	CLAMP CONNECTION	334720	690	1
	CLAMP-SCREW CONNECTION	334725	690	1
	FIXED NUT CONNECTION	334730	690	1
NH0 160A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	354160 	690	3
	SCREW CONNECTION - SQUARE CONTACT	321160	690	3
	CLAMP CONNECTION - SQUARE CONTACT	360010	690	3
	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	352160 	690	3
	SCREW CONNECTION - SQUARE CONTACT	321102	690	3
	THREE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	355160	690	1
	SCREW CONNECTION - SQUARE CONTACT	324160	690	1
	CLAMP CONNECTION - SQUARE CONTACT	360011	690	1
	THREE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	353160	690	1
	SCREW CONNECTION - SQUARE CONTACT	321104	690	1



353102



334717



352160



355160

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

ACCESSORIES ASSEMBLY SYSTEM

116

DIMENSIONS

117-118

TECHNICAL DATA

121

FUSE BASES

NH FUSE BASES

690V ST
690V ST WITH MICROSWITCH



ST NH FUSE BASES 690V

SIZE	DESCRIPTION	REFERENCE	U	PACKING
				(M)
NH1 250A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	354250	690	3
	SCREW CONNECTION - SQUARE CONTACT	354255	690	3
	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	352250	690	3
	THREE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	355250	690	1
	SCREW CONNECTION - SQUARE CONTACT	355255	690	1
	THREE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	353250	690	1
NH2 400A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	354400	690	3
	FIXED NUT CONNECTION - CLIP CONTACT	354251	690	3
	SCREW CONNECTION - SQUARE CONTACT	354405	690	3
	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	352400	690	3
	THREE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	355400	690	1
	SCREW CONNECTION - SQUARE CONTACT	355405	690	1
	THREE POLE FIJACION RAIL DIN			
	SCREW CONNECTION - CLIP CONTACT	353400	690	1
NH3 630A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	354630	690	3
	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	352630	690	3
	THREE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	355630	690	1
	THREE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	353630	690	1
NH4	SINGLE POLE SCREW FIXING 1000A			
	SCREW CONNECTION - CLIP CONTACT	354124	690	1
	SINGLE POLE SCREW FIXING 1250 A			
	SCREW CONNECTION - CLIP CONTACT	354125	690	1
	SINGLE POLE SCREW FIXING 2500A			
	ST NH4 FUSE BASE 2500A GROUP	354127	690	1



355255



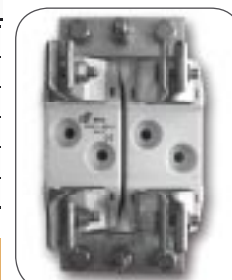
355400



352630



354125



354127



356250

FUSE HOLDERS AND BASES

ST NH FUSE BASES 690V WITH MICROSWITCH

SIZE	DESCRIPTION	REFERENCE	U	PACKING
				(M)
NH0 160A NH1 250A NH2 400A NH3 630A	SINGLE POLE RAIL+SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	356160	690	1
	SCREW CONNECTION - CLIP CONTACT	356250	690	1
	SCREW CONNECTION - CLIP CONTACT	356400	690	1
	SCREW CONNECTION - CLIP CONTACT	356630	690	1
NH4 1000A NH4 1250A	SINGLE POLE SCREW FIXING			
	SCREW CONNECTION - CLIP CONTACT	356100	690	1
	SCREW CONNECTION - CLIP CONTACT	356125	690	1

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

ACCESSORIES ASSEMBLY SYSTEM

116

DIMENSIONS

117-118

TECHNICAL DATA

121

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343125



325100



325009 325000



325010



325030



357250



357000

SIZE	In	REFERENCE	DESCRIPTION	PACKING
	(A)			

PARTITION WALLS

NH00	160	326100	SNAP-ON FIXING	2
NH0	160	326160	SNAP-ON FIXING	2
NH1 NH2	250/400	326250	SNAP-ON FIXING	2
NH3	630	326630	SNAP-ON FIXING	2
NH4	1250	343125	SQUARE FIXING	2

SEPARATORS

NH00	160	325100		2
NH0	160	325160		2
NH1 NH2	250/400	325250		2
NH3	630	325630		2

TERMINAL COVERS

NH00 SINGLE POLE	160	325000		6
NH00 THREE POLE INTEGRAL	160	325009	PARTITION WALLS INCORPORATED	1
NH0	160	325001		6
NH1	250	325002		6
NH2	400	325003		6
NH3	630	325007		6

FUSE LINKS COVERS

NH00	160	325010		3
NH0	160	325015		3
NH1 NH2	250/400	325020		3
NH3	630	325025		3

IP20 PROTECTION KITS

NH00 SINGLE POLE		325030		1
NH00 THREE POLE		325032		1
NH0 THREE POLE		325036		1
NH1 THREE POLE		325041		1
NH2 THREE POLE		325046		1
NH3 THREE POLE		325051		1

MICROSWITCHES FOR NH FUSE BASES

NH0	160	357160	16A-250V PRESENCE / FUSION	1
NH1	250	357250	16A-250V PRESENCE / FUSION	1
NH2	400	357400	16A-250V PRESENCE / FUSION	1
NH3	630	357630	16A-250V PRESENCE / FUSION	1

MICROSWITCHES FOR NH FUSE LINKS

CLASS 1		357000	ONLY DUAL INDICATOR FUSES (NH000/00/0/C1/1/2/3)	1/100
CLASS 2		357001	ONLY DUAL INDICATOR FUSES (NHC2/NHC3)	1/100

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

ACCESSORIES ASSEMBLY SYSTEM

116

110

FUSE BASES

NH FUSE BASES

690V CR
PARTITION WALLS FOR CR FUSE BASES



Fuse bases for NH fuse links with striker. For screw fixing. Single-phase or three-pole type. Connection by screws. NH CR fuse bases are made of ceramics and have silver plated copper contacts. There are two contact styles, one of them with double spring in order to obtain an optimum operation. Manufactured according IEC, EN, VDE and DIN standards.

CR NH FUSE BASES 690V

SIZE	DESCRIPTION	REFERENCE	U	PACKING
			(V)	
NH00	SINGLE POLE			
	SCREW CONNECTION - CLIP CONTACT	350100	690	3
	THREE POLE			
	SCREW CONNECTION - CLIP CONTACT	351100	690	1
NH0	SINGLE POLE			
	SCREW CONNECTION - CLIP CONTACT	350160	690	3
	SCREW CONNECTION - SQUARE CONTACT	320160	690	3
	THREE POLE			
	SCREW CONNECTION - CLIP CONTACT	351160	690	1
	SCREW CONNECTION - SQUARE CONTACT	323160	690	1
NH1	SINGLE POLE			
	SCREW CONNECTION - CLIP CONTACT	350250	690	3
	SCREW CONNECTION - SQUARE CONTACT	320250	690	3
	THREE POLE			
	SCREW CONNECTION - CLIP CONTACT	351250	690	1
	SCREW CONNECTION - SQUARE CONTACT	323250	690	1
NH2	SINGLE POLE			
	SCREW CONNECTION - CLIP CONTACT	350400	690	3
	SCREW CONNECTION - SQUARE CONTACT	320400	690	3
	THREE POLE			
	SCREW CONNECTION - CLIP CONTACT	351400	690	1
	SCREW CONNECTION - SQUARE CONTACT	323400	690	1
NH3	SINGLE POLE			
	SCREW CONNECTION - CLIP CONTACT	350630	690	3
	THREE POLE			
	SCREW CONNECTION - CLIP CONTACT	351630	690	1



350100



320160



351400

PARTITION WALLS FOR CR FUSES BASES

SIZE	In	REFERENCE	DESCRIPTION	PACKING
		(A)		
NH00	160	326100	SNAP-ON FIXING	2
NH0	160	326102	SNAP-ON FIXING	2
NH1 NH2	250/400	326250	SNAP-ON FIXING	2
NH3	630	326630	SNAP-ON FIXING	2
NH00	160	342100	SCREW FIXING	2
NH0	160	342160	SCREW FIXING	2
NH1 NH2	250/400	342250	SCREW FIXING	2
NH3	630	342630	SCREW FIXING	2



326100



342100

STANDARDS
IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2
VDE 0636
DIN 43620

DIMENSIONS

120

TECHNICAL DATA

121

111

FUSE HOLDERS AND BASES

FUSE BASES

NH FUSE BASES

ACCESSORIES



450125



340125



340001



343100



344100

NEUTRAL LINKS

SIZE	I _n (A)	REFERENCE	PACKING
NH00	160	341100	3
NH0	160	341160	3
NH1	250	341250	3
NH2	400	341400	3
NH3	630	341630	3
NH4	1250	340125	1

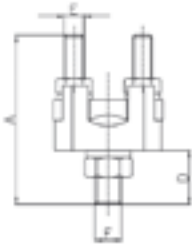
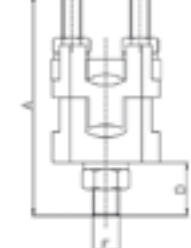
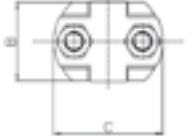
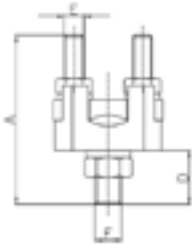
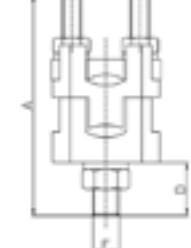
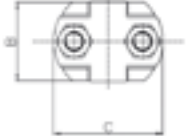
REPLACEMENT HANDLE

SIZE	REFERENCE	PACKING
00 0 1 2 3 4	340001	5

TERMINALS

SIZE	CROSS SECTION (mm ²) MAX/min	REFERENCE	DESCRIPTION	PACKING
00	50/6	343100	1 CABLE	3
00 0	95/10	343160	1 CABLE	3
1	150/16	343400	1 CABLE	3
2 3	240/50	343630	1 CABLE	3
00	50/6	344100	2 CABLES	3
00 0	95/10	344160	2 CABLES	3
1	150/25-16	344400	2 CABLES	3
2 3	240/95-50	344630	2 CABLES	3

DIMENSIONS - TERMINALS

	REFERENCE					
	A	B	C	D	E	F
	40	18	25	12	M5	M6
	51	24	33	16	M6	M8
	58	26	41	18	M8	M10
	68	36	52	21	M10	M12
	50	18	25	12	M5	M6
	72	24	33	16	M6	M8
	84	26	41	17	M8	M10
	110	36	52	21	M10	M12

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

FUSE BASES

NH FUSE BASES

NH SECTIONABLE NEUTRAL BASES



Neutral bases for mounting on DIN/EN rail or with screw fixing. Connection by screws or clamps. NH00 and NH0 can be mounted in NH ST fuse bases with connection accessories. Made of self-extinguishable materials and have silver plated copper contacts.

NH SECTIONABLE NEUTRAL BASES

CONNECTION	SIZE	I_n (A)	REFERENCE	U (V)	POLES	PACKING
SCREW/SCREW	NH00	160	334103	690	1P	3
	NH0	250	334160	690	1P	3
	NH1/NH2/NH3	630	334251	690	1P	3

CLAMP/SCREW	NH00	160	334101	690	1P	3
	NH0	250	334161	690	1P	3

CLAMP/CLAMP	NH00	160	334102	690	1P	3
	NH0	250	334162	690	1P	3



334103



334101



334102

FUSE HOLDERS AND BASES

FUSE BASES

NH FUSE BASES

BS FUSE SWITCH DISCONNECTORS



Three-phase fuse switch disconnectors for NH fuse-links.

Available from size 000 to size 3 for board fixing and a model size 00 for mounting on 60 mm busbar system.

They provide IP20 protection against contacts and are manufactured in self-extinguishable materials.

NH TRHREE-POLE 690V AC FUSE SWITCH DISCONNECTORS

SIZE	DESCRIPTION	REFERENCE	U (V)	PACKING
NH000 100A	FUSE SWITCH DISCONNECTOR DIRECT CONNECTION	335005	690	1
NH00 160A	FUSE SWITCH DISCONNECTOR M8 SCREW CONNECTION	335025	690	1
	FUSE SWITCH DISCONNECTOR Cu4-70mm ² CLAMP CONNECTION	335026	690	1
NH00 160A	FUSE SWITCH DISCONNECTOR 60mm BUSBAR CONNECTION (Clamp or Screw for output connection)	335040	690	1
NH1 250A	FUSE SWITCH DISCONNECTOR M10 SCREW CONNECTION	335095	690	1
NH2 400A	FUSE SWITCH DISCONNECTOR M10 SCREW CONNECTION	335155	690	1
NH3 630A	FUSE SWITCH DISCONNECTOR M12 SCREW CONNECTION	335195	690	1



335005



335026



335040



335095

STANDARDS

IEC 60947
EN 60947

DIMENSIONS

115

114

FUSE BASES

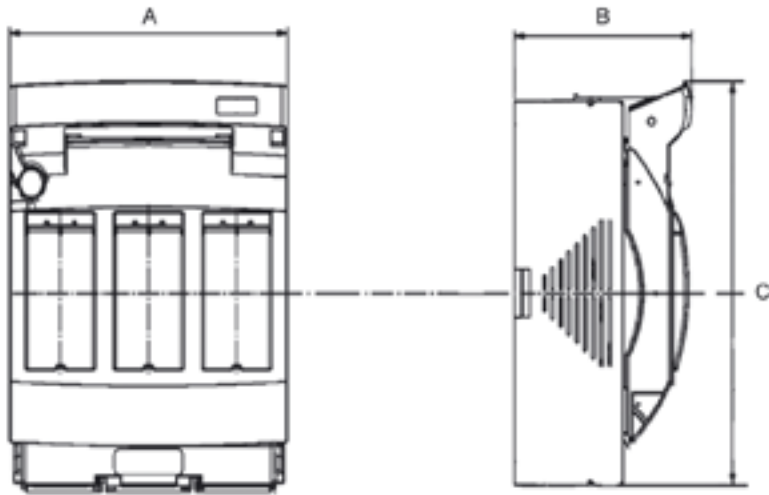
NH FUSE BASES

DIMENSIONS
TECHNICAL DATA



BS

DIMENSIONS - BS FUSE SWITCH DISCONNECTORS



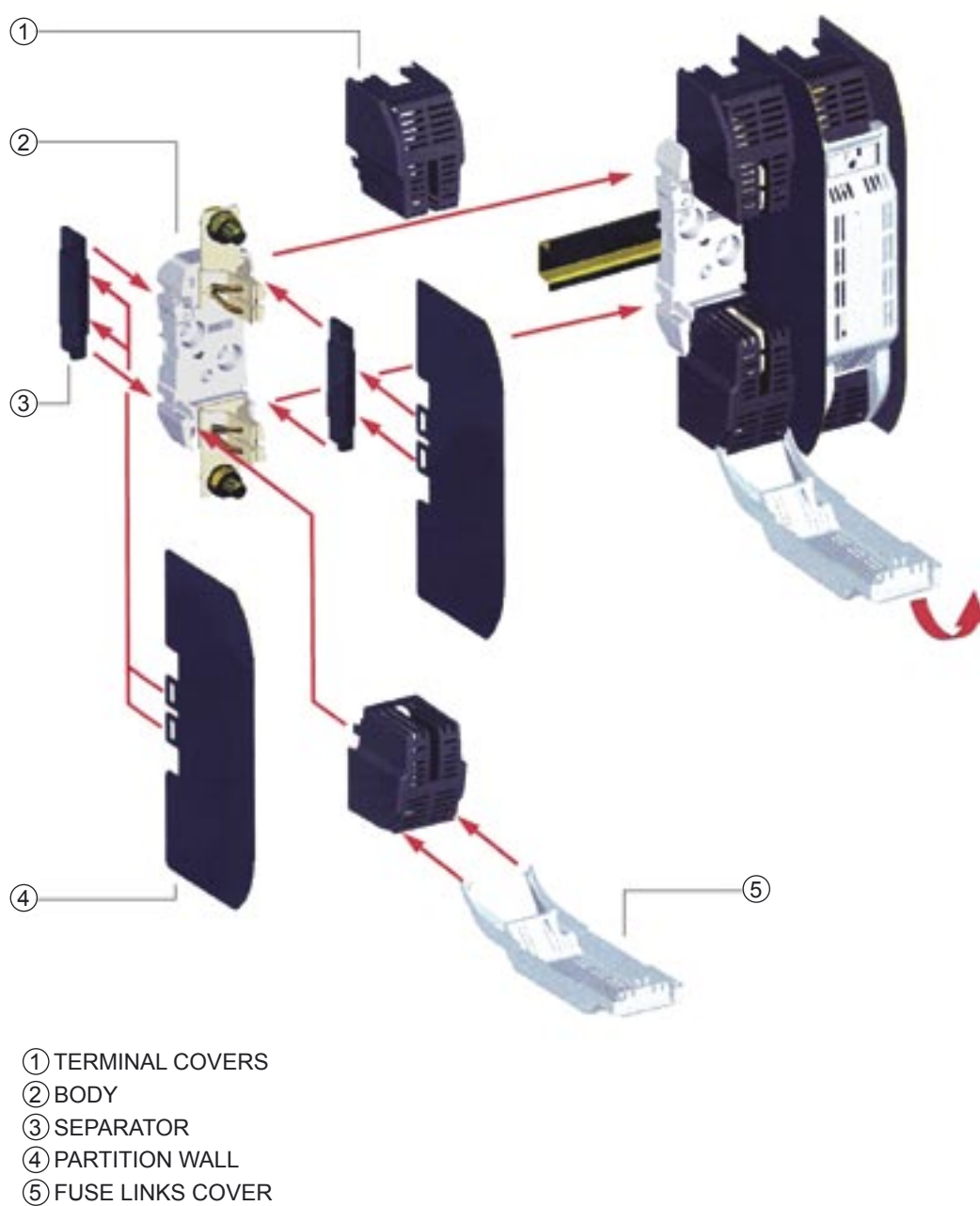
SIZE	A	B	C
000	89	74	146
00	108	84	184
00 (fij. BUSBARS)	108	99	184*
1	185	111	246
2	205	130	260
3	256	149	299

(*) 202 mm WITH SUPERIOR TERMINAL COVERS

TECHNICAL DATA - BS FUSE SWITCH DISCONNECTORS

Size	000	00	1	2	3
Rated current (I _{th})	100 A	160 A	250 A	400 A	630 A
Rated operational voltage (U _e)	690 V	690 V	690 V	690 V	690 V
Rated frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Maximum power dissipation of fuse link (P _n)	7,5 W	12 W	23 W	34 W	48 W
Rated insulation voltage (U _i)	690 V	1000 V	1000 V	1000 V	1000 V
Rated impulse withstand voltage (U _{imp})	6 kV	8 kV	12 kV	12 kV	12 kV
Pollution degree	3	3	3	3	3
Protection degree	IP20	IP20	IP20	IP20	IP20
Utilization categories	AC22B 400V 100A AC21B 690V 100A DC21B 440V 100A	AC23B 400V 160A AC22B 500V 160A AC21B 690V 125A DC22B 440V 160A	AC23B 400V 250A AC22B 500V 250A AC21B 690V 200A DC22B 220V 250A	AC23B 400V 400A AC22B 500V 400A AC21B 690V 315A DC21B 440V 400A	AC23B 400V 630A AC22B 500V 630A AC21B 690V 500A
Connection	DIRECT 1-50 mm ²	M8 SCREWS 4-70 mm ² CLAMPS 60 mm BUSBAR + 3 M8 Screws or 3 4-70 mm ² Clamps	M10 SCREWS	M10 SCREWS	M12 SCREWS
Short-circuit resistance with fuse-links	> 80 kA	> 80 kA 500V > 50 kA 690V	> 80 kA 500V > 50 kA 690V	> 80 kA	> 80 kA 500V > 50 kA 690V

