df Electric

RAPIDPLUS

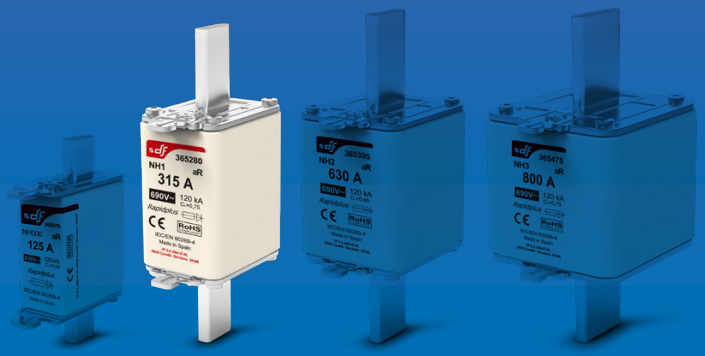
HIGH SPEED FUSE LINKS FOR SEMICONDUCTORS

Rapidplus®

aR
NH

semiconductor protection
fuse links

NH NH1



NH000 NH1 NH2 NH3

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THE WORLD

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aR
NH
semiconductor protection fuse links

NH1

RAPIDPLUS

Rapidplus®

NH1

RATED VOLTAGE
690V AC

RATED CURRENT
40A...400A

BREAKING CAPACITY
120kA

STANDARDS
IEC/EN 60269-1
IEC/EN 60269-4

Rapidplus®
NH fuse links for semiconductors

RAPIDPLUS NH aR fuse links have a very low I^2t values thanks to the special melting elements design, manufactured with pure silver. The sand is solidified in order to have a good arcing control, high breaking capacity and excellent capability for cyclic loads.

These fuse links have a trip indicator that can be used as a visual indication or can be equipped with a microswitch mounted directly on the fuse link.

The range comprises the following fuse links:

→ **Size NH1 690V AC 40A to 400A**

Typical application comprise protection of semiconductors (diodes, thyristors, triacs, etc) used in power rectifiers, UPS, converters, motor drives, soft starters, solid state relays, photovoltaic inverters, welding inverters and any application where it is necessary to protect power semiconductor devices.

RoHS COMPLIANT

Accessories

REFERENCE	DESCRIPTION	PACKING Uni /BOX
357010	MICROSWITCH FOR NH FUSELINKS NH000…NH3	1/12

Range

In (A)	REFERENCE	PACKING Uni /BOX
40	**365225**	3/30
50	**365230**	3/30
63	**365235**	3/30
80	**365240**	3/30
100	**365245**	3/30
125	**365250**	3/30
160	**365255**	3/30
200	**365260**	3/30
250	**365270**	3/30
315	**365280**	3/30
350	**365282**	3/30
400	**365290**	3/30

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Technical data

Rated voltage	690V AC 550V DC (L/R=10ms)
Rated current	40A...400A
Rated breaking capacity	120kA @690V AC 30kA @550V DC
Utilization category	aR
Rated frequency	42...62Hz
Storage temperature	-40°C ... 80°C
Operating temperature *	-25°C ... 60°C

* For ambient temperatures higher than 25ºC it is necessary to apply a derating in maximum current.

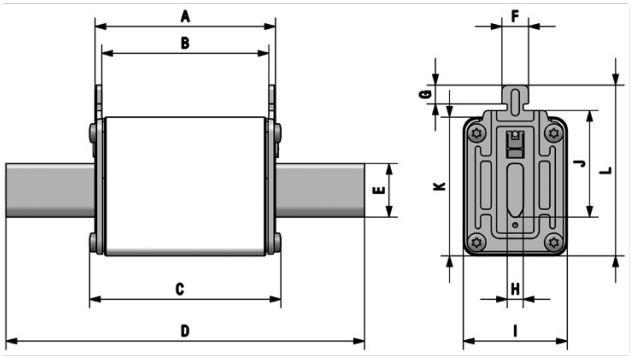
Standards

IEC/EN 60269-1
IEC/EN 60269-4
RoHS Compliant

Materials

Body	Steatite C221
Contact blades	Copper or brass (silver plated)
Plates	Aluminium
Screws	Zinc plated steel

Dimensions



A	B	C	D	E	F	G	H	I	J	K	L
68	62	71,5	135	20	10	9,5	6	39	40	52	64

Weight 380gr

Power dissipation

I_n (A)	POWER DISSIPATION In (W)	POWER DISSIPATION 0,8 · In (A^2S)	PREARCING I^2t (A^2S)	OPERATING I^2t (A^2S)
40	14	8,1	55	320
50	17	9,6	97	570
63	19	11	220	1300
80	23	13	370	2300
100	32	18	570	3590
125	44	24	980	6080
160	45	25	1710	10560
200	59	33	3040	18770
250	73	41	5400	33380
315	77	43	10220	63110
350	80	45	12160	75100
400	93	52	23000	142000

