

GE Consumer & Industrial
Power Protection



Industrial fuse solutions

WTN Plus and DI-FUS fuse links
DI-LINE fuse gear



GE imagination at work

WTN Plus gG and gF fuse links

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- A.6 Dimensions
- A.7 Technical data
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DI-FUS gG and aM fuse links

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- A.16 Technical data
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Fuse links

A

Fuse bases

B

Fuse switch disconnectors

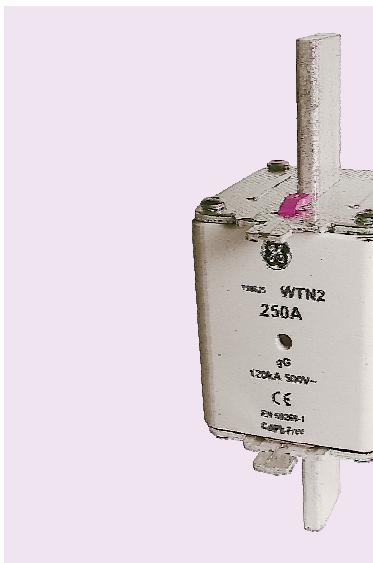
C

Numerical index

D

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WTN Plus gG and gF fuse links

- High Rupture Capacity fuselinks
- Low power dissipation
- Plain undrilled silver plated copper knife-blade tags
- Dual indicator - visual indicator situated in the top end blade and in the centre of the front side of the ceramic body
- Cadmium and lead free manufacturing process
- Two utilisation categories: general purpose gG/gL and special fast action gF fuse links operating in less than 5 sec at $I_n = 2.5 \times I_n$
- Four types of special overrating gG fuses available for use in RSA and RB2 fuse switch disconnectors

WTN-1/gG 315A and WTN-1/gG 355A

WTN-2/gG 500A and WTN-2/gG 630A

Standards

IEC 60269
General purpose fuse links class 'gG'

PN-91/E-06160/10
PN-91/E-06160/21
Fast action fuse links class 'gF'

DIN 43620 (part 1 to 4)
European dimensional standard sizes

Approvals



Applications



General data

Current Rating	(A)	6-630
Voltage Rating	(V)	500*
Breaking Capacity	(kA)	120
Max Operating Ambient Temperature	(C)	40

* Voltage rating size 1 (315A and 355A) and size 2 (500A): 440V;
Voltage rating size 2 (630A): 400V

Associated switchable devices

RSA and RB2 fuse switch disconnector

FULOS and FULOS PLUS fuse switch disconnector

WTN Plus gG General purpose

With European dimensional standards to DIN 43620 and performance standards to VDE 0636/21, operating class gG, WTN Plus fuse Links are used for cable and line protection and rated for use on systems up to 500 Volts ac

Technical Standard

IEC 60269-21 General purpose Fuse Links Class 'gG'

WTN Plus gF Fast acting

Class 'gF' range of WTN Plus Fuse Links are specifically designed for protection against electrical shock caused by indirect touch. WTN Plus gF fuse links allow to break supply voltage within 5 seconds in case fault current is higher or equal 2.5 times the rated current of the fuse.

Technical Standard

Fuse links type WTN Plus gF meet all requirements of IEC 60269-21 in case of cables and line overload protection.



WTN Plus General Purpose WTN-00C/gG 16A-100A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
16A	500V	3/60	700536
20A	500V	3/60	700537
25A	500V	3/60	700538
32A	500V	3/60	700539
40A	500V	3/60	700540
50A	500V	3/60	700541
63A	500V	3/60	700542
80A	500V	3/60	700543
100A	500V	3/60	700544

WTN Plus General Purpose WTN-00/gG 6A-160A



Rated Current	Max. Nominal voltage	Packaging	Ref No.
6A	500V	3/72	700545
10A	500V	3/72	700546
16A	500V	3/72	700547
20A	500V	3/72	700548
25A	500V	3/72	700549
32A	500V	3/72	700550
40A	500V	3/72	700551
50A	500V	3/72	700552
63A	500V	3/72	700553
80A	500V	3/72	700554
100A	500V	3/72	700555
125A	500V	3/72	700556
160A	500V	3/72	700557

WTN Plus General Purpose WTN-1C/gG 6A-160A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
6A	500V	3/36	700589
10A	500V	3/36	700590
16A	500V	3/36	700591
20A	500V	3/36	700592
25A	500V	3/36	700593
32A	500V	3/36	700594
40A	500V	3/36	700595
50A	500V	3/36	700596
63A	500V	3/36	700597
80A	500V	3/36	700598
100A	500V	3/36	700599
125A	500V	3/36	700600
160A	500V	3/36	700601



WTN Plus General Purpose WTN-1/gG 6A-355A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
6A	500V	3/36	700602
10A	500V	3/36	700603
16A	500V	3/36	700604
20A	500V	3/36	700605
25A	500V	3/36	700606
32A	500V	3/36	700607
40A	500V	3/36	700608
50A	500V	3/36	700609
63A	500V	3/36	700610
80A	500V	3/36	700611
100A	500V	3/36	700612
125A	500V	3/36	700613
160A	500V	3/36	700614
200A	500V	3/36	700615
250A	500V	3/36	700616
315A	440V	3/36	700617
355A	440V	3/36	700618

WTN Plus General Purpose WTN-2/gG 63A-630A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
63A	500V	3/24	700619
80A	500V	3/24	700620
100A	500V	3/24	700621
125A	500V	3/24	700622
160A	500V	3/24	700623
200A	500V	3/24	700624
250A	500V	3/24	700625
315A	500V	3/24	700626
400A	500V	3/24	700627
500A	440V	3/24	700628
630A	400V	3/24	700629

WTN Plus General Purpose WTN-3/gG 315A-630A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
315A	500V	3/12	700630
400A	500V	3/12	700631
500A	500V	3/12	700632
630A	500V	3/12	700633

WTN Plus Fast Acting ($k < 2.5$) WTN-00/gF 20A-160A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
20A	400V	3/72	700526
25A	400V	3/72	700527
32A	400V	3/72	700528
40A	400V	3/72	700529
50A	400V	3/72	700530
63A	400V	3/72	700531
80A	400V	3/72	700532
100A	400V	3/72	700533
125A	400V	3/72	700534
160A	400V	3/72	700535

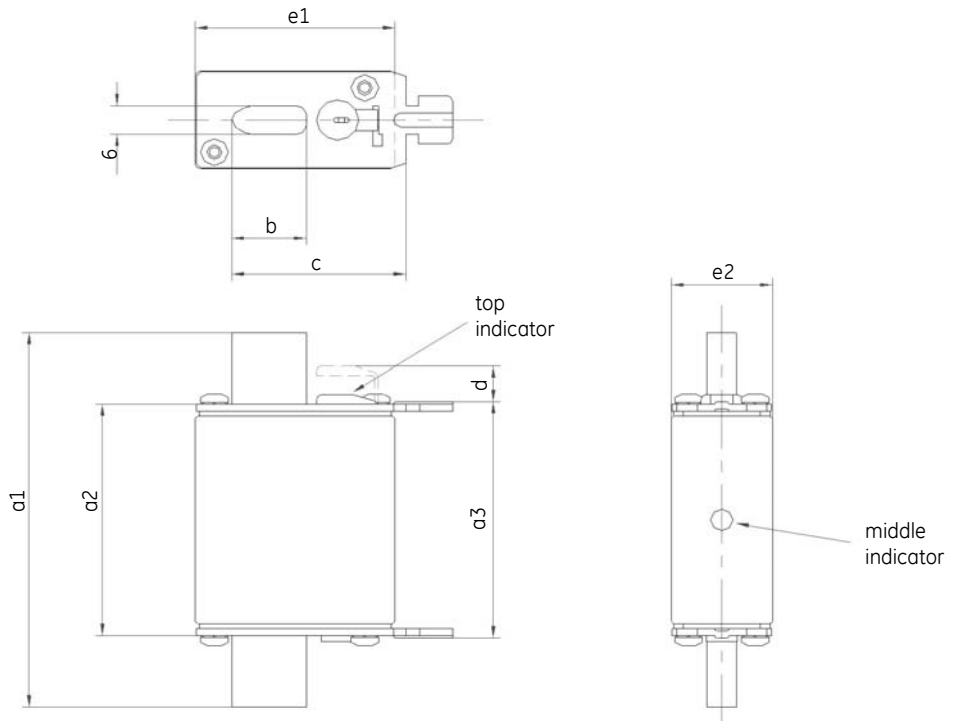
WTN Plus Fast Acting ($K < 2.5$) WTN-1/gF 20A-250A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
20A	400V	3/36	700577
25A	400V	3/36	700578
32A	400V	3/36	700579
40A	400V	3/36	700580
50A	400V	3/36	700581
63A	400V	3/36	700582
80A	400V	3/36	700583
100A	400V	3/36	700584
125A	400V	3/36	700585
160A	400V	3/36	700586
200A	400V	3/36	700587
250A	400V	3/36	700588



WTN Plus - Dimensions



Dimensions (mm)									
DIN sizes	In (A)	a 1	a 2	a 3	b	c	d	e 1	e 2
00C	16-100	$78,7 \pm 1,2$	max.	$49,7 \pm 0,7$	15,1	$35 \pm 0,8$	7,5	max.	max.
00	6-160	$78,5 \pm 1,5$	49,4	$49,7 \pm 0,7$	15,1	$35 \pm 0,8$	7	47,8	29,55
1C	6-160	$135 \pm 2,0$	67,7	$67,5 \pm 1,2$	15,1	$40 \pm 0,8$	7	47,8	29,55
1	6-355	$135 \pm 2,0$	67,7	$67,5 \pm 1,2$	20,1	$40 \pm 0,8$	7	52,9	39,65
2	63-630	$150 \pm 2,0$	67,7	$67,5 \pm 1,2$	25,1	$48 \pm 0,8$	7	61	53,9
3	315-630	$150 \pm 2,0$	68,7	$68,5 \pm 1,2$	32,1	$60 \pm 0,8$	6,5	76	71,2



WTN Plus gG general purpose I2t values

6 – 100Amp

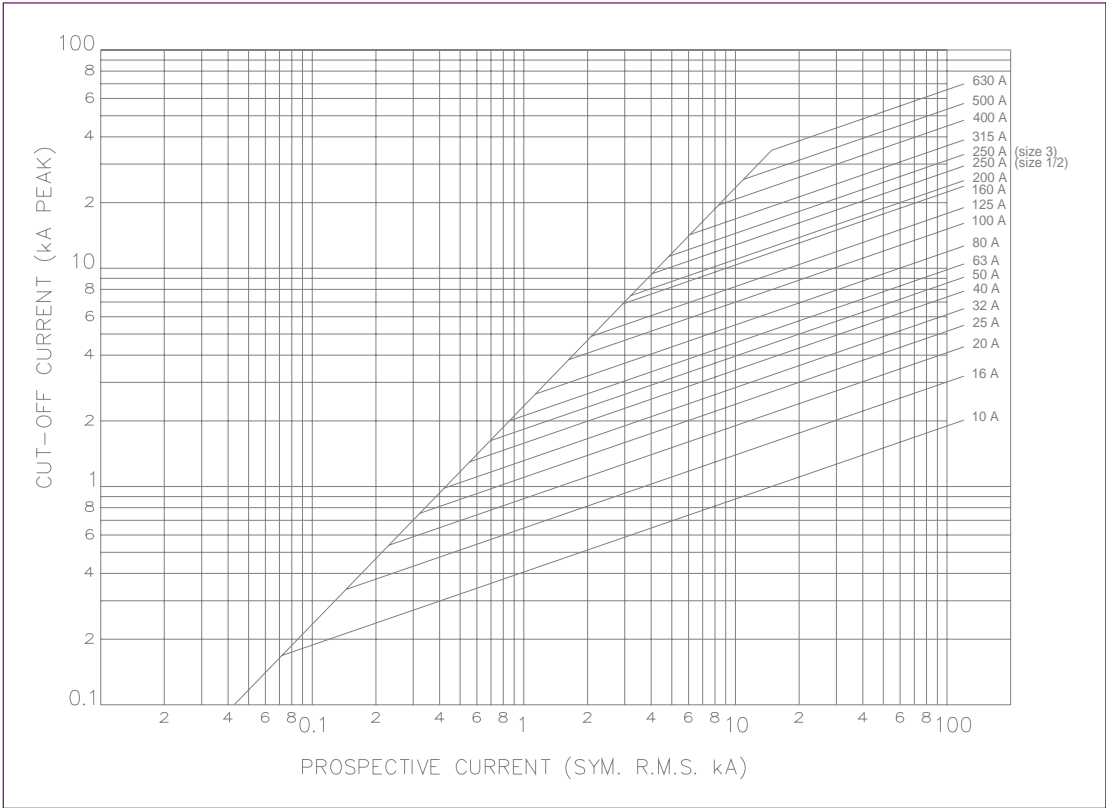
Rated Current	I2t (A2s)		
	Min Pre-Arcing	20 x In at 500Vac	I1 120kA at 500Vac
6A	14	-	21
10A	58	290	240
16A - size 00	240	1170	1000
16A - size 1C, 1	240	1200	1000
20A	490	2500	2000
25A - size 00	920	4600	3700
25A - size 1C, 1	1200	5600	4500
32A	1800	9000	7200
40A	3300	16500	13200
50A - size 00	5900	29500	23600
50A - size 1C, 1	5600	27800	22300
63A - size 00	6300	24900	18700
63A - size 1C, 1, 2	6600	26100	19600
80A	9800	38900	29200
100A - size 00C, 00	18100	72300	54300
100A - size 1, 2	20600	82300	61700

125 – 630Amp

Rated Current	I2t (A2s)		
	Min Pre-Arcing	20 x In at 500Vac	I1 120kA at 500Vac
125A - size 00	25000	125000	80000
125A - size 1C	25000	125000	72500
125A - size 1, 2	25000	100000	72500
160A - size 00	62000	310000	204600
160A - size 1C	62000	310000	179800
160A - size 1, 2	62000	248000	179800
200A - size 1	97000	368600	291000
200A - size 2	96900	367900	290500
250A - size 1	151300	574900	453800
250A - size 2	160800	642900	417900
315A - size 1	299500	1197700	749000
315A - size 2, 3	361700	1446500	940300
355A	299500	1197700	749000
400A	642900	2571500	1671500
500A - size 2	1110000	4422400	2764000
500A - size 3	886000	3898400	2923800
630A - size 2	1930000	9047000	5774700
630A - size 3	1590000	6996000	5406000

Fuse links

WTN Plus gG general purpose cut off current characteristics



A

B

C

D



WTN Plus gF fast acting I2t values

20– 160Amp

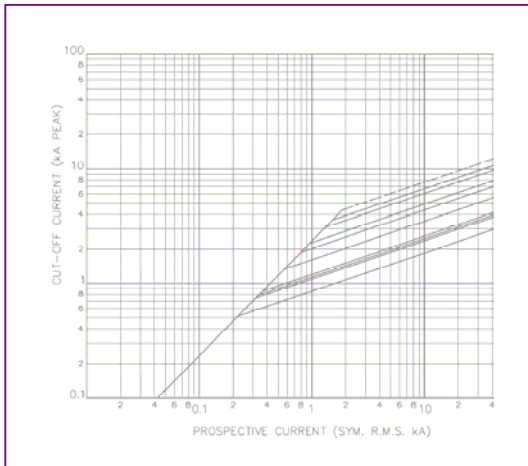
Rating and Type	I2t (A2s)		
	Pre-Arcing	Total at 400V	Nom. Watts Loss
WTN-00/gF 20A	280	2400	2.7
WTN-00/gF 25A	400	3400	3.3
WTN-00/gF 32A	720	4600	4.4
WTN-00/gF 40A	820	6800	4.7
WTN-00/gF 50A	1900	11800	6.0
WTN-00/gF 63A	3200	23300	7.8
WTN-00/gF 80A	5100	20000	9.4
WTN-00/gF 100A	11250	51700	10.4
WTN-00/gF 125A	12800	71800	13.2
WTN-00/gF 160A	23500	120000	14.7