ST NH FUSE BASES ACCESSORIES ASSEMBLY SYSTEM



FUSE BASES

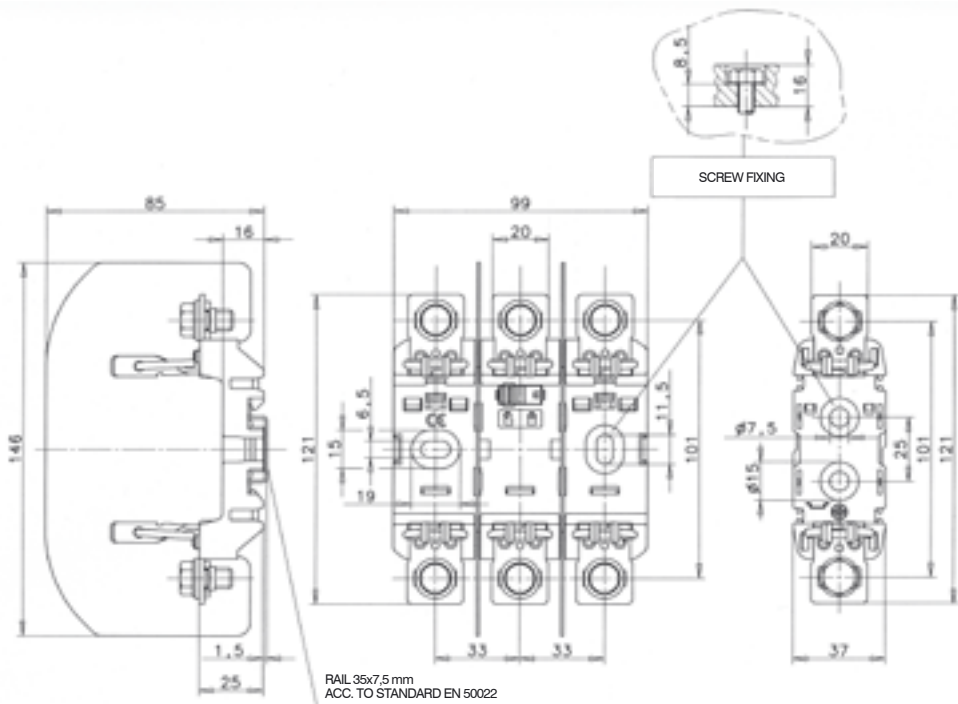
NH FUSE BASES

DIMENSIONS

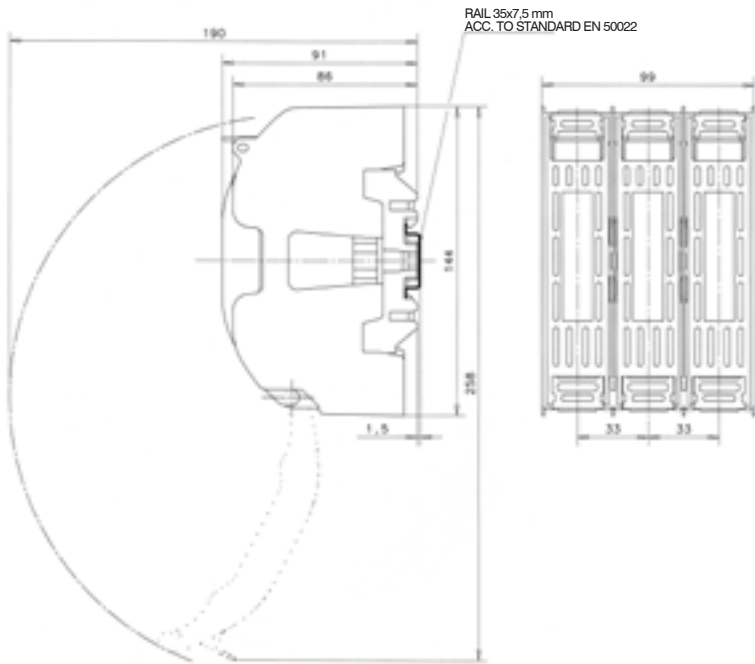


N ST

DIMENSIONS - ST SINGLE POLE / THREE POLE NH00 FUSE BASE



DIMENSIONS - ST THREE POLE IP20 NH00 FUSE BASE

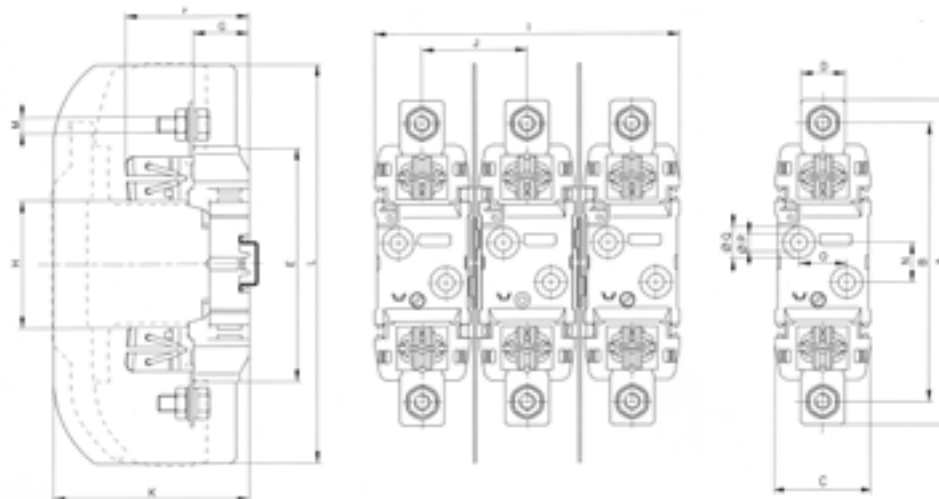


STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

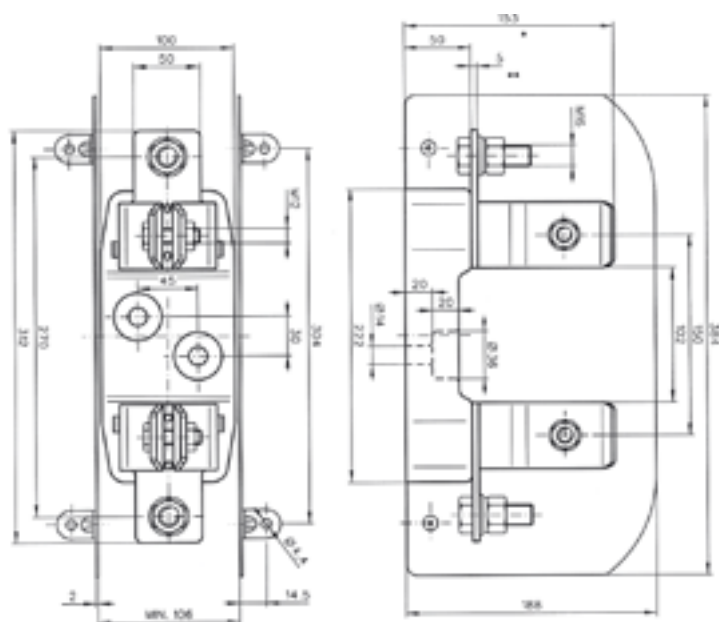
VDE 0636
DIN 43620

DIMENSIONS - NH0 | NH1 | NH2 | NH3 ST SINGLE POLE / THREE POLE FUSE BASE



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
NH0	170	150	47	24	122	63	29	74	144	48,5	91,5	185	M8	25	–	7,5	15
NH1	200	175	60	28	148	77,5	35	80	192	66	123	250	M10	25	30	10,5	20,5
NH2	225	200	60	32	148	88	35	80	192	66	123	250	M12	25	30	10,5	20,5
NH3	240	210	60	38	148	97	35	80	224	82	143	270	M12	25	30	10,5	20,5

DIMENSIONS - ST NH4 FUSE BASE



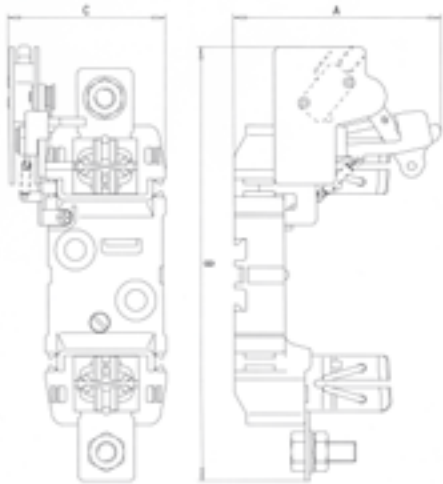
Dimensions version 1600 A: (*) 158 mm (**) 10 mm

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

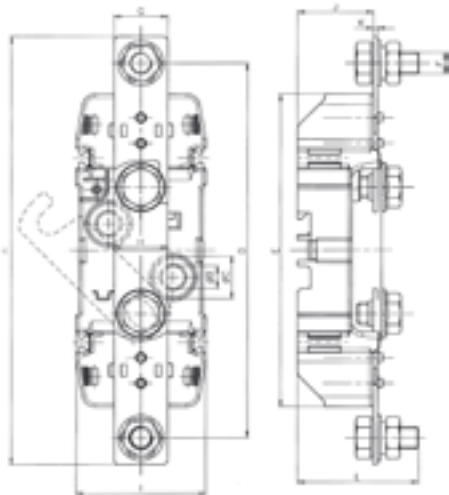
VDE 0636
DIN 43620

DIMENSIONS - ST NH0 | NH1 | NH2 | NH3 | NH4 FUSE BASE WITH MICROSWITCH



SIZE	A	B	C
NH0	90	193	65,5
NH1	98	215	76
NH2	102	227	76
NH3	102	235	76
NH4	140	284	113

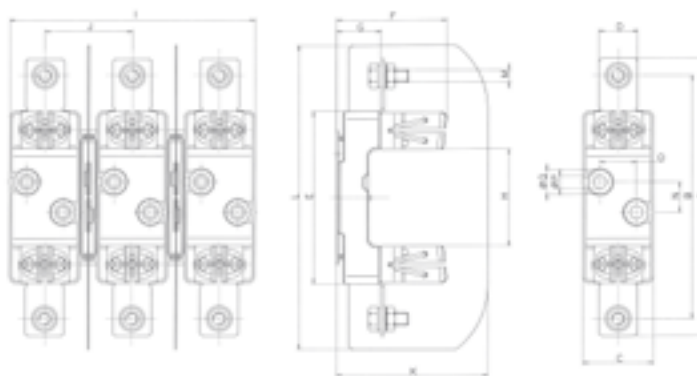
DIMENSIONS - NH00 | NH0 | NH1 | NH2 NH3 SECTIONABLE NEUTRAL FUSE BASE



SIZE	A	B	C	D	E	F	G	H	I	J	K	L
NH00	120,5	7,5	15	100	86	M8	20	0	37	23	2	43
NH0	170	7,5	15	150	122	M8	20	0	47	29	2	49
NH1/NH2/NH3	200	10,5	20	175	146	M10	25	30	60	35	2	60

DIMENSIONS - CR NH00 | NH0 | NH1 | NH2 NH3 SINGLE POLE / THREE POLE FUSE BASE

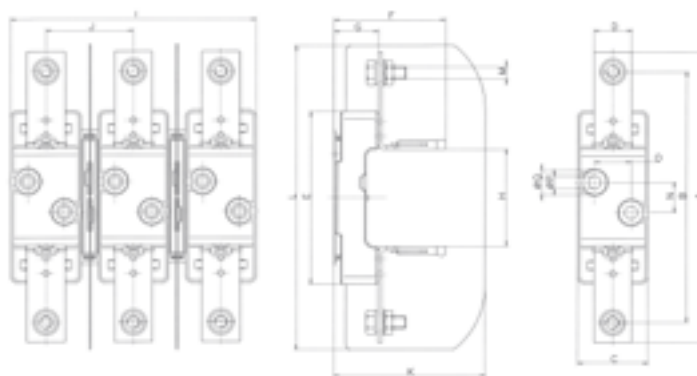
CLIP CONTACT



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
NH00	120,5	100	30	20	86	63,5	27	56,5	100	35	90	146	M8	25	–	7,5	15
NH0	170	150	30	24	130	71	37	74	127	48,5	98	185	M8	25	–	7,5	15
NH1	200	175	58	28	142	79,5	37	80	202	72	127	250	M10	25	30	10,5	20,5
NH2	225	200	58	32	142	91	37	80	202	72	127	250	M12	25	30	10,5	20,5
NH3	240	210	58	38	142	99	37	80	222	82	147	270	M12	25	30	10,5	20,5

DIMENSIONS - CR NH00 | NH0 | NH1 | NH2 NH3 SINGLE POLE / THREE POLE FUSE BASE

SQUARE CONTACT



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
NH00	119,5	100	30	20	86	56,5	27	56,5	100	35	90	146	M8	25	–	7,5	15
NH0	168	150	30	20	130	75	37	74	127	48,5	98	185	M8	25	–	7,5	15
NH1	201	175	58	27	142	80	37	80	202	72	127	250	M10	25	30	10,5	20,5
NH2	232	200	58	30	142	80	37	80	202	72	127	250	M12	25	30	10,5	20,5

STANDARDS

IEC 60269-1
IEC 60269-2
EN 60269-1
EN 60269-2

VDE 0636
DIN 43620

FUSE BASES

NH FUSE BASES

TECHNICAL DATA



ST

CR

NH FUSE BASES													
TECHNICAL DATA		ST FAMILY					CR FAMILY						
		NH00	NH0	NH1	NH2	NH3	NH4	NH00	NH0	NH1	NH2	NH3	
BODY		POLYAMIDE +25% F.V. UL94-V0					UP THERMOSETTING	ESTEATITE KER-221					
CONTACTS		SILVER PLATING COVER					SILVER PLATING COVER						
SCREW, NUT AND WASHERS		STEEL QUALITY 8,8					STEEL QUALITY 8,8						
DERATING TEMPERATURE	20 °C	1	1	1	1	1	1	1	1	1	1	1	
	30 °C	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	0,95	
	40 °C	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	
	50 °C	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	
MAX. POWER DISIPATION		12 W		25 W	32 W	45 W	60 W	90 W	12 W	25 W	32 W	45 W	60 W
DEGREE OF PROTECTION		IP00//IP20		IP00//IP20		IP00//IP20		IP00	IP00	IP00	IP00	IP00	IP00
CONNECTING	SCREW	M8	M8		M10	M12	M12	M16	M8	M10		M12	M12
	CLAMP	2 x M6							2 x M6				
MAX. TIGHTENING TORQUE	SCREW	10 Nm		32 Nm		32 Nm		56 Nm		10 Nm		32 Nm	
	CLAMP	4 Nm										32 Nm	
FIXING	RAIL DIN	●	●	●	●	●	●	—	—	—	—	—	—
	SCREW	●	●	●	●	●	●	●	●	●	●	●	●
WITH MICROSWITCH 16A 250V		—		●	●	●	●	●	—	—	—	—	—
FUNCTION TEMPERATURE		-20 - 70 °C		-20 - 70 °C		-20 - 70 °C		-20 - 70 °C		-20 - 70 °C		-20 - 70 °C	
STORAGE TEMPERATURE		-40 - 80 °C		-40 - 80 °C		-40 - 80 °C		-40 - 80 °C		-40 - 80 °C		-40 - 80 °C	

FUSE HOLDERS

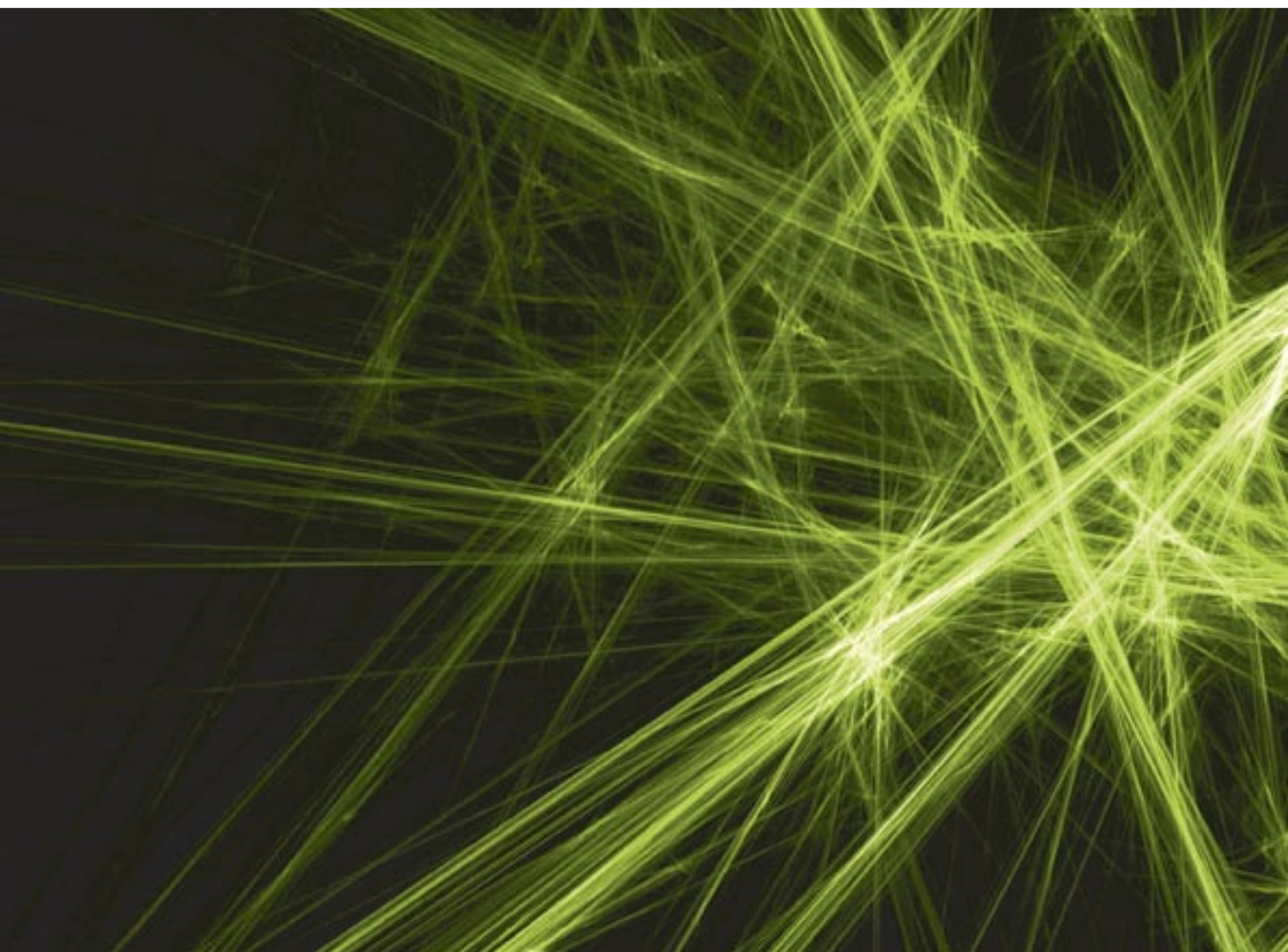
DOMESTIC FUSE HOLDERS

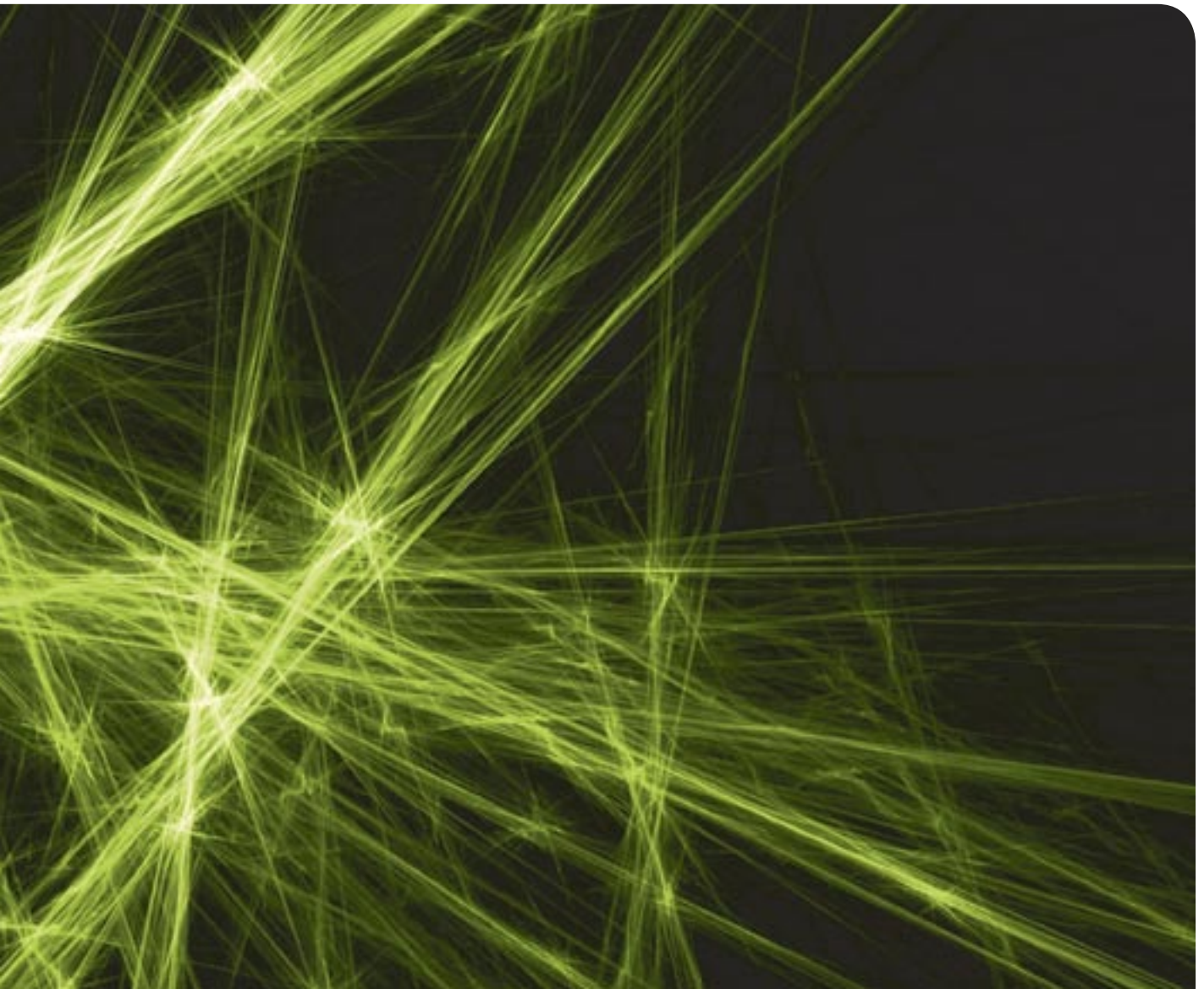
DOMESTIC FUSE HOLDERS

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TECHNICAL DATA

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FUSE HOLDERS

DOMESTIC FUSE HOLDERS

FRENCH STANDARD

SINGLE-PHASE | SINGLE-PHASE + NEUTRAL | SINGLE-PHASE + 2A NEUTRAL

NF

PMD



470023 470023 I

DOMESTIC SINGLE-PHASE FUSE HOLDERS

SIZE	REFERENCE		MODULES	I _n	U	PACKING
	WITHOUT indicator	WITH indicator	17,5 mm	(A)	(V)	
8x23	470023 NF	470023 I NF	1	10	230	12
10x25	470025 NF	470025 I NF	1	16	230	12
8x31	470031 NF	470031 I NF	1	20	400	12
10x31	470035 NF	470035 I NF	1	25	400	12
10x38	470038 NF	470038 I NF	1	32	400	12
N	480032N	–	1	32	690	12



