

Fuses for Semiconductor Protection - European Standard



Class: gR and aR

Voltage ratings: 660V_{AC} to 1000V_{AC}
750V_{DC}

Current ratings: 16 A to 400 A

Standards: UL 248-13
IEC 60269-1 & 4
DIN VDE 0636-40
DIN 43653

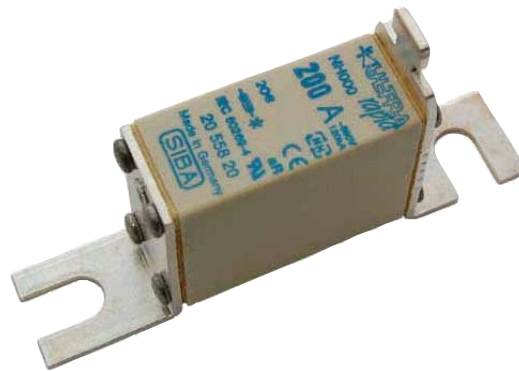
Features and Benefits

- ▶ Extremely high interrupting ratings 100kA - 300kA
- ▶ Protection of power semiconductor according to IEC 60269 -1 & 4
- ▶ Complies with DIN 43653 for fuse sizes 000 and 00
- ▶ Class; aR, 16A - 400A according to IEC 60269-4 and DIN VDE 0636-40
- ▶ Fuse accessories available - fuse bases and microswitches

Fuses for Applications

Fuses for Semiconductor Protection - European Standard

Article Number	Description		Selection Guide	Technical Data
690V _{AC} -IEC / 700V _{AC} -UL				
NH000 DIN80				
2028221	80mm mounting centers	No blown fuse indication	210	210 - 211
2028220	80mm mounting centers	With blown fuse indication		
2055820	80mm mounting centers	With fitting for microswitch		
NH00 DIN80				
2018921	80mm mounting centers	No blown fuse indication	212	212 - 213
2018920	80mm mounting centers	With blown fuse indication		
2041220	80mm mounting centers	With fitting for microswitch		
660V _{AC} -IEC				
NH000 DIN80				
2028241	80mm mounting centers	No blown fuse indication	214	214 - 215
2028204	80mm mounting centers	With blown fuse indication		
2055804	80mm mounting centers	With fitting for microswitch		
NH00 DIN80				
2018941	80mm mounting centers	No blown fuse indication	216	216 - 217
2018904	80mm mounting centers	With blown fuse indication		
2041204	80mm mounting centers	With fitting for microswitch		
1000V _{AC} -IEC				
2056021	80mm mounting centers	No blown fuse indication	218	218 - 219
2056020	80mm mounting centers	With blown fuse indication		
2056220	80mm mounting centers	With fitting for microswitch		



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URB NH000 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class aR	Standard(s)
	690V _{AC} - IEC 700V _{AC} - UL	200kA		UL 248-13 IEC 60269-4 VDE 0636-4
UL File E180276	500V _{AC} - IEC ≥ 350A			

Rated current I _n [A]	Without Indicator Article Number	UL rec	With top indicator Article Number	UL rec	With top indicator and fitting for microswitch Article Number	UL rec	Pre-arcing I ² t [A ² s]	Total I ² t** @ 660V _{AC} [A ² s]	Power loss [W]
32	2028221.32	✓	2028220.32	✓	2055820.32	✓	52	290	8
35	2028221.35	✓	2028220.35	✓	2055820.35	✓	66	360	9
40	2028221.40	✓	2028220.40	✓	2055820.40	✓	90	500	10
50	2028221.50	✓	2028220.50	✓	2055820.50	✓	140	770	12
63	2028221.63	✓	2028220.63	✓	2055820.63	✓	250	1 400	14
80	2028221.80	✓	2028220.80	✓	2055820.80	✓	470	2 600	18
100	2028221.100	✓	2028220.100	✓	2055820.100	✓	730	4 000	22
110	2028221.110	✓	2028220.110	✓	2055820.110	✓	890	4 900	24
125	2028221.125	✓	2028220.125	✓	2055820.125	✓	1 300	7 200	26
150	2028221.150	✓	2028220.150	✓	2055820.150	✓	2 000	11 000	29
160	2028221.160	✓	2028220.160	✓	2055820.160	✓	2 800	15 400	32
180	2028221.180	✓	2028220.180	✓	2055820.180	✓	3 700	20 400	35
200	2028221.200	✓	2028220.200	✓	2055820.200	✓	4 500	25 000	39
225	2028221.225	✓	2028220.225	✓	2055820.225	✓	6 600	37 000	44
250	2028221.250	✓	2028220.250	✓	2055820.250	✓	8 000	44 000	47
315	2028221.315	✓	2028220.315	✓	2055820.315	✓	14 000	77 000	58
350	2028221.350*	—	2028220.350*	—	2055820.350*	—	23 800	76 000**	56
400	2028221.400*	—	2028220.400*	—	2055820.400*	—	32 100	106 000**	70

* 500V_{AC}** @ 550V_{AC}

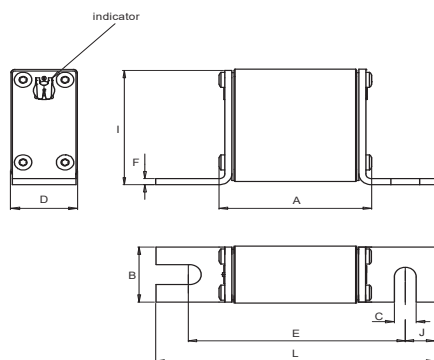
Weight [kg /1]