125 – 630Amp

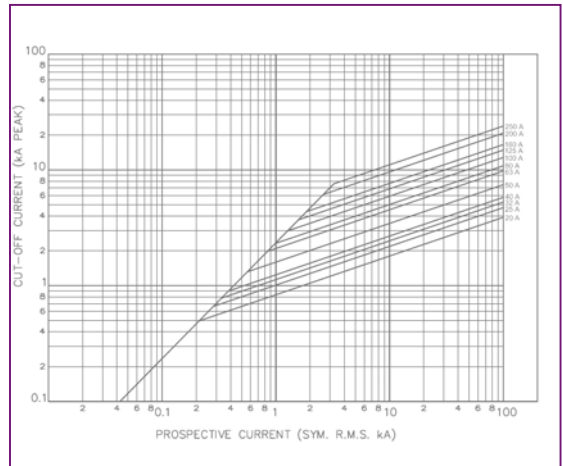
Rating and Type	I2t (A2s)		
	Pre-Arcing	Total at 400V	Nom. Watts Loss
WTN-1/gF 20A	290	1800	3.1
WTN-1/gF 25A	530	4000	3.9
WTN-1/gF 32A	770	4700	5.2
WTN-1/gF 40A	870	7700	5.5
WTN-1/gF 50A	2260	13000	7.0
WTN-1/gF 63A	3900	20700	9.0
WTN-1/gF 80A	6350	3150	10.6
WTN-1/gF100A	10350	47600	11.2
WTN-1/gF 125A	18100	85000	14.7
WTN-1/gF 160A	27000	108500	19.4
WTN-1/gF 200A	50600	188800	23.0
WTN-1/gF 250A	69500	275600	28.6

WTN Plus gF fast acting cut off current characteristics

WTN Plus gF, Size 00



WTN Plus gF, Size 1



A

B

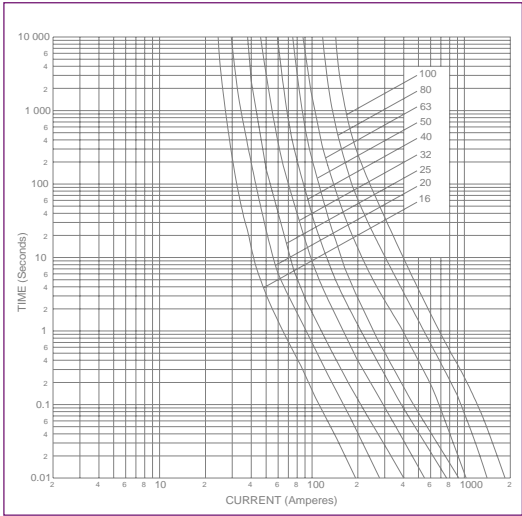
C

D

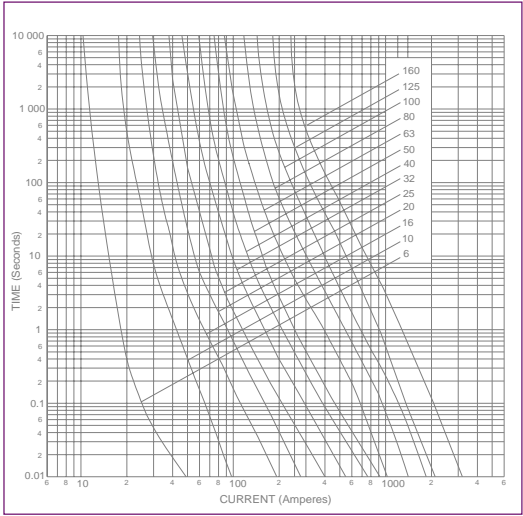


WTN Plus gG general purpose time/current characteristics

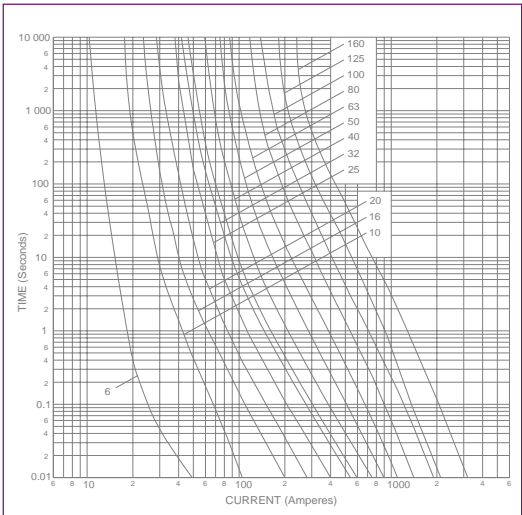
DIN size 00C



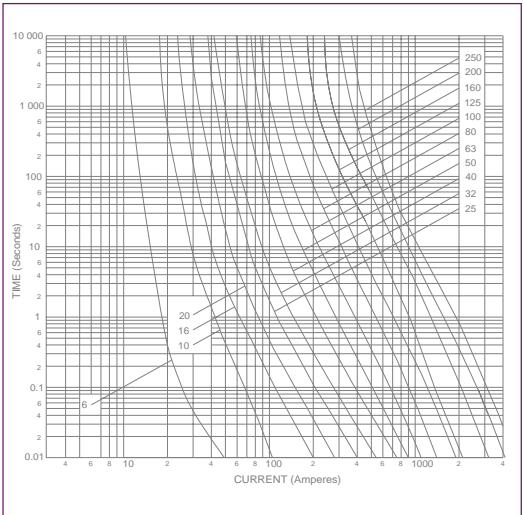
DIN size 00



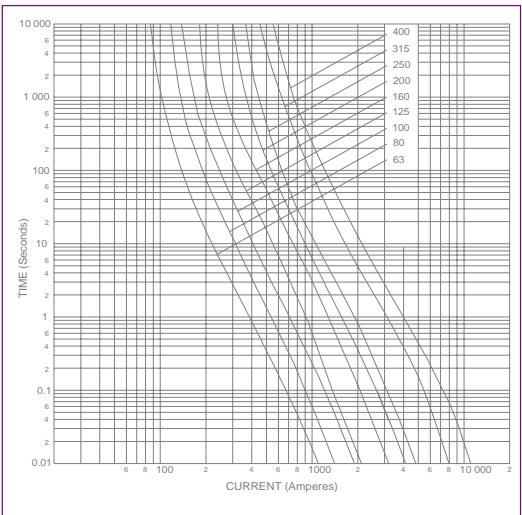
DIN size 1C



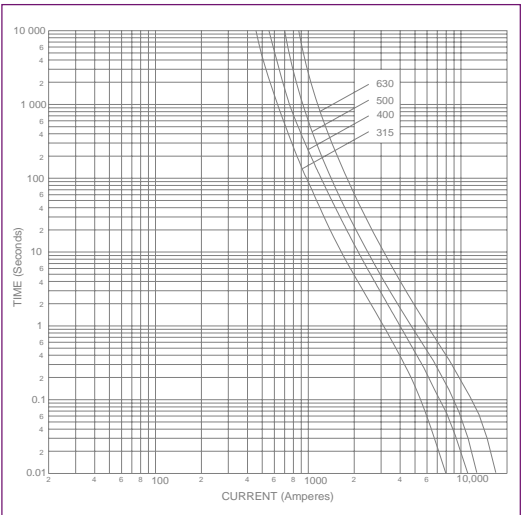
DIN size 1



DIN size 2



DIN size 3



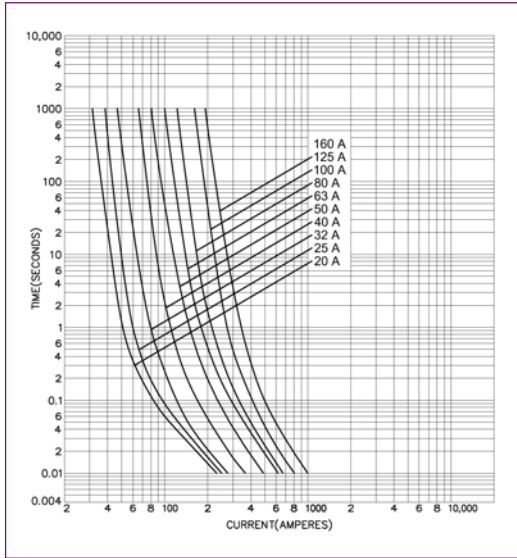
Fuse links

- A
- B
- C
- D

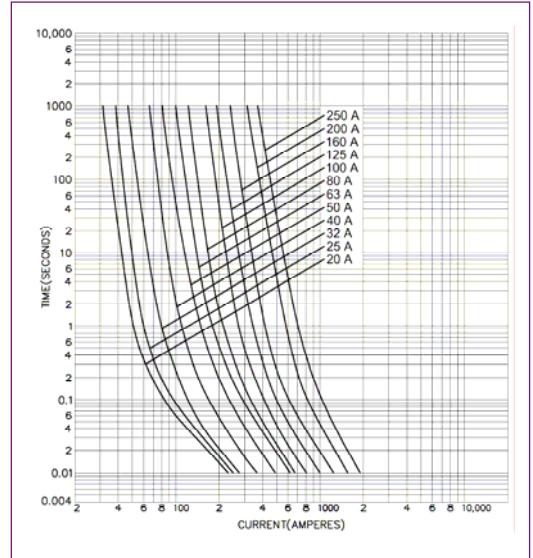


WTN Plus gF fast acting time/current characteristics

WTN Plus gF, size 00



WTN Plus gF, size 1





DI-FUS gG and aM type fuse links

- High Rupture Capacity fuse links
- Low power dissipation
- Plain undrilled silver plated copper knife-blade tags
- visual indicator situated in the top end plate
- DI-FUS fuse links are VDE certified at 120kA RMS, 50Hz, 500VAc to IEC269
- Cadmium and Lead free manufacturing process
- Two utilisation categories: General purpose class gG and Motor starting class aM

Standards

IEC 60269
 General purpose fuse links class 'gG'
 Motor starting fuse links class 'aM'
 DIN 43620 (part 1 to 4)
 European dimensional standard sizes

VDE0636

Approvals



Applications



General data

Current Rating	(A)	6-630
Voltage Rating	(V)	500
Breaking Capacity	(kA)	120
Max Operating Ambient Temperature	(C)	40

Associated switchable devices

DI-DISC and DI-STRIP fuse switch disconnectors
 FULOS and FULOS PLUS fuse switch disconnectors

'NHG' general purpose

With European dimensional standards to DIN 43620 and performance standards to VDE 0636/21, operating class gL, 'NHG' range of Fuse Links are rated for use on systems up to 500 Volts ac

Technical Standard

VDE 0636/21 Class 'gL'
 IEC 60269-21 General purpose Fuse Links Class 'gG'

'NHA' motor starting

Class 'aM' range of DIN Fuse Links are specifically designed for the short circuit protection of equipment in motor circuits. The Fuse Links are used in combination with overload protective devices ensuring total protection of the circuit. The rating of the Fuse Link is selected against the nominal current of the motor. This enables simple and effective selection of Fuse Links for motor circuits.

Technical Standard

VDE 0636/22 Class 'aM'
 IEC 60269-21 Motor Starting Fuse Links Class 'aM'



DI-FUS General Purpose NHG-000 6A-160A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
8A	500V	3/60	403000
10A	500V	3/60	403001
16A	500V	3/60	403002
20A	500V	3/60	403003
25A	500V	3/60	403004
32A	500V	3/60	403005
35A	500V	3/60	403006
40A	500V	3/60	403007
50A	500V	3/60	403008
63A	500V	3/60	403009
80A	500V	3/60	403010
100A	500V	3/60	403011
125A	500V	3/60	403012
160A	500V	3/60	403013

DI-FUS General Purpose NHG-00 125A-160A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
125A	500V	3/60	403014
160A	500V	3/60	403015

DI-FUS General Purpose NHG-1 6A-250A



Rated Current	Max. Nominal voltage	Packaging	Ref. No.
8A	500V	3/3	403016
10A	500V	3/3	403017
16A	500V	3/3	403018
20A	500V	3/3	403019
25A	500V	3/3	403020
32A	500V	3/3	403021
35A	500V	3/3	403022
40A	500V	3/3	403023
50A	500V	3/3	403024
63A	500V	3/3	403025
80A	500V	3/3	403026
100A	500V	3/3	403027
125A	500V	3/3	403028
160A	500V	3/3	403029
200A	500V	3/3	403030
224A	500V	3/3	403031
250A	500V	3/3	403032





DI-FUS General Purpose NHG-2 35A-400A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
35A	500V	3/3	403033
40A	500V	3/3	403034
50A	500V	3/3	403035
63A	500V	3/3	403036
80A	500V	3/3	403037
100A	500V	3/3	403038
125A	500V	3/3	403039
160A	500V	3/3	403040
200A	500V	3/3	403041
224A	500V	3/3	403042
250A	500V	3/3	403043
315A	500V	3/3	403044
350A	500V	3/3	403045
400A	500V	3/3	403046



DI-FUS General Purpose NHG-3 100A-630A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
100A	500V	3/3	403047
125A	500V	3/3	403048
160A	500V	3/3	403049
200A	500V	3/3	403050
224A	500V	3/3	403051
250A	500V	3/3	403052
315A	500V	3/3	403053
350A	500V	3/3	403054
400A	500V	3/3	403055
500A	500V	3/3	403056
630A	500V	3/3	403057

DI-FUS Motor Starting NHA-000 4A-50A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
4A	500V	3/60	403058
6A	500V	3/60	403059
8A	500V	3/60	403060
10A	500V	3/60	403061
12A	500V	3/60	403062
16A	500V	3/60	403063
20A	500V	3/60	403064
25A	500V	3/60	403065
32A	500V	3/60	403066
40A	500V	3/60	403067
50A	500V	3/60	403068

DI-FUS Motor Starting NHA-00 63A-160A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
63A	500V	3/60	403069
80A	500V	3/60	403070
100A	500V	3/60	403071
125A	500V	3/60	403072
160A	500V	3/60	403073

DI-FUS Motor Starting NHA-1 40A-250A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
40A	500V	3/3	403074
50A	500V	3/3	403075
63A	500V	3/3	403076
80A	500V	3/3	403077
100A	500V	3/3	403078
125A	500V	3/3	403079
160A	500V	3/3	403080
200A	500V	3/3	403081
250A	500V	3/3	403082

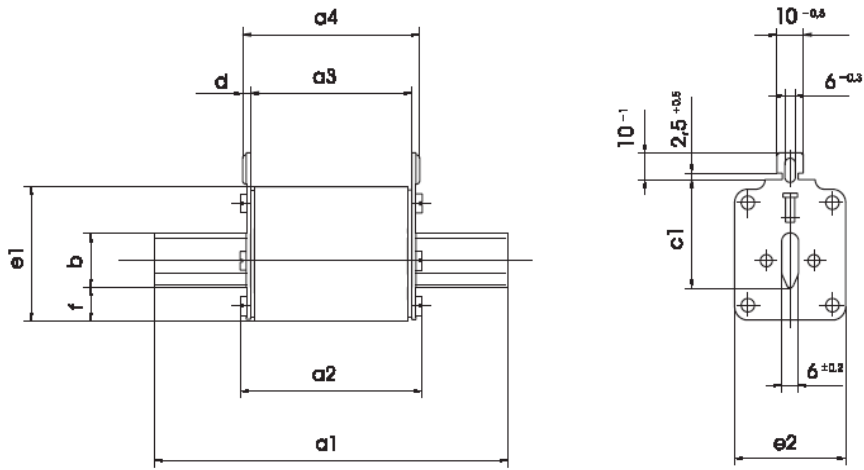
DI-FUS Motor Starting NHA-2 125A-400A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
125A	500V	3/3	403083
160A	500V	3/3	403084
200A	500V	3/3	403085
250A	500V	3/3	403086
315A	500V	3/3	403087
400A	500V	3/3	403088

DI-FUS Motor Starting NHA-3 315A-630A

Rated Current	Max. Nominal voltage	Packaging	Ref. No.
315A	500V	3/3	403089
400A	500V	3/3	403090
500A	500V	3/3	403091
630A	500V	3/3	403092

DI-FUS Dimensions



NHG fuse links

DIN-size	In [A]	a1	a2	a3	a4	b (min)	c1	d	e1	e2	f
000	6-160	78	52	45	49	15	35	2	39.5	20.5	7
00	125-160	78	52	45	49	15	35	2	45	29	12
1	6-160	135	69	62	67	15	40	2.5	45	29	12
1	200-250	135	69	61	67	20	40	3	50	44.5	12
2	35-250	150	69	61	67	20	48	3	50	44.5	12
2	315-400	150	70	61	67	25	48	3	58	50	12
3	100-400	150	70	61	68	25	60	3	58	50	12
3	500-630	150	73	61	68	32	60	3.5	73	71	15

NHA fuse links

DIN-size	In [A]	a1	a2	a3	a4	b (min)	c1	d	e1	e2	f
000	4-50	78	52	45	49	15	35	2	39.5	20.5	7
00	63-100	78	52	45	49	15	35	2	38	29	7
00	125-160	78	52	45	49	15	35	2	45	29	12
1	40-160	135	69	62	67	15	40	2.5	45	29	12
1	200-250	135	69	61	67	20	40	3	50	44.5	12
2	125-250	150	69	61	67	20	48	3	50	44.5	12
2	315-400	150	70	61	67	25	48	3	58	50	12
3	315-400	150	70	61	68	25	60	3	58	50	12
3	500-630	150	73	61	68	32	60	3.5	73	71	15

