



Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Main characteristics



6,9 gRB 71 PA 200



6,9 gRB 73 TTF 1000
+ MS7V1-5 UR



6,9 gRB 70 EF 400

Ferraz Shawmut PSC-gRB 690 VAC fuse-links provide maximum flexibility in equipment design and ultimate protection for today's power conversion equipment.

This range is a fast acting, full range fuses engineered to provide state of the art protection for power semiconductor such as diodes, thyristors.

These square body fuse-links are available in various body sizes with a broad range of ampere ratings allowing the greatest flexibility in equipment design.

They have pure silver fuse elements embedded in solidified sand which provides optimized I^2t and high breaking capacity. All contact surfaces are plated and all hardware non-magnetic.

All fuses are standard with a low voltage blown fuse indicator. This indicator can operate a microswitch which is easily mounted directly on to the fuse in service.

Feature

- Full range (gR curve), fast acting
- Highly current limiting.
- High breaking capacities
- Very low I^2t
- Worldwide mounting acceptance.
- Superior cycling ability.
- High withstanding in rush current and overloads

Ratings

AC: up to 1000 A 690 VAC
150 kA IR

DC: Consult Factory

Applications

Protection of rectifiers, inverters, static switch, AC & DC drives and UPS systems.

AC: Tested to IEC 60269.4

approvals

Features/Benefits

Wide range of mounting styles

Broad range of ampere ratings in each body size for design flexibility

IEC 60269-4 compliance for fuses for worldwide semiconductor applications



6,9 gRB 73 DIIA 1000



Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Main characteristics

Voltage	Size	Type	Rating In (A)	Pre-Arcing I ² t @ 1ms kA²s	Total I ² t @ 690V kA²s	PN: Power losses (W)				Breaking capacities (kA)
						End contacts		Blades		
						0,8 In	In	0,8In	In	
690V	70	gRB	50	0,12	0,7	9	17	9	17	150
		gRB	63	0,27	1,6	9	18	9	18	
		gRB	80	0,47	2,8	11	22	11	22	
		gRB	100	1,06	6,2	12	23	12	23	
		gRB	125	1,9	11,2	13	26	13	26	
		gRB	160	4,2	25	15	29	15	29	
		gRB	200	7,5	44	17	33	17	34	
		gRB	250	13,5	79	20	39	20	40	
		gRB	315	24	142	23	46	24	47	
		gRB	350	41	240	23	46	24	47	
	71	gRB	125	1,06	6,2	18	35	18	35	
		gRB	160	2,4	14	19	38	19	38	
		gRB	200	5	29,5	21	41	21	42	
		gRB	250	9,5	56	23	46	24	48	
		gRB	315	18,5	108	27	53	27	54	
		gRB	350	23	140	29	58	30	60	
		gRB	400	38	225	30	59	31	61	
		gRB	450	62	360	30	59	31	61	
		gRB	500	78	460	32	64	34	67	
		gRB	200	4,2	25	23	45	23	45	
	72	gRB	250	8,5	50	25	49	25	50	
		gRB	315	17	100	28	55	29	57	
		gRB	350	23	140	29	58	30	60	
		gRB	400	34	200	32	63	33	65	
		gRB	450	47	280	34	67	35	70	
		gRB	500	68	400	35	69	36	72	
		gRB	550	84	495	38	75	39	78	
		gRB	630	124	730	41	81	43	86	
		gRB	700	155	910	45	89	48	95	
		gRB	315	12	69	33	66	34	67	
	73	gRB	350	17	100	34	68	35	69	
		gRB	400	27	160	36	71	37	73	
		gRB	450	34	200	40	79	41	82	
gRB		500	47	280	42	84	43	86		
gRB		550	68	400	42	84	44	87		
gRB		630	102	600	45	89	47	94		
gRB		700	139	820	47	94	50	100		
gRB		800	227	1330	48	96	52	104		
gRB		900	280	1640	55	109	60	119		
gRB		1000	385	2270	58	115	64	127		

Time/current characteristics
Cut off characteristics
Total I²t and total operating time
Other curves

} see following pages



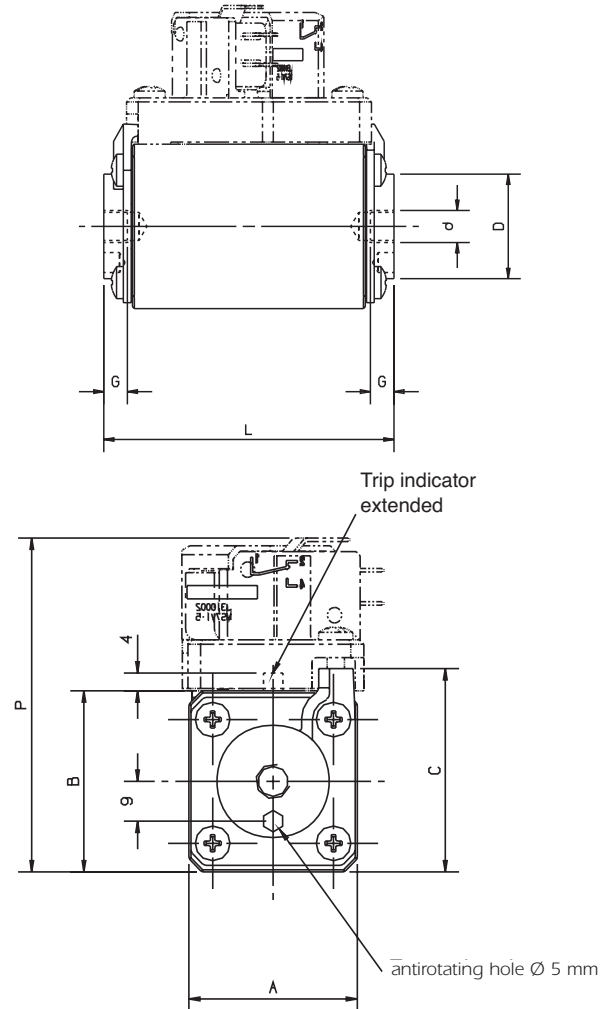
Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC French 70-73 End contacts

Size	Designation	Reference Number	Weight (g)	Catalog Number
70	6,9 gRB 70 TTF 050	C301279	340	PC70GB69V50TF
	6,9 gRB 70 TTF 063	D301280		PC70GB69V63TF
	6,9 gRB 70 TTF 080	E301281		PC70GB69V80TF
	6,9 gRB 70 TTF 100	F301282		PC70GB69V100TF
	6,9 gRB 70 TTF 125	G301283		PC70GB69V125TF
	6,9 gRB 70 TTF 160	L301310		PC70GB69V160TF
	6,9 gRB 70 TTF 200	M301311		PC70GB69V200TF
	6,9 gRB 70 TTF 250	N301312		PC70GB69V250TF
	6,9 gRB 70 TTF 315	P301313		PC70GB69V315TF
71	6,9 gRB 71 TTF 125	Q301314	520	PC71GB69V125TF
	6,9 gRB 71 TTF 160	R301315		PC71GB69V160TF
	6,9 gRB 71 TTF 200	S301316		PC71GB69V200TF
	6,9 gRB 71 TTF 250	T301317		PC71GB69V250TF
	6,9 gRB 71 TTF 315	N301427		PC71GB69V315TF
	6,9 gRB 71 TTF 350	V301318		PC71GB69V350TF
	6,9 gRB 71 TTF 400	W301319		PC71GB69V400TF
	6,9 gRB 71 TTF 450	X301320		PC71GB69V450TF
	6,9 gRB 71 TTF 500	S301707		PC71GB69V500TF
72	6,9 gRB 72 TTF 200	F301328	810	PC72GB69V200TF
	6,9 gRB 72 TTF 250	G301329		PC72GB69V250TF
	6,9 gRB 72 TTF 315	H301330		PC72GB69V315TF
	6,9 gRB 72 TTF 350	W301710		PC72GB69V350TF
	6,9 gRB 72 TTF 400	J301331		PC72GB69V400TF
	6,9 gRB 72 TTF 450	X301711		PC72GB69V450TF
	6,9 gRB 72 TTF 500	K301332		PC72GB69V500TF
	6,9 gRB 72 TTF 550	L301333		PC72GB69V550TF
	6,9 gRB 72 TTF 630	M301334		PC72GB69V630TF
73	6,9 gRB 72 TTF 700	Y301712	1220	PC72GB69V700TF
	6,9 gRB 73 TTF 315	W301342		PC73GB69V315TF
	6,9 gRB 73 TTF 350	B301715		PC73GB69V350TF
	6,9 gRB 73 TTF 400	X301343		PC73GB69V400TF
	6,9 gRB 73 TTF 450	Y301344		PC73GB69V450TF
	6,9 gRB 73 TTF 500	C301716		PC73GB69V500TF
	6,9 gRB 73 TTF 550	Z301345		PC73GB69V550TF
	6,9 gRB 73 TTF 630	A301346		PC73GB69V630TF
	6,9 gRB 73 TTF 700	B301347		PC73GB69V700TF
73	6,9 gRB 73 TTF 800	D301717		PC73GB69V800TF
	6,9 gRB 73 TTF 900	S301638		PC73GB69V900TF
	6,9 gRB 73 TTF 1000	F301719		PC73GB69V100TF

Packaging: 3 pieces sizes 70 and 71 / 1 piece size 72 and 73

Microswitches:	MS 7V 1-5	Réf.J310002	Standard NO-NC
	MS 7V 1-5 UR	Réf.Z310039	Standard NO-NC
	MS 7V 1-5 BS	Réf.K310003	Low level NO-NC
	MS 7V 1-9 BS	Réf.P310007	Double pole NO-NC-low level
	MS 7V 1-5 ET	Réf.S310010	Low level NO-NC-IP 50



Threaded studs :

M8 x 20 mm: Réf.V099171
M10 x 30 mm: Réf.M099946
M12 x 35 mm: Réf.J099966
exists in other length

Threaded studs and Microswitches supplied separately

Size	A	B	C	D	L	d	G°	P
70	39,8	41,8	46,5	26	74	M 8	6	81,8
	1.57"	1.65"	1.83"	1.02"	2.91"		0.24"	3.22"
71	51	51	56,5	30	74	M 8	9	85.5
	2.00"	2.00"	2.22"	1.18"	2.91"		0.35"	3.37"
72	60	60	65.5	38	74	M 10	9	93.6
	2.36"	2.36"	2.58"	1.50"	2.91"		0.35"	3.69"
73	74,4	74,4	78,5	46	74	M 12	9	107.6
	2.93"	2.93"	3.09"	1.81"	2.91"		0.35"	4.24"

Fuse holder solution, see Fuse gear section.



Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC French 70-73 Blades

Size	Designation	Reference Number	Weight (g)	Catalog Number
70	6,9 gRB 70 EF 050	P301405	370	PC70GB69V50EF
	6,9 gRB 70 EF 063	Q301406		PC70GB69V63EF
	6,9 gRB 70 EF 080	R301407		PC70GB69V80EF
	6,9 gRB 70 EF 100	S301408		PC70GB69V100EF
	6,9 gRB 70 EF 125	T301409		PC70GB69V125EF
	6,9 gRB 70 EF 160	V301410		PC70GB69V160EF
	6,9 gRB 70 EF 200			
	6,9 gRB 70 EF 250			
	6,9 gRB 70 EF 315			
	6,9 gRB 70 EF 350			
71	6,9 gRB 71 EF 125	Y301321	540	PC71GB69V125EF
	6,9 gRB 71 EF 160	Z301322		PC71GB69V160EF
	6,9 gRB 71 EF 200	A301323		PC71GB69V200EF
	6,9 gRB 71 EF 250	B301324		PC71GB69V250EF
	6,9 gRB 71 EF 315			
	6,9 gRB 71 EF 350	C301325		PC71GB69V350EF
	6,9 gRB 71 EF 400	D301326		PC71GB69V400EF
	6,9 gRB 71 EF 450	E301327		PC71GB69V450EF
	6,9 gRB 71 EF 500	G301858		PC71GB69V500EF
	6,9 gRB 71 EF 550			
72	6,9 gRB 72 EF 200	N301335	810	PC72GB69V200EF
	6,9 gRB 72 EF 250	P301336		PC72GB69V250EF
	6,9 gRB 72 EF 315	Q301337		PC72GB69V315EF
	6,9 gRB 72 EF 350			
	6,9 gRB 72 EF 400	R301338		PC72GB69V400EF
	6,9 gRB 72 EF 450			
	6,9 gRB 72 EF 500	S301339		PC72GB69V500EF
	6,9 gRB 72 EF 550	T301340		PC72GB69V550EF
	6,9 gRB 72 EF 630	V301341		PC72GB69V630EF
	6,9 gRB 72 EF 700			
73	6,9 gRB 73 EF 315	C301348	1150	PC73GB69V315EF
	6,9 gRB 73 EF 350			
	6,9 gRB 73 EF 400	D301349		PC73GB69V400EF
	6,9 gRB 73 EF 450	E301350		PC73GB69V450EF
	6,9 gRB 73 EF 500			
	6,9 gRB 73 EF 550	F301351		PC73GB69V550EF
	6,9 gRB 73 EF 630	G301352		PC73GB69V630EF
	6,9 gRB 73 EF 700	H301353		PC73GB69V700EF
	6,9 gRB 73 EF 800			
	6,9 gRB 73 EF 900			
	6,9 gRB 73 EF 1000			

Packaging: 3 pieces sizes 70 and 71 / 1 piece size 72 and 73

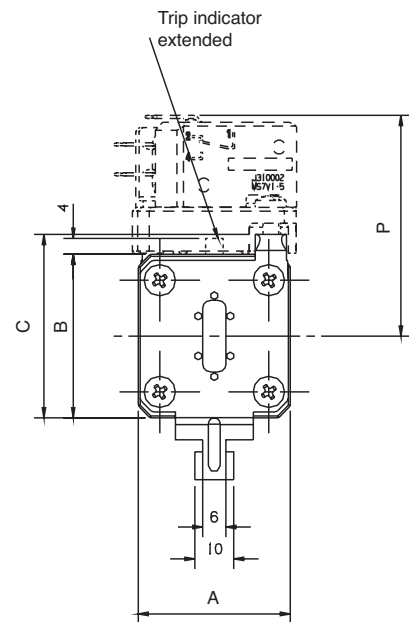
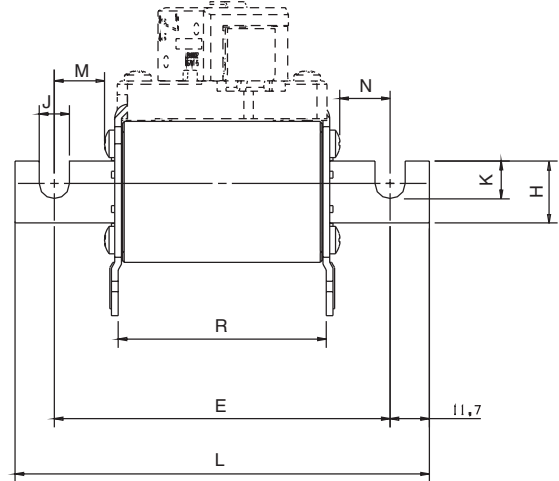
Microswitches: MS 7V 1-5
MS 7V 1-5 UR
MS 7V 1-5 BS
MS 7V 1-9 BS
MS 7V 1-5 ET



Réf.J310002
Réf.Z310039
Réf.K310003
Réf.P310007
Réf.S310010

Standard NO-NC
Standard NO-NC
Low level NO-NC
Double pole NO-NC-low level
Low level NO-NC-IP 50

Microswitches supplied separately



Size	A	B	C	E ^{±1,3}	H	J	K	L ^{±1,5}	M	N	P	R
70	39,8	41,8	46,5	100	18	9	11	123,4	28,2	28,2	77	68
	1.57"	1.65"	1.83"	3.94"	0.71"	0.35"	0.43"	4.86"	1.11"	1.11"	3.03"	2.68"
71	51	51	56,5	110	25	10,5	16	133,4	32,7	32,7	91	68
	2.00"	2.00"	2.22"	4.33"	0.98"	0.41"	0.63"	5.25"	1.29"	1.29"	3.58"	2.68"
72	60	60	65,5	114,4	32	13	21,2	149,4	40,7	40,7	100	68
	2.36"	2.36"	2.58"	4.50"	1.26"	0.51"	0.83"	5.88"	1.60"	1.60"	3.93"	2.68"
73	74,4	74,4	78,5	114,4	40	13	19,5	149,4	40,7	40,7	114,4	68
	2.93"	2.93"	3.09"	4.50"	1.58"	0.51"	0.77"	5.88"	1.60"	1.60"	4.50"	2.68"

Reinforced and longer knives available under designation ESF
Fuse holder solution, see Fuse gear section.



Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC German 70-73 End contacts

Size	Designation	Reference Number	Weight (g)	Catalog Number
70*	6,9 gRB 70 D11A 050		370	
	6,9 gRB 70 D11A 063			
	6,9 gRB 70 D11A 080			
	6,9 gRB 70 D11A 100	Q302027		PC70GB69V100D1A
	6,9 gRB 70 D11A 125			
	6,9 gRB 70 D11A 160	R301591		PC70GB69V160D1A
	6,9 gRB 70 D11A 200	S301592		PC70GB69V200D1A
	6,9 gRB 70 D11A 250	Z301943		PC70GB69V250D1A
	6,9 gRB 70 D11A 315	J301584		PC70GB69V315D1A
	6,9 gRB 70 D11A 350	W302124		PC70GB69V350D1A
	6,9 gRB 71 D11A 125	B302658		PC71GB69V125D1A
	6,9 gRB 71 D11A 160	C302659		PC71GB69V160D1A
71*	6,9 gRB 71 D11A 200	C302682	540	PC71GB69V200D1A
	6,9 gRB 71 D11A 250	R302143		PC71GB69V250D1A
	6,9 gRB 71 D11A 315			
	6,9 gRB 71 D11A 350	T302214		PC71GB69V350D1A
	6,9 gRB 71 D11A 400			
	6,9 gRB 71 D11A 450	R301637		PC71GB69V450D1A
	6,9 gRB 71 D11A 500	A301737		PC71GB69V500D1A
	6,9 gRB 72 D11A 200			
72**	6,9 gRB 72 D11A 250	T302697	800	
	6,9 gRB 72 D11A 315	V302698		
	6,9 gRB 72 D11A 350	E302500		PC72GB69V350D1A
	6,9 gRB 72 D11A 400	V302215		PC72GB69V400D1A
	6,9 gRB 72 D11A 450	Q302671		PC72GB69V450D1A
	6,9 gRB 72 D11A 500			
	6,9 gRB 72 D11A 550	L301724		PC72GB69V550D1A
	6,9 gRB 72 D11A 630			
	6,9 gRB 72 D11A 700			
	6,9 gRB 73 D11A 315			
73**	6,9 gRB 73 D11A 350		1150	
	6,9 gRB 73 D11A 400			
	6,9 gRB 73 D11A 450			
	6,9 gRB 73 D11A 500	W302216		PC73GB69V500D1A
	6,9 gRB 73 D11A 550	R302672		PC73GB69V550D1A
	6,9 gRB 73 D11A 630			
	6,9 gRB 73 D11A 700	F301765		PC73GB69V700D1A
	6,9 gRB 73 D11A 800			
	6,9 gRB 73 D11A 900			
	6,9 gRB 73 D11A 1000	S302673		PC73GB69V10CD1A

Packaging: *3 pieces

** 1 piece

Microswitches: MS 7V 1-5
MS 7V 1-5 UR
MS 7V 1-5 BS
MS 7V 1-9 BS
MS 7V 1-5 ET



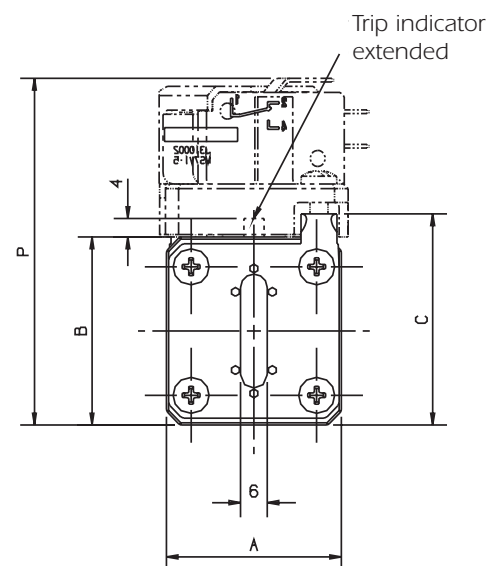
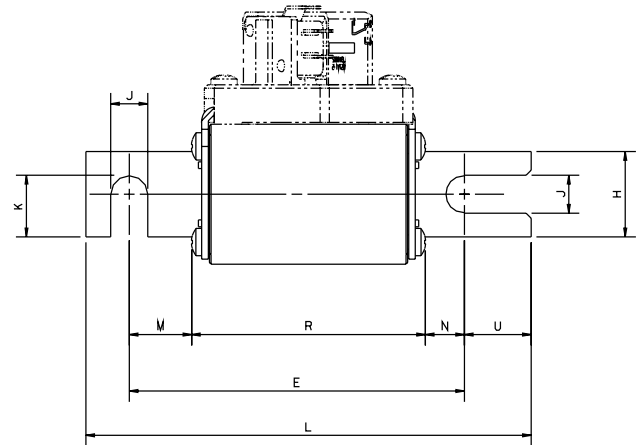
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Réf.P310007
Réf.S310010

Standard NO-NC
Standard NO-NC
Low level NO-NC
Double pole NO-NC-low level
Low level NO-NC-IP 50

Microswitches supplied separately

Size	A	B	C	E ^{1,3}	H	J	K	L	M	N	P	R
70	39,8	41,8	46,5	100,4	25	10,5	17,7	133,4	18,5	11,5	81,4	70,4
	1.57"	1.65"	1.83"	3.95"	0.98"	0.41"	0.70"	5.25"	0.73"	0.43"	3.20"	2.77"
71	51	51	56,5	100,4	25	10,5	17,7	133,4	18,5	11,5	91	70,4
	2.00"	2.00"	2.22"	3.95"	0.98"	0.41"	0.70"	5.25"	0.73"	0.45"	3.68"	2.77"
72	60	60	65,5	100,4	32	11,1	21,2	133,4	18,5	11,5	93,6	70,4
	2.36"	2.36"	2.58"	3.95"	1.26"	0.44"	0.83"	5.25"	0.73"	0.45"	3.69"	2.77"
73	74,4	74,4	78,5	100,4	40	10,5	25,2	133,4	18	11	114,4	70,4
	2.93"	2.93"	3.09"	3.95"	1.58"	0.41"	1.00"	5.25"	0.71"	0.43"	4.50"	2.77"

Fuse holder solution, see Fuse gear section.





Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC IEC Terminals 70-73 Plain Blades

Size	Designation	Reference Number	Weight (g)	Catalog Number
70*	6,9 gRB 70 PA 050	Q301245	340	PC70GB69V50PA
	6,9 gRB 70 PA 063	R301246		PC70GB69V63PA
	6,9 gRB 70 PA 080	S301247		PC70GB69V80PA
	6,9 gRB 70 PA 100	T301248		PC70GB69V100PA
	6,9 gRB 70 PA 125	T301179		PC70GB69V125PA
	6,9 gRB 70 PA 160	F301190		PC70GB69V160PA
	6,9 gRB 70 PA 200	S301178		PC70GB69V200PA
	6,9 gRB 70 PA 250	V301249		PC70GB69V250PA
	6,9 gRB 70 PA 315	W301250		PC70GB69V315PA
	6,9 gRB 70 PA 350	X301251		PC70GB69V350PA
	6,9 gRB 71 PA 125	Y301252	550	PC71GB69V125PA
71*	6,9 gRB 71 PA 160	Z301253		PC71GB69V160PA
	6,9 gRB 71 PA 200	A301254		PC71GB69V200PA
	6,9 gRB 71 PA 250	B301255		PC71GB69V250PA
	6,9 gRB 71 PA 315	R301177		PC71GB69V315PA
	6,9 gRB 71 PA 350	E301258		PC71GB69V350PA
	6,9 gRB 71 PA 400	V301226		PC71GB69V400PA
	6,9 gRB 71 PA 450	C301256		PC71GB69V450PA
	6,9 gRB 71 PA 500	D301257		PC71GB69V500PA
72*	6,9 gRB 72 PA 200	F301259	820	PC72GB69V200PA
	6,9 gRB 72 PA 250	G301260		PC72GB69V250PA
	6,9 gRB 72 PA 315	H301261		PC72GB69V315PA
	6,9 gRB 72 PA 350	J301262		PC72GB69V350PA
	6,9 gRB 72 PA 400	K301263		PC72GB69V400PA
	6,9 gRB 72 PA 450	L301264		PC72GB69V450PA
	6,9 gRB 72 PA 500	M301265		PC72GB69V500PA
	6,9 gRB 72 PA 550	N301266		PC72GB69V550PA
	6,9 gRB 72 PA 630	P301267		PC72GB69V630PA
	6,9 gRB 72 PA 700	Q301268		PC72GB69V700PA
73**	6,9 gRB 73 PA 315	R301269	1120	PC73GB69V315PA
	6,9 gRB 73 PA 350	S301270		PC73GB69V350PA
	6,9 gRB 73 PA 400	T301271		PC73GB69V400PA
	6,9 gRB 73 PA 450	V301272		PC73GB69V450PA
	6,9 gRB 73 PA 500	W301273		PC73GB69V500PA
	6,9 gRB 73 PA 550	N301404		PC73GB69V550PA
	6,9 gRB 73 PA 630	X301274		PC73GB69V630PA
	6,9 gRB 73 PA 700	Y301275		PC73GB69V700PA
	6,9 gRB 73 PA 800	Z301276		PC73GB69V800PA
	6,9 gRB 73 PA 900	A301277		PC73GB69V900PA
	6,9 gRB 73 PA 1000	B301278		PC73GB69V1000PA

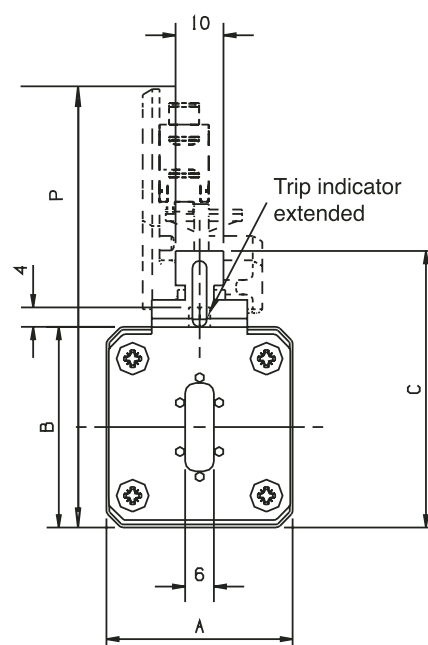
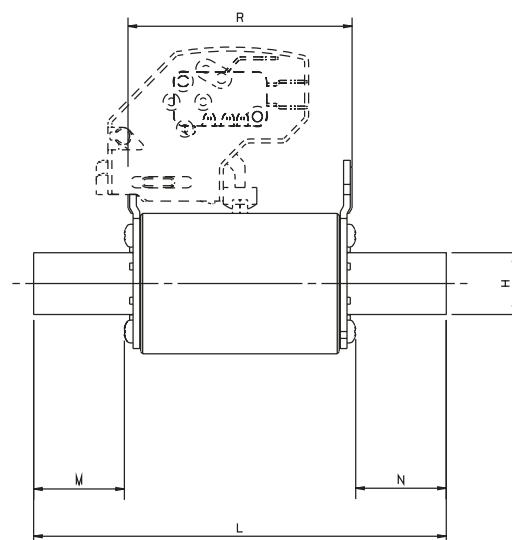
Packaging: *3 pieces - ** 1 piece

Size Fuses	Microswitches		
70	MS PA 2-5T70	Réf.T210398	OF Standard
	MS PA 2-9T70	Réf.V210399	Double OF side by side
	MS PA 2-5 B2T70	Réf.W210400	OF Terminals 2.8 mm
71-72-73	MS PA 2-5	Réf.H210158	OF Standard
	MS PA 2-9V	Réf.J210159	Double OF side by side
	MS PA 2-5 B2	Réf.C210160	OF Terminals 2.8 mm

Microswitches supplied separately

Size	A	B	C	H	L ^{±1.5}	M	N	P	R
70	39,8	41,8	57	18	123,4	26,2	26,2	90	67
	1.57"	1.65"	2.24"	0.71"	4.86"	1.03"	1.03"	3.54"	2.64"
71	51	51	63	25	133,4	26,2	26,2	96	68
	2.00"	2.00"	2.48"	0.98"	5.25"	1.03"	1.03"	3.79"	2.68"
72	60	60	72	32	149,4	39,2	39,2	105	68
	2.36"	2.36"	2.84"	1.26"	5.88"	1.54"	1.54"	4.15"	2.68"
73	74,4	74,4	87,5	40	149,4	39,2	39,2	121	68
	2.93"	2.93"	3.45"	1.58"	5.88"	1.54"	1.54"	4.76"	2.68"

180° position trip indicator available under PV designation but no microswitch possible Fuse holder solution, see Gear and Fuse gear section

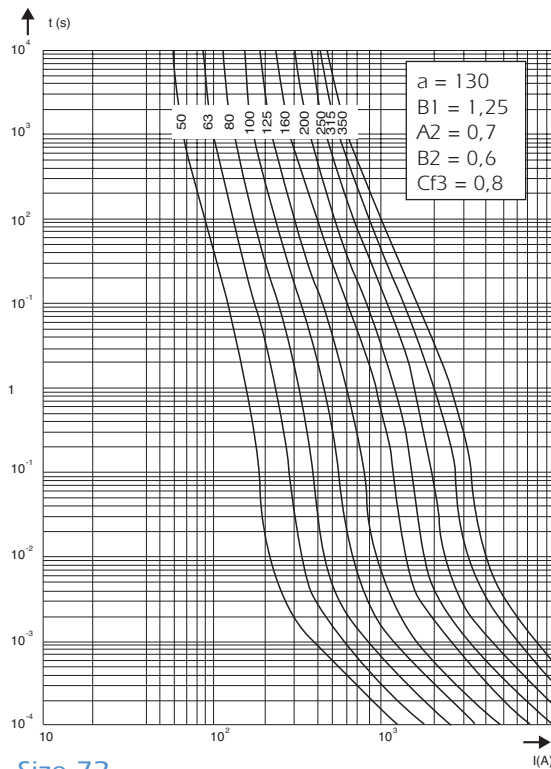




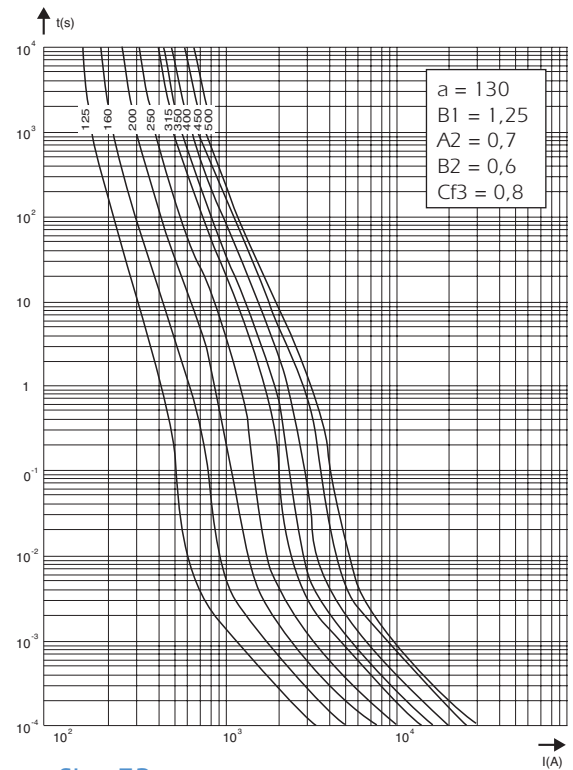
Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Curves set

Times/Current Characteristics

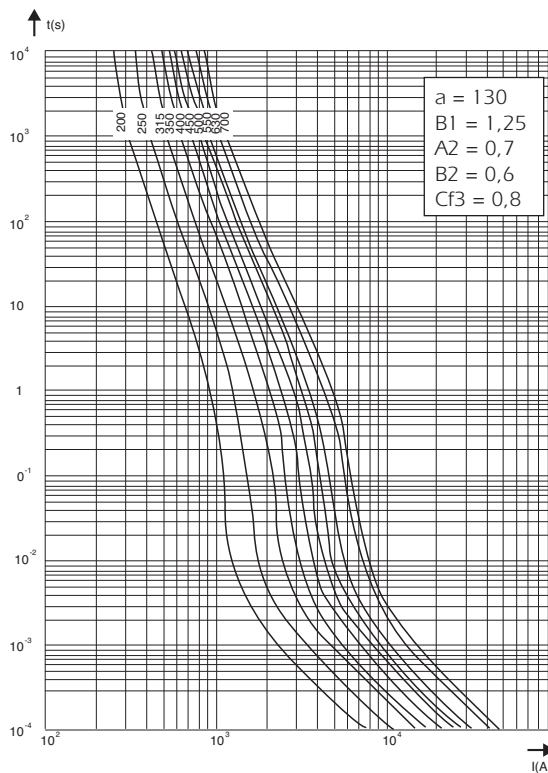
Size 70



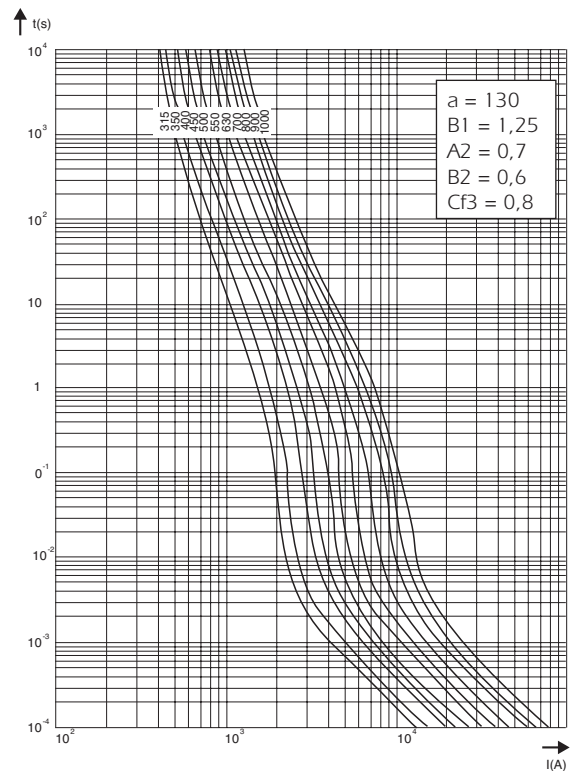
Size 71



Size 72



Size 73

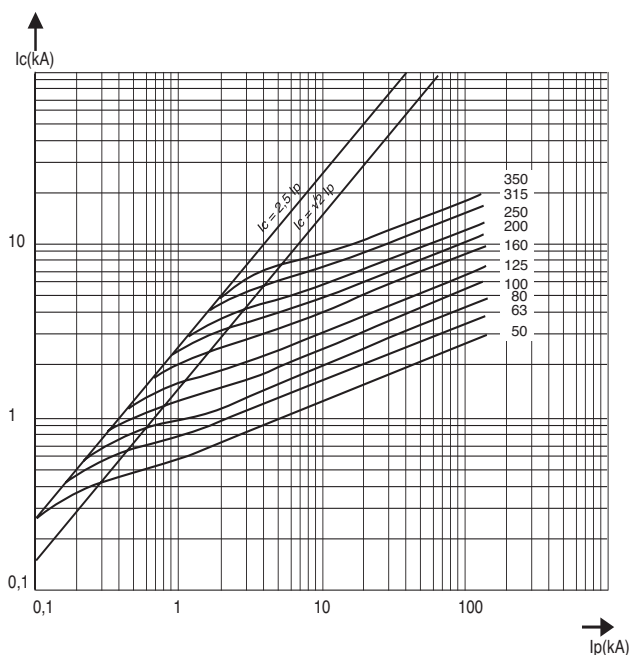




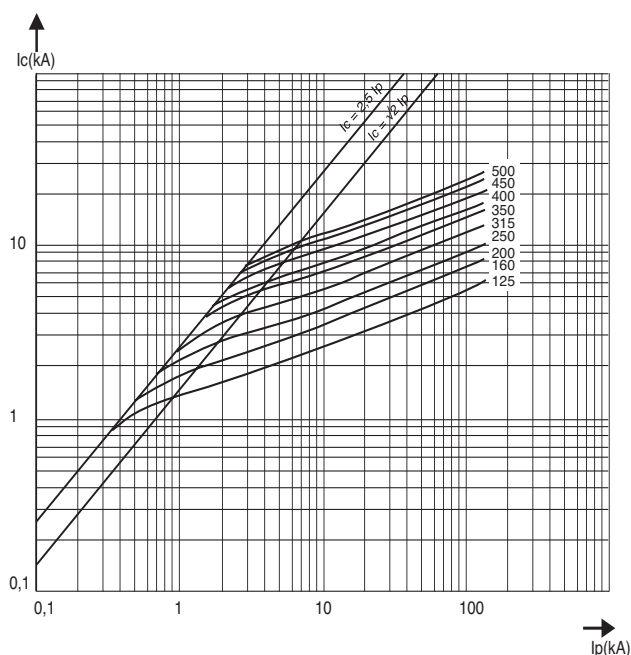
Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Curves set

Cut off characteristics Peak let thru current

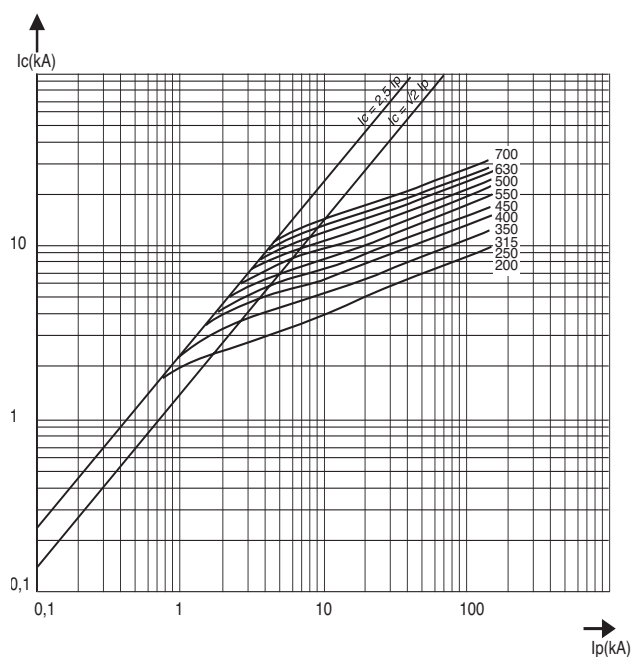
Size 70



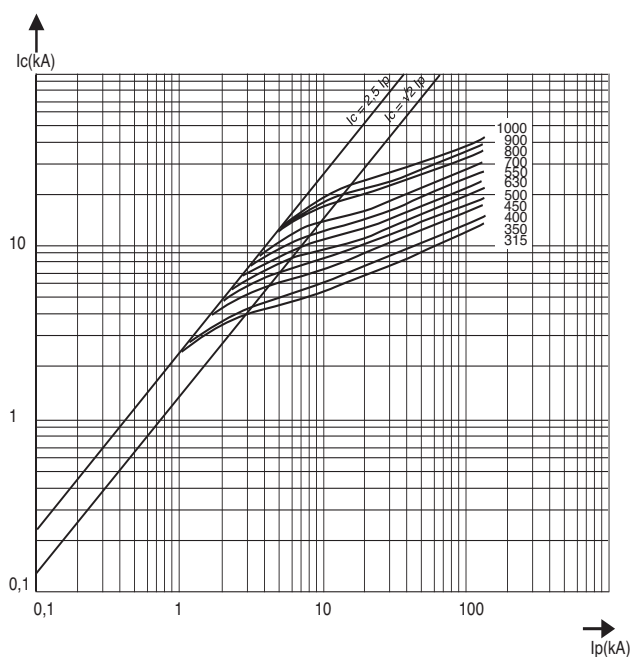
Size 71



Size 72



Size 73

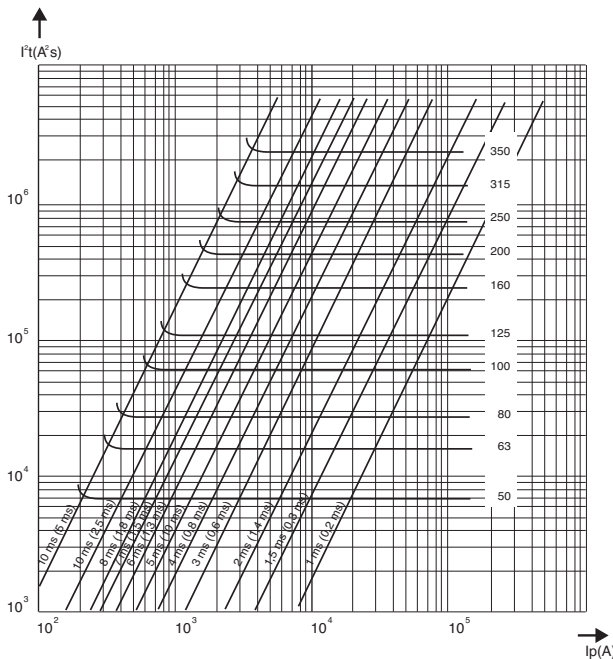




Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Curves set

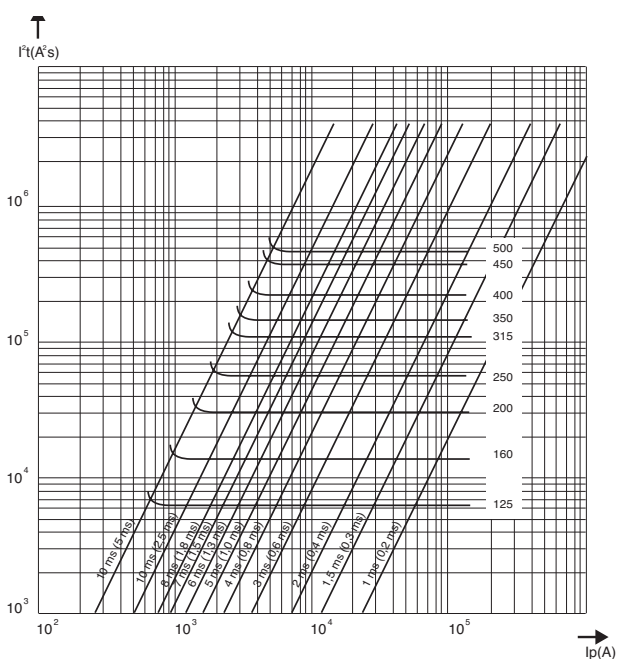
Total I^2t and total operating time @ 690 V

Size 70

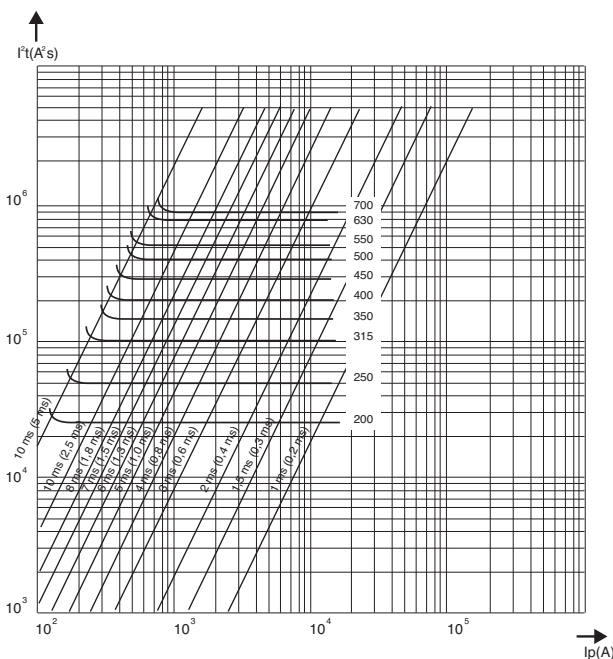


Value between parentheses pertain to prearcing I^2t

Size 71

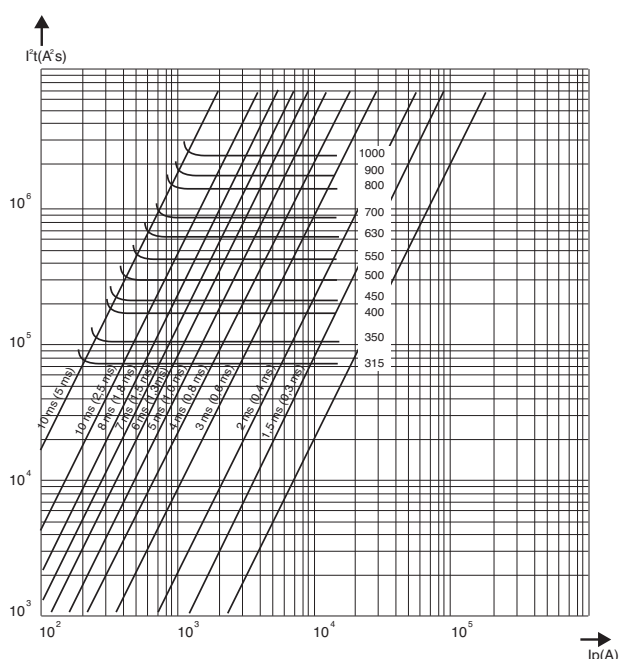


Size 72



Value between parentheses pertain to prearcing I^2t

Size 73

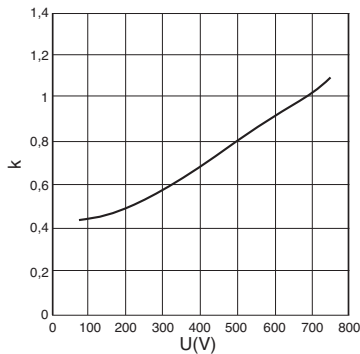


Semiconductor (AC) fuses

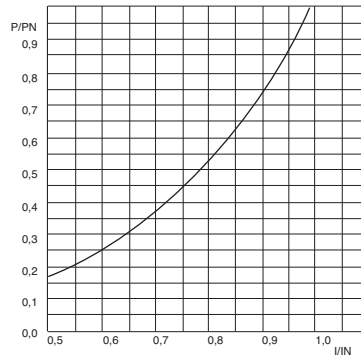


Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Curves set

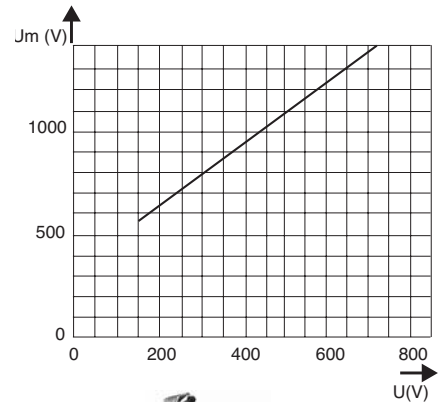
$k=f(U)$
Multiplier coefficient
to calculate total I^2t
and total operating time



P/PN
Multiplier coefficient
to calculate the power
losses at various currents



Peak arc voltage



PA terminals fuse holder

Size	1 pole	2 poles	3 poles	4 poles	wall	separators	fuse shields
70	T218241	G218759	W219278	H222486	Z213669	V216724	K200822
71	A223008	G200796	Y201340	H201855	J214690	N217753	M222513
72	E211075	V211595	D212109	R212627	J214690	N217753	Y211621
73	X213644	B214154	F214664	K215174	Q215708	M218787	X212655



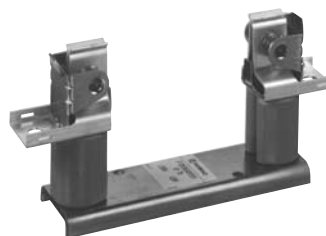
End contacts TTF terminal fuse holders

Size	1 pole
70/71	C301233
72/73	E301235



French blades EF terminal fuse holders

Size	SP/SE/SF
70	F096099
71	V098711
72	W098712
73	C209187



Din blades 110 mm DI N 43653 terminal fuse holders

Size	Fuses holders
70/71/72/73	L091941



Warning: for all holders, please check maximum fuse and fuse holders operating limit. in Gear and Fuse gear section
Tightning torque see Gear and Fuse gear section.



Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Microswitches PSC 3x & 7x

- MICROSWITCH SYSTEMS ADAPTED
TO THE FOLLOWING FERRAZ SHAWMUT FUSES ONLY:
- PSC sizes 30, 31, 32, 33, 2x32, 2x33 / 70, 71, 72, 73, 272, 273
except plain blades
- PSC LR sizes 33, 233, 73, 273
- PERMANENT INDICATION OF FUSE STATE: CONDUCTIVE
BLOWN
- MANUAL RESETTING
- STANDARD AND LOW ELECTRICAL LEVEL WITH DIFFERENT INSULATION LEVELS
- BS TYPE FOR USE IN CORROSIVE ATMOSPHERE
- MS 3V 1-5 UR AND MS 7V 1-5 UR TYPE UL ARE RECOGNIZED



MS 7V 1-5

Main Characteristics

Code	AC Insulation voltage rating (***)	Positive operating voltage/current	Current rating	Current	Breaking Capacity						AC voltage withstand test (*)	Impulse voltage test Uimp1.2/50 μs (**)	Fire class according to UL 94
					Non inductive circuit			Inductive circuit : L/R = 25ms					
					30V	110V	250V	30V	110V	250V			
MS 3V 1-5	1000 V	20 V 50 mA	10 A	50/60 Hz	10 A	10 A	10 A	10 A	10 A	10 A	8,5 kV	14 kV	H.B
MS 3V 1-5 UR				DC	8 A	0,4 A	0,2 A	4 A	0,2 A	0,1 A	12 kV	20 kV	
MS 7V 1-5	1500V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 7V 1-5 UR				DC	3 A	0,5 A	0,25 A	3 A	0,2 A	0,1 A	12 kV	20 kV	
MS 3V 1-5 BS	1000 V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 3V 1-9 BS				DC	3 A	0,5 A	0,25 A	3 A	0,2 A	0,1 A	12 kV	20 kV	
MS 7V 1-5 BS	1500V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 7V 1-9 BS				DC	3 A	0,5 A	-	2 A	0,2 A	-	12 kV	20 kV	

* 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

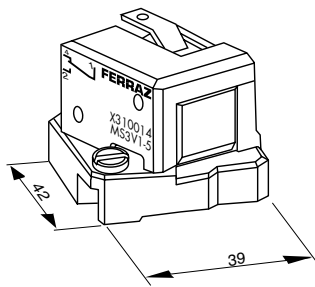
Warning: microswitch systems exclusively designed for FERRAZ SHAWMUT.
PSC Fuses fitted a petented trip-indicator, saving use of EDV



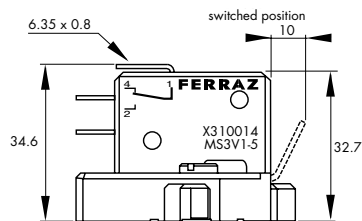
Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Microswitches for PSC 3x & 7x

Indication systems for PSC Fuse sizes 30 to 73 MS 3V...

These patented indication systems are exclusively hand resettable.



(fig. 1)

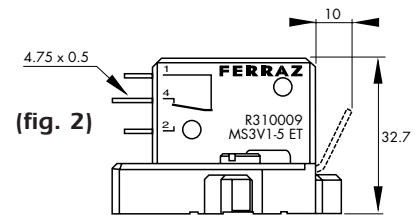


Fuse size	Designation	Ref. Number	Indication style	Weight (g)	Pack.	Catalog Number
30, 31 32, 33	MS 3V 1-5 (fig.1)	X310014	Standard NO-NC	34	3 pieces	MS3 V1-5
	MS 3V 1-5 UR	Y310038				MS3 V1-5UR
	MS 3V 1-5 BS (3)	W310013	Low level NO-NC	34	3 pieces	MS3-V1-5BS
	MS 3V 1-9 BS (4)	T310011	Double pole Low level	44	3 pieces	MS3V1-9BS
	MS 3V 1-5 ET (fig.2)	R310009	Low level NO-NC IP 50 (9)	34	3 pieces	MS3V1-5 ETANCHE

(3) Same as fig.1

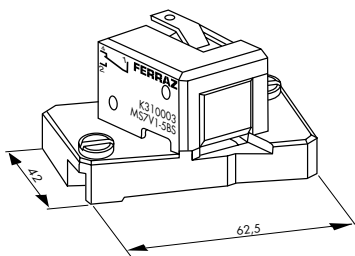
(4) Same dimensions as figure 1 but with 2 microswitches side by side

(9) Watertightness class

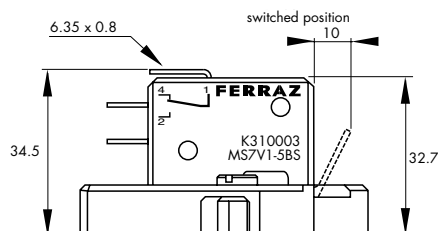


(fig. 2)

MS 7V...



(fig. 5)



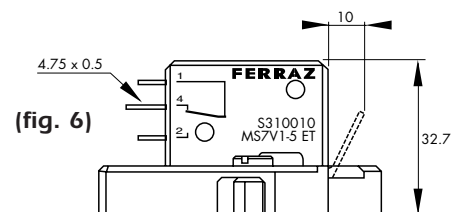
Fuse size	Designation	Ref. Number	Indication style	Weight (g)	Pack.	Catalog Number
70, 71 72, 73	MS 7V 1-5 (fig.5)	J310002	Standard NO-NC	45	3 pieces	MS7 V1-5
	MS 7V 1-5 UR	Z310039				MS7 V1-5UR
	MS 7V 1-5 BS (3)	K310003	Low level NO-NC	45	3 pieces	MS7-V1-5BS
	MS 7V 1-9 BS (4)	P310007	Double pole Low level	55	3 pieces	MS7V1-9BS
	MS 7V 1-5 ET (fig.6)	S310010	Low level NO-NC IP 50 (9)	55	3 pieces	MS7V1-5 ETANCHE

(7) Same as fig. 5

(8) Same dimensions as figure 5 but with 2 microswitches side by side

(9) Watertightness class

Warning: Microswitch systems exclusively designed for FERRAZ SHAWMUT PSC fuses fitted with a patented trip-indicator, saving use of EDV.



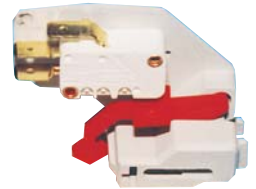
(fig. 6)

Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Microswitches for PSC 70-73 Plain blades

MICROSWITCH SYSTEMS ADAPTED TO THE FOLLOWING FERRAZ SHAWMUT
FUSES ONLY:

PSC sizes 70, 71, 72, 73 PLAIN BLADES (PA)

MS PA 2-5



Main Characteristics

Code	AC Insulation voltage rating (***)	Positive operating voltage/current	Current rating	Current	Breaking Capacity						AC voltage withstand test (*)	Impulse voltage test Uimp1.2/50 µs (**)	Fire class according to UL 94
					Non inductive circuit			Inductive circuit : L/R = 25ms					
					30V	110V	250V	30V	110V	250V			
MS PA 2-5	1500 V	20 V	10 A	50/60 Hz	10 A	10 A	10 A	10 A	10 A	10 A	9 kV	13 kV	V0
MS PA 2-9		50 mA		DC	8 A	0,4 A	0,2 A	4 A	0,2 A	0,1 A			
MS PA 2-5 B2	1500 V	20 V/100 mA	5 A	50 Hz	4 A	4 A	5 A	-	5 A	5 A	12 kV	16 kV	V0

* 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

Exclusive "MS PA" indication systems are automatically resettable

MS PA...

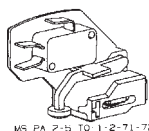
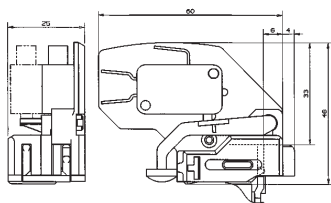


Fig.7

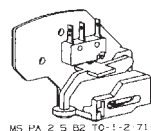


Fig.8

Fuse size	Code	Ref. Number	Indication style	Weight (g)	Pack.	Catalog Number
71-72-73	MS PA 2-5	H210158	OF Standard (fig. 7)	32,5	1	MSPA 2-5
	MS PA 2-9V	J210159	Double (fig.7) OF side by side	39,5	1	MSPA 2-9
	MS PA 2-5 B2	C210360	OF Terminals 2,8 (fig. 8)	27	1	MSPA 2-5B2
70	MS PA 2-5	T210398	OF Standard (fig.7)	31	1	MSPA 2-5T70
	MS PA 2-9	V210399	Double (fig.7) OF side by side	37	1	MSPA 2-9T70
	MS PA 2-5 B2	W210400	OF Terminals 2,8 (fig.8)	27	1	MSPA 2-5B2T70

Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC gR sizes 7x - 690 VAC Metric-studs

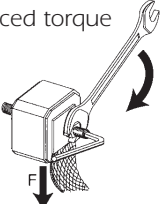
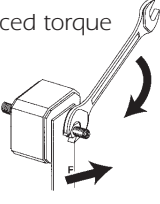
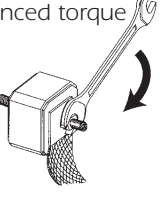
Metric studs for threaded terminal fuses



Type and fuse size	Designation	Ref. Number	Unit weight (g)	Pack.	Catalog Number
 Sizes 0 and 1 Size 2 Size 3	HC stud pair M8x30 & M8x35	S098801	23	6 pairs	STU M8x30 M8x35
	HC stud pair M10x30 & M10x50	T098802	40	6 pairs	STU M10x30 M10x50
	HC stud pair M12x35 & M12x50	V098803	60	6 pairs	STU M12x35 M12x50
 Size 2 Size 3	HC stud pair M10x50	W098804	45	6 pairs	STU M10x50
	HC stud pair M12x50	X098805	45	6 pairs	STU M12x50

We recommend the use of studs, whose quality is suited to all FERRAZ SHAWMUT square-body fuses with terminals

Stud mounting

Torque type	Stud type	Maximum stud tightning torque (Nm) (1)	Maximum nut tightning torque (Nm) (1)
Balanced torque 	M8x30 & M8x35 M10x30 & M10x50 M12x35 & M12x50	10 15 15	13.5 26 46
Balanced torque 	M8x30 & M8x35 M10x30 & M10x50 M12x35 & M12x50	10 15 15	13.5 26 46
Unbalanced torque 	M8x30 & M8x35 M10x30 & M10x50 M12x35 & M12x50	10 15 15	13.5 26 46

(1) Factory limit on torque at 20°C ambient: +0, -2Nm; except on 46Nm value (+0, -4Nm)



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Main characteristics

 Recognized

650 to 1300VAC / 63 to 2800A.

- Exceptionally low I^2T , Watt losses.
- Non-magnetic construction, highly reliable low voltage.
- Indicator system.
- Conformity to UL, CSA investigated, IEC, DIN and VDE standards.
- Increased technical performance
- Higher ratings.
- Reduction in volume and weight.
- This fuse preselection table indicates, for each size:
 - rated current (or rating) I_n
 - pre-arcing I^2t (I^2t_p) at 1 ms
 - total operating I^2t (I^2t_t) at 1000 V and 850V(1)f=50Hz, $\cos \varphi = 0.15$, and for a total operating time from 8 to 10 ms
 - dissipated power P_n at the rated current I_n , and at 0.8 I_n , in steady state
 - breaking capacity at various voltages, checked by tests made in accordance with IEC and American standards.



Estimated breaking capacity: 300 kA

PSC 650 to 1300VAC US and European standard

Size	Nominal Voltage U_N (VAC)		Ampere Rating (A)	Pre-arcing I^2t @ 1ms (kA 2 s)	Total I^2t @ 1000V (*) @ U_n (kA 2 s)	Power (W)		Tested Breaking capacity	
	IEC	UL				End contacts	Blades	IEC	USA
70	1250	1300	50	0,116	0,7	16	16	100kA @ 1250V	100kA @ 1300V
			63	0,210	1,2	26	26		
			80	0,470	2,7	27	27		
			100	0,830	4,8	30	30		
			125	1,30	7,5	38	38		
			160	2,55	15	45	45		
	1200	1300	200	4,7	27	54	56	100kA @ 1200V	100kA @ 1300V
			250	9,6	55	58	61		
			280	14	82	61	64		
			315	20	115	66	72		
			350	28	158	68	75		
			400	39	224	81	90		
71	1100	1200	450	62	356	82	82	150kA @ 1100V	150kA @ 1200V
			500	84	483	83	83		
			550	128	576(*)	83	83		
			630	176	730(*)	91	91		
			1000	84	483	83	83		
			800	900	550	576(*)	83		
	1000	1100	750	800	630	730(*)	91	100kA @ 1000V	120kA @ 1100V
			160	2,6	15	46	46		
			200	4,7	27	54	54		
			250	8,9	51	61	61		
			280	12	68	68	70		
			315	16	92	73	76		
71	1250	1300	350	22	127	76	80	100kA @ 1250V	100kA @ 1300V
			400	38	220	76	80		
			450	47	270	87	95		
			500	68	390	90	X		
			550	84	485	98	112		
			630	125	725	105	X		
	1100	1200	630	125	725	X	120	150kA @ 1100V	150kA @ 1200V
			700	180	1040	105	105		
			800	290	1540(*)	116	116		
			900	446	2010(*)	120	120		
			1000	84	485	98	112		
			1100	1200	1500	1500	1500		
71	1000	1100	1200	1300	1500	1500	1500	150kA @ 1000V	150kA @ 1100V
			1300	1400	1600	1600	1600		
			1400	1500	1700	1700	1700		
			1500	1600	1800	1800	1800		
			1600	1700	1900	1900	1900		
			1700	1800	2000	2000	2000		
	900	950	1800	1900	2100	2100	2100	100kA @ 900V	100kA @ 950V
			1900	2000	2200	2200	2200		
			2000	2100	2300	2300	2300		
			2100	2200	2400	2400	2400		
			2200	2300	2500	2500	2500		
			2300	2400	2600	2600	2600		
71	800	850	2400	2500	2700	2700	2700	100kA @ 800V	100kA @ 850V
			2500	2600	2800	2800	2800		
			2600	2700	2900	2900	2900		
			2700	2800	3000	3000	3000		
			2800	2900	3100	3100	3100		
			2900	3000	3200	3200	3200		

(1) at 850 V

(2) does not exist with blades



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Main characteristics

PSC 650 to 1300VAC US and European standard

Size	Nominal Voltage U _N (VAC)		Ampere Rating (A)	Pre-arcing I _{pt} @ 1ms (kA _{2s})	Total I _{pt} @ 1000V (*) @ U _N (kA _{2s})	Power (W)		Tested Breaking capacity Estimated B.C 300 kA	
	IEC	UL				End contacts	Blades	IEC	USA
72	1250	1300	280	10	60	72	72	100kA @ 1250V	100kA @ 1300V
			315	15	87	76	76		
			350	21	120	77	77		
			400	32,5	190	80	80		
			450	44	255	87	89		
			500	57	330	94	98		
	1100	1200	550	68	390	110	120	150kA @ 1100V	150kA @ 1200V
			630	105	610	113	X		
			630	105	610	X	125		
			700	145	815	122	140		
			800	215	1240	125	146		
			800	215	1240	X	140		
1000	1100	900	312	1800	X	146	150kA @ 1000V	150kA @ 1100V	
					130	152			
850	900	1000	439	2150(*)	136	136	100kA @ 850V	100kA @ 900V	
73	1250	1300	315	12	68	84	84	100kA @ 1250V	100kA @ 1300V
			350	17	100	86	86		
			375	19	110				
			400	25	145	93	93		
			450	35,5	205	99	100		
			500	44	255	110	112		
			550	57	330	116	120		
			630	84	485	125	132		
			700	110	640	135	X		
			800	190	1090	136	X		
	1200	1300	700	110	640	X	146	100kA @ 1200V	100kA @ 1300V
			900	250	1090	150	X		
	1100	1200	800	190	1090	X	148	150kA @ 1100V	150kA @ 1200V
			900	250	1440	X	170	150kA @ 1000V	150kA @ 1100V
	1000	1100	1000	370	2130	152	168	150kA @ 900V	150kA @ 1000V
			1100	445	2555	168	208		
	950	1000	1100	445	2430(*)	168	X	150kA @ 950V	150kA @ 1000V
			1000	370	1920(*)	X	174	150kA @ 900V	150kA @ 1000V
	900	1000	1100	445	2280(*)	X	208		
			1250	585	3080(*)	186	X		
850	900	1400	755	4100(*)	210	X	150kA @ 850V	150kA @ 900V	
		1400	755	3700(*)	210	X			
690	700	1500	1180	4750(*)	200	X	180kA @ 690V	180kA @ 700V	
		1600	1430	5740(*)	203	X	120kA @ 600V	120kA @ 650V	
600	650	1800	2040	7150(*)	206	X			
2 x 72	1250	1300	630	60	348	160		100kA @ 1250V	
			700	84	480	162			
			800	130	760	168			
			900	176	1020	183			
			1000	228	1320	197			
			1100	272	1560	231			
			1250	426	2440	237		100kA @ 1100V	
			1400	568	3260	256			
			1600	860	4895	262		100kA @ 1000V	
			1800	1250	6350(*)	275		100kA @ 900V	
2 x 73	1100	1200	2000	1760	7570(*)	285		100kA @ 750V	
			2200	2410	8350(*)	320			
			2500	3470	12000(*)	340		100kA @ 650V	
			800	100	580	195		100kA@ 1250V	
			900	142	820	208			
			1000	176	1000	231			
			1100	228	1300	244			
			1250	336	1900	262			
			1400	440	2600	283		100kA @ 1100V	
					1600	760	4400		
1800	1000	5800	315						
2000	1480	8500	319		120kA @ 1000V				
2200	1780	9632(*)	353		100kA @ 950V				
2500	2340	12075(*)	390		110kA @ 900V				
2800	3000	15000(*)	440		100kA @ 850V				
3000	4980	15700(*)	405		200kA @ 600V				
3200	5720	19030(*)	426						
3600	8160	25200(*)	430		200kA @ 550V				



Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC American Terminals - 70 - 73 End contacts

Size	Designation				Reference Number	Weight (g)	Packaging	Catalog Number
70	A130URD	70	TTI	0063	Q301015	350	3	A130UD70TTI63
	A130URD	70	TTI	0080	R301016			A130UD70TTI80
	A130URD	70	TTI	0100	S301017			A130UD70TTI100
	A130URD	70	TTI	0125	T301018			A130UD70TTI125
	A130URD	70	TTI	0160	V301019			A130UD70TTI160
	A130URD	70	TTI	0200	W301020			A130UD70TTI200
	A130URD	70	TTI	0250	X301021			A130UD70TTI250
	A130URD	70	TTI	0280	Y301022			A130UD70TTI280
	A130URD	70	TTI	0315	Z301023			A130UD70TTI315
	A120URD	70	TTI	0350	A301024			A120UD70TTI350
71	A130URD	71	TTI	0160	B301025	500	3	A130UD71TTI160
	A130URD	71	TTI	0200	C301026			A130UD71TTI200
	A130URD	71	TTI	0250	D301027			A130UD71TTI250
	A130URD	71	TTI	0280	E301028			A130UD71TTI280
	A130URD	71	TTI	0315	F301029			A130UD71TTI315
	A130URD	71	TTI	0350	G301030			A130UD71TTI350
	A130URD	71	TTI	0400	H301031			A130UD71TTI400
	A130URD	71	TTI	0450	J301032			A130UD71TTI450
	A130URD	71	TTI	0500	K301033			A130UD71TTI500
	A120URD	71	TTI	0550	L301034			A120UD71TTI550
72	A120URD	71	TTI	0630	M301035	850	3	A120UD71TTI630
	A130URD	72	TTI	0280	N301036			A130UD72TTI280
	A130URD	72	TTI	0315	P301037			A130UD72TTI315
	A130URD	72	TTI	0350	Q301038			A130UD72TTI350
	A130URD	72	TTI	0400	R301039			A130UD72TTI400
	A130URD	72	TTI	0450	S301040			A130UD72TTI450
	A130URD	72	TTI	0500	T301041			A130UD72TTI500
	A130URD	72	TTI	0550	V301042			A130UD72TTI550
	A130URD	72	TTI	0630	W301043			A130UD72TTI630
	A120URD	72	TTI	0700	X301044			A120UD72TTI700
73	A120URD	72	TTI	0800	Y301045	1250	3	A120UD72TTI800
	A130URD	73	TTI	0315	Z301046			A130UD73TTI315
	A130URD	73	TTI	0350	A301047			A130UD73TTI350
	A130URD	73	TTI	0400	B301048			A130UD73TTI400
	A130URD	73	TTI	0450	C301049			A130UD73TTI450
	A130URD	73	TTI	0500	D301050			A130UD73TTI500
	A130URD	73	TTI	0550	E301051			A130UD73TTI550
	A130URD	73	TTI	0630	F301052			A130UD73TTI630
	A130URD	73	TTI	0700	G301053			A130UD73TTI700
	A130URD	73	TTI	0800	H301054			A130UD73TTI800
	A130URD	73	TTI	0900 **	J301055			A130UD73TTI900
	A110URD	73	TTI	1000 **	K301056			A110UD73TTI1000
	A100URD	73	TTI	1100 **	L301057			A100UD73TTI1100
	A100URD	73	TTI	1250 **	M301058			A100UD73TTI1250
	A090URD	73	TTI	1400 **	N301059			A090UD73TTI1400
	A070URD	73	TTI	1600 **	Q300877			A070UD73TTI1600
	A065URD	73	TTI	1800 **	R300878			A065UD73TTI1800

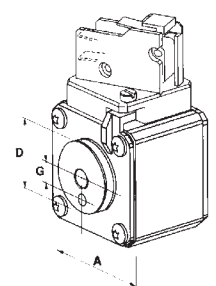
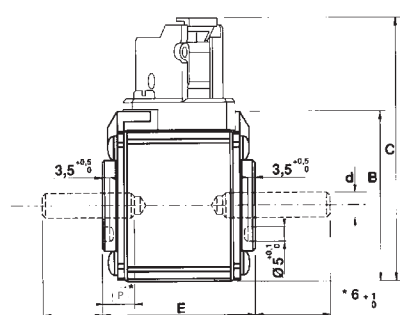
Size	A	B	C	D	E±1	d	G±0.1	P±0.1
70	40 1-9/16"	46,5 1-27/32"	82 3-7/32"	26 1-1/64"	74 2-29/32"	5/16"-18	9 23/64"	6 15/64"
71	51 2"	56,5 2-7/32"	91 3-37/64"	30 1-3/16"	74 2-29/32"	5/16"-18	9 23/64"	9 23/64"
72	60 2-3/8"	65,5 2-37/64"	100 3-15/16"	38 ; (42mm **) 1-1/2" ; (1-21/32" **)	74 2-29/32"	3/8"-16	15 19/32"	9 23/64"
73	74,5 2-15/16"	79,5 3-1/8"	114 4-1/2"	46 ; (52mm **) 1-13/16" ; (2-1/16" **)	74 2-29/32"	1/2"-13	15 19/32"	9 23/64"

Note:

Dimensions in mm

Dimensions in inches

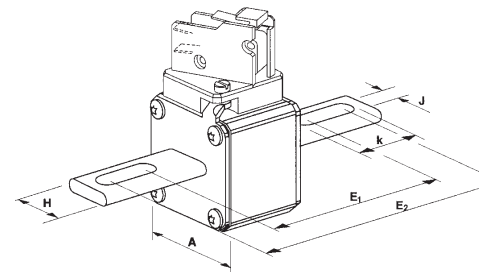
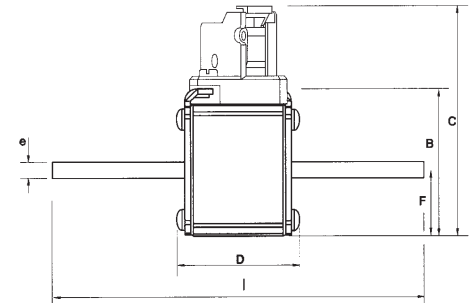
Microswitches and threaded studs supplied separately





Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC American Terminals - 70 - 73 Blades

Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
70	A 130 URD 70 LI 0050	-	380	3	-
	A 130 URD 70 LI 0063	W300652			A130UD70LI063
	A 130 URD 70 LI 0080	X300653			A130UD70LI080
	A 130 URD 70 LI 0100	Y300654			A130UD70LI100
	A 130 URD 70 LI 0125	Z300655			A130UD70LI125
	A 130 URD 70 LI 0160	A300656			A130UD70LI160
	A 130 URD 70 LI 0200	B300657			A130UD70LI200
	A 130 URD 70 LI 0250	C300658			A130UD70LI250
	A 130 URD 70 LI 0280	Q300716			A130UD70LI280
	A 130 URD 70 LI 0315	D300659			A130UD70LI315
	A 120 URD 70 LI 0350	E300660			A120UD70LI350
71	A 130 URD 71 LI0160	E300752	630	3	A130UD71LI160
	A 130 URD 71 LI0200	F300661			A130UD71LI200
	A 130 URD 71 LI0250	G300662			A130UD71LI250
	A 130 URD 71 LI0280	R300717			A130UD71LI280
	A 130 URD 71 LI0315	H300663			A130UD71LI315
	A 130 URD 71 LI0350	J300664			A130UD71LI350
	A 130 URD 71 LI0400	K300665			A130UD71LI400
	A 130 URD 71 LI0450	L300666			A130UD71LI450
	A 120 URD 71 LI0500	M300667			A120UD71LI500
	A 120 URD 71 LI0550	N300668			A120UD71LI550
	A 110 URD 71 LI0630	P300669			A110UD71LI630
	A 130 URD 72 LI 0280	Q300670	860	3	A130UD72LI280
72	A 130 URD 72 LI 0315	R300671			A130UD72LI315
	A 130 URD 72 LI 0350	S300672			A130UD72LI350
	A 130 URD 72 LI 0400	T300673			A130UD72LI400
	A 130 URD 72 LI 0450	V300674			A130UD72LI450
	A 130 URD 72 LI 0500	W300675			A120UD72LI500
	A 130 URD 72 LI 0550	X300676			A130UD72LI550
	A 120 URD 72 LI 0630	Y300677			A120UD72LI630
	A 110 URD 72 LI 0700	Z300678			A110UD72LI700
	A 110 URD 72 LI 0800	A300679			A110UD72LI800
	A 130 URD 73 LI 0315	B300680	1250	1-3	A130UD73LI315
73	A 130 URD 73 LI 0350	C300681			A130UD73LI350
	A 130 URD 73 LI 0400	D300682			A130UD73LI400
	A 130 URD 73 LI 0450	E300683			A130UD73LI450
	A 130 URD 73 LI 0500	F300684			A120UD73LI500
	A 130 URD 73 LI 0550	G300685			A130UD73LI550
	A 130 URD 73 LI 0630	H300686			A130UD73LI630
	A 130 URD 73 LI 0700	J300687			A130UD73LI700
	A 120 URD 73 LI 0800	K300688			A120UD73LI800
	A 110 URD 73 LI 0900	L300689			A110UD73LI900
	A 100 URD 73 LI 1000	M300690			A100UD73LI1000
	A 100 URD 73 LI 1100	N300691			A100UD73LI1100
	A 100 URD 73 LI 1250	J301193			A100UD73LI1250
	A 90 URD 73 LI 1400	K301194			A90UD73LI1400



Rated voltage 900 V to 1300 V as per American standard.