0.13

0.14

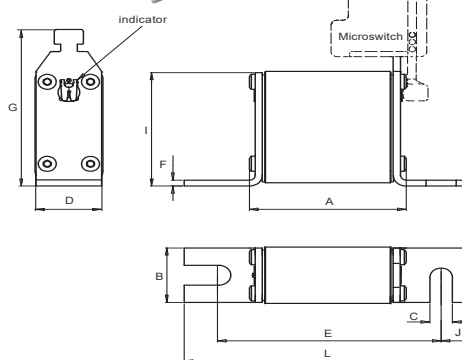
Coefficients for Heavy Duty Applications

a	A2	B1 _{max}	B2	Cf3
130	0.6	1.25	0.6	0.8



2028221 / 2028220

Dimensions [in /mm]			
≤315A		≥350A	
2.17 / 55	A	2.17 / 55	
0.79 / 20	B	1.13 / 28.8	
0.33 / 8.5	C	0.41 / 10.3	
0.80 / 20.4	D	1.16 / 29.5	
3.07 / 78	E	3.07 / 78	
0.08 / 2.0	F	0.1 / 2.5	
2.08 / 53	G	2.08 / 53	
1.49 / 38	I	1.49 / 38	
—	J	—	
3.94 / 100	L	4.29 / 105	



2055820

Accessories

Article Description	Article Number	Page	Article Description	Article Number	Page
Fuse base DIN 80 (UL File E186970)	2118901	544	Microswitch(red hammer) UL File E309038		540
	2118908		Standard level	2800202	
	2118911		Low level	2800204	

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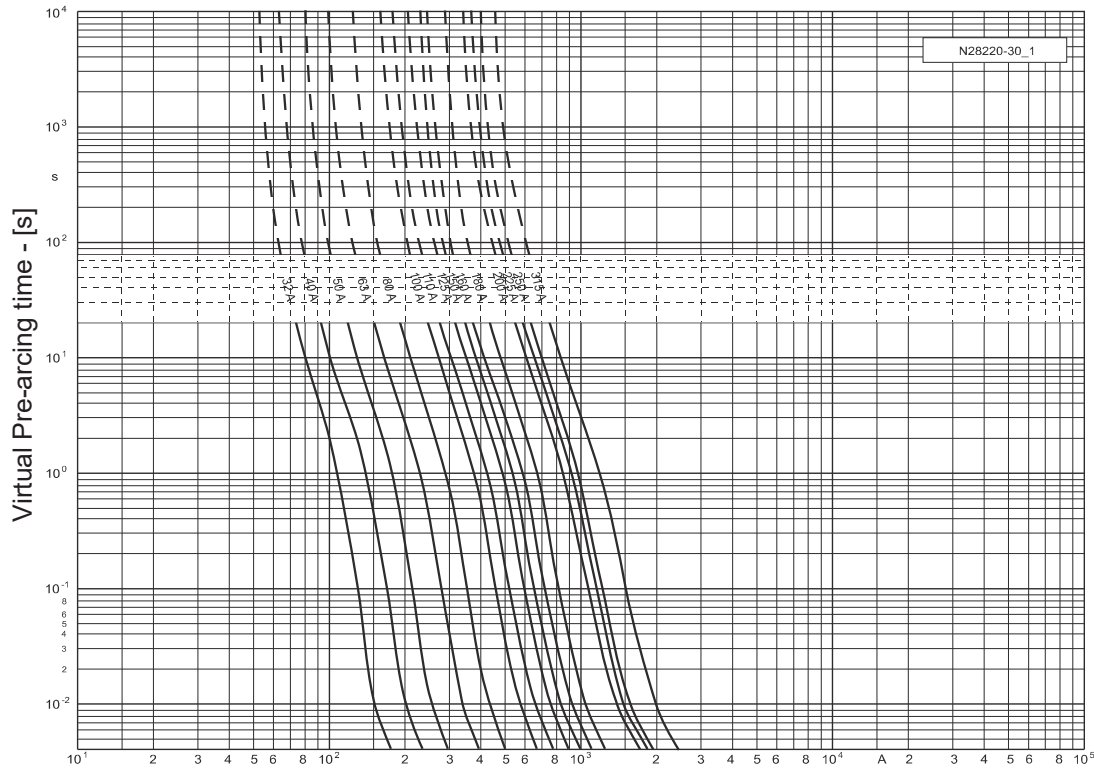
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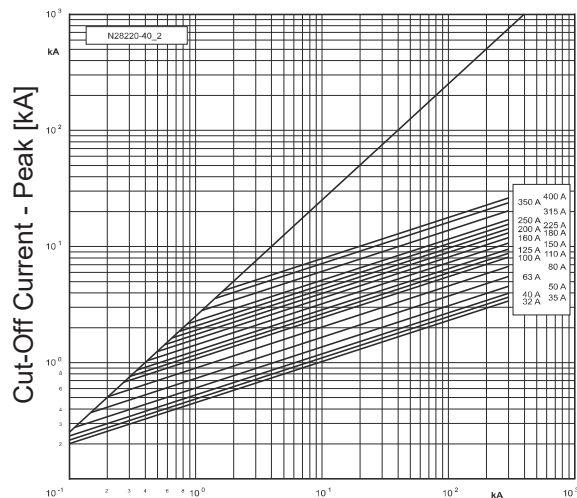
URB NH000 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class aR	Standard(s)
C_{RU} US	690V _{AC} - IEC	200kA		UL 248-13
	700V _{AC} - UL			IEC 60269-4
UL File E180276	500V _{AC} - IEC ≥ 350A			VDE 0636-4

Time-Current Characteristics



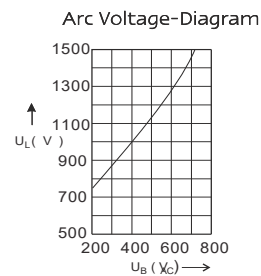
R.M.S. Prospective Current [A]
Full size graphs available upon request

Cut-Off Current Characteristics

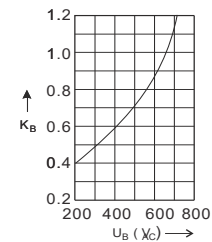


Prospective Short Circuit Current [kA]
(Symmetrical r.m.s.)