470235 470235 I

DOMESTIC SINGLE-PHASE + NEUTRAL FUSE HOLDERS

SIZE	REFERENCE		MODULES	I _n	U	PACKING
	WITHOUT indicator	WITH indicator	17,5 mm	(A)	(V)	
8x23	470223 NF	470223 I NF	1	10	230	12
10x25	470225 NF	470225 I NF	1	16	230	12
8x31	470231 NF	470231 I NF	1	20	400	12
10x31	470235 NF	470235 I NF	1	25	400	12
10x38	470238 NF	470238 I NF	1	32	400	12



470235

DOMESTIC 2A SINGLE-PHASE + NEUTRAL FUSE HOLDERS

SIZE	REFERENCE	MODULES	I _n	U	PACKING
	WITH indicator	17,5 mm	(A)	(V)	
8x31	470032	1	2	400	12

STANDARDS

IEC 60269-1
IEC 60269-3
IEC 60269-3-1
EN 60269-1

DIMENSIONS

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FUSE HOLDERS

DOMESTIC FUSE HOLDERS

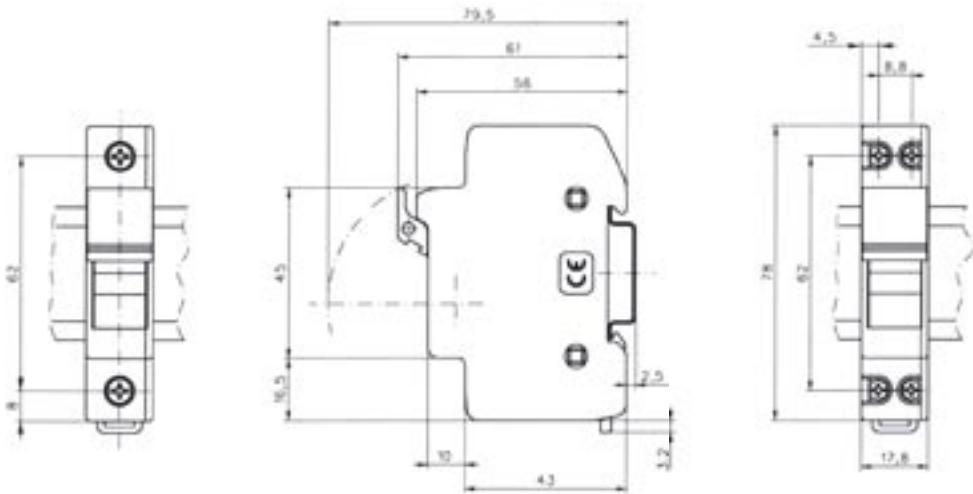
FRENCH STANDARD
DIMENSIONS



NF

PMD

DIMENSIONS - PMD DOMESTIC FUSE HOLDERS



FUSE HOLDERS AND BASES

FUSE HOLDERS

D FUSE HOLDERS

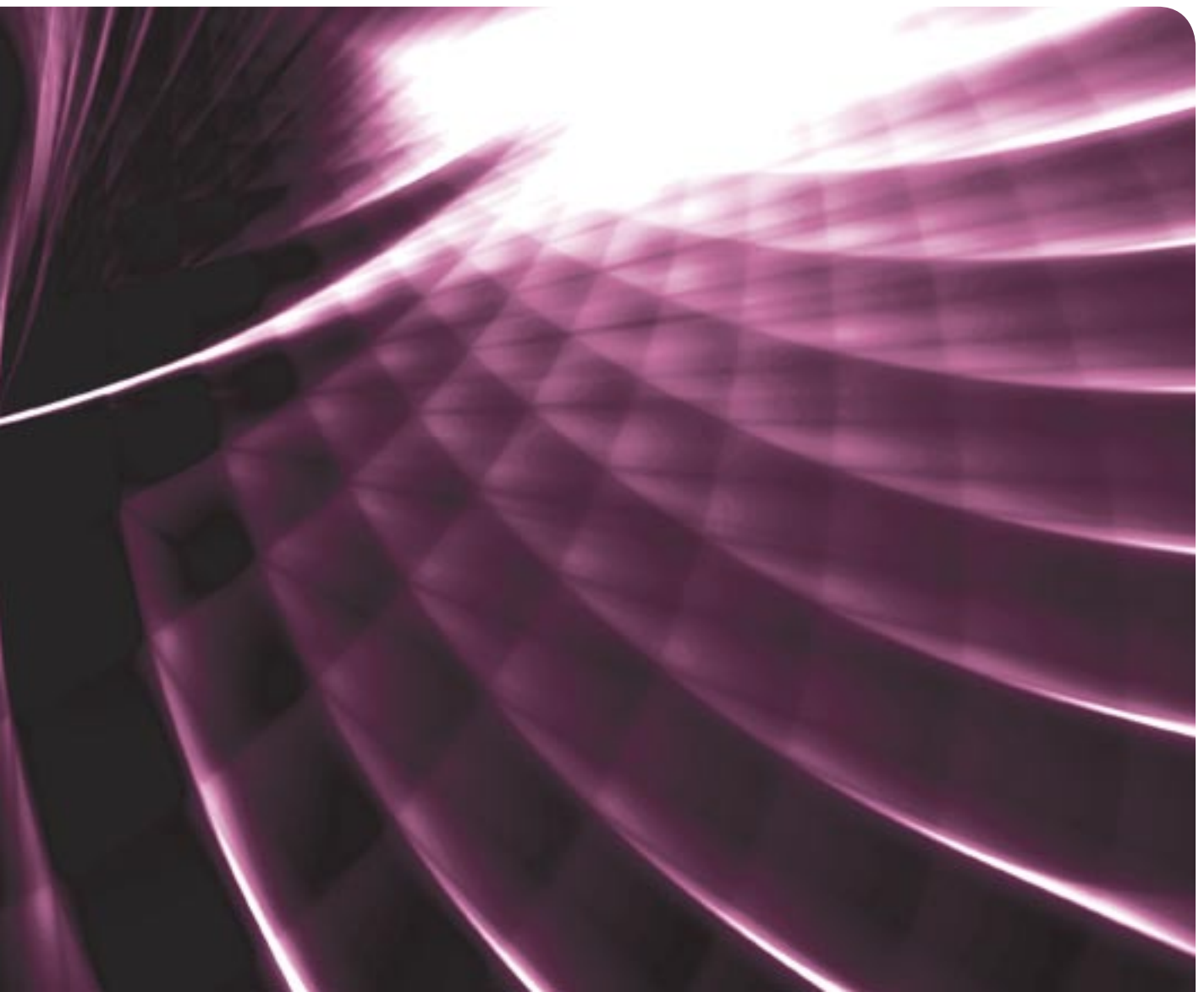
D FUSE HOLDERS AND ACCESSORIES

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TECHNICAL DATA

129-131





D FUSE HOLDERS

D FUSE HOLDERS
SCREW CAPS
SCREW ADAPTERS

gL/gG

Fuse bases for D type fuse links. For mounting on DIN/EN rail or with screw fixing. The required non-interchangeability is ensured for fuse links above 6A by the adapter screws. This feature ensures that fuse links with a higher rated current than specified cannot be inserted. Manufactured according IEC, EN and VDE standards, with ceramic body and copper or brass contacts.



111025

D FUSE HOLDERS

SIZE	I _n	REFERENCE	U	MOUNTING TYPE	THREAD	CONNECTION TYPE	PACKING
	(A)		(V)				
D II	25	111025	500	SCREW	E 27	SCREW/SCREW	10
	25	112025	500	RAIL	E 27	SCREW/SCREW	10
D III	63	111063	500	SCREW	E 33	CLAMP/CLAMP	10
	63	112063	500	RAIL	E 33	CLAMP/CLAMP	10



113025

SCREW CAPS

SIZE	I _n	REFERENCE	THREAD	PACKING
	(A)			
D II	25	113025	E 27	10
D III	63	113063	E 33	10



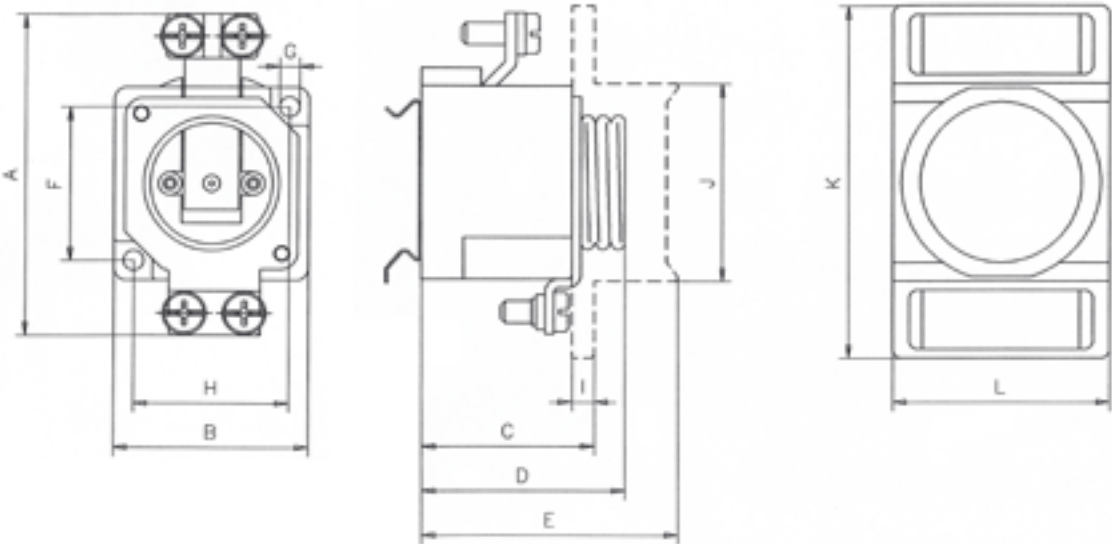
121025

SCREW ADAPTERS

SIZE	I _n	REFERENCE	THREAD	PACKING
	(A)			
D II	2	121002	E 27	25
	4	121004	E 27	25
	6	121006	E 27	25
	10	121010	E 27	25
	16	121016	E 27	25
	20	121020	E 27	25
	25	121025	E 27	25
D III	35	121035	E 33	25
	50	121050	E 33	25
	63	121063	E 33	25

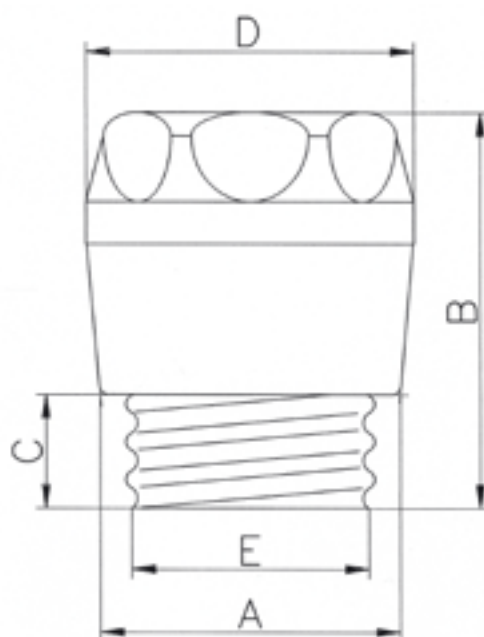
gL/gG

DIMENSIONS - D FUSE HOLDERS



SIZE	A	B	C	D	E	F	G	H	I	J	K	L
D II	61	36	39	47	58	28,5	4,5	28,5	5	45	80	40
D III	77	44	39	46	58	35	4,5	35	5	45	80	49

DIMENSIONS - SCREW CAPS



SIZE	A	B	C	D	E
D II	32	42	12	35	E 27
D III	40	44	12	42	E 33

FUSE HOLDERS

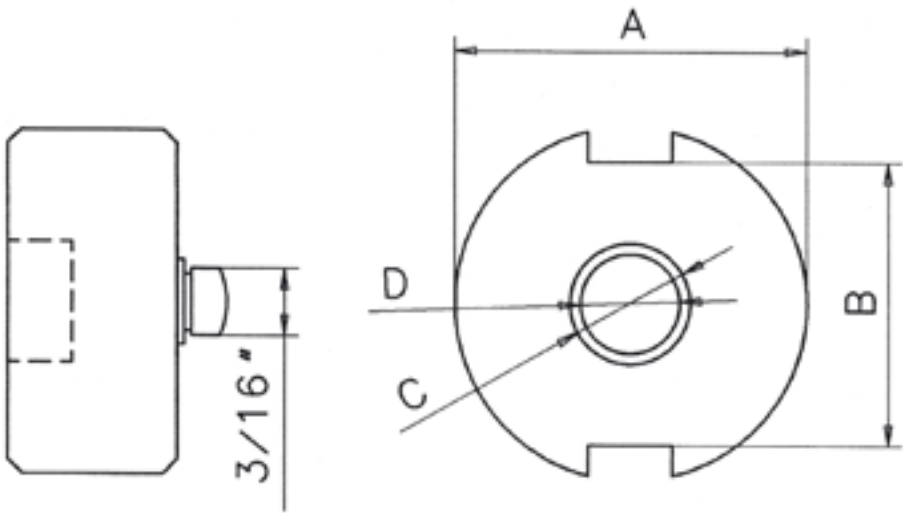
D FUSE HOLDERS

DIMENSIONS



gL/gG

DIMENSIONS - SCREW ADAPTERS



SIZE	D II					D III				
In (A)	2	4	6	10	16	20	25	35	50	63
Ø A	25	25	25	25	25	25	25	30	30	30
B	20	20	20	20	20	20	20	26	26	26
Ø C	6,5	6,5	6,5	8,5	10,5	12,5	14,5	16,5	18,5	20,5
Ø D	5	5	5	7	9	10	10	15,5	15,5	15,5
COLOR										