Microswitches supplied separately

Size	A	B	C	D	E1±1,3	E2±1,3	F	H	J	k	L±1,5	e
70	40	46,5	82	71	91,4	130,4	21	25	10,5	30	152,4	6
	1-9/16"	1-27/32"	3-7/32"	2-5/32"	3-13/32"	5-1/8"	53/64"	1"	13/32"	1-3/16"	6"	15/64"
71	51	56,5	91	71	91,4	130,4	25,5	25	10,5	30	152,4	6
	2"	2-7/32"	3-37/64"	2-25/32"	3-19/32"	5-1/8"	1"	1"	13/32"	1-3/16"	6"	15/64"
72	60	65,5	100	71	97,6	132,4	30	32	14,6	32	157,4	6
	2-23/64"	2-37/64"	3-15/16"	2-25/32"	3-23/32"	5-13/64"	1-3/16"	1-1/4"	9/16"	1-1/4"	6-3/16"	15/64"
73	74,5	79,5	114	72	98,8	131,4	37,2	40	15,9	32	157,4	6
	2-15/16"	3-1/8"	4-1/2"	2-53/64" (2-15/16")	3-57/64"	5-11/64"	1-15/32"	1-9/16"	5/8"	1-1/4"	6-3/16"	15/64"

Note:

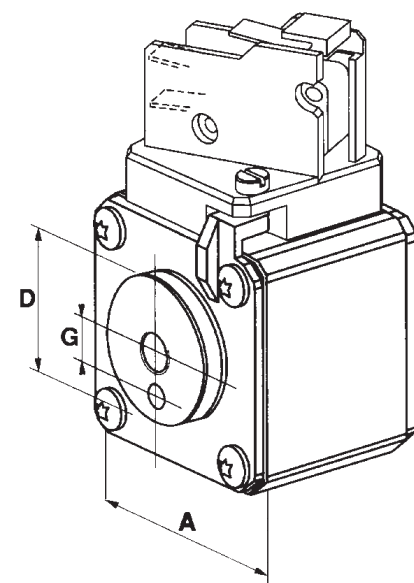
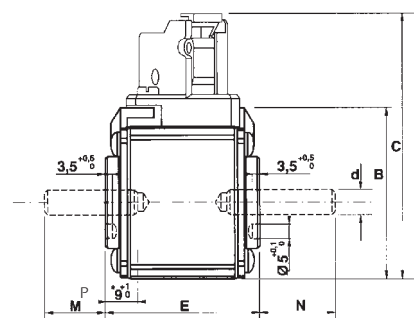
Dimensions in mm

Dimensions in inches



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC IEC Terminals - French 70 - 73 End contacts

Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
70	12,5 URD 70 TT F 0050	C301095	350	3	PC70UD13C50TF
	12,5 URD 70 TT F 0063	M300483			PC70UD13C63TF
	12,5 URD 70 TT F 0080	N300484			PC70UD13C80TF
	12,5 URD 70 TT F 0100	P300485			PC70UD13C100TF
	12,5 URD 70 TT F 0125	Q300486			PC70UD13C125TF
	12,5 URD 70 TT F 0160	R300487			PC70UD13C160TF
	12,5 URD 70 TT F 0200	S300488			PC70UD13C200TF
	12,5 URD 70 TT F 0250	T300489			PC70UD13C250TF
	12 URD 70 TT F 0280	N300714			PC70UD12C280TF
	12 URD 70 TT F 0315	V300490			PC70UD12C315TF
	11 URD 70 TT F 0350	W300491			PC70UD11C350TF
	11 URD 70 TT F 0400	E300867			PC70UD11C400TF
	11 URD 70 TT F 0450	H301284			PC70UD11C450TF
	10 URD 70 TT F 0500	J301285			PC70UD10C500TF
	8 URD 70 TT F 0550	K301286			PC70UD80V550TF
71	12,5 URD 71 TT F 0160	B300749	520	3	PC71UD13C160TF
	12,5 URD 71 TT F 0200	Z300517			PC71UD13C200TF
	12,5 URD 71 TT F 0250	A300518			PC71UD13C250TF
	12,5 URD 71 TT F 0280	P300715			PC71UD13C280TF
	12,5 URD 71 TT F 0315	B300519			PC71UD13C315TF
	12,5 URD 71 TT F 0350	C300520			PC71UD13C350TF
	12,5 URD 71 TT F 0400	D300521			PC71UD13C400TF
	12,5 URD 71 TT F 0450	E300522			PC71UD13C450TF
	11 URD 71 TT F 0500	F300523			PC71UD11C500TF
	11 URD 71 TT F 0550	G300524			PC71UD11C550TF
	11 URD 71 TT F 0630	H300525			PC71UD11C630TF
	10 URD 71 TT F 0700	M301288			PC71UD10C700TF
	9 URD 71 TT F 0800	Z300862			PC71UD90V800TF
	8 URD 71 TT F 0900	N301289			PC71UD80VC900TF
	12,5 URD 72 TT F 0250	X301573	800	3	PC72UD13C250TF
72	12,5 URD 72 TT F 0280	Y300493			PC72UD13C280TF
	12,5 URD 72 TT F 0315	Z300494			PC72UD13C315TF
	12,5 URD 72 TT F 0350	A300495			PC72UD13C350TF
	12,5 URD 72 TT F 0400	B300496			PC72UD13C400TF
	12,5 URD 72 TT F 0450	C300497			PC72UD13C450TF
	12,5 URD 72 TT F 0500	D300498			PC72UD13C500TF
	12,5 URD 72 TT F 0550	E300499			PC72UD13C550TF
	12,5 URD 72 TT F 0630	F300500			PC72UD13C630TF
	11 URD 72 TT F 0700**	G300501			PC72UD11C700TF
	11 URD 72 TT F 0800**	H300502			PC72UD11C800TF
	10 URD 72 TT F 0900**	G300869			PC72UD10C900TF
	8,5 URD 72 TT F 1000**	T301294			PC72UD85V1000TF
73	12,5 URD 73 TT F 0315	J300503	1250	1	PC73UD13C315TF
	12,5 URD 73 TT F 0350	K300504			PC73UD13C350TF
	12,5 URD 73 TT F 0400	L300505			PC73UD13C400TF
	12,5 URD 73 TT F 0450	M300506			PC73UD13C450TF
	12,5 URD 73 TT F 0500	N300507			PC73UD13C500TF
	12,5 URD 73 TT F 0550	P300508			PC73UD13C550TF
	12,5 URD 73 TT F 0630	Q300509			PC73UD13C630TF
	12,5 URD 73 TT F 0700	R300510			PC73UD13C700TF
	12,5 URD 73 TT F 0800	S300511			PC73UD13C800TF
	12 URD 73 TT F 0900**	T300512			PC73UD12C900TF
	10 URD 73 TT F 1000**	V300513			PC73UD10C1000TF
	9,5 URD 73 TT F 1100**	W300514			PC73UD95V800TFB
	9 URD 73 TT F 1250**	T300696			PC73UD90V13CTF
	8,5 URD 73 TT F 1400**	S300718			PC73UD85C14CTF
	6,9 URD 73 TT F 1600**	B301301			PC73UD69V16CTF
	6 URD 73 TT F 1800**	C301302			PC73UD60V18CTF



Microswitches and threaded studs
supplied separately

Note:
Dimensions in mm
Dimensions in inches

Size	A	B	C	D	M*	N*	E±1	d	G±0.1	P±0.1
70	40 1-9/16"	46,5 1-27/32"	82 3-7/32"	26 1-1/64"	22	27	74 2-29/32"	M8	9 23/64"	6 15/64"
71	51 2"	56,5 2-7/32"	91 3-37/64"	30 1-3/16"	19	24	74 2-29/32"	M8	9 23/64"	9 23/64"
72	60 2-3/8"	65,5 2-37/64"	100 3-15/16"	38 ; (42mm **) 1-1/2" ; (1-21/32" **)	19	39	74 2-29/32"	M10	15 19/32"	9 23/64"
73	74,5 2-15/16"	79,5 3-1/8"	114 4-1/2"	46 ; (52mm **) 1-13/16" ; (2-1/16" **)	24	39	74 2-29/32"	M12	15 19/32"	9 23/64"

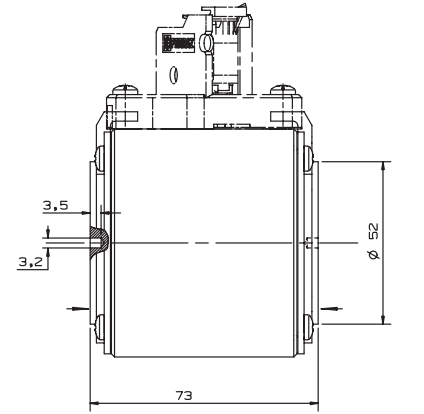


Protistor® Square-body Fuses

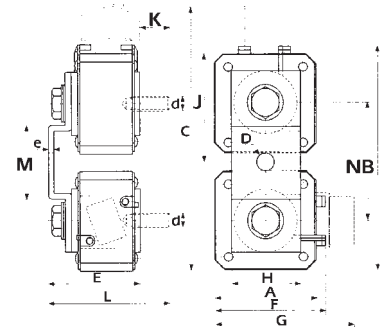
PSC aR sizes 7x - 650 V to 1300 VAC

IEC Terminals - French 272 - 273 End contacts

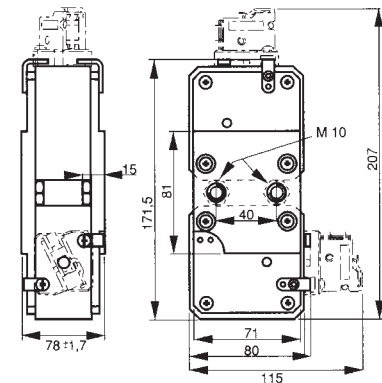
Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
73	12,5 URD 73 PPAF 0315	H300640	1250	1	PC73UD13C315PP4
	12,5 URD 73 PPAF 0350	J300641			PC73UD13C350PP4
	12,5 URD 73 PPAF 0400	K300642			PC73UD13C405PP4
	12,5 URD 73 PPAF 0450	L300643			PC73UD13C450PP4
	12,5 URD 73 PPAF 0500	M300644			PC73UD13C500PP4
	12,5 URD 73 PPAF 0550	N300645			PC73UD13C550PP4
	12,5 URD 73 PPAF 0630	P300646			PC73UD13C630PP4
	12,5 URD 73 PPAF 0700	Q300647			PC73UD13C700PP4
	12,5 URD 73 PPAF 0800	R300648			PC73UD13C800PP4
	12 URD 73 PPAF 0900	S300649			PC73UD12C900PP4
	10 URD 73 PPAF 1000	T300650			PC73UD10C10CP4
	9,5 URD 73 PPAF 1100	V300651			PC73UD95V11CPP4
	9 URD 73 PPAF 1250	T300719			PC73UD90V13CP4
	8,5 URD 73 PPAF 1400	V300720			PC73UD85V14CP4
2 x 72	12,5 URD 272 TTF 0630	W300721	1900	1	PC272UD13C630TF
	12,5 URD 272 TTF 0700	X300722			PC272UD13C700TF
	12,5 URD 272 TTF 0800	Y300723			PC272UD13C800TF
	12,5 URD 272 TTF 0900	Z300724			PC272UD13C900TF
	12,5 URD 272 TTF 1000	A300725			PC272UD13C10CTF
	12,5 URD 272 TTF 1100	B300726			PC272UD13C11CTF
	11 URD 272 TTF 1250	M302231			PC272UD11C13CTF
	11 URD 272 TTF 1400	D300728			PC272UD11C14CTF
	10 URD 272 TTF 1600	L302230			PC272UD10C16CTF
	9 URD 272 TTF 1800	E301994			PC272UD90V18CTF
	7,5 URD 272 TTF 2000	F301995			PC272UD75V20CTF
	6,5 URD 272 TTF 2200	G301996			PC272UD65V22CTF
	6,5 URD 272 TTF 2500	H301997			PC272UD65V25CTF
2 x 73	12,5 URD 273 TTF 0800	F300730	2600	1	PC273UD13C800TF
	12,5 URD 273 TTF 0900	G300731			PC273UD13C900TF
	12,5 URD 273 TTF 1000	H300732			PC273UD13C10CTF
	12,5 URD 273 TTF 1100	J300733			PC273UD13C11CTF
	12,5 URD 273 TTF 1250	K300734			PC273UD13C13CTF
	11 URD 273 TTF 1400	K302229			PC273UD11C14CTF
	11 URD 273 TTF 1600	J302228			PC273UD11C16CTF
	11 URD 273 TTF 1800	S302236			PC273UD11C18CTF
	10 URD 273 TTF 2000	P300738			PC273UD10C20CTF
	9,5 URD 273 TTF 2200	Q300739			PC273UD95V22CTF
	9,5 URD 273 PLAF 2200	M301909			PC76UD95V22CP11
	9 URD 273 PLAF 2500	R300740			PC76UD90V25CP11
	8,5 URD 273 PLAF 2800	S300741			PC76UD85V28CP11
	6 URD 273 PLAF 3000	K301999			PC76UD60V30CP11
	6 URD 273 PLAF 3200	M302001			PC76UD60V32CP11
	5,5 URD 273 PLAF 3600	N302002			PC76UD55V36CP11



73 PPAF



272 & 273 TTF



273 PLAF

Microswitches and threaded studs supplied separately

	A	B	C	D	E	F	G	H	J	K	d	e	L	M	N
2 x 72 TTF	60	138,5	172	11	91	65,5	100	35	66	39	M 10	4	131	48	72
2 x 73 TTF	74,5	167	200	13	91	79,5	114	50	80	39	M 12	4	131	54	86

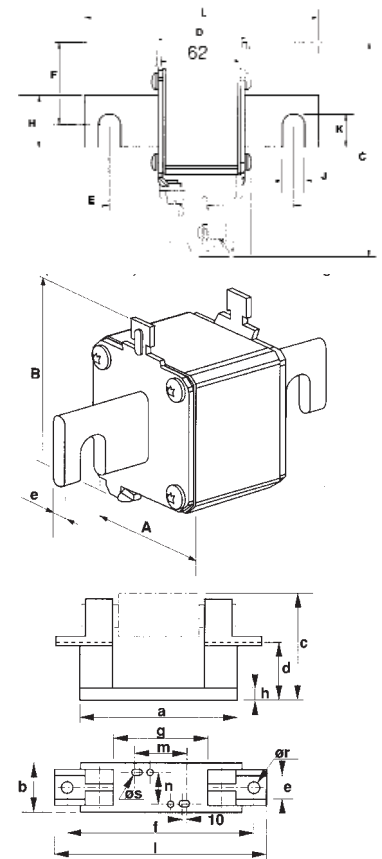
Note:

Dimensions in mm



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC IEC Terminals - French 70 - 73 Blades

Size	Designation	Reference Number	Weight (g)	Pack.	Base	I/I _N *	Catalog Number
70	12,5 URD 70 E F 0063	P300600	380	3	SP 70	1	PC70UD13C63EF
	12,5 URD 70 E F 0080	Q300601				1	PC70UD13C80EF
	12,5 URD 70 E F 0100	R300602				1	PC70UD13C100EF
	12,5 URD 70 E F 0125	S300603				0,95	PC70UD13C125EF
	12,5 URD 70 E F 0160	T300604				0,90	PC70UD13C160EF
	12,5 URD 70 E F 0200	V300605				0,85	PC70UD13C200EF
	12,5 URD 70 E F 0250	W300606				0,80	PC70UD13C250EF
	12 URD 70 E F 0280	L300712				0,80	PC70UD12C280EF
	12 URD 70 E F 0315	X300607				0,75	PC70UD12C315EF
	11 URD 70 E F 0350	Y300608				0,75	PC70UD11C350EF
	12,5 URD 71 E F 0160	C300750				1	PC71UD13C160EF
71	12,5 URD 71 E F 0200	Z300609	570	3	SE 71	1	PC71UD13C200EF
	12,5 URD 71 E F 0250	A300610				1	PC71UD13C250EF
	12,5 URD 71 E F 0280	M300713				0,95	PC71UD13C280EF
	12,5 URD 71 E F 0315	B300611				0,95	PC71UD13C315EF
	12,5 URD 71 E F 0350	C300612				0,90	PC71UD13C350EF
	12,5 URD 71 E F 0400	D300613				0,90	PC71UD13C400EF
	12,5 URD 71 E F 0450	E300614				0,85	PC71UD13C450EF
	11 URD 71 E F 0500	F300615				0,85	PC71UD11C500EF
	11 URD 71 E F 0550	G300616				0,80	PC71UD11C550EF
	10 URD 71 E F 0630	H300617				0,80	PC71UD10C630EF
	12,5 URD 72 E F 0280	J300618	800	3	SE 72	1	PC72UD13C280EF
72	12,5 URD 72 E F 0315	K300619				1	PC72UD13C315EF
	12,5 URD 72 E F 0350	L300620				1	PC72UD13C350EF
	12,5 URD 72 E F 0400	M300621				1	PC72UD13C400EF
	12,5 URD 72 E F 0450	N300622				0,95	PC72UD13C450EF
	12,5 URD 72 E F 0500	P300623				0,90	PC72UD13C500EF
	12,5 URD 72 E F 0550	Q300624				0,85	PC72UD13C550EF
	11 URD 72 E F 0630	R300625				0,85	PC72UD11C630EF
	10 URD 72 E F 0700	S300626				0,80	PC72UD10C700EF
	10 URD 72 E F 0800	T300627				0,80	PC72UD10C800EF
	12,5 URD 73 E F 0315	V300628	1150	1	SF50-73	1	PC73UD13C315EF
73	12,5 URD 73 E F 0350	W300629				1	PC73UD13C350EF
	12,5 URD 73 E F 0400	X300630				1	PC73UD13C400EF
	12,5 URD 73 E F 0450	Y300631				1	PC73UD13C450EF
	12,5 URD 73 E F 0500	Z300632				1	PC73UD13C500EF
	12,5 URD 73 E F 0550	A300633				0,95	PC73UD13C550EF
	12,5 URD 73 E F 0630	B300634				0,95	PC73UD13C630EF
	12 URD 73 E F 0700	C300635				0,90	PC73UD12C700EF
	11 URD 73 E F 0800	D300636				0,90	PC73UD11C800EF
	10 URD 73 E F 0900	E300637				0,85	PC73UD10C900EF
	9 URD 73 E F 1000	F300638				0,85	PC73UD90V10CEF
	9 URD 73 E F 1100	G300639				0,80	PC73UD90V11CEF



Pull out grip PM7 (V097676)
in size 70-71-72

* I/I_N : Ratio "maximum
continuous permissible RMS
current I_N" for a fuse fitted into
the bases.

Fuse holders and microswitches supplied separately

Connections defined as per IEC
60269-1 and for a calm
ambience of 30°C.

