

Limiter®- PTD Back-up Fuses

with Controlled Power Dissipation

HIGH VOLTAGE IEC FUSES

DIN HV BACK-UP FUSES FOR TRANSFORMERS



Mersen HV fuse-links have been used for reliable protection in high-voltage switchgear and controlgear and high-voltage systems for decades.

Limiter®-PTD HV fuse-links are back-up fuses as defined in the standards: IEC 60282-1 and VDE 0670 T402 and dedicated to protect transformers in combination with air or gas insulated switchgear against the thermal and dynamic effects of short-circuit currents.

To guarantee high quality, Mersen uses the best materials: fuse-elements are in pure silver, caps are in copper coated with silver and bodies are in ceramic.

Limiter®-PTD HV fuse-links are perfectly designed to be used in combination with HV switchgear.

Siemens and Ormazabal recommend Limitor®-PTD HV fuses to be used in their gas-insulated switchgear.

TECHNICAL DATA

	6/12kV 292mm	10/24kV 442mm	20/36kV 537mm
Rated current	10 ... 160 A	6.3 ... 100 A	6.3 ... 50 A
Rated voltage range U_n	6/12kV	10/24 kV	20/36 kV
Rated voltage of transformer	10 kV	20 kV	30 kV
Package	1	1	1

FEATURES & BENEFITS

- High breaking capacity
- High current limitation
- Low switching voltage
- Medium striker 80N/30mm
- CPD striker: controlled power dissipation
- Indoor and outdoor applications
- Quick breaking
- Non-ageing
- Energy efficiency
- New cap design for a better compatibility with all types of clips and easier assembly
- Coordination with IEC 60787, IEC 62271-105, IEC/TR 62655 and VDE 0671-105:2003-12

APPLICATIONS

- HV Transformer protection

STANDARDS

- IEC 60282-1
- VDE 0670 part 4
- VDE 0670 part 402
- DIN 43625



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PRODUCT RANGE



45DB120V10PTD



45DB120V63PTD

Rated voltage 6 /12 kV, length 292mm

Catalog number	Item number	Rated current I_n	Clearing I^2t at Rated Voltage	Breaking capacity I_b	Minimum breaking current $I_s = I_{min}$	Cold resistance $R_{20} (+/-10\%)$	Power dissipation at I_n	Package	Weight
Ø56mm									
45DB120V10PTD	S1000263	10 A	3 kA²s	63 kA	35 A	227 mΩ	29 W	1	1.7 kg
45DB120V16PTD	T1000264	16 A	3.7 kA²s	63 kA	64 A	66 mΩ	21 W	1	1.7 kg
45DB120V20PTD	V1000265	20 A	4.7 kA²s	63 kA	90 A	51 mΩ	25 W	1	1.7 kg
45DB120V25PTD	W1000266	25 A	4.9 kA²s	63 kA	95 A	40 mΩ	29 W	1	1.7 kg
45DB120V32PTD	X1000267	31.5 A	7 kA²s	63 kA	110 A	30 mΩ	39 W	1	1.7 kg
45DB120V40PTD	Y1000268	40 A	14 kA²s	63 kA	134 A	20 mΩ	46 W	1	1.7 kg
45DB120V50PTD	Z1000269	50 A	25 kA²s	63 kA	190 A	15 mΩ	62 W	1	1.7 kg
Ø65mm									
45DB120V63PTD	A1000270	63 A	63 kA²s	63 kA	220 A	12 mΩ	62 W	1	2.2 kg
45DB120V80PTD	B1000271	80 A	87 kA²s	63 kA	345 A	8.7 mΩ	85 W	1	2.2 kg
45DB120V100PTD	C1000272	100 A	140 kA²s	63 kA	500 A	8.1 mΩ	152 W	1	2.2 kg
Ø88mm									
45DB120V125PTD	D1000273	125 A	430 kA²s	63 kA	480 A	4.5 mΩ	117 W	1	3.8 kg
45DB120V160PTD	E1000274	160 A	670 kA²s	63 kA	610 A	4 mΩ	175 W	1	3.8 kg