NHG general purpose fuse links I2t values

Rated Current	I2t (A2s)		
	Pre-Arcing I2t (A2sec)	Total-Arcing I2t (A2sec) at 380V	Total-Arcing I2t (A2sec) at 500V
8	20	300	350
10	110	940	1100
16	230	1870	2200
20	650	3500	4100
25	1200	5360	6300
32	2000	8930	10500
35	3500	10200	12000
40	4500	15300	18000
50	4850	21800	25000
63	6100	35700	42000
80	7000	68000	80000
100	14000	110500	130000
125	9900	89300	105000
160	40000	195500	230000
200	95000	331500	390000
224	120000	391000	460000
250	140000	493000	580000
315	290000	978000	1150000
350	400000	1148000	1350000
400	600000	1700000	2000000
500	700000	2295000	2700000
630	800000	4080000	4800000

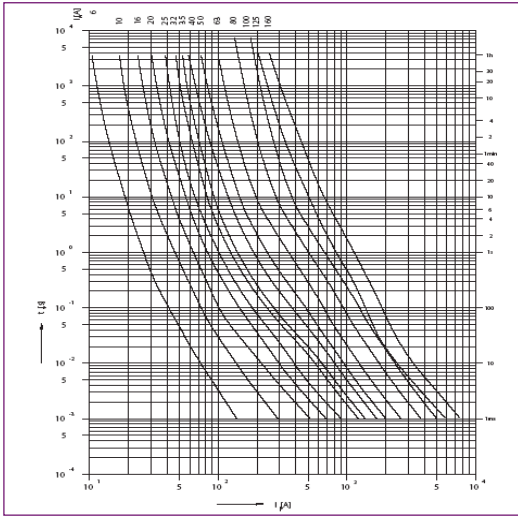
NHA motor starting fuse links I2t values

Rated Current	I2t (A2s)		
	Pre-Arcing I2t (A2sec)	Total-Arcing I2t (A2sec) at 380V	Total-Arcing I2t (A2sec) at 500V
4	31	280	330
6	64	700	820
8	93	1280	1500
10	290	3150	3700
12	290	4170	4900
16	700	5900	6900
20	860	7060	8300
25	1300	9400	11000
32	3000	17900	21000
40	6000	27200	32000
50	10000	40000	47000
63	1700	63800	75000
80	3400	93500	110000
100	16800	162000	190000
125	15500	187000	220000
160	25500	264000	310000
200	29000	425000	500000
250	56000	723000	850000
315	83000	935000	1100000
400	160000	1615000	1900000
500	200000	1785000	2100000
630	370000	3485000	4100000

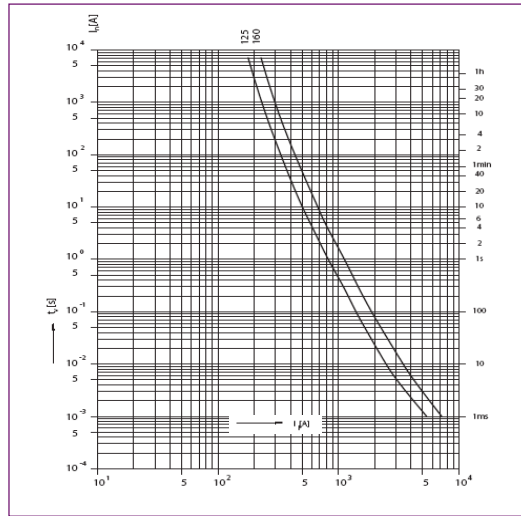


'NHG' general purpose time/current characteristics

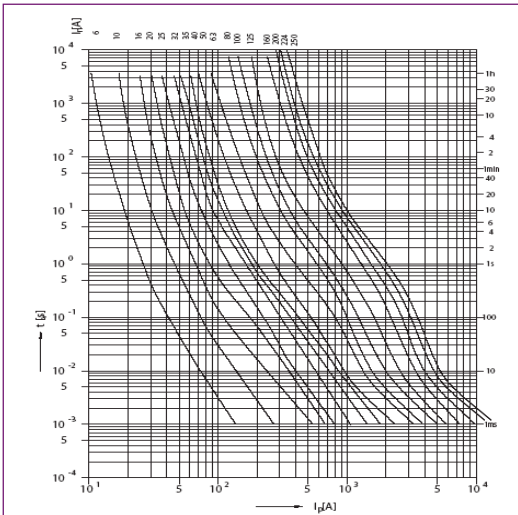
DIN size 000



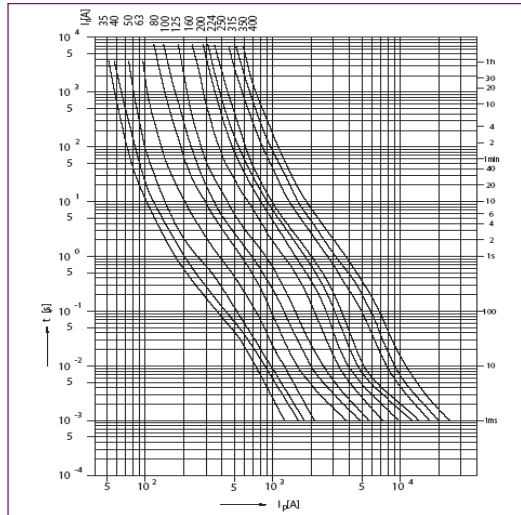
DIN size 00



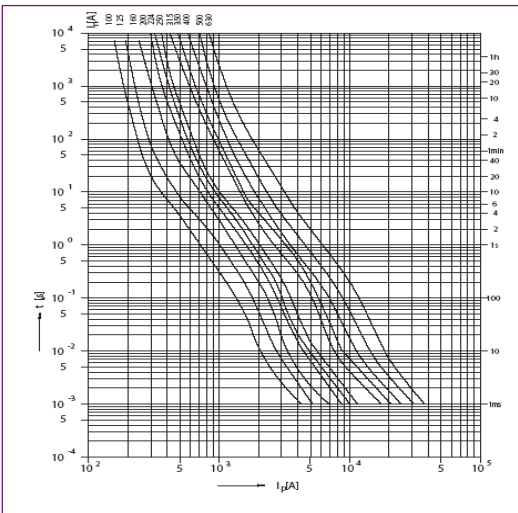
DIN size 1



DIN size 2

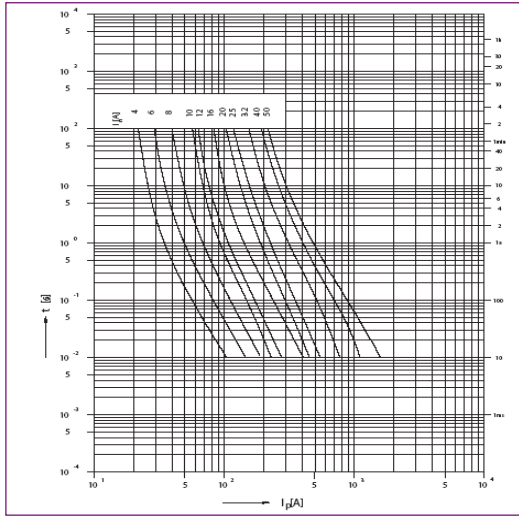


DIN size 3

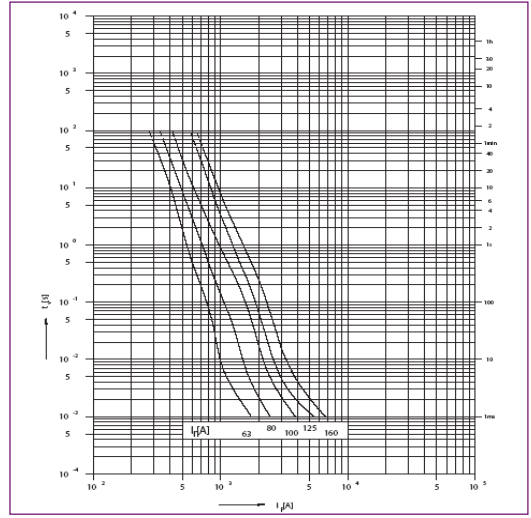


'NHA' motor starting time/current characteristics

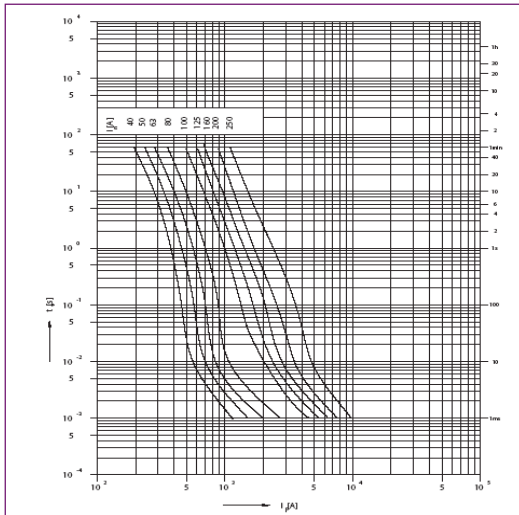
DIN size 000



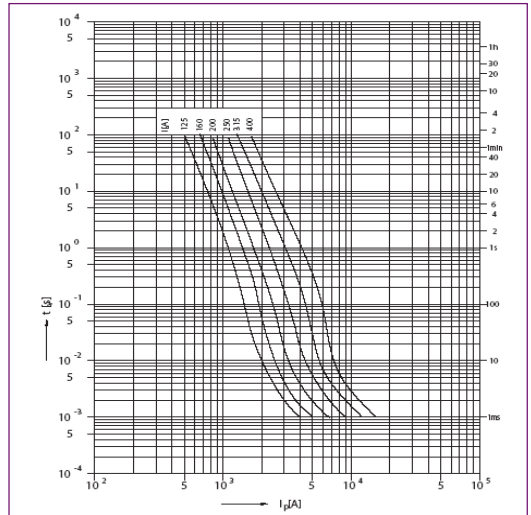
DIN size 00



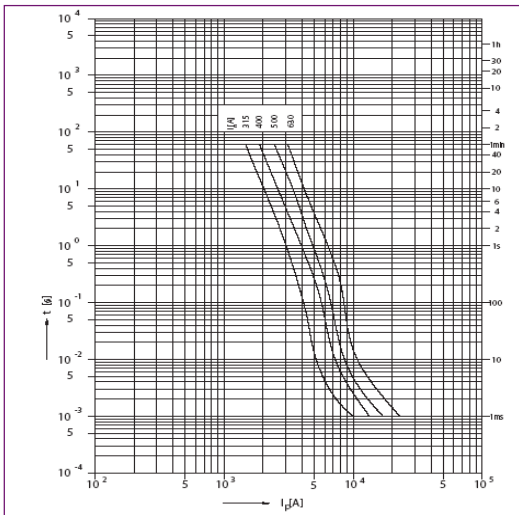
DIN size 1



DIN size 2



DIN size 3



Fuse links

A

B

C

D



PBG and PBN plastic fuse bases

- B.3 Order codes
- B.2 Technical data
- B.4 Dimensions

DI-BASE plastic and steel type NH fuse bases

- B.7 Order codes
- B.6 Technical data
- B.8 Dimensions

Neutral links WTZ

- B.12 Order codes
- B.12 Dimensions

Fuse links

A

Fuse bases

B

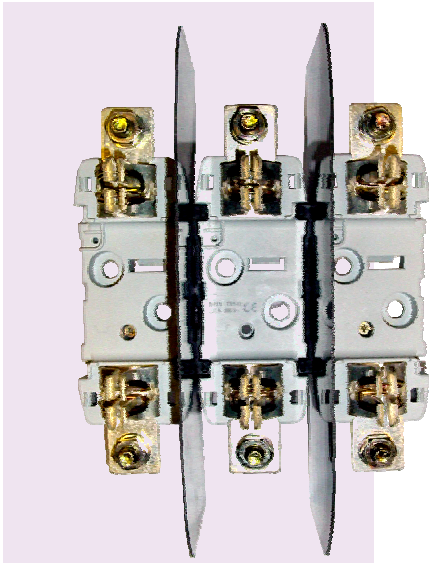
Fuse switch disconnectors

C

Numerical index

D





PBG and PBN plastic NH fuse bases

- Available in sizes 00, 1, 2, and 3
- Supporting part of plastic fuse bases is made from fibreglass reinforced moulding material with high mechanical strength and high thermal resistance.
- IP00/IP20 protection
- Silver plated contacts
- Rated at 690V

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	160-630
Voltage Rating	(V)	690
DIN sizes		00,1,2,3

Approvals



Applications





Technical data PBG and PBN Fuse Bases

PROPERTIES		POLYESTER NH FUSE BASES				
		PB00 NH00	PBN1 NH1	PBN2 NH2	PBN3 NH3	
MATERIALS	BODY	THERMOPLASTIC +25% F.V. UL94-V0				
	CONTACTS	SILVER PLATING				
	SCREW, NUT AND WASHERS	CHROME-PLATED STEEL				
ELECTRICAL	IMAX AMPERAGE BY U (V)	160A / 690V	250A / 690V	400A / 690V	630A / 690V	
	DERATING TEMPERATURE	20°C	1	1	1	1
		30°C	0.95	0.95	0.95	0.95
		40°C	0.9	0.9	0.9	0.9
		50°C	0.8	0.8	0.8	0.8
MAX. POWER DISSIPATION	12W	32W	45W	60W		
DEGREE OF PROTECTION	IP00/IP20	IP00/IP20	IP00/IP20	IP00/IP20		
USE	CONNECTING	SCREW	M8	M8	M8	M8
		CLAMP	2 x M6			
	MAX. TIGHTENING TORQUE	10Nm	32Nm	32Nm	32Nm	
	FIXING	DIN RAIL				
		SCREW				
WITH MICROSWITCH 16A / 250V	PRESENCE / FUSION	-				



PBG/PBN plastic fuseholder

	Rated current In	Poles	Size	Type	Packaging	Ref. Nr.
	160A	1	00	plastic	3	700645
	250A (355A)	1	1	plastic	3	700567
	400A (630A)	1	2	plastic	3	700569
	630A	1	3	plastic	1	on request
	160A	3	00	plastic	1	700646
	250A (355A)	3	1	plastic	1	700568
	400A (630A)	3	2	plastic	1	700570
	630A	3	3	plastic	1	700571

Fuse base accessories

Terminal Contact and fuse covers

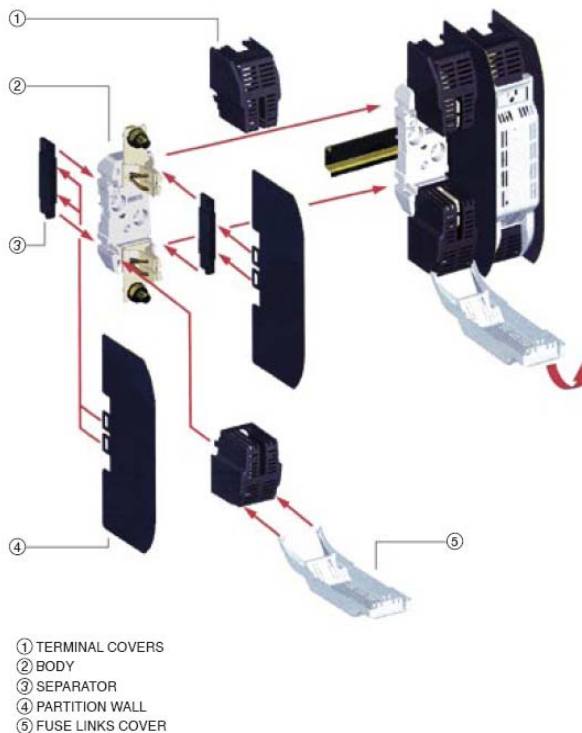
Rated current In	Size	Terminal cover		Fuse cover	
		Packaging	Ref. Nr.	Packaging	Ref. Nr.
160A	00	6	700823	3	700828
250A	1	6	700825	3	700830
400A	2	6	700826	3	700830
630A	3	6	700827	3	700831

Partition/Separating plate and Separator connector

Rated current In	Size	Partition plate		Separator	
		Packaging	Ref. Nr.	Packaging	Ref. Nr.
160A	00	2	700815	2	700819
250A/400A	1/2	2	700817	2	700821
630A	3	2	700818	2	700822