	A	B	C	D	E±1,3	L±1,3	F	H	J	k	e
70	40	62	96	67	100	123,4	38	18	9	11	6
71	51	69	103	68	110	133,4	39	25	10,5	16	6
72	60	78	112	68	114,4	149,4	43	32	13	21,2	6
73	74,5	92,5	127	68	114,4	149,4	57	40	13	19,5	6

Note: dimensions in mm

Fuse holders	Ref. N°	Cat. N°	a	b	c	d	e	f	g	h	l	m	n	r	s	Weight (g)
SP 70	F096099	SP70	148	42	92	47,5	26	168	88	10	188	60	28	8,5	5,5	400
SE 51-71	V098711	SE71	148	42	103	47	32	182	85	8,5	214	60	28	10,5	5,5	470
SE 52-72	W098712	SE72	150	54	114	49	42	204	80	10	240	45	35	12,5	8,5	940
SF 53-73	C209187	SF50-73	160	60	142	55	40	210	80	10	250	40	35	18	9	2000

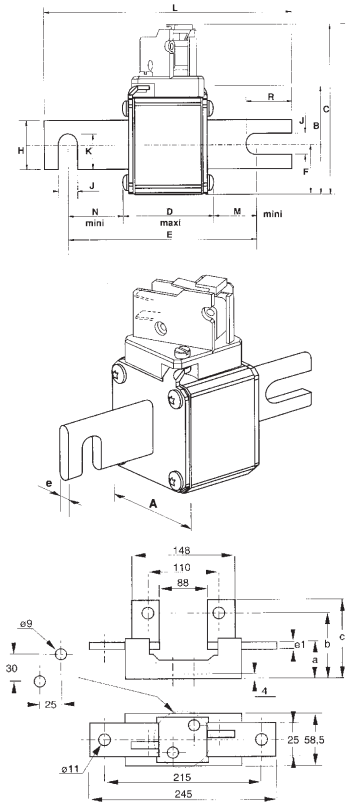


Protistor® Square-body Fuses

PSC aR sizes 7x - 650 V to 1300 VAC

IEC Terminals - German 70 - 73 Blades (DIN 110)

Size	Designation	Reference Number	Weight (g)	Pack.	*I/In Base		Catalog Number
					F098031	L091941	
70	12,5 URD 70 D 11 A 0063	V300536	380	3	1	1	PC70UD13C63D1A
	12,5 URD 70 D 11 A 0080	W300537			1	1	PC70UD13C80D1A
	12,5 URD 70 D 11 A 0100	X300538			1	1	PC70UD13C100D1A
	12,5 URD 70 D 11 A 0125	Y300539			1	1	PC70UD13C125D1A
	12,5 URD 70 D 11 A 0160	Z300540			1	1	PC70UD13C160D1A
	12,5 URD 70 D 11 A 0200	A300541			1	1	PC70UD13C200D1A
	12,5 URD 70 D 11 A 0250	B300542			1	1	PC70UD13C250D1A
	12 URD 70 D 11 A 0280	J300710			1	1	PC70UD12C280D1A
	12 URD 70 D 11 A 0315	C300543			1	1	PC70UD12C315D1A
	11 URD 70 D 11 A 0350	D300544			1	1	PC70UD11C350D1A
71	12,5 URD 71 D 11 A 0160	D300751	570	3	1	1	PC71UD13C160D1A
	12,5 URD 71 D 11 A 0200	E300545			1	1	PC71UD13C200D1A
	12,5 URD 71 D 11 A 0250	F300546			1	1	PC71UD13C250D1A
	12,5 URD 71 D 11 A 0280	K300711			1	1	PC71UD12C280D1A
	12,5 URD 71 D 11 A 0315	G300547			1	1	PC71UD12C315D1A
	12,5 URD 71 D 11 A 0350	H300548			1	1	PC71UD13C350D1A
	12,5 URD 71 D 11 A 0400	J300549			1	1	PC71UD13C400D1A
	12,5 URD 71 D 11 A 0450	K300550			0,95	1	PC71UD13C450D1A
	11 URD 71 D 11 A 0500	L300551			0,95	1	PC71UD11C500D1A
	11 URD 71 D 11 A 0550	M300552			0,90	1	PC71UD13C550D1A
72	10 URD 71 D 11 A 0630	N300553	800	3	0,90	0,95	PC71UD10C630D1A
	12,5 URD 72 D 11 A 0280	P300554			1	1	PC72UD13C280D1A
	12,5 URD 72 D 11 A 0315	Q300555			1	1	PC72UD13C315D1A
	12,5 URD 72 D 11 A 0350	R300556			1	1	PC72UD13C350D1A
	12,5 URD 72 D 11 A 0400	S300557			1	1	PC72UD13C400D1A
	12,5 URD 72 D 11 A 0450	T300558			1	1	PC72UD13C450D1A
	12,5 URD 72 D 11 A 0500	V300559			0,95	1	PC72UD13C500D1A
	12,5 URD 72 D 11 A 0550	W300560			0,90	0,95	PC72UD13C550D1A
	11 URD 72 D 11 A 0630	X300561			0,90	0,95	PC72UD11C630D1A
	10 URD 72 D 11 A 0700	Y300562			0,85	0,90	PC72UD10C700D1A
73	10 URD 72 D 11 A 0800	Z300563	1150	3	0,85	0,90	PC72UD10C800D1A
	12,5 URD 73 D 11 A 0315	A300564			1	1	PC73UD13C315D1A
	12,5 URD 73 D 11 A 0350	B300565			1	1	PC73UD13C350D1A
	12,5 URD 73 D 11 A 0400	C300566			0,95	1	PC73UD13C400D1A
	12,5 URD 73 D 11 A 0450	D300567			0,95	1	PC73UD13C450D1A
	12,5 URD 73 D 11 A 0500	E300568			0,90	1	PC73UD13C500D1A
	12,5 URD 73 D 11 A 0550	F300569			0,90	0,95	PC73UD13C550D1A
	12,5 URD 73 D 11 A 0630	G300570			0,85	0,95	PC73UD13C630D1A
	12 URD 73 D 11 A 0700	H300571			0,85	0,90	PC73UD12C700D1A
	11 URD 73 D 11 A 0800	J300572			0,85	0,90	PC73UD11C800D1A
73	10 URD 73 D 11 A 0900	K300573			0,80	0,85	PC73UD10C900D1A
	9 URD 73 D 11 A 1000	L300574			0,80	0,85	PC73UD90V10CD1A
	9 URD 73 D 11 A 1100	M300575			0,75	0,80	PC73UD90V11CD1A



Pull out grip PM7
(V097676)
in size 70-71-72

Microswitches
supplied separately

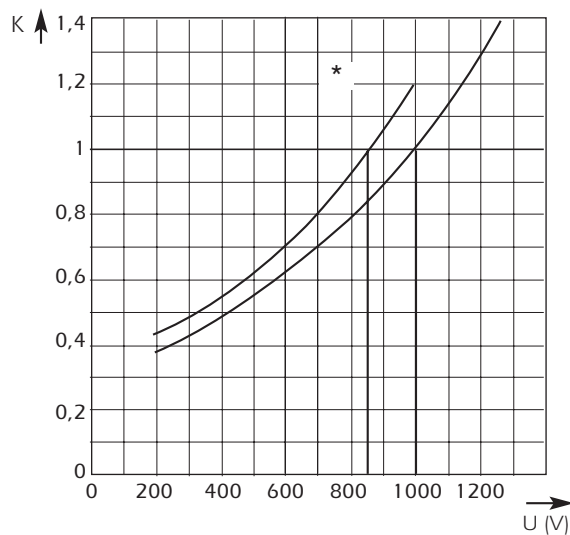
	A	B	C	D	E±1,1	F	H	J	K	L±1,5	M	N	R	e
70	40	46,5	82	71	100,4	21	25	10,5	17,7	133,4	11,5	18,5	25,2	6
71	51	56,5	91	71	100,4	25,5	25	10,5	17,7	133,4	11,5	18,5	25,2	6
72	60	65,5	100	71	100,4	30	32	10,5	21,2	133,4	11,5	18,5	25,2	6
73	74,5	79,5	114	72	100,4	37,2	40	10,5	25,2	133,4	11	18	25,2	6

Fuse holders	Ref. N°	Cat. N°	a	b	c	e1	Weight (g)
SI DIN 110 630 A	F098031	SIDN110630A	40	68	82	5	1060
SI DIN 110 1250 A	L091941	SIDN1101250A	45	73	87	10	1320



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

Multiplier coefficient



Left: Mean curve indicating variation of total I^2t (I^2t_t) and total operating time T_t in accordance with working voltage U .

Example:

Fuse 350 A in size 70.

$I_p = 10\,000\text{ A}$ $U = 1100\text{ V}$

At 1000 V

$I^2t_t = 115\,000\text{ A}^2\text{s}$ $T_t = 7\text{ ms}$

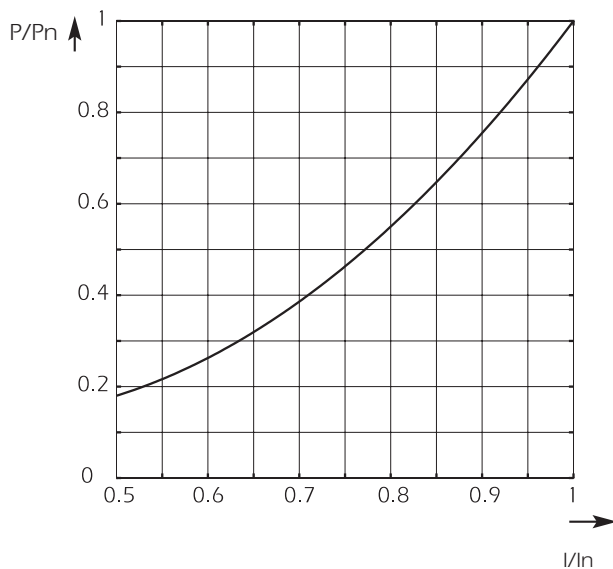
At 1100 V

$I^2t_t = 115\,000 \times 1.13 = 130\,000\text{ A}^2\text{s}$

$T_t = 7 \times 1.13 = 7.9\text{ ms}$

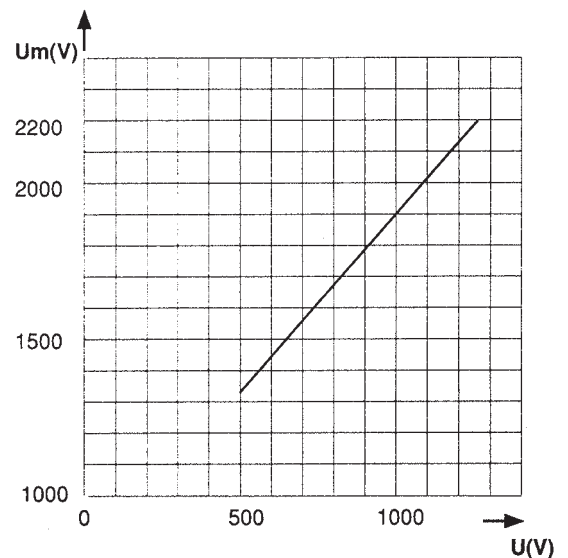
* curve for fuses with I^2t published at 850VAC

Dissipated power



Above left: Curve enabling calculation of dissipated power P by a fuse rated I_{Nr} as a function of the RMS current I , in multiples of I_{Nr} , in steady state.

Arc voltage



Above right: Curve indicating peak arc voltage U_m which may appear across fuse terminals as a function of working voltage U at $\cos \varphi = 0.15$

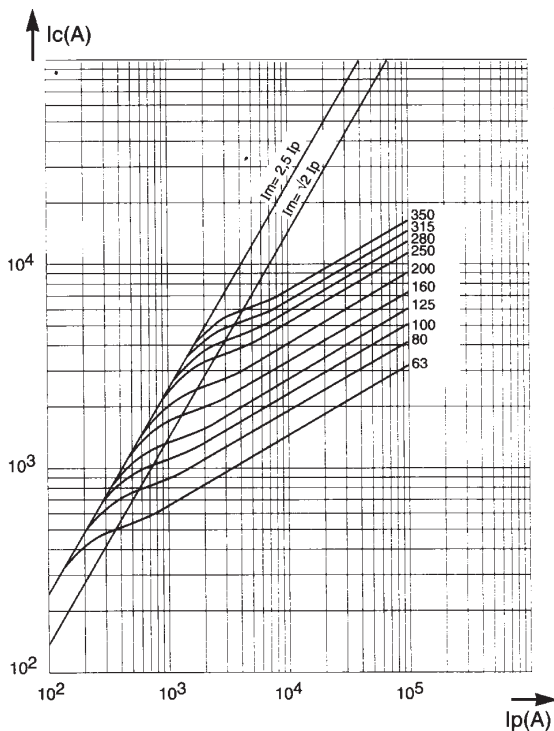


Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

Size 70

Cut-off characteristics

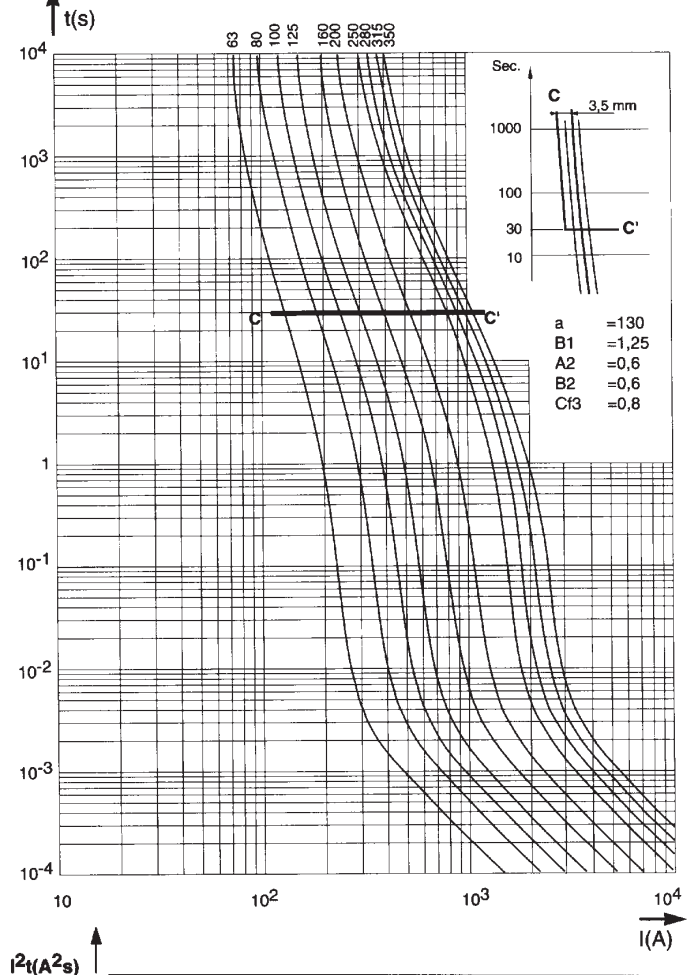
Curves indicating for each rated current the peak value I_C that the current may reach as a function of the prospective fault current I_p .



Time-current characteristics

- Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .
- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

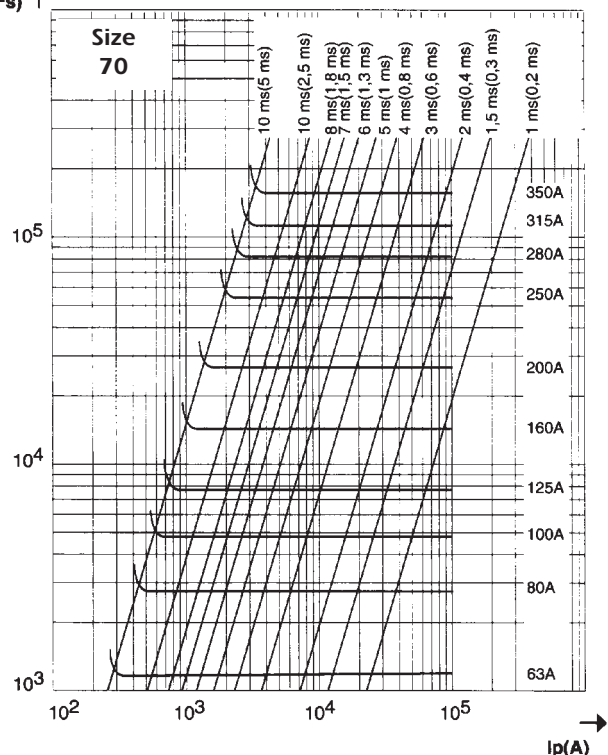
Time-current characteristics



Maximum values of total operating I^2t and total operating times

Horizontal curves indicating the maximum values of total operating I^2t (I^2t_t) as function of the prospective current I_p at 1000V or 850 V(*), $\cos \varphi = 0.15$.

The oblique lines indicate the corresponding total operating time T_t , with pre-arcing time in brackets.



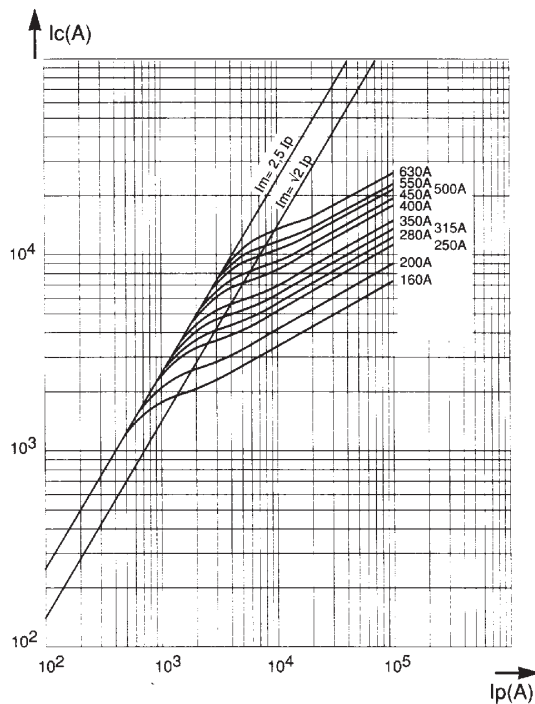


Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

Cut-off characteristics

Curves indicating for each rated current the peak value I_C that the current may reach as a function of the prospective fault current I_P .



Time-current characteristics

Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .

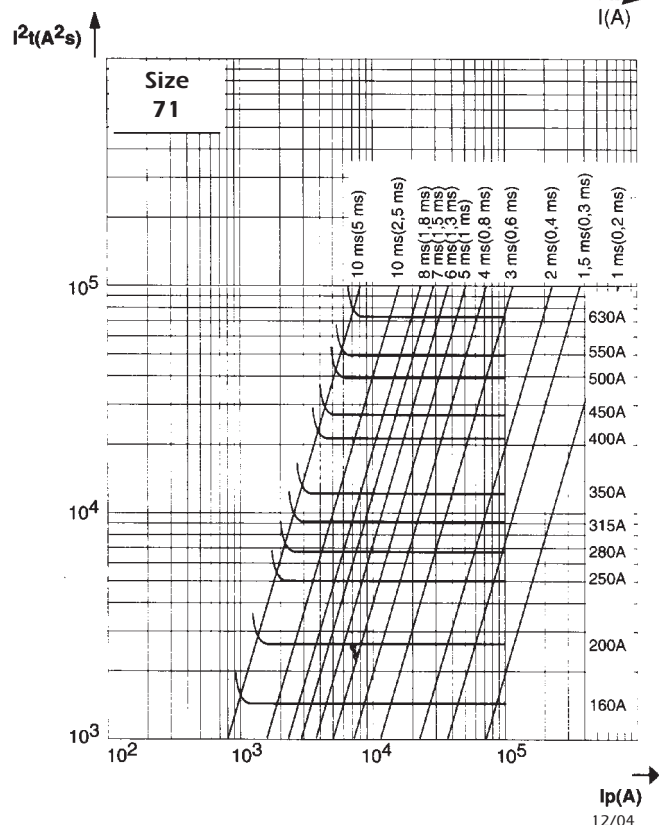
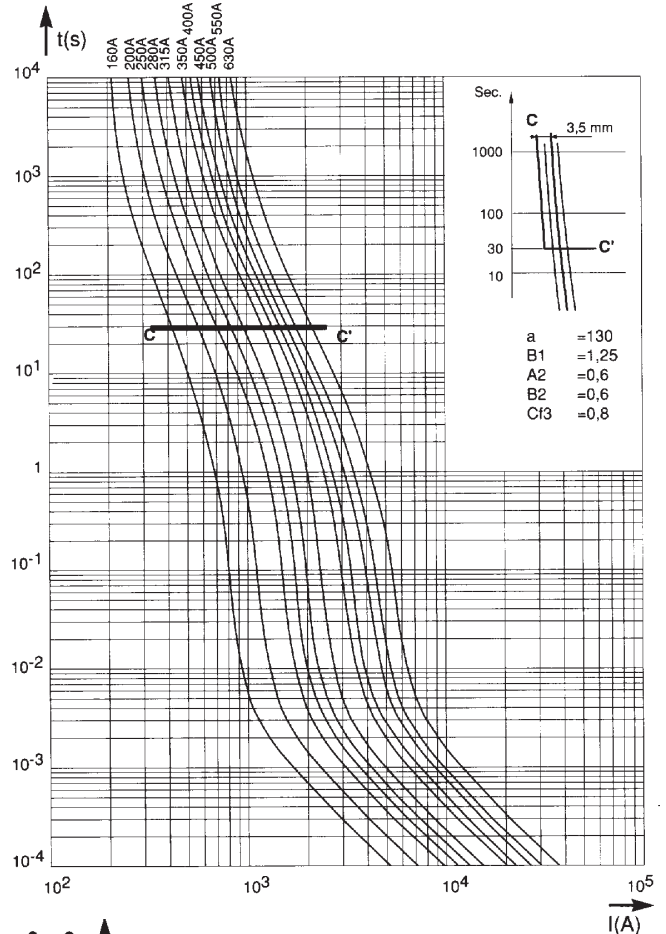
- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

Maximum values of total operating I^2t and total operating times

Horizontal curves indicating the maximum values of total operating I^2t (I^2t_t) as function of the prospective current I_P at 1000V or 850 V(*), $\cos \varphi = 0.15$.

The oblique lines indicate the corresponding total operating time T_t with pre-arcing time in brackets.

Size 71 Time-current characteristics



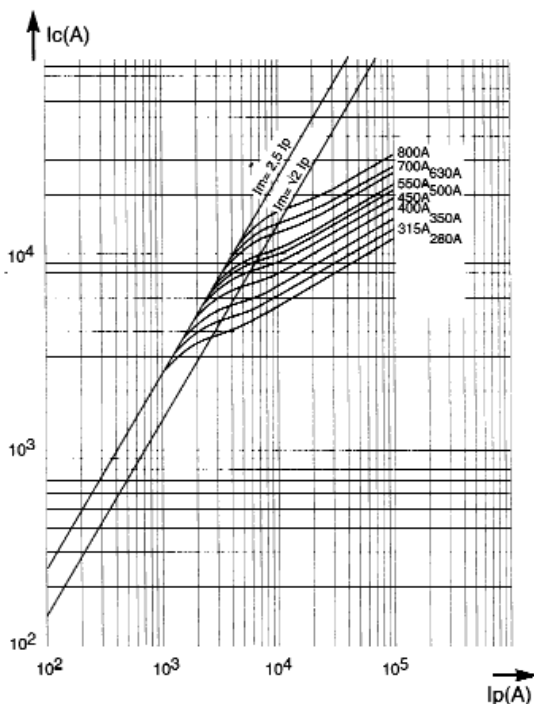


Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

Size 72

Cut-off characteristics

Below, right: Curves indicating for each rated current the peak value I_C that the current may reach as a function of the prospective fault current I_p .



Time-current characteristics

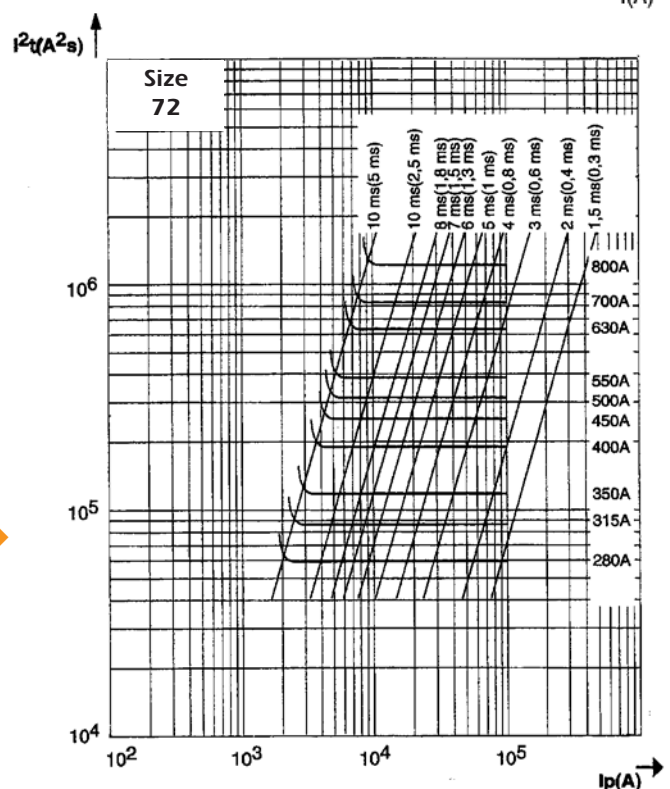
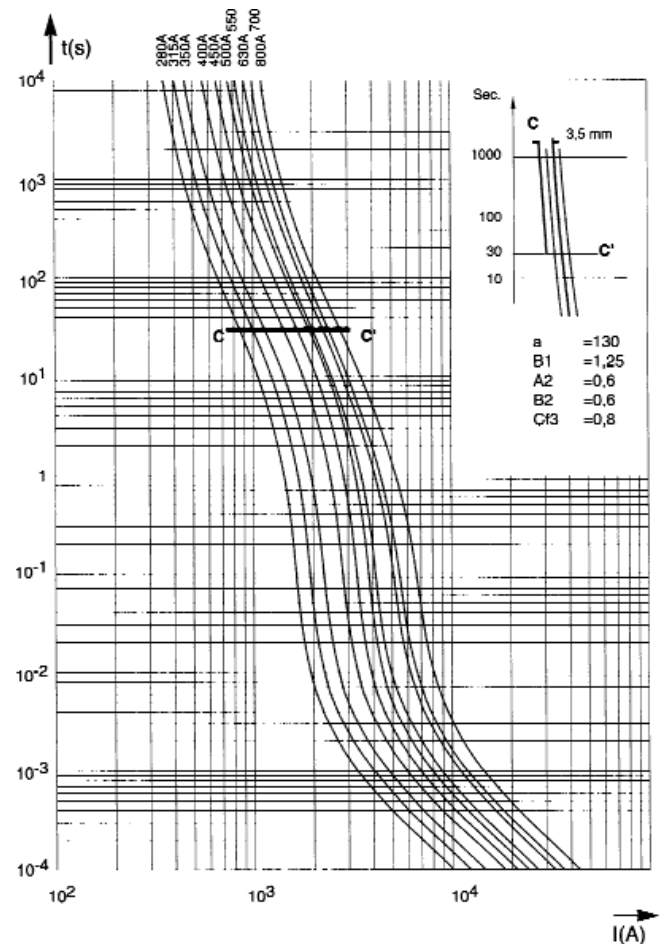
Above, left: Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .

- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

Maximum values of total operating I^2t and total operating times

Left: Horizontal curves indicating the maximum values of total operating I^2t (I^2t_t) as function of the prospective current I_p at 1000V or 850 V(*), $\cos \varphi = 0.15$.
The oblique lines indicate the corresponding total operating time T_t , with pre-arcing time in brackets.

Time-current characteristics



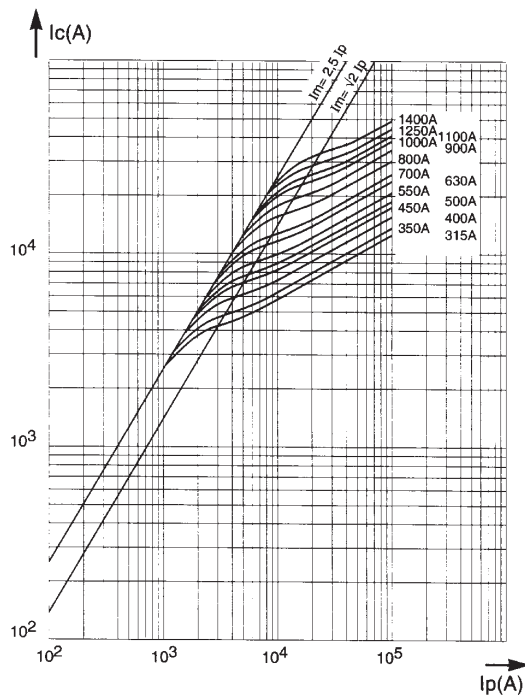


Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

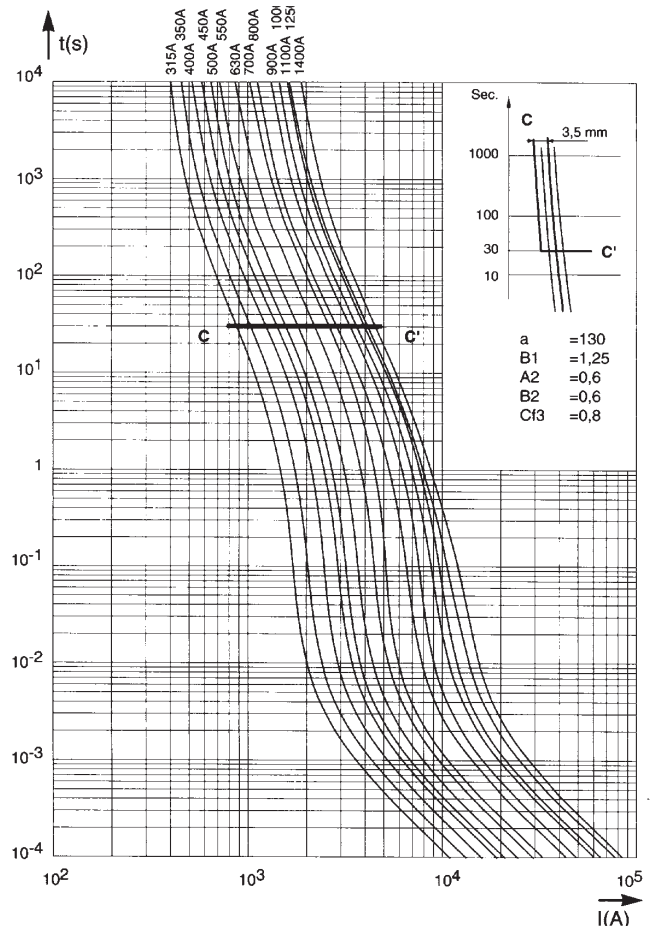
Size 73

Cut-off characteristics

Curves indicating for each rated current the peak value I_c that the current may reach as a function of the prospective fault current I_p .



Time-current characteristics



Time-current characteristics

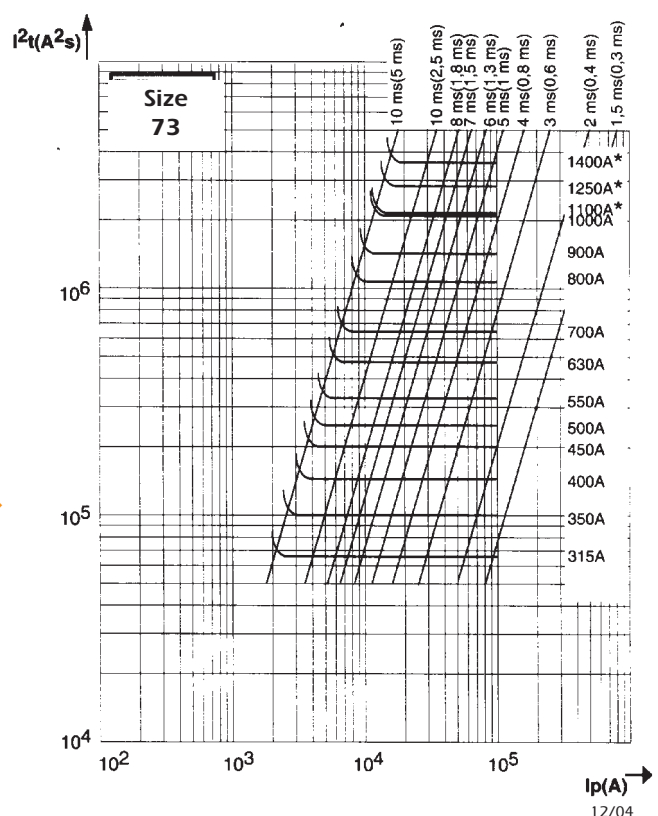
Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .

- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

Maximum values of total operating I^2t and total operating times

Horizontal curves indicating the maximum values of total operating I^2t (I^2t_t) as function of the prospective current I_p at 1000V or 850 V(*), $\cos \varphi = 0.15$.

The oblique lines indicate the corresponding total operating time T_t with pre-arcing time in brackets.



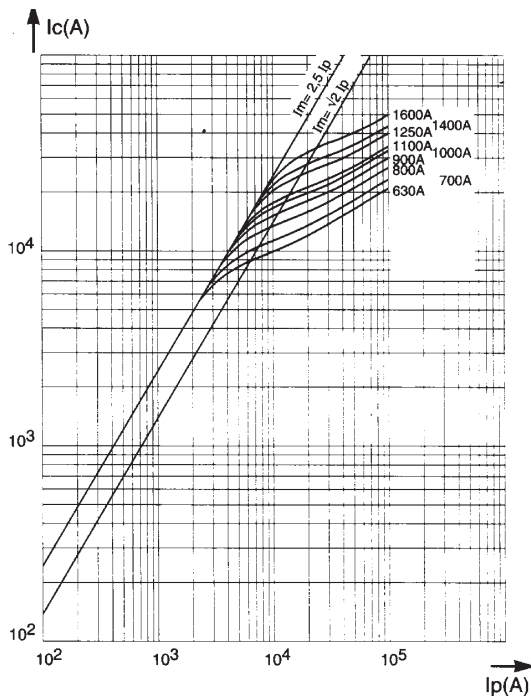


Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

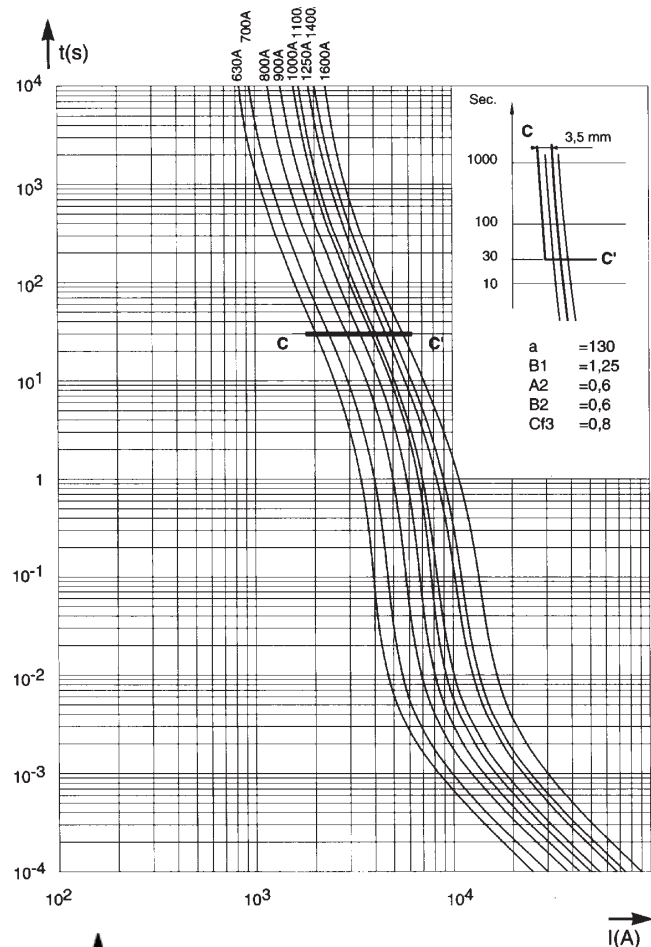
Size 2x72

Cut-off characteristics

Curves indicating for each rated current the peak value I_C that the current may reach as a function of the prospective fault current I_p .



Time-current characteristics



Time-current characteristics

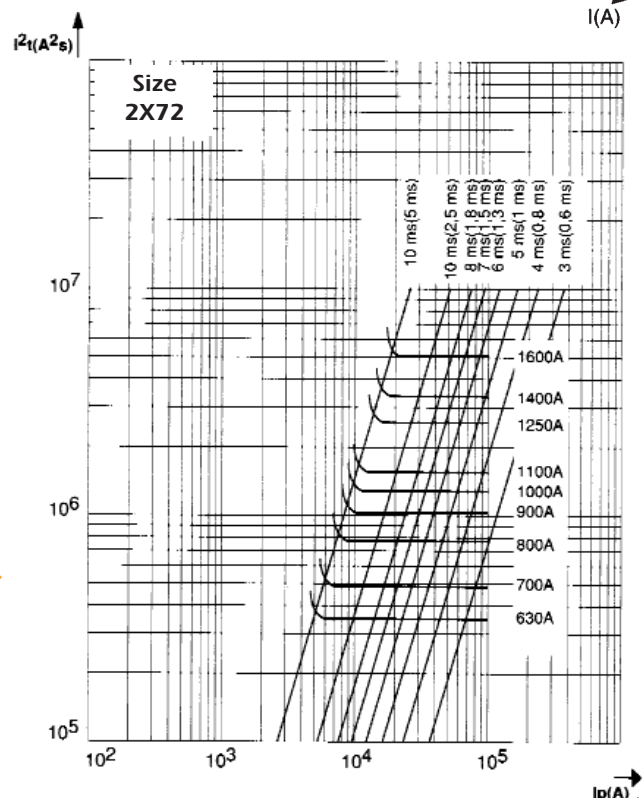
Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .

- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

Maximum values of total operating I^2t and total operating times

Horizontal curves indicating the maximum values of total operating I^2t (I^2t_t) as function of the prospective current I_p at 1000V or 850 V(*), $\cos \varphi = 0.15$.

The oblique lines indicate the corresponding total operating time T_t , with pre-arcing time in brackets.



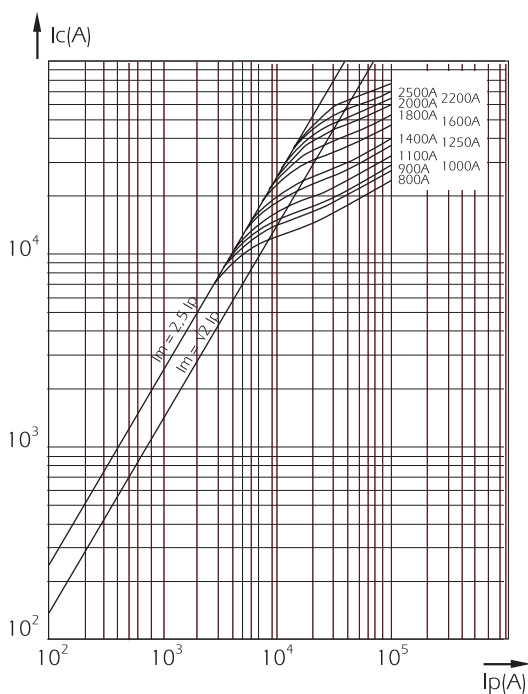


Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

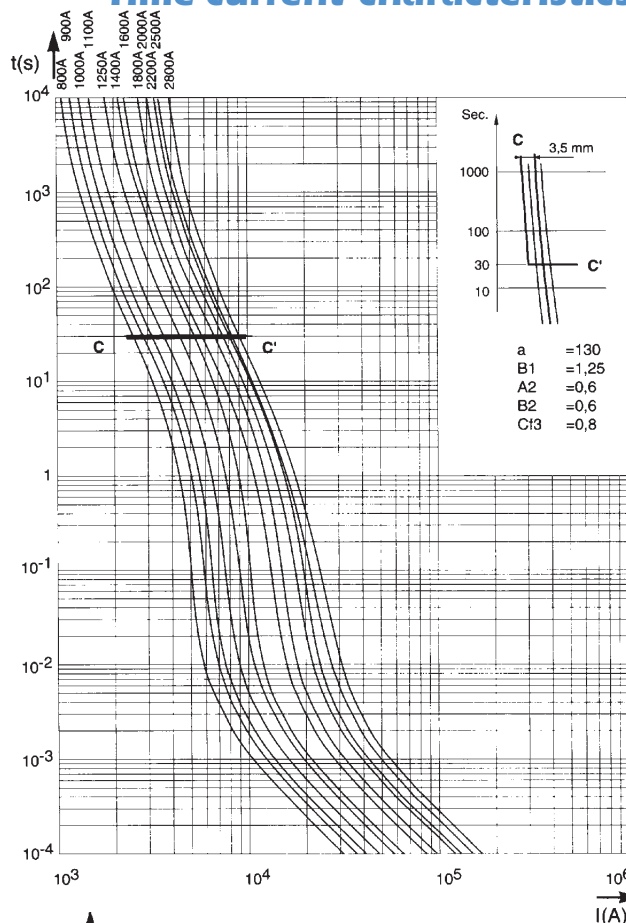
Size 2x73

Cut-off characteristics

Curves indicating for each rated current the peak value I_C that the current may reach as a function of the prospective fault current I_P .



Time-current characteristics



Time-current characteristics

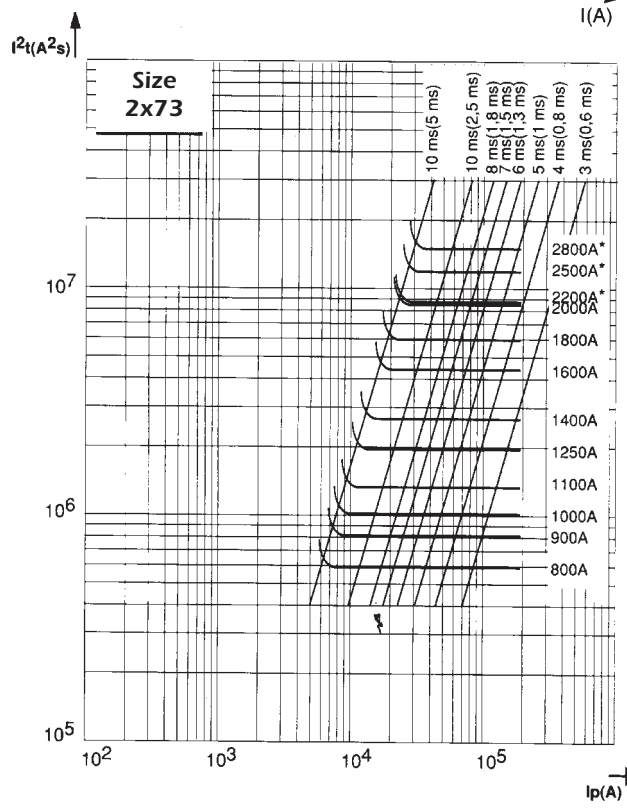
Curves indicating pre-arcing time for each rated current as a function of RMS value of pre-arcing current I .

- Tolerances on this current $\pm 8\%$.
- Beyond 30 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according to sketch, top right corner.
- The intersection of the fuse and CC' curves indicates the minimum breaking current I_{pm} of the fuse.

Maximum values of total operating I^2t and total operating times

Horizontal curves indicating the maximum values of total operating I^2t (I^2t_T) as function of the prospective current I_P at 1000V or 850 V(*), $\cos \varphi = 0.15$.

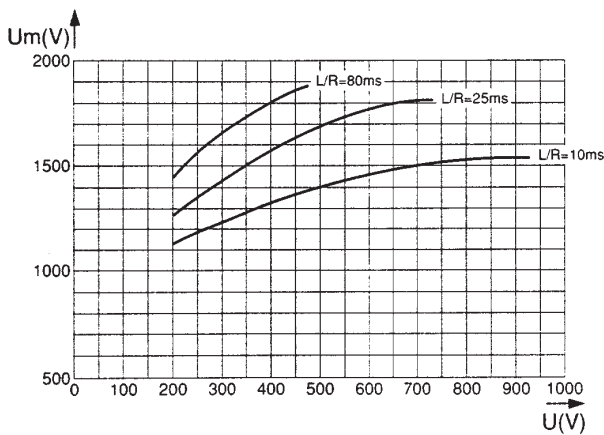
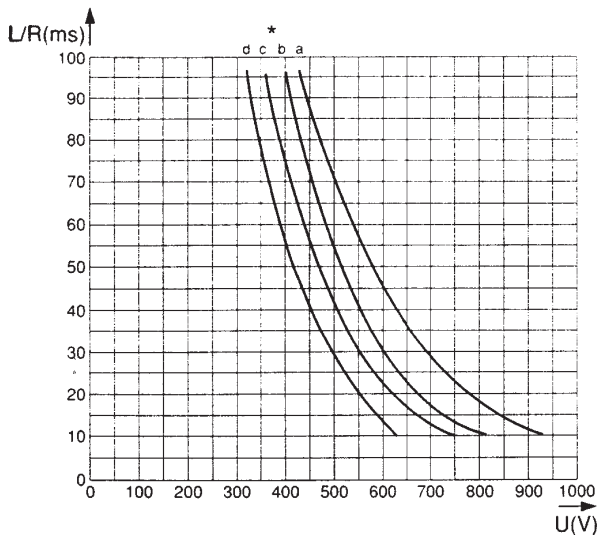
The oblique lines indicate the corresponding total operating time T_T with pre-arcing time in brackets.





Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Curves set

DC working voltage possibilities



Top: Curves indicating the maximum time constant L/R of the fault path as a function of the DC voltage U , for the rated currents in the sizes indicated in the table.

$I_{pm} (1)$ values indicate the minimum breaking current in Amperes (A).

Remark: When the fault current di/dt is very large, this condition can be exceeded. It is the case for faults occurring in voltage commutated inverters.

Below: Curves indicating peak arc voltage U_m which may appear across fuse terminals as a function of the DC working voltage U , for various time constant L/R of fault path.

Rated current I_N (A)	Curves (*) and $I_{pm} (1)$ corresponding to the rating					
		70 * I_{pm} (A)	71 * I_{pm} (A)	72 * I_{pm} (A)	73 * I_{pm} (A)	2x72 * I_{pm} (A)
63	a	270				
80	a	400				
100	a	520				
125	a	700				
160	a	950	a 950			
200	a	1300	a 1300			
250	a	1800	a 1800			
280	b	2200	a 2000	a 1800		
315	b	2600	a 2300	a 2200	a 2000	
350	c	3000	a 2700	a 2600	a 2400	
400			b 3500	a 3200	a 3000	
450			b 4000	a 3800	a 3500	
500			c 4800	a 4600	a 3900	
550			c 5200	b 5000	a 4400	
630			c 6400	b 6200	a 5300	a 4400
700				c 6800	a 6000	a 5200
800				c 8000	b 8000	a 6400
900					b 9000	a 7600
1000					c 11000	a 9200
1100					c 12000	b 10000
1250					c 13500	b 12400
1400					c 15000	c 13600
1600						c 16000
1800						
2000						
2200						
2500						
2800						



Protistor® Square-body Fuses PSC aR sizes 7x - 650V to 1300 VAC Microswitches PSC 3x &7x

- MICROSWITCH SYSTEMS ADAPTED
TO THE FOLLOWING FERRAZ SHAWMUT FUSES ONLY:
- PSC sizes 30, 31, 32, 33, 2x32, 2x33 / 70, 71, 72, 73, 272, 273
except plain blades
- PSC LR sizes 33, 233, 73, 273
- PERMANENT INDICATION OF FUSE STATE: CONDUCTIVE
BLOWN
- MANUAL RESETTING
- STANDRAD AND LOW ELECTRICAL LEVEL WITH DIFFERENT INSULATION LEVELS
- BS TYPE FOR USE IN CORROSIVE ATMOSPHERE
- MS 3V 1-5 UR AND MS 7V 1-5 UR TYPE UL ARE RECOGNIZED



MS 7V 1-5

Main Characteristics

Code	AC Insulation voltage rating (***)	Positive operating voltage/current	Current rating	Current	Breaking Capacity						AC voltage withstand test (*)	Impulse voltage test Uimp1.2/50 μs (**)	Fire class according to UL 94
					Non inductive circuit			Inductive circuit : L/R = 25ms					
					30V	110V	250V	30V	110V	250V			
MS 3V 1-5	1000 V	20 V 50 mA	10 A	50/60 Hz	10 A	10 A	10 A	10 A	10 A	10 A	8,5 kV	14 kV	H.B
MS 3V 1-5 UR				DC	8 A	0,4 A	0,2 A	4 A	0,2 A	0,1 A	12 kV	20 kV	
MS 7V 1-5	1500V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 7V 1-5 UR				DC	3 A	0,5 A	0,25 A	3 A	0,2 A	0,1 A	12 kV	20 kV	
MS 3V 1-5 BS	1000 V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 3V 1-9 BS				DC	3 A	0,5 A	0,25 A	3 A	0,2 A	0,1 A	12 kV	20 kV	
MS 7V 1-5 BS	1500V	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A	8,5 kV	14 kV	
MS 7V 1-9 BS				DC	3 A	0,5 A	-	2 A	0,2 A	-	12 kV	20 kV	

* 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

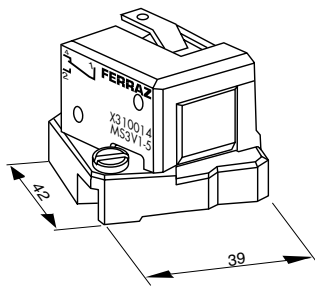
Warning: microswitch systems exclusively designed for FERRAZ SHAWMUT.
PSC Fuses fitted a petented trip-indicator, saving use of EDV



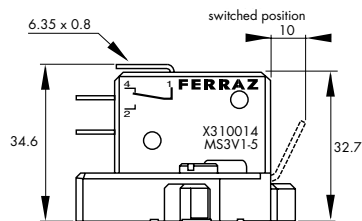
Protistor® Square-body Fuses PSC aR sizes 7x - 650V to 1300 VAC Microswitches for PSC 3x & 7x

Indication systems for PSC Fuse sizes 30 to 73 MS 3V...

These patented indication systems are exclusively hand resettable.