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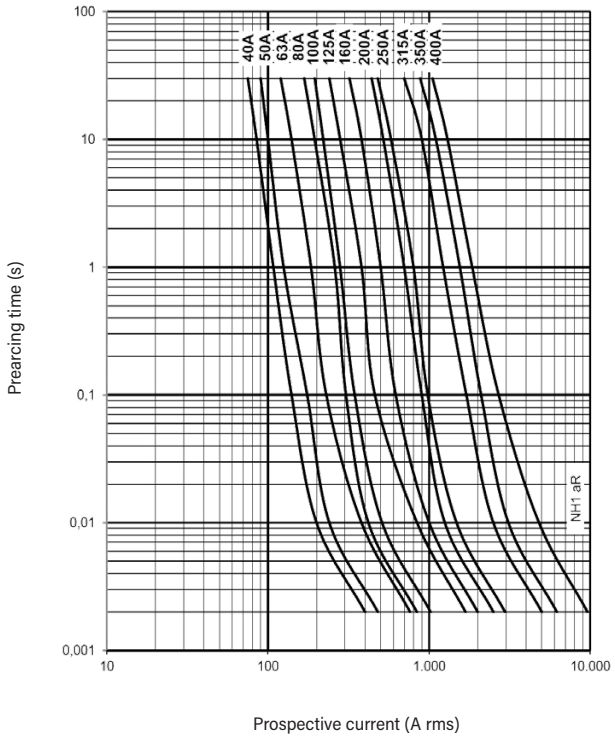
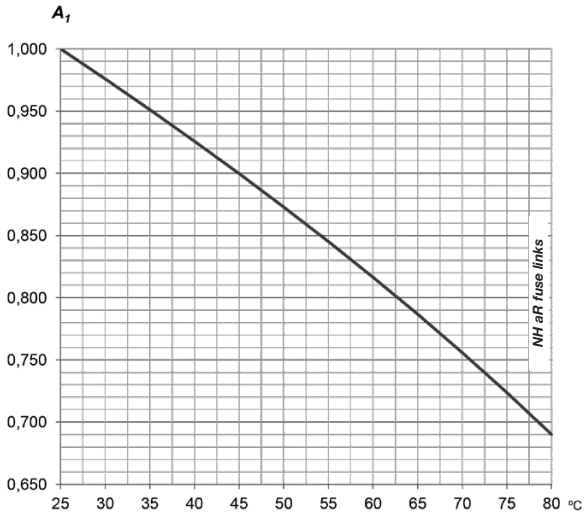
t-I characteristics

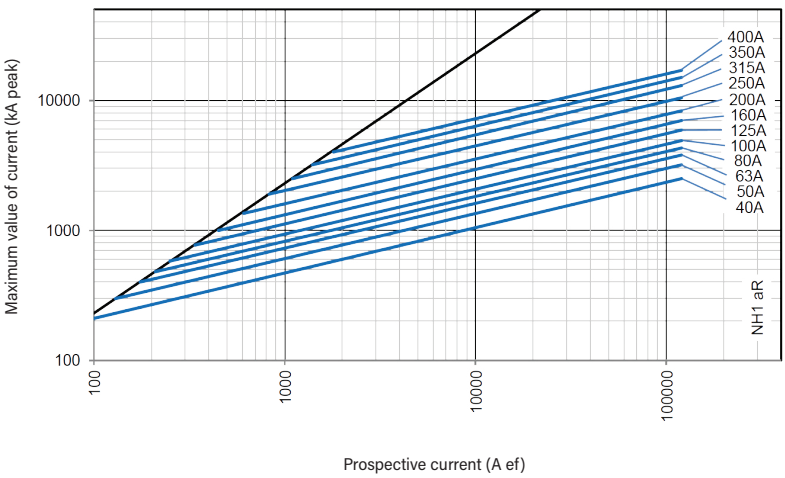


Ambient temperature correction coefficient

Fuse current ratings are established by type tests with an ambient temperature of 25°C. When the utilization ambient temperature is higher than this reference value, the fuse-link must be "de-rated". The rated current of fuse link must be multiplied by a derating factor $\mathbf{A_1}$ to find the maximum operating current.