Microswitch for fixation on blades of all sizes WTN Plus fuses

Rated current In	Size	Packaging	Ref. Nr.
160A	00-3	1	700814



Fuse bases

A

B

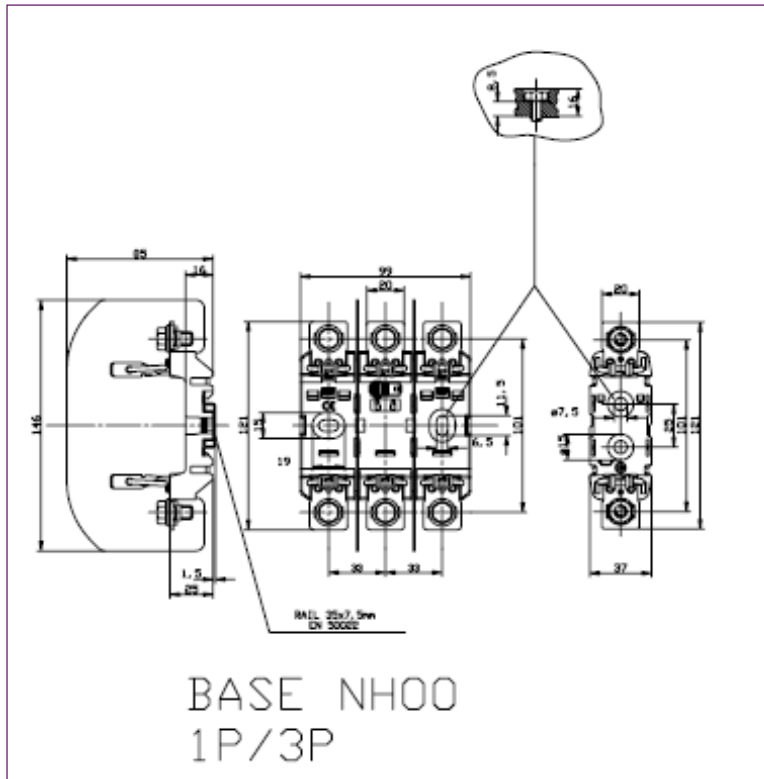
C

D

PBN/PBG Dimensions

Fuse bases

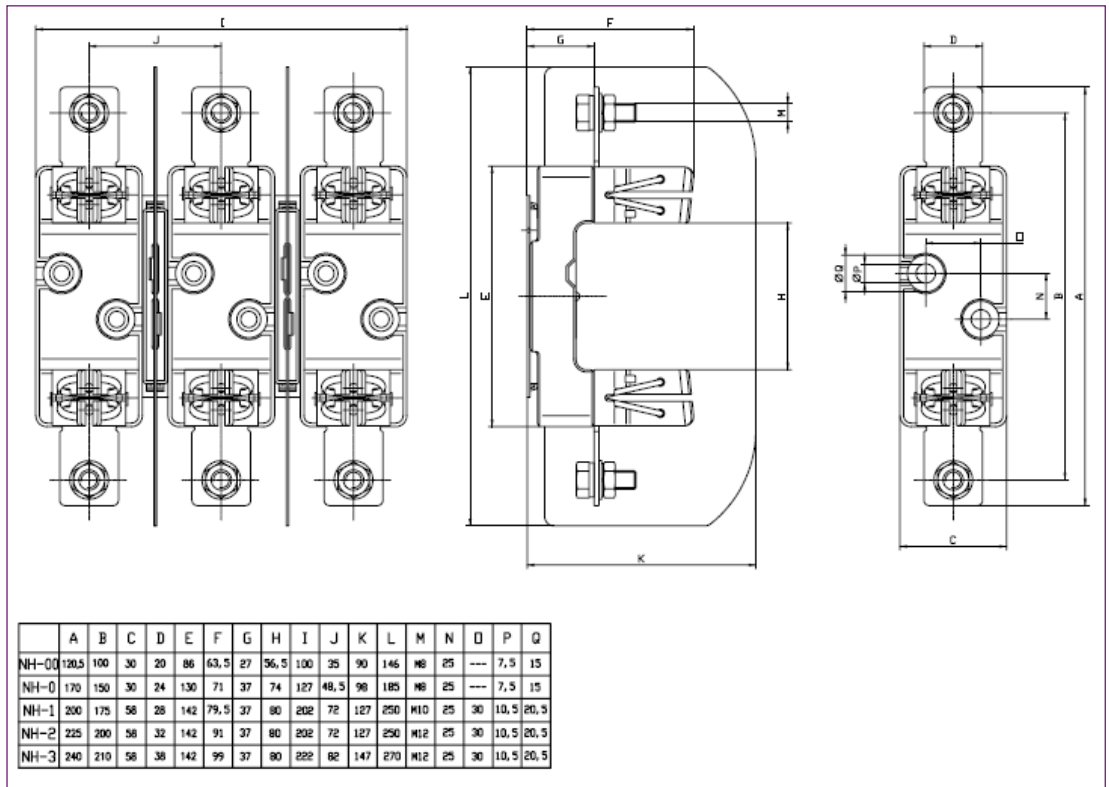
A

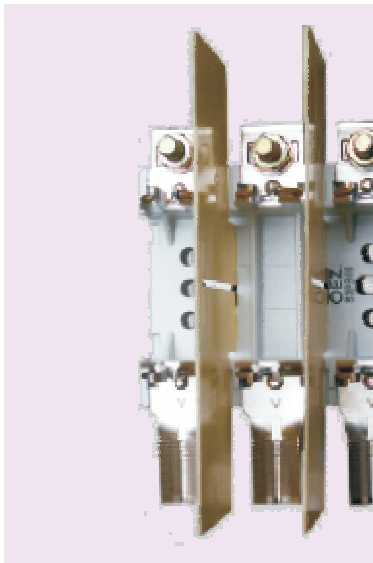


B

C

D





DI-BASE plastic and steel type NH fuse bases

- Available in sizes 00*, 1, 2, and 3
- Different terminal connections available on request
- IP00/IP20 protection
- Supporting part of plastic fuse bases is made from fibreglass reinforced moulding material with high mechanical strength and high thermal resistance.
- Supporting part of steel fuse bases is made from zinc-chromated steel sheet.
- Fuse-bases are always equipped with inter polar barriers. End barrier must be ordered separately.
- Contact carriers of steel type are from steatite with high mechanical strength.

* Either fuse links sizes 00, or 000 can be used with

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	160-250
Voltage Rating	(V)	690
DIN sizes		00,1,2,3

Approvals



Applications



General data DI-BASE SPB Plastic Fuse Bases




		SPB00	SPB1	SPB2	S3PB00	S3PB1	S3PB2	SPF3
Rated current	I_n	160 A	250 A	400 A	160 A	250 A	400 A	630 A
DIN-size		00	1	2	00	1	2	3
Usable DIN-size of fuses		000, 00	1, (0, 01)	2, (02)	000, 00	1, (0, 01)	2, (02)	3, (03)
Watt loss	P_v	12 W	32 W	45 W	12 W	32 W	45 W	60 W
Voltage	U_n	690 V	690 V	690 V	690 V	690 V	690 V	690 V
IP protection		IP00	IP00	IP00	IP00	IP00	IP00	IP00
Standards		IEC 60269-1, 2-1; DIN 43620; ČSN EN 60 269-1, -2; ČSN 35 4701-2-1;						

General data DI-BASE SPF Steel Fuse Bases

		SPF00	SPF1	SPF2	SPF3
Rated current	I_n	160 A	250 A	400 A	630 A
DIN-size		00	1	2	3
Usable DIN-size of fuses		000, 00	1, (0, 01)	2, (02)	3, (03)
Watt loss	P_v	12 W	32 W	45 W	60 W
Voltage	U_n	690 V	690 V	690 V	690 V
IP protection		IP00	IP00	IP00	IP00
Standards		IEC 60269-1, 2-1; DIN 43620; ČSN EN 60 269-1, -2; ČSN 35 4701-2-1;			





DI-BASE plastic and steel type NH fuse bases

	Rated Current In	Poles	Size	Type	Packaging.	Ref No.
	160A	1	00*	plastic	3	772739
	250A	1	1	plastic	3	772746
	400A	1	2	plastic	3	772752
	160A	3	00*	plastic	1	772762
	250A	3	1	plastic	1	772766
	400A	3	2	plastic	1	772772
	160A	1	00*	steel	3	772270
	250A	1	1	steel	3	772724
	400A	1	2	steel	3	772730
	630A	1	3	steel	3	772736

* for Size 00 both fuselinks sizes 00, and 000 can be used

All DI-BASE have terminals with pressed nuts and flat terminal screws; other terminal types on request

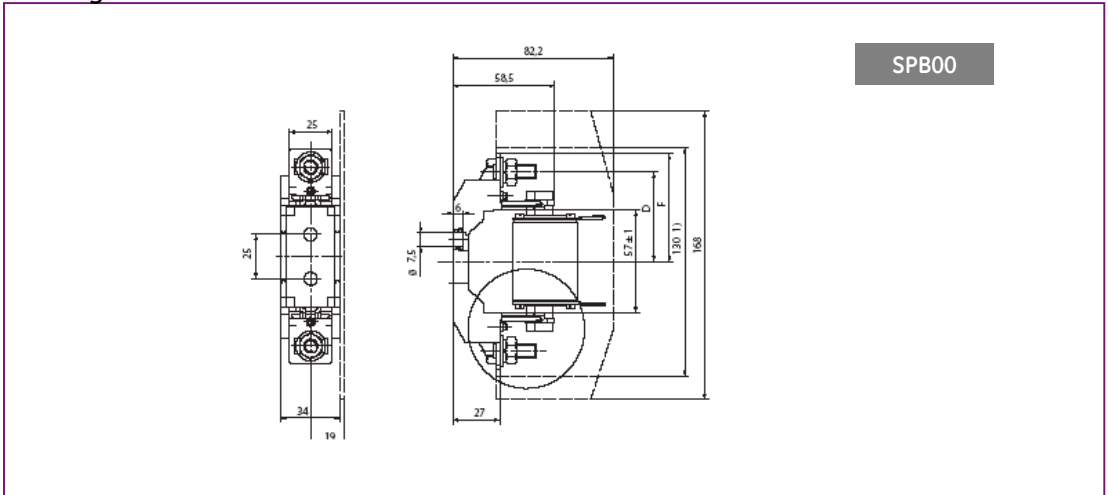
DI-BASE accessories

	Rated Current In	Poles	Size	Type	Packaging.	Ref No.
 <p>Contact cover</p>	160A	1	00*	plastic	2	772793
	250A	1	1	plastic	2	772794
	400A	1	2	plastic	2	772795
 <p>End barrier</p>	160A	1	00*	plastic	1	772789
	160A	3	00*	plastic	1	772790
	250A	1	1	plastic	1	772791
	400A	1	2	plastic	1	772792



