Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 500 to 690 VAC DIN 000

GERMAN STANDARD
gRB - URB from 20 to 400 A
Size: 000

- EXTREMELY HIGH BREAKING CAPACITY FUSES: PROTECTION OF POWER SEMICONDUCTORS ACCORDING TO IEC 60269-1 and 4
- 690V VOLTAGE RATING (RATING 20 TO 400 A)
- gR CLASS (gRB RATINGS 20 TO 125 A) ACCORDING TO VDE 636-23
- CLEARING ALL OVERLOADS
- IMPROVING SAFETY AND PROTECTION
- ENABLING SELECTIVE COORDINATION WITH ALL FUSES
- aR CLASS (URB RATINGS 80 TO 400 A) ACCORDING TO VDE 636-23 AND IEC 60269.4
- ALL MODELS COMPLYING WITH DIN 43653-00C ARE WITH OR WITHOUT BLOWN FUSE INDICATION WITH TRIP INDICATOR
- MODEL COMPLYING WITH DIN 43620 (00C) STANDARD WITH BLOWN FUSE INDICATION - WITH TRIP INDICATOR

Main Characteristics

Voltage rating U_N(VAC)	Class	Current rating IN (A)	Pre-arcing I^2t @ 1 ms I^2tp (A^2s)	Total clearing I^2t @ 660V I^2tt (A^2s)	Watts loss 0.8 IN	Watts loss IN	Tested Breaking Capacity	Estimated Breaking Capacity
690	gRB	16	8,2	60	-	5,6	200 k A @ 690 V	300 k A @ 690 V
		20	12	80	3.8	7		
		25	20	150	5.0	9		
		32	39	270	5.5	10		
		40	70	460	6.6	12		
		50	102	730	7.7	14		
		63	210	1500	8.8	16		
		80	475	2900	9.9	18		
		100	970	6000	11	20		
		125	1900	11800	11.6	21		
690	URB	80	390	2500	11.6	21	200 k A @ 690 V	300 k A @ 690 V
		100	690	4200	12.7	23		
		125	1300	8900	14.3	26		
		160	2700	16000	17.0	31		
		200	5250	31500	19.8	36		
		250	9900	52000	24.8	45		
		315	15500	82000	31.9	58		
500	URB	350	22400	110000*	31.9	58	120 k A @ 500 V	
		400	33200	160000*	36.3	66		

* @ U_n

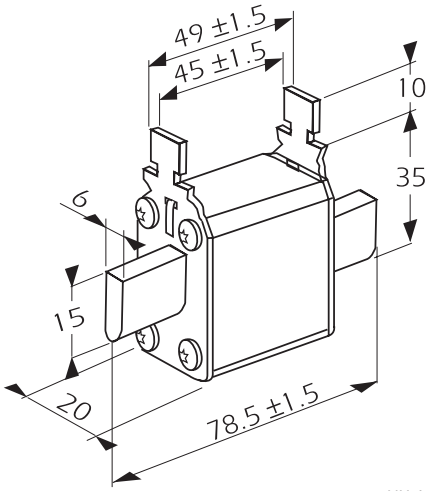
Minimum operating voltage for blown fuse indicator: 20 V

Minimum operating voltage for trip-indicator: 20 V

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 500 to 690 VAC DIN 000

German standard blade-type DIN 43620 with trip-indicator

Current rating	Designation	Ref. Number	I/I_N*	Catalog Number
16	6,9 GRB 000 PV016	Y210609	1	PC000GB69V16PV
20	6,9 GRB 000 PV020	Z210610	1	PC000GB69V20PV
25	6,9 GRB 000 PV025	A210611	1	PC000GB69V25PV
32	6,9 GRB 000 PV032	B210612	1	PC000GB69V32PV
40	6,9 GRB 000 PV040	C210613	1	PC000GB69V40PV
50	6,9 GRB 000 PV050	D210614	1	PC000GB69V50PV
63	6,9 GRB 000 PV063	E210615	1	PC000GB69V63PV
80	6,9 GRB 000 PV080	F210616	1	PC000GB69V80PV
100	6,9 GRB 000 PV100	G210617	1	PC000GB69V100PV
125	6,9 GRB 000 PV125	H210618	0,9	PC000GB69V125PV



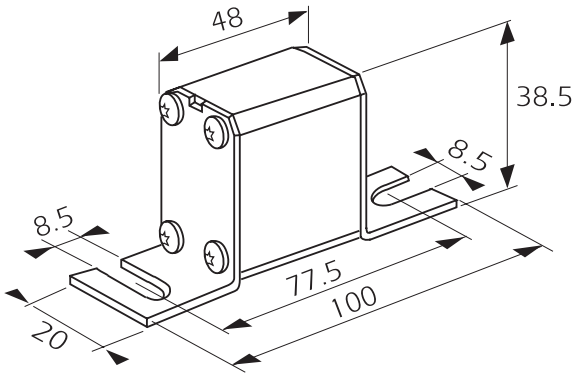
Microswitches
MS 4L 2-5 B6 + PRES Ref. F210156
MS 4L 2-5 B2 + PRES Ref. G210157

Weight: 150g
Packaging: 3 pieces

* Fuse base: 00-EP Ref Number F215170
Pull out grip handle: Ref Number K217244

German standard without blown fuse indicator

Current rating	Designation	Ref. Number	I/I_N*	Catalog Number
16	6,9 GRB 000 D08/016	L330060	1	DN000GB69V16
20	6,9 GRB 000 D08/020	D330030	1	DN000GB69V20
25	6,9 GRB 000 D08/025	E330031	1	DN000GB69V25
32	6,9 GRB 000 D08/032	F330032	1	DN000GB69V32
40	6,9 GRB 000 D08/040	G330033	1	DN000GB69V40
50	6,9 GRB 000 D08/050	H330034	1	DN000GB69V50
63	6,9 GRB 000 D08/063	J330035	1	DN000GB69V63
80	6,9 GRB 000 D08/080	A330073	1	DN000GB69V80
100	6,9 GRB 000 D08/100	S330112	1	DN000GB69V100
125	6,9 GRB 000 D08/125	T330113	0,9	DN000GB69V125
80	6,9 URB 000 D08/080	K330036	1	DN000UB69V80
100	6,9 URB 000 D08/100	L330037	1	DN000UB69V100
125	6,9 URB 000 D08/125	M330038	0,9	DN000UB69V125
160	6,9 URB 000 D08/160	N330039	0,85	DN000UB69V160
200	6,9 URB 000 D08/200	P330040	0,85	DN000UB69V200
250	6,9 URB 000 D08/250	Q330041	0,8	DN000UB69V250
315	6,9 URB 000 D08/315	R330042	0,7	DN000UB69V315
350	5 URB 000 D08/350	V330114	0,7	DN000UB50V350
400	5 URB 000 D08/400	D330191	0,65	DN000UB50V400



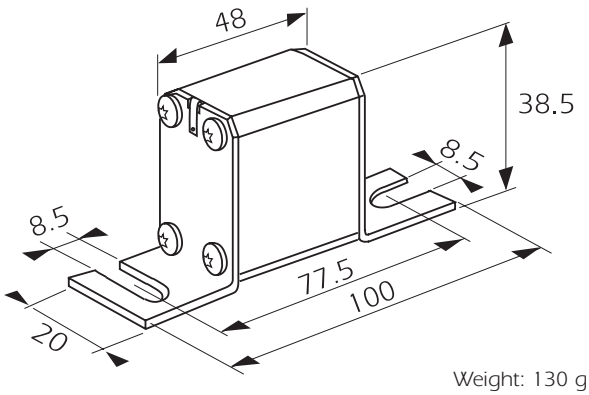
* Fuse base: SI 000 DIN 80
Ref. Number: C220710

Weight: 130 g
Packaging: 6 pieces

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 500 to 690 VAC DIN 000

German standard with blown fuse indicator

Current rating	Designation	Ref. Number	I/I_N* fuse base	Catalog Number
16	6,9 gRB 000 D08V/016	C330190	1	DN000GB69V16V
20	6,9 gRB 000 D08V/020	P330017	1	DN000GB69V20V
25	6,9 gRB 000 D08V/025	Q330018	1	DN000GB69V25V
32	6,9 gRB 000 D08V/032	R330019	1	DN000GB69V32V
40	6,9 gRB 000 D08V/040	S330020	1	DN000GB69V40V
50	6,9 gRB 000 D08V/050	T330021	1	DN000GB69V50V
63	6,9 gRB 000 D08V/063	V330022	1	DN000GB69V63V
80	6,9 gRB 000 D08V/080	G330102	1	DN000GB69V80V
100	6,9 gRB 000 D08V/100	Q330110	1	DN000GB69V100V
125	6,9 gRB 000 D08V/125	R330111	0,9	DN000GB69V125V
80	6,9 URB 000 D08V/080	W330023	1	DN000UB69V80V
100	6,9 URB 000 D08V/100	X330024	1	DN000UB69V100V
125	6,9 URB 000 D08V/125	Y330025	0,95	DN000UB69V125V
160	6,9 URB 000 D08V/160	Z330026	0,85	DN000UB69V160V
200	6,9 URB 000 D08V/200	A330027	0,85	DN000UB69V200V
250	6,9 URB 000 D08V/250	B330028	0,8	DN000UB69V250V
315	6,9 URB 000 D08V/315	C330029	0,7	DN000UB69V315V
350	5 URB 000 D08V/350	W330115	0,7	DN000UB69V350V
400	5 URB 000 D08V/400	E330192	0,65	DN000UB69V400V

