

## Fuses for Semiconductor Protection - European Standard



**Class:** gR and aR

**Voltage ratings:** 660V<sub>AC</sub> to 1000V<sub>AC</sub>  
750V<sub>DC</sub>

**Current ratings:** 16 A to 400 A

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

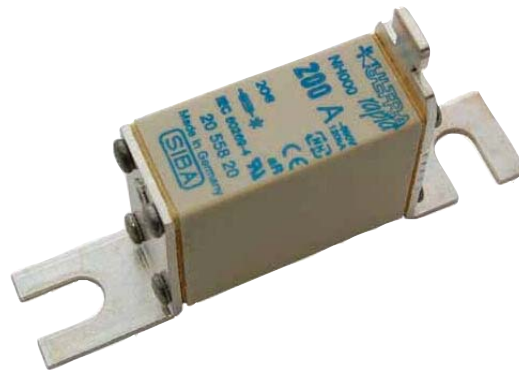
## Features and Benefits

- ▶ 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
<b>690V<sub>AC</sub>-IEC / 700V<sub>AC</sub>-UL</b>				
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		
<b>660V<sub>AC</sub>-IEC</b>				
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		
<b>1000V<sub>AC</sub>-IEC</b>				
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		



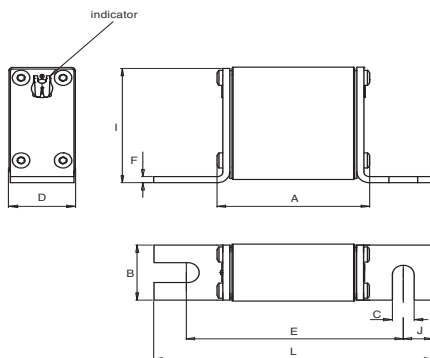
	URB NH000 - DIN80	Rated Voltage	Rated Breaking Test	Class	Standard(s)
		[U <sub>n</sub> ]	Capacity	aR	UL 248-13
		690V <sub>AC</sub> - IEC	200kA	660V <sub>AC</sub>	IEC 60269-4
		700V <sub>AC</sub> - UL			VDE 0636-4
	UL File E180276	500V <sub>AC</sub> - IEC ≥ 350A			

Rated current I <sub>n</sub> [A]	Without Indicator		With top indicator		With top indicator and fitting for microswitch		Pre-arcing I <sup>2</sup> t [A <sup>2</sup> s]	Total I <sup>2</sup> t** @ 660V <sub>AC</sub> [A <sup>2</sup> s]	Power loss [W]
	Article Number	UL rec	Article Number	UL rec	Article Number	UL rec			
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 <sub>AC</sub>	
Weight [kg / 1]	
0.13	0.14

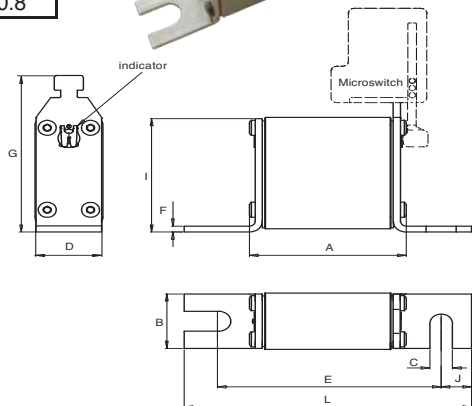
\*\* @ 550V<sub>AC</sub>

Coefficients for Heavy Duty Applications				
a	A2	B1 <sub>max</sub>	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