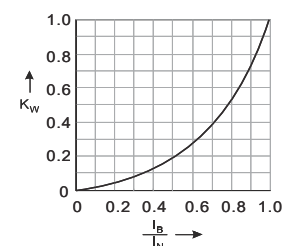
Correction Curves



Reduction factor for total i²t-value



Reduction factor for power Loss



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URB NH00 - DIN80 Rated Voltage

[U_n]700V_{AC} - UL690V_{AC} - IEC

Rated Breaking Test

Capacity

200kA

Voltage

700V_{AC}

Class

aR

Standard(s)

UL 248-13

IEC 60269-4

VDE 0636-4

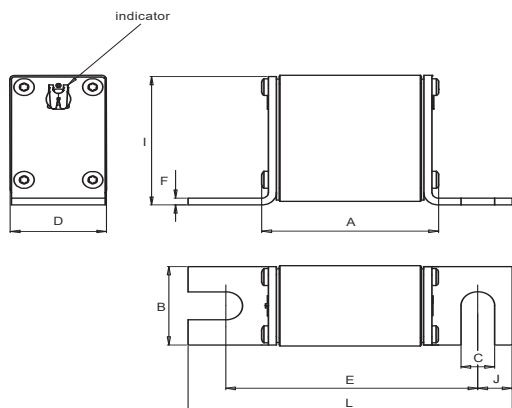


UL File E180276

Rated current I _n [A]	Without indicator Article Number	UL rec	With top indicator Article Number	UL rec	With top indicator and fitting for microswitch Article Number	UL rec	Pre-arcing I ² t [A ² s]	Total I ² t @ 660V _{AC} [A ² s]	Power loss [W]
35	2018921.35	✓	2018920.35	✓	2041220.35	✓	66	360	8
40	2018921.40	✓	2018920.40	✓	2041220.40	✓	90	500	10
50	2018921.50	✓	2018920.50	✓	2041220.50	✓	140	770	12
63	2018921.63	✓	2018920.63	✓	2041220.63	✓	250	1 400	14
80	2018921.80	✓	2018920.80	✓	2041220.80	✓	470	2 600	17
100	2018921.100	✓	2018920.100	✓	2041220.100	✓	730	4 000	21
125	2018921.125	✓	2018920.125	✓	2041220.125	✓	1 300	7 200	25
160	2018921.160	✓	2018920.160	✓	2041220.160	✓	2 800	15 400	31
180	2018921.180	✓	2018920.180	✓	2041220.180	✓	4 200	23 100	34
200	2018921.200	✓	2018920.200	✓	2041220.200	✓	5 000	27 500	37
250	2018921.250	✓	2018920.250	✓	2041220.250	✓	8 500	46 800	44
315	2018921.315	✓	2018920.315	✓	2041220.315	✓	15 600	86 000	53
350	2018921.350	✓	2018920.350	✓	2041220.350	✓	20 000	110 000	57
400	2018921.400	✓	2018920.400	✓	2041220.400	✓	28 400	156 000	68
Weight [kg / l]									
0.23		0.24		0.27					

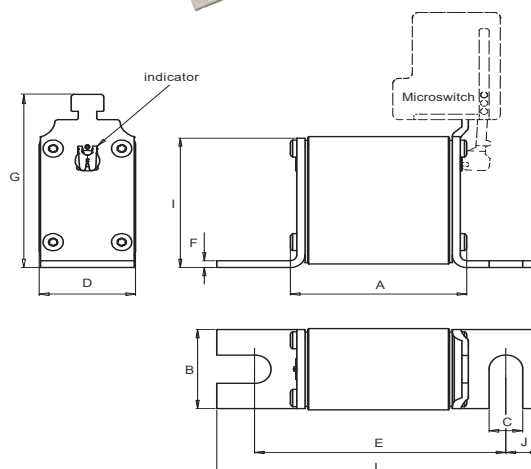
Coefficients for Heavy Duty Applications

a	A2	B1 _{max}	B2	Cf3
130	0.6	1.25	0.6	0.8



2018921 / 2018920

Dimensions [in / mm]	
A	2.20 / 56
B	1.13 / 28.7
C	0.41 / 10.3
D	1.16 / 29.5
E	3.07 / 78
F	0.10 / 2.5
G	2.48 / 63
I	1.85 / 47
J	0.41 / 10.5
L	4.29 / 105



2041220

Accessories

Article Description	Article Number	Page	Article Description	Article Number	Page
Fuse base DIN 80 (UL File E186970)	2118901	544	Microswitch (black hammer) UL File E309038		540
	2118908		Standard level	2800201	
	2118911		Low level	2800203	