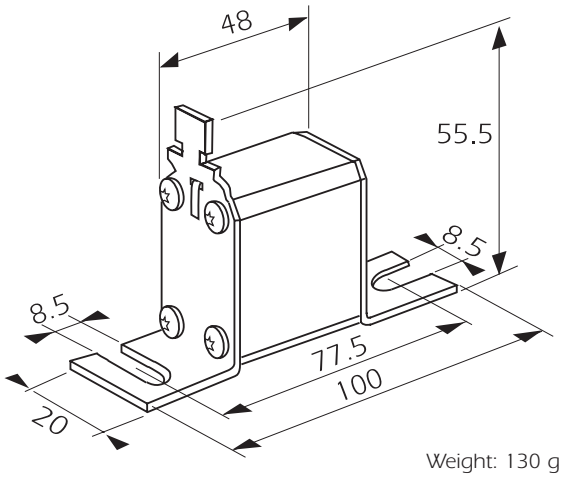


Weight: 130 g
Packaging: 6 pieces

Fuse base: SI 000 DIN 80 Ref. Number : C 20710

German standard with trip-indicator

Current rating	Designation	Ref. Number	I/I_N* fuse base	Catalog Number
16	6,9 gRB 000 D08L/016	X330277	1	DN000GB69V16L
20	6,9 gRB 000 D08L/020	J330173	1	DN000GB69V20L
25	6,9 gRB 000 D08L/025	K330174	1	DN000GB69V25L
32	6,9 gRB 000 D08L/032	L330175	1	DN000GB69V32L
40	6,9 gRB 000 D08L/040	M330176	1	DN000GB69V40L
50	6,9 gRB 000 D08L/050	N330177	1	DN000GB69V50L
63	6,9 gRB 000 D08L/063	P330178	1	DN000GB69V63L
80	6,9 gRB 000 D08L/080	Q330179	1	DN000GB69V80L
100	6,9 gRB 000 D08L/100	R330180	1	DN000GB69V100L
125	6,9 gRB 000 D08L/125	S330181	0,9	DN000GB69V125L
80	6,9 URB 000 D08L/080	T330182	1	DN000UB69V80L
100	6,9 URB 000 D08L/100	V330183	1	DN000UB69V100L
125	6,9 URB 000 D08L/125	W330184	0,95	DN000UB69V125L
160	6,9 URB 000 D08L/160	X330185	0,85	DN000UB69V160L
200	6,9 URB 000 D08L/200	Y330186	0,85	DN000UB69V200L
250	6,9 URB 000 D08L/250	Z330187	0,8	DN000UB69V250L
315	6,9 URB 000 D08L/315	A330188	0,7	DN000UB69V315L
350	5 URB 000 D08L/350	B330189	0,7	DN000UB69V350L
400	5 URB 000 D08L/400	F330193	0,65	DN000UB69V400L

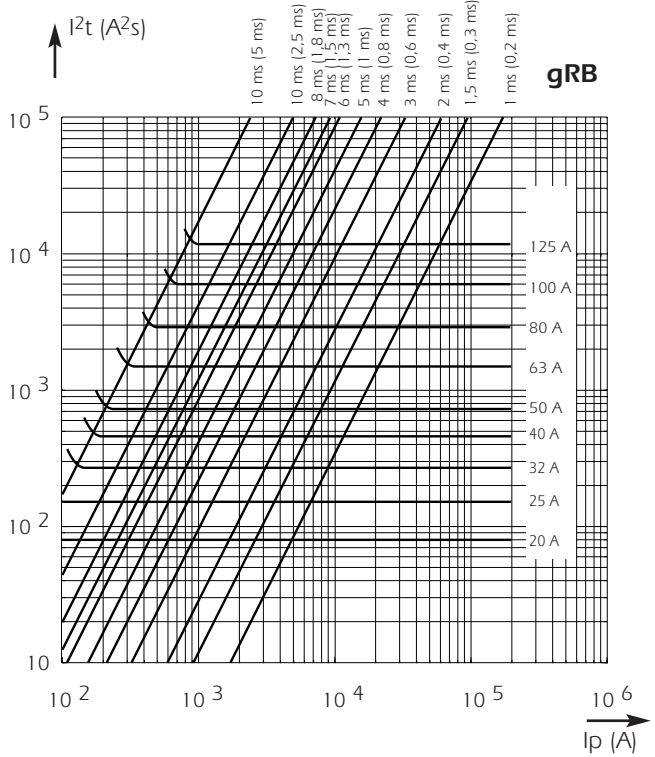


Weight: 130 g
Packaging: 6 pieces

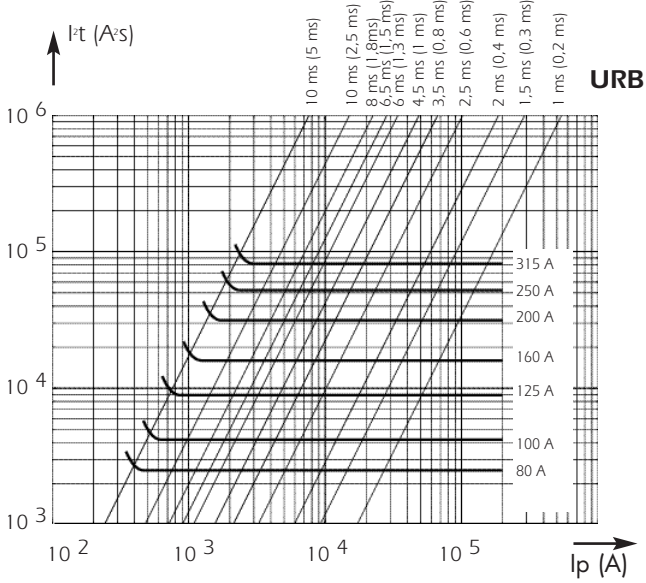
Microswitch
MC 4L 2-5 B6 + PRES Ref. Number : F210156
MC 4L 2-5 B2 + PRES Ref. Number : G210157
Fuse base: SI 000 DIN 80 Ref. Number : C 20710

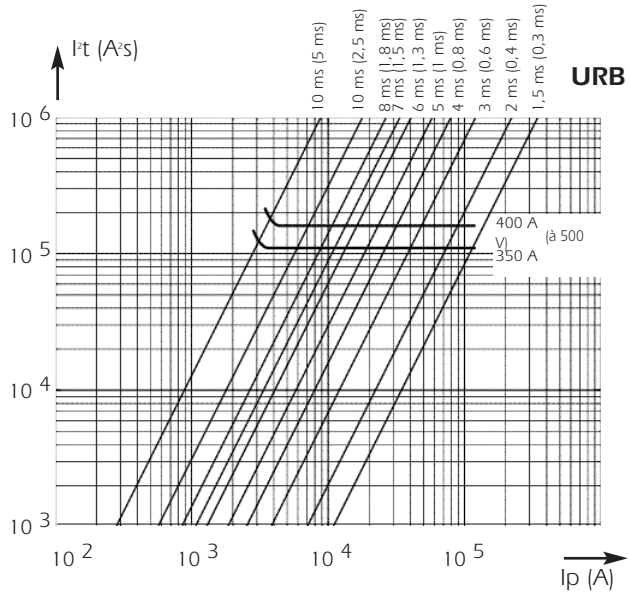
Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 500 to 690 VAC DIN 000

Total clearing I²t

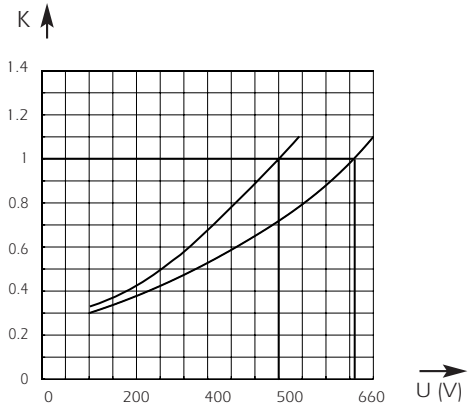


Above: Horizontal curves show, for each rated current, values of total clearing I2t (I2tt) as a function of prospective current Ip. @ UN with cosj = 0.15. Oblique lines indicate total clearing duration Tt, with associated pre-arcing duration in brackets.



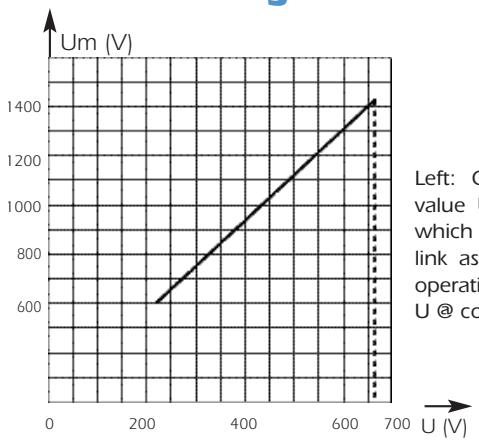


I²t corrective factor



Above: Mean curves show variation of total clearing time (I2tt) and total clearing duration Tt as a function of operating voltage U.

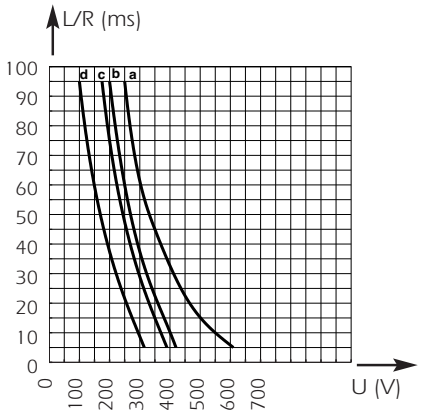
Peak arc voltage



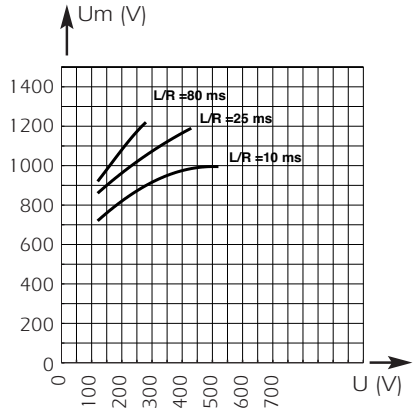
Left: Curve shows peak value Um of arc voltage which appears across fuse link as a function of the operating voltage
U @ cos φ = 0.15

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 500 to 690 VAC DIN 000

DC Application data



Above: Curves indicate permissible value of time constant L/R as a function of DC working voltage.
Curve a: Ratings from 20 to 160 A
Curve b: Rating 200 A
Curve c: Ratings from 250 to 315 A
Curve d: Ratings from 350 to 400 A

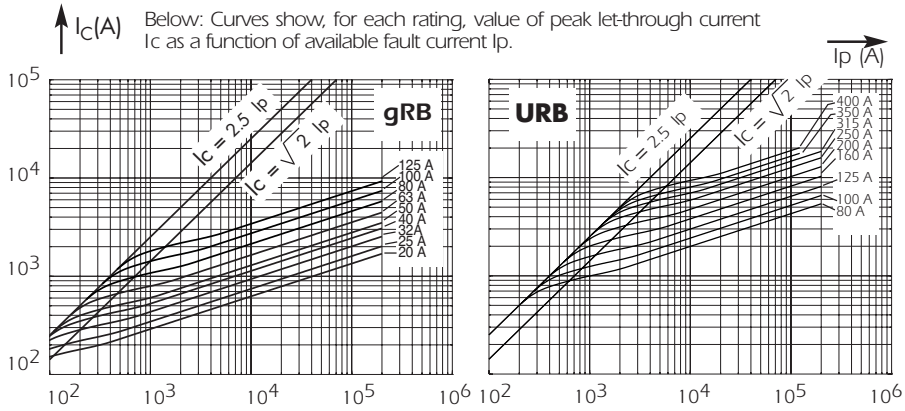


Above: Curves indicates peak arc voltage Um which may appear across fuse terminals at working voltage U.

