High Voltage Fuses

Motor Circuit Protection

DIN and British Standard

SIBA Motor Rated Fuses are available in
- German DIN Standard and
- British Standard Design

The large variety in body sizes / mounting style / voltage and amp rating allow great flexibility for the designer of switchboard panels.

Standards:

- Dimensions:	DIN 43625 and BS 2692
- Electrical:	IEC 60644 IEC 60470 IEC 60282-1
Class:	Current Limiting / Back up
Voltage Ratings:	AC 3.6 - 12 kV
Current Ratings:	50 - 450 A

Features / Benefits

- Protection of Motor circuits according to IEC 60644
- High reliability against cyclic and peak current loads / age resistant due to high motor start up currents
- Low power losses / minimizing temperature increase in narrow contactor enclosures
- Low minimum interrupting currents for operation of overcurrents in the range 3 - 3.5 x rated current
- Availability of SIBA-Temperature limiters for switchgear protection against excessive temperature rise in DIN housing up to 160 A
- Type tested according to IEC 60470 in cooperation with major European panel builders
- Available in DIN 43625 and BS 2692 dimensions

High Voltage Fuses
Motor Circuit Protection

DIN and BS Standard

Selection Guide

Size	Rated Voltage AC [kV]	Class	Part No.	Selector Guide [Page]	Techn. Data [Page]
TA2	3.6	Back-up	30 269 56. ...	HHM 3	HHM 12
TA2	3.6	Back-up	30 270 56. ...	HHM 4	HHM 12
TA4	7.2	Back-up	30 271 56. ...	HHM 5	HHM 12
TA4	7.2	Back-up	30 272 56. ...	HHM 6	HHM 12
E= 292 mm	3.6	Back-up	30 201 53. ...	HHM 7	HHM 13
E= 292 mm	3.6	Back-up	30 202 53. ...	HHM 7	HHM 13
E= 292 mm	3.6	Back-up	30 200 54. ...	HHM 7	HHM 13
E= 292 mm	3.6	Back-up	30 203 54. ...	HHM 7	HHM 13
E= 442 mm	7.2	Back-up	30 108 53. ...	HHM 7	HHM 13
E= 442 mm	7.2	Back-up	30 109 53. ...	HHM 7	HHM 13
E= 442 mm	7.2	Back-up	30 110 54. ...	HHM 7	HHM 13
E= 442 mm	7.2	Back-up	30 111 54. ...	HHM 7	HHM 13
E= 442 mm	12	Back-up	30 101 53. ...	HHM 8	HHM 14
E= 442 mm	12	Back-up	30 102 53. ...	HHM 8	HHM 14
E= 442 mm	12	Back-up	30 103 53. ...	HHM 8	HHM 14
E= 442 mm	12	Back-up	30 103 54. ...	HHM 8	HHM 14
E= 442 mm	2.4-7.2	Back-up	30 108 55. ...	HHM 9	HHM 15
E= 442 mm	2.4-7.2	Back-up	30 109 55. ...	HHM 9	HHM 15
E= 442 mm	2.4-7.2	Back-up	30 110 55. ...	HHM 9	HHM 15
L= 254 mm	3.6	Back-up	30 456 55. ...	HHM 10	HHM 16
L= 254 mm	3.6	Back-up	30 457 55. ...	HHM 10	HHM 16
L= 254 mm	3.6	Back-up	30 458 55. ...	HHM 10	HHM 16
L= 403 mm	7.2	Back-up	30 459 55. ...	HHM 11	HHM 17
L= 403 mm	7.2	Back-up	30 460 55. ...	HHM 11	HHM 17
L= 403 mm	7.2	Back-up	30 461 55. ...	HHM 11	HHM 17

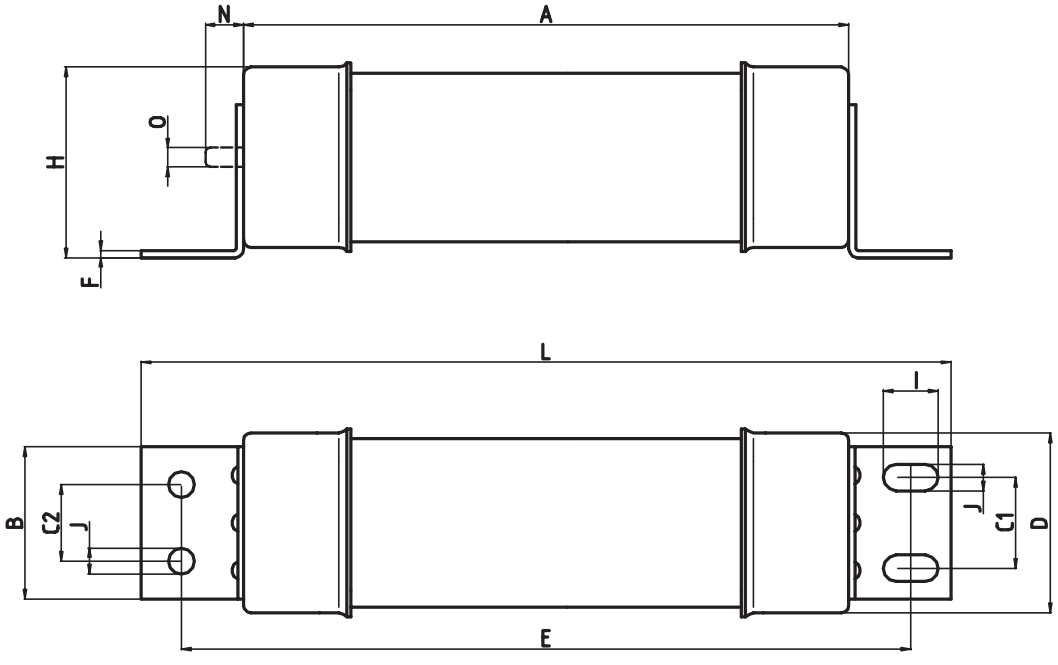
High Voltage Fuses

Motor Circuit Protection

DIN and
BS Standard

Size	Rated Voltage	Standard
TA 2	AC 3.6 kV	BS 2692-1 · IEC 60282-1 · IEC 60644

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
50	30 269 56.50	50	3.9	1	HHM 12
63	30 269 56.63	50	3.9	1	HHM 12
80	30 269 56.80	50	3.9	1	HHM 12
100	30 269 56.100	50	3.9	1	HHM 12
125	30 269 56.125	50	3.9	1	HHM 12
160	30 269 56.160	50	3.9	1	HHM 12
200	30 269 56.200	50	3.9	1	HHM 12
224	30 269 56.224	50	3.9	1	HHM 12
250	30 269 56.250	50	3.9	1	HHM 12
315	30 269 56.315	50	3.9	1	HHM 12



A	10.00 ”	(254 mm)
B	2.56 ”	(65 mm)
C1	1.50 ”	(38 mm)
C2	1.26 ”	(32 mm)
D	3.00 ”	(76 mm)
E	12.00 ”	(305 mm)
F	0.12 ”	(3 mm)
H	3.10 ”	(79 mm)
I	0.90 ”	(23 mm)
J	0.43 ”	(11 mm)
L	13.27 ”	(337 mm)
N	0.50 ”	(13 mm)
O	0.30 ”	(8 mm)

High Voltage Fuses

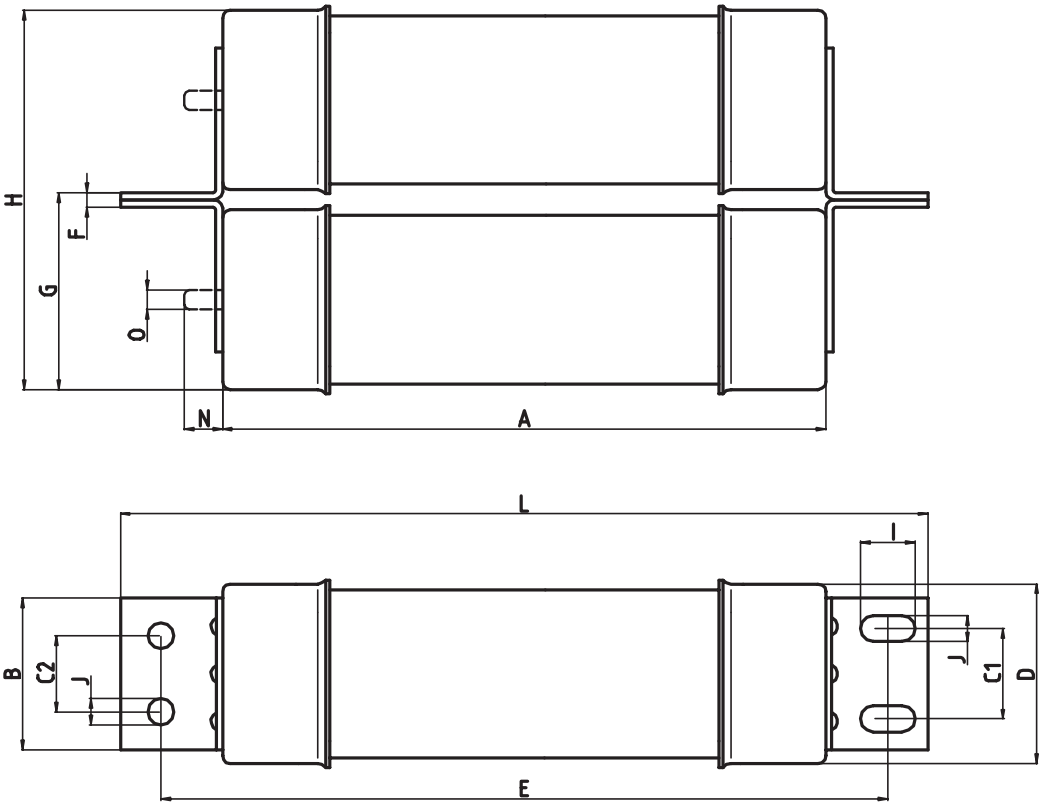
Motor Circuit Protection

DIN and
BS Standard

Size	Rated Voltage	Standard
TA 2	AC 3.6 kV	BS 2692-1 · IEC 60282-1 · IEC 60644

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
355 *	30 270 56.355	50	7.8	2	HHM 12
400 *	30 270 56.400	50	7.8	2	HHM 12
450 *	30 270 56.450	50	7.8	2	HHM 12