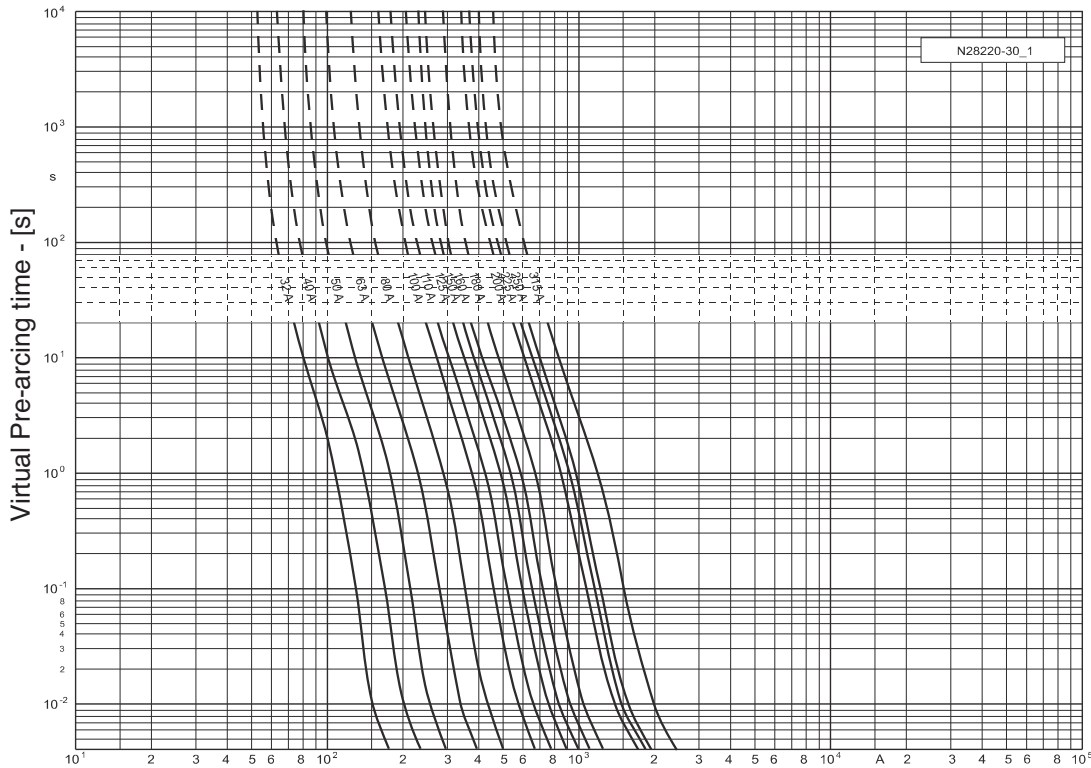
2055820

**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	2800202	540
	2118908		Standard level	2800204	
	2118911		Low level		

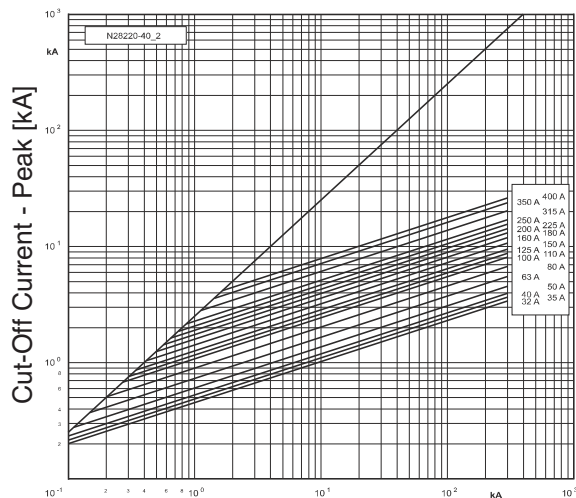
URB NH000 - DIN80	Rated Voltage [U <sub>n</sub> ]	Rated Breaking Test Capacity	Rated Breaking Test Voltage	Class aR	Standard(s)
 UL File E180276	690V <sub>AC</sub> - IEC	200kA	660V <sub>AC</sub>		UL 248-13
	700V <sub>AC</sub> - UL		660V <sub>AC</sub>		IEC 60269-4
	500V <sub>AC</sub> - IEC ≥ 350A				VDE 0636-4

**Time-Current Characteristics**



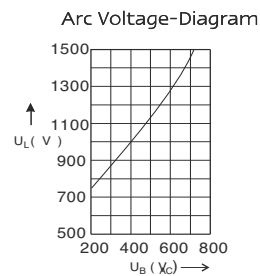
R.M.S. Prospective Current [A]  
Full size graphs available upon request

**Cut-Off Current Characteristics**

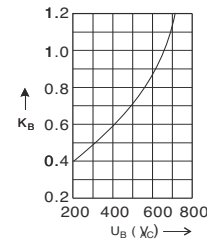


Prospective Short Circuit Current [kA]  
(Symmetrical r.m.s.)

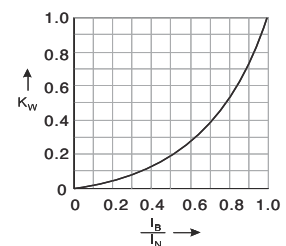
**Correction Curves**



Reduction factor for total i<sup>2</sup>t-value



Reduction factor for power Loss

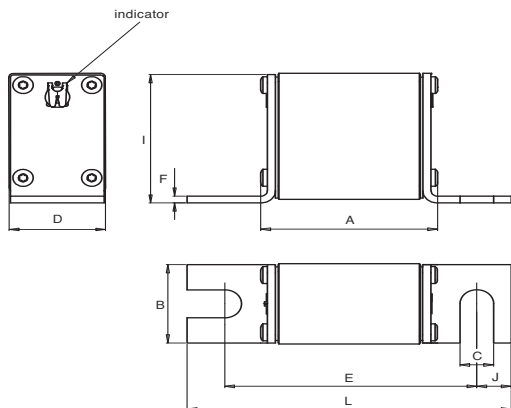


	URB NH00 - DIN80	Rated Voltage	Rated Breaking Test	Class	Standard(s)
		[U <sub>n</sub> ]	Capacity	aR	UL 248-13
		700V <sub>AC</sub> - UL 690V <sub>AC</sub> - IEC	200kA	Voltage 700V <sub>AC</sub>	IEC 60269-4 VDE 0636-4