Rated current (A)	Curve	Ipm (A)
20	a	60
25	a	65
32	a	90
40	a	120
50	a	150
63	a	200
80	a	270
100	a	370
125	a	500
160	a	700
200	b	1200
250	c	1800
315	c	2200
350	d	2600
400	d	3100

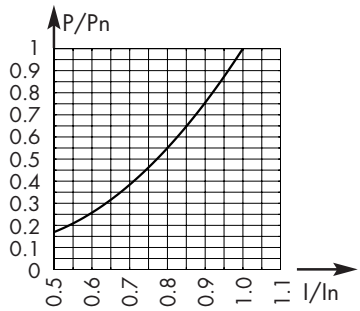
Ipm values give minimum DC interrupting current in amps.

Current limitation curves



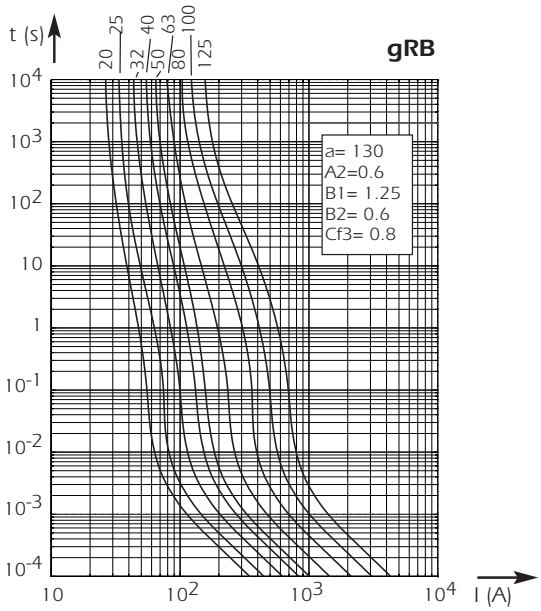
Below: Curves show, for each rating, value of peak let-through current Ic as a function of available fault current Ip.

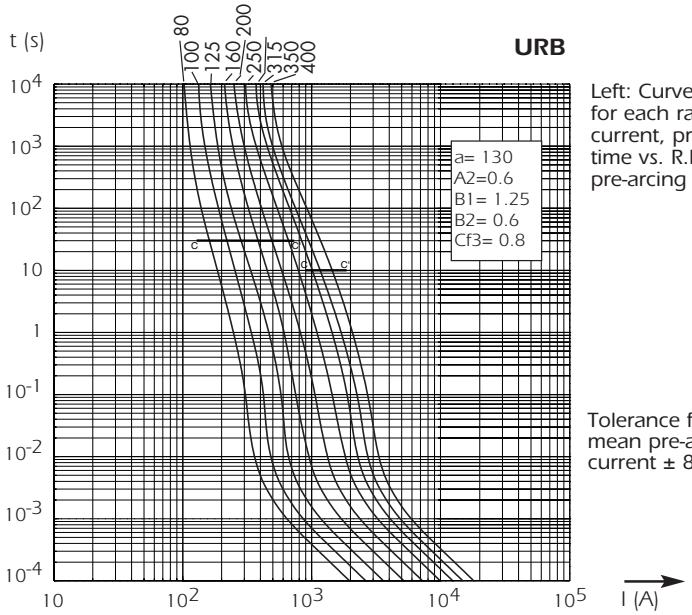
Watts loss



Above: Curve enables computation of power losses P for a IN-rated fuse as a function of R.M.S. current I (as a multiple of IN for steady state operation)

Time vs current characteristics





Left: Curves show, for each rated current, pre-arcing time vs. R.M.S. pre-arcing current

Tolerance for mean pre-arcing current ± 8%.

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 600 to 690 VAC DIN 00

gRB-URB from 16 to 450 A
Size: 00

EXTREMELY HIGH BREAKING CAPACITY FUSES:
PROTECTION OF POWER SEMICONDUCTORS
AS PER IEC STANDARD 60269.1 AND 4

690 V VOLTAGE RATING

gR CLASS (gRB RATINGS 16 to 160 A) AS PER VDE 636-23
- CLEARING ALL OVERLOADS
- IMPROVING SAFETY AND PROTECTION
- ENABLING SELECTIVE COORDINATION WITH ALL FUSES

aR CLASS (URB RATINGS 16 TO 450 A) ACCORDING TO
VDE 636-23 AND IEC 60269-4

CONNECTIONS ACCORDING TO
- DIN 43653/00 80 AND 110 mm BETWEEN AXES
- DIN 43620/00 SOLID BLADES

WITH AN INDICATING PAWL ACTIVATING A MICROSWITCH IF NEEDED

Main Characteristics

Voltage rating U_N(V)	Class	Current rating I_N(A)	Pre-arcing I^2t @ 1 ms I^2tp (A^2s)	Total clearing I^2t total@ UN I^2tt (A^2s)	Watts loss 0.8 IN	Watts loss IN	Tested Breaking Capacity	Estimated Breaking Capacity
690	gRB	16	8	61	2.7	5	200 k A @ 690 V	300 k A @ 690 V
		20	12	86	3.3	6		
		25	18	140	4.4	8		
		32	39	250	6.0	11		
		40	68	450	7.1	13		
		50	116	750	8.8	16		
		63	210	1400	9.9	18		
		80	525	3000	10.5	19		
		100	970	5400	10.7	19.5		
		125	1710	9600	13.2	24		
		160	4270	22400	13.7	25		
	URB	16	7	52	3.8	7	200 k A @ 690 V	300 k A @ 690 V
		20	10	75	5.0	9		
		25	15	120	6.0	11		
		32	32	210	8.2	15		
		40	61	400	9.9	18		
		50	102	700	11.5	21		
		63	177	1200	12.6	23		
		80	390	2200	13.8	25		
		100	692	3900	15.4	28		
		125	1170	6600	18.1	33		
		160	2680	14 000	19.8	36		
		200	4690	24 000	23.1	42		
		250	8300	42 500	27.5	50		
		315	17 520	81 000	31.9	58		
		350 ▪	25 450	118 000	33.0	60		
		400 ▪	33 200	150 000	38.5	70		
600	URB	450 **	51 850	196 000	40.7	74	200 k A @ 600 V	300 k A @ 600 V

NOTE: voltage rating of 350-400-450 A rated fuses is defined with a CC' curve at 1 second limited by minimum breaking current.

▪ Voltage rating: 690 V with CC' at 1s - 450 V with CC' at 10 s
** Voltage rating: 600 V with CC' at 1s - 450 V with CC' at 10 s

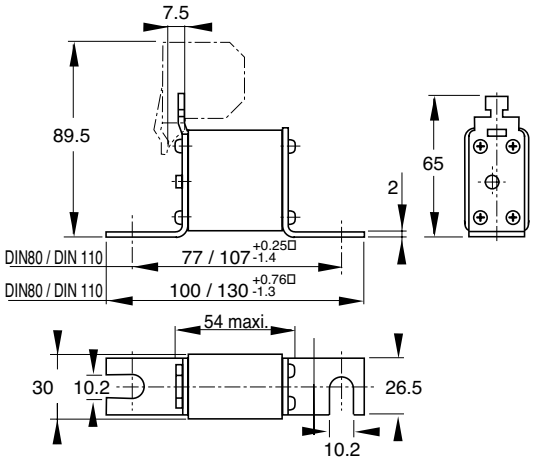
Minimum operating voltage for trip indicator = 20 V

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 600 to 690 VAC DIN 00

German standard as per DIN43653/00C - DIN 80 & 110

gRB - DIN 80

Current rating	Designation	Ref. Number	I/I_N* fuse base	Catalog Number
16	6,9 gRB 00 D08L 016	S330273	1	DN00GB69V16L
20	6,9 gRB 00 D08L 020	S330227	1	DN00GB69V20L
25	6,9 gRB 00 D08L 025	T330228	1	DN00GB69V25L
32	6,9 gRB 00 D08L 032	V330229	1	DN00GB69V32L
40	6,9 gRB 00 D08L 040	W330230	1	DN00GB69V40L
50	6,9 gRB 00 D08L 050	X330231	1	DN00GB69V50L
63	6,9 gRB 00 D08L 063	Y330232	1	DN00GB69V63L
80	6,9 gRB 00 D08L 080	Z330233	1	DN00GB69V80L
100	6,9 gRB 00 D08L 100	A330234	1	DN00GB69V100L
125	6,9 gRB 00 D08L 125	B330235	0.9	DN00GB69V125L
160	6,9 gRB 00 D08L 160	C330236	0.9	DN00GB69V160L