(fig. 1)

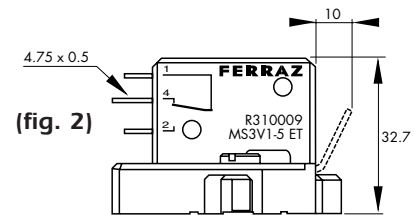


Fuse size	Designation	Ref. Number	Indication style	Weight (g)	Pack.	Catalog Number
30, 31 32, 33	MS 3V 1-5 (fig.1)	X310014	Standard NO-NC	34	3 pieces	MS3 V1-5
	MS 3V 1-5 UR	Y310038				MS3 V1-5UR
	MS 3V 1-5 BS (3)	W310013	Low level NO-NC	34	3 pieces	MS3-V1-5BS
	MS 3V 1-9 BS (4)	T310011	Double pole Low level	44	3 pieces	MS3V1-9BS
	MS 3V 1-5 ET (fig.2)	R310009	Low level NO-NC IP 50 (9)	34	3 pieces	MS3V1-5 ETANCHE

(3) Same as fig.1

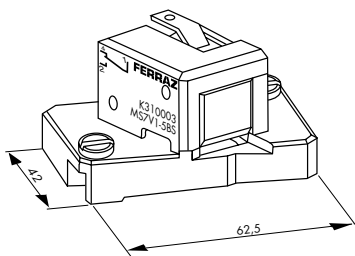
(4) Same dimensions as figure 1
but with 2 microswitches side by side

(9) Watertightness class

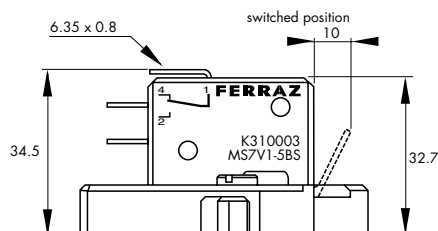


(fig. 2)

MS 7V...



(fig. 5)



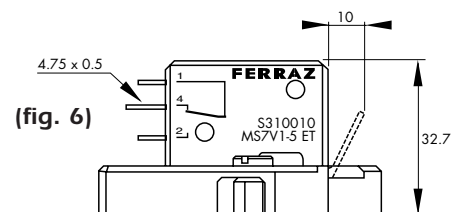
Fuse size	Designation	Ref. Number	Indication style	Weight (g)	Pack.	Catalog Number
70, 71 72, 73	MS 7V 1-5 (fig.5)	J310002	Standard NO-NC	45	3 pieces	MS7 V1-5
	MS 7V 1-5 UR	Z310039				MS7 V1-5UR
	MS 7V 1-5 BS (3)	K310003	Low level NO-NC	45	3 pieces	MS7-V1-5BS
	MS 7V 1-9 BS (4)	P310007	Double pole Low level	55	3 pieces	MS7V1-9BS
	MS 7V 1-5 ET (fig.6)	S310010	Low level NO-NC IP 50 (9)	55	3 pieces	MS7V1-5 ETANCHE

(7) Same as fig. 5

(8) Same dimensions as figure 5 but with 2 microswitches side by side

(9) Watertightness class

Warning: Microswitch systems exclusively designed for FERRAZ SHAWMUT PSC fuses fitted with a patented trip-indicator, saving use of EDV.



(fig. 6)



Protistor® Square-body Fuses PSC aR sizes 7x - 650 V to 1300 VAC Metric-studs

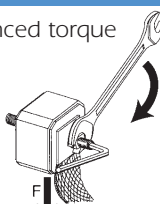
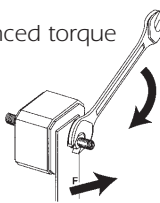
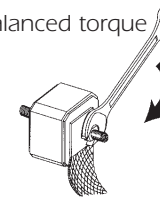
Metric studs for threaded terminal fuses



Type and fuse size	Designation	Ref. Number	Unit weight (g)	Pack.	Catalog Number
 Sizes 0 and 1	HC stud pair M8x30 & M8x35	S098801	23	6 pairs	STU M8x30 M8x35
	Size 2 HC stud pair M10x30 & M10x50	T098802	40	6 pairs	STU M10x30 M10x50
	Size 3 HC stud pair M12x35 & M12x50	V098803	60	6 pairs	STU M12x35 M12x50
 Size 2	HC stud pair M10x50	W098804	45	6 pairs	STU M10x50
	Size 3 HC stud pair M12x50	X098805	45	6 pairs	STU M12x50

We recommend the use of studs, whose quality is suited to all FERRAZ SHAWMUT square-body fuses with terminals

Stud mounting

Torque type	Stud type	Maximum stud tightening torque (Nm) (1)	Maximum nut tightening torque (Nm) (1)
 Balanced torque	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46
 Balanced torque	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46
 Unbalanced torque	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46

(1) Factory limit on torque at 20°C ambient: +0, -2Nm; except on 46Nm value (+0, -4Nm)

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Main characteristics



Ferraz Shawmut 1500 V PSC fuse-links provide maximum flexibility in equipment design and ultimate protection for today's power conversion equipment. These square body fuse-links are available in three different body sizes, each size having four world-wide acceptable mounting styles. The different mounting styles and body sizes along with a broad range of ampere ratings allow greatest flexibility in equipment design.

The Ferraz Shawmut PSC fuses have been engineered to provide state-of-the-art protection for SCRs, diodes, thyristors, GTO's and IGBT devices. They have pure silver die-cut elements embedded in solidified sand which helps control arcing characteristics for low I^2t and high breaking capacity. All contact surfaces are silver plated and all hardware is non-magnetic.

All fuse links are equipped with a low voltage trip-indicator. This trip-indicator can operate a field mountable microswitch which is easily mounted directly on to the fuse even while in service.

Highlights

- Extremely Fast Acting
- Current Limiting
- Very Low I^2t
- Worldwide Acceptability
- Superior Cycling Ability

Applications

Protection of rectifiers, inverters, DC drives, UPS Systems, reduced voltage motor starters, and other equipment in globally accepted applications

Ratings

AC: 100 - 1500A
1500 VAC
200 KA IR

DC: Consult us

Approvals

C: Tested to IEC 60269.4 at UN +10 %

Features/Benefits

Choice of mounting styles gives wide choice for equipment design

Broad range of ampere ratings in a given body size for design flexibility

IEC 60269-4 compliance for fuses for worldwide semiconductor applications



Protistor® Square-body Fuses

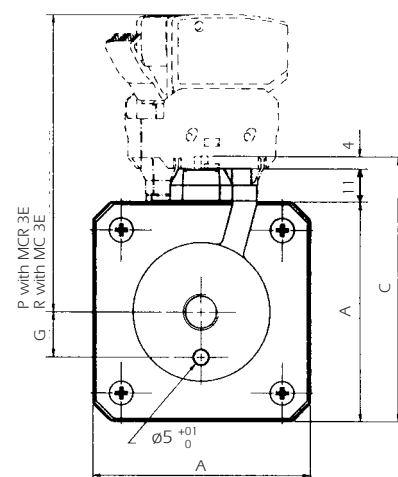
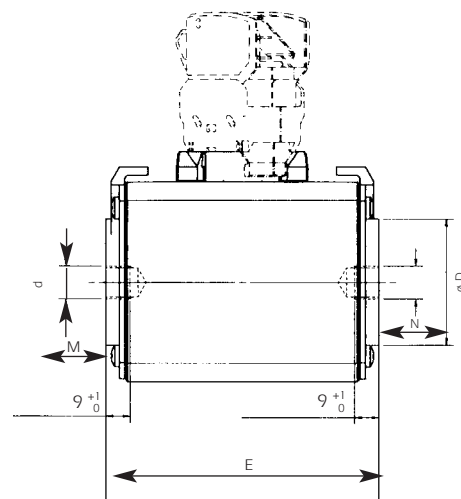
PSC aR sizes 9x - 1500 VAC

Main characteristics

Voltage (V)	Size	Type	Rating (A)	Maximum I²t under 1500V (kA²S)	Power losses in watts				Breaking capacities kA
					End contacts 0,8 In In		Blades 0,8 In In		
1 500 V	91	URF	100	10	18,5	35	18,5	35	1 500 V 200 kA
		URF	125	15	23	43	23	43	
		URF	160	24,5	29	55	29	55	
		URF	180	32,5	33	62	33	63	
		URG	200	50	27,5	52	28	53,5	
		URK	225	78	31	58,5	31	59	
		URH	250	246	25	47	25	47	
		URH	315	384	31	59	31	59	
		URH	350	466	35	66	35	66	
	92	URF	200	40	36,5	69	37,5	71	
		URG	250	84	37,5	73	39	76	
		URK	315	144	46	91	46,5	95	
		URK	350	200	51	101	52	106	
		URH	400	669	41,5	83	44	90	
		URH	500	983	50,5	101	53,5	109	
		URH	550	1 190	57,5	115	61	124	
	93	URF	250	60	48	95	49,5	98	
		URF	315	94	61	120	62	123	
		URF	350	135	67	133	69	137	
		URG	375	185	62	125	64,5	130	
		URK	400	240	60	122	61,5	128	
		URK	450	305	67	137	69	144	
		URK	500	375	77	158	79	165	
		URH	630	1 570	62,5	125	67	136	
		URJ	700	2 500	67	131	73	143	
		URB	750	3 000	73	143	80	156	
	2X92	URG	500	335	77,5	152			
		URK	630	576	93	190			
		URK	700	800	104	212			
		URH	800	2 680	87	177			
		URH	1 000	3 930	106	216			
		URH	1 100	4 760	120	246			
	2X93	URG	750	740	129	260			
		URK	800	960	122	256			
		URK	900	1 220	138	288			
		URK	1 000	1 500	160	332			
		URH	1 250	6 280	131	268			
		URJ	1 400	10 000	143	280			
		URB	1 500	12 000	148	310			

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC French End contacts

Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
91	15 URF 91 TTF 0100	W 076 149	650	1	PC91UF15C100TF
	15 URF 91 TTF 0125	X 076 150			PC91UF15C125TF
	15 URF 91 TTF 0160	Y 076 151			PC91UF15C160TF
	15 URG 91 TTF 0200	A 076 153			PC91UG15C200TF
	15 URK 91 TTF 0225	B 076 154			PC91UK15C225TF
	15 URH 91 TTF 0250	C 076 155			PC91UH15C250TF
	15 URH 91 TTF 0315	D 076 156			PC91UH15C315TF
	15 URH 91 TTF 0350	E 076 157			PC91UH15C350TF
92	15 URF 92 TTF 0200	F 076 158	900	1	PC92UF15C200TF
	15 URG 92 TTF 0250	G 076 159			PC92UG15C250TF
	15 URK 92 TTF 0315	H 076 160			PC92UK15C315TF
	15 URK 92 TTF 0350	J 076 161			PC92UK15C350TF
	15 URH 92 TTF 0400	K 076 162			PC92UH15C400TF
	15 URK 92 TTF 0400	M 076 003			PC92UK15C400TF
	15 URH 92 TTF 0500	V 076 194			PC92UH15C500TF
	15 URH 92 TTF 0550	L 076 163			PC92UH15C550TF
93	15 URF 93 TTF 0230	L 097 829	1250	1	PC93UF15C230TF
	15 URF 93 TTF 0250	M 076 164			PC93UF15C250TF
	15 URF 93 TTF 0315	N 076 165			PC93UF15C315TF
	15 URF 93 TTF 0350	P 076 166			PC93UF15C350TF
	15 URG 93 TTF 0375	Q 076 167			PC93UG15C375TF
	15 URK 93 TTF 0400	R 076 168			PC93UK15C400TF
	15 URK 93 TTF 0450	J 076 092			PC93UK15C450TF
	15 URK 93 TTF 0500	T 076 170			PC93UK15C500TF
	15 URH 93 TTF 0630	V 076 171			PC93UH15C630TF
	15 URJ 93 TTF 0700	W 076 172			PC93UJ15C700TF
	15 URB 93 TTF 0750	X 076 173			PC93UB15C750TF



Microswitches : MC3E1-5N - Ref. D310020

MC3E1-5NBS - Ref. E310021

MC3E1-9NBS - Ref. F310022

MC3E1-5NET - Ref. L310027

MCR3E1-5N - Ref. G310023

MCR3E1-5NBS - Ref. P310030

MCR3E1-9NBS - Ref. H310024

MCR3E1-5NET - Ref. Q310031

For operating voltage
1250 VAC - DC max.

Insulation voltage 2200 VAC - DC

Threaded studs and microswitches supplied separately

Size	A	C	D	M*	N*	E±1,7	d	G±0,1	P	R
91	51	66	30	19	24	101	M8	9	87,5	72,5
	2"	2,6"	1-3/16"			3,98"		23/64"	3,45"	2,85"
92	60	74	38	19	39	101	M10	15	91,5	76,5
	2-3/8"	2,95"	1-1/2"			3,98"		19/32"	3,6"	3"
93	74,5	88	46	24	39	101	M12	15	98,5	83,5
	2-15/16"	3,5"	1-13/16"			3,98"		19/32"	3,9"	3,29"

Note : dimensions in mm and inches

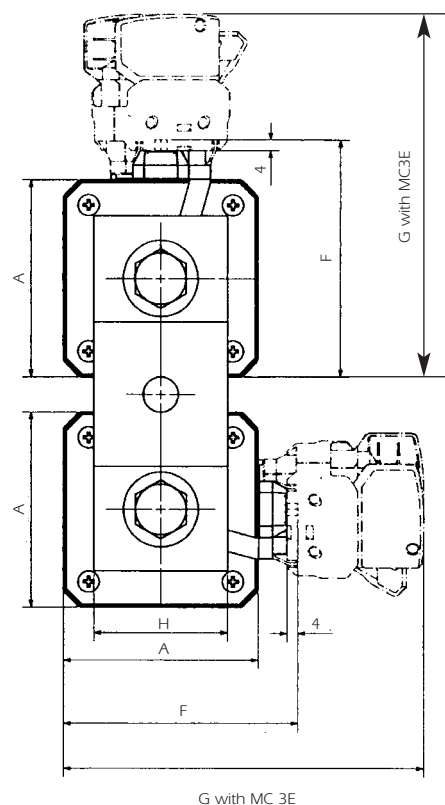
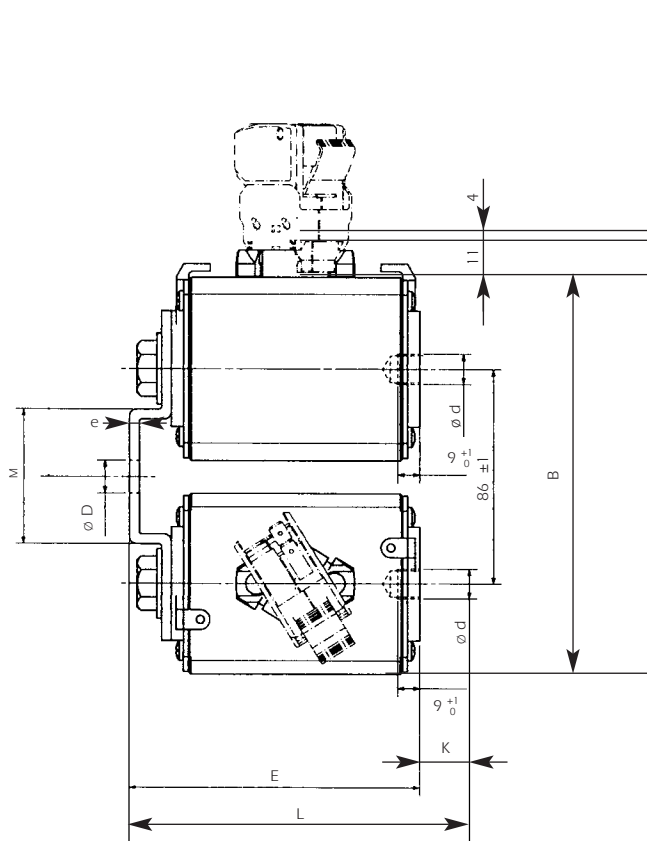
M and N dimensions are with Metric studs Ref. Number S098801 for size 91 T098802 for size 92 and V098803 for size 93.

Maximum balanced nut tightening torque: 13,5 Nm (M8) - 26 Nm (M10)

46 Nm (M12)

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC French End contacts

Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
2x92	15 URG 292 TTF 0500	Y 076 174	2460	1	PC292UG15C500TF
	15 URK 292 TTF 0630	Z 076 175			PC292UK15C630TF
	15 URK 292 TTF 0700	A 076 176			PC292UK15C700TF
	15 URH 292 TTF 0800	B 076 177			PC292UH15C800TF
	15 URH 292 TTF 1000	C 076 178			PC292UH15C10CTF
	15 URH 292 TTF 1100	D 076 179			PC292UH15C11CTF
2x93	15 URG 293 TTF 0750	P 081 755	3450	1	PC293UG15C750TF
	15 URK 293 TTF 0800	F 076 181			PC293UK15C800TF
	15 URK 293 TTF 0900	G 076 182			PC293UK15C900TF
	15 URK 293 TTF 1000	Q 081 756			PC293UK15C10CTF
	15 URH 293 TTF 1250	R 081 757			PC293UH15C13CTF
	15 URJ 293 TTF 1400	S 081 758			PC293UJ15C14CTF
	15 URB 293 TTF 1500	X 081 854			PC293UB15C15CTF



Threaded studs and microswitches
supplied separately

Size	A	B	D	E ^{±1.7}	F	G	H	K	d	e	L	M	N
2x92 TT	60	147	11	118	74	106,5	35	40	M10	4	158	48	72
2x93 TT	74,5	164	13	118	88	121	50	40	M12	4	158	54	86

Dimensions in mm

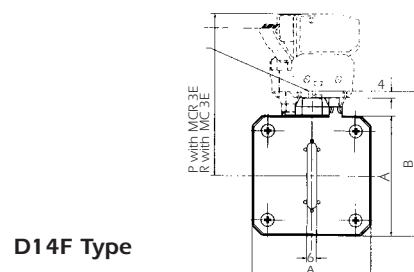
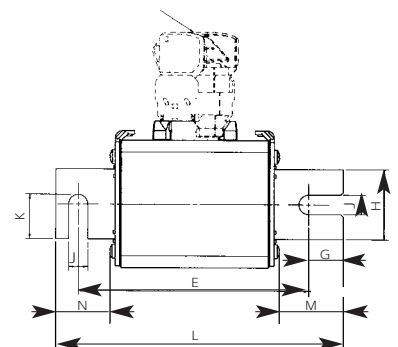
K dimensions are with studs Ref. Number W098804 in size 2x92 and X098805 in size 2x93.

Maximum balanced nut tightening torque: 26 Nm (M10) and 46 Nm - (M12)

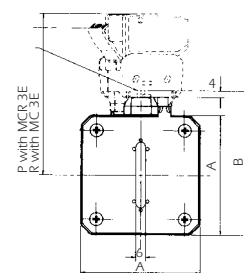
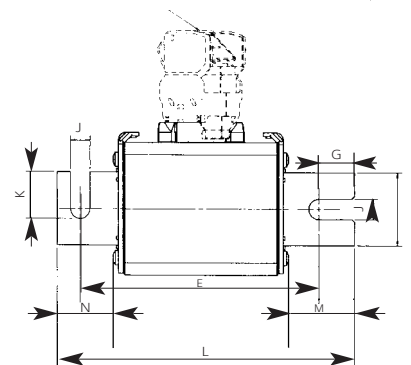
Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC German Blades (DIN 140)

Size	Designation	Reference Number	Weight (g)	Packaging	Catalog Number
91	15 URF 91 D14F 0100	Z 076 060	800	1	PC91UH15C100D4F
	15 URF 91 D14F 0125	A 076 061			PC91UF15C125D4F
	15 URF 91 D14F 0160	B 076 062			PC91UF15C160D4F
	15 URF 91 D14F 0180	C 076 063			PC91UF15C180D4F
	15 URG 91 D14F 0200	D 076 064			PC91UG15C200D4F
	15 URH 91 D14F 0250	T 076 101			PC91UH15C250D4F
	15 URH 91 D14F 0315	V 076 102			PC91UH15C315D4F
	15 URH 91 D14F 0350	W 076 103			PC91UH15C350D4F
	15 URF 91 D14A 0100	V 221 232*			PC91UF15C100D4A
	15 URF 91 D14A 0125	M 210 737*			PC91UF15C125D4A
	15 URF 91 D14A 0160	L 077 037*			PC91UF15C160D4A
	15 URF 91 D14A 0180	-			
	15 URG 91 D14A 0200	A 221 214*			PC91UG15C200D4A
	15 URH 91 D14A 0250	D 221 309*			PC91UH15C250D4A
	15 URH 91 D14A 0315	-			
	15 URH 91 D14A 0350	-			
92	15 URF 92 D14F 0200	F 076 066	1100	1	PC92UF15C200D4F
	15 URG 92 D14F 0250	G 076 067			PC92UG15C250D4F
	15 URK 92 D14F 0315	H 076 068			PC92UK15C315D4F
	15 URK 92 D14F 0350	J 076 069			PC92UK15C350D4F
	15 URH 92 D14F 0400	X 076 104			PC92UH15C400D4F
	15 URH 92 D14F 0500	Y 076 105			PC92UH15C500D4F
	15 URH 92 D14F 0550	Z 076 106			PC92UH15C550D4F
	15 URF 92 D14A 0200	-			
	15 URG 92 D14A 0250	-			
	15 URK 92 D14A 0315	C 097 959*			PC92UK15C315D4A
93	15 URH 92 D14A 0550	K 078 278*	1800	1	PC92UH15C550D4A
	15 URF 93 D14F 0250	K 076 070			PC93UF15C250D4F
	15 URF 93 D14F 0315	L 076 071			PC93UF15C315D4F
	15 URF 93 D14F 0350	M 076 072			PC93UF15C350D4F
	15 URG 93 D14F 0375	N 076 073			PC93UG15C375D4F
	15 URK 93 D14F 0400	P 076 074			PC93UK15C400D4F
	15 URK 93 D14F 0450	Q 076 075			PC93UK15C450D4F
	15 URK 93 D14F 0500	R 076 076			PC93UK15C500D4F
	15 URH 93 D14F 0630	A 076 107			PC93UH15C630D4F
	15 URJ 93 D14F 0700	B 076 108			PC93UJ15C700D4F
	15 URB 93 D14F 0750	S 076 123			PC93UB15C750D4F
	15 URF 93 D14A 0250	-			
	15 URF 93 D14A 0315	-			
	15 URF 93 D14A 0350	-			
	15 URG 93 D14A 0375	-			
	15 URK 93 D14A 0400	-			
	15 URK 93 D14A 0450	J078277			PC93UK15C450D4A
	15 URK 93 D14A 0500				

* D14A Type



D14F Type



Fuse Size	A	B	E ^{±2}	H	J	K	L ^{±2}	M	N	P	R
91 DIN 140	51	66	133-145	25	11,1	17,7	166	37,2	31,6	87,5	72,5
92 DIN 140	60	74	133-145	32	11,1	21,5	166	37,2	31,6	91,5	76,5
93 DIN 140	74,5	88	133-145	40	11,1	25,5	166	36,7	31,1	98,3	83,5

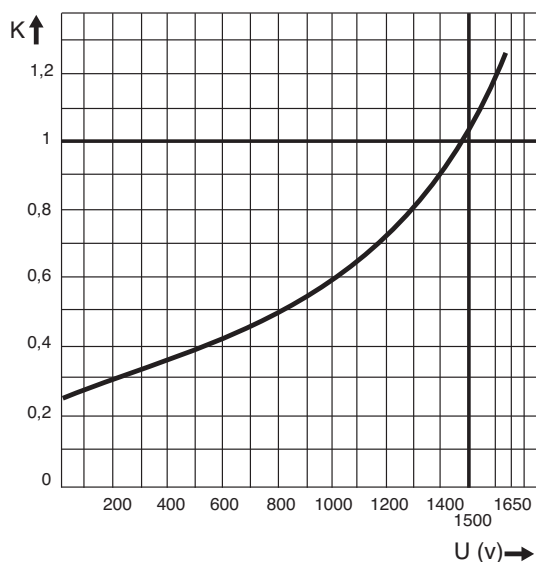
For other terminals: "US blades"; "D17A"; D17F; "D21A"; "D21F" consult us.
Microswitches supplied separately