UL File E180276

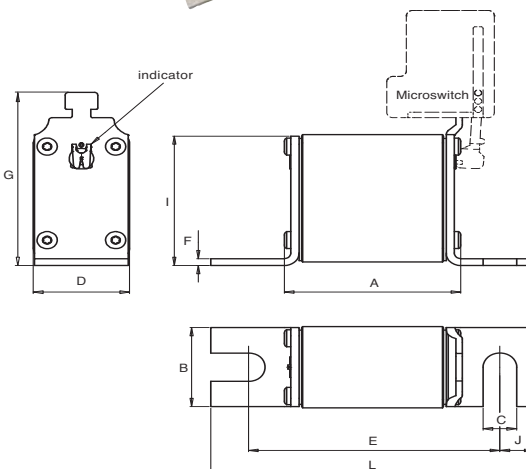
Rated current I <sub>n</sub> [A]	Without indicator		With top indicator		With top indicator and fitting for microswitch		Pre-arcing I <sup>2</sup> t [A <sup>2</sup> s]	Total I <sup>2</sup> t @ 660V <sub>AC</sub> [A <sup>2</sup> s]	Power loss [W]	
	Article Number	UL rec	Article Number	UL rec	Article Number	UL rec				
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 /1]										
		0.23	0.24		0.27					

Coefficients for Heavy Duty Applications				
a	A2	B1 <sub>max</sub>	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