Weight: 140 g(D08) - 190 g(D11)
Packaging: 3 pieces
Microswitches: MC 4L 2.5 B6 + PRES - Ref. Number: F210156
MC 4L 2.5 B2 + PRES - Ref. Number: G210157

Fuse-base: SI 00 DIN 80 - Ref. Number: Q098040

URB - DIN 80

Current rating	Designation	Ref. Number	I/I_N* fuse base	Catalog Number
16	6,9 URB 00 D08L 016	V330275	1	DN00UB69V16L
20	6,9 URB 00 D08L 020	T330274	1	DN00UB69V20L
25	6,9 URB 00 D08L 025	M330268	1	DN00UB69V25L
32	6,9 URB 00 D08L 032	N330269	1	DN00UB69V32L
40	6,9 URB 00 D08L 040	P330270	1	DN00UB69V40L
50	6,9 URB 00 D08L 050	Q330271	1	DN00UB69V50L
63	6,9 URB 00 D08L 063	R330272	1	DN00UB69V63L
80	6,9 URB 00 D08L 080	D330237	1	DN00UB69V80L
100	6,9 URB 00 D08L 100	E330238	1	DN00UB69V100L
125	6,9 URB 00 D08L 125	F330239	0.9	DN00UB69V125L
160	6,9 URB 00 D08L 160	G330240	0.85	DN00UB69V160L
200	6,9 URB 00 D08L 200	H330241	0.85	DN00UB69V200L
250	6,9 URB 00 D08L 250	J330242	0.80	DN00UB69V250L
315	6,9 URB 00 D08L 315	K330243	0.75	DN00UB69V315L
350	6,9 URB 00 D08L 350	L330244	0.75	DN00UB69V350L
400	6,9 URB 00 D08L 400	M330245	0.70	DN00UB69V400L
450	6 URB 00 D08L 450	N330246	0.65	DN00UB60V450L

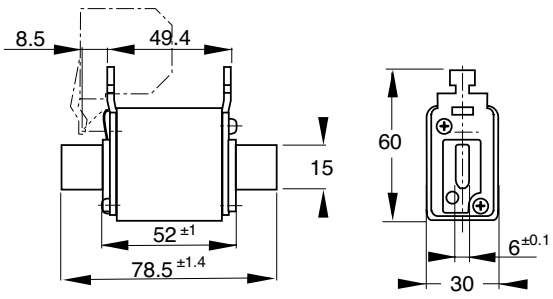
gRB - DIN 110

16	6,9 gRB 00 D11L 016	W330276	1	DN00GB69V16D1L
20	6,9 gRB 00 D11L 020	P330247	1	DN00GB69V20D1L
25	6,9 gRB 00 D11L 025	Q330248	1	DN00GB69V25D1L
32	6,9 gRB 00 D11L 032	R330249	1	DN00GB69V32D1L
40	6,9 gRB 00 D11L 040	S330250	1	DN00GB69V40D1L
50	6,9 gRB 00 D11L 050	T330251	1	DN00GB69V50D1L
63	6,9 gRB 00 D11L 063	V330252	1	DN00GB69V63D1L
80	6,9 gRB 00 D11L 080	W330253	1	DN00GB69V80D1L
100	6,9 gRB 00 D11L 100	X330254	1	DN00GB69V100D1L
125	6,9 gRB 00 D11L 125	Y330255	0.9	DN00GB69V125D1L
160	6,9 gRB 00 D11L 160	Z330256	0.9	DN00GB69V160D1L

URB - DIN 110

80	6,9 URB 00 D11L 80	A330257	1	DN00UB69V80D1L
100	6,9 URB 00 D11L 100	B330258	1	DN00UB69V100D1L
125	6,9 URB 00 D11L 125	C330259	0.9	DN00UB69V125D1L
160	6,9 URB 00 D11L 160	D330260	0.85	DN00UB69V160D1L
200	6,9 URB 00 D11L 200	E330261	0.85	DN00UB69V200D1L
250	6,9 URB 00 D11L 250	F330262	0.80	DN00UB69V250D1L
315	6,9 URB 00 D11L 315	G330263	0.75	DN00UB69V315D1L
350	6,9 URB 00 D11L 350	H330264	0.75	DN00UB69V350D1L
400	6,9 URB 00 D11L 400	J330265	0.70	DN00UB69V400D1L
450	6 URB 00 D11L 450	K330266	0.65	DN00UB60V450D1L

German standard as per DIN43620/00



Weight: 210 g
Packaging: 3 pieces
Microswitches: MC 4L 2.5 B2 + PRES - Ref Number: G210157 or
MC 4L 2.5 B6 + PRES - Ref Number: F210156

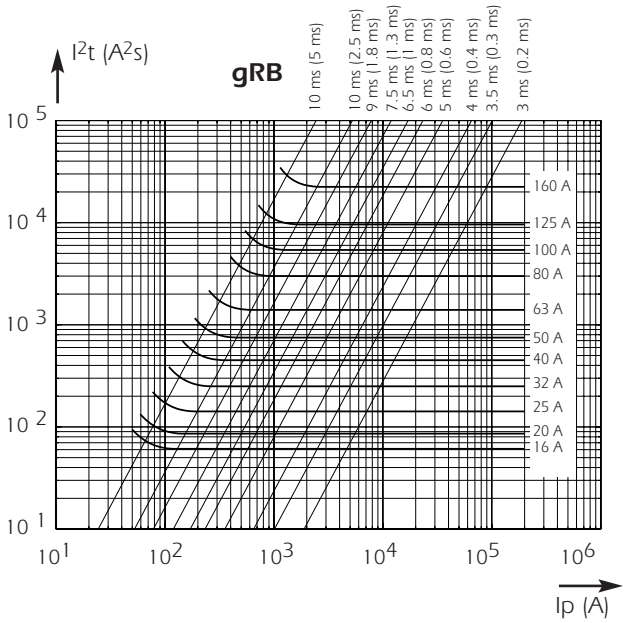
Fuse-base: 00EP - Ref. Number : F215170

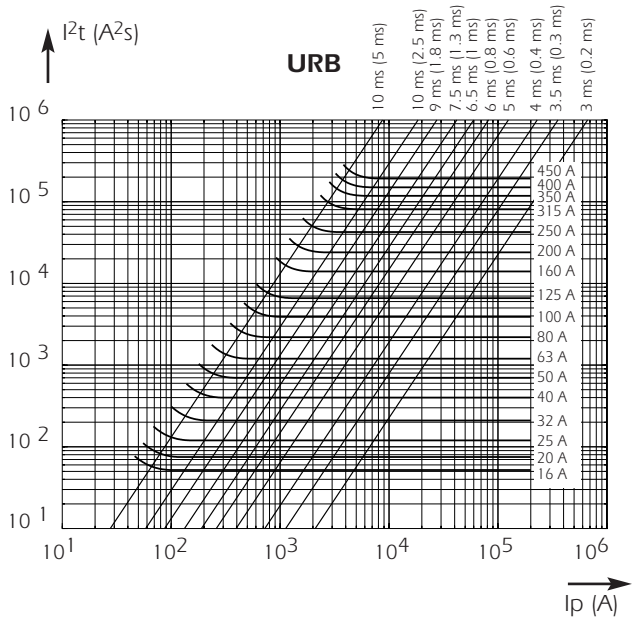
Current rating	Designation	Ref. Number	I/I_N* fuse base	Catalog Number
16	6,9 gRB 00 PV/016	L330267	1	PC00GB69V16PV
20	6,9 gRB 00 PV/020	W330207	1	PC00GB69V20PV
25	6,9 gRB 00 PV/025	X330208	1	PC00GB69V25PV
32	6,9 gRB 00 PV/032	Y330209	1	PC00GB69V32PV
40	6,9 gRB 00 PV/040	Z330210	1	PC00GB69V40PV
50	6,9 gRB 00 PV/050	A330211	1	PC00GB69V50PV
63	6,9 gRB 00 PV/063	B330212	0.90	PC00GB69V63PV
80	6,9 gRB 00 PV/080	C330213	0.90	PC00GB69V80PV
100	6,9 gRB 00 PV/100	D330214	0.90	PC00GB69V100PV
125	6,9 gRB 00 PV/125	E330215	0.85	PC00GB69V125PV
160	6,9 gRB 00 PV/160	F330216	0.85	PC00GB69V160PV

For curves see pages
I/IN : Ratio RMS steady current / current rating for fuses in base.

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 600 to 690 VAC DIN 00

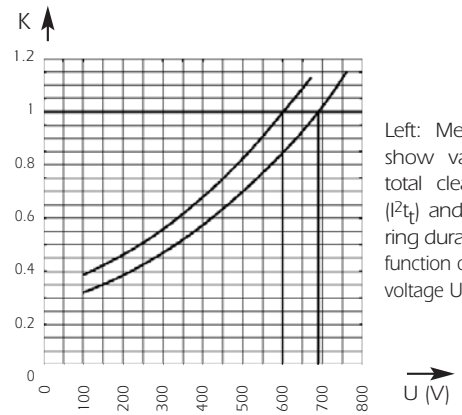
Total clearing I²t





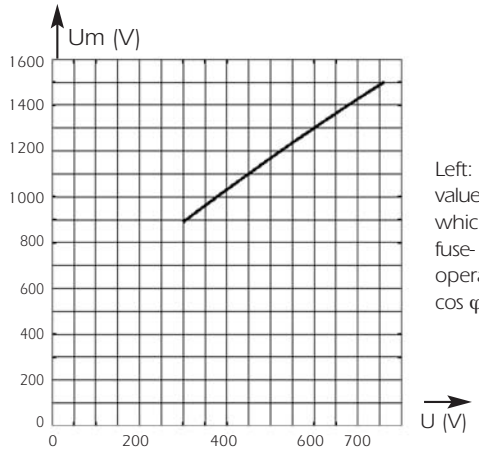
Above: horizontal curves show, for each rated current, maximum values of total clearing I²t (I^2t_t) as a function of prospective current Ip. @ UN with cosφ = 0.15.
Oblique lines indicate total clearing duration Tt, with associated pre-arcing duration shown in brackets.