* 2 single fuses



A	15.87 ”	(403 mm)
B	2.56 ”	(65 mm)
C1	1.50 ”	(38 mm)
C2	1.26 ”	(32 mm)
D	3.00 ”	(76 mm)
E	17.87 ”	(454 mm)
F	0.24 ”	(6 mm)
G	3.22 ”	(82 mm)
H	6.20 ”	(158 mm)
I	0.90 ”	(23 mm)
J	0.43 ”	(11 mm)
L	19.13 ”	(486 mm)
N	0.50 ”	(13 mm)
O	0.30 ”	(8 mm)

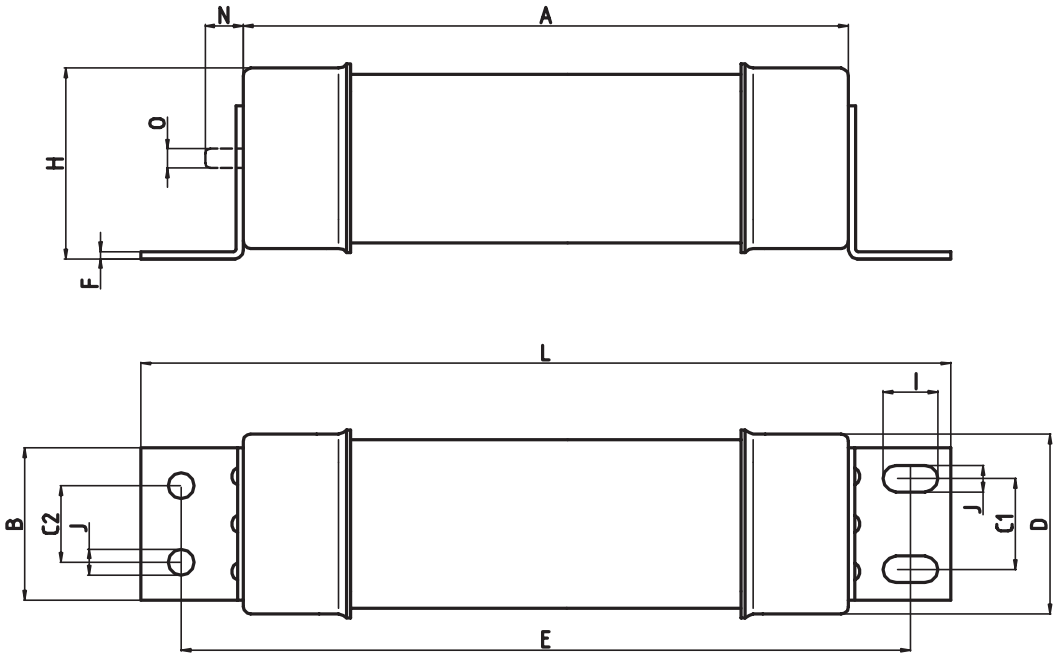
High Voltage Fuses

Motor Circuit Protection

DIN and BS Standard

Size	Rated Voltage	Standard
TA 4	AC 7.2 kV	BS 2692-1 · IEC 60282-1 · IEC 60644

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
50	30 271 56.50	50	4.2	1	HHM 12
63	30 271 56.63	50	4.2	1	HHM 12
80	30 271 56.80	50	4.2	1	HHM 12
100	30 271 56.100	50	4.2	1	HHM 12
125	30 271 56.125	50	4.2	1	HHM 12
160	30 271 56.160	50	4.2	1	HHM 12
200	30 271 56.200	50	4.2	1	HHM 12
224	30 271 56.224	50	4.2	1	HHM 12
250	30 271 56.250	50	4.2	1	HHM 12



A	15.87 "	(403 mm)
B	2.56 "	(65 mm)
C1	1.50 "	(38 mm)
C2	1.26 "	(32 mm)
D	3.00 "	(76 mm)
E	17.87 "	(454 mm)
F	0.12 "	(3 mm)
H	3.10 "	(79 mm)
I	0.90 "	(23 mm)
J	0.43 "	(11 mm)
L	19.13 "	(486 mm)
N	0.50 "	(13 mm)
O	0.30 "	(8 mm)

High Voltage Fuses

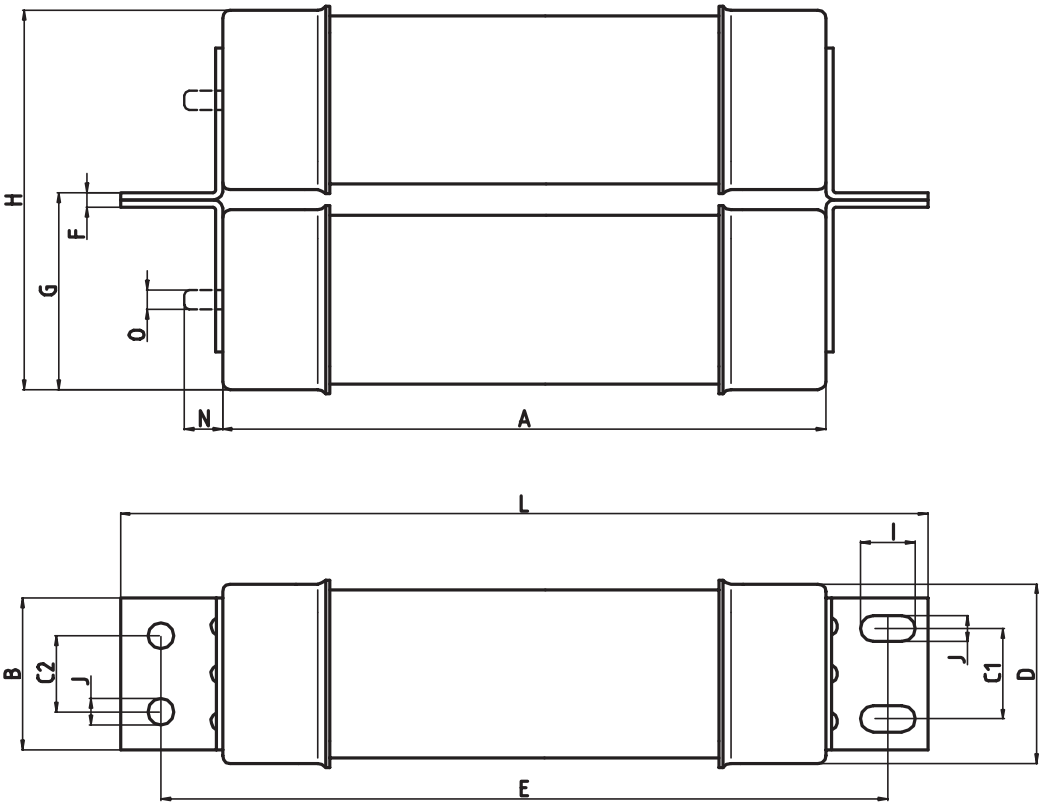
Motor Circuit Protection

DIN and BS Standard

Size	Rated Voltage	Standard
TA 4	**AC 7.2 kV**	**BS 2692-1 · IEC 60282-1 · IEC 60644**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
315*	30 272 56.315	50	8.4	2	HHM 12
355*	30 272 56.355	50	8.4	2	HHM 12
400*	30 272 56.400	50	8.4	2	HHM 12
450*	30 272 56.450	50	8.4	2	HHM 12

* 2 single fuses



A	**15.87 ”**	(403 mm)
B	**2.56 ”**	(65 mm)
C1	**1.50 ”**	(38 mm)
C2	**1.26 ”**	(32 mm)
D	**3.00 ”**	(76 mm)
E	**17.87 ”**	(454 mm)
F	**0.24 ”**	(6 mm)
G	**3.22 ”**	(82 mm)
H	**6.20 ”**	(158 mm)
I	**0.90 ”**	(23 mm)
J	**0.43 ”**	(11 mm)
L	**19.13 ”**	(486 mm)
N	**0.50 ”**	(13 mm)
O	**0.30 ”**	(8 mm)

High Voltage Fuses
Motor Circuit Protection

DIN and BS Standard

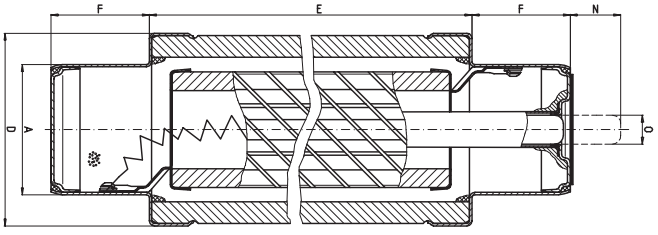
DIN **E= 292 mm** | Rated Voltage **AC 3.6 kV** | Standard **IEC 60282-1 · IEC 60644**

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
50	30 201 53.50	2.07	53	50	1.6	1	HHM 13
63	30 201 53.63	2.07	53	50	1.6	1	HHM 13
80	30 201 53.80	2.07	53	50	1.6	1	HHM 13
100	30 201 53.100	2.07	53	50	1.6	1	HHM 13
125	30 202 53.125	2.64	67	50	2.0	1	HHM 13
160	30 202 53.160	2.64	67	50	2.0	1	HHM 13
200	30 200 54.200	3.35	85	50	3.8	1	HHM 13
224	30 200 54.224	3.35	85	50	3.8	1	HHM 13
250	30 200 54.250	3.35	85	50	3.8	1	HHM 13
315	30 200 54.315	3.35	85	50	3.8	1	HHM 13
355 *	30 203 54.355	3.35	85	50	7.6	2	HHM 13
400 *	30 203 54.400	3.35	85	50	7.6	2	HHM 13
450 *	30 203 54.450	3.35	85	50	7.6	2	HHM 13

DIN **E= 442 mm** | Rated Voltage **AC 7.2 kV** | Standard **IEC 60282-1 · IEC 60644**

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
50	30 108 53.50	2.07	53	50	2.2	1	HHM 13
63	30 108 53.63	2.07	53	50	2.2	1	HHM 13
80	30 108 53.80	2.07	53	50	2.2	1	HHM 13
100	30 108 53.100	2.07	53	50	2.2	1	HHM 13
125	30 109 53.125	2.64	67	50	2.9	1	HHM 13
160	30 109 53.160	2.64	67	50	2.9	1	HHM 13
200	30 110 54.200	3.35	85	50	5.4	1	HHM 13
224	30 110 54.224	3.35	85	50	5.4	1	HHM 13
250	30 110 54.250	3.35	85	50	5.4	1	HHM 13
315	30 110 54.315	3.35	85	50	5.4	1	HHM 13
355 *	30 111 54.355	3.35	85	50	10.8	2	HHM 13
400 *	30 111 54.400	3.35	85	50	10.8	2	HHM 13
450 *	30 111 54.450	3.35	85	50	10.8	2	HHM 13