FUSE HOLDERS

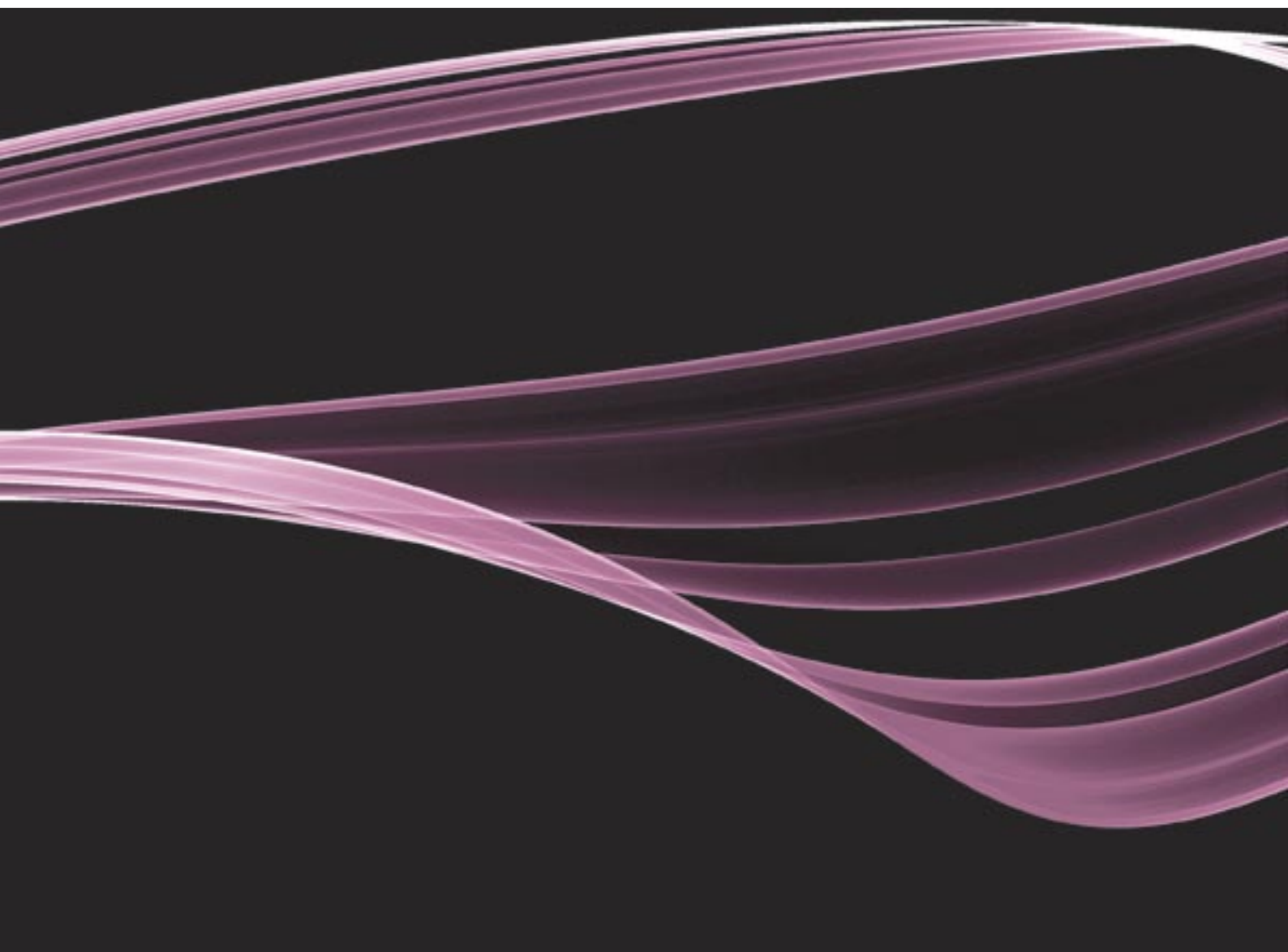
DO FUSE HOLDERS

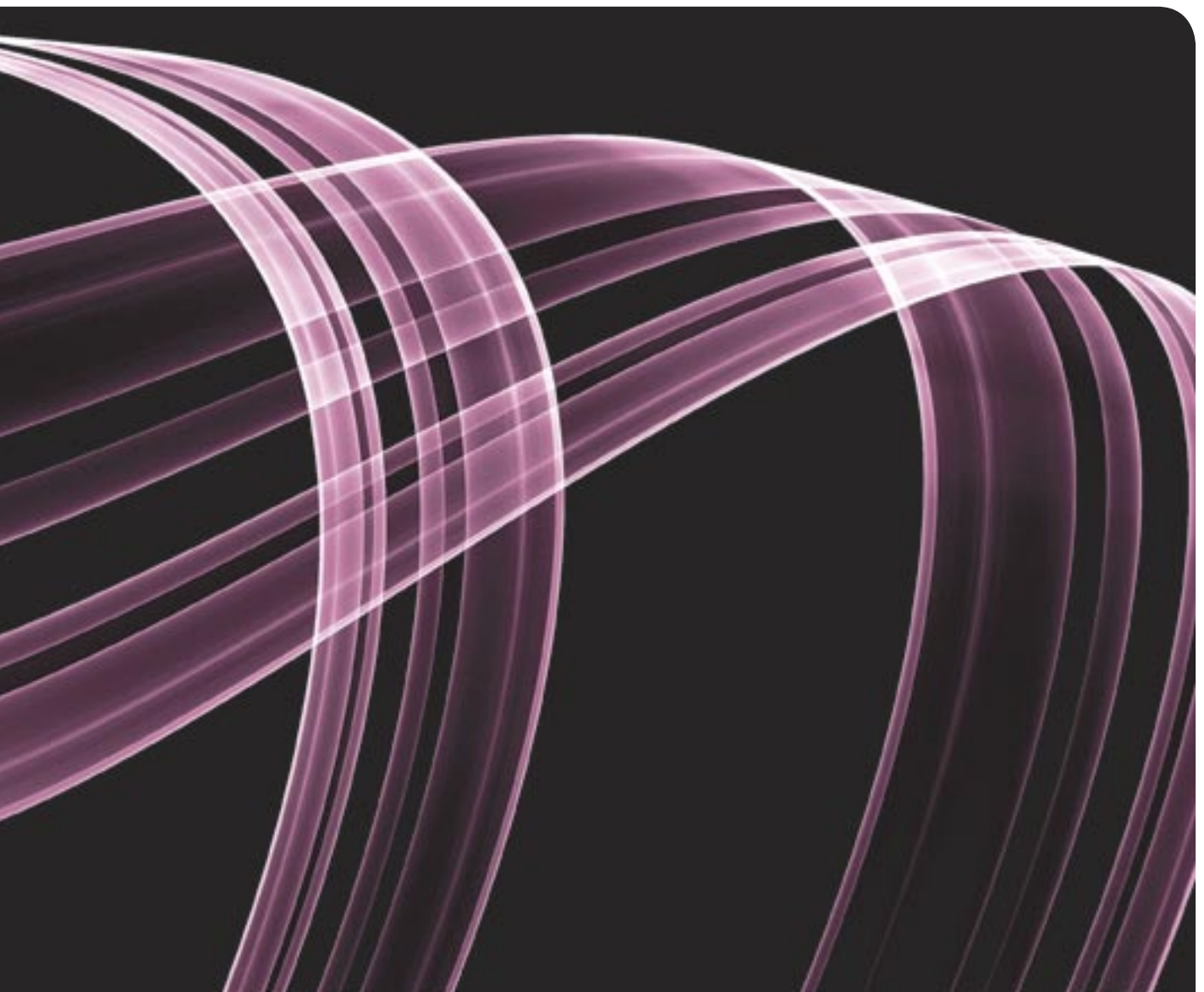
DO FUSE HOLDERS AND ACCESSORIES

134-135

TECHNICAL DATA

136-137





FUSE HOLDERS

DO FUSE HOLDERS

DO FUSE HOLDERS
SINGLE POLE - THREE POLE

gL/gG

Fuse bases for DO1, DO2 and DO3 type fuse links. Available versions for mounting on DIN/EN rail, with screw fixing or for mounting onto busbars. Single-phase or three-pole type. The required non-interchangeability is ensured for fuse links above 6A by the adapter sleeves. This feature ensures that fuse links with a higher rated current than specified cannot be inserted. It is possible to use DO1 fuse links in DO2 fuse bases by means of adapter spring accessory and special sleeves. Manufactured according IEC, EN and VDE standards, with ceramic body and copper or brass contacts.



210116



210263



210200



210363

SINGLE POLE DO FUSE HOLDERS

SIZE	I _n	REFERENCE	MOUNTING TYPE	THREAD	CONNECTION TYPE	PACKING
(A)						
DO 1	16	210116 ⁽¹⁾	SCREW	E 14	SCREW / SCREW	20
	16	211116 ⁽¹⁾	DIN/EN RAIL	E 14	SCREW / SCREW	20
DO 2	63	210163 ⁽¹⁾	SCREW	E 18	CLAMP / CLAMP	20
	63	211163 ⁽¹⁾	DIN/EN RAIL	E 18	CLAMP / CLAMP	20
	63	210263 ⁽¹⁾	SCREW	E 18	CLAMP / SCREW	20
	63	211263 ⁽¹⁾	DIN/EN RAIL	E 18	CLAMP / SCREW	20
	63	212563-F ⁽²⁾	BUSBAR	E 18	CLAMP / BUSBAR	250
	63	212663 ⁽²⁾	BUSBAR	E 18	CLAMP / BUSBAR	20
DO 3	100	210200 ⁽²⁾	SCREW	M 30x2	CLAMP / CLAMP	10
	100	210201 ⁽²⁾	SCREW	M 30x2	CLAMP / HOLE	10
	100	210202 ⁽²⁾	SCREW	M 30x2	CLAMP / TERMINAL	10
	100	211200 ⁽²⁾	DIN/EN RAIL	M 30x2	CLAMP / CLAMP	10
	100	211201 ⁽²⁾	DIN/EN RAIL	M 30x2	CLAMP / HOLE	10
	100	211202 ⁽²⁾	DIN/EN RAIL	M 30x2	CLAMP / TERMINAL	10
	100	212400 ⁽¹⁾	BUSBAR	M 30x2	CLAMP / BUSBAR	10

THREE POLE DO FUSE HOLDERS

SIZE	I _n	REFERENCE	MOUNTING TYPE	THREAD	CONNECTION TYPE	PACKING
(A)						
DO 1	16	210316 ⁽¹⁾	SCREW	E 14	SCREW / SCREW	5
	16	211316 ⁽¹⁾	DIN/EN RAIL	E 14	SCREW / SCREW	5
DO 2	63	210363 ⁽¹⁾	SCREW	E 18	CLAMP / CLAMP	5
	63	210463 ⁽¹⁾	SCREW	E 18	CLAMP / SCREW	5
	63	211363 ⁽¹⁾	DIN/EN RAIL	E 18	CLAMP / CLAMP	5
	63	211463 ⁽¹⁾	DIN/EN RAIL	E 18	CLAMP / SCREW	5

(1) Ceramic body
(2) Polyester body

STANDARDS

IEC 60269-1
IEC 60269-3
EN 60269-1
EN 60269-3

VDE 0636

DIMENSIONS

136

MOUNTING TYPE IN DO FUSE HOLDERS

137

FUSE HOLDERS

DO FUSE HOLDERS

SCREW CAPS - PROTECTIVE COVERS - GAUGE RINGS
ADAPTER RINGS - RETAINING SPRING



gL/gG

SCREW CAPS

SIZE	I _n	REFERENCE	THREAD	PACKING
(A)				
DO 1	16	210016	E 14	20
DO 2	63	210063	E 18	20
DO 3	100	210100	M 30	10



210016

PROTECTIVE COVERS

SIZE	I _n	REFERENCE	POLES	PACKING
(A)				
DO 1 DO 2	16-63	220063	SINGLE POLE	50/250
DO 2	63	220363	THREE POLES	10
DO 3	100	220100	SINGLE POLE 2 TABS	10
DO 3	100	220101*	SINGLE POLE 1 TAB	10



220063

(*) For busbar fuse holder

GAUGE RINGS

SIZE	I _n	REFERENCE	COLOR	THREAD	PACKING
(A)					
DO 1	2	220102		E 14	5
	4	220104		E 14	5
	6	220106		E 14	5
	10	220110		E 14	5
DO 2	20	220120		E 18	5
	25	220125		E 18	5
	35	220135		E 18	5
	50	220150		E 18	5



220110

ADAPTER RINGS (for use DO 1 fuse links in DO 2 fuse holders)

SIZE	I _n	REFERENCE	PACKING
(A)			
DO 1	2	220202	5
	4	220204	5
	6	220206	5
	10	220210	5
	16	220216	5



220202

RETAINING SPRING (for use DO 1 fuse links in DO 2 fuse holders)

SIZE	I _n	REFERENCE	PACKING
(A)			
		220301	5



220301

STANDARDS

IEC 60269-1 VDE 0636
IEC 60269-3
EN 60269-1
EN 60269-3

DIMENSIONS

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MOUNTING TYPE IN DO FUSE HOLDERS

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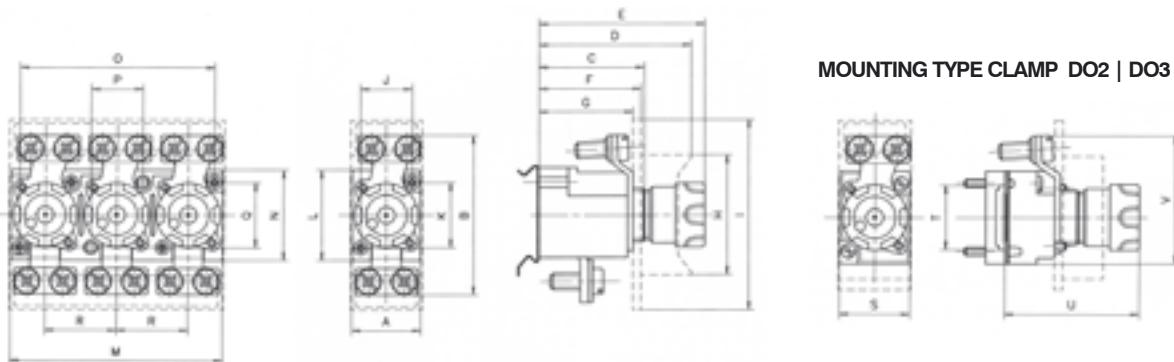
FUSE HOLDERS

DO FUSE HOLDERS

DIMENSIONS

gL/gG

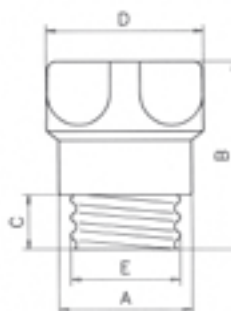
DIMENSIONS - DO FUSE HOLDERS



MOUNTING TYPE CLAMP DO2 | DO3

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
DO 1	26,5	53	39,5	45	63	33	32	46	72	20	20	36	81	36	74	20	22	27	—	—	—	—
DO 2	26,5	61	39,5	45	63	33	32	46	72	20	22	34	81	36	74	20	22	27	26,9	20	47	47
DO 3	46	86	45	55	76	37	32	46	83	33	37,5	50	—	—	—	—	—	—	44,5	20	60	70

DIMENSIONS - SCREW CAPS



SIZE	A	B	C	D	E
DO1	19	31	9	26	E 14
DO2	22	31	9	26	E 18
DO3	38	36	10	39	M30x2

DIMENSIONS - PROTECTIVE COVERS



SIZE	A	B	C	D	E	F	G	H	J
DO1/DO2	72	45	21	4	10	27	81	27	—
DO3 (busbar fix.)	—	44	18	5,5	13,5	44	—	—	67,5
DO3	83	44	18	5,5	13,5	44	—	—	—

STANDARDS

IEC 60269-1 VDE 0636
IEC 60269-3
EN 60269-1
EN 60269-3

FUSE HOLDERS

DO FUSE HOLDERS

MOUNTING TYPE IN DO FUSE HOLDERS



gL/gG

MOUNTING TYPE IN DO FUSE HOLDERS

A - A	B - A	B - B	B - P	B - T	B - C
SCREW A A SCREW	CLAMP B A SCREW	CLAMP B B CLAMP	CLAMP B P BUSBAR	CLAMP B T HOLE	CLAMP B C TERMINAL
DO 1	DO 2	DO 2 - DO 3		DO 3	

FUSE HOLDERS AND BASES

TRANSFORMERS AUTOTRANSFORMERS CHOKES

TRANSFORMERS

140-161

SINGLE-PHASE
THREE-PHASE

140-157
158-161

AUTOTRANSFORMERS

162-165

SINGLE-PHASE
THREE-PHASE

162-163
164-165

CHOKES

166-168

SINGLE-PHASE
THREE-PHASE

166
167-168

TECHNICAL DATA

169-173





TRANSFORMERS

SINGLE-PHASE

SAFETY OR ISOLATING



TR 20

Safety and isolating single-phase transformers. They have only one input voltage and one output voltage, and this allow compact dimensions, weight reduction and easier installation. Wide range of rated voltages. TIG welding in the core and the base-plates that prevent vibrations and noise. Fast and easy connection due to the clamp type terminal blocks that are delivered open.

PRI voltage: 230 or 400 V
SEC voltage: 12, 24, 48, 115 or 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00
Dielectric strength PRI-SEC : > 4 kV



600160001

TR 20 SINGLE-PHASE TRANSFORMER

POWER (VA)	230 // 12 V	230 // 24 V	230 // 48 V	230 // 115 V	230 // 230 V
25	600025000	600025001	600025002	600025003	600025004
40	600040000	600040001	600040002	600040003	600040004
50	600050000	600050001	600050002	600050003	600050004
63	600063000	600063001	600063002	600063003	600063004
100	600100000	600100001	600100002	600100003	600100004
160	600160000	600160001	600160002	600160003	600160004
200	600200000	600200001	600200002	600200003	600200004
250	600250000	600250001	600250002	600250003	600250004
320	600320000	600320001	600320002	600320003	600320004
400	600400000	600400001	600400002	600400003	600400004
500	600500000	600500001	600500002	600500003	600500004
630	600630000	600630001	600630002	600630003	600630004
800	600800000	600800001	600800002	600800003	600800004
1000	601000000	601000001	601000002	601000003	601000004

(VA)	400 // 12 V	400 // 24 V	400 // 48 V	400 // 115 V	400 // 230 V
25	600025005	600025006	600025007	600025008	600025009
40	600040005	600040006	600040007	600040008	600040009
50	600050005	600050006	600050007	600050008	600050009
63	600063005	600063006	600063007	600063008	600063009
100	600100005	600100006	600100007	600100008	600100009
160	600160005	600160006	600160007	600160008	600160009
200	600200005	600200006	600200007	600200008	600200009
250	600250005	600250006	600250007	600250008	600250009
320	600320005	600320006	600320007	600320008	600320009
400	600400005	600400006	600400007	600400008	600400009
500	600500005	600500006	600500007	600500008	600500009
630	600630005	600630006	600630007	600630008	600630009
800	600800005	600800006	600800007	600800008	600800009
1000	601000005	601000006	601000007	601000008	601000009

STANDARDS

IEC 61558-1 EN 61558-2-4
 IEC 61558-2-4 EN 61558-2-6
 IEC 61558-2-6
 EN 61558-1

PROTECTION

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IP PROTECTION INDEX

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TRANSFORMERS

SINGLE-PHASE

SAFETY OR ISOLATING



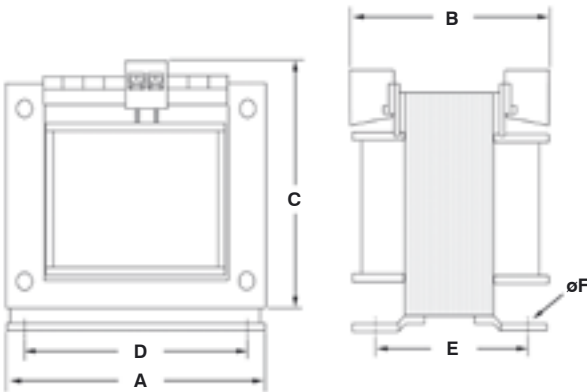
TR 20

DIMENSIONS - TR 20 SINGLE-PHASE TRANSFORMER

POWER	SIZE			FIXING			WEIGHT
(VA)	(mm)			(mm)			(kg)
	A	B	C	D	E	F	
25	60	66	73	44	39	3,5	0,51
40	60	76	73	44	49	3,5	0,74
50	75	71	84	56	47	4,8	1,00
63	75	76	84	56	54	4,8	1,10
100	84	70	90	64	52	4,8	1,35
160	96	82	100	84	67	5,7	2,23
200	96	92	100	84	77	5,7	2,68
250	96	107	100	84	91	5,7	3,35
320	108	104	111	80,5	87	5,7	4,40
400	120	106 ⁽¹⁾	118 ⁽²⁾	90	87	5,7	4,90
500	120	126 ⁽¹⁾	118 ⁽²⁾	90	107	5,7	6,70
630	150	114 ⁽³⁾	142 ⁽³⁾	122	92	6,8	7,50
800	150	130 ⁽³⁾	142 ⁽³⁾	122	108	6,8	9,80
1000	150	157 ⁽³⁾	142 ⁽³⁾	122	135	6,8	13,2

- (1) SEC 12 V → +15 mm
- (2) SEC 12 V → +10 mm
- (3) SEC 12 V - SEC 24 V → +10 mm

DIMENSIONS



STANDARDS
IEC 61558-1 EN 61558-2-4
IEC 61558-2-4 EN 61558-2-6
IEC 61558-2-6
EN 61558-1

PROTECTION

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IP PROTECTION INDEX

178-179

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Control and safety or isolating single-phase transformers. They can supply high instantaneous power necessary for the correct operation of contactors and other switch and control gear. Great flexibility due to the double primary voltage and the serial-parallel connection. TIG welding in the core and the base-plates that prevent vibrations and noise. Fast and easy connection due to the clamp type terminal blocks.

PRI voltage: 0-230-400 V
SEC voltage: 12-24, 24-48 or 115-230 V
SEC serial or parallel connection
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00
Dielectric strength PRI-SEC: > 4 kV



610250001

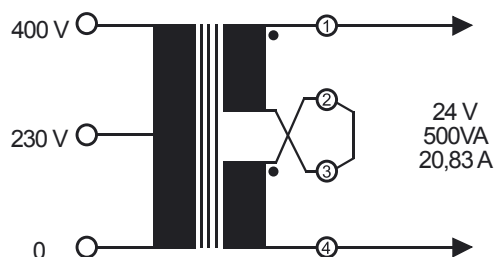
TR 21 SINGLE-PHASE TRANSFORMER

POWER (VA)	INSTANT. POWER (VA)	REFERENCE	REFERENCE	REFERENCE
		 (12-24 V)	 (24-48 V)	 (115-230 V)
40	75	610040000	610040001	610040002
63	140	610063000	610063001	610063002
100	220	610100000	610100001	610100002
160	380	610160000	610160001	610160002
200	450	610200000	610200001	610200002
250	650	610250000	610250001	610250002
320	850	610320000	610320001	610320002
400	1000	610400000	610400001	610400002
500	1400	610500000	610500001	610500002
630	1600	610630000	610630001	610630002
800	2400	610800000	610800001	610800002
1000	3300	611000000	611000001	611000002

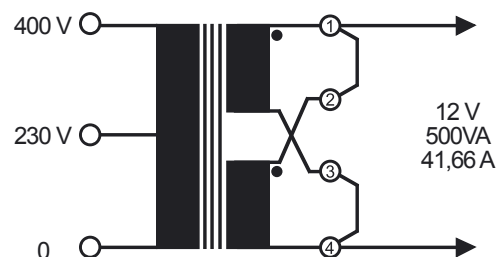
SECONDARY CONNECTION POSSIBILITIES

EXAMPLE: TRANSFORMER 230-400//12-24 V 500 VA (610500000)

SERIAL CONNECTION



PARALLEL CONNECTION



TRANSFORMERS

SINGLE-PHASE

CONTROL



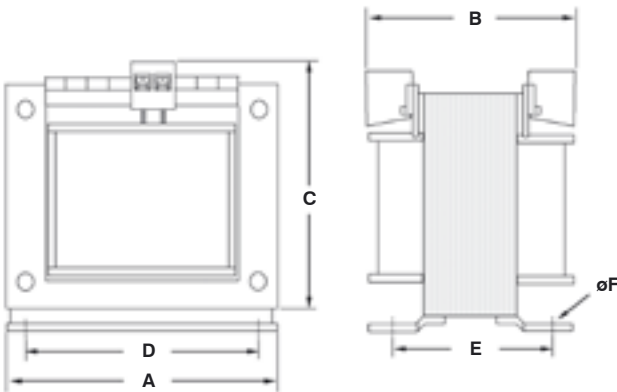
TR 21

DIMENSIONS - TR 21 SINGLE-PHASE TRANSFORMER

POWER (VA)	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
	A	B	C	D	E	F	
40	75	79	84	56	47	4,8	1,00
63	84	80	90	64	52	4,8	1,40
100	84	95	90	64	67	4,8	1,96
160	96	101	100	84	77	5,7	2,80
200	96	115	100	84	91	5,7	3,40
250	108	100	111	80,5	73	5,7	3,64
320	108	114	111	80,5	87	5,7	4,54
400	120	112 ⁽¹⁾	118 ⁽²⁾	90	87	5,7	5,20
500	120	130 ⁽¹⁾	118 ⁽²⁾	90	107	5,7	6,85
630	150	114 ⁽¹⁾	142 ⁽²⁾	122	92	6,8	7,50
800	150	130 ⁽³⁾	142 ⁽⁴⁾	122	108	6,8	10,2
1000	150	157 ⁽³⁾	142 ⁽⁴⁾	122	135	6,8	13,6

- (1) SEC 12-24 V → +15 mm
- (2) SEC 12-24 V → +10 mm
- (3) SEC 12-24 V - SEC 24-48 V → +15 mm
- (4) SEC 12-24 V - SEC 24-48 V → +10 mm

DIMENSIONS



STANDARDS

IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6

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Single-phase power isolating transformers dry type. Intended for change of voltages with galvanic isolation and/or attenuation of line disturbances. Manufactured with electrical steel with low losses and copper windings. On request we can manufacture transformers with other voltages, with taps, electrostatic screen, with thermal switch, etc.