I²t corrective factor



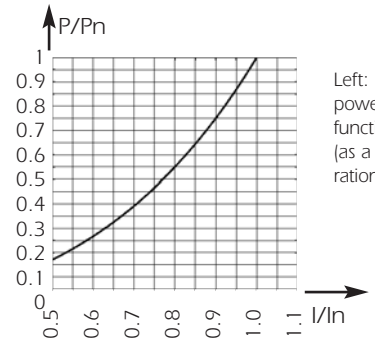
Left: Mean curves show variation of total clearing time (I^2t_t) and total clearing duration Tt as a function of operating voltage U.

Peak arc voltage



Left: Curve shows peak value Um of the arc voltage which appears across fuse- link as a function of operating voltage U @ cos φ = 0.15

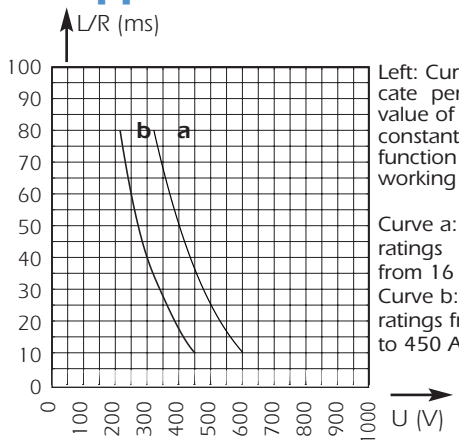
Watts loss



Left: Curve enables computation of power losses P for a I_N-rated fuse as a function of R.M.S. current I
(as a multiple of I_N for steady state operation)

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
gR/aR - 600 to 690 VAC DIN 00

DC Application data

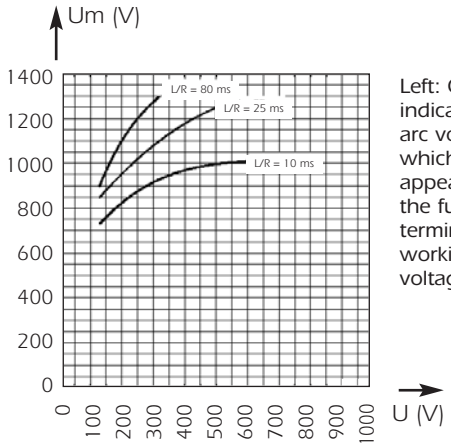


Left: Curves indicate permissible value of time constant L/R as a function of DC working voltage.

Curve a: for ratings from 16 to 250 A
Curve b: for ratings from 315 to 450 A

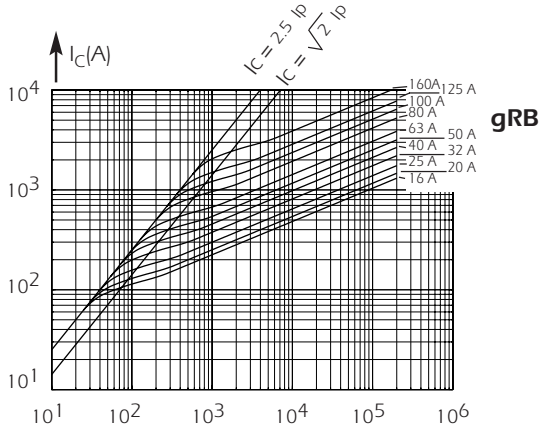
Rated current	Curve	Ipm (A) gRB	Ipm (A) URB
16	a	32	32
20	a	40	40
25	a	50	50
32	a	64	64
40	a	80	80
50	a	100	100
63	a	126	126
80	a	160	170
100	a	200	220
125	a	250	280
160	a	320	390
200	a		510
250	a		650
315	b		840
350	b		1770
400	b		2040
450	b		2250

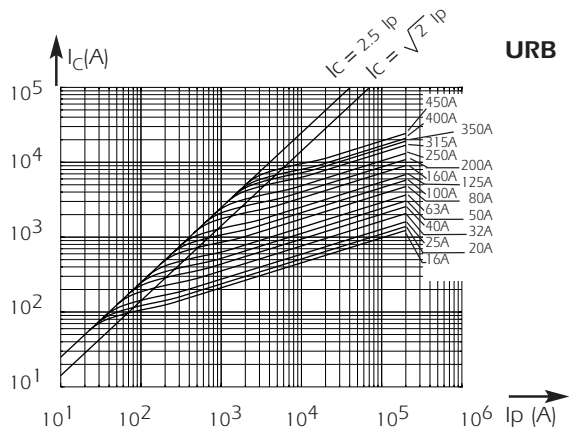
Ipm values give minimum DC interrupting current in amps.



Left: Curves indicate peak arc voltage Um which may appear across the fuse terminals at working voltage U.

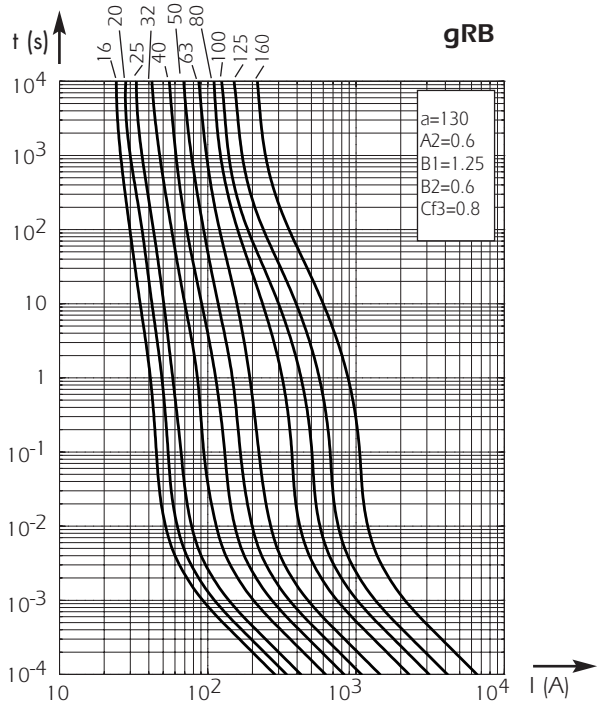
Current limitation curves

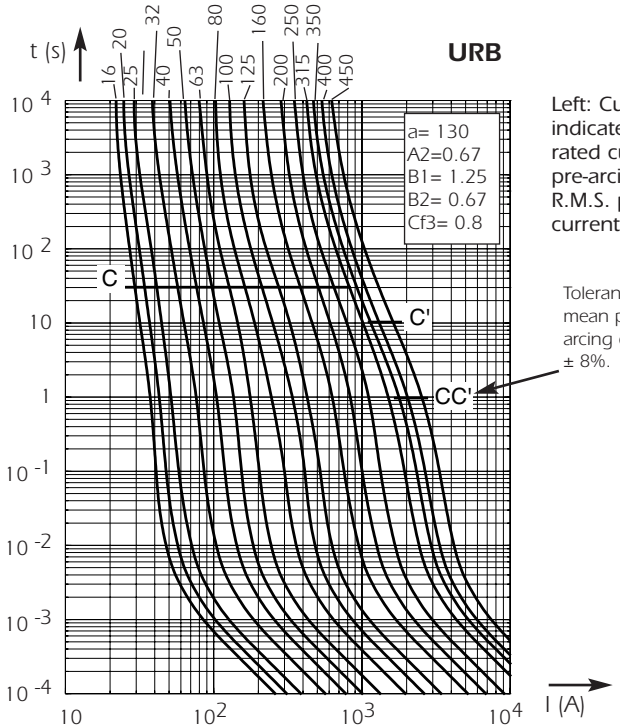




Above: Curves show, for each rating, value of peak let-through current Ic as a function of available fault current Ip.

Time vs current characteristics





Left: Curves indicate, for each rated current, pre-arcing time vs. R.M.S. pre-arcing current

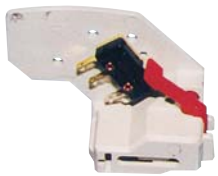
Tolerance for mean pre-arcing current ± 8%.

Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
Microswitches for PSC sizes 000/00 and NH Fuses

MICROSWITCH SYSTEMS ADAPTED TO THE FOLLOWING FUSES:

- PSC sizes 000/00 (brackets) DIN43653
- NH Fuses (plain blades) see details in "General Purpose IEC Fuses" section
- NH plain blades 690 VAC Protistor square-body Fuses

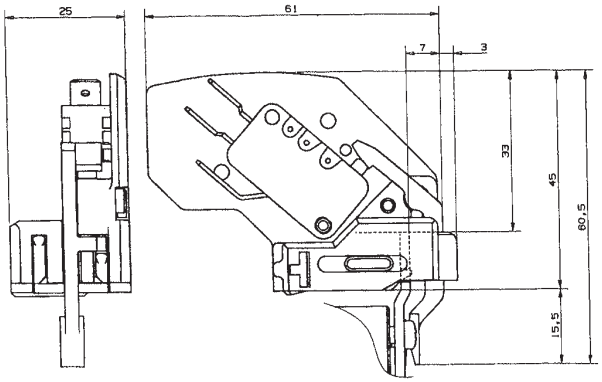
MS 4L 2-5

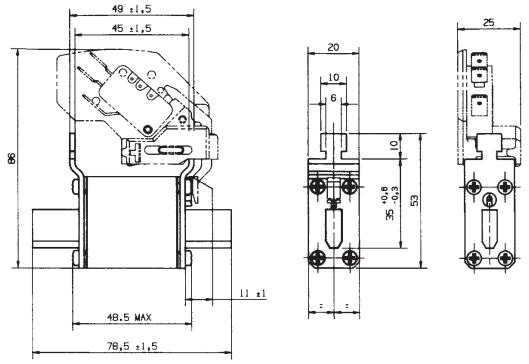


Main Characteristics

Code	AC Insulation voltage rating (***)	Positive operating voltage/current	Current rating	Current	Interrupting rating Non inductive circuit			Inductive circuit : L/R = 25ms			AC voltage withstand test (*)	Impulse voltage test Uimp1.2/50 µs (**)	Fire class according to UL 94
					30V	110V	250V	30V	110V	250V			
MS 4L 2-5 B2	1000 V	20 V	5 A	50 Hz	4A	4A	5A	-	5A	5 A	12 kV	16 kV	V0
+ Pres		100 mA		DC	-	-	-	-	2 A	0,4 A	8 kV	13 kV	
MS 4L 2-5 B6	1000 V	20 V	10 A	50/60 Hz	10 A	10 A	10 A	10 A	10 A	10 A	8 kV	10 kV	V0
+ Pres		50 mA		DC	8 A	0,4 A	0,2 A	4 A	0,2 A	0,1 A			