* 2 single fuses



A	**1.77 "**	(45 mm)
F	**1.30 "**	(33 mm)
O	**0.40 "**	(10 mm)
N	**1.38 "**	(36 mm)

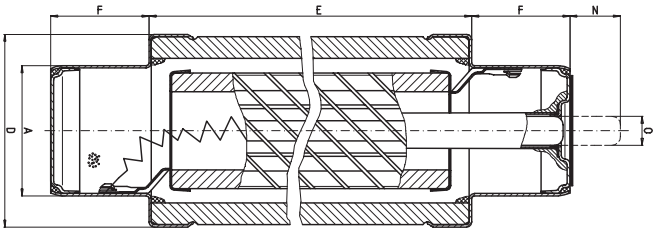
High Voltage Fuses

Motor Circuit Protection

DIN and BS Standard

DIN	Rated Voltage	Standard
E= 442 mm	**AC 12 kV**	**IEC 60282-1 · IEC 60644**

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
50	30 101 53.50	2.07	53	50	1.6	1	HHM 14
63	30 101 53.63	2.07	53	50	1.6	1	HHM 14
80	30 102 53.80	2.07	67	50	2.0	1	HHM 14
100	30 102 53.100	2.07	67	50	2.0	1	HHM 14
125	30 102 53.125	2.64	67	50	2.0	1	HHM 14
160	30 103 53.160	2.64	85	50	3.8	1	HHM 14
200	30 103 54.200	2.64	85	50	3.8	1	HHM 14



A	**1.77”**	(45 mm)
F	**1.30”**	(33 mm)
O	**0.40”**	(10 mm)
N	**1.38”**	(36 mm)

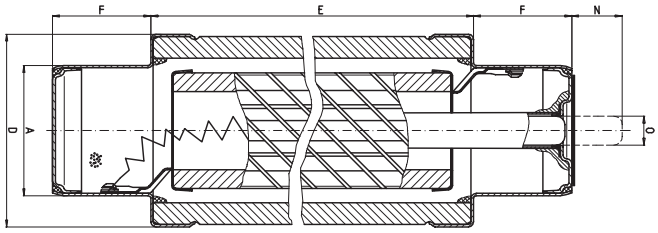
High Voltage Fuses
Motor Circuit Protection

DIN and BS Standard

DIN	Rated Voltage	Standard
E= 442 mm	**AC 2.4 – 7.2 kV**	**IEC 60282-1 · IEC 60644**

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
70	30 108 55.2R	2.1	53	50	1.6	1	HHM 15
100	30 108 55.3R	2.1	53	50	1.6	1	HHM 15
130	30 109 55.4R	2.6	67	50	2.0	1	HHM 15
150	30 109 55.5R	2.6	67	50	2.0	1	HHM 15
170	30 109 55.6R	2.6	67	50	2.0	1	HHM 15
200	30 110 55.9R	3.4	85	50	3.8	1	HHM 15
230	30 110 55.12R	3.4	85	50	3.8	1	HHM 15
390*	30 110 55.18R	3.4	85	50	3.8	2	HHM 15
450*	30 110 55.24R	3.4	85	50	3.8	2	HHM 15
650**	30 110 55.36R	3.4	85	50	3.8	3	HHM 15
700**[1)]	30 110 55.48R	3.4	85	50	3.8	3	HHM 15

* 2 single fuses
** 3 single fuses
[1)] Rated voltage 2,4 - 4,8 kV



A	**1.77”**	(45 mm)
F	**1.30”**	(33 mm)
O	**0.40”**	(10 mm)
N	**1.38”**	(35 mm)

High Voltage Fuses

Motor Circuit Protection

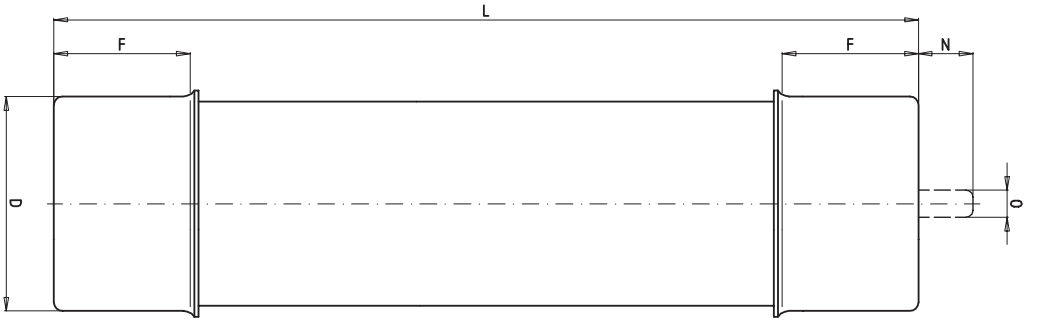
DIN and BS Standard

Size
L= 254 mm

Rated Voltage
AC 3.6 kV

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
70	30 456 55.2R	3.0	76	50	2.0	1	HHM 16
100	30 456 55.3R	3.0	76	50	2.0	1	HHM 16
130	30 456 55.4R	3.0	76	50	2.0	1	HHM 16
150	30 456 55.5R	3.0	76	50	2.0	1	HHM 16
170	30 456 55.6R	3.0	76	50	2.0	1	HHM 16
200	30 456 55.9R	3.0	76	50	2.0	1	HHM 16
230	30 456 55.12R	3.0	76	50	2.0	1	HHM 16
390*	30 457 55.18R	3.0	76	50	2.0	2	HHM 16
450*	30 457 55.24R	3.0	76	50	2.0	2	HHM 16
650**	30 458 55.36R	3.0	76	50	2.0	3	HHM 16
700**	30 458 55.48R	3.0	76	50	2.0	3	HHM 16

* 2 single fuses
** 3 single fuses



F	**1.57”**	(40 mm)
N	**0.50”**	(13 mm)
O	**0.30”**	(8 mm)

High Voltage Fuses

Motor Circuit Protection

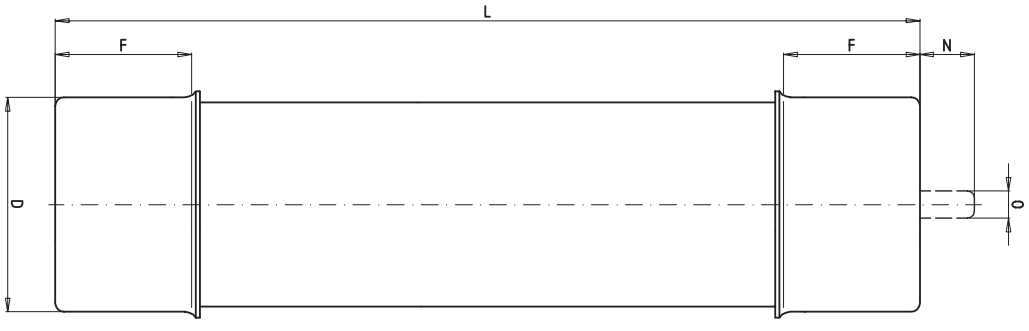
DIN and BS Standard

Size
L= 403 mm

Rated Voltage
AC 7.2 kV

Rated Current [A]	Part No.	D= Diameter [inch]	D= Diameter [mm]	Rated Breaking Current [kA]	Weight [kg/1]	Pack	Technical Data [Page]
70	30 459 55.2R	3.0	76	50	3.1	1	HHM 17
100	30 45955.3R	3.0	76	50	3.1	1	HHM 17
130	30 459 55.4R	3.0	76	50	3.1	1	HHM 17
150	30 459 55.5R	3.0	76	50	3.1	1	HHM 17
170	30 459 55.6R	3.0	76	50	3.1	1	HHM 17
200	30 459 55.9R	3.0	76	50	3.1	1	HHM 17
230	30 459 55.12R	3.0	76	50	3.1	1	HHM 17
390*	30 460 55.18R	3.0	76	50	3.1	2	HHM 17
450*	30 460 55.24R	3.0	76	50	3.1	2	HHM 17
650**	30 461 55.36R	3.0	76	50	3.1	3	HHM 17
700**	30 461 55.48R	3.0	76	50	3.1	3	HHM 17

* 2 single fuses
** 3 single fuses



F	**1.57 ”**	(40 mm)
N	**0.50 ”**	(13 mm)
O	**0.30 ”**	(8 mm)

Size	Rated Voltage	Class
TA 2	**AC 3.6 kV**	**Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
50	30 269 56.50	50	3 400	16 000	23
63	30 269 56.63	50	5 400	25 000	31
80	30 269 56.80	50	6 200	29 000	36
100	30 269 56.100	50	14 000	65 000	39
125	30 269 56.125	50	25 000	115 000	44
160	30 269 56.160	50	64 000	295 000	46
200	30 269 56.200	50	121 000	559 000	54
224	30 269 56.224	50	144 000	665 000	57
250	30 269 56.250	50	307 000	1 414 000	61
315	30 269 56.315	50	615 000	2 828 000	70
355	30 270 56.355	50	732 000	3 365 000	89
400	30 270 56.400	50	1 060 000	4 876 000	100
450	30 270 56.450	50	1 230 000	5 655 000	112

Size	Rated Voltage	Class
TA 4	**AC 7.2 kV**	**Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
50	30 271 56.50	50	3 400	20 000	34
63	30 271 56.63	50	5 400	31 000	47
80	30 271 56.80	50	6 200	36 000	56
100	30 271 56.100	50	14 000	80 000	60
125	30 271 56.125	50	25 000	143 500	68
160	30 271 56.160	50	64 000	366 000	71
200	30 271 56.200	50	121 000	690 000	83
224	30 271 56.224	50	144 000	824 000	88
250	30 271 56.250	50	307 000	1 750 000	92
315	30 272 56.315	50	615 000	3 504 000	107
355	30 272 56.355	50	760 000	4 326 000	120
400	30 272 56.400	50	1 060 000	6 400 000	135
450	30 272 56.450	50	1 230 000	7 007 000	150