PRI voltage: 230 V
SEC voltage: 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00 | IP23
Dielectric strength PRI-SEC: > 4 kV
Natural air cooling
Others characteristics on request



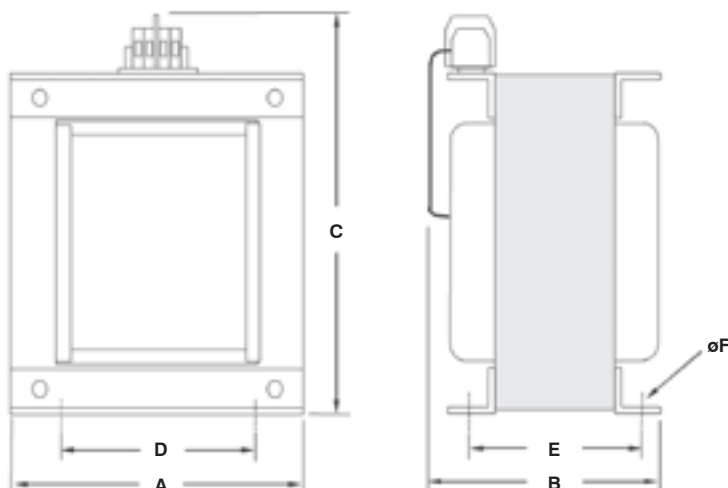
62N0250000

TR 22 IP00 SINGLE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
1,3	62N0013000	163	160	260	98	115	8	17,0
1,6	62N0016000	163	165	260	98	120	8	19,0
2,0	62N0020000	163	175	260	98	130	8	21,5
2,5	62N0025000	163	195	260	98	150	8	25,5
3,0	62N0030000	200	200	310	120	140	10	34,0
3,5	62N0035000	200	210	310	120	150	10	38,0
4,0	62N0040000	200	220	310	120	160	10	42,0
5,0	62N0050000	200	240	310	120	180	10	48,0
6,3	62N0063000	250	250	390	150	180	12	67,0
8,0	62N0080000	250	270	390	150	200	12	79,0
10	62N0100000	250	300	390	150	230	12	95,0
12,5	62N0125000	300	300	460	180	220	12	108
16	62N0160000	300	320	460	180	240	12	126
20	62N0200000	300	340	460	180	260	12	150
25	62N0250000	350	360	520	210	270	12	180
31,5	62N0315000	350	370	520	210	280	12	210

Dimensions may slightly vary according the voltages

DIMENSIONS



TRANSFORMERS

SINGLE-PHASE

POWER



TR 22 IP23

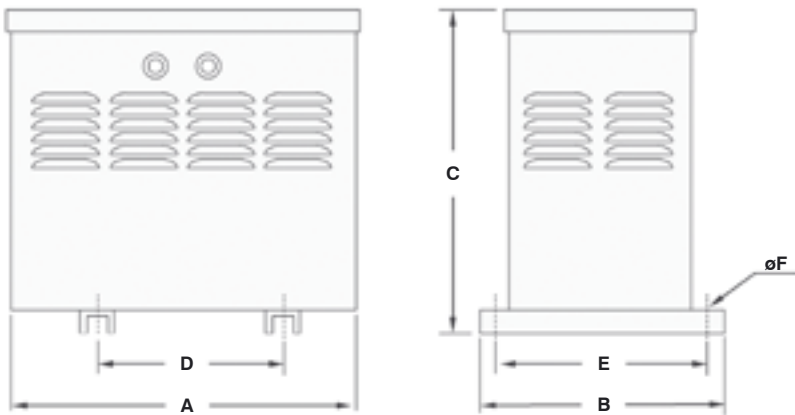
TR 22 IP23 SINGLE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
1,3	62C0013000	285	290	335	200	265	12	21,0
1,6	62C0016000	285	290	335	200	265	12	23,0
2,0	62C0020000	285	290	335	200	265	12	25,5
2,5	62C0025000	285	290	335	200	265	12	29,5
3,0	62C0030000	375	300	435	200	270	12	41,5
3,5	62C0035000	375	300	435	200	270	12	45,5
4,0	62C0040000	375	300	435	200	270	12	49,5
5,0	62C0050000	375	300	435	200	270	12	55,5
6,3	62C0063000	450	400	480	300	370	12	75,0
8,0	62C0080000	450	400	480	300	370	12	87,0
10	62C0100000	450	400	480	300	370	12	103
12,5	62C0125000	540	500	610	400	470	12	116
16	62C0160000	540	500	610	400	470	12	134
20	62C0200000	540	500	610	400	470	12	158
25	62C0250000	540	500	610	400	470	12	190
31,5	62C0315000	540	500	610	400	470	12	220



62C0250000

DIMENSIONS



TR 22 IP23 SINGLE-PHASE TRANSFORMER ACCESSORIES

REFERENCE	DESCRIPTION
690000005	WHEELS KIT (max 200 kg/wheel)



690000005

STANDARDS
IEC 60726

PROTECTION

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Single-phase special transformers manufactured on request (customer design). These transformers can be manufactured with fuse holders, thermal protectors, electrostatic screen. TIG welding in the core and the base-plates that prevent vibrations and noise. Fast and easy connection due to the clamp type terminal blocks that are delivered open.

PRI voltage: on request
SEC voltage: on request
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class: I
Protection index: IP00
Dielectric strength PRI-SEC : > 4 kV



630050017

TR 23 SINGLE-PHASE TRANSFORMER

POWER (VA)	MAX. SIZE (mm)						WEIGHT (kg)
	A	B ^①	C ^②	D	E	F	
10 12 16 20	60	66	73	44	39	3,5	0,51
25 30	60	76	73	44	49	3,5	0,74
40	75	71	84	56	47	4,8	1,00
50	75	76	84	56	52	4,8	1,10
63	84	70	90	64	52	4,8	1,35
100	84	95	90	64	67	4,8	1,96
160	96	97	100	84	81	5,7	2,78
200	96	107	100	84	91	5,7	3,35
250	108	100	111	80,5	73	5,7	3,64
320	108	104	111	80,5	87	5,7	4,40
400	120	106	118	90	87	5,7	4,90
500	120	126	118	90	107	5,7	6,70
630	150	114	142	122	92	6,8	7,50
800	150	130	142	122	108	6,8	9,80
1000	150	157	142	122	135	6,8	13,2

► Dimensions may slightly vary according the voltages.

► In transformers with the following characteristics:

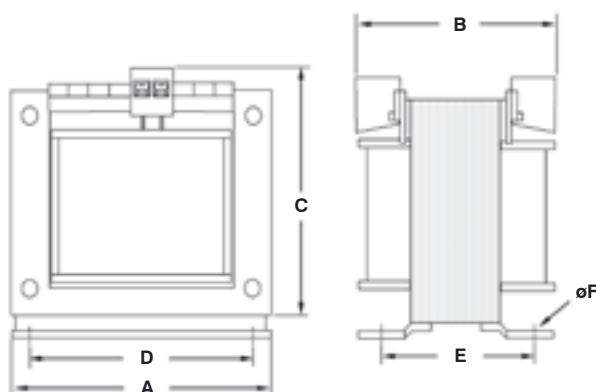
- Rated power up to 250VA.
- Without electrostatic screen.
- One primary voltage up to 400V.
- One SEC voltage between 12V and 230V.

The dimensions and weight are those corresponding to the immediate smaller rated power.

① Terminal block: +8,5 mm. Terminal block with current > 32 A: +15 mm. Currents > 80 A (flat terminals or busbar): +50 mm.

② Terminal block with fuse: +5 mm. Terminal block with current > 32 A: +10 mm.

DIMENSIONS



STANDARDS

IEC 61558
EN 61558

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TRANSFORMERS

SINGLE-PHASE

SAFETY FOR SWIMMING-POOL SPOTLIGHTS



TR 26 IP20

Single-phase safety transformers intended to supply spotlights in swimming-pools, garden ponds, ornamental fountains and moist locations, where for safety reasons it is necessary to supply with safety extra low voltage (SELV). It has several taps in the primary winding in order to compensate for the voltage drop in the transformer-spotlight line conductors and thus gets an adequate brightness in every spotlight. On request we can manufacture transformers with other rated power or voltages, or with other line lengths between transformers and spotlights.

Rated power range: 130, 350 and 700 VA
Class I protection against electric shock
Rated primary voltage: 230 V
Rated secondary voltage: 12 V
Thermal class: B(130 °C) and F(155 °C)
Maximum ambient temperature (40 °C)
Frequency: 50/60 Hz
Protection index: IP20
Dielectric strenght between primary & secondary: $\geq 4,5$ kV
Dielectric strenght between windings & metallic parts: $\geq 2,5$ kV

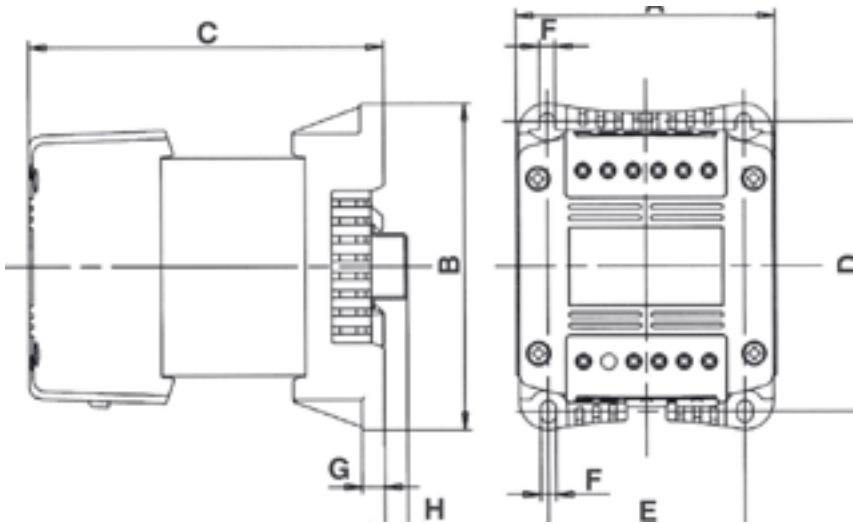
TR 26 SAFETY TRANSFORMER

POWER	REFERENCE	SIZE								FOR SPOTLIGHT	DISTANCES	WEIGHT
(VA)		(mm)									(transformer - spotlight)	(kg)
		A	B	C	D	E	F	G	H			
130	660130000	84	113	116	101	66	5	7,5	2	1x12V 100W	10-18-25 m	2,00
350	660350000	108	135	138	120	82	6,5	9,5	9,5	1x12V 300W	10-25-40 m	4,45
700	660700000	120	152	166	135	94	7	9,5	-	2x12V 300W	10-25-40 m	7,89



660350000

DIMENSIONS



STANDARDS

IEC 61558-1
IEC 61558-2-6
EN 61558-1
EN 61558-2-6

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TRANSFORMERS

TRANSFORMERS SINGLE-PHASE

SAFETY FOR SWIMMING-POOL SPOTLIGHTS



TR 26 IP00

Single-phase safety transformers intended to supply spotlights in swimming-pools, garden ponds, ornamental fountains and moist locations, where for safety reasons it is necessary to supply with safety extra low voltage (SELV). It has several taps in the primary winding in order to compensate for the voltage drop in the transformer-spotlight line conductors and thus gets an adequate brightness in every spotlight. On request we can manufacture transformers with other rated power or voltages, or with other line lengths between transformers and spotlights.

Rated power range: 130, 350 and 700 VA
Class I protection against electric shock
Rated primary voltage: 230 V
Rated secondary voltage: 12 V
Thermal class: B(130 °C) and F(155 °C)
Maximum ambient temperature (40 °C)
Frequency: 50/60 Hz
Protection index: IP00
Dielectric strenght between primary & secondary: $\geq 4,5$ kV
Dielectric strenght between windings & metallic parts: $\geq 2,5$ kV

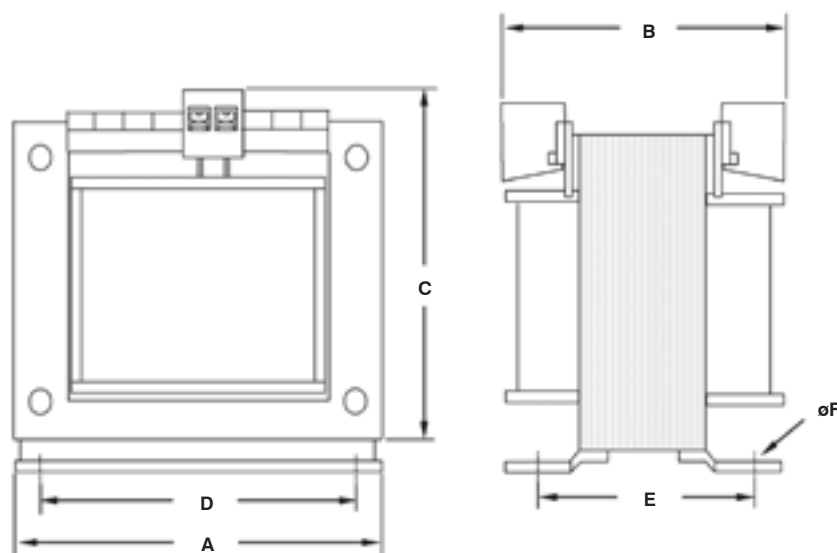


660350001

TR 26 SAFETY TRANSFORMER

POWER (VA)	REFERENCE	SIZE (mm)						FOR SPOTLIGHT	DISTANCES (transformer - spotlight)	WEIGHT (kg)
		A	B	C	D	E	F			
130	660130001	84	90	90	64	67	4,8	1x12V 100W	10-18-25 m	1,96
350	660350001	108	110	93	90	80	5,0	1x12V 300W	10-25-40 m	3,90
700	660700001	120	135	108	90	117	5,7	2x12V 300W	10-25-40 m	7,80

DIMENSIONS



STANDARDS

IEC 61558-1
IEC 61558-2-6
EN 61558-1
EN 61558-2-6

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TRANSFORMERS

TRANSFORMERS SINGLE-PHASE

SAFETY FOR SWIMMING-POOL SPOTLIGHTS

NEW



TR 26 H

Single-phase safety transformers intended to supply spotlights in swimming-pools, garden ponds, ornamental fountains and moist locations, where for safety reasons it is necessary to supply with safety extra low voltage (SELV). It has several taps in the primary winding in order to compensate for the voltage drop in the transformer-spotlight line conductors and thus gets an adequate brightness in every spotlight. On request we can manufacture transformers with other rated power or voltages, or with other line lengths between transformers and spotlights. The main characteristic of this model is the reduced height that allows the installation in a low profile box.

Rated power: 350 VA
Class I protection against electric shock
Rated primary voltage: 230 V
Rated secondary voltage: 12 V
Thermal class F (155 °C)
Maximum ambient temperature (40 °C)
Frequency: 50/60 Hz
Protection index: IP20
Dielectric strenght PRI-SEC: $\geq 4,5$ kV
Dielectric strenght windings-body: $\geq 2,5$ kV
Electrostatic screen between windings

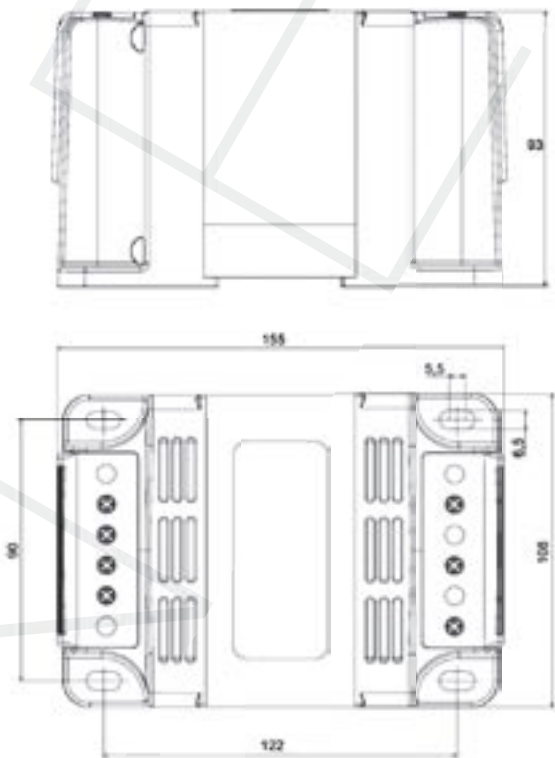
TR 26 H SAFETY TRANSFORMER

POWER	REFERENCE	FOR SPOTLIGHTS	DISTANCES	WEIGHT
(VA)			(transformer - spotlight)	(kg)
350	660350010	1x12V 300W	8-18-25 m (wire size 6 mm ²) 10-18-25 m (wire size 10 mm ²)	4,2



660350010

DIMENSIONS



STANDARDS

IEC 61558-1
IEC 61558-2-6
EN 61558-1
EN 61558-2-6

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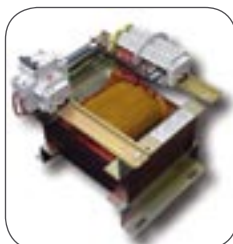
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Single-phase control transformers for machines and industrial installations according to CNOMO standards (automotive industry). They can supply high instantaneous power necessary for the correct operation of contactors and other switch and control gear. Equipped with a circuit breaker on secondary side. On request we can manufacture these transformers with other characteristics.

PRI voltage: 15-0-15-230-400 V
SEC voltage: 24 V or 115-230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Dielectric strength PRI-SEC: > 4 kV
Electrostatic screen
Protection with circuit breaker

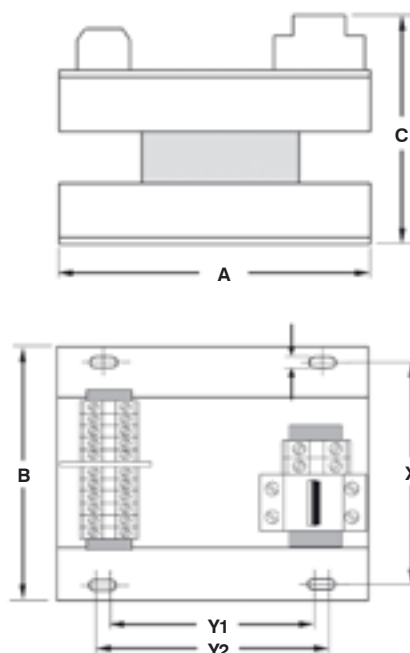


670630000

TR 27 SINGLE-PHASE TRANSFORMER

POWER	REFERENCE		SIZE			FIXING				WEIGHT
(VA)			(mm)			(mm)				(kg)
	24 V	115-230 V								
			A	B	C	X	Y1	Y2	F	
100	670100000	670100001	150	144	180	126	100	120	6	3,20
160	670160000	670160001	150	144	190	126	100	120	6	3,40
250	670250000	670250001	170	162	200	144	100	120	6	5,00
400	670400000	670400001	170	184	190	168	100	120	6	6,05
630	670630000	670630001	170	184	220	168	100	120	6	8,50
1000	671000000	671000001	190	218	240	200	120	150	8	13,2
1600	–	671600001	190	249	250	230	120	150	8	19,0

DIMENSIONS



TRANSFORMERS

SINGLE-PHASE

SAFETY AND ISOLATING

NEW



TR 28 1.1

Safety or isolating single-phase transformers. IP20 protection index (finger safe). For mounting on DIN/EN rail up to 320 VA. Fast and easy connection due to the high capacity clamp type terminal blocks.