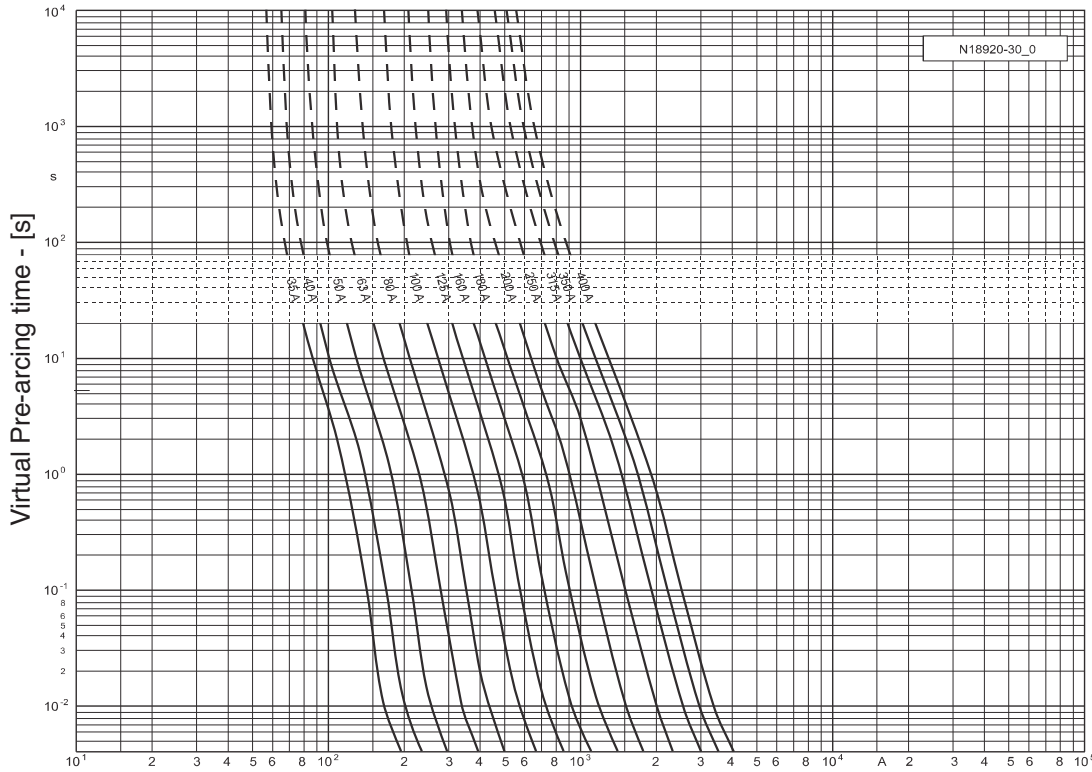
2041220

**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	

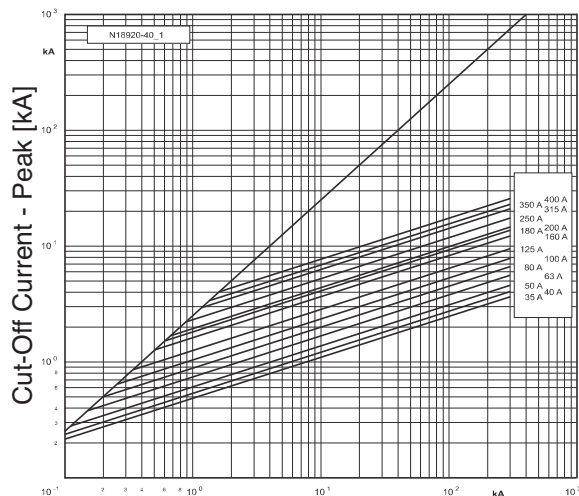
 UL File E180276	URB NH00 - DIN80	Rated Voltage [U <sub>n</sub> ]	Rated Breaking Test Capacity	Class aR	Standard(s)
		700V <sub>AC</sub> - UL	200kA	700V <sub>AC</sub>	UL 248-13
		690V <sub>AC</sub> - IEC			IEC 60269-4 VDE 0636-4

**Time-Current Characteristics**



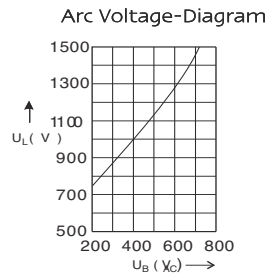
R.M.S. Prospective Current [A]  
Full size graphs available upon request

**Cut-Off Current Characteristics**

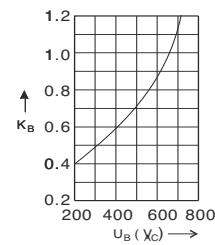


Prospective Short Circuit Current [kA]  
(Symmetrical r.m.s.)

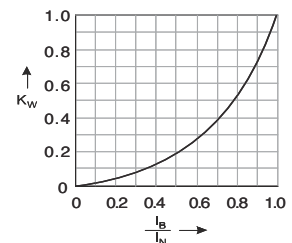
**Correction Curves**



**Reduction factor for total i<sup>2</sup>t-value**



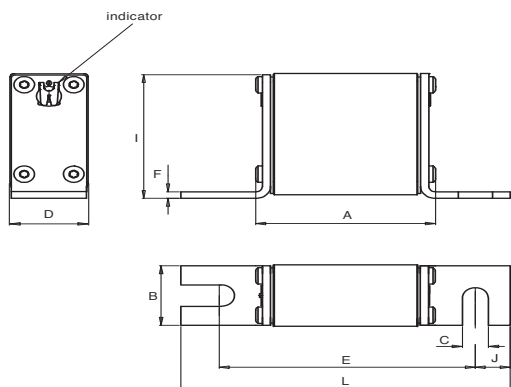
**Reduction factor for power Loss**



<b>URB</b>	<b>NH000 - DIN80</b>	<b>Rated Voltage</b> [U <sub>n</sub> ] 660V <sub>AC</sub> - IEC	<b>Rated Breaking Test</b> Capacity 100kA	<b>Class</b> gR aR ≥ 125A	<b>Standard(s)</b> IEC 60269-4 VDE 0636-4
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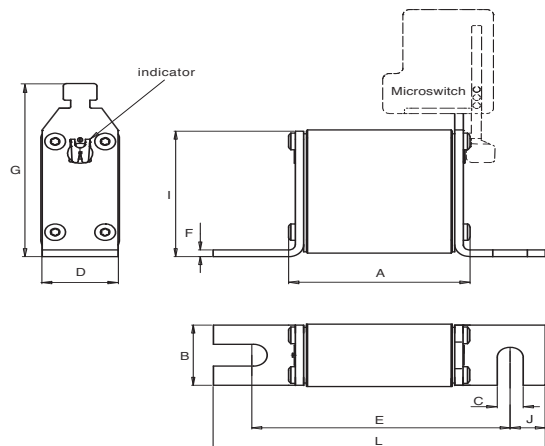
Rated current I <sub>n</sub> [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number	Pre-arcing I <sup>2</sup> t [A <sup>2</sup> s]	Total I <sup>2</sup> t @ 660V <sub>AC</sub> [A <sup>2</sup> s]	Power loss [W]
16	2028241.16	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
<b>Weight [kg /1]</b>						
	0.12	0.12	0.14			

Coefficients for Heavy Duty Applications				
a	A2	B1 <sub>max</sub>	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