Semiconductor (AC) fuses

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Curves set

I^2t corrective K factor

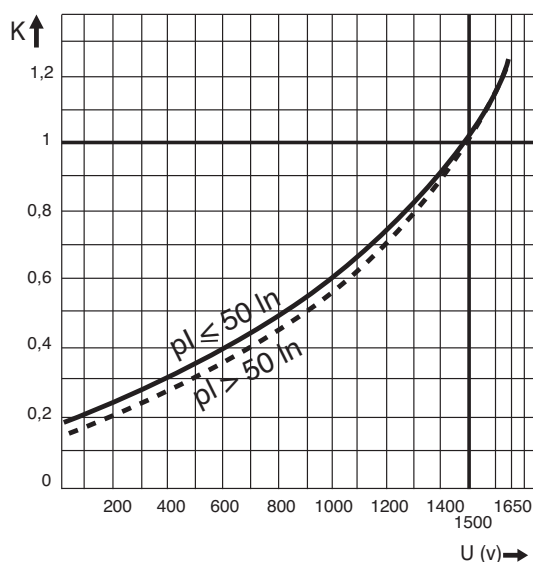
URF/URG/URK



U: R.M.S. working voltage V

K: I^2t corrective coefficient versus U

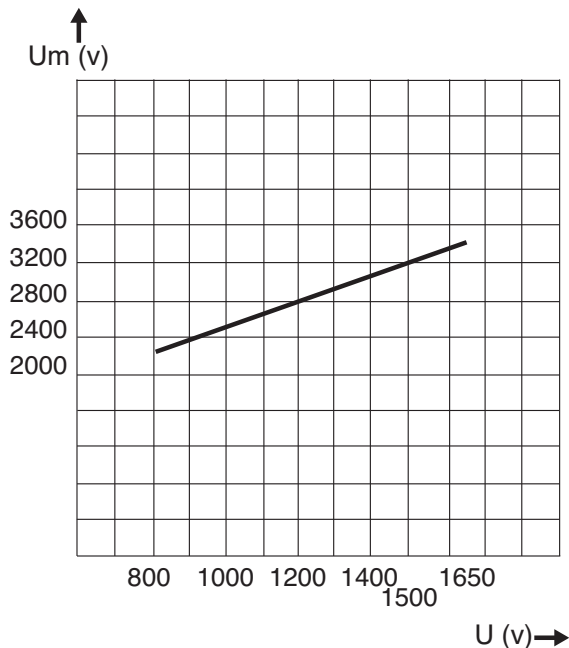
URB/URH/URJ



pl: Prospective Current in the fuse

Arc voltage

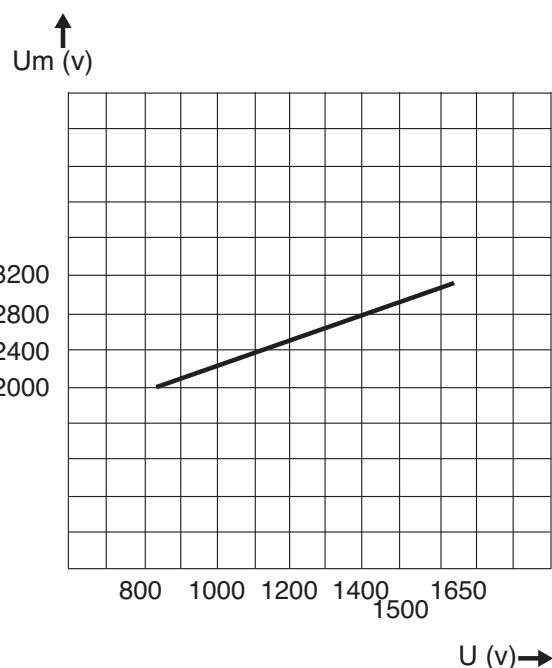
URF/URG/URK



U_m : arc voltage

U: R.M.S. working voltage V

URB/URH/URJ

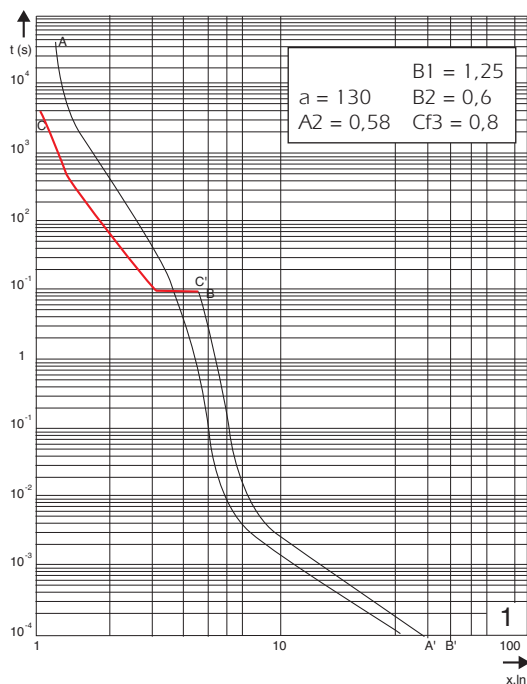




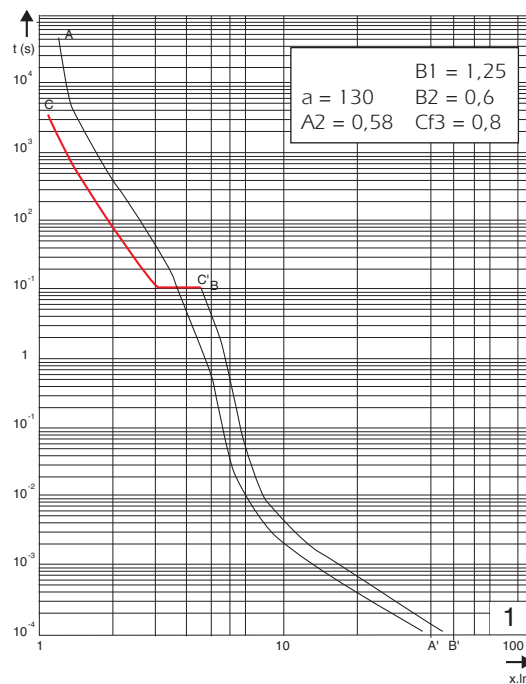
Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Curves set

Times/Current Characteristics

URF



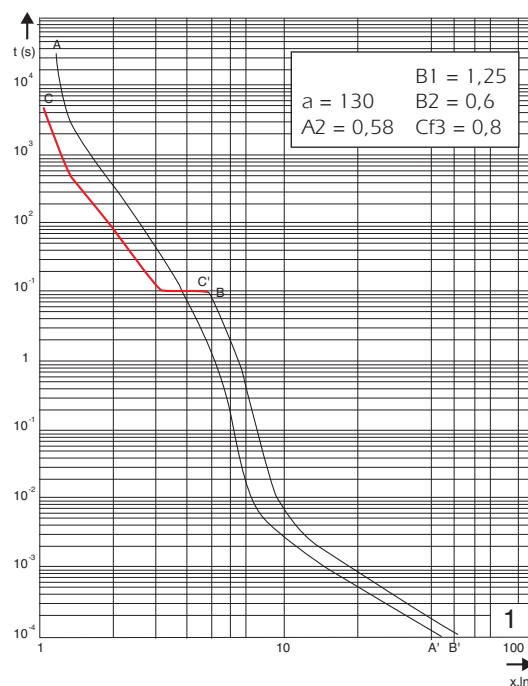
URG



t: actual prearcing time (s) (average value)

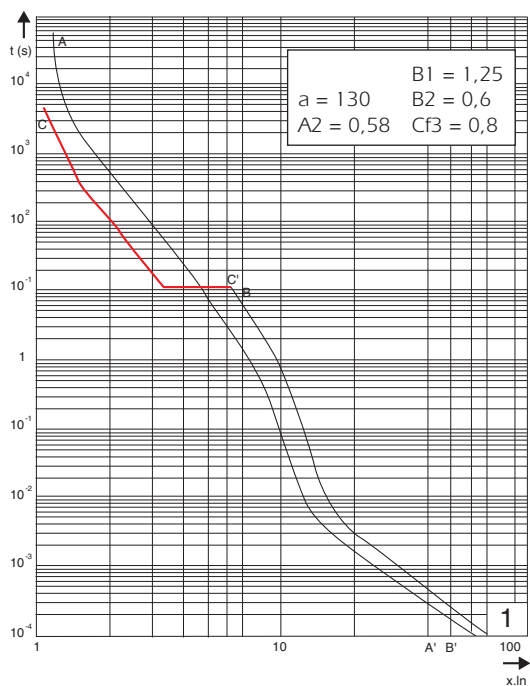
x:I_n: R.M.S. value of prearc current in multiples of rated current

URK

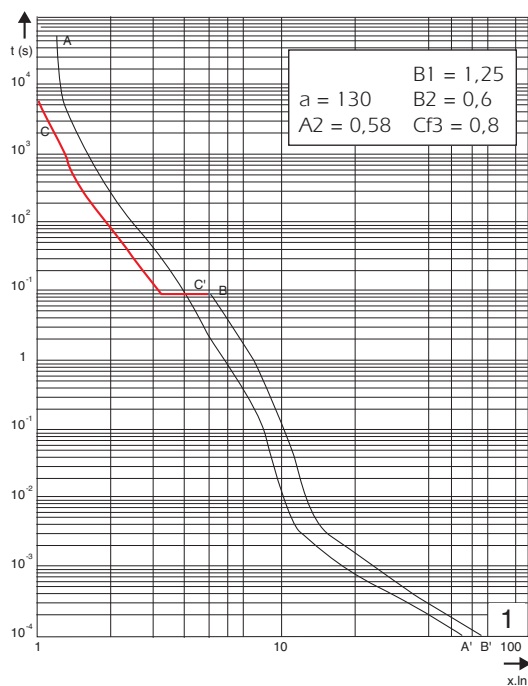


Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Curves set

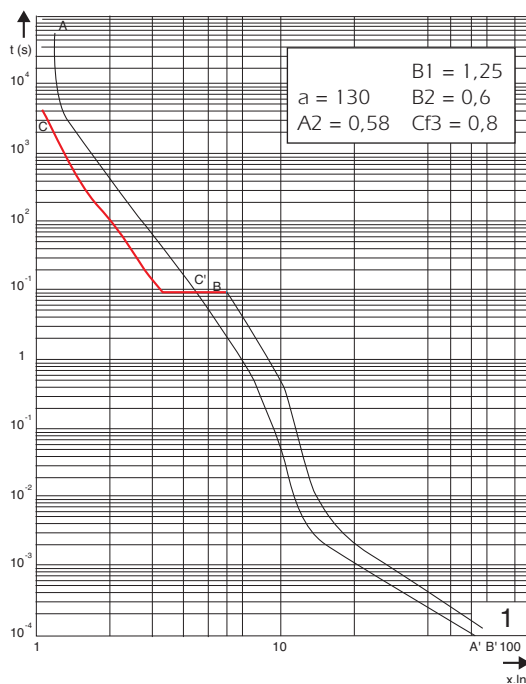
URB



URH



URJ





Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Fuses bases for German Blades (DIN 140)

Fuse Holders

For D14F size 91 use fuse holder SE 43-91 Ref Number X226179

For D14F sizes 92 and 93 use fuse holder SE 43-92 Ref Number Y226180

For D14F size 93 use fuse holder SF 50-93 Ref X209090

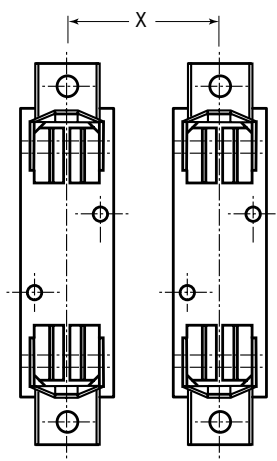
These fuse holders are usable with D14F fuses and MC3E1-. N.microswitches.

For D14A size 91 use fuse holder SE 43-91 Ref Number X226179

For D14A size 92 and 93 use fuse holder SE 43-92 Ref Number Y226180

For D14A size 93 use fuse holder SF 50-93 Ref. X209090

These fuses D14A are usable with all MC3E1-.N.and MCR 3E1-.N microswitches on all fuses holders.



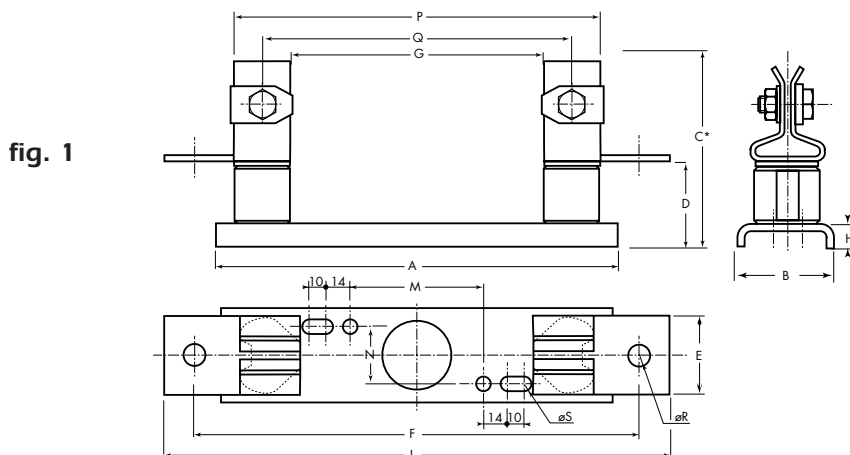
Distance "X" between poles axes (without partition)				
Fuses bases		Operating Voltage		
		1000 V	1250 V	1500 V
SE 43-91	X226179	71	76	79
SE 43-92	Y226180	80	85	88
SF 50-93	X209090	94,5	99,5	102,5

Protistor® Square-body Fuses

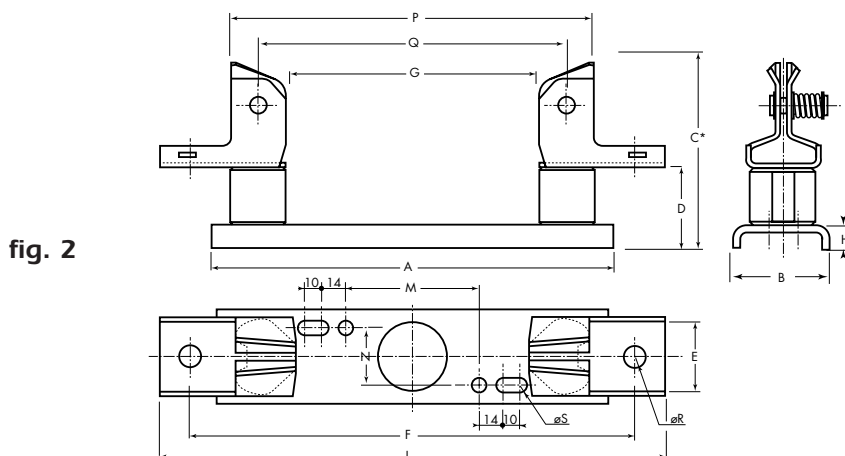
PSC aR sizes 9x - 1500 VAC

Fuses bases for German Blades (DIN 140)

"SF" BOLTED TIGHTENING (SF 50-93)



"SE" ELASTIC TIGHTENING (SE 43-91 ; SE 43-92)



Reference Number	Designation	Drawing#	Catalog Number	A	B	C*	D	E	F	G	H	L	M	N	P	Q	ØR	ØS
X226179	SE 43-91	2	SE43-91	174	42	121	53	32	209	111	10	241	86	28	161	136	10,5	5,5
Y226180	SE 43-92	2	SE43-92	176	54	131	55	42	230	106	15	266	23	35	176	141	12,5	8,5
X209090	SF 50-93	1	SF50-93	200	60	176	70	40	236	106	15	276	47	35	176	141	18	8,5

* C are the dimensions to the top of the "D14F" fuses

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Microswitches for other square-body Protistor®



- REMOTE SIGNALING SYSTEMS FOR FITTING ON
FERRAZ SHAWMUT FUSES EQUIPPED WITH MICROSWITCH SUPPORT:
all square-body sizes 44 / 8X / 9X / 12X / 17X / 30X and 60X
- PERMANENT INDICATION OF FUSE STATE
 - CONDUCTIVE
 - BLOWN
- MANUAL RESETTING
- STANDARD AND LOW ELECTRICAL LEVEL WITH DIFFERENT INSULATION LEVELS
- VAPOR AND WATERTIGHT MODEL FOR USE IN CORROSIVE ATMOSPHERE

Main Characteristics

Type	Designation	AC or DC Insulation voltage rating Ui [V]	AC voltage withstand test (*)	Impulse voltage test Uimp1,2/50 µs (**)	Positive operating min.voltage /min.current	Current rating	Interrupting rating						
							Current	Non-inductive circuit			Inductive circuit; L/R = 25ms		
								30V	110V	250V	30V	110V	250V
Standard	MC3E 1-5N	1250V	15 kV	20 kV	20 V	5 A	50/60 Hz	10 A	10 A	7 A			6 A
	MCR3E 1-5N	2200	20 kV	30 kV	50 mA		DC	5 A	0.5 A			1,6 A	0,3 A
Low level	MC3E 1-5NBS	1250 V	15 kV	20 kV	10 V 10 mA	3 A	50/60 Hz	3 A	3 A	3 A	2 A	1 A	1 A
	MC3E 1-9NBS		2200 V	20 kV (1)				30 kV	DC	3 A	0.5 A	0,25A	3 A
	MCR3E 1-5NBS	6000 V		23 kV (2)			40 kV						
	MCR3E 1-9NBS		24 kV (1)										
Watertight IP 50	MC3E 1-5NET	1250 V	11 kV	16 kV	10 V 10 mA	3 A	50 Hz		3 A	3 A		1 A	1 A
	MCR3E 1-5NET	2200 V	20 kV (1)	30 kV			DC						
	MC2R3E 1-5NET	6000 V	24 kV (2)	40 kV					0.5 A			0,2 A	

Catalog Numbering system: MC3E 1-5 single pole microswitch - MC3E 1-9 double pole microswitch - MCR, MC2R reinforced insulation microswitch.

* 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 according to IEC 947-1.

*** Between power circuit and microswitch terminals

(1) fitting sizes 44 - 70 - 71 - 72 - 73 - 83 - 84 fuses.

(2) fitting sizes 91 - 92 - 93 - 94 - 120 - 121 - 122 - 123 - 124 fuses.

(3) fitting sizes 171 - 172 - 173 - 174 - 300 - 302 - 600 - 602 fuses.

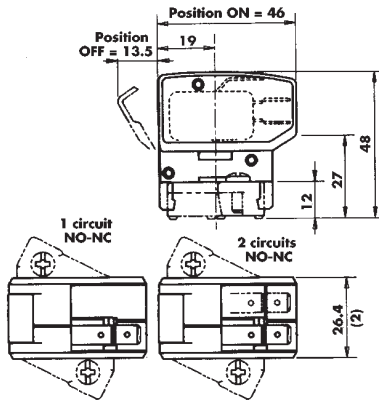
Semiconductor (AC) fuses

Protistor® Square-body Fuses

PSC aR sizes 9x - 1500 VAC

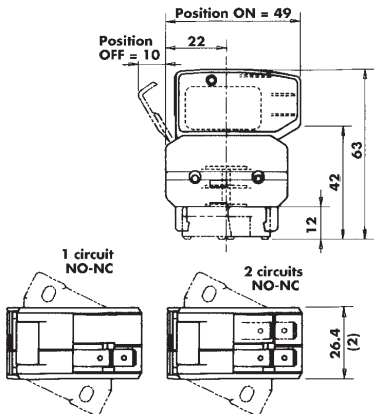
Microswitches for other square-body Protistor®

Remote signaling with 1250 V AC/DC insulation voltage



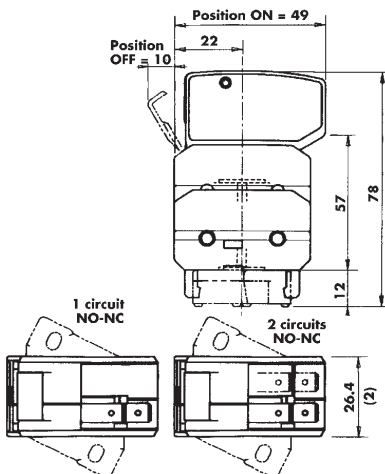
Quantity of NO-NC separated circuits	Contact	Designation	Ref. Number	Weight (g)	Pack. (1)	Catalog Number
1	standard	MC3E 1-5N	D310020	39.5	3	MC3E1-5N
1	low level	MC3E 1-5NBS	E310021	39.5	3	MC3E1-5NBS
2	low level	MC3E 1-9NBS	F310022	45.7	3	MC3E1-9NBS
1	watertight	MC3E 1-5NET	L310027	40.2	3	MC3E1-5N ETANCHE

Remote signaling with insulation voltage up to 2200 V AC/DC



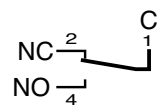
Quantity of NO-NC separated circuits	Contact	Designation	Ref. Number	Weight (g)	Pack. (1)	Catalog Number
1	standard	MCR3E 1-5N	G310023	51.7	1	MCR3E1-5N
1	low level	MCR3E 1-5NBS	P310030	51.7	1	MCR3E1-5NBS
2	low level	MCR3E 1-9NBS	H310024	58.0	1	MCR3E1-9NBS
1	watertight	MCR3E 1-5NET	Q310031	52.5	1	MCR3E1-5N ETANCHE

Remote signaling with insulation voltage up to 6000 V AC/DC

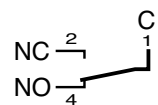


Quantity of NO-NC separated circuits	Contact	Designation	Ref. Number	Weight (g)	Pack. (1)	Catalog Number
1	low level	MC2R3E 1-5NBS	J310025	64.0	1	MC2R3E1-5NBS
1	watertight	MC2R3E 1-5NET	N310029	64.8	1	MC2R3E1-5NET
2	low level	MC2R3E 1-9NBS	K310026	70.3	1	MC2R3E1-9NBS

Electrical diagram of each microswitch circuit



Non-blown fuse
Microswitch ON



Blown fuse
Microswitch OFF

All of these signalling systems are hand resettable and fitted with silver-plated 3-terminal microswitch C, NO and NC.

The C terminal is on the top and connection is made via 6.35 mm clips except for watertight models whose clips are 4.8 mm wide.

NOTE (2): The 26.4 dimension is the same with 1 or 2 separated circuits NO-NC.

Tests with sine vibrations carried out at ambient with scanning of the three main holder axes.

Spectrum: 1st segment (2 to 16 Hz) constant trip $x = 5$ mm peak.

2nd segment (16 to 250 Hz) constant acceleration $g = 5$ g peak.

Exponential scanning speed : 1 octave per minute.

Duration: 2 hours per axis.

Protistor® Square-body Fuses PSC aR sizes 9x - 1500 VAC Metric-studs

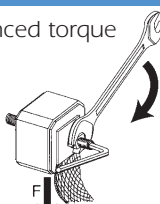
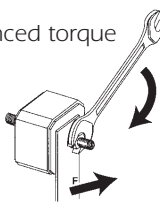
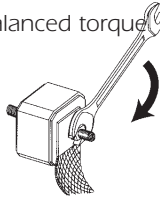
Metric studs for threaded terminal fuses



Type and fuse size	Designation	Ref. Number	Unit weight (g)	Pack.	Catalog Number
 Sizes 0 and 1 Size 2 Size 3	HC stud pair M8x30 & M8x35	S098801	23	6 pairs	STU M8x30 M8x35
	HC stud pair M10x30 & M10x50	T098802	40	6 pairs	STU M10x30 M10x50
	HC stud pair M12x35 & M12x50	V098803	60	6 pairs	STU M12x35 M12x50
 Size 2 Size 3	HC stud pair M10x50	W098804	45	6 pairs	STU M10x50
	HC stud pair M12x50	X098805	45	6 pairs	STU M12x50

We recommend the use of studs, whose quality is suited to all FERRAZ SHAWMUT square-body fuses with terminals

Stud mounting

Torque type	Stud type	Maximum stud tightening torque (Nm) (1)	Maximum nut tightening torque (Nm) (1)
Balanced torque 	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46
Balanced torque 	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46
Unbalanced torque 	M8x30 & M8x35	10	13.5
	M10x30 & M10x50	15	26
	M12x35 & M12x50	15	46

(1) Factory limit on torque at 20°C ambient: +0, -2Nm; except on 46Nm value (+0, -4Nm)