PRI voltage: 230 or 400 V
SEC voltage: 12-24-48-115 or 230 V
Rated power range: 40 VA to 1000 VA
Class I against electric shock
Thermal class: B (130 °C)
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP20
Dielectric strength PRI-SEC: $\geq 4,5$ kV
Dielectric strength between windings and metallic parts: $\geq 2,5$ kV

TR 28 1.1 SAFETY OR ISOLATING TRANSFORMER - PRIMARY VOLTAGE 230V

POWER (VA)	REFERENCE				
t_a 40°C	230 // 12 V	230 // 24 V	230 // 48 V	230 // 115 V	230 // 230 V
40	680040025	680040026*	680040027	680040028	680040029
63	680063025	680063026*	680063027	680063028	680063029
100	680100025	680100026*	680100027	680100028	680100029
160	680160025	680160026*	680160027	680160028	680160029
200	680200025	680200026*	680200027	680200028	680200029
250	680250025	680250026*	680250027	680250028	680250029
320	680320025	680320026*	680320027	680320028	680320029
400	680400025	680400026*	680400027	680400028	680400029
500	680500025	680500026*	680500027	680500028	680500029
630	—	680630026*	680630027	680630028	680630029
800	—	680800026*	680800027	680800028	680800029
1000	—	681000026*	681000027	681000028	681000029



680320028

TR 28 1.1 SAFETY OR ISOLATING TRANSFORMER - PRIMARY VOLTAGE 400V

POWER (VA)	REFERENCE				
t_a 40°C	400 // 12 V	400 // 24 V	400 // 48 V	400 // 115 V	400 // 230 V
40	680040030	680040031*	680040032	680040033	680040034
63	680063030	680063031*	680063032	680063033	680063034
100	680100030	680100031*	680100032	680100033	680100034
160	680160030	680160031*	680160032	680160033	680160034
200	680200030	680200031*	680200032	680200033	680200034
250	680250030	680250031*	680250032	680250033	680250034
320	680320030	680320031*	680320032	680320033	680320034
400	680400030	680400031*	680400032	680400033	680400034
500	680500030	680500031*	680500032	680500033	680500034
630	—	680630031*	680630032	680630033	680630034
800	—	680800031*	680800032	680800033	680800034
1000	—	681000031*	681000032	681000033	681000034

t_a maximum ambient temperature

* stock references, the rest on request

STANDARDS

IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6

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TRANSFORMERS

SINGLE-PHASE

CONTROL AND SAFETY OR ISOLATING



TR 28 2.2 | 5.2

Control and safety or isolating single-phase transformers. They can supply high instantaneous power necessary for the correct operation of contactors and other switch and control gear. IP20 protection index (finger safe). For mounting on DIN/EN rail up to 320 VA. Great flexibility due to the several primary rated voltages with regulation taps $\pm 15V$ (TR28 5.2) and the serial-parallel secondary connection. Fast and easy connection due to the high capacity clamp type terminal blocks.

TR 28 2.2

PRI voltage: 0-230-400 V
SEC voltage: 12-24, 24-48 or 115-230 V
Rated power range: 25 VA to 1000 VA
Class I against electric shock
Thermal class: B (130 °C)
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP20
Dielectric strength PRI-SEC: $\geq 4,5$ kV
Dielectric strength between windings and metallic parts: $\geq 2,5$ kV

TR 28 5.2

PRI voltage: 0-230-400-460 ± 15 V
SEC voltage: 12-24, 24-48 or 115-230 V
Rated power range: 25 VA to 1000 VA
Class I against electric shock
Thermal class: B (130 °C)
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP20
Dielectric strength PRI-SEC: $\geq 4,5$ kV
Dielectric strength between windings and metallic parts: $\geq 2,5$ kV



680320044

TR 28 2.2 CONTROL AND SAFETY OR ISOLATING TRANSFORMER

POWER		INSTANT. POWER	REFERENCE		
(VA)		(VA)	 	 	 
t_a 40°C	t_a 25°C		(12-24 V)	(24-48 V)	(115-230 V)
25	40	75	680025043	680025044	680025045
40	63	120	680040043	680040044	680040045
63	100	150	680063043	680063044	680063045
100	130	230	680100043	680100044	680100045
160	200	350	680160043	680160044	680160045
200	250	450	680200043	680200044	680200045
250	320	600	680250043	680250044	680250045
320	400	800	680320043	680320044	680320045
400	500	950	680400043	680400044	680400045
500	630	1275	680500043	680500044	680500045
630	800	1700	680630043	680630044	680630045
800	1000	2100	680800043	680800044	680800045
1000	1250	3300	681000043	681000044	681000045



680320011

TR 28 5.2 CONTROL AND SAFETY OR ISOLATING TRANSFORMER

POWER		INSTANT. POWER	REFERENCE		
(VA)		(VA)	 	 	 
t_a 40°C	t_a 25°C		(12-24 V)	(24-48 V)	(115-230 V)
25	40	75	680025010	680025011	680025012
40	63	120	680040010	680040011	680040012
63	100	150	680063010	680063011	680063012
100	130	230	680100010	680100011	680100012
160	200	350	680160010	680160011	680160012
200	250	450	680200010	680200011	680200012
250	320	600	680250010	680250011	680250012
320	400	800	680320010	680320011	680320012
400	500	950	680400010	680400011	680400012
500	630	1275	680500010	680500011	680500012
630	800	1700	680630010	680630011	680630012
800	1000	2100	680800010	680800011	680800012
1000	1250	3300	681000010	681000011	681000012

t_a maximum ambient temperature

STANDARDS

IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6

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TRANSFORMERS

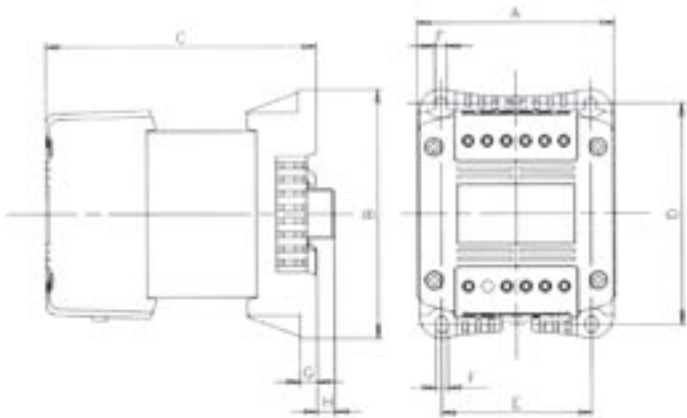
SINGLE-PHASE

DIMENSIONS



TR 28 1.1

DIMENSIONS - TR28 1.1 SINGLE-PHASE TRANSFORMER



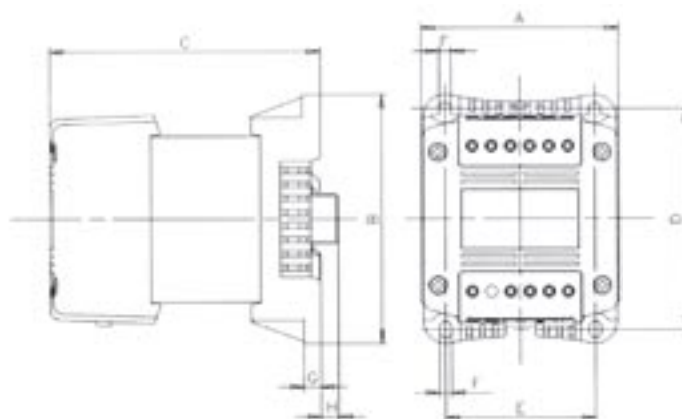
POWER	A	B	C	D	E	F	G	H	WEIGHT
(VA)	(mm)								(kg)
40	84	113	96	101	66	5	7,5	2	1,17
63	84	113	105	101	66	5	7,5	2	1,48
100	84	113	112	101	66	5	7,5	2	1,83
160	84	113	126	101	66	5	7,5	2	2,40
200	108	135	124	120	82	6,5	9,5	9,5	3,95
250	108	135	133	120	82	6,5	9,5	9,5	4,20
320	108	135	138	120	82	6,5	9,5	9,5	4,40
400	120	152	136	135	94	7	9,5	–	5,50
500	120	152	146	135	94	7	9,5	–	6,75
630	150	177	130	160	115	7	2	–	7,60
800	150	177	150	160	115	7	2	–	10,0
1000	150	177	170	160	115	7	2	–	13,0

STANDARDS

IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6



DIMENSIONS - TR28 2.2 SINGLE-PHASE TRANSFORMER

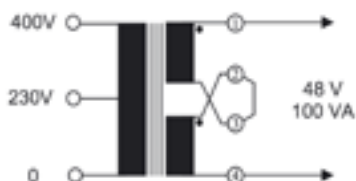


POWER	A	B	C	D	E	F	G	H	WEIGHT
(VA)	(mm)								(kg)
25	84	113	96	101	66	5	7,5	2	1,15
40	84	113	105	101	66	5	7,5	2	1,45
63	84	113	112	101	66	5	7,5	2	1,80
100	84	113	116	101	66	5	7,5	2	1,95
160	84	113	131	101	66	5	7,5	2	2,55
200	108	135	133	120	82	6,5	9,5	9,5	4,15
250	108	135	138	120	82	6,5	9,5	9,5	4,40
320	108	135	148	120	82	6,5	9,5	9,5	4,95
400	120	152	141	135	94	7	9,5	–	5,80
500	120	152	156	135	94	7	9,5	–	7,00
630	150	177	140	160	115	7	2	–	8,60
800	150	177	160	160	115	7	2	–	11,4
1000	150	177	182,60	160	115	7	2	–	14,3

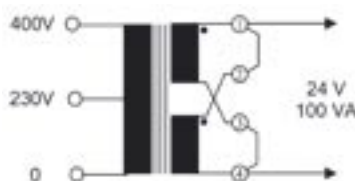
CONNECTION POSSIBILITIES

EXAMPLE: TRANSFORMER 0-230-400//24-48 V 100 VA (610100044)

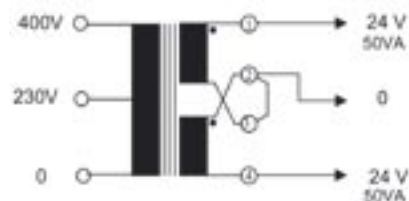
SERIAL CONNECTION



PARALLEL CONNECTION



WITH MIDDLE TAP



STANDARDS

IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6

TRANSFORMERS

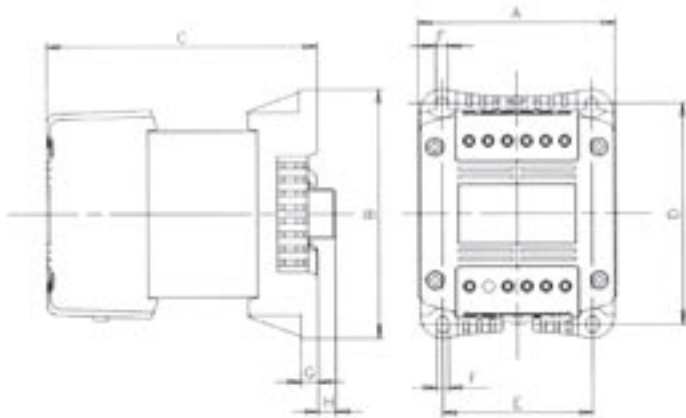
SINGLE-PHASE

DIMENSIONS
CONNECTION POSSIBILITIES



TR 28 5.2

DIMENSIONS - TR28 5.2 SINGLE-PHASE TRANSFORMER

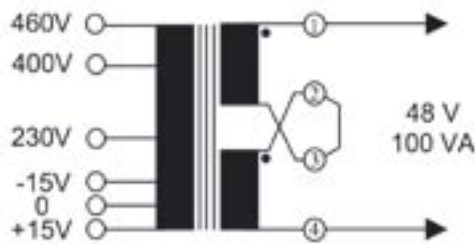


POWER	A	B	C	D	E	F	G	H	WEIGHT
(VA)	(mm)								(kg)
25	84	113	96	101	66	5	7,5	2	1,17
40	84	113	105	101	66	5	7,5	2	1,48
63	84	113	112	101	66	5	7,5	2	1,83
100	84	113	116	101	66	5	7,5	2	2,00
160	84	113	131	101	66	5	7,5	2	2,65
200	108	135	133	120	82	6,5	9,5	9,5	4,20
250	108	135	138	120	82	6,5	9,5	9,5	4,45
320	108	135	148	120	82	6,5	9,5	9,5	5,00
400	120	152	136	135	94	7	9,5	–	5,30
500	120	152	156	135	94	7	9,5	–	7,08
630	150	177	140	160	115	7	2	–	8,68
800	150	177	160	160	115	7	2	–	11,5
1000	150	177	182,60	160	115	7	2	–	14,4

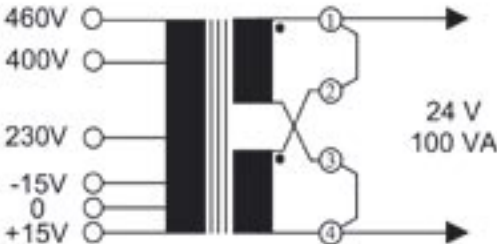
CONNECTION POSSIBILITIES

EXAMPLE: TRANSFORMER 0-230-400//24-48 V 100 VA (610100001)

SERIAL CONNECTION



PARALLEL CONNECTION



STANDARDS
IEC 61558-1 EN 61558-1
IEC 61558-2-2 EN 61558-2-2
IEC 61558-2-4 EN 61558-2-4
IEC 61558-2-6 EN 61558-2-6

TRANSFORMERS

SINGLE-PHASE

FOR MEDICAL LOCATIONS



TR 29 UNE

Single-phase isolating transformers according to Spanish standard and the requirements of Spanish electrical regulations (REBT2002, ITC-BT-38). These transformers are especially designed for power supply in operating theatres and other medical locations, where due to intensive contact between machines and patients, a high electric shock hazards exists for both patients and medical staff. It is also necessary to maintain the electricity supply even in the case of an insulation fault or overload condition. Very low leakage currents.

PRI voltage: 230 V
SEC voltage: 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP00
Dielectric strength PRI-SEC: > 5kV
Leakage currents < 0,5 mA
Inrush current < 8-In
Electrostatic screen

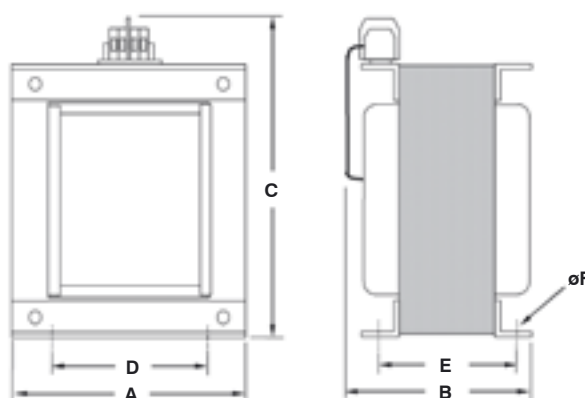


69N0063000

TR 29 STANDARD UNE SINGLE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
1	69N0010000	163	160	260	98	115	8	17,0
1,6	69N0016000	163	175	260	98	130	8	21,5
2	69N0020000	163	195	260	98	150	8	25,5
2,5	69N0025000	200	200	310	120	140	10	34,0
3	69N0030000	200	210	310	120	160	10	38,0
4	69N0040000	200	240	310	120	180	10	48,0
5	69N0050000	250	250	390	150	180	12	65,0
6,3	69N0063000	250	270	390	150	200	12	75,0
7,5	69N0075000	250	300	390	150	230	12	90,0

DIMENSIONS



STANDARDS

UNE 20615-78
UNE 20615 -80 1º C
UNE 20615 -80 2º C

PROTECTION

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TRANSFORMERS

SINGLE-PHASE

FOR MEDICAL LOCATIONS



TR 29 IEC/EN

Single-phase isolating transformers especially designed for power supply in medical locations that belong to group 2 (operating theatres, operating recovery rooms, anaesthesia rooms, intensive care units, premature baby units) where due to intensive contact between machines and patients, a high electric shock hazards exists for both patients and medical staff. It is also necessary to maintain the electricity supply even in the case of an insulation fault or overload condition. Very low leakage currents. Built-in PTC thermistors for monitoring the transformer temperature.

PRI voltage: 230 V
SEC voltage: 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP00
Dielectric strength: > 4 kV
Leakage currents < 0,35 mA
Short circuit voltage <3%
No load current > 3%
Inrush current < 8-In
Electrostatic screen
2 PTC thermistors
Horizontal or vertical mounting

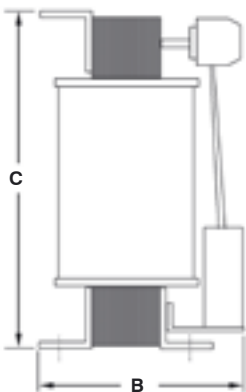
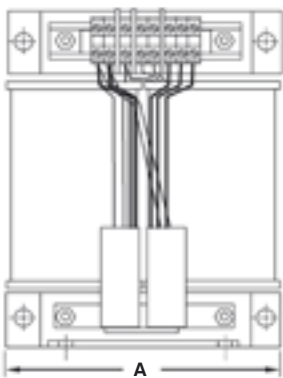
TR 29 STANDARDS IEC/EN SINGLE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)							WEIGHT (kg)
		A	B	C	D	E	F	G	H	I	J	
1,6	69N0016001	200	180	270	200	175	10	150	110	100	8	20,0
2,5	69N0025001	200	200	270	200	175	10	150	130	100	8	26,0
3,3	69N0033001	240	200	315	240	210	10	205	135	120	10	35,0
5	69N0050001	240	220	315	240	210	10	205	150	120	10	42,5
6,3	69N0063001	280	245	370	280	245	10	235	170	140	10	63,0
8	69N0080001	280	270	370	280	245	10	235	190	140	10	71,0
10	69N0100001	320	265	420	320	280	10	265	195	160	10	93,0



69N0063001

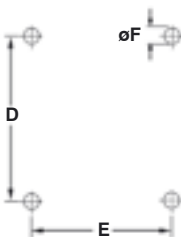
DIMENSIONS



VERTICAL MOUNTING



HORIZONTAL MOUNTING



STANDARDS
IEC 61558-1 EN 61588-2-15
IEC 61558-2-15
IEC 60364-7-710
EN 61558-1

PROTECTION

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TRT 33 IP00

Three-phase power isolating transformers dry type. Intended for change of voltages with galvanic isolation, attenuation of line disturbances and/or when it is necessary to change the neutral system. Connection with terminal blocks or with screws for flats terminals. Manufactured with electrical steel with low losses and copper windings. On request we can manufacture transformers with other voltages, with taps, electrostatic screen, with thermal switch, etc.