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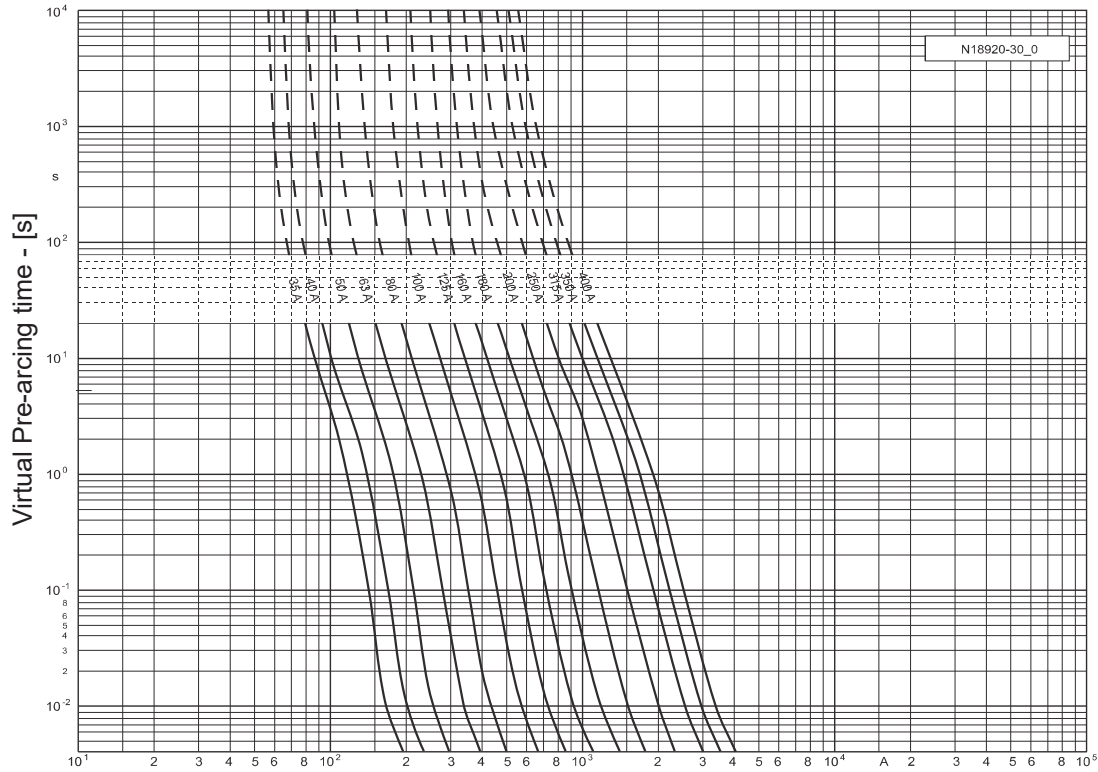
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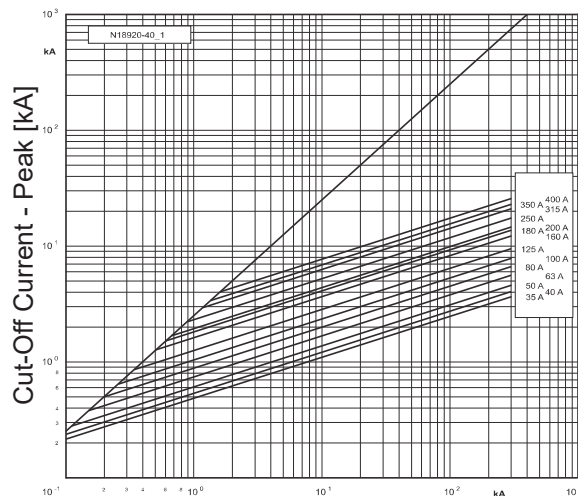
URB NH00 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class aR	Standard(s)
	700V _{AC} - UL 690V _{AC} - IEC	200kA		UL 248-13 IEC 60269-4 VDE 0636-4
UL File E180276				

Time-Current Characteristics



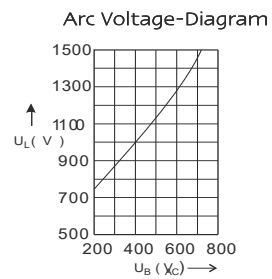
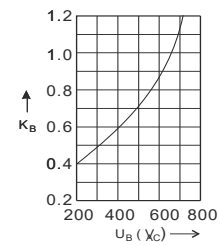
R.M.S. Prospective Current [A]
Full size graphs available upon request

Cut-Off Current Characteristics

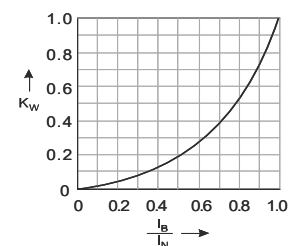


Prospective Short Circuit Current [kA]
(Symmetrical r.m.s.)

Correction Curves

Reduction factor for total i²t-value

Reduction factor for power Loss



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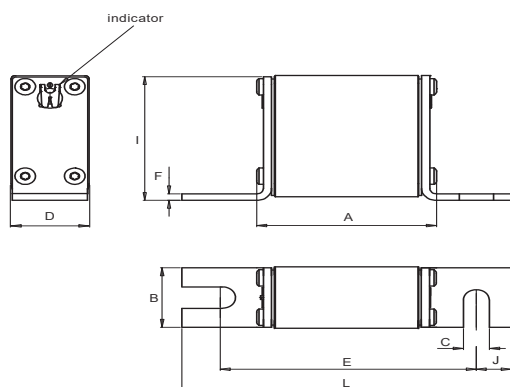
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URB	NH000 - DIN80	Rated Voltage [U _n] 660V _{AC} - IEC	Rated Breaking Test Capacity 100kA	Class gR aR ≥ 125A	Standard(s) IEC 60269-4 VDE 0636-4
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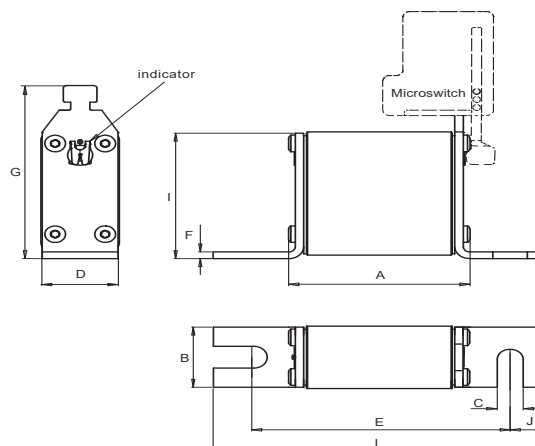
Rated current I _n [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number		Pre-arcing I ² t [A ² s]	Total I ² t @ 660V _{AC} [A ² s]	Power loss [W]
16	2028241.16	2028204.16	2055804.16		10	70	5
20	2028241.20	2028204.20	2055804.20		17	120	6
25	2028241.25	2028204.25	2055804.25		29	200	7
32	2028241.32	2028204.32	2055804.32		66	450	9
35	2028241.35	2028204.35	2055804.35		81	550	9
40	2028241.40	2028204.40	2055804.40		103	700	10
50	2028241.50	2028204.50	2055804.50		184	1 300	11
63	2028241.63	2028204.63	2055804.63		330	2 300	13
80	2028241.80	2028204.80	2055804.80		512	3 500	18
100	2028241.100	2028204.100	2055804.100		930	6 400	22
125	2028241.125	2028204.125	2055804.125		1 650	11 200	24
160	2028241.160	2028204.160	2055804.160		4 250	29 000	28
Weight [kg /1]							
0.12		0.12	0.14				