* Between power circuit and microswitch terminals as per IEC 60 and 694 and NFC 64010 (50/60 Hz 1 min duration in dry air)
** Between power circuit and microswitch terminals Uimp: impulse voltage as per IEC 60947-1
*** Between power circuit and microswitch terminals





Designation	Ref. Number	Weight (g)	Pack.	Catalog Number
MS 4L 2-5 B6 + PRES (Fig. 1) (1)	F210156	30	3	MS 4L2-5B6PRES
MS 4L 2-5 B2 + PRES (Fig. 2) (2)	G210157	26	3	MS 4L2-5B2PRES

Automatically resettable, these microswitch systems indicate fuse presence (PRES) and proper mounting.
In case of improper mounting or fuse melting, this is indicated (terminal 1-4 closed)

Fig.1

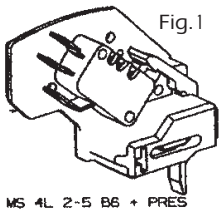
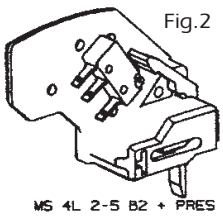


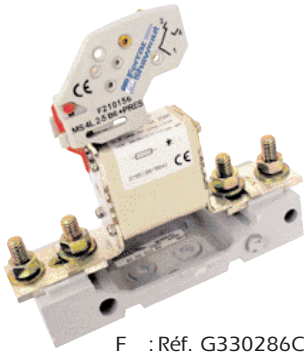
Fig.2



(1) 6.3 mm clips
(2) 2.8 mm clips

Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

F : Réf. D302108
MC: Réf. F210156C



F : Réf. G330286C
PF : Réf. Q098040C
MC: Réf. F210156C

gGr: two functions

A combination of:
Power supply cable protection (gG curve)

- Compliance with the standardized gate values for gG curves as per EN 60269-2,
- Low power dissipation, similar to a gG fuse, no current derating in holders,
- No derating for variable currents,
- Good withstand to overloads,
- Same thermal definition as a gG curve,
- Unnecessary to dimension the cable cross sectional area large in comparison to UR protection,
- Range designed for the new voltage of 690V ± 10%.

Power semi-conductor protection (Fast R curve)

- Fast curve for fault currents and short-circuit currents under 20 In,
- Tested breaking capacity 100 kA (00) or 170 kA (000) at 690 V,
- Very current limiting, which in turn limits electrodynamic forces in the circuit downstream,
- Low I^2t
- Compact footprint: only one fuse instead of two or a relay plus a fuse,
- DC performances 360 to 550V for I/R = 10 ms,
  Semi-conductor protection checked in the same way as a fuse.

Applications: "off-board" protection

- AC and DC speed governor,
- Soft starter,
- Static relay,
- Current regulator,
- Inverter (IGBT module disconnector in parallel),

Battery.

Connection technologies offered

- Solid blades (as per DIN 43620) with visual blown fuse indicator and striker to actuate a micros-witch, MS4L2-5B + PRES (ref. F210156C or G210157C),
- DIN 80 brackets (as per DIN 43653) with visual blown fuse indicator and striker indicator to actuate a microswitch, MS4L2-5B + PRES.
- With these two technologies the designer can choose a fuse according to the types of holders desired.

Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

- EN 60269-2-1 compliant
- Compliance with gG gate values on melting and not melting
- Low dissipated power
- No derating for variable current
- Good withstand to repeated overloading
- Withstand to exceptional overloads (same as Protistor fuses)
- Cable protection

Functionalities

Two functions:
- to protect cables from overloads,
- to protect semi-conductors from short-circuits.

Electrical characteristics

Size 000

Voltage Rating (VAC)	Size	Current Rating In (A)	Prearcing I²t @ 1 ms I²tp (A²s)	Total I²t (A²s)		Power losses @ In (W)	Tested breaking capacity	Estimated breaking capacity
				@ Un	@ 400V			
		16	45	280	230	2.5		
		20	60	380	310	3		
		25	130	830	700	3.5		
		32	210	1350	1150	4	100 kA	200 kA
690	000	40	350	2200	1900	5	@	@
		50	550	3500	3000	6	690 V	690 V
		63	1000	6100	5150	7		
		80	1700	11000	9200	8		
		100	3900	25000	21000	9		

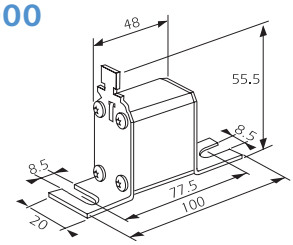
Size 00

Voltage Rating (VAC)	Size	Current Rating In (A)	Prearcing I²t @ 1 ms I²tp (A²s)	Total I²t (A²s)		Power losses @ In (W)	Tested breaking capacity	Estimated breaking capacity
				@ Un	@ 400V			
		16	45	280	230	2.5		
		20	60	390	290	3.2		
		25	120	750	560	4		
		32	240	1550	1150	5		
		40	350	2250	1680	5.5		
		50	540	3500	2600	6.5	100 kA	200 kA
690	00	63	1060	6750	5000	7.6	@	@
		80	1900	12100	9000	9.5	690 V	690 V
		100	3900	24150	18000	11		
		125	6950	45000	33500	13		
		160	13500	82000	61000	16		
		200	27600	160000	120000	18		

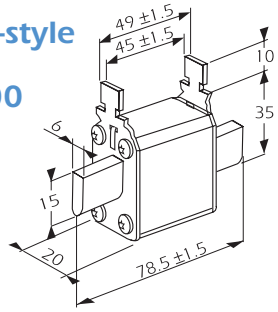
Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

Size 000

German standard DIN 43653/000 DIN 80

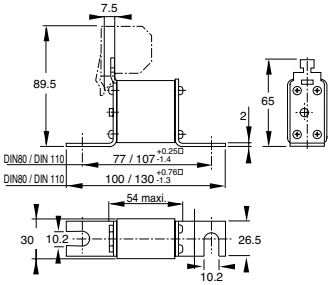


German blade-style fuse standard DIN 43620/000

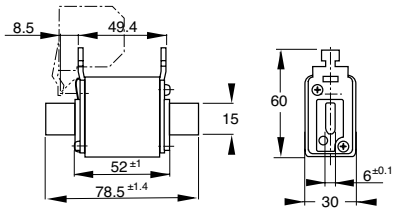


Size 00

German standard 43653/00 - DIN 80



German blade-style fuse standard 43620/00



No derating:
I/In = Irms of use/fuse rating
In the different holders = no derating

Microswitches:
Ref. F210156: 6.3 mm clips
Ref. G210156: 2.8 mm clips

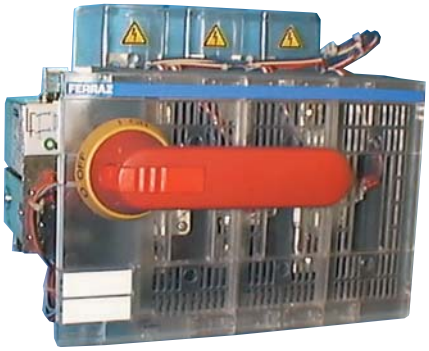
Current (A)	Designation	Ref. Number	I/In*	Weight (g)	Pack.	Catalog Number
16	6,9 gGR 000 D08L 016	H302112	1	120	3	DN000GR69V16L
20	6,9 gGR 000 D08L 020	J302113	1	120	3	DN000GR69V20L
25	6,9 gGR 000 D08L 025	K302114	1	120	3	DN000GR69V25L
32	6,9 gGR 000 D08L 032	L302115	1	120	3	DN000GR69V32L
40	6,9 gGR 000 D08L 040	M302116	1	120	3	DN000GR69V40L
50	6,9 gGR 000 D08L 050	N302117	1	120	3	DN000GR69V50L
63	6,9 gGR 000 D08L 063	P302118	1	120	3	DN000GR69V63L
80	6,9 gGR 000 D08L 080	Q302119	1	120	3	DN000GR69V80L
100	6,9 gGR 000 D08L 100	R302120	1	120	3	DN000GR69V100L
Microswitch		F210156				MS4L2-5B6PRES
		G210157				MS4L2-5B2PRES
16	6,9 gGR 000 PV 016	X302102	1	150	3	NH000GR69V16PV
20	6,9 gGR 000 PV 020	Y302103	1	150	3	NH000GR69V20PV
25	6,9 gGR 000 PV 025	Z302104	1	150	3	NH000GR69V25PV
32	6,9 gGR 000 PV 032	A302105	1	150	3	NH000GR69V32PV
40	6,9 gGR 000 PV 040	B302106	1	150	3	NH000GR69V40PV
50	6,9 gGR 000 PV 050	C302107	1	150	3	NH000GR69V50PV
63	6,9 gGR 000 PV 063	D302108	1	150	3	NH000GR69V63PV
80	6,9 gGR 000 PV 080	E302109	1	150	3	NH000GR69V80PV
100	6,9 gGR 000 PV 100	F302110	1	150	3	NH000GR69V100PV
Microswitch		F210156				MS4L2-5B6PRES
		G210157				MS4L2-5B2PRES
Extractor handle		P215592			1	NH HANDLE
20	6,9 gGR 00 D08L 020	T330297	1	140	3	DN00GR69V20L
25	6,9 gGR 00 D08L 025	V330298	1	140	3	DN00GR69V25L
32	6,9 gGR 00 D08L 032	W330299	1	140	3	DN00GR69V32L
40	6,9 gGR 00 D08L 040	X330300	1	140	3	DN00GR69V40L
50	6,9 gGR 00 D08L 050	Y330301	1	140	3	DN00GR69V50L
63	6,9 gGR 00 D08L 063	G330286	1	140	3	DN00GR69V63L
80	6,9 gGR 00 D08L 080	H330287	1	140	3	DN00GR69V80L
100	6,9 gGR 00 D08L 100	J330288	1	140	3	DN00GR69V100L
125	6,9 gGR 00 D08L 125	K330289	1	140	3	DN00GR69V125L
160	6,9 gGR 00 D08L 160	L330290	1	140	3	DN00GR69V160L
200	6,9 gGR 00 D08L 200	M330291	1	140	3	DN00GR69V200L
Microswitch		F210156				MS4L2-5B6PRES
		G210157				MS4L2-5B2PRES
20	6,9 gGR 00 PV 020	N330292	1	210	3	NH00GR69V20PV
25	6,9 gGR 00 PV 025	P330293	1	210	3	NH00GR69V25PV
32	6,9 gGR 00 PV 032	Q330294	1	210	3	NH00GR69V32PV
40	6,9 gGR 00 PV 040	R330295	1	210	3	NH00GR69V40PV
50	6,9 gGR 00 PV 050	S330296	1	210	3	NH00GR69V50PV
63	6,9 gGR 00 PV 063	A330280	1	210	3	NH00GR69V63PV
80	6,9 gGR 00 PV 080	B330281	1	210	3	NH00GR69V80PV
100	6,9 gGR 00 PV 100	C330282	1	210	3	NH00GR69V100PV
125	6,9 gGR 00 PV 125	D330283	1	210	3	NH00GR69V125PV
160	6,9 gGR 00 PV 160	E330284	1	210	3	NH00GR69V160PV
200	6,9 gGR 00 PV 200	F330285	1	210	3	NH00GR69V200PV
Microswitch		F210156 (only)				MS4L2-5B6PRES
Extractor handle		P215592			1	NH HANDLE