Time-current characteristics and cut-off current diagram please refer to pages HHM 18 and HHM 19

DIN **E= 292 mm** | Rated Voltage **AC 3.6 kV** | Class **Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
50	30 201 53.50	50	3 400	11 000	27
63	30 201 53.63	50	5 400	17 000	38
80	30 201 53.80	50	6 200	20 000	44
100	30 201 53.100	50	14 000	44 000	47
125	30 202 53.125	50	25 000	78 000	51
160	30 202 53.160	50	64 000	199 000	53
200	30 200 54.200	50	121 000	376 000	58
224	30 200 54.224	50	144 000	448 000	61
250	30 200 54.250	50	307 000	952 000	64
315	30 200 54.315	50	627 000	1 500 000	75
355	30 203 54.355	50	760 000	2 360 000	82
400	30 203 54.400	50	1 060 000	3 290 000	87
450	30 203 54.450	50	1 230 000	3 800 000	92

DIN **E= 442 mm** | Rated Voltage **AC 7.2 kV** | Class **Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
50	30 108 53.50	50	3 400	13 600	39
63	30 108 53.63	50	5 400	21 600	55
80	30 108 53.80	50	6 200	31 000	66
100	30 108 53.100	50	14 000	70 000	71
125	30 109 53.125	50	25 000	115 000	73
160	30 109 53.160	50	64 000	294 000	76
200	30 110 54.200	50	121 000	545 000	88
225	30 110 54.225	50	144 000	650 000	94
250	30 110 54.250	50	307 000	1 440 000	98
315	30 110 54.315	50	627 000	2 950 000	115
355	30 111 54.355	50	760 000	3 570 000	120
400	30 111 54.400	50	1 060 000	4 980 000	128
450	30 111 54.450	50	1 230 000	5 530 000	134

Time-current characteristics and cut-off current diagram please refer to pages HHM 20 and HHM 21

DIN	Rated Voltage	Class
E= 442 mm	**AC 12 kV**	**Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
50	30 101 53.50	50	3 400	16 000	60
63	30 101 53.63	50	5 400	25 000	69
80	30 102 53.80	50	6 200	29 000	73
100	30 102 53.100	50	14 000	65 000	95
125	30 102 53.125	50	25 000	115 000	131
160	30 103 53.160	50	64 000	295 000	149
200	30 103 54.200	50	121 000	559 000	174

Time-current characteristics and cut-off current diagram please refer to page HHM 22

DIN	Rated Voltage	Class
E= 442 mm	AC 2.4 – 7.2 kV	Back-up

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
70	30 108 55.2R	50	5 400	24 400	63
100	30 108 55.3R	50	9 000	41 400	106
130	30 109 55.4R	50	20 400	91 500	112
150	30 109 55.5R	50	37 600	169 400	119
170	30 109 55.6R	50	62 200	280 100	125
200	30 110 55.9R	50	100 400	462 000	123
230	30 110 55.12R	50	170 000	764 000	118
390	30 110 55.18R	50	402 000	1 850 000	246
450	30 110 55.24R	50	678 000	3 053 000	236
650	30 110 55.36R	50	1 527 000	6 869 000	354
700*	30 110 55.48R	50	2 766 000	12 447 000	476

* 2.4 kV - 4.8 kV

Time-current characteristics and cut-off current diagram please refer to page HHM 23

Size	Rated Voltage	Class
L= 254 mm	**AC 3.6 kV**	**Back-up**

Rated Current [A]	Part No.	Rated Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
70	30 456 55.2R	50	5 400	24 400	63
100	30 456 55.3R	50	9 000	41 400	106
130	30 456 55.4R	50	20 400	91 500	112
150	30 456 55.5R	50	37 600	169 400	119
170	30 456 55.6R	50	62 200	280 100	125
200	30 456 55.9R	50	100 400	462 000	123
230	30 456 55.12R	50	170 000	764 000	118
390	30 457 55.18R	50	402 000	1 850 000	246
450	30 457 55.24R	50	678 000	3 053 000	236
650	30 458 55.36R	50	1 527 000	6 869 000	354
700*	30 458 55.48R	50	2 766 000	12 447 000	476

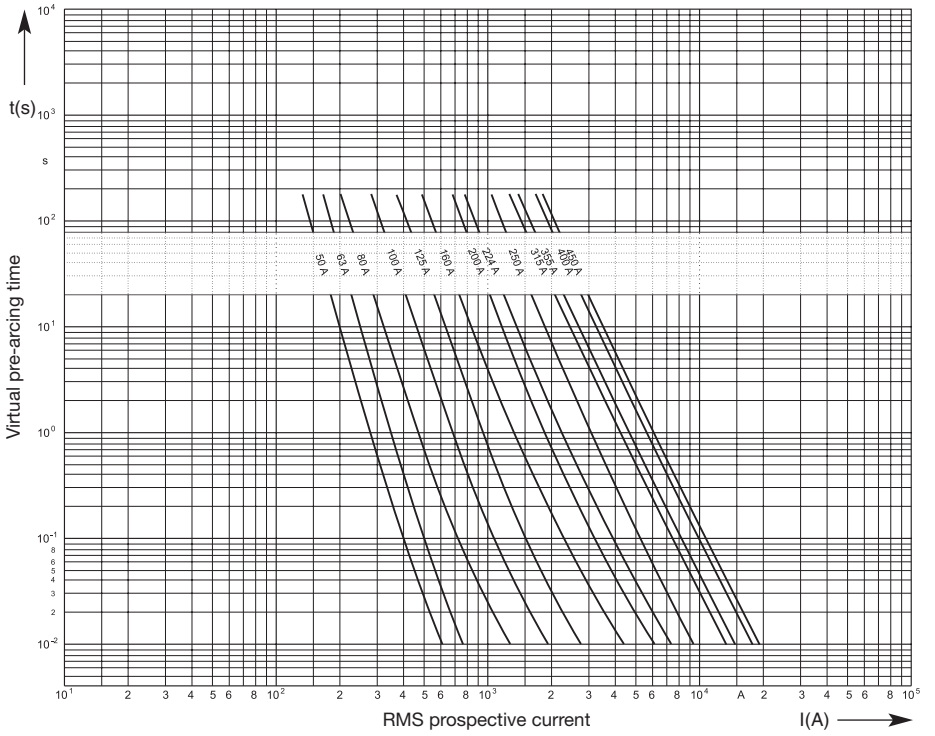
Time-current characteristics and cut-off current diagram please refer to page HHM 23

Size	Rated Voltage	Class
L= 403 mm	AC 7.2 kV	Back-up

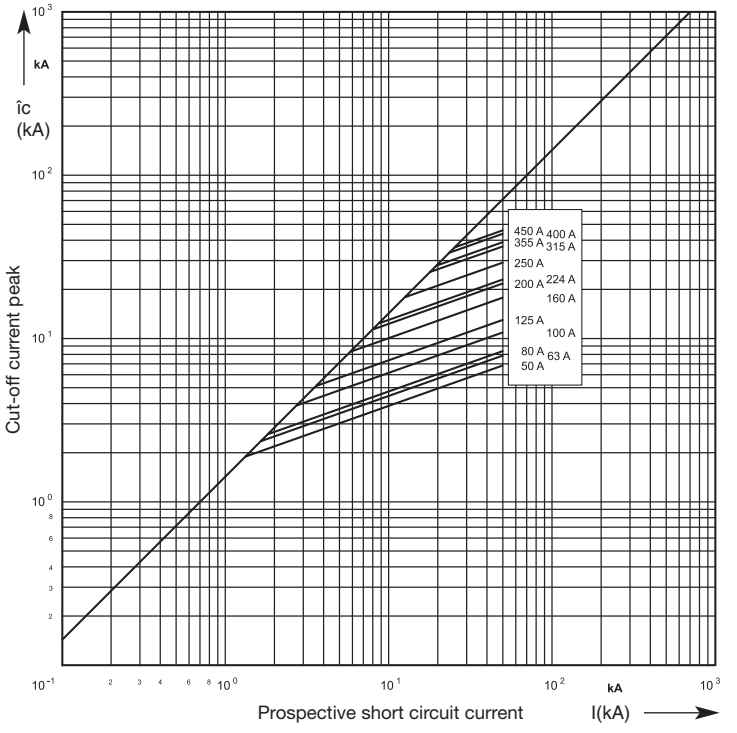
Rated Current [A]	Part No.	Breaking Current [kA]	Pre-arcing I^2t-value [A^2s]	Total I^2t-value [A^2s]	Power Loss [W]
70	30 459 55.2R	50	5 400	24 400	63
100	30 459 55.3R	50	9 000	41 400	106
130	30 459 55.4R	50	20 400	91 500	112
150	30 459 55.5R	50	37 600	169 400	119
170	30 459 55.6R	50	62 200	280 100	125
200	30 459 55.9R	50	100 400	462 000	123
230	30 459 55.12R	50	170 000	764 000	118
390	30 460 55.18R	50	402 000	1 850 000	246
450	30 460 55.24R	50	678 000	3 053 000	236
650	30 461 55.36R	50	1 527 000	6 869 000	354
700*	30 461 55.48R	50	2 766 000	12 447 000	476

Time-current characteristics and cut-off current diagram please refer to page HHM 23