Coefficients for Heavy Duty Applications				
a	A2	B1 _{max}	B2	Cf3
130	0.8	1.25	0.8	0.8



2028241 / 2028204

Dimensions [in / mm]	
A	2.17 / 55
B	0.80 / 20.4
C	0.33 / 8.5
D	0.80 / 20.4
E	3.15 / 80
F	0.08 / 2.0
G	2.09 / 53
I	1.50 / 38
J	—
L	3.94 / 100



2055804

Accessories

Article Description	Article Number	Page	Article Description	Article Number	Page
Fuse base DIN 80 (UL File E186970)	2118901	544	Microswitch(red hammer) UL File E309038		540
	2118908		Standard level	2800202	
	2118911		Low level	2800204	

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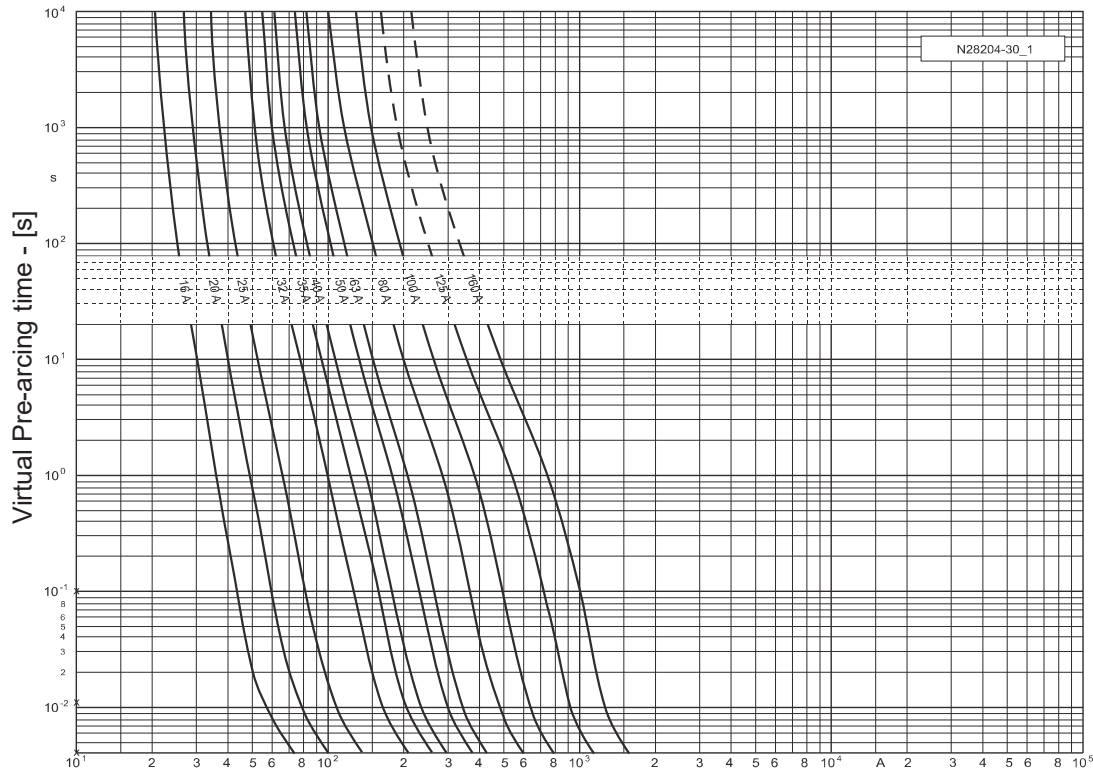
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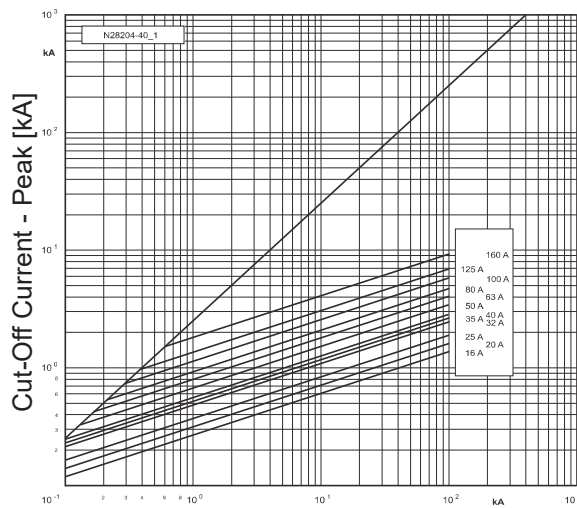
URB	NH000 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class	Standard(s)
		660V _{AC} - IEC	100kA	gR aR ≥ 125A	IEC 60269-4 VDE 0636-4

Time-Current Characteristics



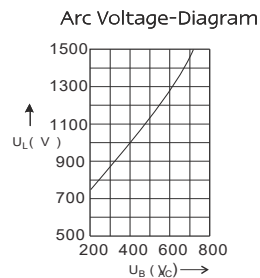
R.M.S. Prospective Current [A]
Full size graphs available upon request

Cut-Off Current Characteristics

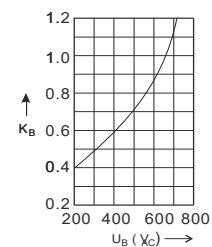


Prospective Short Circuit Current [kA]
(Symmetrical r.m.s.)