PRI voltage: 400 V
SEC voltage: 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00 | IP23
Dielectric strength PRI-SEC: > 4 kV
Natural air cooling
Vector group: Dyn5
Others characteristics on request



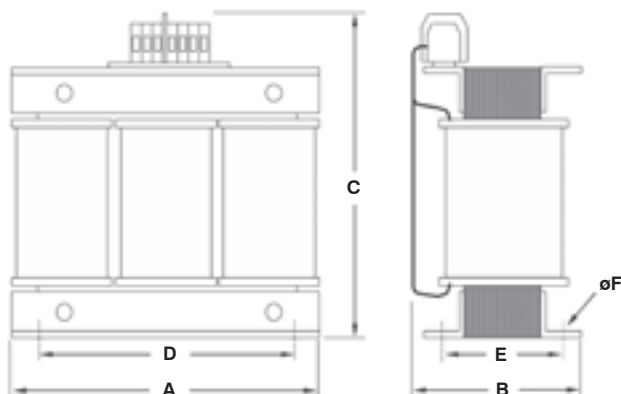
73N0035000

TRT 33 IP00 THREE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
0,5	73N0005000	180	85	225	140	55	6	6,5
1	73N0010000	240	110	260	200	75	6	16,0
1,6	73N0016000	240	120	260	200	85	6	18,5
2	73N0020000	240	130	260	200	95	6	23,0
3,5	73N0035000	300	135	340	200	105	6	33,5
4	73N0040000	300	145	340	200	115	6	40,0
5	73N0050000	300	175	340	200	135	6	50,0
6,3	73N0063000	360	170	390	300	115	8	56,0
8	73N0080000	360	180	390	300	125	8	58,0
10	73N0100000	360	190	390	300	135	8	66,7
12,5	73N0125000	420	195	450	300	135	8	78,0
16	73N0160000	420	215	450	300	155	8	102
20	73N0200000	480	220	500	400	155	10	118
25	73N0250000	480	240	500	400	175	10	154
31,5	73N0315000	480	265	500	400	195	10	165
40	73N0400000	480	300	500	400	215	10	195
50	73N0500000	660	310	600	500	225	12	255
63	73N0630000	660	330	600	500	245	12	320
80	73N0800000	660	350	600	500	270	12	420
100	73N1000000	720	380	720	500	250	12	450

Dimensions may slightly vary according the voltages

DIMENSIONS



STANDARDS
IEC 61558
EN 61558
IEC 60076-11

PROTECTION

VECTOR GROUPS

IP PROTECTION INDEX

TRANSFORMERS

THREE-PHASE



TRT 33 IP23

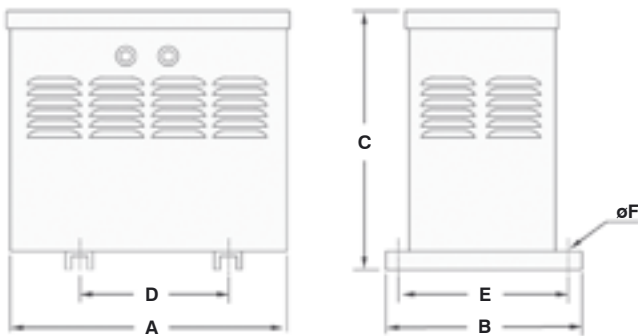
TRT 33 IP23 THREE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)				FIXING (mm)		WEIGHT (kg)
		A	B	C	D	E	F	
0,5	73C0005000	235	240	285	140	215	12	9,5
1	73C0010000	285	290	335	200	265	12	20,0
1,6	73C0016000	285	290	335	200	265	12	22,5
2	73C0020000	285	290	335	200	265	12	27,0
3,5	73C0035000	375	300	435	200	270	12	40,5
6,3	73C0063000	450	400	480	300	370	12	66,0
8	73C0080000	450	400	480	300	370	12	68,0
10	73C0100000	450	400	480	300	370	12	76,5
12,5	73C0125000	510	400	540	300	370	12	89,0
16	73C0160000	510	400	540	300	370	12	113
20	73C0200000	540	500	610	400	470	12	137
25	73C0250000	540	500	610	400	470	12	172
31,5	73C0315000	540	500	610	400	470	12	184
40	73C0400000	540	500	610	400	470	12	215
50	73C0500000	880	530	830	500	500	12	285
63	73C0630000	880	530	830	500	500	12	350
80	73C0800000	880	730	830	500	700	12	460
100	73C1000000	880	730	830	500	700	12	490



73C0035000

DIMENSIONS



TR 33 IP23 THREE-PHASE TRANSFORMER ACCESSORIES

REFERENCE	DESCRIPTION
690000005	WHEELS KIT (max 200 kg/wheel)



6900000005

TRANSFORMERS

THREE-PHASE

FOR MEDICAL LOCATIONS



TRT 34 IEC/EN

Three-phase isolating transformers especially designed for power supply in medical locations that belong to group 2 (operating theatres, operating recovery rooms, anaesthesia rooms, intensive care units, premature baby units) where due to intensive contact between machines and patients, a high electric shock hazards exists for both patients and medical staff. It is also necessary to maintain the electricity supply even in the case of an insulation fault or overload condition. Very low leakage currents. Built-in PTC thermistors for monitoring the transformer temperature.

Reinforced insulation
Electrostatic screen between primary and secondary windings
Rated primary voltage: 400 V
Rated secondary voltage: 230 V
Thermal class: B
Maximum ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP00
Dielectric strength windings-metallic parts: > 4kV
Leakage currents: < 0,5 mA (0,35 mA)
Short circuit voltage: < 3%
No load current: < 3%
Inrush current: < 12-In
Electrostatic screen

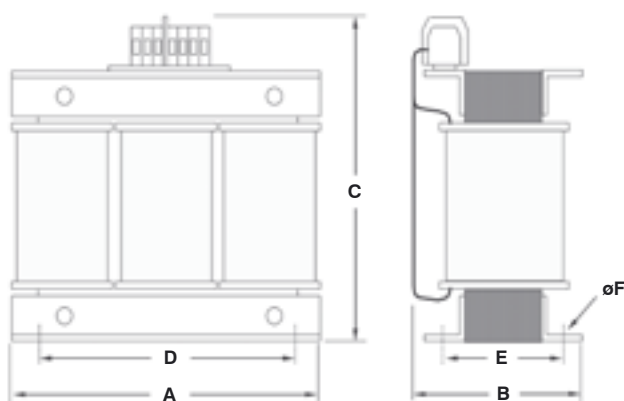


74N0063001

TRT 34 STANDARD IEC/EN THREE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)						WEIGHT (kg)
		A	B	C	D	E	F	
3,15	74N0032001	360	200	400	300	130	9	70,0
5	74N0050001	420	210	450	300	120	9	91,5
6,3	74N0063001	420	220	450	300	130	9	102,0
8	74N0080001	420	240	450	300	150	9	123,0
10	74N0100001	420	250	450	300	160	9	133,5

DIMENSIONS



TRANSFORMERS

THREE-PHASE

FOR MEDICAL LOCATIONS



TRT 34 UNE

Three-phase isolating transformers according to Spanish standard and the requirements of Spanish electrical regulations (REBT2002, ITC-BT-38). These transformers are especially designed for power supply in operating theatres and other medical locations, where due to intensive contact between machines and patients, a high electric shock hazards exists for both patients and medical staff. It is also necessary to maintain the electricity supply even in the case of an insulation fault or overload condition. Very low leakage currents.

PRI voltage: 400 V
SEC voltage: 230 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP00
Vector Group: YNd5
Dielectric strength PRI-SEC: > 5kV
Leakage currents < 0,5 mA
Inrush current < 8·In
Electrostatic screen

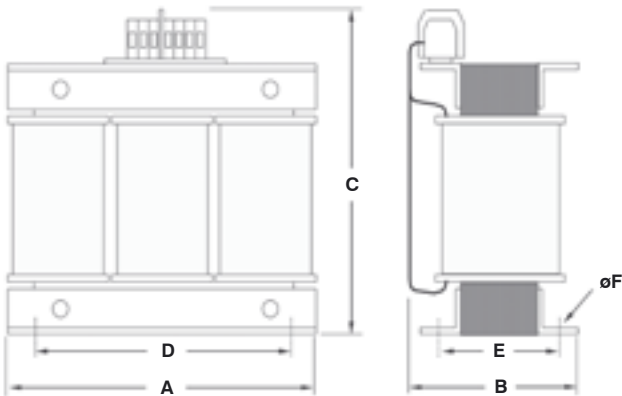
TRT 34 STANDARD UNE THREE-PHASE TRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
2	74N0020000	300	135	320	200	95	6	30
3	74N0030000	300	155	320	200	105	6	37
5	74N0050000	360	170	385	300	115	8	59
7,5	74N0075000	420	195	435	300	135	8	73



74N0030000

DIMENSIONS



TRANSFORMERS

STANDARDS
UNE 20615-78
UNE 20615-80 1° C
UNE 20615-85 2° C

SINGLE-PHASE MODEL

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PROTECTION

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VECTOR GROUPS

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AUTOTRANSFORMERS

SINGLE-PHASE



TR 24

Single-phase reversible autotransformers, especially intended for use as a voltage adapter when an economical solution is required in applications where the galvanic isolation or attenuation of disturbances are not required. On request we can manufacture autotransformers with other voltages, with taps, with thermal switch, etc.

Reversible
Voltages: 0-230-400 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00
Dielectric strength: > 3 kV
Others characteristics on request

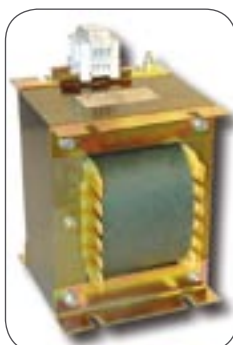


640100000

TR 24 SINGLE-PHASE AUTOTRANSFORMER

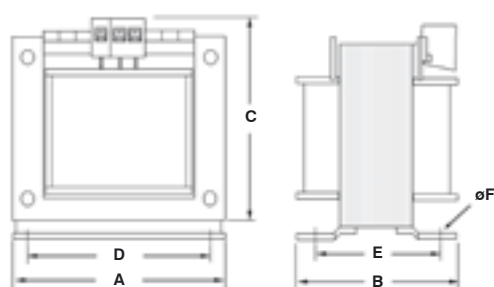
POWER (VA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
100	640100000	75	71	84	56	47	4,8	1,00
200	640200000	84	84	90	64	67	4,8	1,90
320	640320000	96	82	100	84	67	5,7	2,23
400	640400000	96	92	100	84	77	5,7	2,68
500	640500000	96	107	100	84	91	5,7	3,35
630	640630000	108	91	111	80,5	73	5,7	3,60
800	640800000	108	104	111	80,5	87	5,7	4,40
1000	641000000	120	106	118	90	87	5,7	4,90
1600	641600000	150	114	142	122	92	6,8	7,50
2000	642000000	150	130	142	122	108	6,8	9,80
2500	642500000	150	157	142	122	135	6,8	12,9
3000	643000000	150	157	142	122	135	6,8	13,2
4000	644000000	163	165	245	98	120	8	19,0
5000	645000000	163	175	245	98	130	8	21,5
6300	646300000	163	195	245	98	150	8	23,5

Dimensions vary significantly according the voltages

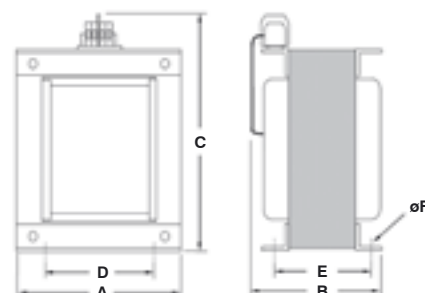


644000000

DIMENSIONS



100 - 3000 VA



4000 - 6300 VA

STANDARDS
 IEC 61558
 EN 61558
 IEC 60076-11

PROTECTION

IP PROTECTION INDEX

AUTOTRANSFORMERS

SINGLE-PHASE



TR 25

Single-phase reversible autotransformers 125-220V, especially intended for use as a voltage adapter when an economical solution is required in applications where the galvanic isolation or attenuation of disturbances are not required. Manufactured with metallic covers and handle. Up to 1000VA they are delivered with mains cable.

Reversible
Voltages: 125-220 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Protection index: IP21
Metallic covers
Up to 1000 VA are supplied with cable plug

TR 25 SINGLE-PHASE AUTOTRANSFORMER

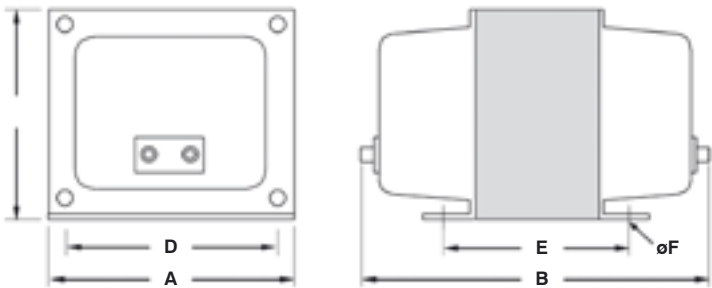
POWER	REFERENCE	SIZE			FIXING			WEIGHT
(VA)		(mm)			(mm)			(kg)
		A	B	C	D	E	F	
100	650100000	75	85	63	57	47	9	1,0
200	650200000	96	105	80	79	49	9	1,5
300	650300000	96	115	80	79	58	9	2,0
400	650400000	96	120	80	79	60	9	2,2
500	650500000	96	130	80	79	67	9	2,8
750	650750000	108	140	90	91	70	10	3,6
1000	651000000	108	150	90	91	75	10	4,1
1500	651500000	126	160	105	116	90	10	6,4
2000	652000000	126	170	105	116	100	10	7,5
2500	652500000	150	165	125	132	80	12	8,2
3000	653000000	150	185	125	132	100	12	10,6



650500000

TRANSFORMERS

DIMENSIONS



STANDARDS
IEC 60076-11

PROTECTION

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AUTOTRANSFORMERS

THREE-PHASE



TRT 30 IP00

Three-phase reversible autotransformers, dry type, intended for use as voltage adapter when an economical solution is required in applications where the galvanic isolation or attenuation of disturbances are not required. The main applications include the voltage adaptation in motors, pumps, machines, air conditioning equipment. Connection with terminal blocks or with screws for flat terminals. Manufactured with electrical steel with low losses and copper windings. On request we can manufacture autotransformers with other voltages, with taps, with thermal switch, etc.

Reversible
Copper windings
Voltages: 230-400 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP00
Dielectric strength: > 3 kV
Natural air cooling
Vector group: Yn0 (with neutral)
Others characteristics on request



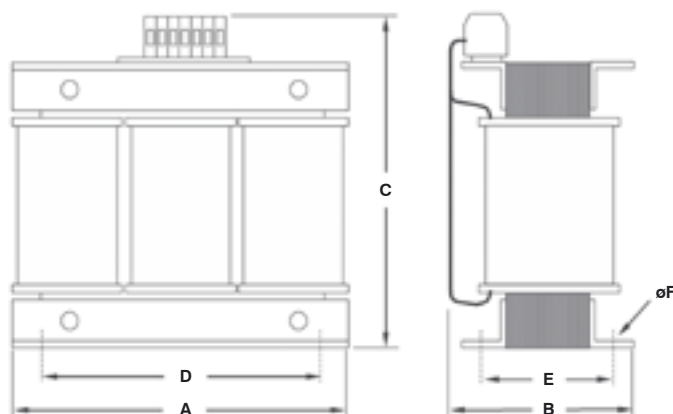
70N0630000

TRT 30 IP00 THREE-PHASE AUTOTRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
0,5	70N0005000	180	85	160	140	55	6	5,5
1	70N0010000	180	85	225	140	55	6	6,5
2	70N0020000	180	95	225	140	65	6	9,1
3	70N0030000	240	110	250	200	75	6	16,0
5	70N0050000	240	120	250	200	85	6	18,5
8	70N0080000	240	145	250	200	110	6	27,0
10	70N0100000	300	135	320	200	95	6	31,0
12,5	70N0125000	300	155	320	200	115	6	40,0
16	70N0160000	300	165	320	200	125	6	44,0
20	70N0200000	360	170	370	300	115	8	56,0
25	70N0250000	360	180	370	300	125	8	58,0
31,5	70N0315000	420	195	435	300	135	8	78,0
40	70N0400000	420	205	435	300	145	8	90,0
50	70N0500000	420	215	435	300	155	8	102
63	70N0630000	480	240	500	400	175	10	154
80	70N0800000	480	265	500	400	195	10	165
100	70N1000000	480	300	500	400	215	10	195
125	70N1250000	660	310	600	500	225	12	245
160	70N1600000	660	330	600	500	245	12	305
200	70N2000000	660	350	600	500	270	12	400

Dimensions vary significantly according the voltages

DIMENSIONS



STANDARDS
IEC 61558
EN 61558
IEC 60076-11

SELECTION GUIDE

PROTECTION

IP PROTECTION INDEX

AUTOTRANSFORMERS

THREE-PHASE



TRT 30 IP23

Three-phase reversible autotransformers, dry type, intended for use as voltage adapter when an economical solution is required in applications where the galvanic isolation or attenuation of disturbances are not required. The main applications include the voltage adaptation in motors, pumps, machines, air conditioning equipment. Connection with terminal blocks or with screws for flat terminals. Manufactured with electrical steel with low losses and copper windings. On request we can manufacture autotransformers with other voltages, with taps, with thermal switch, etc.

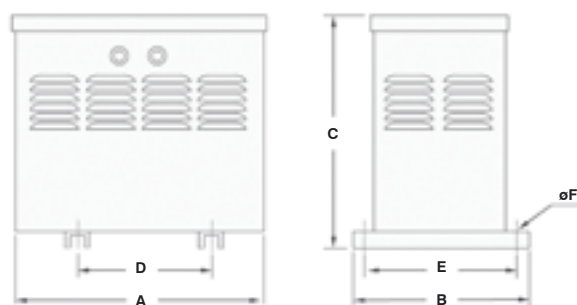
Reversible
Copper windings
Voltages: 230-400 V
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50/60 Hz
Class I
Protection index: IP23
Dielectric strength: > 3 kV
Natural air cooling
Vector group: Yn0 (with neutral)
Others characteristics on request

TRT 30 IP23 THREE-PHASE AUTOTRANSFORMER

POWER (kVA)	REFERENCE	SIZE (mm)			FIXING (mm)			WEIGHT (kg)
		A	B	C	D	E	F	
0,5	70C0005000	235	240	285	140	215	12	9,0
1	70C0010000	235	240	285	140	215	12	9,5
2	70C0020000	235	240	285	140	215	12	12,0
3	70C0030000	285	290	335	200	265	12	20,0
5	70C0050000	285	290	335	200	265	12	22,5
8	70C0080000	285	290	335	200	265	12	31,0
10	70C0100000	375	300	435	200	270	12	38,0
12,5	70C0125000	375	300	435	200	270	12	47,0
16	70C0160000	375	300	435	200	270	12	51,0
20	70C0200000	450	400	480	300	370	12	66,0
25	70C0250000	450	400	480	300	370	12	68,0
31,5	70C0315000	510	400	540	300	370	12	89,0
40	70C0400000	510	400	540	300	370	12	101
50	70C0500000	510	400	540	300	370	12	113
63	70C0630000	540	500	610	400	470	12	172
80	70C0800000	540	500	610	400	470	12	184
100	70C1000000	540	500	610	400	470	12	215
125	70C1250000	880	530	830	500	500	12	275
160	70C1600000	880	530	830	500	500	12	335
200	70C2000000	880	730	830	500	700	12	440

Dimensions vary significantly according the voltages

DIMENSIONS



TRT 30 IP23 THREE-PHASE AUTOTRANSFORMER ACCESSORIES

REFERENCE	DESCRIPTION
690000005	WHEELS KIT (max 200 kg/wheel)



70C0630000



6900000005

STANDARDS

IEC 61558
EN 61558
IEC 60076-11

SELECTION GUIDE

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PROTECTION

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IP PROTECTION INDEX

178-179

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CHOKES

SINGLE-PHASE

RE 8

Single-phase reactors intended for the attenuation of notches and spikes, reduction of harmonics and limitation of inrush currents. Drop voltage of 4% of the rated voltage (230V). On request we can manufacture reactors with other characteristics, for other applications or with thermal switch.

Voltage drop: 4% at I_N (230V)
 Thermal class: B
 Max. ambient temperature: 40°C
 Frequency: 50 Hz
 Class I
 Protection index: IP00
 Dielectric strength: > 3 kV
 Other characteristics on request

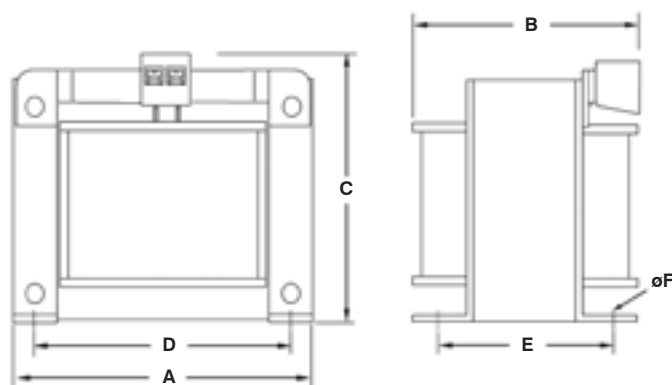


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RE 8 SINGLE-PHASE CHOKE

CURRENT		REFERENCE	SIZE			FIXING			WEIGHT
(A)	(mH)		(mm)			(mm)			(kg)
			A	B	C	D	E	F	
6	4,881	8006100480	60	70	68	50	48	4	0,73
10	2,928	8010100290	75	66	81	62,5	45	4	0,98
16	1,830	8016100180	84	85	86	70	66	4	1,98
25	1,171	8025100110	96	90	96	80	70	5	2,65
32	0,915	8032291500	108	112	106	90	75	5	3,56
40	0,732	8040273200	108	126	116	90	89	5	4,37
50	0,586	8050258600	120	123	128	100	84	6	5,00
63	0,465	8063246500	120	143	128	100	104	6	6,75

DIMENSIONS



STANDARDS

IEC 61558
 IEC 60289
 EN 61558
 EN 60289

IP PROTECTION INDEX

178-179

CHOKES

THREE-PHASE

LINE



RET 9

Three-phase reactors intended for the attenuation of notches and spikes, reduction of harmonics and limitation of inrush currents in converters and variable speed drives. Drop voltage of 4% of the rated voltage (400V). Manufactured with electrical steel with low losses and copper windings. On request we can manufacture reactors with other characteristics or with thermal switch.