Cut-off characteristics

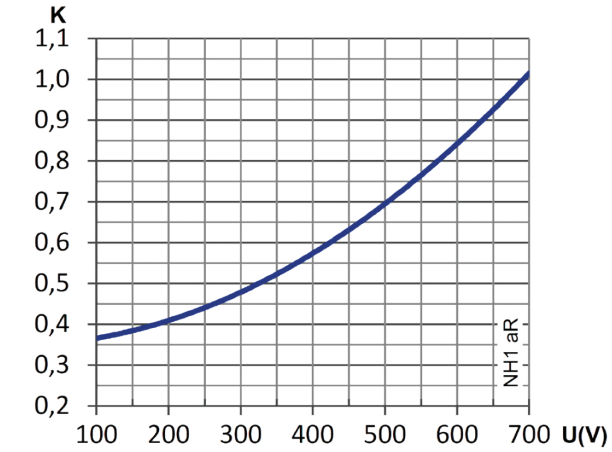


Fuse load constant

Due to the high power dissipation of NH aR fuse links, it is necessary to apply a derating factor that determines the maximum allowable continuous current when these fuse links are installed in an NH base or in a fuse switch disconnector.

$$I_{MAX} = I_n \times C_L$$

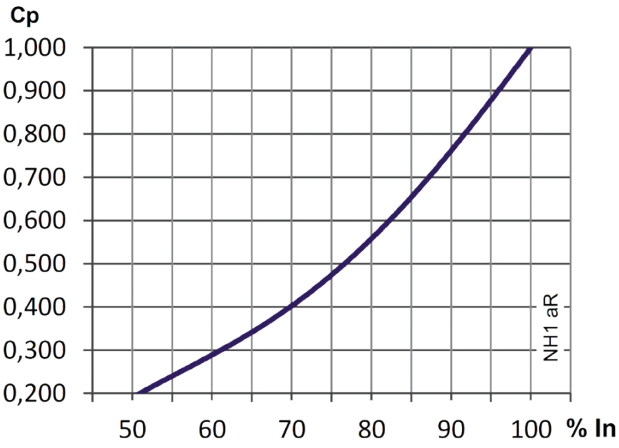
I_n (A)	OPEN TYPE FUSE BASES	FUSE SWITCH DISCONNECTORS
40	1	0,95
50	0,90	0,85
63	0,90	0,85
80	0,90	0,85
100	0,90	0,85
125	0,75	0,70
160	0,75	0,70
200	0,75	0,70
250	0,75	0,70
315	0,75	0,65
350	0,70	0,65
400	0,70	0,60



I^2t Correction factor

Total clearing I^2t values at rated voltage and at power factor of 0,15-0,20 are given in electrical characteristics tables.

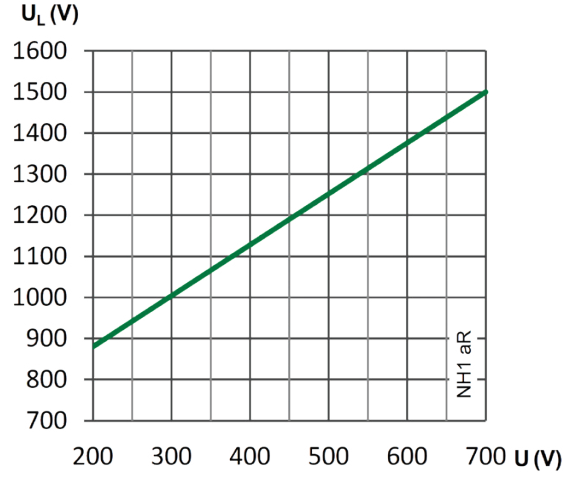
For other voltages, clearing I^2t values can be calculated multiplying these values by correction factor **K**.



Power dissipation correction factor

Power dissipation values are given at rated voltage (I_n) and at 0,8·I_n (80% of rated current). It is possible to calculate values of power dissipation for other currents multiplying these values by correction factor $\mathbf{C_P}$ for power loss as a function of % of rated current.

This value is very important to choose the appropriate fuse base to install these fuse-links. The power dissipation of fuse-link at the normal working conditions must be lower than the maximum value that the fuse base can withstand.



Arc voltage

This graphic gives the peak arc voltage $\mathbf{U_L}$ that can appear across the fuse link during operation as a function of working voltage.

