

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Main characteristics

### 450 TO 700VAC / 63 TO 2800A

 Recognized

- Exceptionally low  $I^2t$ , Watt losses.
- Non-magnetic construction,
- Highly reliable low voltage
- Trip-indicator system, conformity to UL, 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 660 V,  $f=50\text{Hz}$   $\cos \varphi=0.15$ , 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.

# Semiconductor (AC) fuses



## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Main characteristics

Estimated breaking capacity: 300kA

Size	Nominal Voltage (VAC)		Ampere Rating (A)	Pre-arcing I <sup>2</sup> t @ 1ms (kA <sup>2</sup> s)	Total I <sup>2</sup> t @ 660V (*) @ Un (kA <sup>2</sup> s)	Power Pn (W)		Tested Breaking capacity (kA)	
	IEC	USA				End contact	Blades	IEC @ 690V (*) @ Un	USA @ 700V (*) @ Un
30	690	700	50	0,116	0,62	9	9	200	200
			63	0,2	1,1	14	14		
			80	0,33	1,8	19	19		
			100	0,47	2,5	26	26		
			125	0,85	4,5	30	30		
			160	1,6	8,5	37	37		
			200	3	15,5	42	43		
			250	5,8	30	48	50		
			315	12	62	53	55		
			350	15,5	80	57	60		
			400	23	120	60	65		
			450	26	150	80	88		
			500	41	240	80	88		
			550	52	300	80	90		
31	690	700	630	84	450(*)	85	95	200	200
			160	1,3	7	35	35		
			200	2,6	13,5	45	45		
			250	4,7	25	52	52		
			315	7,5	40	65	65		
			350	10,5	55	67	67		
			400	19	100	68	68		
			450	26,5	140	70	70		
			500	37	195	70	72		
			550	52	280	70	75		
			630	75	390	75	85		
			700	95	490	85	95		
			800	140	800	105	120		
			315	5,2	28,9	71	71		
350	8,9	48,8	71	74					
400	15	80	72	75					
450	22	115	77	80					
500	28	145	85	90					
550	37	195	90	95					
630	54	280	95	105					
700	76	400	100	110					
800	115	600	110	120					
900	170	900	110	125					
1000	240	1250	115	135					
1100	270	1450(*)	140	165					
1250	410	1950(*)	150	180					
1400	555	2300(*)	160	200					
1600	870	3600(*)	165	205					
1800	1050	3700(*)	195	230					
32	690	700	450	13,45	74,1	84	88	200	200
			500	19	100	105	105		
			550	27	140	105	110		
			630	40	210	110	120		
			700	55	300	115	125		
			800	95	490	120	130		
			900	135	700	120	135		
			1000	170	900	135	155		
			1100	240	1260	135	160		
			1250	350	1850	150	180		
			1400	480	2500	160	200		
			1500	500	2500(*)	210	240		
			1600	555	2900(*)	210	240		
			1800	720	3870(*)	225	260		
2000	950	4500(*)	250	290					
2250	1250	5160(*)	280	320					
2500	1870	6540(*)	280	330					
33	690	700	800	60	320	144	144	200	200
			1000	110	590	165	165		
			1250	220	1100	190	190		
			1400	300	1600	200	200		
			1600	450	2400	220	220		
			1800	700	3500	225	225		
			2000	950	5000	235	235		
			2200	1100	5250(*)	280	280		
			1000	76	395	220	220		
			1250	160	850	230	230		
			1400	225	1200	240	240		
			1600	375	1900	250	250		
			1800	530	2800	250	250		
			2000	700	3100(*)	280	280		
2200	950	4400(*)	280	280					
2500	1400	6600(*)	310	310					
2800	1900	8800(*)	330	330					
2X32	690	700	800	60	320	144	144	200	200
			1000	110	590	165	165		
			1250	220	1100	190	190		
			1400	300	1600	200	200		
			1600	450	2400	220	220		
			1800	700	3500	225	225		
2x33	690	700	2000	950	5000	235	235	170	170
			2200	1100	5250(*)	280	280		
			1000	76	395	220	220		
			1250	160	850	230	230		
			1400	225	1200	240	240		
			1600	375	1900	250	250		
2x33	600	650	2000	700	3100(*)	280	280	160(*)	160(*)
			2200	950	4400(*)	280	280		
			2500	1400	6600(*)	310	310		
			2800	1900	8800(*)	330	330		

For others Ampere ratings consult us  
12/04

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC IEC Terminals French - 30 - 33 Blades

Size	Designation	Reference Number	Weight (g)	Packaging	Base	I/I <sub>N</sub> *	Catalog Number
30	6,9 URD 30 E F 0050	R300372	290	3	SP30	0,95	PC30UD69V50EF
	6,9 URD 30 E F 0063	H300088					PC30UD69V63EF
	6,9 URD 30 E F 0080	J300089					PC30UD69V80EF
	6,9 URD 30 E F 0100	K300090					PC30UD69V100EF
	6,9 URD 30 E F 0125	L300091					PC30UD69V125EF
	6,9 URD 30 E F 0160	M300092					PC30UD69V160EF
	6,9 URD 30 E F 0200	N300093					PC30UD69V200EF
	6,9 URD 30 E F 0250	P300094					PC30UD69V250EF
	6,9 URD 30 E F 0315	O300095					PC30UD69V315EF
	6,9 URD 30 E F 0350	R300096					PC30UD69V350EF
	6,9 URD 30 E F 0400	S300097					PC30UD69V400EF
	31	6,9 URD 31 E F 0160					B301922
6,9 URD 31 E F 0200		C300037	PC31UD69V200EF				
6,9 URD 31 E F 0250		D300038	PC31UD69V250EF				
6,9 URD 31 E F 0315		E300039	PC31UD69V315EF				
6,9 URD 31 E F 0350		N300047	PC31UD69V350EF				
6,9 URD 31 E F 0400		F300040	PC31UD69V400EF				
6,9 URD 31 E F 0450		G300041	PC31UD69V450EF				
6,9 URD 31 E F 0500		H300042	PC31UD69V500EF				
6,9 URD 31 E F 0550		J300043	PC31UD69V550EF				
6,9 URD 31 E F 0630		K300044	PC31UD69V630EF				
6,9 URD 31 E F 0700		L300045	PC31UD69V700EF				
32		6,9 URD 32 E F 0400	V300168	590	3	SE32	0,95
	6,9 URD 32 E F 0450	W300169	PC32UD69V450EF				
	6,9 URD 32 E F 0500	X300170	PC32UD69V500EF				
	6,9 URD 32 E F 0550	Y300171	PC32UD69V550EF				
	6,9 URD 32 E F 0630	Z300172	PC32UD69V630EF				
	6,9 URD 32 E F 0700	A300173	PC32UD69V700EF				
	6,9 URD 32 E F 0800	B300174	PC32UD69V800EF				
	6,9 URD 32 E F 0900	C300175	PC32UD69V900EF				
	6,9 URD 32 E F 1000	D300176	PC32UD69V1000EF				
	33	6,9 URD 33 E F 0500	Z300218				
6,9 URD 33 E F 0550		A300219	PC33UD69V550EF				
6,9 URD 33 E F 0630		B300220	PC33UD69V630EF				
6,9 URD 33 E F 0700		C300221	PC33UD69V700EF				
6,9 URD 33 E F 0800		D300222	PC33UD69V800EF				
6,9 URD 33 E F 0900		E300223	PC33UD69V900EF				
6,9 URD 33 E F 1000		F300224	PC33UD69V1000EF				
6,9 URD 33 E F 1100		G300225	PC33UD69V1100EF				
6,9 URD 33 E F 1250		H300226	PC33UD69V1250EF				
6,9 URD 33 E F 1400		J300227	PC33UD69V1400EF				