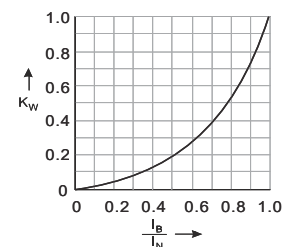
Correction Curves



Reduction factor for total i²t-value



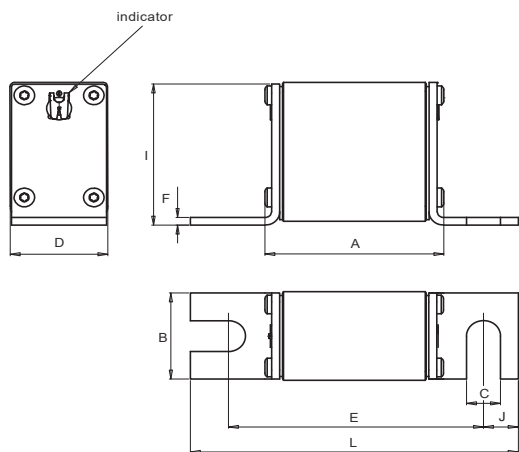
Reduction factor for power Loss



URB	NH00 - DIN80	Rated Voltage [U _n] 660V _{AC} - IEC	Rated Breaking Test Capacity 100kA	Class gR aR ≥ 125A	Standard(s) IEC 60269-4 VDE 0636-4
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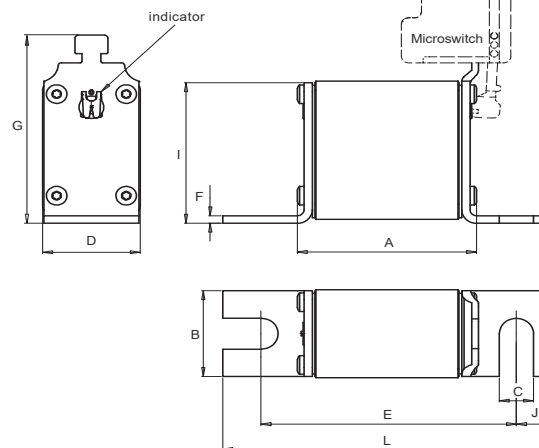
Rated current I _n [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number		Pre-arcing I ² t [A ² s]	Total I ² t @ 660V _{AC} [A ² s]	Power loss [W]
16	2018941.16	2018904.16	2041204.16		10	70	4.6
20	2018941.20	2018904.20	2041204.20		17	120	5.5
25	2018941.25	2018904.25	2041204.25		29	200	6.7
32	2018941.32	2018904.32	2041204.32		66	450	8.9
35	2018941.35	2018904.35	2041204.35		81	550	9.2
40	2018941.40	2018904.40	2041204.40		103	700	9.8
50	2018941.50	2018904.50	2041204.50		184	1 300	11
63	2018941.63	2018904.63	2041204.63		330	2 300	13
80	2018941.80	2018904.80	2041204.80		512	3 500	15
100	2018941.100	2018904.100	2041204.100		930	6 400	18
125	2018941.125	2018904.125	2041204.125		1 650	11 200	22
160	2018941.160	2018904.160	2041204.160		4 250	29 000	26
200	2018941.200	2018904.200	2041204.200		8 000	54 400	28
250	2018941.250	2018904.250	2041204.250		16 800	114 300	31
Weight [kg / l]							
0.22				0.24			

Coefficients for Heavy Duty Applications				
a	A2	B1 _{max}	B2	Cf3
130	0.8	1.25	0.8	0.8



2018941 / 2018904

Dimensions [in / mm]	
A	2.20 / 56
B	1.13 / 28.8
C	0.41 / 10.3
D	1.16 / 29.5
E	3.07 / 78
F	0.10 / 2.5
G	2.48 / 63
I	1.85 / 47
J	0.41 / 10.5
L	4.29 / 105



2041204

Accessories

Article Description	Article Number	Page	Article Description	Article Number	Page
Fuse base DIN 80 (UL File E186970)	2118901	544	Microswitch(black hammer) UL File E309038		540
	2118908		Standard level	2800201	
	2118911		Low level	2800203	