Voltage drop: 4% at I_N (400V)
 Thermal class: B
 Max. ambient temperature: 40°C
 Frequency: 50 Hz
 Class I
 Protection index: IP00
 Dielectric strength: > 4 kV
 Natural air cooling
 Other characteristics on request

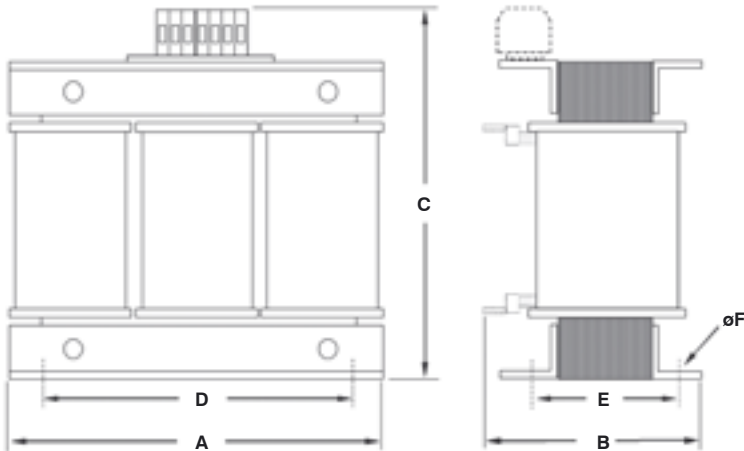
RET 9 THREE-PHASE LINE CHOKE

CURRENT		REFERENCE	SIZE			FIXING			WEIGHT
(A)	(mH)		(mm)			(mm)			(kg)
			A	B	C	D	E	F	
10	2,928	9010100290	180	90	205	140	55	6	4,5
16	1,830	9016100180	180	90	205	140	55	6	4,8
20	1,464	9020100140	180	90	205	140	55	6	5,2
25	1,171	9025100110	180	90	205	140	55	6	5,5
32	0,915	9032291500	180	90	220	140	55	6	6,5
40	0,732	9040273200	180	100	235	140	65	6	8,5
50	0,586	9050258600	180	100	235	140	65	6	9,0
63	0,465	9063246500	180	140	185	140	75	6	10,0
80	0,366	9080236600	240	140	235	200	75	6	14,0
100	0,293	9100229300	240	140	235	200	75	6	15,0
125	0,234	9125223400	240	140	235	200	75	6	16,0
160	0,183	9160218300	240	150	235	200	85	6	18,5
200	0,146	9200214600	300	190	290	200	95	6	30,0



TRANSFORMERS

DIMENSIONS



STANDARDS

IEC 61558
 IEC 60289
 EN 61558
 EN 60289

IP PROTECTION INDEX

178-179

CHOKES

THREE-PHASE

HARMONIC CIRCUIT FILTER REACTORS

RET 9

Three-phase reactors for the protection of capacitor banks in power factor correction equipment with presence of harmonics. Avoids resonance effects, minimizes harmonic currents through the capacitors and reduces the losses, increasing capacitor life. Manufactured with electrical steel with low losses and copper windings. Built-in thermal switch. On request we can manufacture reactors with other characteristics.

Rated voltage: 400V
Filtering factor $p = 0,07$ (7%) $f_r = 189$ Hz
Tolerance L: 3%
Linearity (95% L_N): $1,8 \cdot I_N$
Max. permanent overload: $1,17 \cdot I_N$
Thermal class: B
Max. ambient temperature: 40°C
Frequency: 50 Hz
Class I
Protection index: IP00
Dielectric strength: > 4 kV
Thermal micro switch
Other characteristics on request



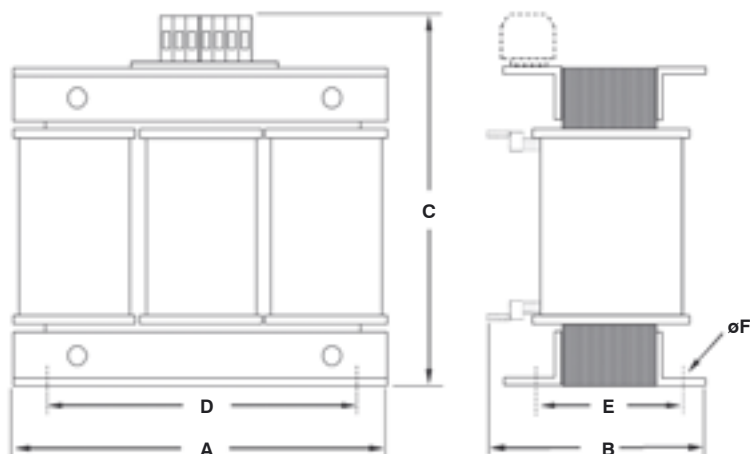
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RET 9 THREE-PHASE HARMONIC CIRCUIT FILTER REACTORS

POWER	CURRENT			REFERENCE	SIZE			FIXING			WEIGHT
(kvar)*	L (mH)	I _N 50 Hz (A)	I _N rms (A)		(mm)			(mm)			(kg)
					A	B	C	D	E	F	
5	7,67	7,65	8,44	9008100760	180	85	220	140	55	6	6,5
10	3,83	15,3	16,9	9015100380	180	95	220	140	65	6	9,0
12,5	3,07	19,1	21,1	9019100310	180	105	170	140	75	6	11,5
15	2,56	22,9	25,3	9023100260	240	135	230	200	75	6	15,0
20	1,92	30,6	33,7	9031100190	240	135	230	200	75	6	15,4
25	1,53	38,2	42,2	9038100150	240	135	230	200	75	6	15,9
30	1,28	45,9	50,6	9046100120	240	145	230	200	85	6	18,0
40	0,958	61,2	67,5	9061295800	240	145	230	200	85	6	20,0
50	0,767	76,5	84,4	9076276700	300	170	285	200	95	6	30,0
60	0,639	91,8	101,3	9092263900	300	180	285	200	105	6	36,0
70	0,548	107,1	118,2	9107254800	300	190	285	200	115	6	40,0
80	0,479	122,4	135,1	9122247900	300	200	285	200	125	6	42,0

(*) Effective filtered compensating reactive power

DIMENSIONS



STANDARDS

IEC 61558
IEC 60289
EN 61558
EN 60289

IP PROTECTION INDEX

178-179

TR21 and TR28 SELECTION GUIDE

DETERMINATION OF RATED POWER OF THE TRANSFORMER IN CONTROL APPLICATIONS

For the correct sizing of a control transformer we must consider the continuous power as well as the inrush power due to the high momentary inrush current caused when electromechanical devices such as contactors or relays are energized. During the normal operation of control circuit the transformer must supply a high instantaneous power for a short time. From the thermal point of view this is not a problem due to the very short time, however, this situation could be problematic due to the reduction of output voltage in the transformer. If the secondary voltage decreases in excess, some devices might not operate and the control circuit won't work properly.

Thus, in every control circuit we will take into account several facts:

- The maximum power in a given moment (inrush power).
- Continuous power requirement.
- Power factor.
- Minimum admissible voltage.

An exhaustive study in each situation could be very complex due to the particularities on every application, however there are simple rules to determine the correct size of a transformer.

We can suppose that the power factor is $\cos \varphi = 0,5$ during the operation of contactors.

The instantaneous power will be:

$$P_{inst} = \sum P_m + \sum P_s + P_a$$

$\sum P_m$: sum of the sealed power of the contactors.

$\sum P_s$: sum of the power of the signalling lamps.

P_a : Inrush power of the biggest contactor.



SELECTION GUIDE

DETERMINATION OF AUTO-TRANSFORMERS FOR MOTORS

When it is necessary to select an autotransformer for supply a electric motor or an equipment where the main charge is a motor, it is important to take into account the type of mechanic charge of the motor as well as the type of start, in order to consider the time and the peak currents that the autotransformer must withstand.

For another hand we must bear in mind the frequency of the starts of the motor (number of starts per hour).

Basically we can consider three load types on the motor:

- Normal load.
- Heavy load.
- Soft starter or variable speed drive.

1. NORMAL LOAD

Direct start on line, star-delta or start with resistors/reactances with fast start and low inertia load on the motor.

Examples:

- Air conditioned.
- Colds chambers or freezers.
- Compressors.
- Machine tools.

2. HEAVY LOAD

Applications where the motor has a load with high inertia what causes a very slow start.

Examples:

- Belt conveyor.
- Fans.
- Shaping machine.
- Grinding machine.
- Pump.
- Rolling-mill train.

3. SOFT STARTER OR VARIABLE SPEED DRIVE.

The use of soft starters or variable speed drives can avoid the high starting current, however, the harmonics increase the losses in the autotransformers which cause elevation of temperature. This point must be take into account for the correct choosing of the rated power because an excessive temperature rise can reduce drastically the duration of the autotransformer.

AUTOTRANSFORMERS

THREE-PHASE

REVERSIBLES - SELECTION GUIDE



TRT 30

SELECTION GUIDE

The following table defines the rated power recommended for the supply motors (or equipment and machines where the motor is the main charge).

MOTOR*					RATED POWER OF AUTOTRANSFORMER					
					NON FREQUENT START (UP TO 4 STARTS / HOUR)			FREQUENT START (UP TO 15 STARTS / HOUR)		
					NORMAL LOAD	HEAVY LOAD	VARIABLE SPEED DRIVE	NORMAL LOAD	HEAVY LOAD	VARIABLE SPEED DRIVE
(CV)	(kW)	FP	η (%)	(kVA)	(kVA)					
0,25	0,18	0,72	72	0,35	0,5	0,5	0,5	0,5	1	0,5
0,5	0,37	0,72	72	0,71	1	1	1	1	2	1
0,75	0,55	0,75	73	1,01	1	2	2	2	2	2
1	0,74	0,76	75	1,29	2	2	2	2	3	2
1,5	1,10	0,78	76	1,86	2	2	3	3	5	3
2	1,47	0,80	77	2,39	3	3	3	3	5	3
2,5	1,84	0,82	79	2,84	3	5	5	5	8	5
3	2,21	0,83	80	3,33	5	5	5	5	8	5
4	2,94	0,84	80	4,38	5	8	8	8	8	8
5	3,68	0,84	83	5,28	8	8	8	8	10	8
5,5	4,05	0,84	83	5,81	8	8	10	8	12,5	10
7,5	5,52	0,84	85	7,73	10	12,5	12,5	10	16	12,5
10	7,36	0,84	86	10,2	12,5	16	16	16	20	16
15	11,0	0,85	87	14,9	16	20	20	20	31,5	20
20	14,7	0,85	88	19,7	25	31,5	31,5	31,5	40	31,5
25	18,4	0,85	89	24,3	31,5	40	40	31,5	50	40
30	22,1	0,86	90	28,5	31,5	40	40	40	63	40
40	29,4	0,86	94	36,4	40	50	50	50	80	50
50	36,8	0,87	96	44,1	50	63	63	63	100	63
60	44,2	0,87	97	52,3	63	80	80	80	100	80
75	55,2	0,88	98	64,0	80	100	100	100	125	100
100	73,6	0,88	98	85,3	100	125	125	125	160	125
125	92,0	0,88	98	106,7	125	160	160	160	200	160
150	110,4	0,88	98	128,0	160	200	200	200	—	200
180	132,5	0,88	98	153,6	200	200	200	200	—	200
200	147,2	0,88	98	170,7	200	—	—	—	—	—

(*) Approximate values for three-phase squirrel cage motors, 4 poles, 50/60 Hz. (Could be different according the manufacturer)

PROTECTION OF TRANSFORMERS AND AUTOTRANSFORMERS

The transformers and autotransformers (and their lines) must be protected against overloads and/or short-circuits that they can be submitted in use, and could causes dangerous situations for persons, animals or installations.
This protection are also a requirement of the standards and the national regulations about electrical installations.

Due to the high inrush current (about $25 \cdot I_n$) it is very difficult to get an optimal protection in the primary side. If we select the rated current of fuses according to the primary rated current, the inrush current will melt the fuses. On the other hand, if the fuses are overrating for withstand the inrush, the transformer won't have a good protection against overloads.

For this reason we recommend to protect transformers and autotransformers on the secondary side (output).
The most adequate way to protect this devices (and their lines) is to include on the output side a device protection capable to interrupt overloads as well as short circuits. For the other hand the input line must be protected against short circuit.

As a general rule the criteria to select the ratings of protection devices are the following:

PROTECTION ON THE OUTPUT SIDE (LOAD)

In this part can appear overloads (if the user try to obtain a power higher than the rated power) as well as short circuits.

In order to achieve a good protection, the device (fuse link, circuit breaker or similar) must be capable to interrupt all range of currents (overloads and short circuits) and must have a rated current equal or lower than the output rated current of the autotransformer.

PROTECTION ON THE INPUT SIDE (SUPPLY LINE)

In this part there is no risk of overload because if the output protection has been correctly selected, it will operate if appear an overload at the output side and the load will be disconnected of the autotransformer.

For this reason we only must protect the input line of autotransformer against short circuits in the line, in the autotransformer connections or inside the windings in a hypothetical failure of the insulations.

When the transformer is energized, it can demand a high momentary current (can be about 25 times the rated current) with a duration of a few milliseconds, that decrease very quickly until reach the rated value.

This factors should be take into account to choose the protection in order to avoid the fusing of the fuses or the not desired operation of the circuit breakers:

- Miniature fuses 5x20 ó 6x32 time-lag (slow) according to IEC/EN60127:
In fuse link $\geq 3 \cdot I_n$ transformer
- Fuse links aM type according to IEC/EN60269:
In fuse link $\geq 1,8 \cdot I_n$ transformer
- Fuse links gG type according to IEC/EN60269:
In fuse link $\geq 3 \cdot I_n$ transformer

TRANSFORMERS

THREE-PHASE

VECTOR GROUPS



VECTOR GROUPS FOR THREE-PHASE TRANSFORMERS

VECTOR GROUP	PHASE ANGLE	GREATER VOLTAGE	SMALLER VOLTAGE	VECTOR GROUP	PHASE ANGLE	GREATER VOLTAGE	SMALLER VOLTAGE
Dd0	0 (0°)			Dd6	6 (180°)		
Yy0	0 (0°)			Yy6	6 (180°)		
Dy5	5 (150°)			Dy11	11 (330°)		
Yd5	5 (150°)			Yd11	11 (330°)		

D → DELTA CONNECTION
Y → STAR (WYE) CONNECTION

- Capital letters (**D**, **Y**, **N**) are associated to the winding with the greater voltage and small letters (**d**, **and**, **n**) with the smaller voltage.
- If the neutral point of star connection winding is accessible (can be connected) is indicated by the letter **N**: **YN** or **yn**.

ANNEXES

DC APPLICATIONS FOR DF ELECTRIC FUSE LINKS	176
USE OF SEMICONDUCTOR FUSE LINKS IN MODULAR FUSE HOLDERS	177
IP PROTECTION INDEX	178-179
REFERENCE INDEX	180-183



DF ELECTRIC FUSES LINKS IN DC

Fuses are generally suitable for both AC and DC applications. The DC performance of fuse-links is different and AC ratings cannot be used for DC applications.

There is no simple rule that safely converts an AC voltage rating of a fuse-link to DC voltage rating. For this reason it is necessary to take into account a lot of aspects in order to determine the DC applications.

In the **DF ELECTRIC** fuse-links it is necessary to take into account the following considerations:

- The power dissipations are the same in AC (RMS value) and the DC values.
- The time current characteristics are the same for DC applications under steady-state conditions.
- The DC rated voltage and maximum breaking capacity are lower than the AC values (*see the tables*).
- In some sizes it is necessary to reduce the maximum rated current for DC applications (*see the tables*).

CYLINDRICAL gG

SIZE	RATED VOLTAGES	DC BREAKING CAPACITY	MAX. RATED CURRENT FOR DC
8,5x31,5	400V AC → 150V DC	3 kA	10 A
10x38	500V AC → 250V DC	15 kA	16 A
14x51	500V AC → 250V DC	15 kA (250V DC)	32 A
	690V AC → 440V DC	10 kA (440V DC)	25 A
22x58	500V AC → 250V DC	15 kA (250V DC)	80 A
	690V AC → 440V DC	10 kA (440V DC)	63 A

NH gG

SIZE	RATED VOLTAGES	DC BREAKING CAPACITY	MAX. RATED CURRENT FOR DC
00	500V AC → 125V DC	25 kA	160 A
	690V AC → 250V DC		
0	500V AC → 250V DC	25 kA	160 A
	690V AC → 440V DC		
1	500V AC → 250V DC	25 kA	250 A
	690V AC → 440V DC		
2	500V AC → 250V DC	25 kA	400 A
	690V AC → 440V DC		
3	500V AC → 250V DC	25 kA	630 A
	690V AC → 440V DC		
4	500V AC → 250V DC	25 kA	1000 A
	690V AC → 440V DC		

These values are referred to a time constant $L/R = 15$ ms.

For higher values of time constant, the maximum utilization voltage must be reduced.

For circuits with very inductive behaviour, we recommend to connect two fuses in series.

RAPIDPLUS FUSE LINKS IN PMC/PMF MODULAR FUSE HOLDERS

The modular fuse holders for cylindrical fuses have a rated power acceptance according to the maximum power dissipations allowed for the general use fuse links (gG) and back up fuse links.

These maximum values allowed for the fuse links (gG/aM) are regulated by standards (IEC/EN60269-2-1). In the same way, this standards specify the minimum power acceptance for the fuse holders. This power acceptance is the power dissipated by the fuse links (converted in heat) tha the fuse holder can accept with an acceptable increase of the temperature (values also regulated by standards).

The fuse links for protection of semiconductors (RAPIDPLUS) have a rated power dissipation (or power loss) higher than the gG or aM types, and for this reason there are some limitations for the application of these fuses in closed modular fuse holders.

It is necessary to check that the fuse links have a power diissipation not higher than the maximum value admissible of the fuse holder indicated by the manufacturer.

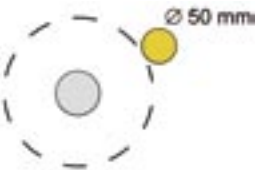
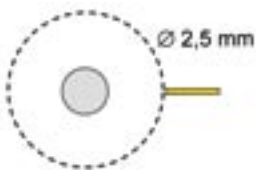
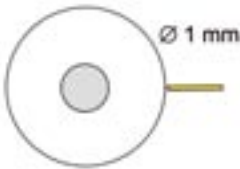
When it is no possible to use modular fuse holders the solution is the use of an open fuse holder where the heat can be appropriately dissipated .

In the following table are indicated the maximum values of power acceptance for **DF ELECTRIC** fuse holders. These limits should never be exceeded:

FUSE HOLDER TYPE	RATED POWER ACCEPTANCE IEC/EN60269-2-1	MAX. POWER ACCEPATNCE DF ELECTRIC FUSE HOLDERS
PMC 10x38	3 W	4 W
PMF 10x38	3 W	4 W
PMF 14x51	5 W	6 W
PMF 22x58	9,5 W	12 W

ANNEXES

IP PROTECTION INDEX

FIRST NUMBER: PROTECTION AGAINST CONTACTS AND SOLID OBJECTS		
0		NO SPECIAL PROTECTION
1		PROTECTED AGAINST SOLID OBJECTS GREATER THAN 50 mm (SUCH AS A HAND)
2		PROTECTED AGAINST SOLID OBJECTS GREATER THAN 12,5 mm (SUCH AS A FINGER)
3		PROTECTED AGAINST SOLID OBJECTS GREATER THAN 2,5 mm (SUCH AS A TOOLS)
4		PROTECTED AGAINST SOLID OBJECTS GREATER THAN 1 mm (SUCH AS A SMALL TOOLS AND WIRES)
5		PROTECTED AGAINST DUST (LOW INGRESS OF DUST) (SATISFACTORY OPERATION OF THE EQUIPMENT)
6		DUST-TIGHT (NO INGRESS OF DUST)

ANNEXES

IP PROTECTION INDEX

SECOND NUMBER: PROTECTION AGAINST HARMFUL INGRESS OF WATER

0

NO SPECIAL PROTECTION

1



PROTECTION AGAINST DRIPPING WATER
(VERTICALLY FALLING DROPS)

2



PROTECTION AGAINST DRIPPING WATER
AT AN ANGLE UP TO 15°

3



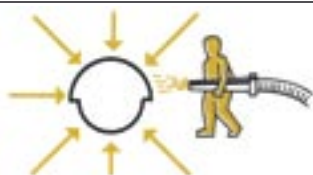
PROTECTION AGAINST DRIPPING WATER
AT AN ANGLE UP TO 60°

4



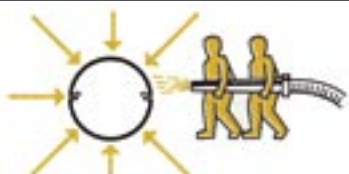
PROTECTION AGAINST SPLASHING
WATER FROM ANY DIRECTION

5



PROTECTION AGAINST WATER JETS

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PROTECTION AGAINST
POWERFUL WATER JET

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PROTECTION AGAINST THE EFFECTS OF
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PROTECTION AGAINST THE EFFECTS OF
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A large white rectangular area with rounded corners, containing horizontal dotted lines for writing notes. A large, faint, light gray watermark of the 'df Electric' logo is centered across the middle of this area.