\*I/I<sub>N</sub>: Ratio "maximum continuous permissible RMS current I<sub>N</sub>" for a fuse fitted into the bases.

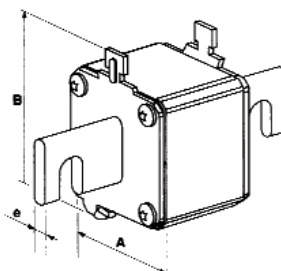
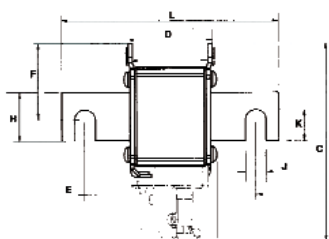
Connections defined as per IEC 60269-1 and for a calm ambience of 30°C.

Use the pullout grip PM3 (T097675) for fuse sizes 30, 31, 32.

Fuse holders and microswitches supplied separately. (see Fuse Holders and microswitches PSC 3x & 7x sections)

Size	A	B	C	D	E <sup>+1,1</sup>	L	F	H	J	K	e
30	40	62	96	44,6	76,6	100	38	18	9	11	6
31	51	69	103	44,6	86,6	110	39	25	10,5	16	6
32	60	78	112	44,6	91	126	43	32	13	21,2	6
33	74,5	92,5	127	44,6	91	126	57	40	13	19,5	6

Dimensions in mm



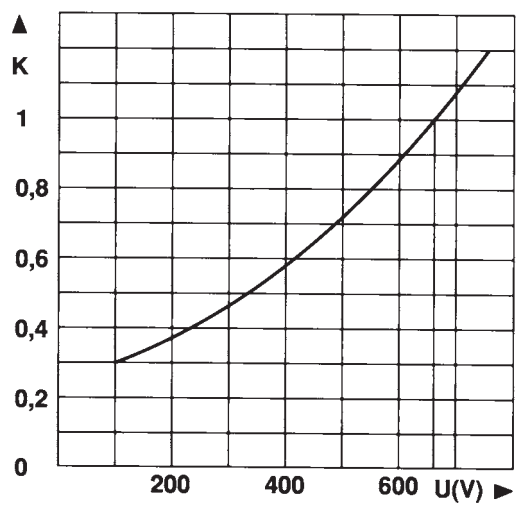


# Semiconductor (AC) fuses

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

Sizes 30 - 31 - 32 - 33

### I<sup>2</sup>t Multiplier coefficient



Mean curve indicating variation of total I<sup>2</sup>t (I<sup>2</sup>t<sub>t</sub>) and total operating time T<sub>t</sub> in accordance with working voltage U.

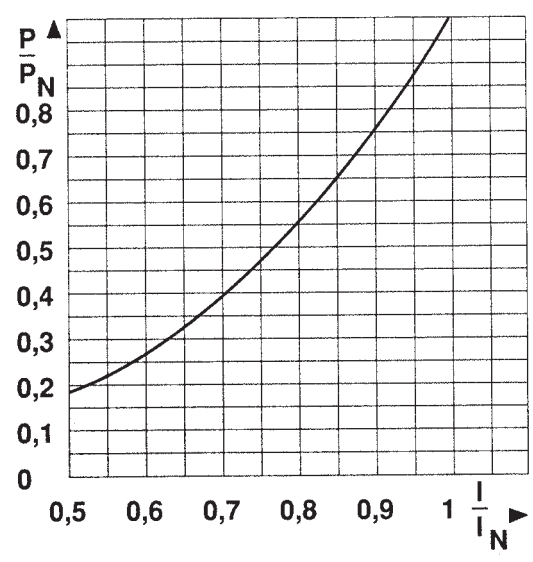
#### Example:

Fuse 350 A in size 30.  
I<sub>p</sub> = 10 000 A U = 500 V

At 660 V  
I<sup>2</sup>t<sub>t</sub> = 80 000 A<sup>2</sup>s T<sub>t</sub> = 6 ms

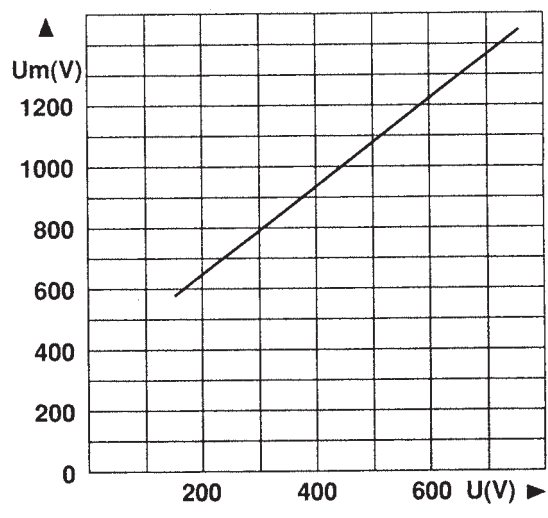
At 500 V  
I<sup>2</sup>t<sub>t</sub> = 80 000 x 0.72 = 57 600 A<sup>2</sup>s  
T<sub>t</sub> = 6 x 0.72 = 4.3 ms

### Dissipated power



Curve enabling calculation of dissipated power P by a fuse rated I<sub>N</sub>, as a function of the RMS current I, in multiples of I<sub>N</sub>, in a steady state.