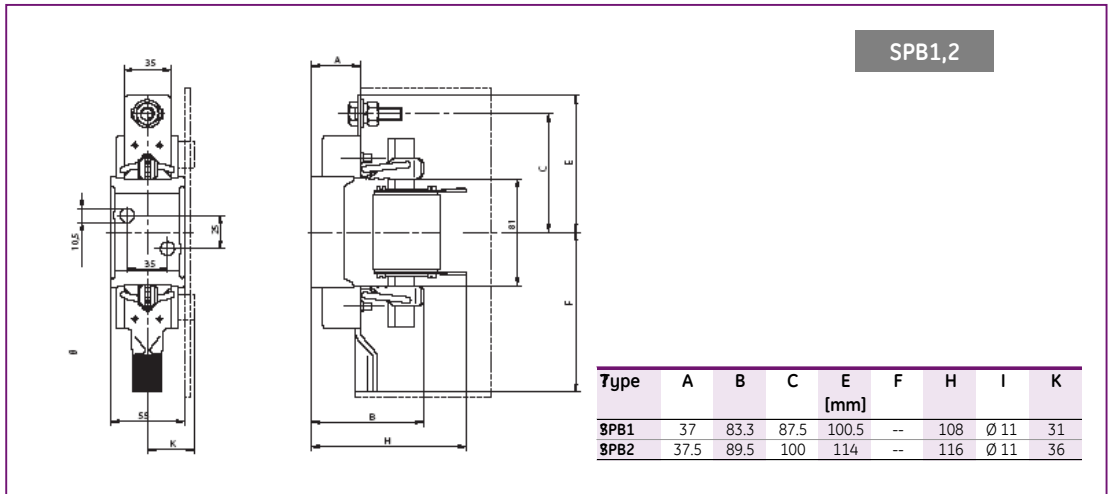
DI-BASE Dimensions

SPB Single Pole Plastic Fuse base



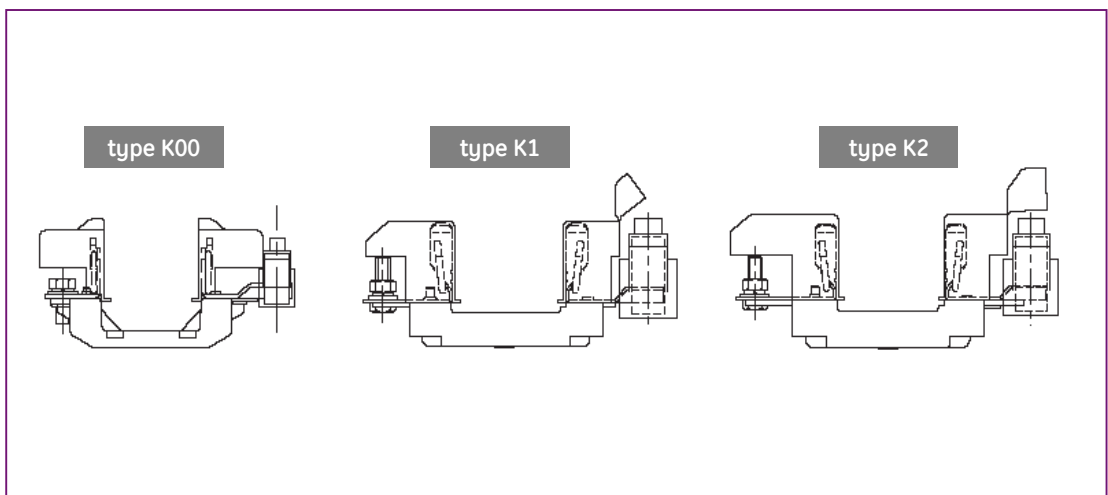
SPB00

SPB Single Pole Plastic Fuse base



SPB1,2

Contact covers

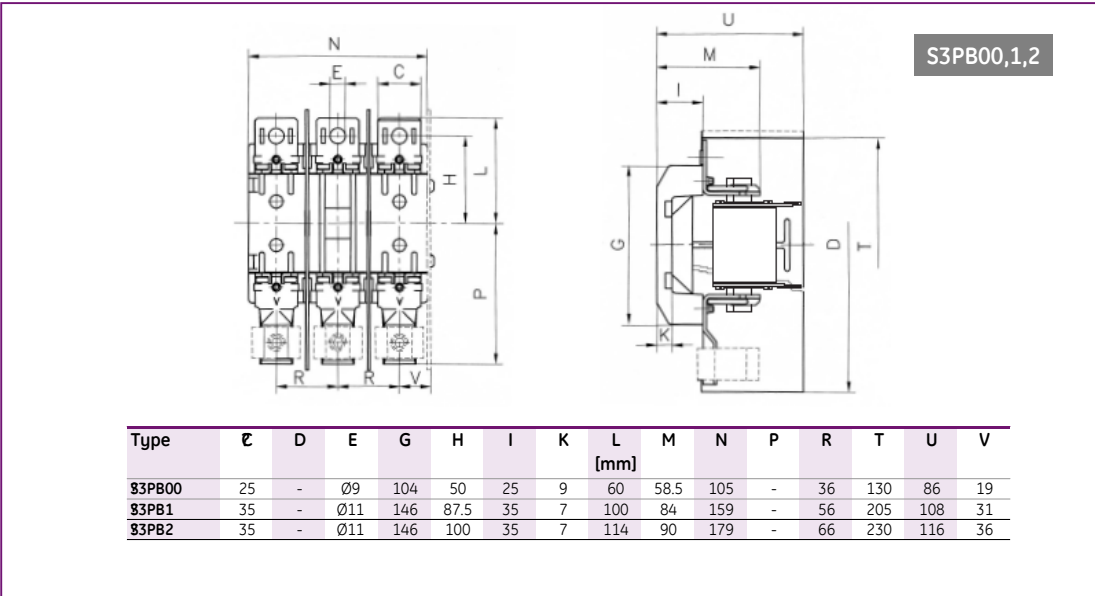


type K00

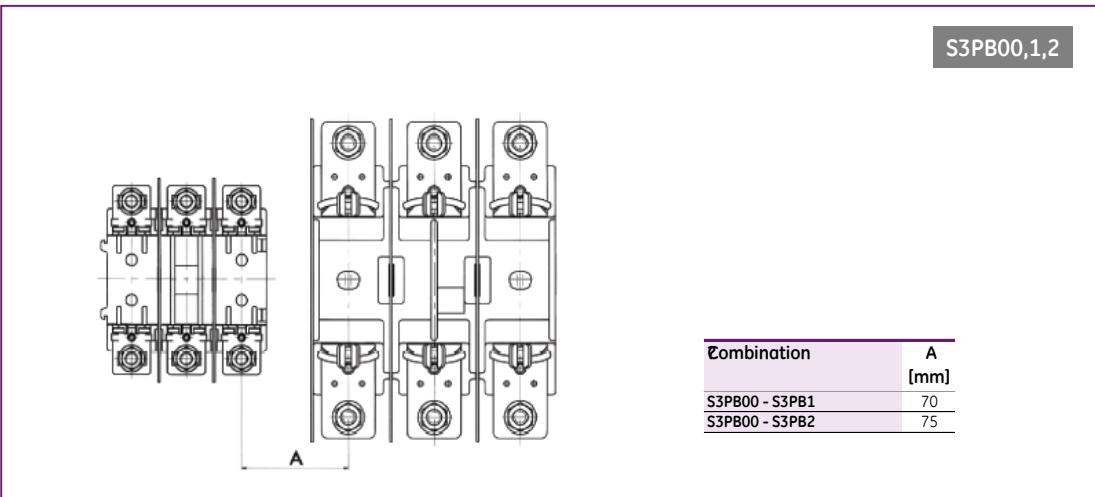
type K1

type K2

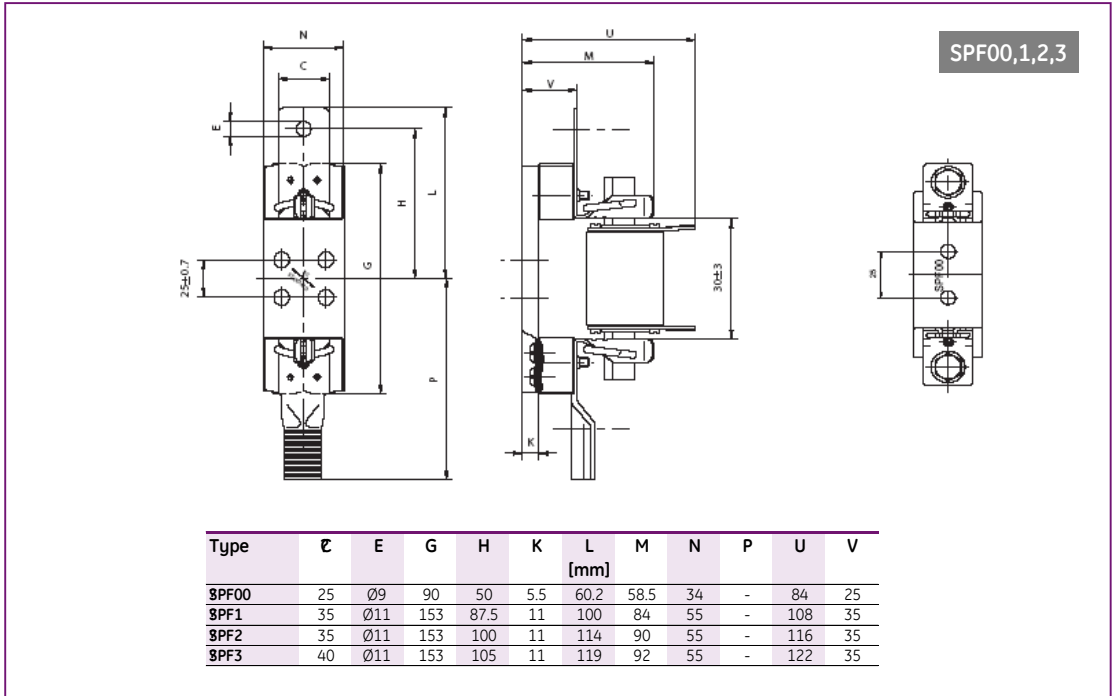
SPB three Pole Plastic Fuse base



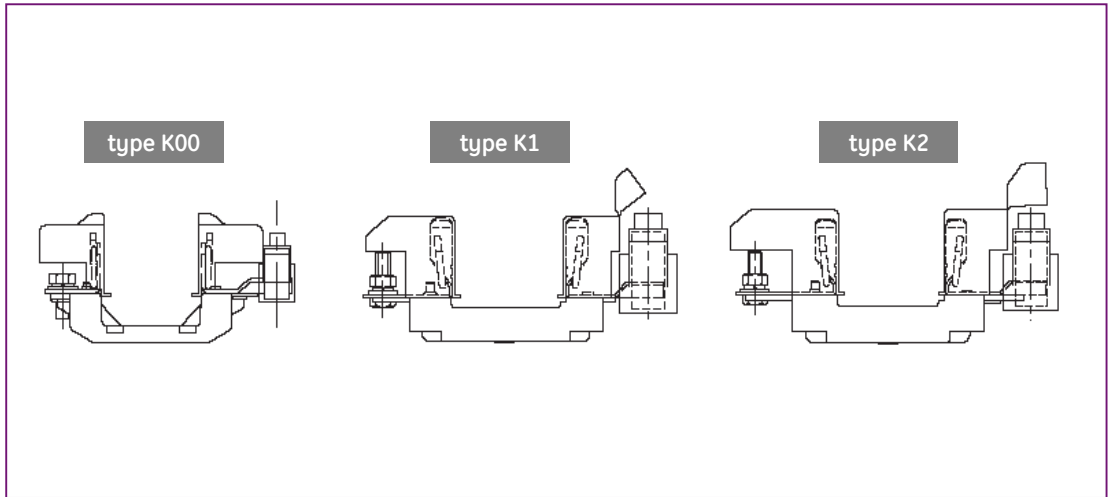
SPB three Pole Plastic Fuse base

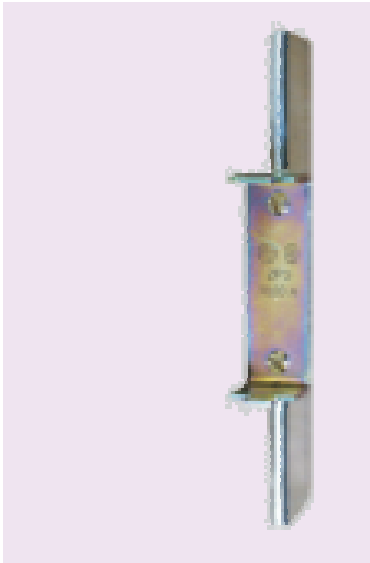


SPF single Pole Steel Fuse base



Contact covers





WTZ Neutral Links

- Available in sizes 00*, 1, 2, and 3
- Conductive parts made of high quality tin coated copper
- Can be used in fuse bases, fuse rails or fuse switch disconnectors

* Can be used in fuse bases sizes 00, or fuse switch disconnectors sizes 000 and 00

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	160-630
Voltage Rating	(V)	690
DIN sizes		00,1,2,3

Approvals



Applications

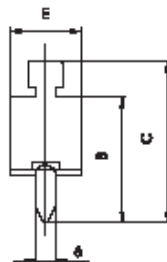
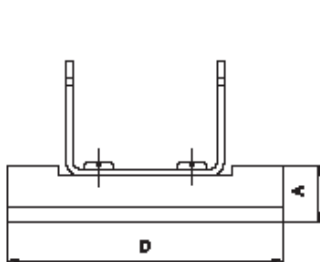


Neutral Links



Rated current In	Size	Material	Voltage rating	Packaging	Ref. Nr.
160A	00	tin coated copper	690V	3	700573
250A	1	tin coated copper	690V	3	700574
400A	2	tin coated copper	690V	3	700575
630A	3	tin coated copper	690V	3	700576

Dimensions



Dimensions in mm

Size	A	B	C	D	E
00	16	35	45	78.5	20
1	20	40	50	135	20
2	25	48	58	150	20
3	32	60	70	150	20

DI-DISC 'FH' horizontal fuse switch disconnecter

- C.4 Order codes
- C.3 Technical data
- C.5 Dimensions

DI-STRIP 'FD' vertical fuse switch disconnecter

- C.13 Order codes
- C.12 Technical data
- C.14 Dimensions

DI-RAIL 'FR' fuse rail

- C.17 Order codes
- C.16 Technical data
- C.18 Dimensions

Fuse links

A

Fuse bases

B

Fuse switch disconnectors

C

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D





DI-DISC 'FH' horizontal fuse switch disconnecter

- Available in sizes 000, 00, 1, 2, and 3
- Versions with terminal clips or screws M10/M12
- Version with fuse monitor allows remote signaling in every pole (using normal fuse links with blade contacts with visual indicator on top)
- Possibility to lock the cover
- Measuring holes in the cover
- Label on cover to describe name of the circuit
- Mounting: direct on the panel with screws, on 60 mm rail system with special adapter; on 35 mm rails acc. to DIN EN 50 022 (size 000),

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	160-630
Voltage Rating	(V)	690
DIN sizes		000, 00,1,2,3

Approvals



Applications



A

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D

General data DI-DISC FH

		FH000	FH00	FH1	FH2	FH3
Rated Voltage	U _n	AC 690 V DC 440 V	690 V	690 V	690 V	690 V
	I _n	160 A	160 A	250 A	400 A	630 A
Utilisation category		AC23B at AC 400 V	AC-23B	AC-23B	AC-23B	AC-23B
		AC22B at AC 500 V	AC-22B	AC-22B	AC-23B	AC-23B
		AC21B at AC 690 V	AC-21B	DC-21B	AC-22B	AC-22B
		DC22B at DC 250 V	DC-22B	DC-21B	DC-21B	DC-21B
		DC20B at DC 440 V			DC-21B	DC-21B
Thermal current with fuse-link/disconnecting knife	I _{th}	160 A	160 A/ 250A	250 A/ 325 A	400 A/ 500 A	630 A/ 750 A
Rated frequency	f	40 - 60 Hz	40 - 60 Hz	40 - 60 Hz	40 - 60 Hz	40 - 60 Hz
Rated Insulation voltage	U _i	800 V a.c.	1000 V a.c.	1000 V a.c.	1000 V a.c.	1000 V a.c.
	I _{sc}	80 kA for AC 690 V/100 A 120 kA for AC 500 V/100 A 50 kA for AC 500 V/160 A 120 kA for AC 400 V/160 A	120 kA	> 25 kA for 690 V 50 kA for 500 V 120 kA for 400 V	> 25 kA for 690 V 50 kA for 500 V 120 kA for 400 V	> 25 kA for 690 V 50 kA for 500 V 120 kA for 400 V
Impulse Withstand voltage	U _{imp}	8 kV for FH000 - 1I3A/T	12 kV for FH00 - A/F	12 kV for FH1-1/F	12 kV for FH2-1/F	12 kV for FH3-1/F
Fuse link size		000	000,00	1	2	3
Max. power losses of the fuse-link	P _v	9 W	12 W	23 W	34 W	48 W
Power losses at I _n without fuse-link	P _v	7W	7W	9 W	23 W	49 W
Electrical durability (operating cycles)		300 at 100 A 200 at 160 A	300 at 100 A 200 at 160 A	200 at 250 A	200 at 400 A	200 at 630 A
		2000	2000	1400	800	800
Degree of protection*		IP 30	IP 20	IP 30	IP 30	IP 30
Degree of protection from front side, built-in device, cover open		IP 20	IP 20	IP 20	IP 20	IP 20
Permissible ambient temperature		- 25 - + 55 °C	- 25 - + 55 °C	- 25 - + 55 °C	- 25 - + 55 °C	- 25 - + 55 °C
Altitude above sea level		max. 2000 m	max. 2000 m	max. 2000 m	max. 2000 m	max. 2000 m
Pollution degree		3	3	3	3	3
Overvoltage category for 690V a.c.		III	IV	IV	IV	IV
Seismic resistance			0,25 - 50 Hz/3g	0,25 - 50 Hz/3g	0,25 - 50 Hz/3g	0,25 - 50 Hz/3g
Torque of outlet terminals		3 - 3,5 Nm	2,5 - 3 Nm			
Standards		IEC 60 947-1, -3 EN 60 947-1, -3	IEC 60 947-1, -3 EN 60 947-1, -3	IEC 60 947-1, -3 EN 60 947-1, -3	IEC 60 947-1, -3 EN 60 947-1, -3	IEC 60 947-1, -3 EN 60 947-1, -3

* from front side, built-in device, cover closed (measuring holes filled)



DI-DISC 'FH' horizontal fuse switch disconnecter

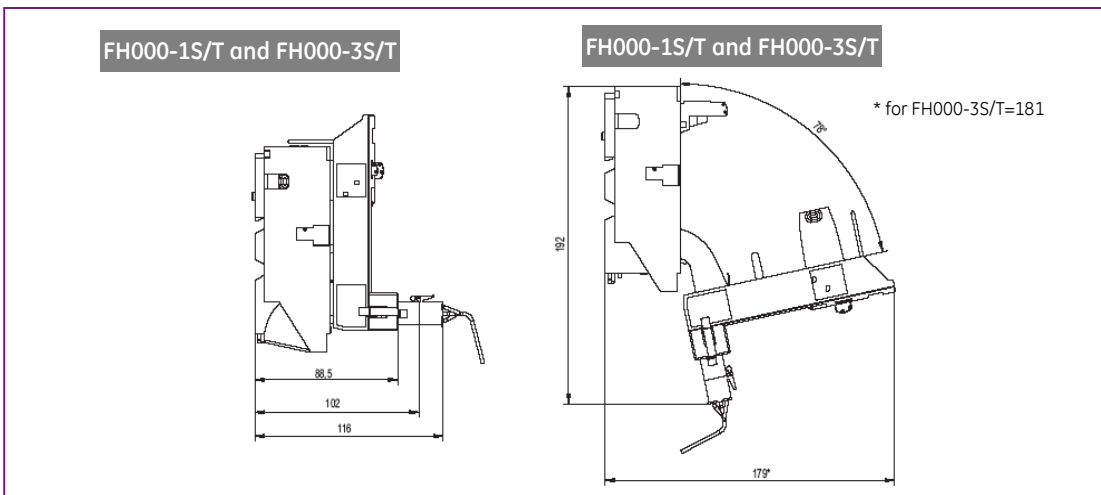
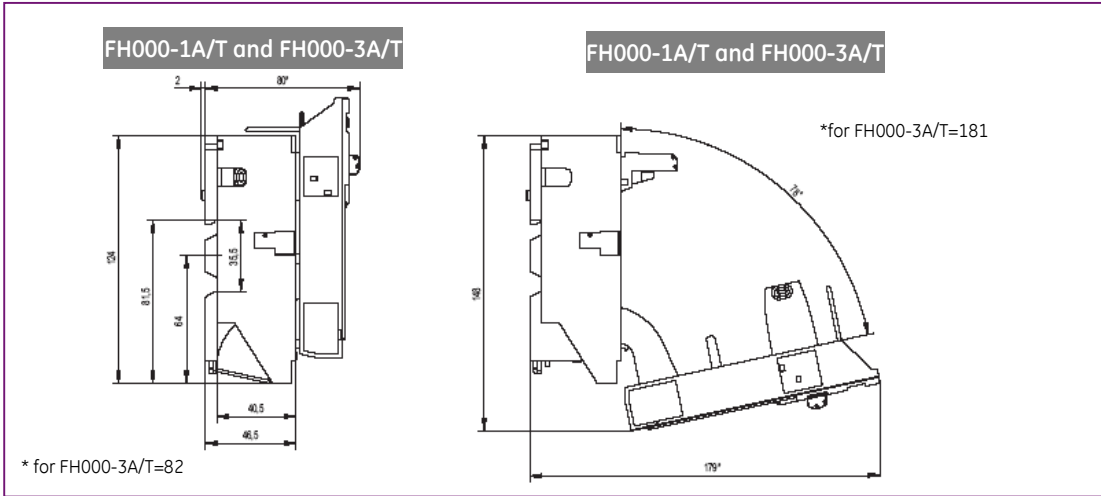
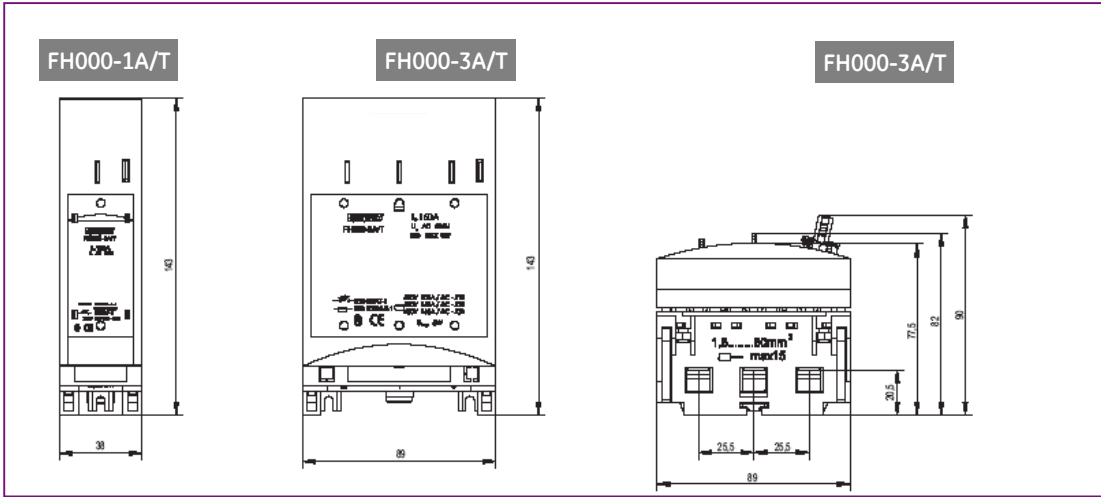
	Rated Current In	Poles	Size	fuse monitor	Terminal	Cat. No.	Ref No.
	160A	1	000	N	clips	FH000-1A/T	772605
	160A	3	000	N	clips	FH000-3A/T	772607
	160A	1	00*	N	screws M8	FH00-1A/F	772850
	160A	3	00*	N	screws M8	FH00-3A/F	772852
	160A	1	000	V**	clips	FH000-1S/T	772606
	160A	3	000	V**	clips	FH000-3S/T	772608
	160A	1	00*	V**	screws M8	FH00-1S/F	772851
	160A	3	00*	V**	screws M8	FH00-3S/F	772853
	250A	1	1	N	screws M10	FH1-1A/F	772628
	250A	3	1	N	screws M10	FH1-3A/F	772630
	250A	1	1	V**	screws M10	FH1-1S/F	772629
	250A	3	1	V**	screws M10	FH1-3S/F	772631
	400A	1	2	N	screws M10	FH2-1A/F	772646
	400A	3	2	N	screws M10	FH2-3A/F	772648
	400A	1	2	V**	screws M10	FH2-1S/F	772647
	400A	3	2	V**	screws M10	FH2-3S/F	772649
	630A	1	3	N	screws M12	FH3-1A/F	772662
	630A	3	3	N	screws M12	FH3-3A/F	772664
	630A	1	3	V**	screws M12	FH3-1S/F	772663
	630A	3	3	V**	screws M12	FH3-3S/F	772665