690 V gGR fuse holders and supports

Type of fuse	Nb. poles	References for mounting on 35 mm DIN rail	References for panel mounting
Solid blades size 000/00 IPXX	1	R216192	F215170
	2	F218758	A217212
	3	V219277	F217723
	4	Z223007	S219275
Solid blades size 000/00 IP20 w/o microswitch	1	S218240	-
	3	S229119	-
DIN 80 bracket size 000 IPXX	1	-	C220710
DIN 80 bracket size 00 IPXX	1	-	Q098040
DIN 80 blades size 000 IP20 w/o microswitch	1	B227218	
DIN 80 blades size 000 IP20 for microswitch	1	C227219	-
DIN 80 blades size 00 IP20 w/o microswitch	1	V227672	-
DIN 80 blades size 00 IP20 for microswitch	1	W227673	-
ITCP range	1		

Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

F : Réf. D302108C
MC: Réf. F210156C



F : Réf. G330286C
PF : Réf. Q098040C
MC: Réf. F210156C

ITCP : Réf. G210410A
F : Réf. M330291C

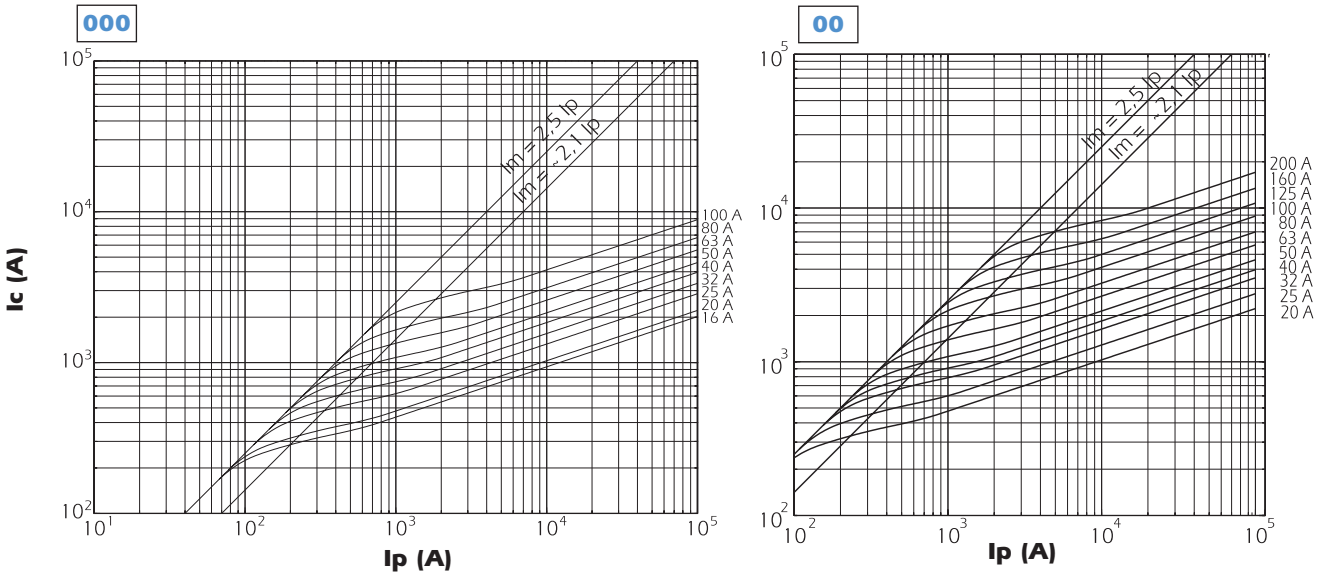
Choice and references of gGR fuse holders

	Type of support	Characteristics	Nb. Poles	Solid blade size 000/00		DIN 80 bracket		Fuse microswitch (2)
				Reference Number	Fuse extraction handle	Size 000	Size 00	
CEI 60269-2	Fuse holders	No protection (1) Screw connection for eye lug or bar for 35 mm DIN rail	1 2 3 4	R216192 F218758 V219277 Z223007	P215592			F2101546 or G210157
		No protection (1) Screw connection for eye lug or bar on panels	1 2 3 4	F215170 A217212 F217723 S219275	P215592	C220710	Q098040	F210156 or G210157
		Protect led to **IP20** Screw connection for eye lug or bar for DIN rail	1 3	S218240 S229119	P215592	W/o microswitch B227218	C227219	
			1			For microswitch V227672	W227673	
CEI 60947-3	Switch disconnector	Horizontal Linocur AC23	2 3	N216626 N222882 B218685 C201781 Y212035 W213574	P215592 P215592 P215592			F210156 or G210157
	Switch with front control handle	ITC 160M III 00 Front handle Inside/outside Complete	3	K227824	P215592			
		ITC 250 III 00 front Handle	3	F210409	P215592			
	Switch with side control handle	ITC 160M III 00 Side handle Outside Complete	3	J227823	P215592			
	ITCP	ITCP	3		P215592	G210410	G210410	

(1) No protection against accidental contact with live parts IPXX.
(2) F210156C microswitch: 6.3 mm clips
G210157C microswitch: 2.8 mm clips

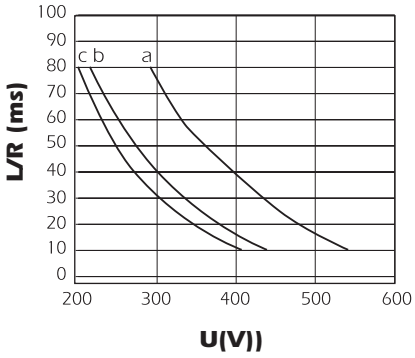
Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

Amplitude of current interrupted



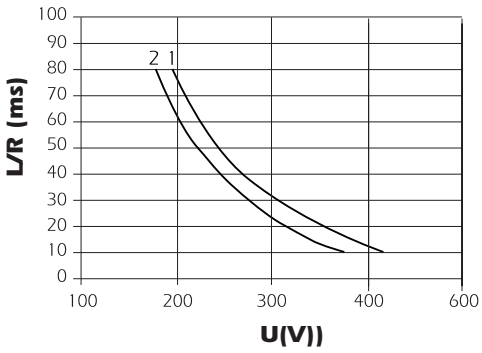
DC working voltage possibilities

Size 00



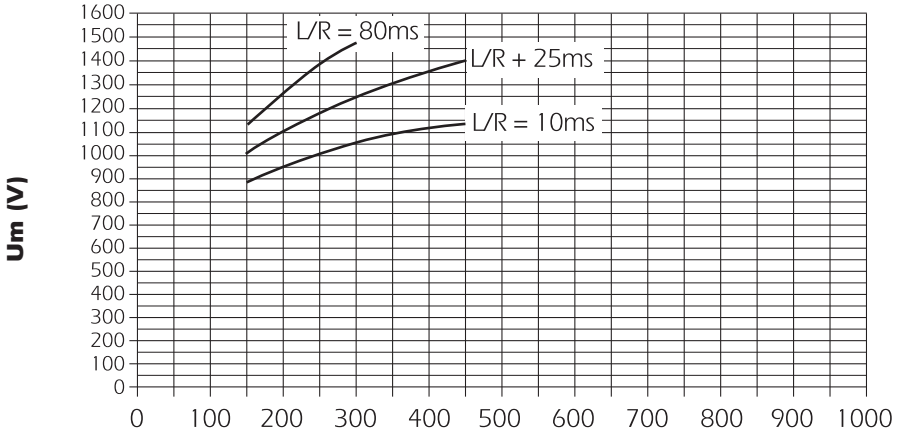
In	Curve
16 A	a
20 A	a
25 A	a
32 A	a
40 A	a
50 A	a
63 A	a
80 A	b
100 A	c
125 A	c
160 A	b
200 A	c