### Arc voltage

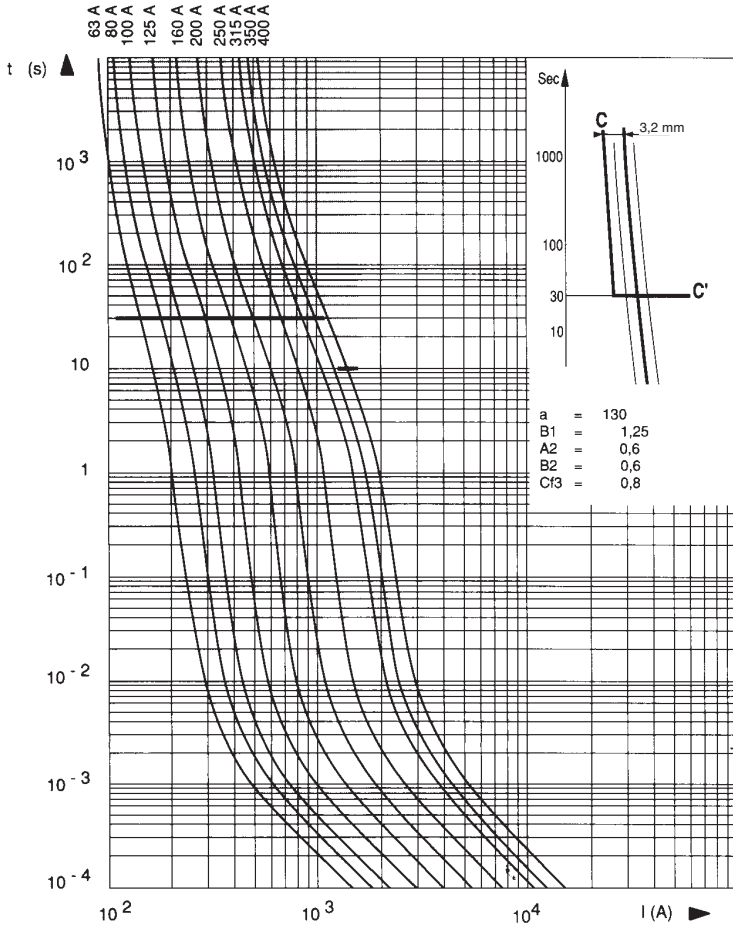


Curve indicating peak arc voltage U<sub>m</sub> which may appear across fuse terminals as function of working voltage U at cos φ = 0.15



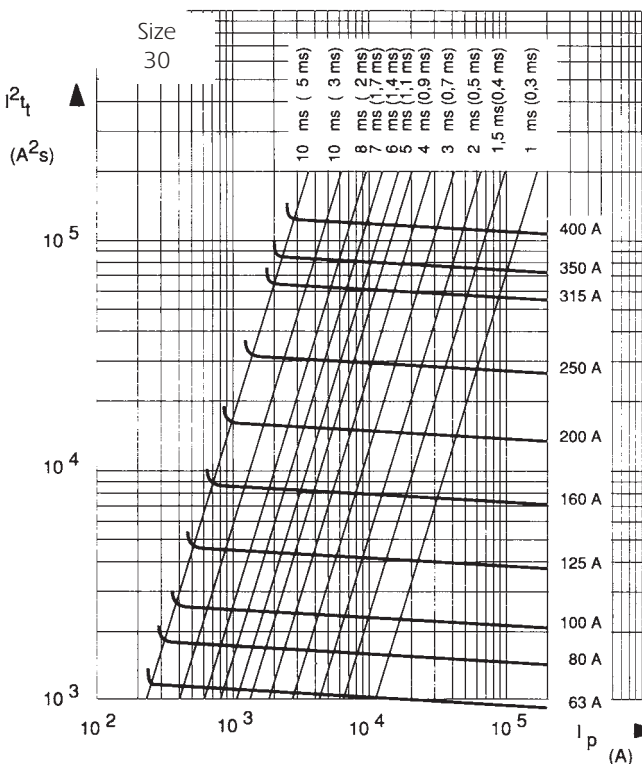
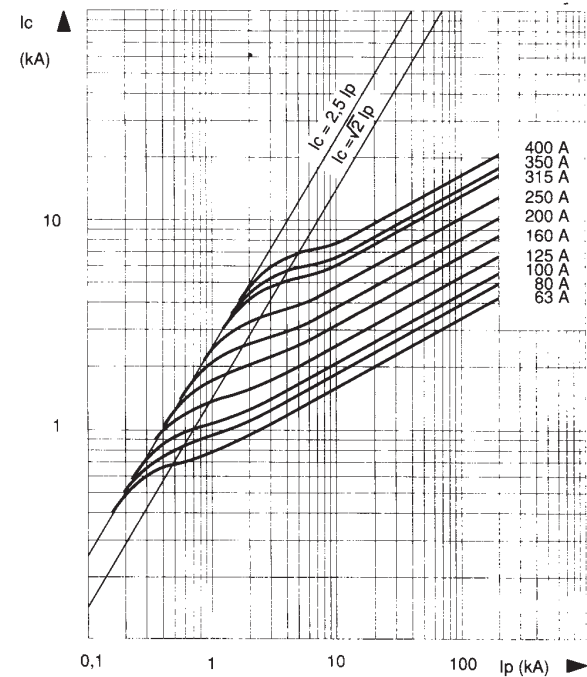
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