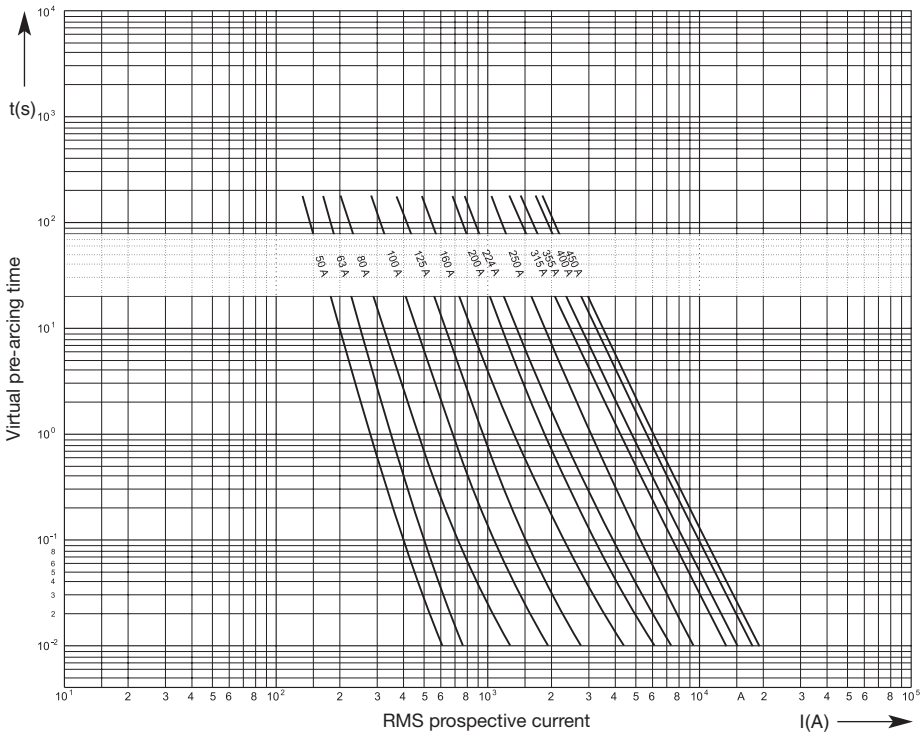
Time-Current Characteristics 3.6 kV BS Standard



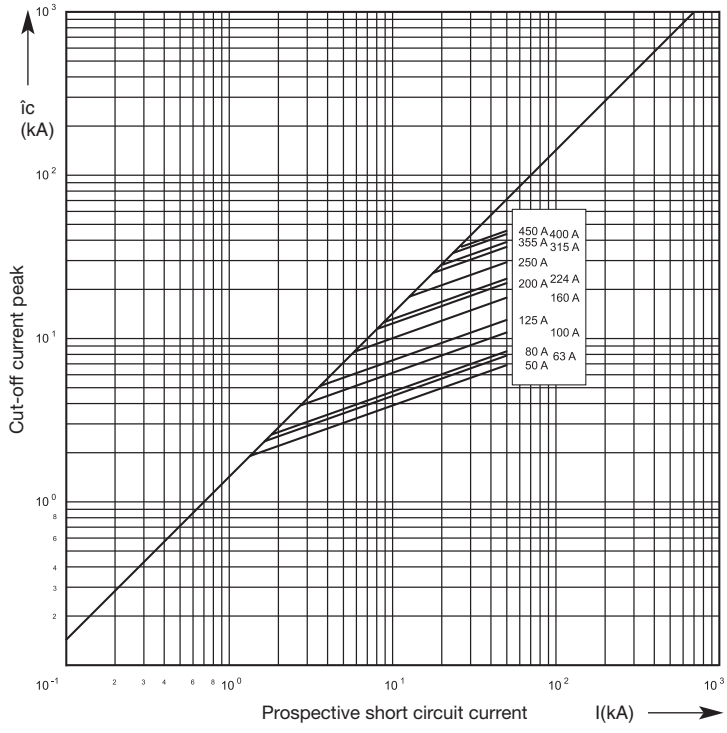
Cut-Off Current Diagram 3.6 kV BS Standard



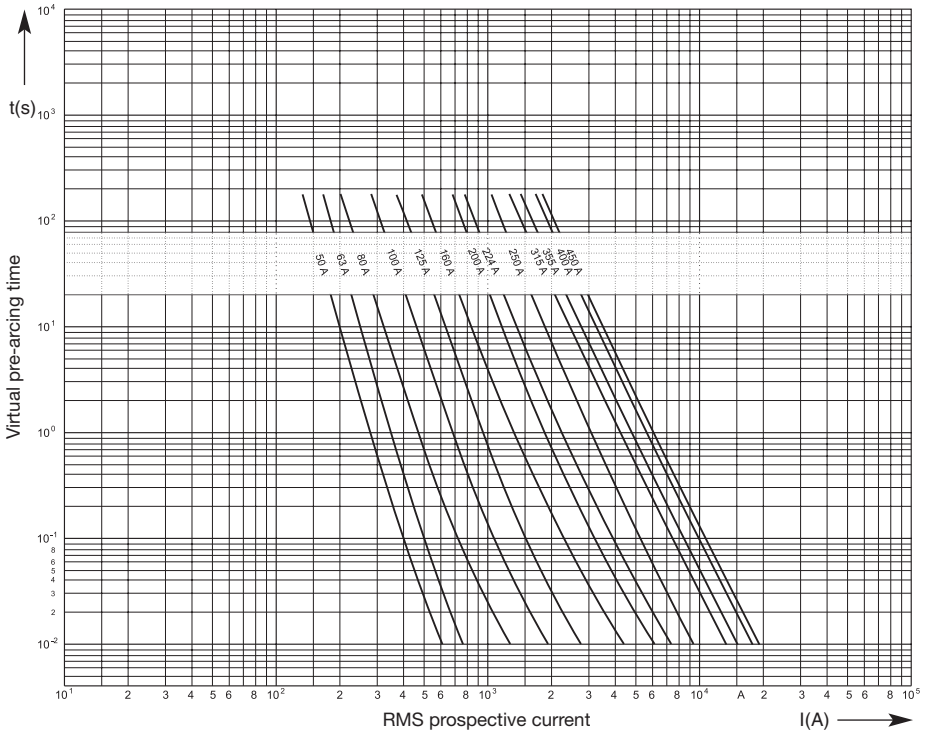
Time-Current Characteristics 7.2 kV BS Standard



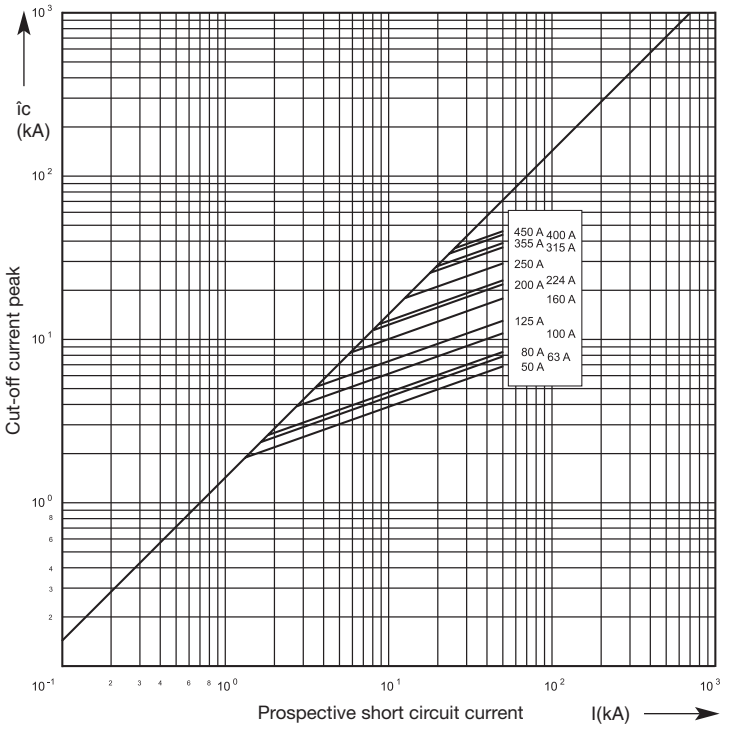
Cut-Off Current Diagram 7.2 kV BS Standard



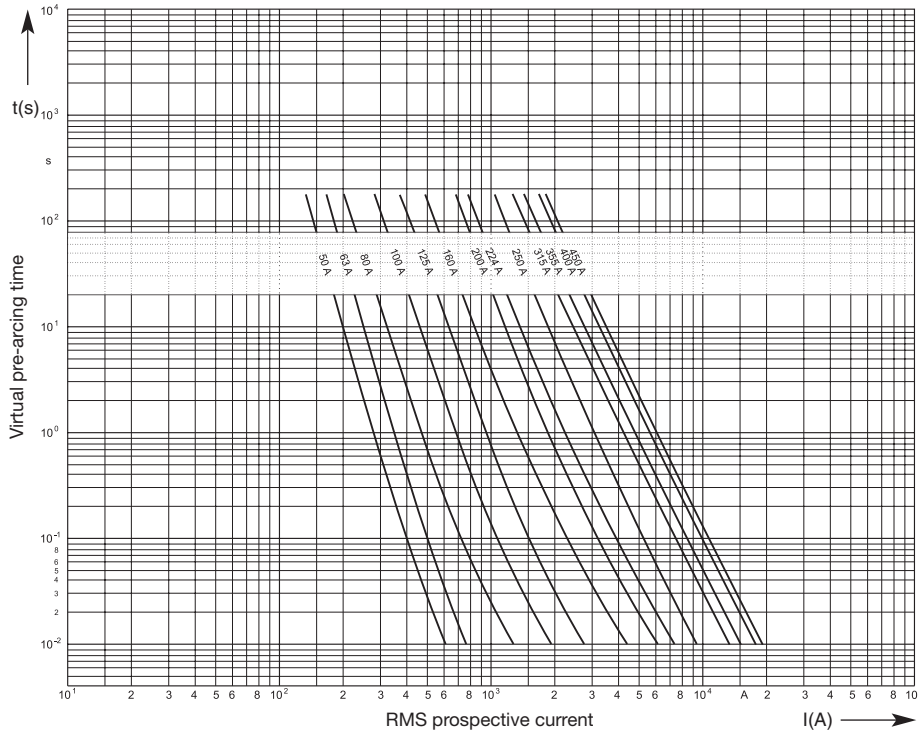
Time-Current Characteristics 3.6 kV DIN Standard



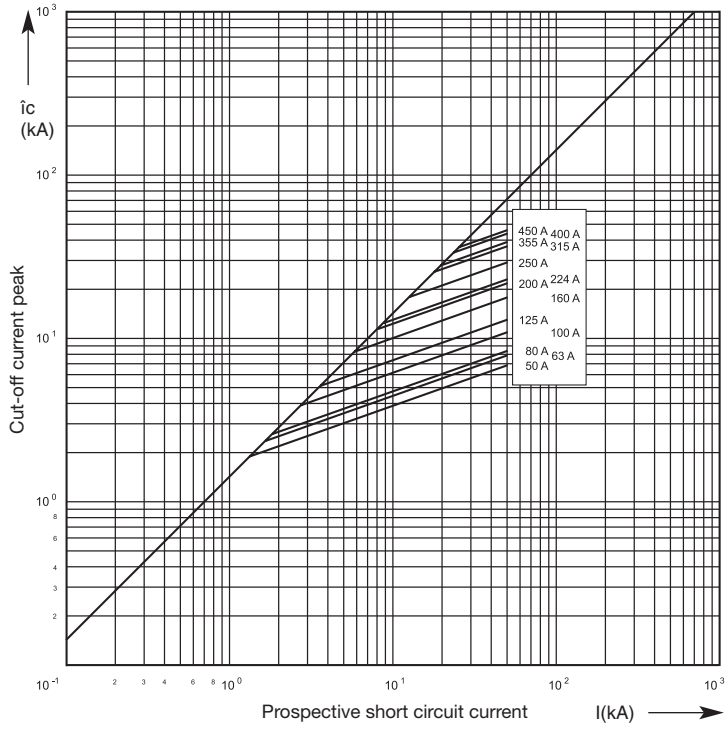
Cut-Off Current Diagram 3.6 kV DIN Standard