Rated voltage 10 / 24 kV, length 442mm

Catalog number	Item number	Rated current I_n	Clearing I^2t at Rated Voltage	Breaking capacity I_b	Minimum breaking current $I_s = I_{min}$	Cold resistance $R_{20} (+/-10\%)$	Power dissipation at I_n	Package	Weight
Ø56mm									
45DB240V6,3PTD	F1000275	6.3 A	0.8 kA²s	63 kA	23 A	640 mΩ	31 W	1	2.4 kg
45DB240V10PTD	G1000276	10 A	2 kA²s	63 kA	36 A	386 mΩ	48 W	1	2.4 kg
45DB240V16PTD	H1000277	16 A	2.3 kA²s	63 kA	73 A	127 mΩ	42 W	1	2.4 kg
45DB240V20PTD	J1000278	20 A	3.9 kA²s	63 kA	91 A	97 mΩ	53 W	1	2.4 kg
45DB240V25PTD	K1000279	25 A	6.5 kA²s	63 kA	116 A	73 mΩ	60 W	1	2.4 kg
45DB240V32PTD	L1000280	31.5 A	7 kA²s	63 kA	125 A	57 mΩ	84 W	1	2.4 kg
45DB240V40PTD	M1000281	40 A	14.2 kA²s	63 kA	161 A	41 mΩ	96 W	1	2.4 kg
Ø65mm									
45DB240V50PTD	N1000282	50 A	24.2 kA²s	63 kA	230 A	35 mΩ	146 W	1	3.2 kg
45DB240V63PTD	P1000283	63 A	46.4 kA²s	63 kA	350 A	24 mΩ	163 W	1	3.2 kg
45DB240V80PTD	Q1000284	80 A	104 kA²s	63 kA	460 A	19 mΩ	196 W	1	3.2 kg
Ø88mm									
45DB240V100PTD	R1000285	100 A	140 kA²s	63 kA	420 A	14 mΩ	279 W	1	4.3 kg

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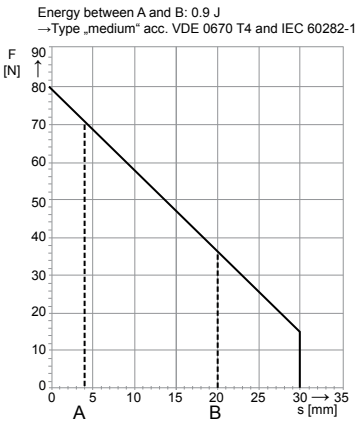