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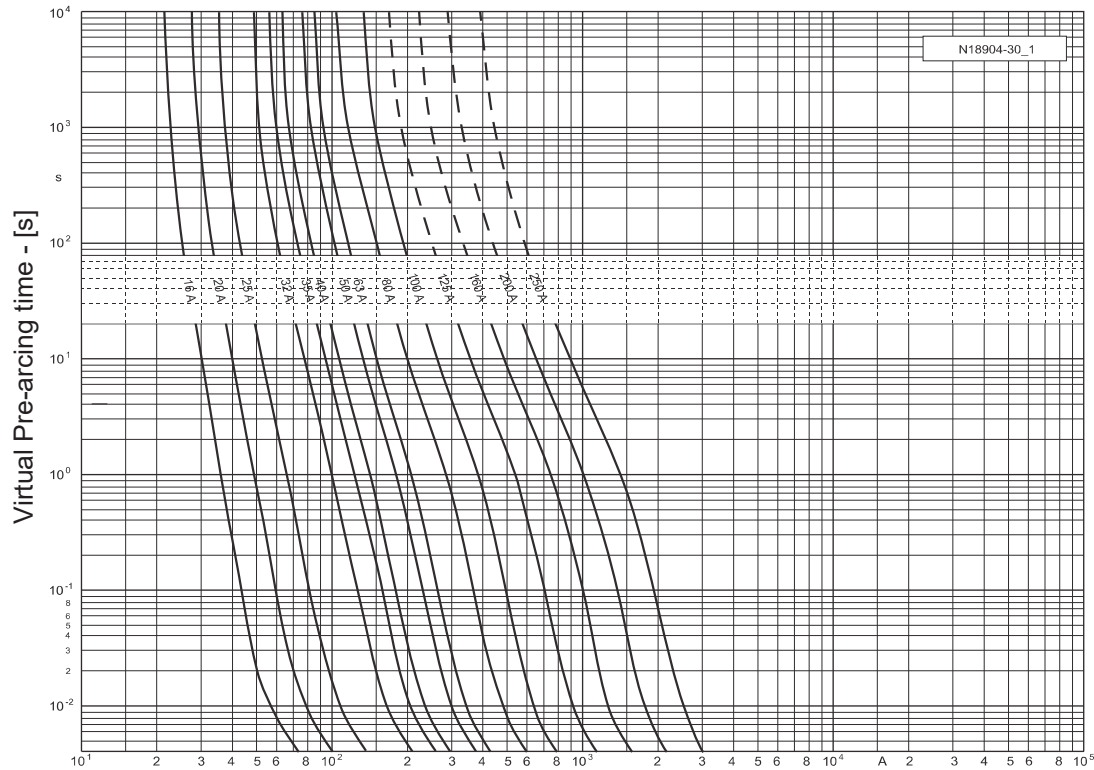
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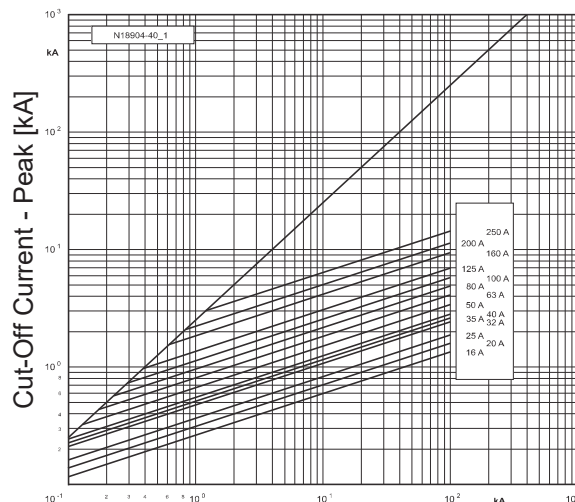
URB	NH00 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class	Standard(s)
		660V _{AC} - IEC	100kA	gR aR ≥ 125A	IEC 60269-4 VDE 0636-4

Time-Current Characteristics



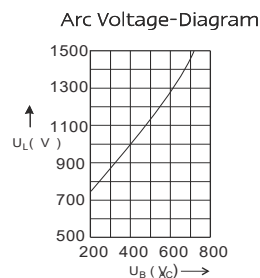
R.M.S. Prospective Current [A]
Full size graphs available upon request

Cut-Off Current Characteristics

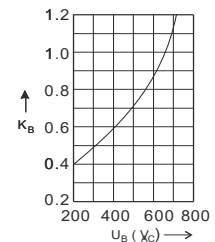


Prospective Short Circuit Current [kA]
(Symmetrical r.m.s.)

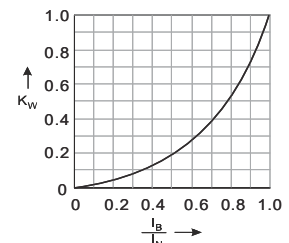
Correction Curves



Reduction factor for total i²t-value



Reduction factor for power Loss



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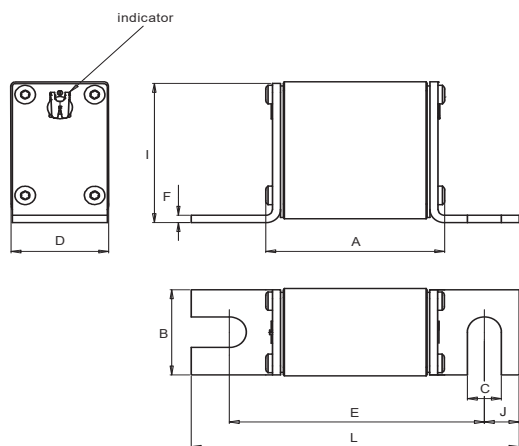
URB	NH00 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class aR	Standard(s)
		1000V _{AC} - IEC	100kA		IEC 60269-4
		750V _{DC} ≤ 250A	30kA @ L/R = 4ms		VDE 0636-4

Rated current I _n [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number		Pre-arcing I ² t [A ² s]	Total I ² t @ 1000V _{AC} [A ² s]	Power loss [W]
32	2056021.32	2056020.32	2056220.32		32	220	14
40	2056021.40	2056020.40	2056220.40		56	400	16
50	2056021.50	2056020.50	2056220.50		100	700	18
63	2056021.63	2056020.63	2056220.63		180	1 200	22
80	2056021.80	2056020.80	2056220.80		410	2 800	25
100	2056021.100	2056020.100	2056220.100		740	5 000	28
125	2056021.125	2056020.125	2056220.125		1 300	9 000	32
160	2056021.160	2056020.160	2056220.160		2 600	17 500	40
200	2056021.200	2056020.200	2056220.200		4 600	31 000	46
250	2056021.250	2056020.250	2056220.250		8 200	55 000	51
280*	2056021.280 *	2056020.280 *	2056220.280 *		10 600	70 500	55
315*	2056021.315 *	2056020.315 *	2056220.315 *		16 000	106 000	59

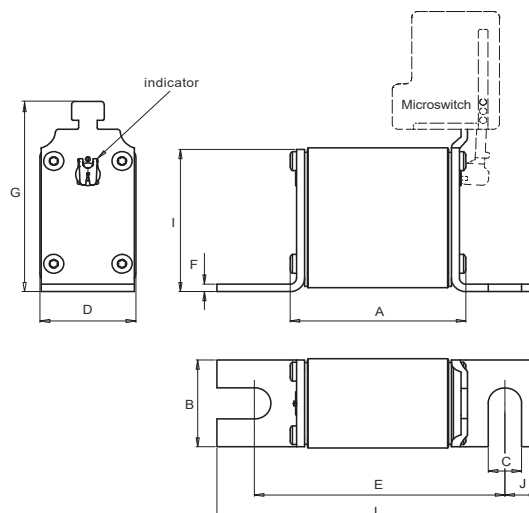
* Rated 900V_{AC}

Weight [kg /1]	
0.19	0.21

Coefficients for Heavy Duty Applications				
a	A2	B1 _{max}	B2	Cf3
130	0.6	1.25	0.6	0.8