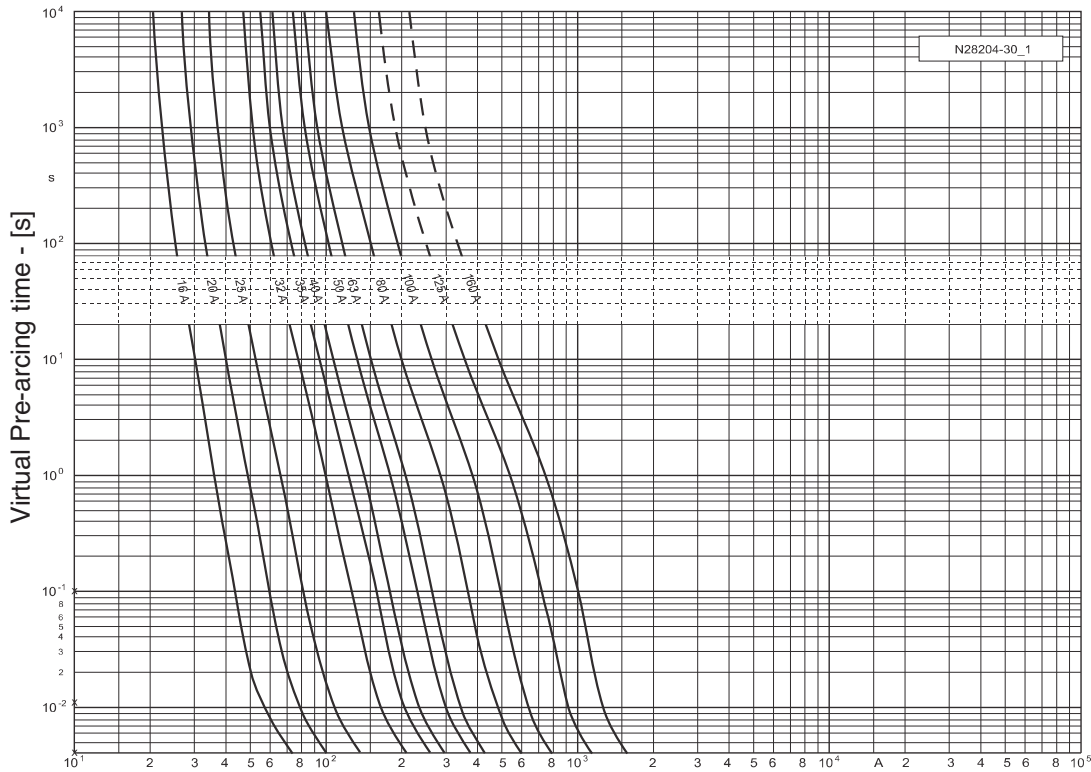
2055804

**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	2800202	540
	2118908		Standard level	2800204	
	2118911		Low level		

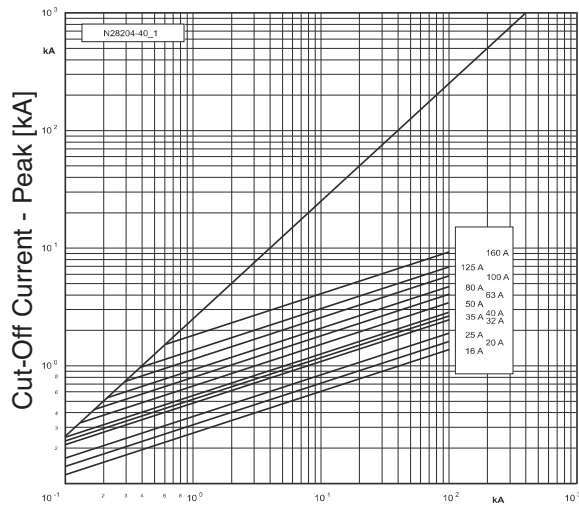
URB	NH000 - DIN80	Rated Voltage	Rated Breaking Test	Class	Standard(s)
		[U <sub>n</sub> ] 660V <sub>AC</sub> - IEC	Capacity 100kA	Voltage 660V <sub>AC</sub>	gR aR ≥ 125A

**Time-Current Characteristics**



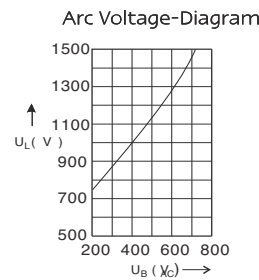
R.M.S. Prospective Current [A]  
Full size graphs available upon request

**Cut-Off Current Characteristics**

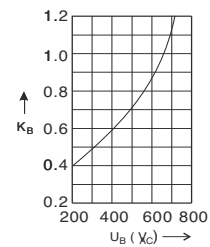


Prospective Short Circuit Current [kA]  
(Symmetrical r.m.s.)