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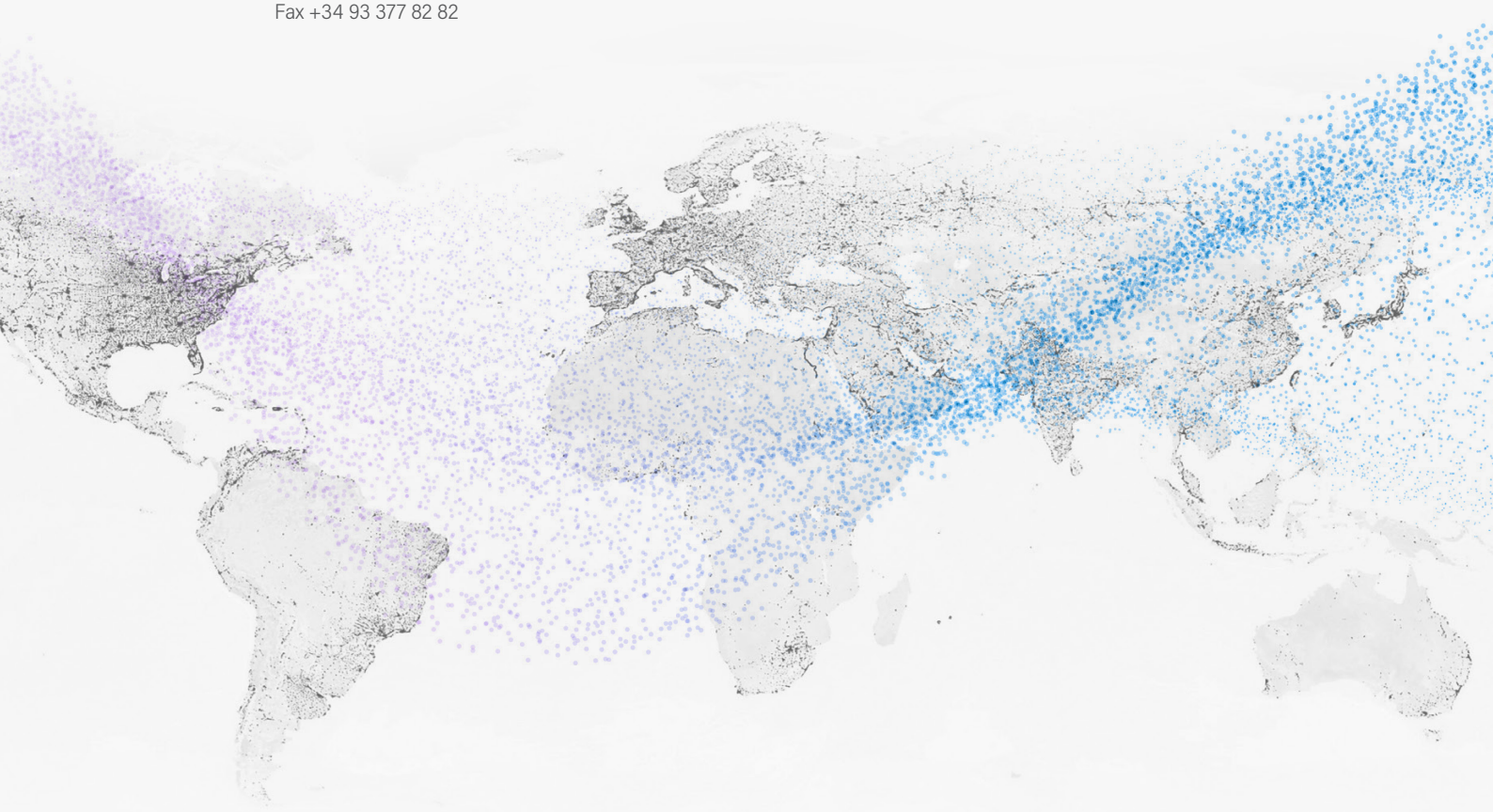

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MADE IN SPAIN

According to the waste of electrical and electronic equipment directive, electrical material should not be part of the usual waste. This symbol alerts users that these products should be recycled according to local environmental waste disposal regulations.

The "electro technical expert" logo marked on the products included in this data sheet indicates that the installation of these products must be carried out by expert personnel with specialized knowledge.

To prevent electrical hazards, carry out the installation without voltage.

Safety notice
Please capture the following QR code and read our safety notice carefully before installing our products.

The data reflected in this technical record are subject to the correct installation of the product in accordance with manufacturer's instructions, relevant installation standards and professional practices, maintained and used in applications for which they were made.

The products described in this document have been designed, developed and tested in accordance with specific standard. They are considered components that are integrated as part of installation, machine or equipment. The correct general operation of the referred product is responsibility of the manufacturer of the installation, machine or equipment.

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