* both fuselinks sizes 00 and 000 can be used ** connector with 1 m cable included

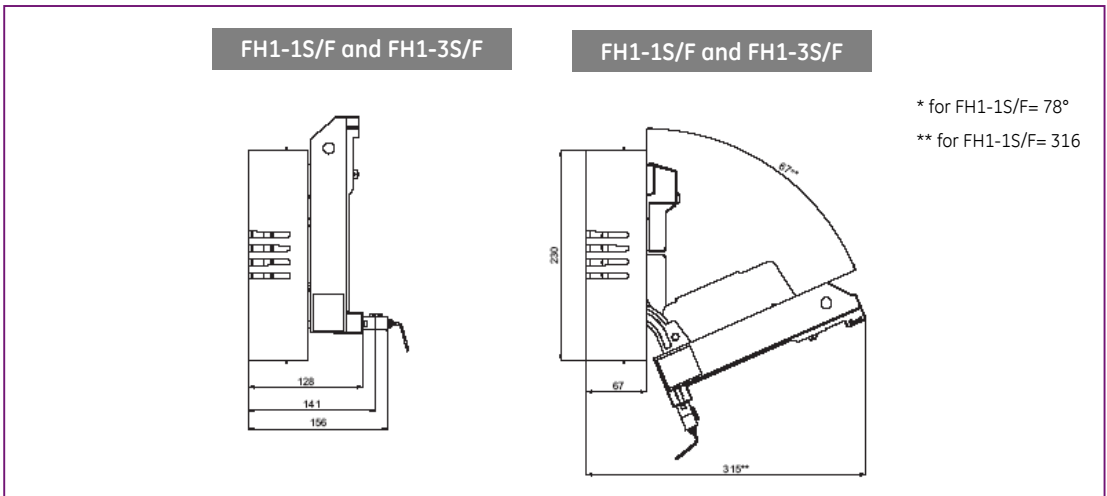
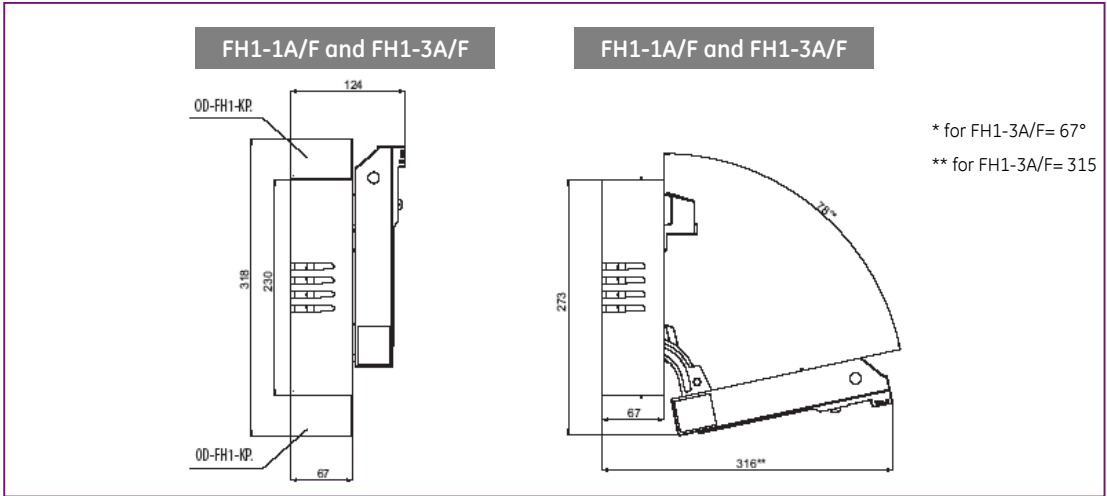
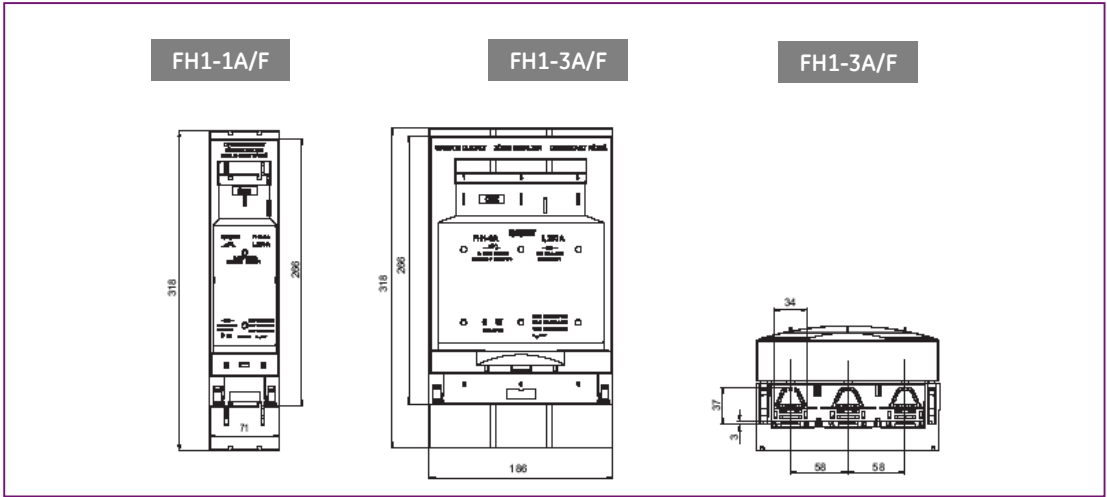
DI-DISC 'FH' busbar adaptors for 60mm busbar system

For use with	Size	Busbar		Cable outlet	Cat. No.	Ref No.
		tickness (mm)	width (mm)			
FH000-3...	000	5 or 10	12-30	bottom	GA-60/100/81-1x15	On request
FH1-3/F	1	5 or 10	12-30	bottom and top	OD-FH1-AL60	772641
FH2-3/F	2	5 or 10	12-30	bottom and top	OD-FH2-AL60	772657

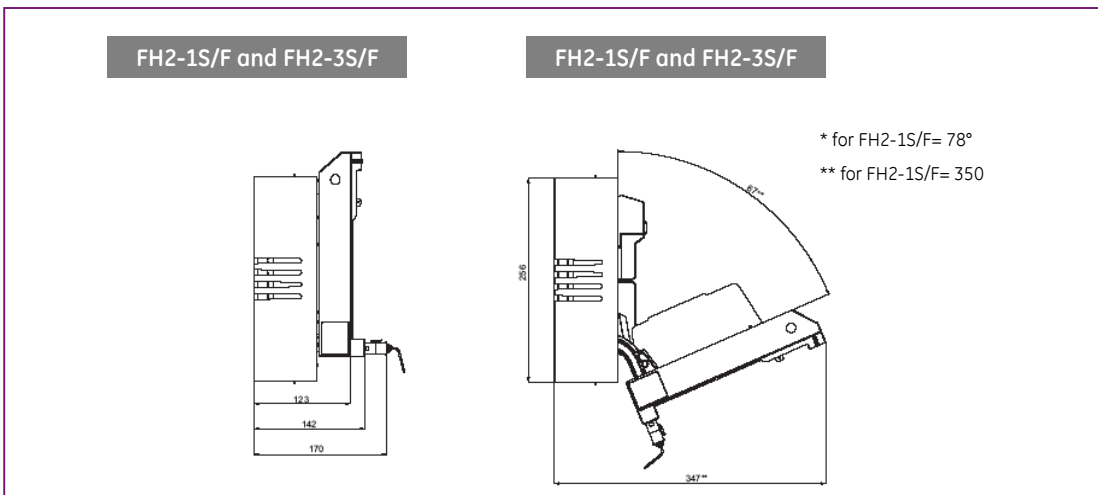
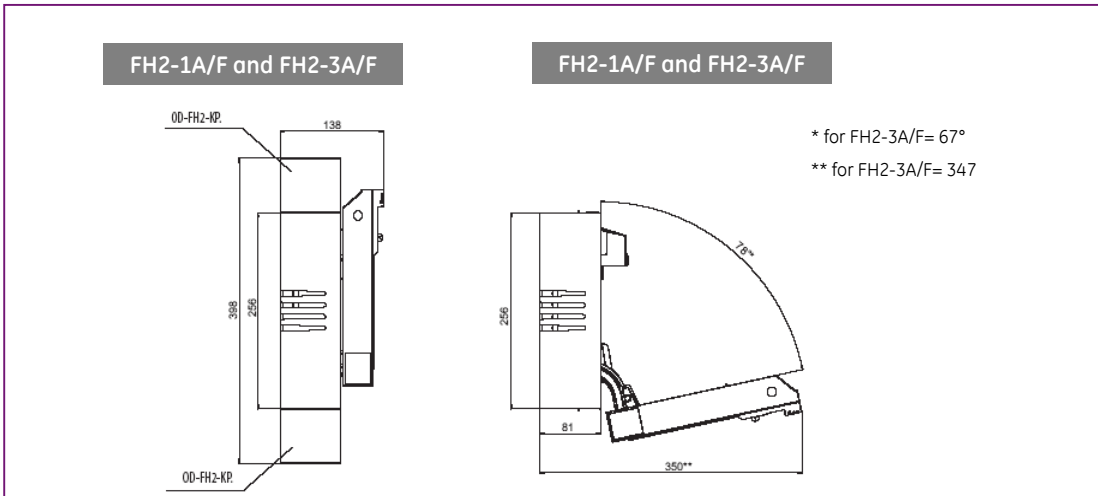
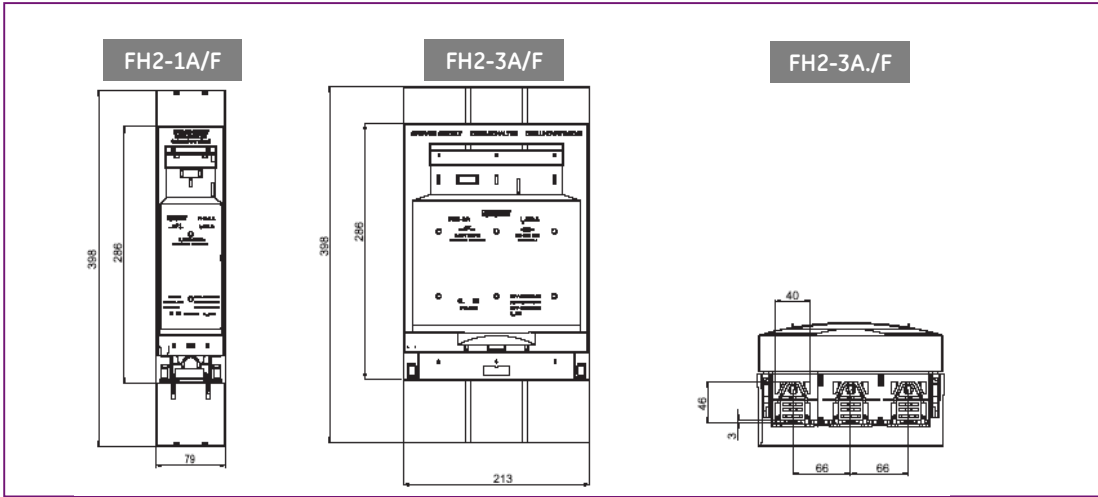
DI-DISC Dimensions



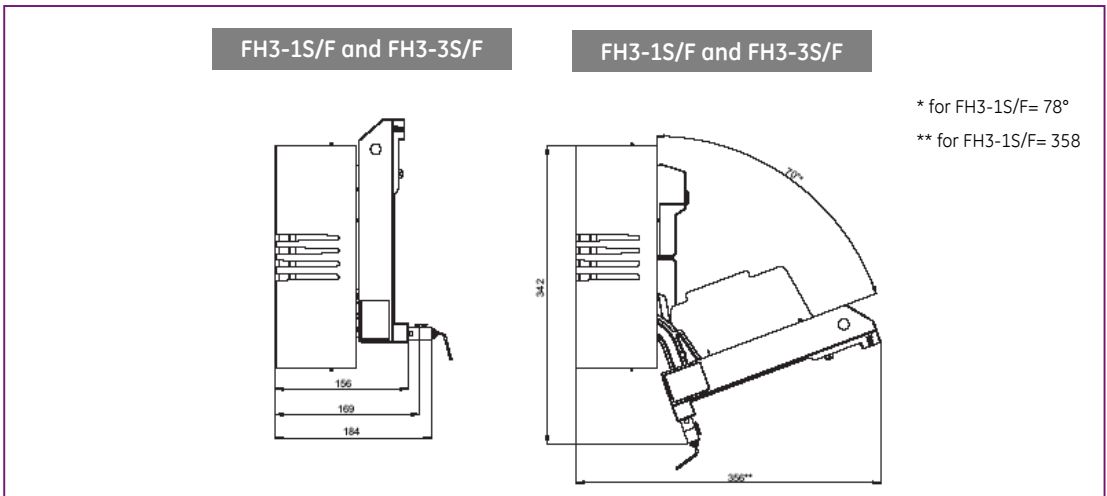
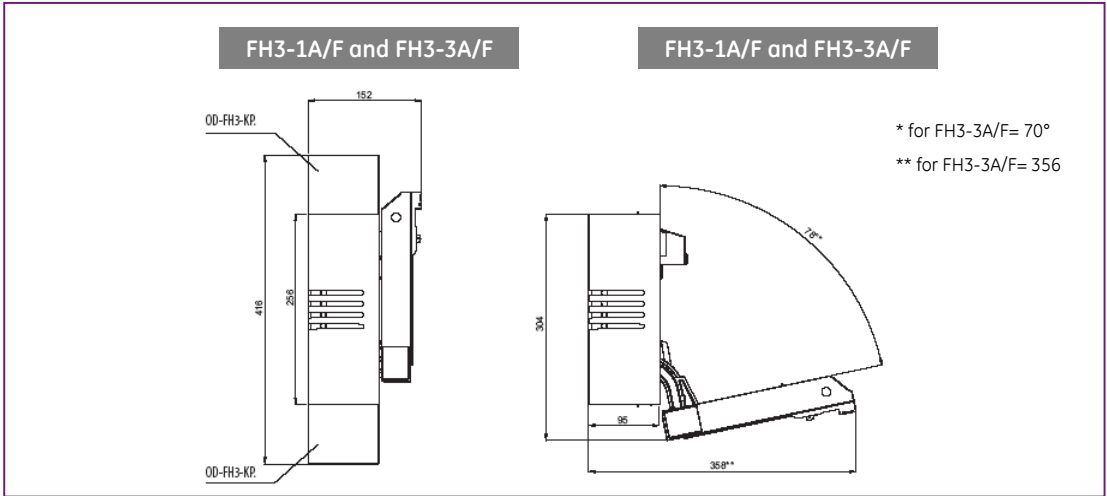
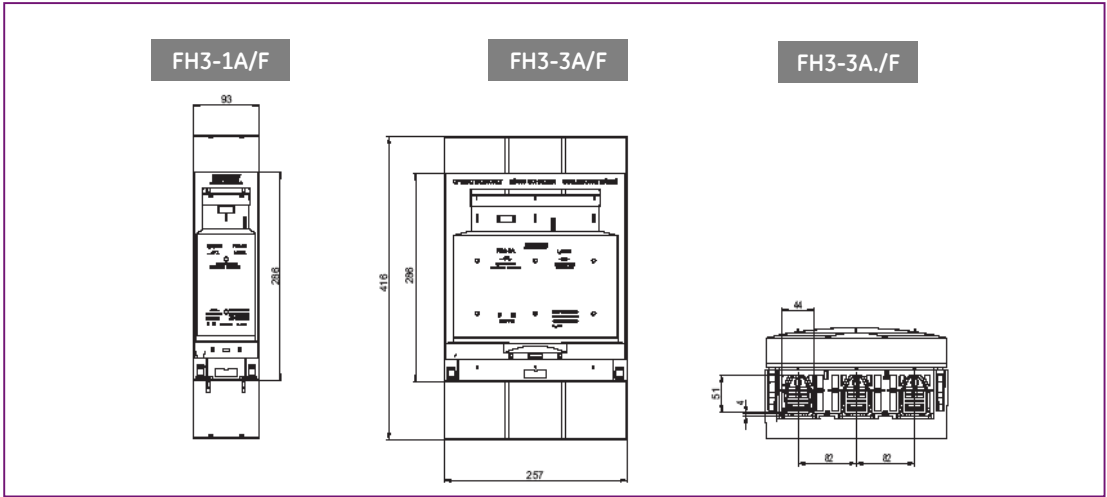
DI-DISC Dimensions