45DB360V6,3PTD

Rated voltage 20 / 36 kV, length 537mm

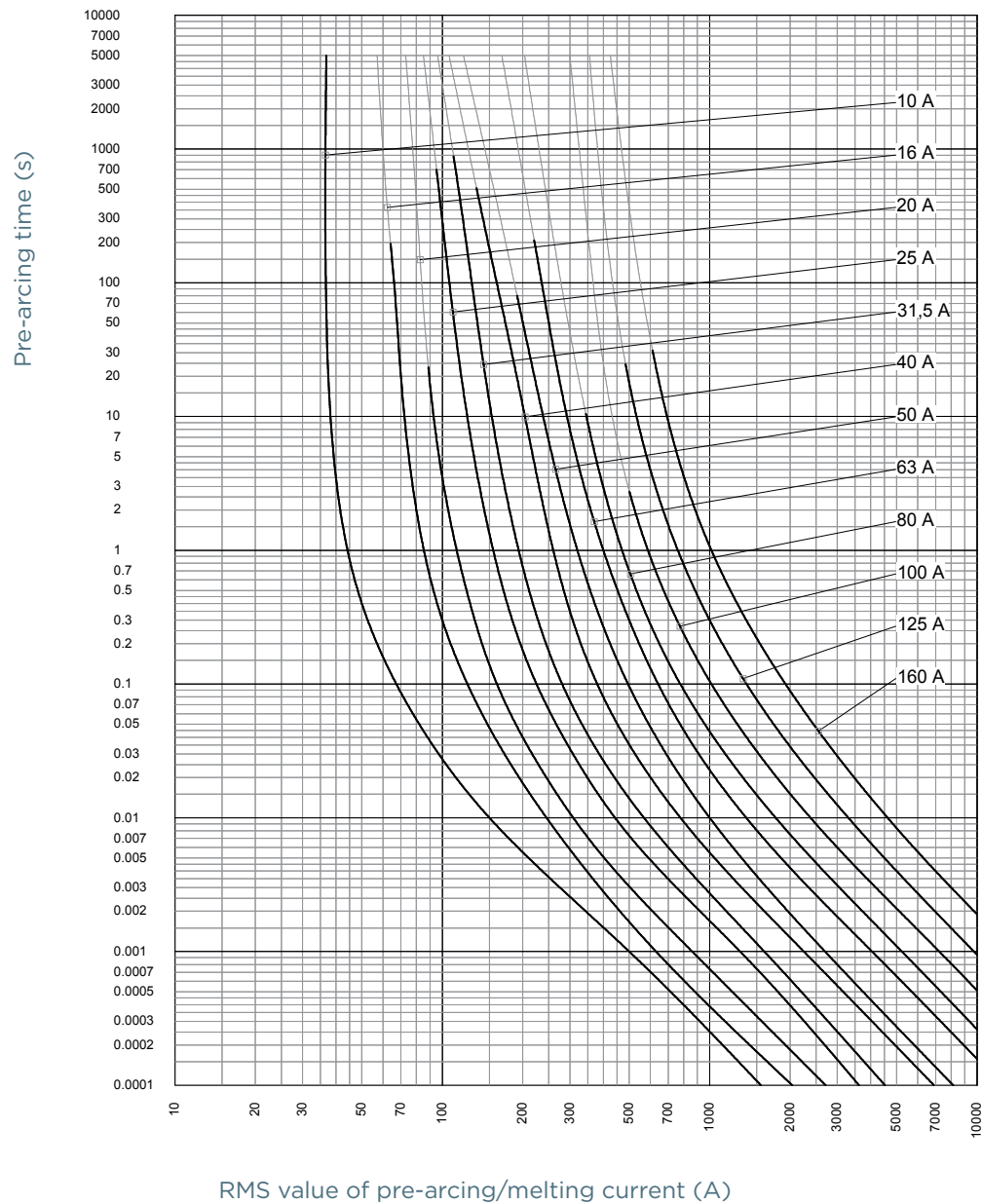
Catalog number	Item number	Rated current I_n	Clearing I^2t at Rated Voltage	Breaking capacity I_b	Minimum breaking current $I_s = I_{min}$	Cold resistance R_{20} (+/-10%)	Power dissipation at I_n	Package	Weight
Ø56mm									
45DB360V6,3PTD	S1000286	6.3 A	0.6 kA²s	31.5 kA	23 A	889 mΩ	39 W	1	2.7 kg
45DB360V10PTD	T1000287	10 A	2 kA²s	31.5 kA	34 A	529 mΩ	66 W	1	2.7 kg
45DB360V16PTD	V1000288	16 A	2.35 kA²s	31.5 kA	70 A	190 mΩ	67 W	1	2.7 kg
45DB360V20PTD	W1000289	20 A	3.9 kA²s	31.5 kA	100 A	153 mΩ	84 W	1	2.7 kg
45DB360V25PTD	X1000290	25 A	6.5 kA²s	31.5 kA	110 A	118 mΩ	100 W	1	2.7 kg
Ø65mm									
45DB360V32PTD	Y1000291	31.5 A	7 kA²s	31.5 kA	135 A	82 mΩ	119 W	1	3.7 kg
45DB360V40PTD	Z1000292	40 A	14.2 kA²s	20 kA	205 A	63 mΩ	176 W	1	3.7 kg
Ø88mm									
45DB360V50PTD	A1000293	50 A	40 kA²s	20 kA	220 A	41 mΩ	183 W	1	6.5 kg