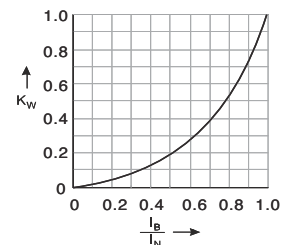
**Correction Curves**



**Reduction factor for total i<sup>2</sup>t-value**



**Reduction factor for power Loss**

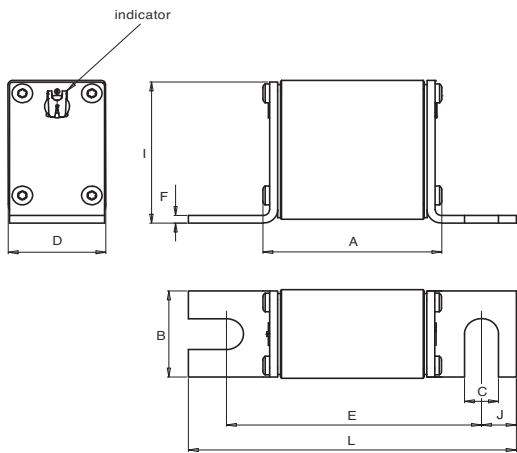




<b>URB NH00 - DIN80</b>	<b>Rated Voltage</b> [U <sub>n</sub> ] 660V <sub>AC</sub> - IEC	<b>Rated Breaking Test</b> Capacity 100kA	<b>Class</b> gR aR ≥ 125A	<b>Standard(s)</b> IEC 60269-4 VDE 0636-4
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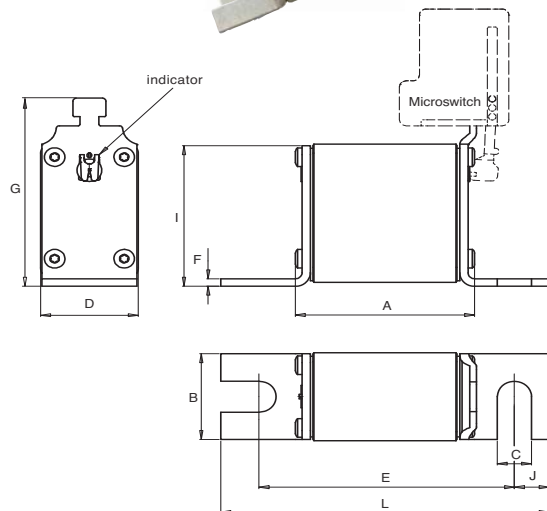
Rated current I <sub>n</sub> [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number	Pre-arcing I <sup>2</sup> t [A <sup>2</sup> s]	Total I <sup>2</sup> t @ 660V <sub>AC</sub> [A <sup>2</sup> s]	Power loss [W]
16	2018941.16	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
<b>Weight [kg /1]</b>						
0.22			0.24			

Coefficients for Heavy Duty Applications				
a	A2	B1 <sub>max</sub>	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