DI-DISC Dimensions

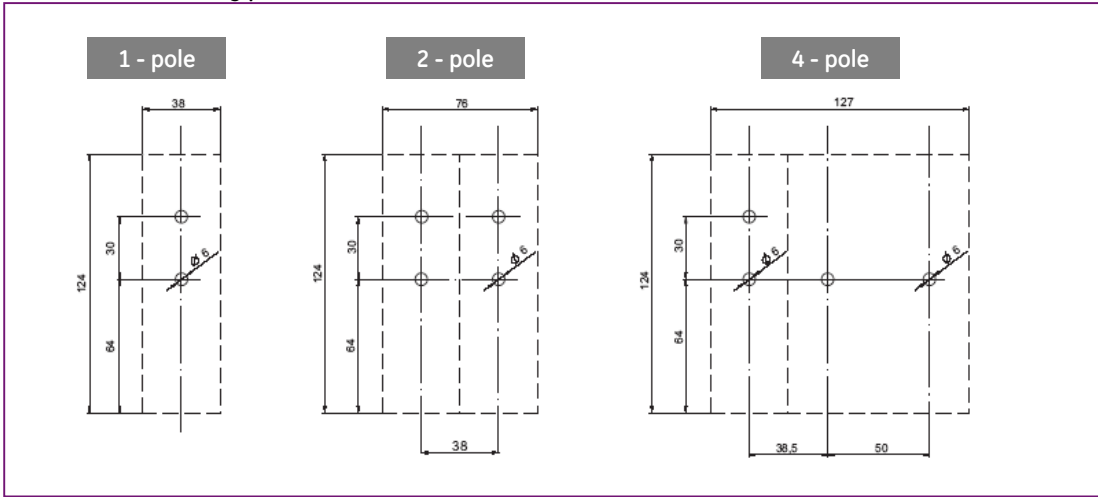


DI-DISC Dimensions

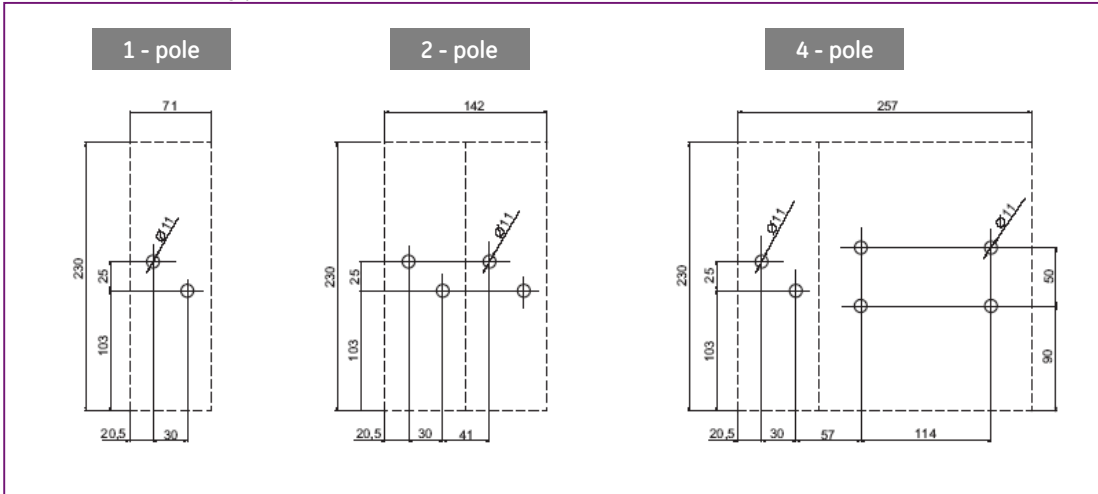


DI-DISC Dimensions

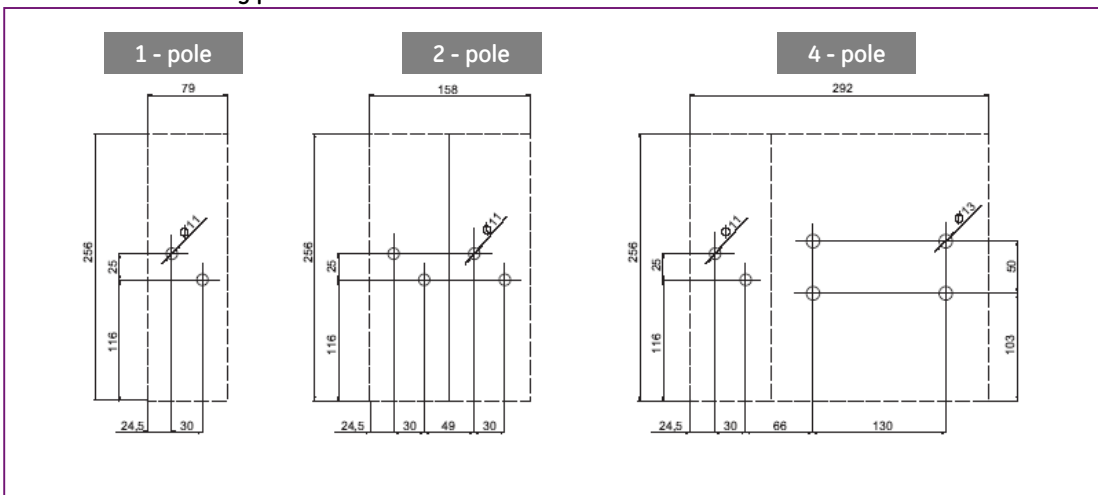
Clearance and drilling plans blade contact size 000



Clearance and drilling plans blade contact size 1

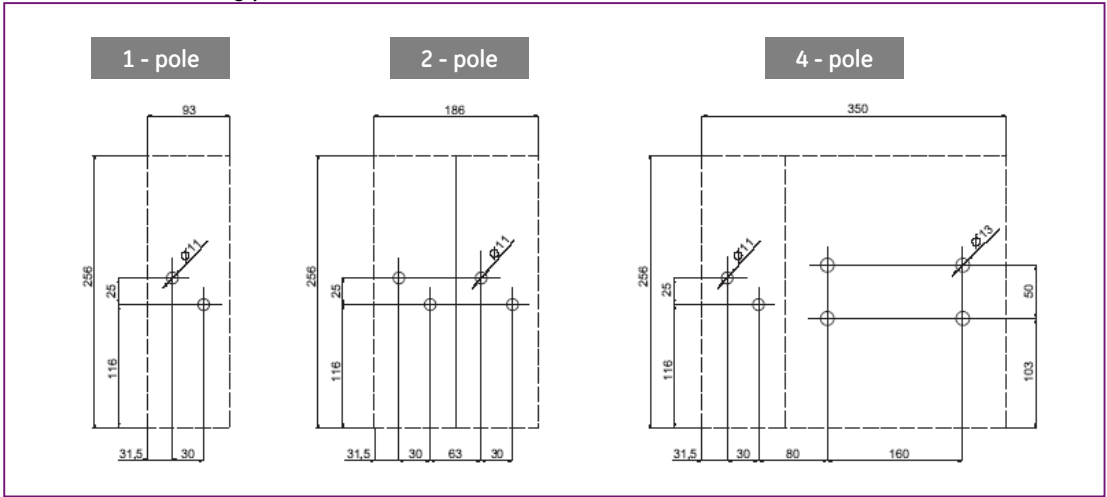


Clearance and drilling plans blade contact size 2



DI-DISC Dimensions

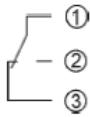
Clearance and drilling plans blade contact size 3



Remote signalling

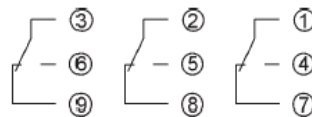
Remote signalling of fuse condition in 1-pole fuse switch-disconnector

State of contacts with not operated fuse-link:
contacts 1 - 3 connected



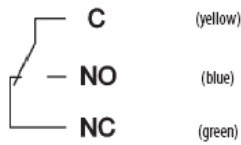
Remote signalling of fuse condition in 3-pole fuse switch-disconnector

State of contacts with not operated fuse-link:
contacts 1 - 3, 2 - 8, 3 - 9 connected



Remote signalling of hinged cover position in 1-pole and 3-pole fuse switch-disconnector

State of contacts with closed cover:
contacts C - NO connected





DI-STRIP 'FD' Vertical fuse switch disconnecter

- For applications in distribution and industrial LV-switch boards with busbar spacing 185 mm
- Available in sizes 1, 2, and 3
- Modular design
- 1-Pole and 3-Pole control (additionally interchangeable)
- Remote signalling for fuse-link state
- Possibility to lock cover only with fuse link removed
- Cable outlet down or up
- Measuring holes in the cover
- Connection to busbars by screws M12
- Mounting width does not extend 100 mm
- Outlet description label

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	250-630
Voltage Rating	(V)	690
DIN sizes		1,2,3

Approvals



Applications






General data DI-STRIP FD

		FD1	FD2	FD3
Rated current	I_n	250 A	400 A	630 A
Rated voltage	U_n	690 V	690 V	690 V
Standards		IEC 60 947-1, -3; EN 60 947-1, -3		
Utilisation category				
	400 V a.c.	AC-23B	AC-23B	AC-23B
	690 V a.c.	AC-22B	AC-22B	AC-22B
Thermal current with fuse-link	I_{th}	250 A	400 A	630 A
Thermal current with disconnecting knife	I_{th}	400 A	560 A	800 A / 1000 A
Rated frequency	f	40 - 60 Hz	40 - 60 Hz	40 - 60 Hz
Rated insulation voltage	U_i	1000 V a.c.	1000 V a.c.	1000 V a.c.
Conditional short circuit current with fuse-link DIFUS				
(RMS)	400 V a.c. I_{kn}	120 kA	120 kA	120 kA
	500 V a.c. I_{kn}	50 kA	50 kA	50 kA
Impulse withstand voltage	U_{imp}	8 kV	8 kV	8 kV
Fuse-link size		1	2	3
Maximum rated current of the fuse-link	I_n	250 A	400 A	630 A
Maximum power losses of the fuse-link	P_v	32 W	45 W	60 W
In without fuse-link	P_v	18 W	39 W	90 W
Electrical durability (operating cycles)		200	200	200
Mechanical durability (operating cycles)		1400	800	800
Degree of protection*		IP 20	IP 20	IP 20
Degree of protection*		IP 20	IP 20	IP 20
Permissible ambient temperature		-25 - +55 °C	-25 - +55 °C	-25 - +50 °C
Altitude above sea level		max. 2000 m	max. 2000 m	max. 2000 m
Overvoltage category for 690V a.c.		III	III	III
Seismic resistance		1,5 g / 8 - 50 Hz	1,5 g / 8 - 50 Hz	1,5 g / 8 - 50 Hz

*from front side, built-in device, cover closed



DI-STRIP 'FD' vertical fuse switch disconnecter

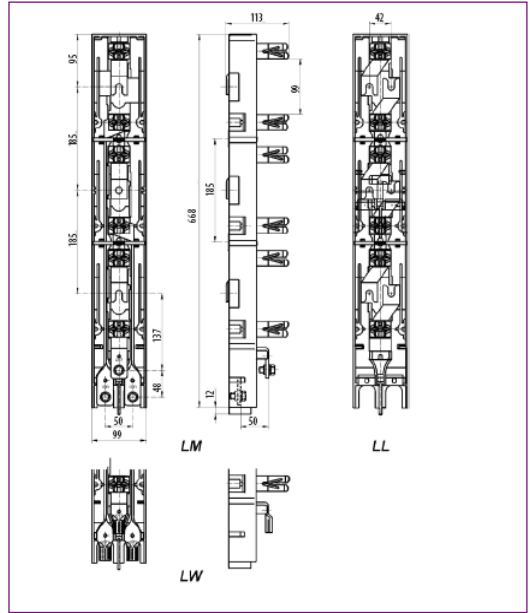
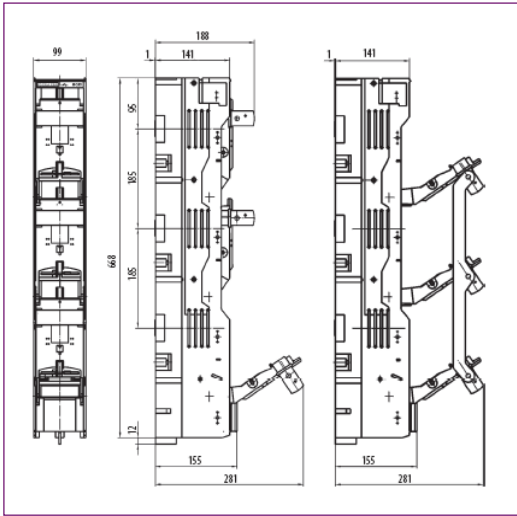
	Rated Current In	Poles of Control	Size	Terminal	Cat. No.	Ref No.
	250A	1	1	pressed-in nuts with screws M10	FD1-31/LM	772679
	250A	3	1	pressed-in nuts with screws M10	FD1-33/LM	772680
	250A	1	1	V-shaped clamps*	FD1-31/LW	772681
	250A	3	1	V-shaped clamps*	FD1-33/LW	772682
	250A	1	1	busbar systems coupler	FD1-31/LL	772691
	250A	3	1	busbar systems coupler	FD1-33/LL	772692
	400A	1	2	pressed-in nuts with screws M12	FD2-31/LM	772683
	400A	3	2	pressed-in nuts with screws M12	FD2-33/LM	772684
	400A	1	2	V-shaped clamps*	FD2-31/LW	772685
	400A	3	2	V-shaped clamps*	FD2-33/LW	772686
	400A	1	2	busbar systems coupler	FD2-31/LL	772693
	400A	3	2	busbar systems coupler	FD2-33/LL	772694
	630A	1	3	pressed-in nuts with screws M12	FD3-31/LM	772687
	630A	3	3	pressed-in nuts with screws M12	FD3-33/LM	772688
	630A	1	3	V-shaped clamps*	FD3-31/LW	772689
	630A	3	3	V-shaped clamps*	FD3-33/LW	772690
	630A	1	3	busbar systems coupler	FD3-31/LL	772695
	630A	3	3	busbar systems coupler	FD3-33/LL	772696

* V-clamps have to be ordered separately

V-shaped clamps for DI-STRIP 'FD' vertical fuse switch disconnecter

Size (mm ²)	Conductor		Torque (Nm)	Cat. No.	Ref No.
	type	cross section sm max			
95	Cu or Al	90mm	12-15	4835 N-s	772818
185	Cu or Al	185mm	22-23	4835 N	772817
240	Cu or Al	240mm	25	4836 N-240	772816
70x2	Cu or Al	70mm x2	12-15	5836-2x70	772819
240x2	Cu or Al	240mm x2	25	5836-2x240	772820

DI-STRIP FD Dimensions



Remote signalling of fuse condition in the fuse switch-disconnector

State of contacts with not **operated** fuse-link: contacts C - NC connected

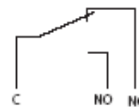
5 A/250 V a.c.