### Size 30



### ↓ 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 or 10 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

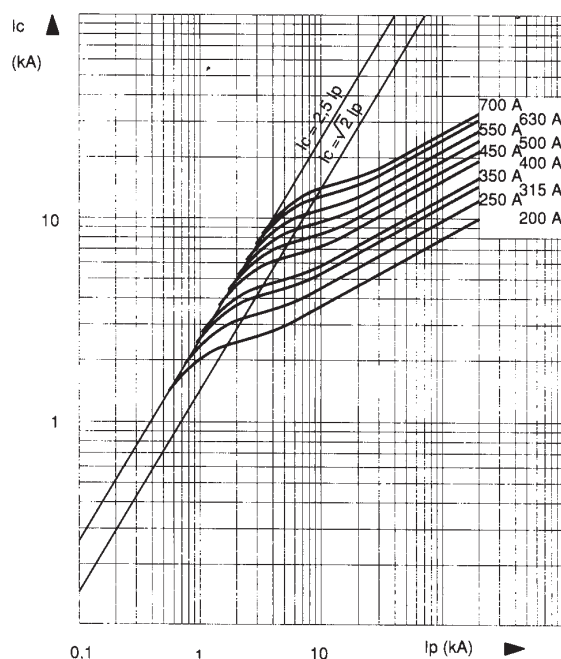
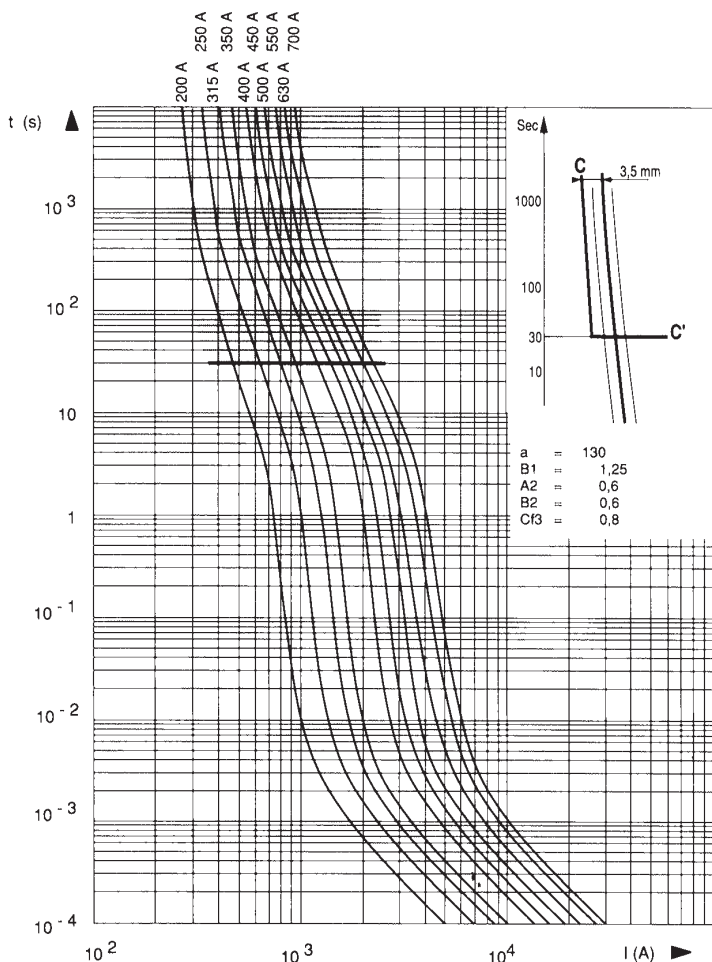
Left: Horizontal curves indicating the maximum values of total operating  $I^2t$  ( $I^2t_t$ ) as function of the prospective current  $I_p$  at 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_T$ , with pre-arcing time in brackets.

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

Size 31

### ↓ 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  $I_P$ .



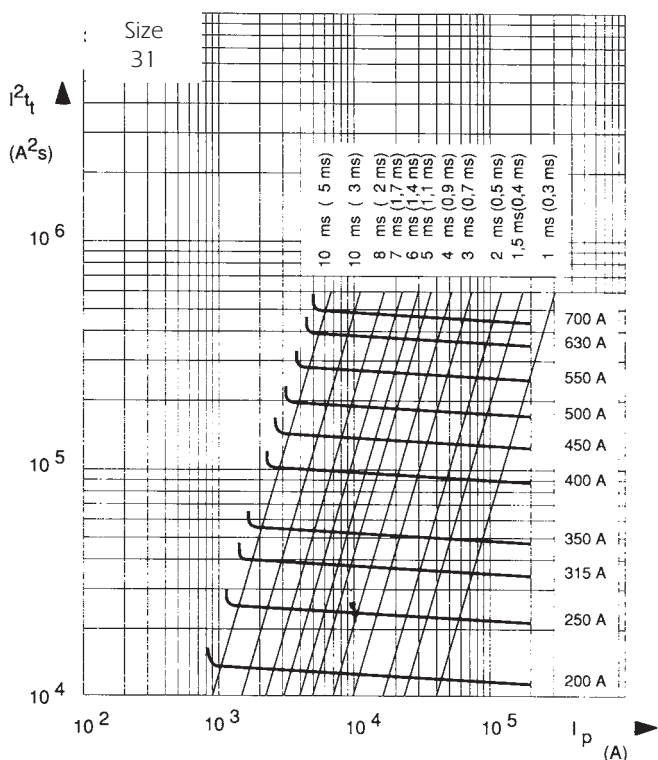
### ↑ Time-current characteristics

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 or 10 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

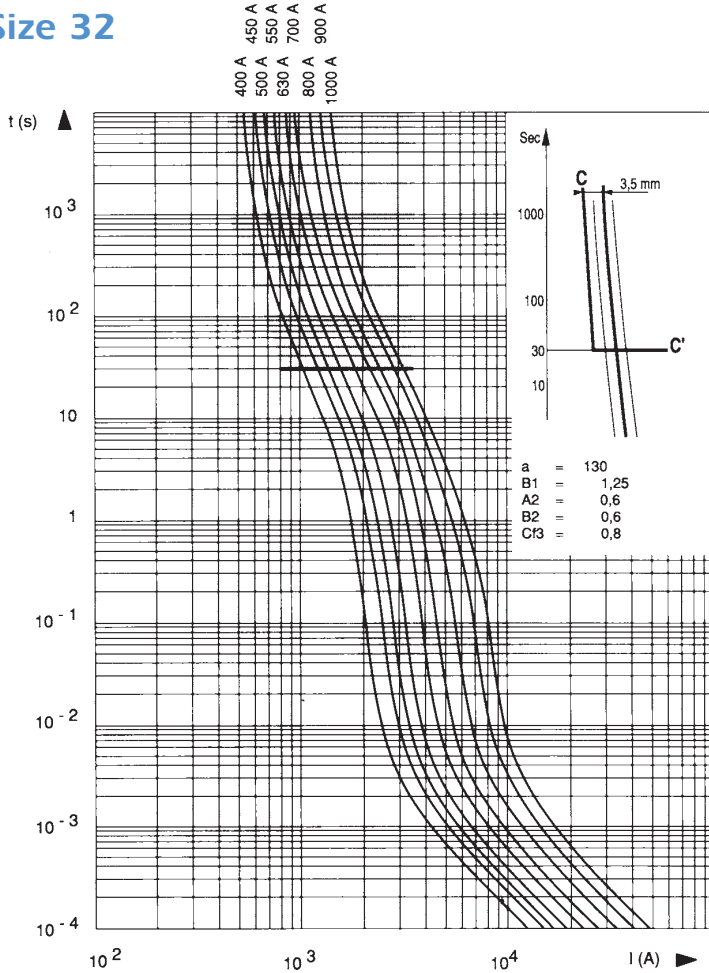
Left: Horizontal curves indicating the maximum values of total operating  $I^2t$  ( $I^2t_t$ ) as function of the prospective current  $I_P$  at 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_T$ , with pre-arcing time in brackets.