Size 000



In	Curve
16 A	1
20 A	1
25 A	1
32 A	1
40 A	1
50 A	1
63 A	2
80 A	2
100 A	2

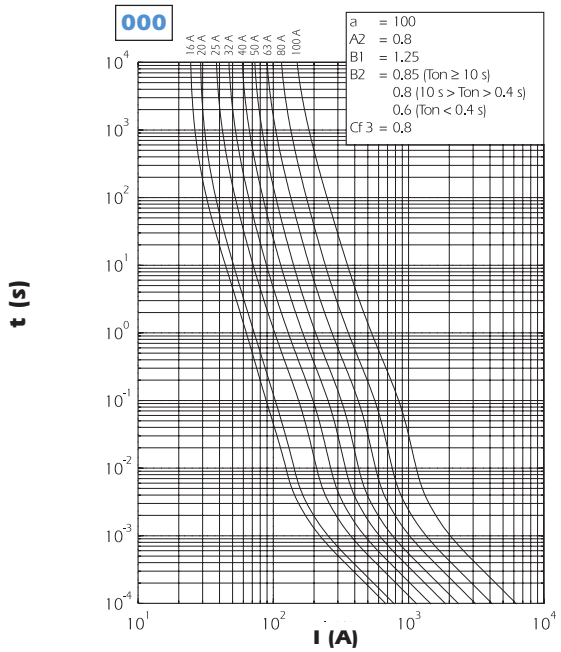
Size 00 and Size 000

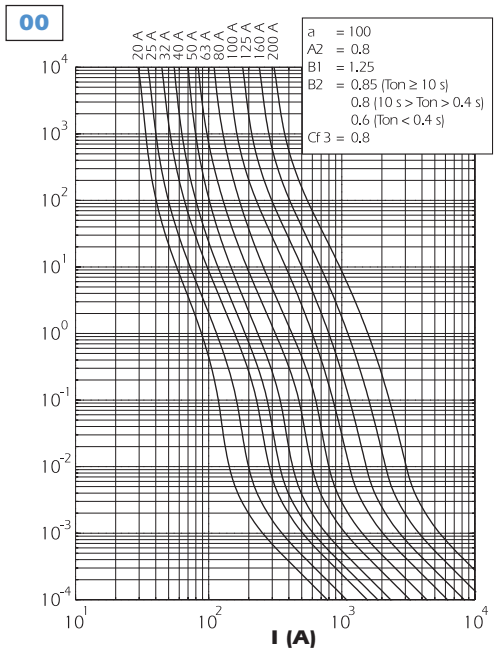


Protistor® Square-body Fuses
PSC gGR sizes 000/00
gGR - 690 VAC DIN 00/000 (full range)

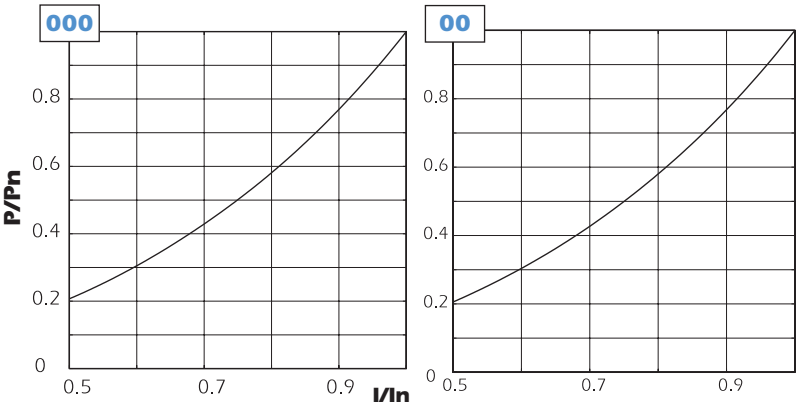
Time/current characteristics

TOLERANCE ON PRE-ARCING CURRENT +/- 8%

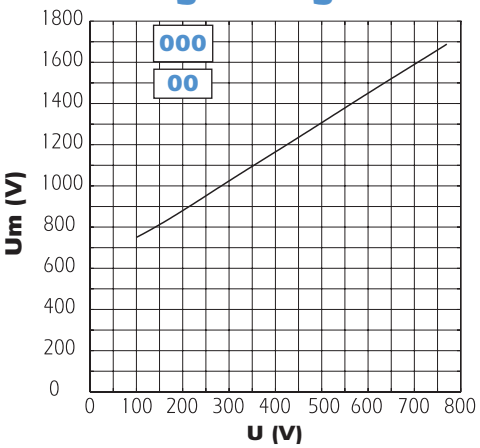




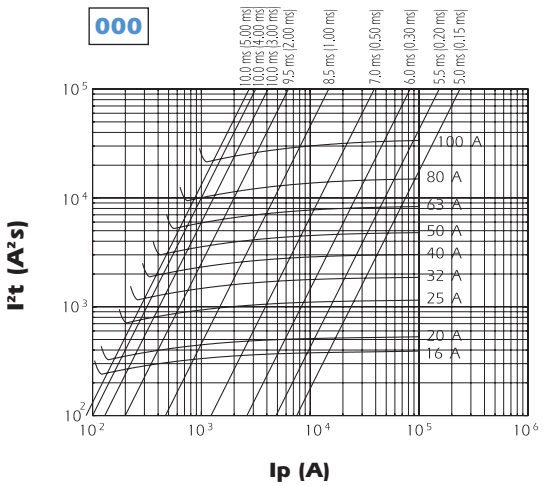
Dissipated power

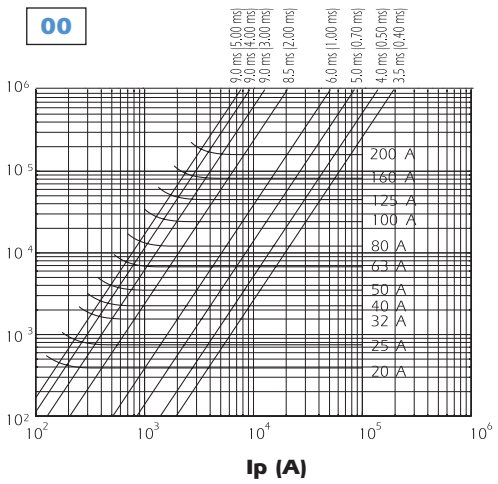


Breaking voltage



Maximum total operating I²t and total operating time





Protistor® Square-body Fuses
PSC gR/aR sizes 000/00
Microswitches for PSC sizes 000/00 and NH

MICROSWITCH SYSTEMS ADAPTED TO THE FOLLOWING FUSES:

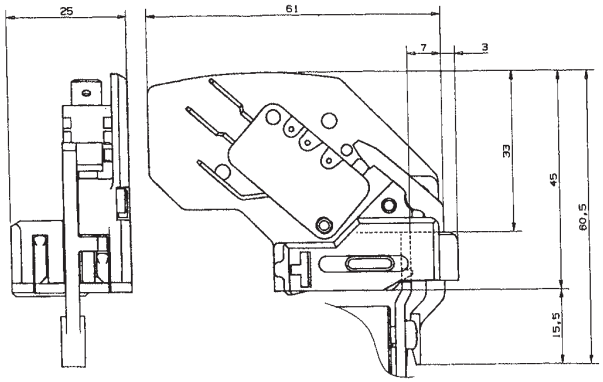
- PSC sizes 000/00 (brackets) DIN43653
- NH Fuses (palin blades) see details in "General Purpose IEC Fuses" section
- NH plain blades 690 VAC Protistor square-body Fuses

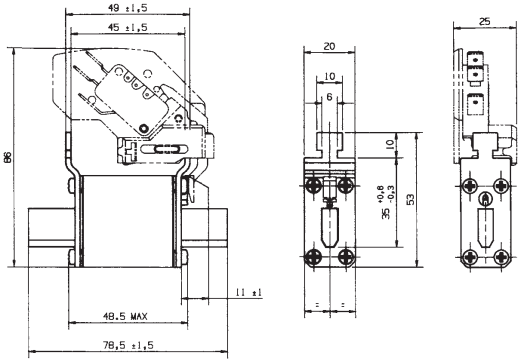
MS 4L 2-5

Main Characteristics

Code	AC Insulation voltage rating (***)	Positive operating voltage/current	Current rating	Current	Interrupting rating Non inductive circuit			Inductive circuit : L/R = 25ms			AC voltage withstand test (*)	Impulse voltage test Uimp1.2/50 µs (**)	Fire class according to UL 94
					30V	110V	250V	30V	110V	250V			
MS 4L 2-5 B2	1000 V	20 V	5 A	50 Hz	4A	4A	5A	-	5A	5 A	12 kV	16 kV	V0
+ Pres		100 mA		DC	-	-	-	-	2 A	0,4 A	8 kV	13 kV	
MS 4L 2-5 B6	1000 V	20 V	10 A	50/60 Hz	10 A	10 A	10 A	10 A	10 A	10 A	8 kV	10 kV	V0
+ Pres		50 mA		DC	8 A	0,4 A	0,2 A	4 A	0,2 A	0,1 A			

* Between power circuit and microswitch terminals as per IEC 60 and 694 and NFC 64010 (50/60 Hz 1 min duration in dry air)
** Between power circuit and microswitch terminals Uimp: impulse voltage as per IEC 60947-1
*** Between power circuit and microswitch terminals





Designation	Ref. Number	Weight (g)	Pack.	Catalog Number
MS 4L 2-5 B6 + PRES (Fig. 1) (1)	F210156	30	3	MS 4L2-5B6PRES
MS 4L 2-5 B2 + PRES (Fig. 2) (2)	G210157	26	3	MS 4L2-5B2PRES

Automatically resettable, these microswitch systems indicate fuse presence (PRES) and proper mounting.
In case of improper mounting or fuse melting, this is indicated (terminal 1-4 closed)

Fig.1

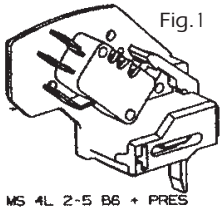
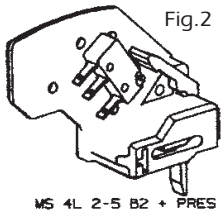


Fig.2



(1) 6.3 mm clips
(2) 2.8 mm clips