Remote signalling of hinged cover position of the switch-disconnector

State of contacts with closed cover: contacts C - NO connected

5 A/250 V a.c.





DI-RAIL 'FR' fuse rail

- For applications in LV cabinets and distribution switch boards with busbar spacing 185 mm
- Available in sizes 1, 2, and 3
- Modular design
- Fully protected against accidental contact
- Insulated covers IP20
- Connection to busbars by screws M12
- Mounting width does not extend 100 mm
- Outlet description label

Standards

EN 60 269-1, -2
IEC 60 269-1, 2-1;
DIN 43620

General data

Current Rating	(A)	250-630
Voltage Rating	(V)	690
DIN sizes		1,2,3

Approvals






Applications



General data DI-RAIL FR

		FR1	FR2	FR3
Rated current	I_n	250 A	400 A	630 A
Rated voltage	U_c	690 V	690 V	690 V
Standards		IEC 60 269-1, 2-1; EN 35 4701-2-1		
Rated frequency	f	40 - 60 Hz	40 - 60 Hz	40 - 60 Hz
Rated insulation voltage	U_i	1000 V a.c.	1000 V a.c.	1000 V a.c.
Fuse-link size		1	2	3
Maximum rated current of the fuse-link	I_{th}	250 A	400 A	630 A
Maximum power losses of the fuse-link	P_v	32 W	45 W	60 W
Thermal current with disconnecting knife/cross section	I_{th}	400A/240 mm ²	560 A/ 183 mm ²	800 A/2x 185 mm ² 1000A/2x5x60 mm ²
Degree of protection		IP 20	IP 20	IP 20
Permissible ambient temperature		-25 - +55 °C	-25 - +55 °C	-25 - +50 °C

DI-RAIL 'FR' fuse rails

Rated Current In	Size	Terminal	Busbar spacing	Cat. No.	Ref No.	
	250A	1	pressed-in nuts with screws M10	185 mm	FR1-3K/LM	772706
	250A	1	V-shaped terminals*	185 mm	FR1-3K/LW	772708
	250A	1	busbar system coupler	185 mm	FR1-3K/LL	772713
	400A	2	pressed-in nuts with screws M12	185 mm	FR2-3K/LM	772709
	400A	2	V-shaped terminals*	185 mm	FR2-3K/LW	772712
	400A	2	busbar system coupler	185 mm	FR2-3K/LL	772715
	630A	3	pressed-in nuts with screws M12	185 mm	FR3-3K/LM	772714
	630A	3	V-shaped terminals*	185 mm	FR3-3K/LW	772711
	630A	3	busbar system coupler	185 mm	FR3-3K/LL	772717

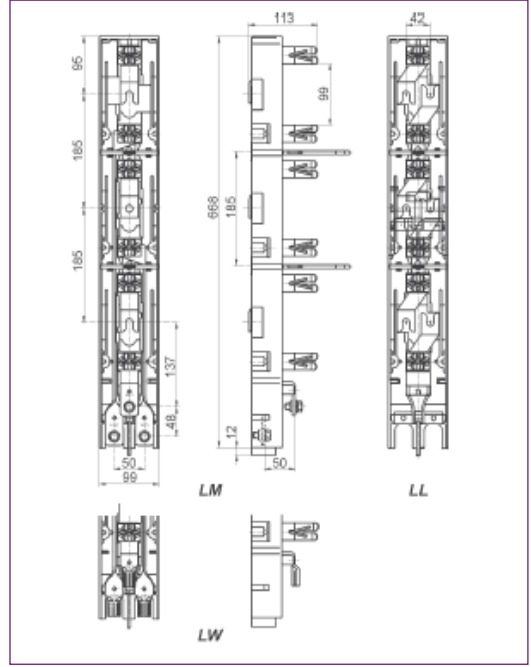
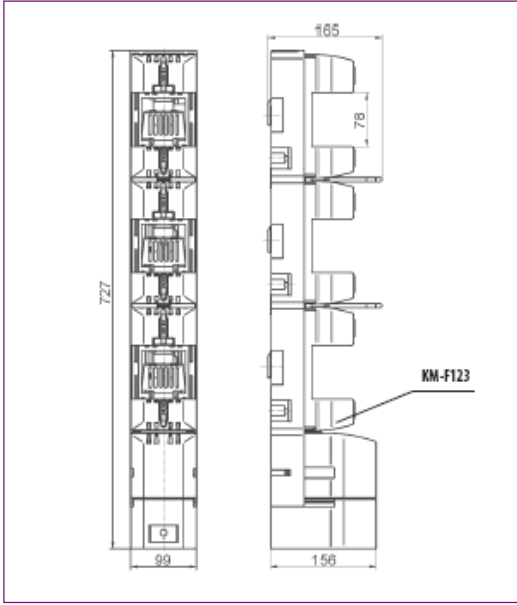
* V-clamps have to be ordered separately

V-shaped clamps for DI-RAIL 'FR' fuse rail

Size (mm ²)	Conductor		Torque (Nm)	Cat. No.	Ref No.
	type	cross section sm			
		max			
95	Cu or Al	90mm	12-15	4835 N-s	772818
185	Cu or Al	185mm	22-23	4835 N	772817
240	Cu or Al	240mm	25	4836 N-240	772816
70x2	Cu or Al	70mm x2	12-15	5836-2x70	772819
240x2	Cu or Al	240mm x2	25	5836-2x240	772820

DI-RAIL

DI-RAIL FR Dimensions



A

B

C

D



Numerical index

by reference number

A

B

C

D

Ref. No.	Cat. Numbers	page									
403000	NHG000/006	A.13	403071	NHA00/100	A.15	700586	AP033100	A.5	772631	FH1-3S/F	C.4
403001	NHG000/010	A.13	403072	NHA00/125	A.15	700587	AP033111	A.5	772641	OD-FH1-AL60	C.4
403002	NHG000/016	A.13	403073	NHA00/160	A.15	700588	AP033112	A.5	772646	FH2-1A/F	C.4
403003	NHG000/020	A.13	403074	NHA1/040	A.15	700589	AP033401	A.3	772647	FH2-1S/F	C.4
403004	NHG000/025	A.13	403075	NHA1/050	A.15	700590	AP033402	A.3	772648	FH2-3A/F	C.4
403005	NHG000/032	A.13	403076	NHA1/063	A.15	700591	AP033403	A.3	772649	FH2-3S/F	C.4
403006	NHG000/035	A.13	403077	NHA1/080	A.15	700592	AP033404	A.3	772657	OD-FH2-AL60	C.4
403007	NHG000/040	A.13	403078	NHA1/100	A.15	700593	AP033405	A.3	772662	FH3-1A/F	C.4
403008	NHG000/050	A.13	403079	NHA1/125	A.15	700594	AP033406	A.3	772663	FH3-1S/F	C.4
403009	NHG000/063	A.13	403080	NHA1/160	A.15	700595	AP033407	A.3	772664	FH3-3A/F	C.4
403010	NHG000/080	A.13	403081	NHA1/200	A.15	700596	AP033408	A.3	772665	FH3-3S/F	C.4
403011	NHG000/100	A.13	403082	NHA1/250	A.15	700597	AP033409	A.3	772672	FD1-3/LM	C.13
403012	NHG000/125	A.13	403083	NHA2/125	A.15	700598	AP033410	A.3	772679	FD1-3/LM	C.13
403013	NHG000/160	A.13	403084	NHA2/160	A.15	700599	AP033411	A.3	772680	FD1-3/LW	C.13
403014	NHG00/125	A.13	403085	NHA2/200	A.15	700600	AP033412	A.3	772681	FD1-3/LW	C.13
403015	NHG00/160	A.13	403086	NHA2/250	A.15	700601	AP033413	A.3	772682	FD1-3/LM	C.13
403016	NHG1/006	A.13	403087	NHA2/315	A.15	700602	AP033501	A.4	772683	FD2-3/LM	C.13
403017	NHG1/100	A.13	403088	NHA2/400	A.15	700603	AP033502	A.4	772684	FD2-3/LM	C.13
403018	NHG1/160	A.13	403089	NHA3/315	A.15	700604	AP033503	A.4	772685	FD2-3/LW	C.13
403019	NHG1/200	A.13	403090	NHA3/400	A.15	700605	AP033504	A.4	772686	FD2-3/LW	C.13
403020	NHG1/250	A.13	403091	NHA3/500	A.15	700606	AP033505	A.4	772687	FD3-3/LM	C.13
403021	NHG1/300	A.13	403092	NHA3/630	A.15	700607	AP033506	A.4	772688	FD3-3/LM	C.13
403022	NHG1/350	A.13	700526	AP030011	A.5	700608	AP033507	A.4	772689	FD3-3/LW	C.13
403023	NHG1/400	A.13	700527	AP030012	A.5	700609	AP033508	A.4	772690	FD3-3/LW	C.13
403024	NHG1/450	A.13	700528	AP030013	A.5	700610	AP033509	A.4	772691	FD1-3/LL	C.13
403025	NHG1/500	A.13	700529	AP030014	A.5	700611	AP033510	A.4	772692	FD1-3/LL	C.13
403026	NHG1/550	A.13	700530	AP030015	A.5	700612	AP033511	A.4	772693	FD1-3/LL	C.13
403027	NHG1/600	A.13	700531	AP030016	A.5	700613	AP033512	A.4	772694	FD2-3/LL	C.13
403028	NHG1/650	A.13	700532	AP030017	A.5	700614	AP033513	A.4	772695	FD2-3/LL	C.13
403029	NHG1/700	A.13	700533	AP030018	A.5	700615	AP033514	A.4	772696	FD3-3/LL	C.13
403030	NHG1/750	A.13	700534	AP030019	A.5	700616	AP033515	A.4	772697	FR 1-3K/LM	C.17
403031	NHG1/800	A.13	700535	AP030020	A.5	700617	AP033516	A.4	772700	FR 1-3K/LW	C.17
403032	NHG1/850	A.13	700536	AP030491	A.3	700618	AP033517	A.4	772701	FR2-3K/LM	C.17
403033	NHG2/035	A.14	700537	AP030492	A.3	700619	AP034501	A.4	772709	FR2-3K/LW	C.17
403034	NHG2/040	A.14	700538	AP030493	A.3	700620	AP034502	A.4	772711	FR3-3K/LW	C.17
403035	NHG2/050	A.14	700539	AP030494	A.3	700621	AP034503	A.4	772712	FR2-3K/LW	C.17
403036	NHG2/063	A.14	700540	AP030495	A.3	700622	AP034504	A.4	772713	FR 1-3K/LL	C.17
403037	NHG2/080	A.14	700541	AP030496	A.3	700623	AP034505	A.4	772714	FR3-3K/LM	C.17
403038	NHG2/100	A.14	700542	AP030497	A.3	700624	AP034506	A.4	772715	FR2-3K/LL	C.17
403039	NHG2/125	A.14	700543	AP030498	A.3	700625	AP034507	A.4	772717	FR 3-3K/LL	C.17
403040	NHG2/160	A.14	700544	AP030499	A.3	700626	AP034508	A.4	772724	SP F1	B.7
403041	NHG2/200	A.14	700545	AP030501	A.3	700627	AP034509	A.4	772730	SP F2	B.7
403042	NHG2/224	A.14	700546	AP030502	A.3	700628	AP034510	A.4	772736	SP F3	B.7
403043	NHG2/250	A.14	700547	AP030503	A.3	700629	AP034511	A.4	772739	SP B00	B.7
403044	NHG2/315	A.14	700548	AP030504	A.3	700630	AP035501	A.4	772746	SP B1	B.7
403045	NHG2/355	A.14	700549	AP030505	A.3	700631	AP035502	A.4	772752	SP B2	B.7
403046	NHG2/400	A.14	700550	AP030506	A.3	700632	AP035503	A.4	772762	S3PB00	B.7
403047	NHG3/100	A.14	700551	AP030507	A.3	700633	AP035504	A.4	772766	S3PB1	B.7
403048	NHG3/125	A.14	700552	AP030508	A.3	700645	AP037000	B.3	772772	S3PB2	B.7
403049	NHG3/160	A.14	700553	AP030509	A.3	700646	AP037001	B.3	772777	P K-SP B00	B.7
403050	NHG3/200	A.14	700554	AP030510	A.3	700647	AP037004	B.3	772789	P K-S3PB00/168	B.7
403051	NHG3/224	A.14	700555	AP030511	A.3	700648	AP037005	B.3	772791	P K-S3PB1/168	B.7
403052	NHG3/250	A.14	700556	AP030512	A.3	700649	AP037006	B.3	772792	P K-S3PB2/230	B.7
403053	NHG3/315	A.14	700557	AP030513	A.3	700650	AP037007	B.3	772793	K00	B.7
403054	NHG3/350	A.14	700558	AP030514	A.3	700651	AP037008	B.3	772794	K1	B.7
403055	NHG3/400	A.14	700559	AP030515	A.3	700652	AP037009	B.3	772795	K2	B.7
403056	NHG3/500	A.14	700560	AP030516	A.3	700653	AP037010	B.3	772816	4836 N-240	C.13 / C.17
403057	NHG3/630	A.14	700561	AP030517	A.3	700654	AP037011	B.3	772817	4835 N	C.13 / C.17
403058	NHA000/004	A.15	700562	AP030518	A.3	700655	AP037012	B.3	772818	4835 N-s	C.13 / C.17
403059	NHA000/006	A.15	700563	AP030519	A.3	700656	AP037013	B.3	772819	5836-2x70	C.13 / C.17
403060	NHA000/008	A.15	700564	AP030520	A.3	700657	AP037014	B.3	772820	5836-2x240	C.13 / C.17
403061	NHA000/010	A.15	700565	AP030521	A.3	700658	AP037015	B.3	772850	FH00-1A/F	C.4
403062	NHA000/012	A.15	700566	AP030522	A.3	700659	AP037016	B.3	772851	FH00-1S/F	C.4
403063	NHA000/016	A.15	700567	AP030523	A.3	700660	AP037017	B.3	772852	FH00-3A/F	C.4
403064	NHA000/020	A.15	700568	AP030524	A.3	700661	AP037018	B.3	772853	FH00-3S/F	C.4
403065	NHA000/025	A.15	700569	AP030525	A.3	700662	AP037019	B.3	on request	GA-60/100/81-k15	C.4
403066	NHA000/032	A.15	700570	AP030526	A.3	700663	AP037020	B.3			
403067	NHA000/040	A.15	700571	AP030527	A.3	700664	AP037021	B.3			
403068	NHA000/050	A.15	700572	AP030528	A.3	700665	AP037022	B.3			
403069	NHA00/063	A.15	700573	AP032100	B.12	700666	AP037023	B.3			
403070	NHA00/080	A.15	700574	AP032101	B.12	700667	AP037024	B.3			
			700575	AP032102	B.12	700668	AP037025	B.3			
			700576	AP032103	B.12	700669	AP037026	B.3			
			700577	AP033101	A.5	700670	AP037027	B.3			
			700578	AP033102	A.5	700671	AP037028	B.3			
			700579	AP033103	A.5	700672	AP037029	B.3			
			700580	AP033104	A.5	700673	AP037030	B.3			
			700581	AP033105	A.5	700674	AP037031	B.3			
			700582	AP033106	A.5	700675	AP037032	B.3			
			700583	AP033107	A.5	700676	AP037033	B.3			
			700584	AP033108	A.5	700677	AP037034	B.3			
			700585	AP033109	A.5	700678	AP037035	B.3			
						700679	AP037036	B.3			
						700680	AP037037	B.3			
						700681	AP037038	B.3			
						700682	AP037039	B.3			
						700683	AP037040	B.3			
						700684	AP037041	B.3			
						700685	AP037042	B.3			
						700686	AP037043	B.3			
						700687	AP037044	B.3			
						700688	AP037045	B.3			
						700689	AP037046	B.3			
						700690	AP037047	B.3			
						700691	AP037048	B.3			
						700692	AP037049	B.3			
						700693	AP037050	B.3			
						700694	AP037051	B.3			
						700695	AP037052	B.3			
						700696	AP037053	B.3			
						700697	AP037054	B.3			
						700698	AP037055	B.3			
						700699	AP037056	B.3			
						700700	AP037057	B.3			
						700701	AP037058	B.3			
						700702	AP037059	B.3			
						700703	AP037060	B.3			
						700704	AP037061	B.3			
						700705	AP037062	B.3			
						700706	AP037063	B.3			
						700707	AP037064	B.3			
						700708	AP037065	B.3			
						700709	AP037066	B.3			
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