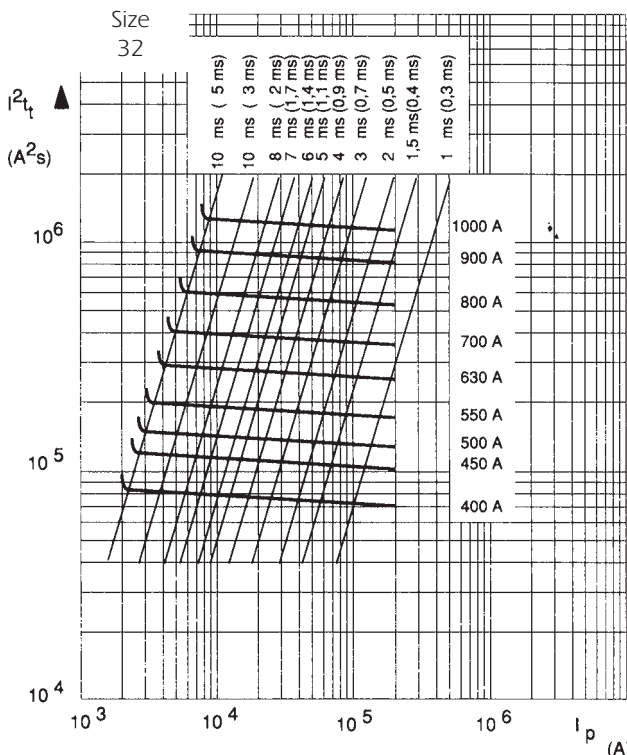
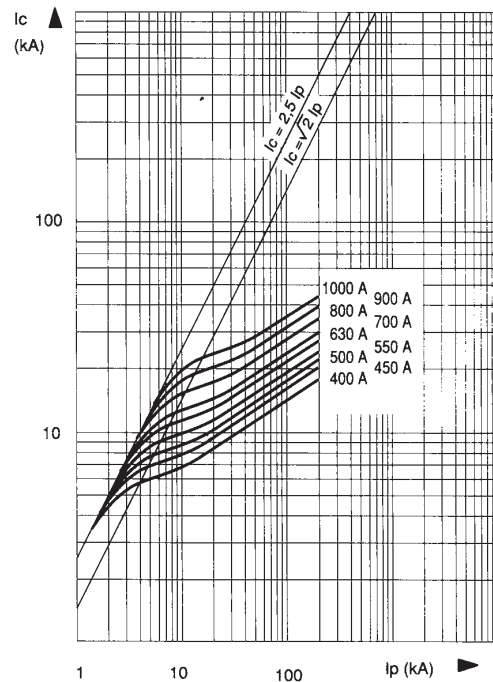
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

### Size 32



### ↓ 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  $I$ .

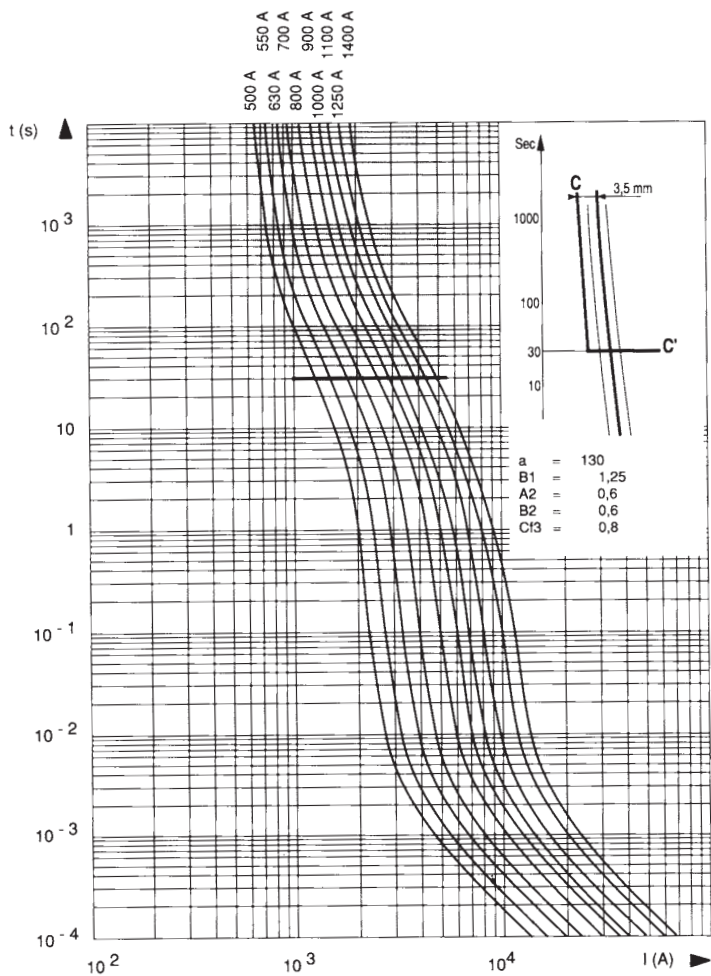
- Tolerances on this current  $\pm 8\%$ .
- Beyond 30 sec or 10 sec, small overloads must be eliminated by another device.
- Curve CC' represents the maximum times taken by the associated device to clear small overloads; only its horizontal line is represented. Its oblique line must be plotted according 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 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_t$ , with pre-arcing time in brackets.