2056021 / 2056020



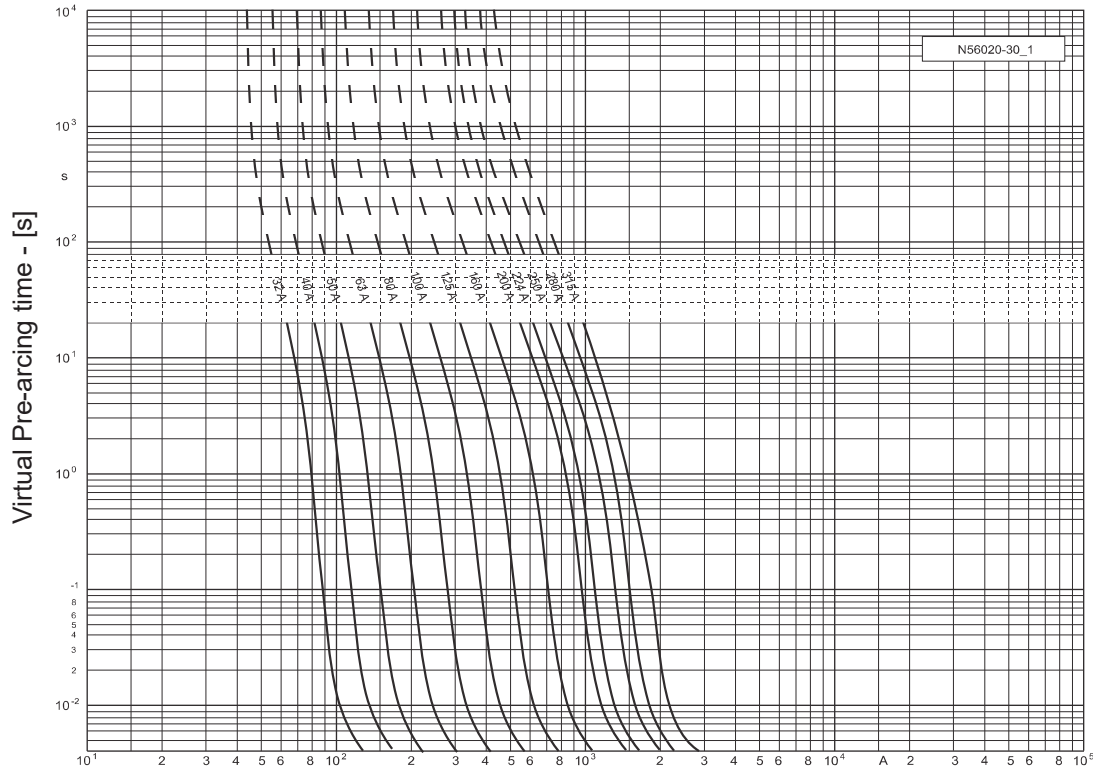
2056220

Accessories

Article Description	Article Number	Page	Article Description	Article Number	Page
Fuse base DIN 80 (UL File E186970)	2118901	544	Microswitch(black hammer) UL File E309038		540
	2118908		Standard level	2800201	
	2118911		Low level	2800203	

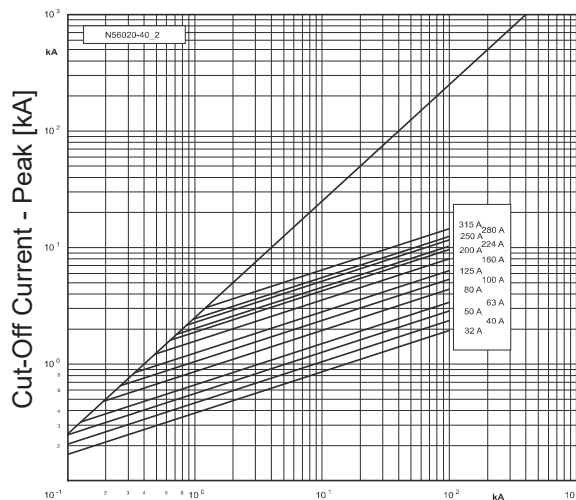
URB	NH00 - DIN80	Rated Voltage [U _n]	Rated Breaking Test Capacity	Class aR	Standard(s)
		1000V _{AC} - IEC	100kA		IEC 60269-4
		750V _{DC} ≤ 250A	30kA @ L/R = 4ms		VDE 0636-4

Time-Current Characteristics



R.M.S. Prospective Current [A]
Full size graphs available upon request

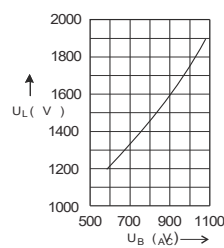
Cut-Off Current Characteristics



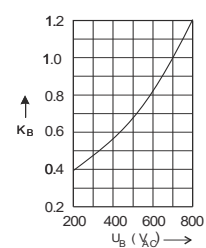
Prospective Short Circuit Current [kA]
(Symmetrical r.m.s.)

Correction Curves

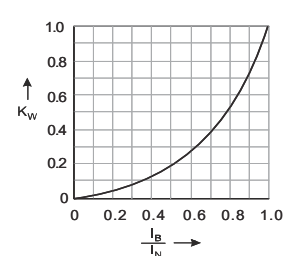
Arc Voltage-Diagram



Reduction factor for total i²t-value



Reduction factor for power Loss



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