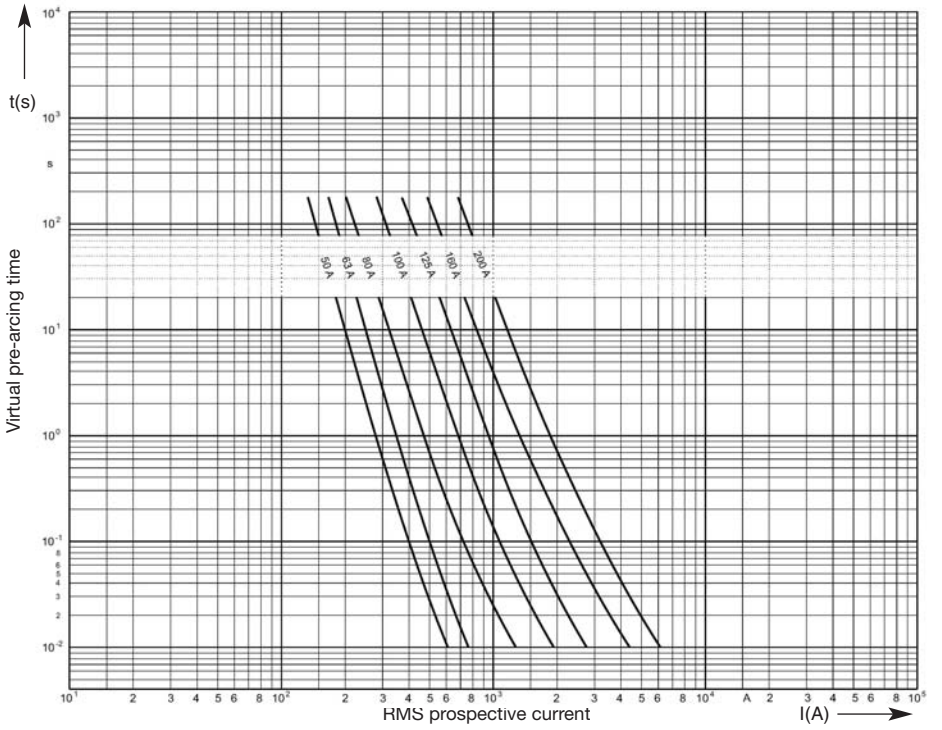
Time-Current Characteristics 7.2 kV DIN Standard



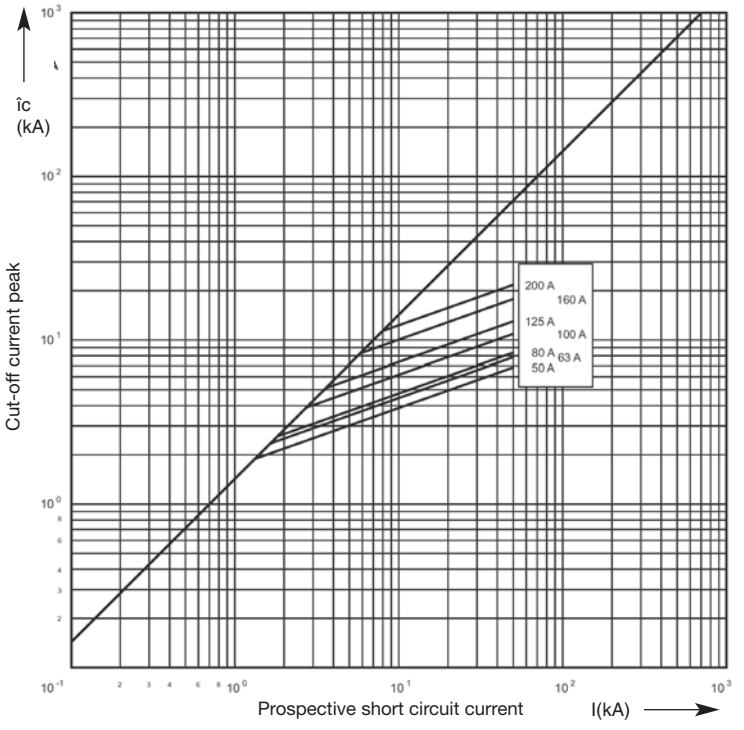
Cut-Off Current Diagram 7.2 kV DIN Standard



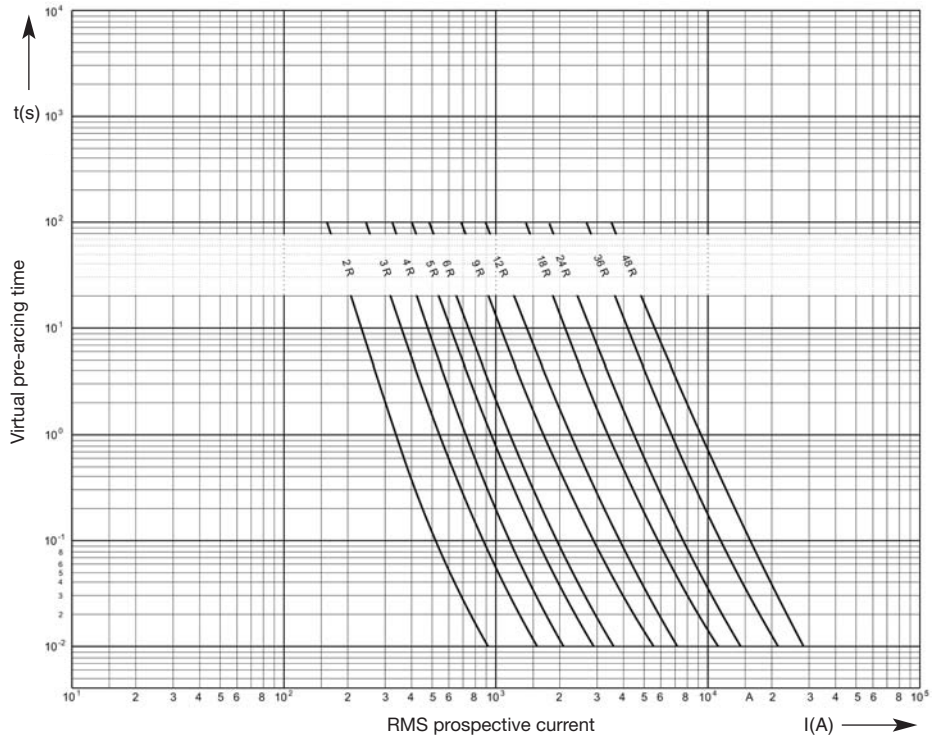
Time-Current Characteristics 12 kV DIN Standard



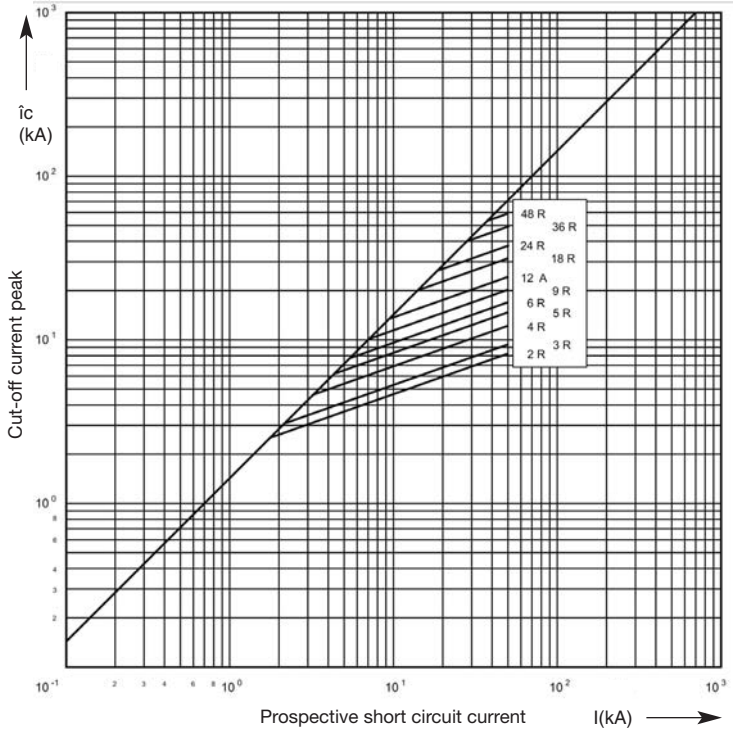
Cut-Off Current Diagram 12 kV DIN Standard



Time-Current Characteristics 2.4 – 7.2 R-rated



Cut-Off Current Diagram 2.4 – 7.2 R-rated



High Voltage Fuses
Motor Circuit Protection

DIN and BS Standard

Application Guide for SIBA Motor Circuit Protection Fuses

The SIBA HHM fuse-links fulfil all requirements according to IEC 60644 **"Specification for high-voltage fuse-links for motor circuit application".**

The specific characteristic allows a full short circuit protection for the motor circuit components as well as the capability to withstand inrush currents and cyclic current impulses.

Application guideline

The suitable rated current of the fuse-link is mainly determined by two important parameters:

– the inrush-current during the run-up period of the motor due to high magnetising-currents

– the objective to create less heating in the enclosure

In general, the inrush current can be calculated as five to six times the rated current of the motor. For practical purposes the run-up time of different motor types are separated into three main categories:

Table 1. run-up times

run-up times [s]	example of motor type
6	pump-motor
15	mill-motor
30-60	fan-motor

To avoid any ageing due to frequent switching-operations, the following derating-coefficients have to taken into account:

Table 2: derating-coefficients

maximum starts per hour	derating-coefficient
2	0,59
4	0,53
8	0,48
16	0,43
32	0,39

Note: Two immediate successive starts are admissible.