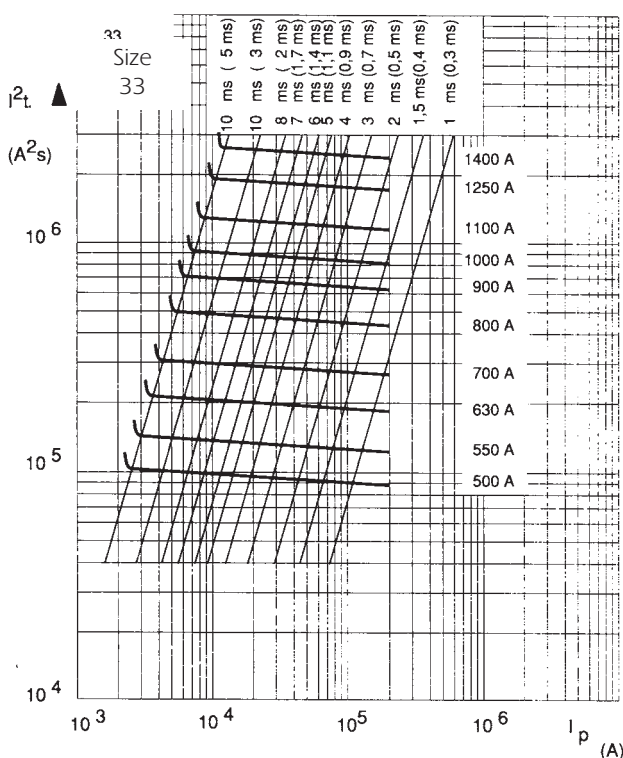
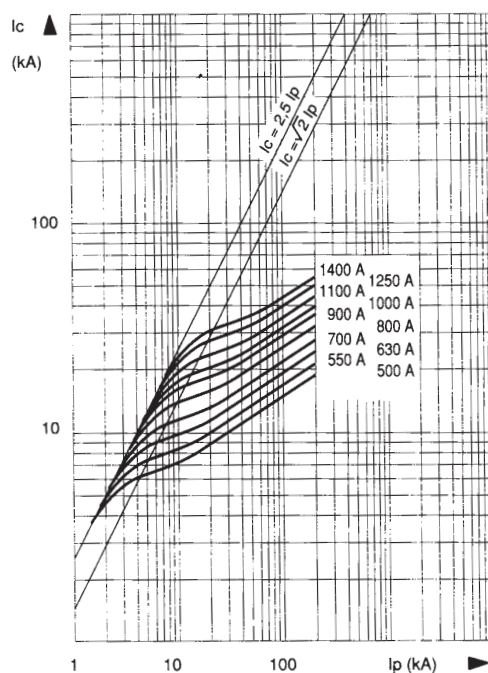
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

Size 33



### ↓ 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 or 10 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.

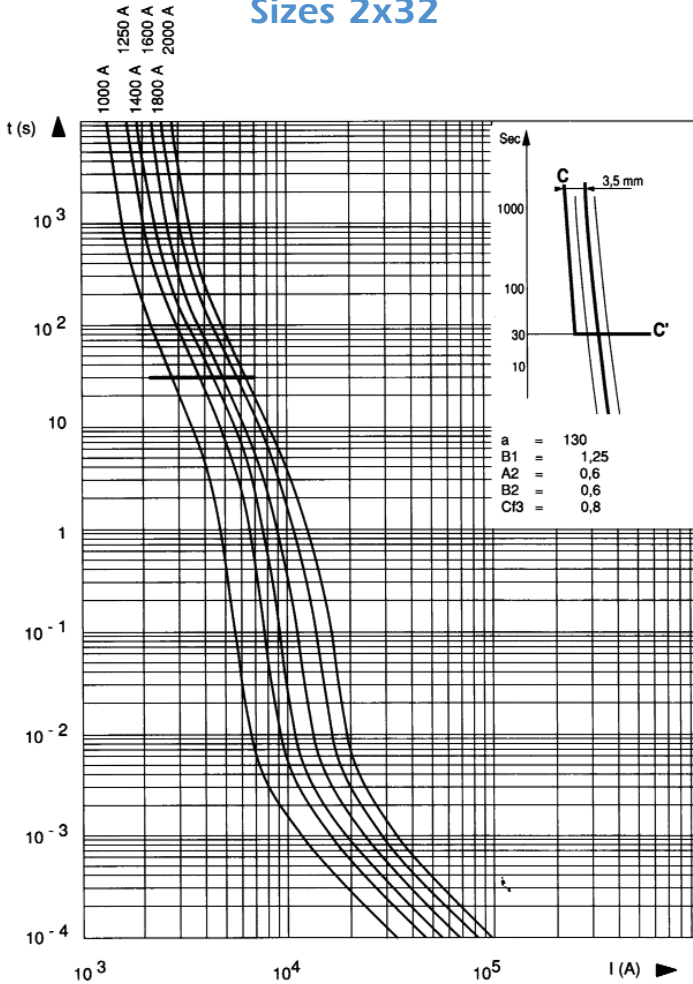
### ← Maximum values of total operating $I^2t$ and total operating times

Left: Horizontal curves indicating the maximum values of total operating  $I^2t$  ( $I^2t_t$ ) as function of the prospective current  $I_p$  at 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_t$ , with pre-arcing time in brackets.



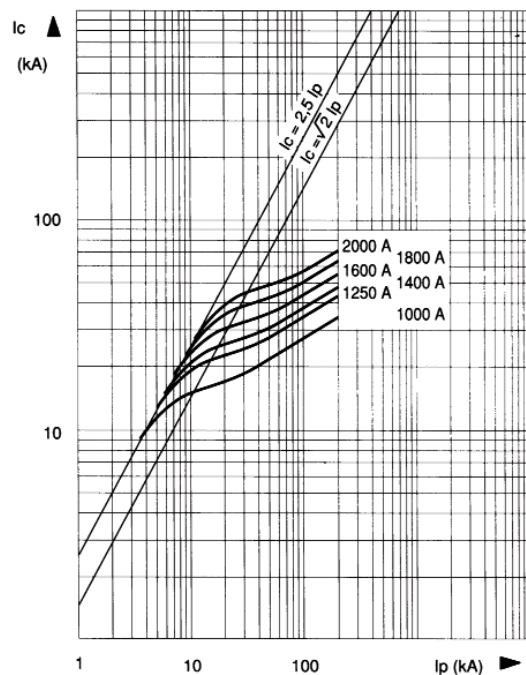
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

### Sizes 2x32



### ↓ Cut-off characteristics

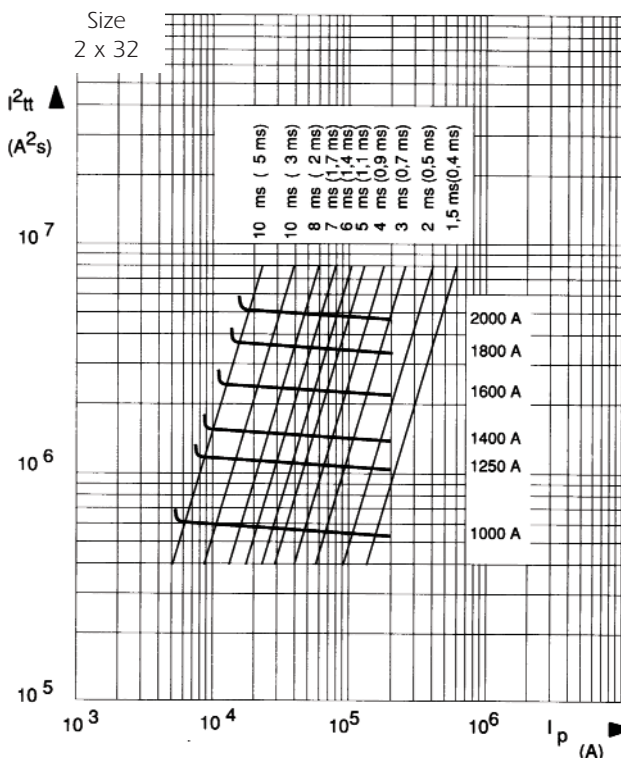
Below, right: Curves indicating for each rated-current the peak value  $I_C$  that the current may reach as a function of the prospective fault current  $I_p$ .