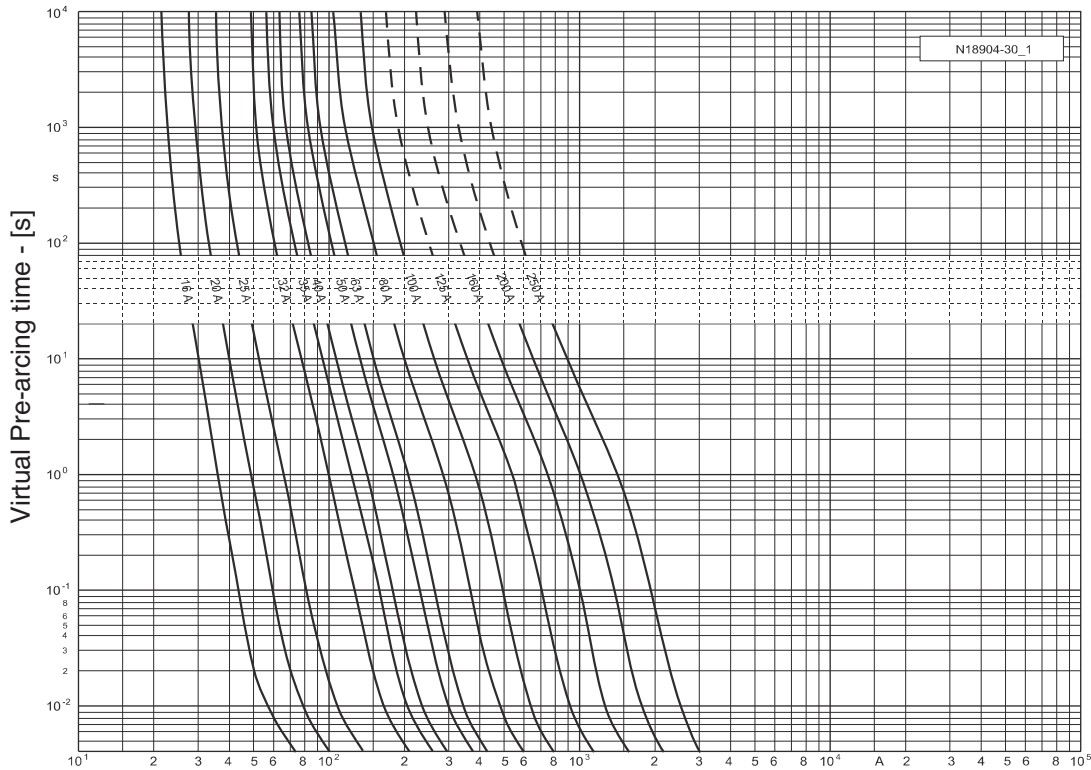
2041204

**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	2800201	540
	2118908		Standard level		
	2118911		Low level		

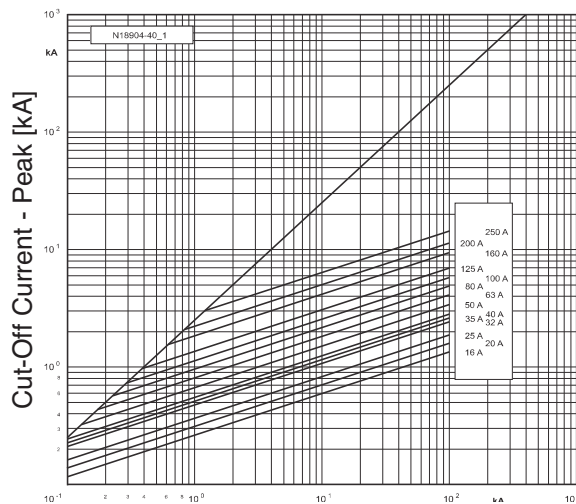
URB NH00 - DIN80	Rated Voltage	Rated Breaking Test	Class	Standard(s)
	[U <sub>n</sub> ] 660V <sub>AC</sub> - IEC	Capacity 100kA	Voltage 660V <sub>AC</sub>	gR aR ≥ 125A
				IEC 60269-4 VDE 0636-4

**Time-Current Characteristics**



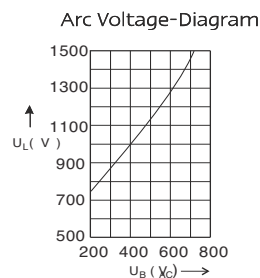
R.M.S. Prospective Current [A]  
Full size graphs available upon request

**Cut-Off Current Characteristics**

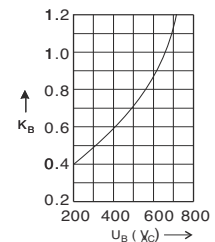


Prospective Short Circuit Current [kA]  
(Symmetrical r.m.s.)

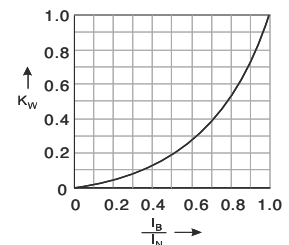
**Correction Curves**



**Reduction factor for total i<sup>2</sup>t-value**



**Reduction factor for power Loss**

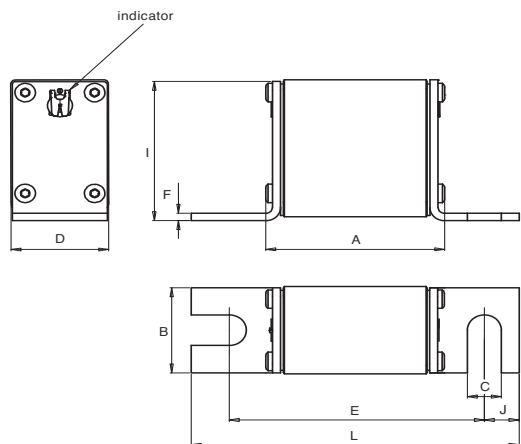


URB NH00 - DIN80	Rated Voltage	Rated Breaking Test		Class	Standard(s)
	[U <sub>n</sub> ]	Capacity	Voltage	aR	IEC 60269-4
	1000V <sub>AC</sub> - IEC 750V <sub>DC</sub> ≤ 250A	100kA 30kA @ L/R = 4ms	1000V <sub>AC</sub> 750V <sub>DC</sub>		VDE 0636-4

Rated current I <sub>n</sub> [A]	Without indicator Article Number	With top indicator Article Number	With top indicator and fitting for microswitch Article Number	Pre-arcing I <sup>2</sup> t [A <sup>2</sup> s]	Total I <sup>2</sup> t @ 1000V <sub>AC</sub> [A <sup>2</sup> 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

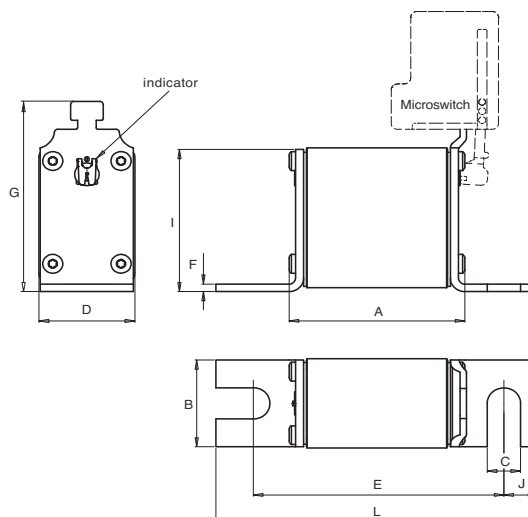
* Rated 900V <sub>AC</sub>	
Weight [kg /1]	
0.19	0.21