High Voltage Fuses
Motor Circuit Protection

DIN and BS Standard

Application Guide for SIBA Motor Circuit Protection Fuses

Selection-procedure

> determine the inrush-current (individually given, or multiply the normal operating of the motor by 6) and divide it by the derating-coefficient which corresponds with the quantity of starts per hour (table 2)

> transfer this value to the X-axis of the time-current characteristic of the fuse-link

> link the corresponding run-up time to the Y-axis of the time-current characteristic

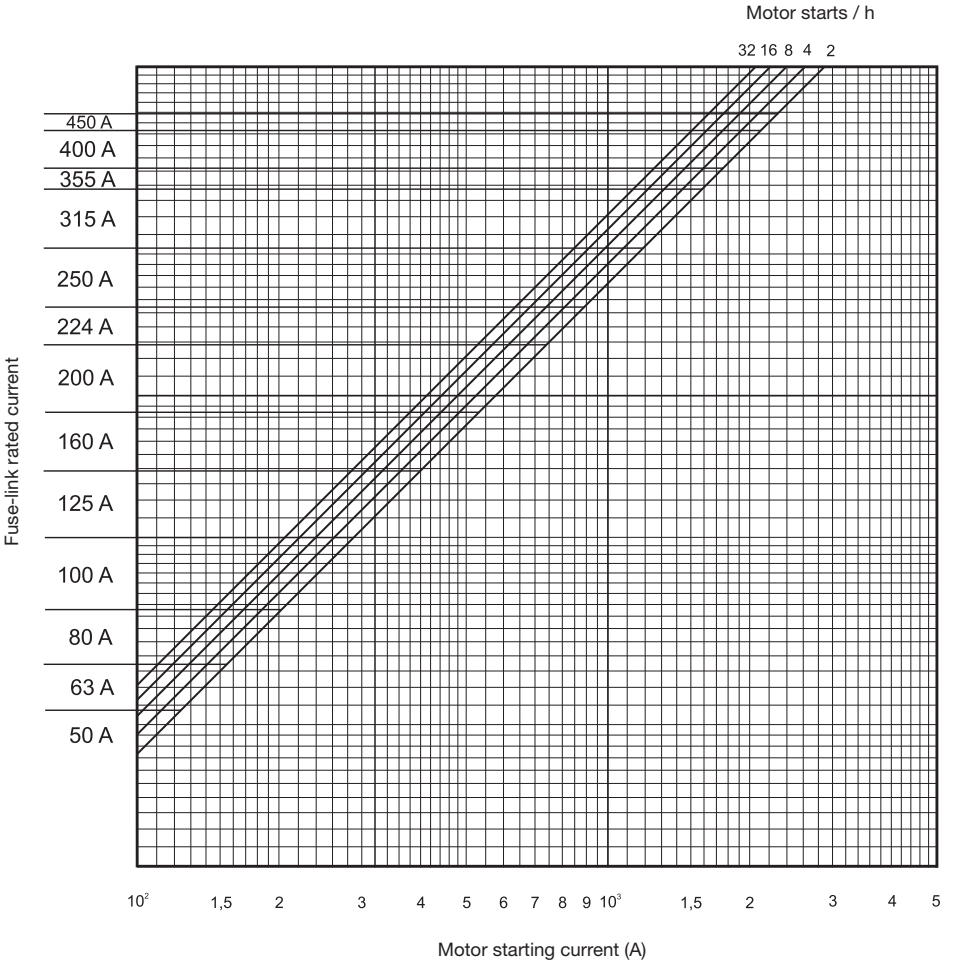
> mark the crossing-point of these X- and Y-values

The time-current curve of the fuse-link, which is placed directly on the right side next to the marked point, reflects the correct rated current of the fuse-link to be chosen. This rated current of the fuse-link must be at least 1.3 times the normal operating current of the motor. In some cases the next highest rated current has to be taken.

The above-mentioned procedure is valid for direct-staring motors as well as for assisted-starting. In this case the calculated inrush current is decreased and a smaller rated current of the fuse-link could be chosen as in the case of direct-starting.

For such applications an unacceptable temperature increase must be avoided by a rated current of the fuse-link higher than or equal to 1.3 times the normal operating current of the motor.

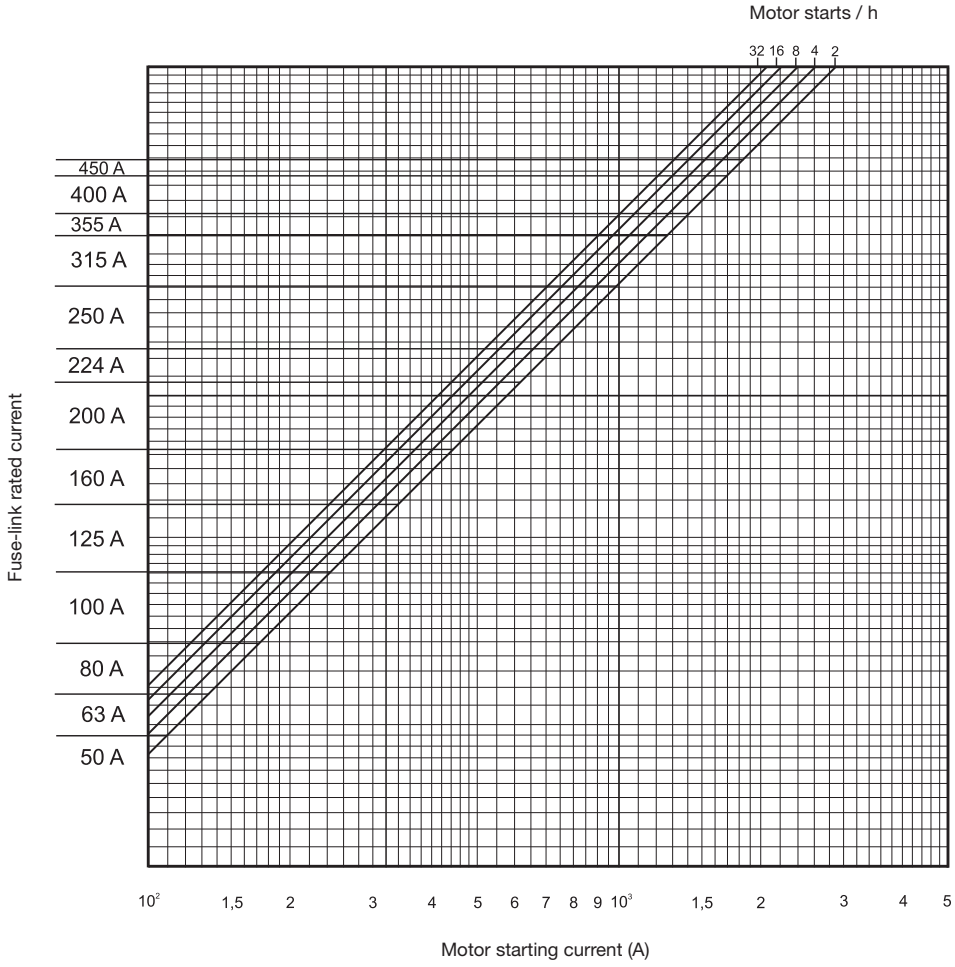
Recommendation | **Motor Circuit Application** | **Run-up Time 6 s**



Fuse selection for motors with a run-up time not exceeding 6 seconds; e.g. pump motors.

Two immediate successive starts are admissible.

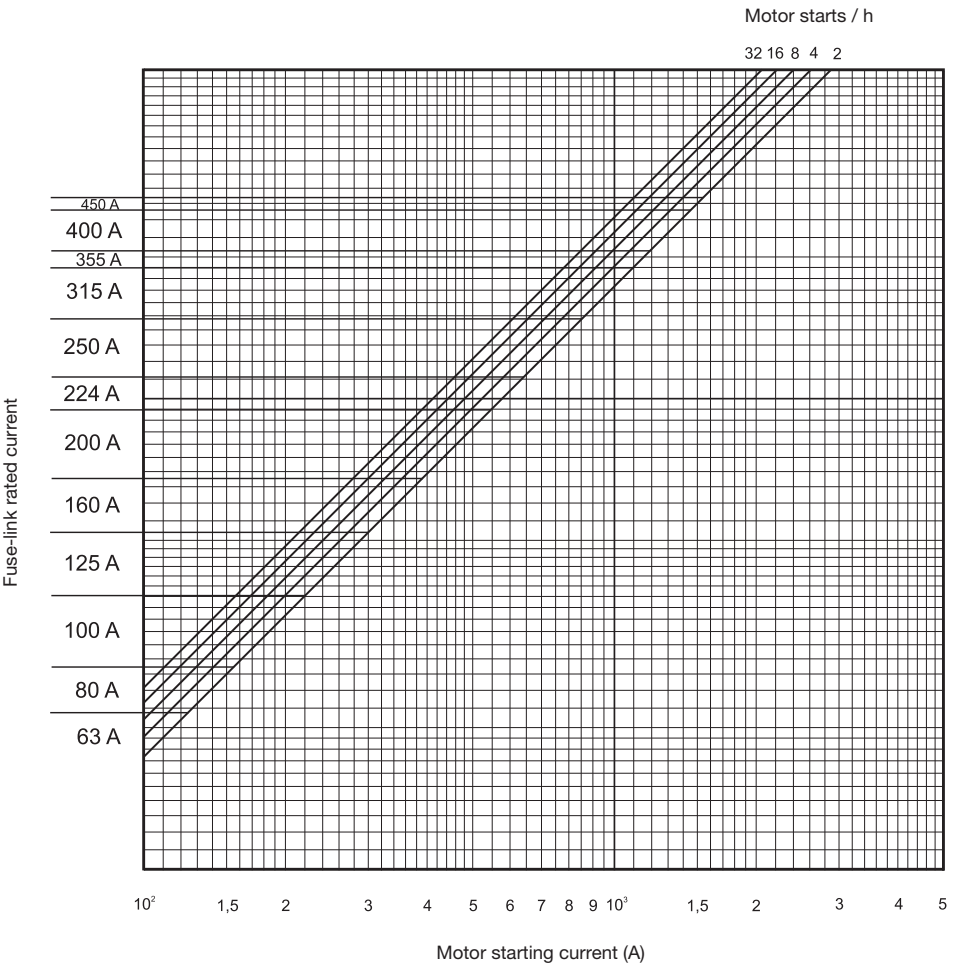
Recommendation | Motor Circuit Application | Run-up Time 15 s



Fuse selection for motors with a run-up time not exceeding 15 seconds; e.g. fan motors.