### ↑ 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 or 10 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

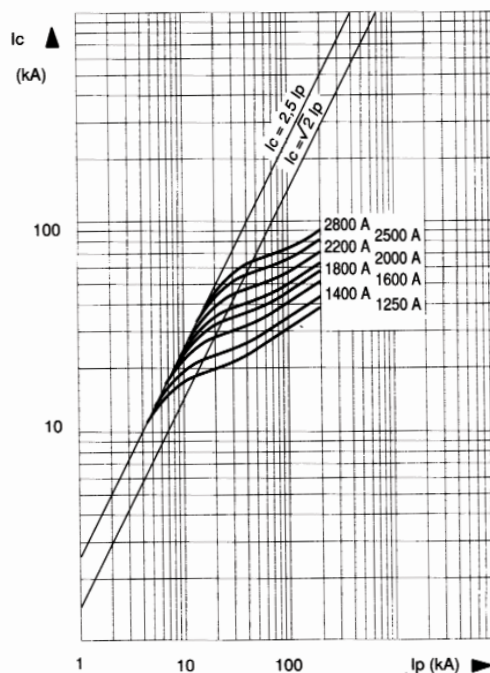
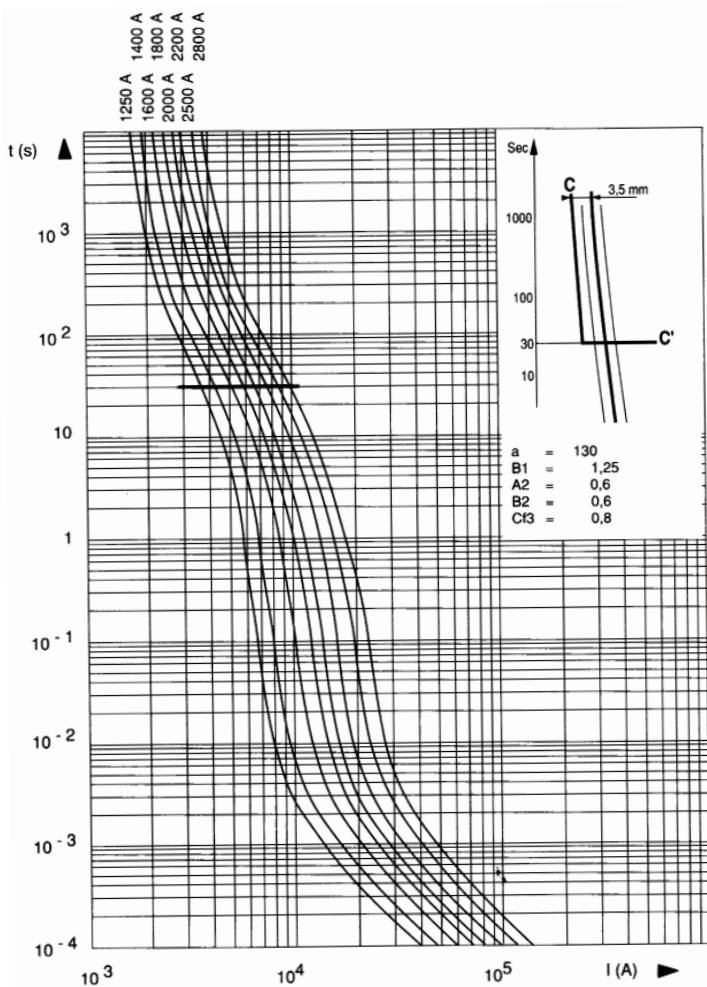
Left: Horizontal curves indicating the maximum values of total operating  $I^2t$  ( $I^2t_t$ ) as function of the prospective current  $I_p$  at 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_t$ , with pre-arcing time in brackets.

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

Size 2x33

### ↓ Cut-off characteristics

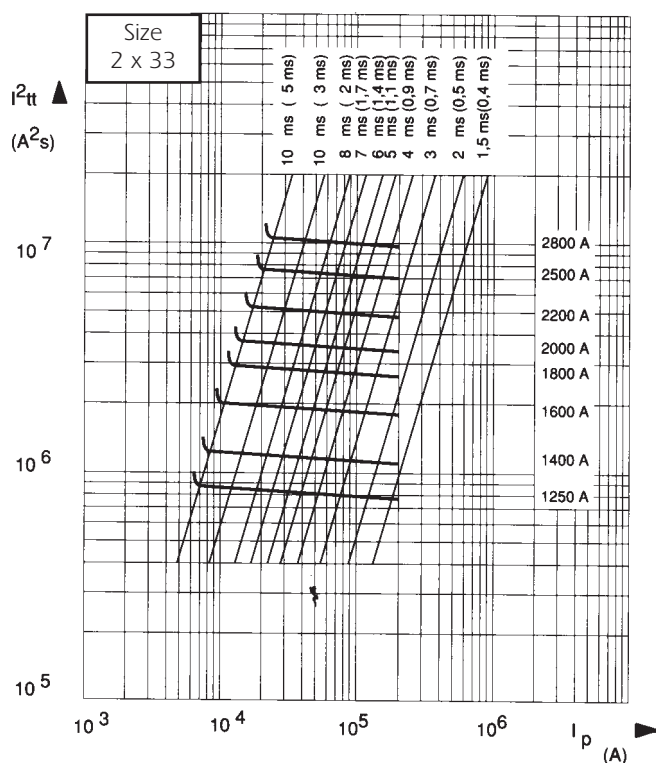
Below, right: Curves indicating for each rated current the peak value  $I_C$  that the current may reach as a function of the prospective fault current  $I_p$ .



### ↑ 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 or 10 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

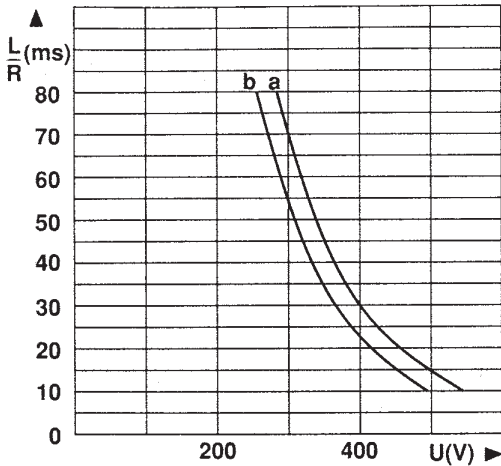
Left: Horizontal curves indicating the maximum values of total operating  $I^2t$  ( $I^2t_t$ ) as function of the prospective current  $I_p$  at 660 V,  $\cos \varphi = 0.15$ . The oblique lines indicate the corresponding total operating time  $T_t$ , with pre-arcing time in brackets.