Coefficients for Heavy Duty Applications				
a	A2	B1 <sub>max</sub>	B2	Cf3
130	0.6	1.25	0.6	0.8



2056021 / 2056020

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



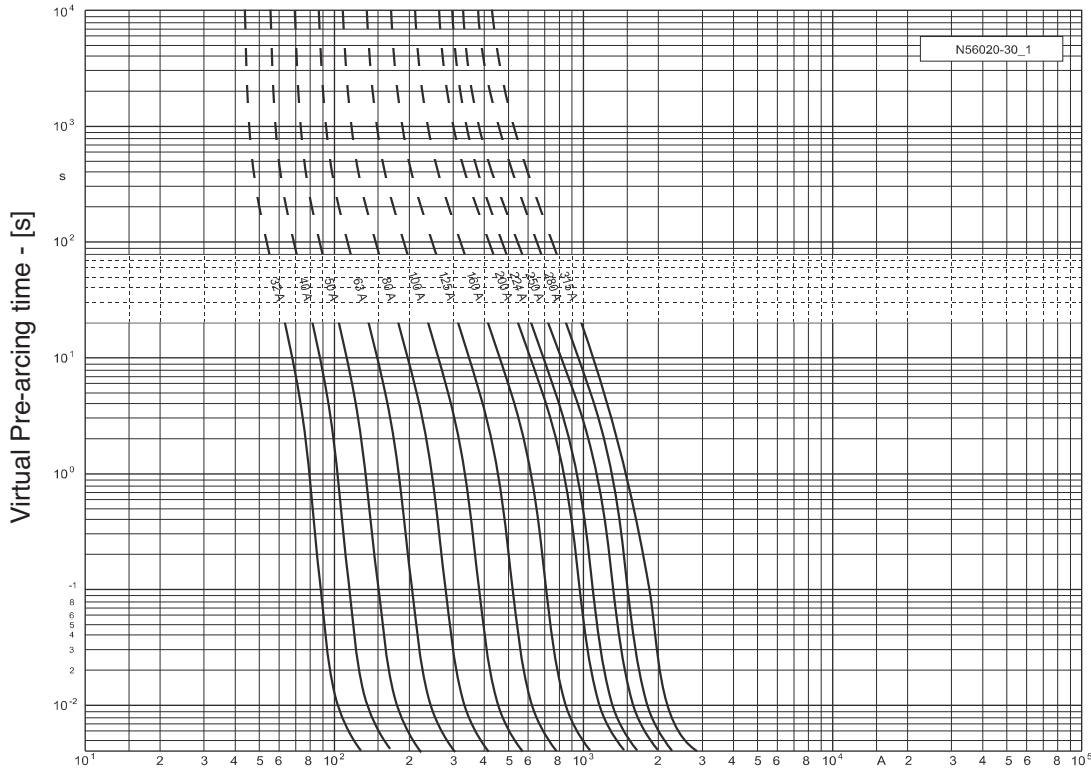
2056220

**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	2800201	540
	2118908		Standard level		
	2118911		Low level		

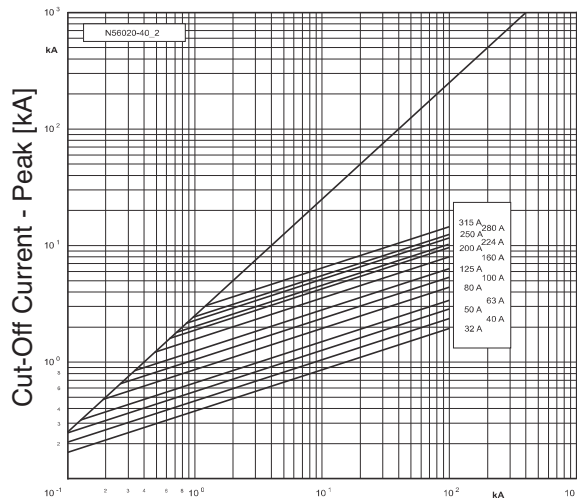
<b>URB NH00 - DIN80</b>	<b>Rated Voltage</b>	<b>Rated Breaking Test</b>		<b>Class</b>	<b>Standard(s)</b>
	[U <sub>n</sub> ]	<b>Capacity</b>	<b>Voltage</b>	aR	IEC 60269-4
	1000V <sub>AC</sub> - IEC 750V <sub>DC</sub> ≤ 250A	100kA 30kA @ L/R = 4ms	1000V <sub>AC</sub> 750V <sub>DC</sub>		VDE 0636-4

**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**