Two immediate successive starts are admissible.

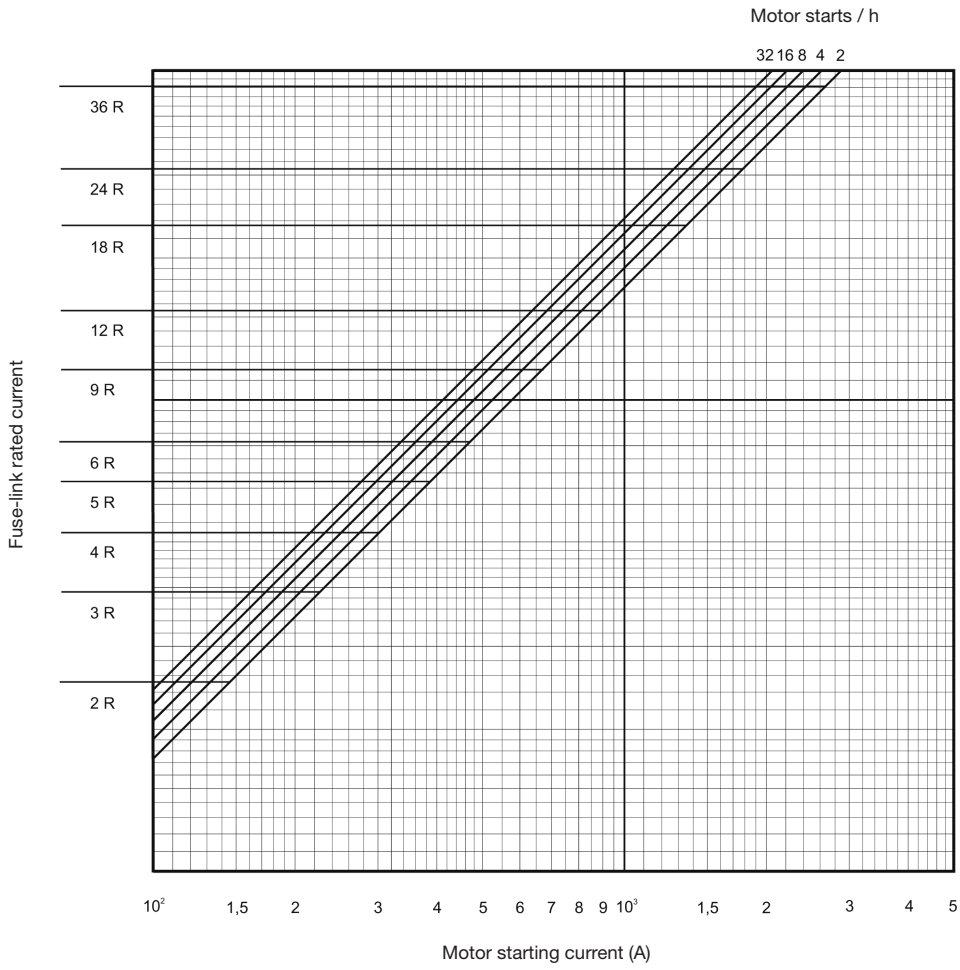
Recommendation | Motor Circuit Application | Run-up Time 30 s



Fuse selection for motors with a run-up time not exceeding 30 seconds; e.g. mill motors.

Two immediate successive starts are admissible.

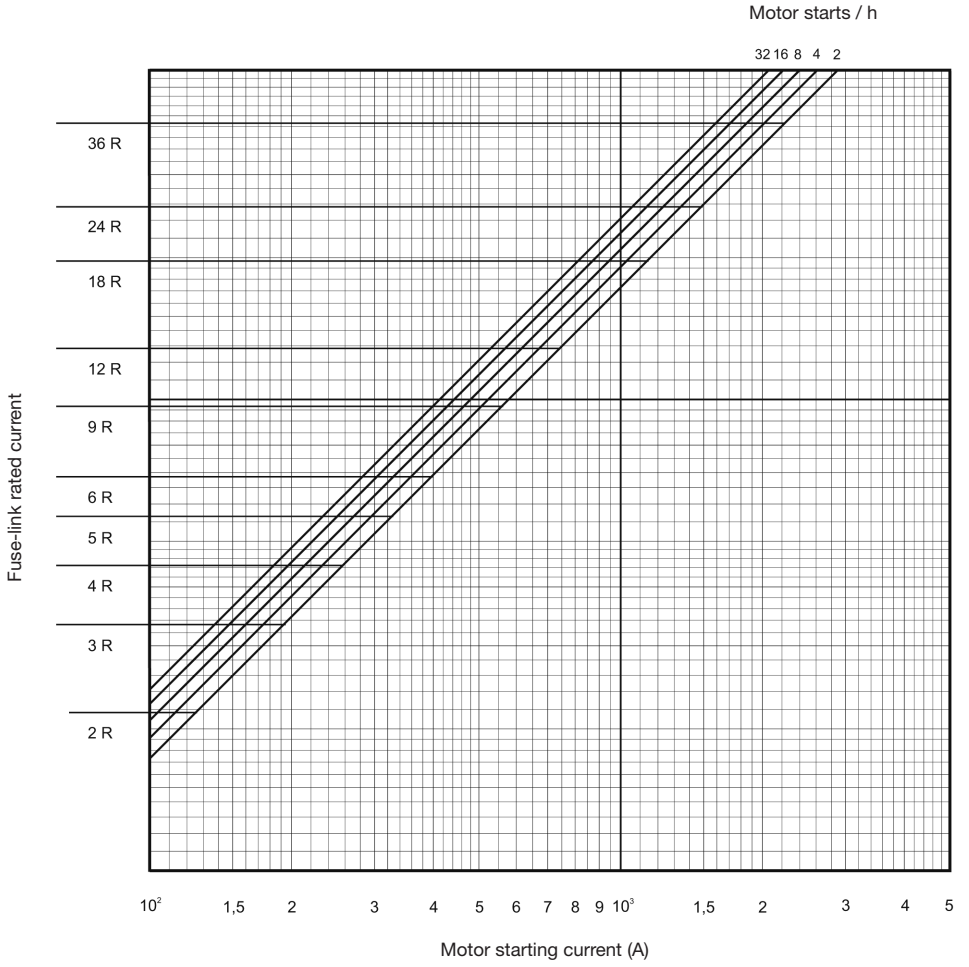
Recommendation | Motor Circuit Application | Run-up Time 6 s



Fuse selection for motors with a run-up time not exceeding 6 seconds; e.g. pump motors.

Two immediate successive starts are admissible.

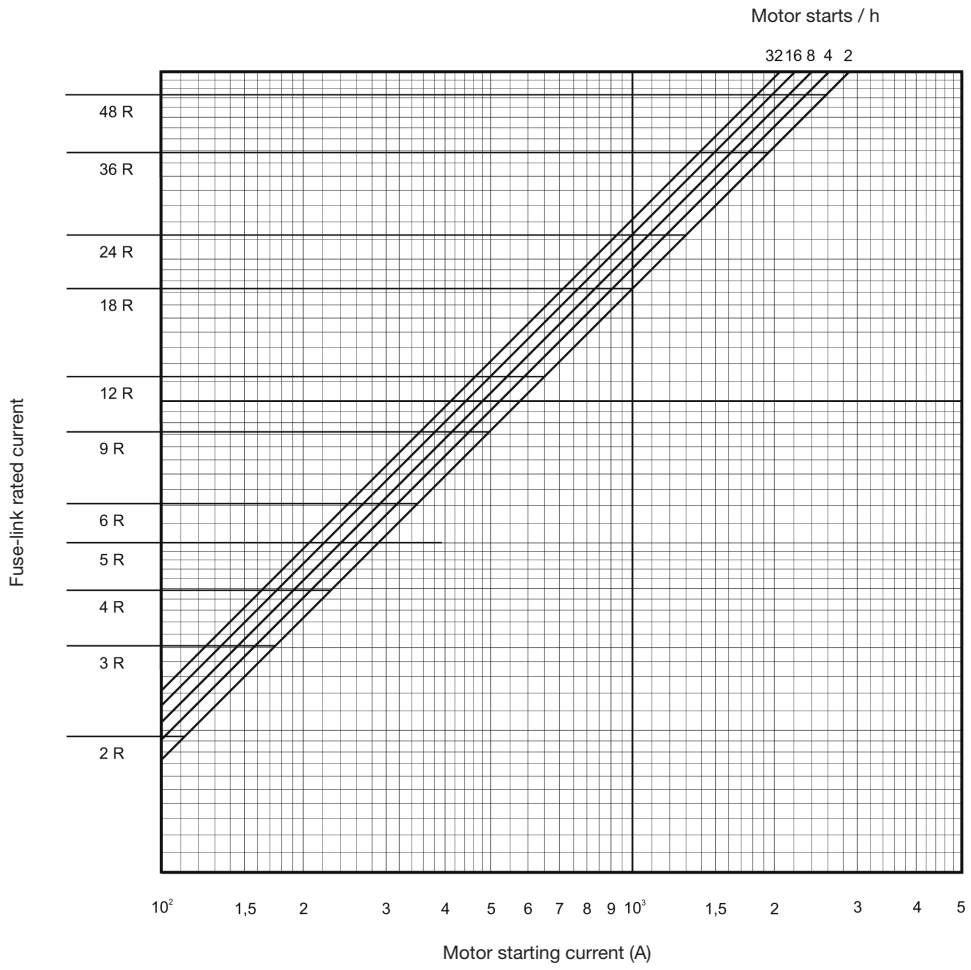
Recommendation | Motor Circuit Application | Run-up time 15 s



Fuse selection for motors with a run-up time not exceeding 15 seconds; e.g. fan motors.

Two immediate successive starts are admissible.

Recommendation | **Motor Circuit Application** | **Run-up Time 30 s**



Fuse selection for motors with a run-up time not exceeding 30 seconds; e.g. mill motors.

Two immediate successive starts are admissible.

Notes