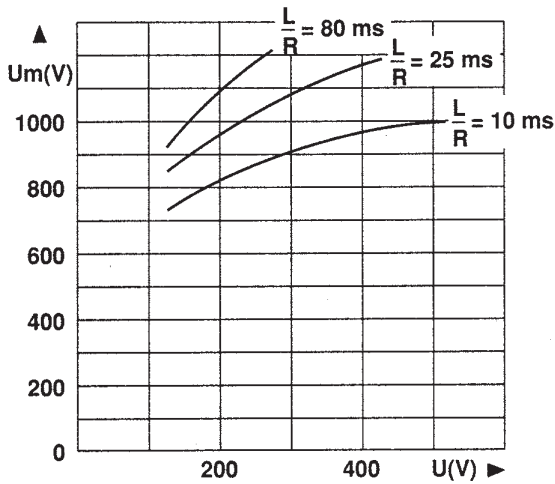
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Curves set

Sizes 30 - 31 - 32 - 33

### DC working voltage possibilities



Rated current In (A)	Curves (*) and Ipm (†) corresponding to the rating					
	30 * Ipm (A)	31 * Ipm (A)	32 * Ipm (A)	33 * Ipm (A)	2 x 32 * Ipm (A)	2 x 33 * Ipm (A)
63	a 230					
80	a 300					
100	a 360					
125	a 460					
160	a 650					
200	a 880	a 850				
250	a 1300	a 1150				
315	a 1700	a 1450				
350	a 1900	a 1600				
400	a 2300	a 2200	a 2000			
450		a 2500	a 2300			
500		a 3000	a 2600	a 2300		
550		a 3400	a 3150	a 2500		
630		a 5000	a 3700	a 3250		
700		a 5600	a 4300	a 3900		
800			a 5300	a 4800		
900			a 7800	a 5600		
1000			b 9000	a 6600	a 5200	
1100				a 7700		
1250				b 11000	a 7400	a 6500
1400				b 12500	a 8600	a 7800
1600					a 10600	a 9600
1800					a 15600	a 11200
2000					b 18000	a 13200
2200						a 15400
2500						b 22000
2800						b 25000



**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.

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

**Remark:**

When the fault current  $di/dt$  is very large, this condition can be exceeded. This 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.

## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 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			
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			
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			
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	-			
MS 3V 1-5 ET	1000V	10 V	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 ET	1500V	10 mA	3 A	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

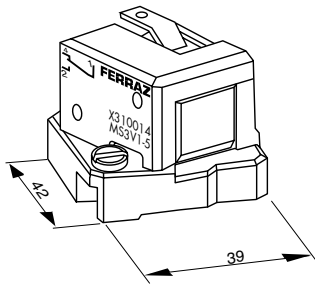
**Warning:** microswitch systems exclusively designed for FERRAZ SHAWMUT.  
PSC Fuses fitted a patented trip-indicator, saving use of EDV



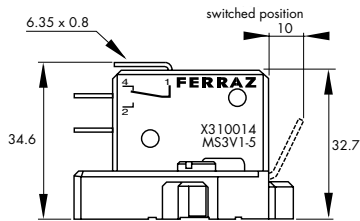
## Protistor® Square-body Fuses PSC aR sizes 3x - 450V to 700 VAC Microswitches for PSC 3x & 7x

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

These patented indication systems are exclusively hand resettable.

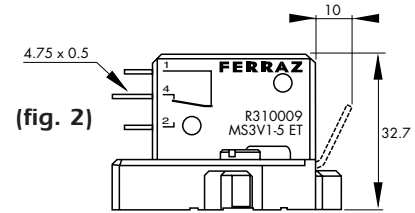


(fig. 1)



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)	K310013	Low level NO-NC	34	3 pieces	MS3-V1-5BS
	MS 3V 1-9 BS (4)	P310011	Double pole Low level	44	3 pieces	MS3V1-9BS
	MS 3V 1-5 ET (fig.2)	S310009	Low level NO-NC IP 50 (9)	34	3 pieces	MS3V1-5 ETANCHE

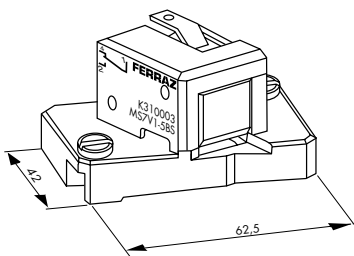
- (3) Same as fig.1
- (4) Same dimensions as figure 1 but with 2 microswitches side by side
- (9) Watertightness class



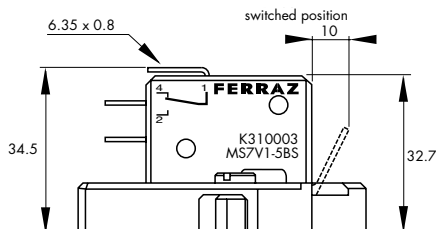
(fig. 2)

### MS 7V...

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

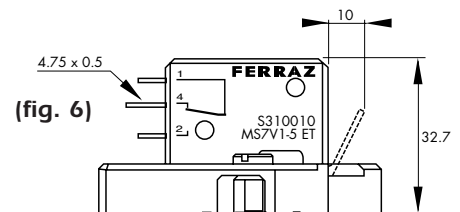


(fig. 5)



- (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 3x - 450V to 700 VAC Metric-studs

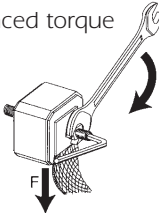
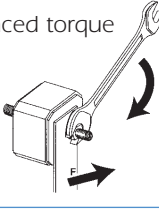
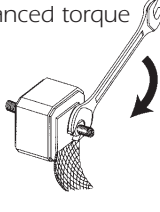
### Metric studs for threaded terminal fuses



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	STUM8x30M8x35
	HC stud pair M10x30 & M10x50	T098802	40	6 pairs	STUM10x30M10x50
	HC stud pair M12x35 & M12x50	V098803	60	6 pairs	STUM12x35M12x50
 Size 2 Size 3	HC stud pair M10x50	W098804	45	6 pairs	STUM10x50
	HC stud pair M12x50	X098805	45	6 pairs	STUM12x50

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	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