CHARACTERISTICS OF TRIP INDICATOR



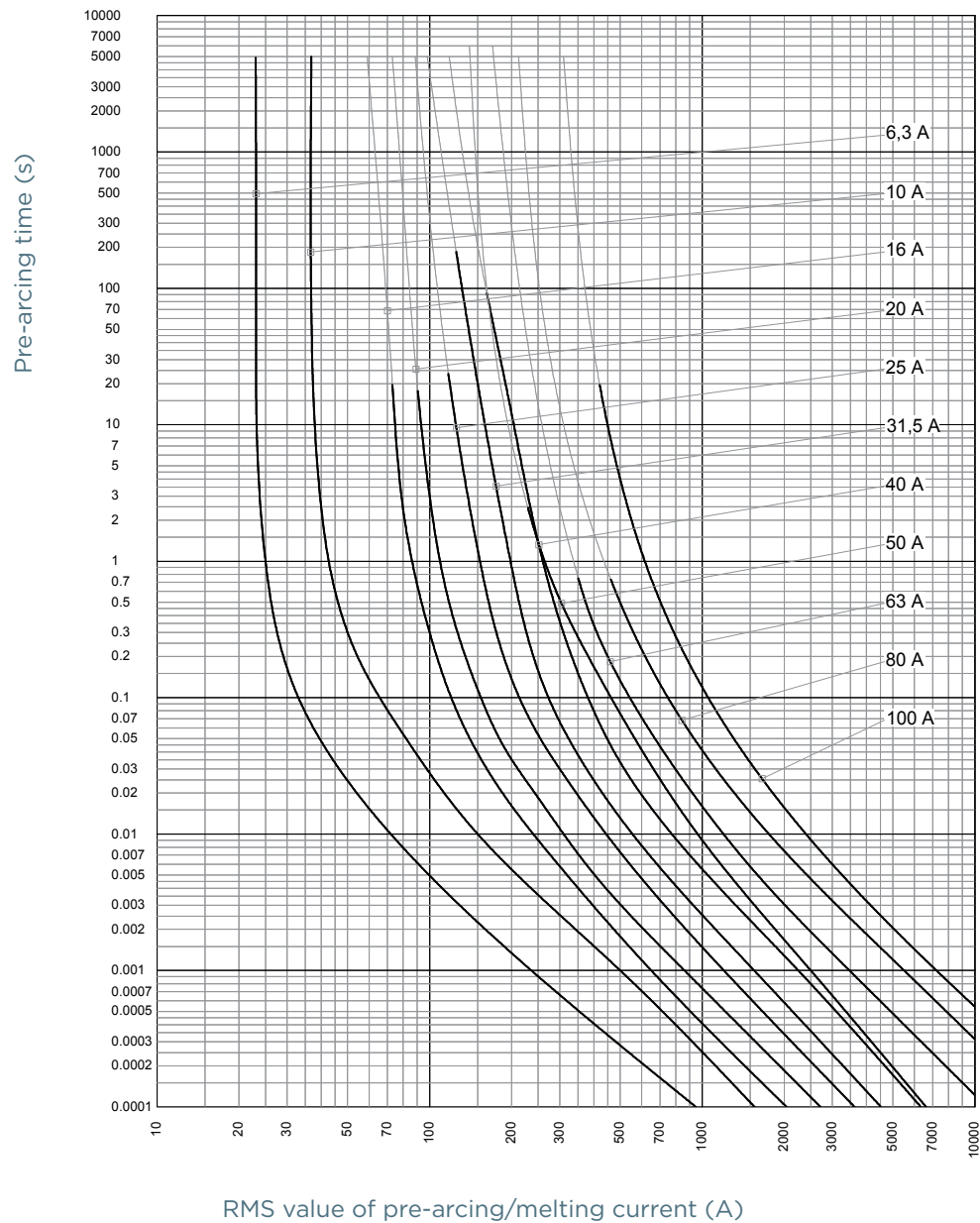
TIME CURRENT CHARACTERISTIC CURVES

Limiter®-PTD 12kV 10-160A



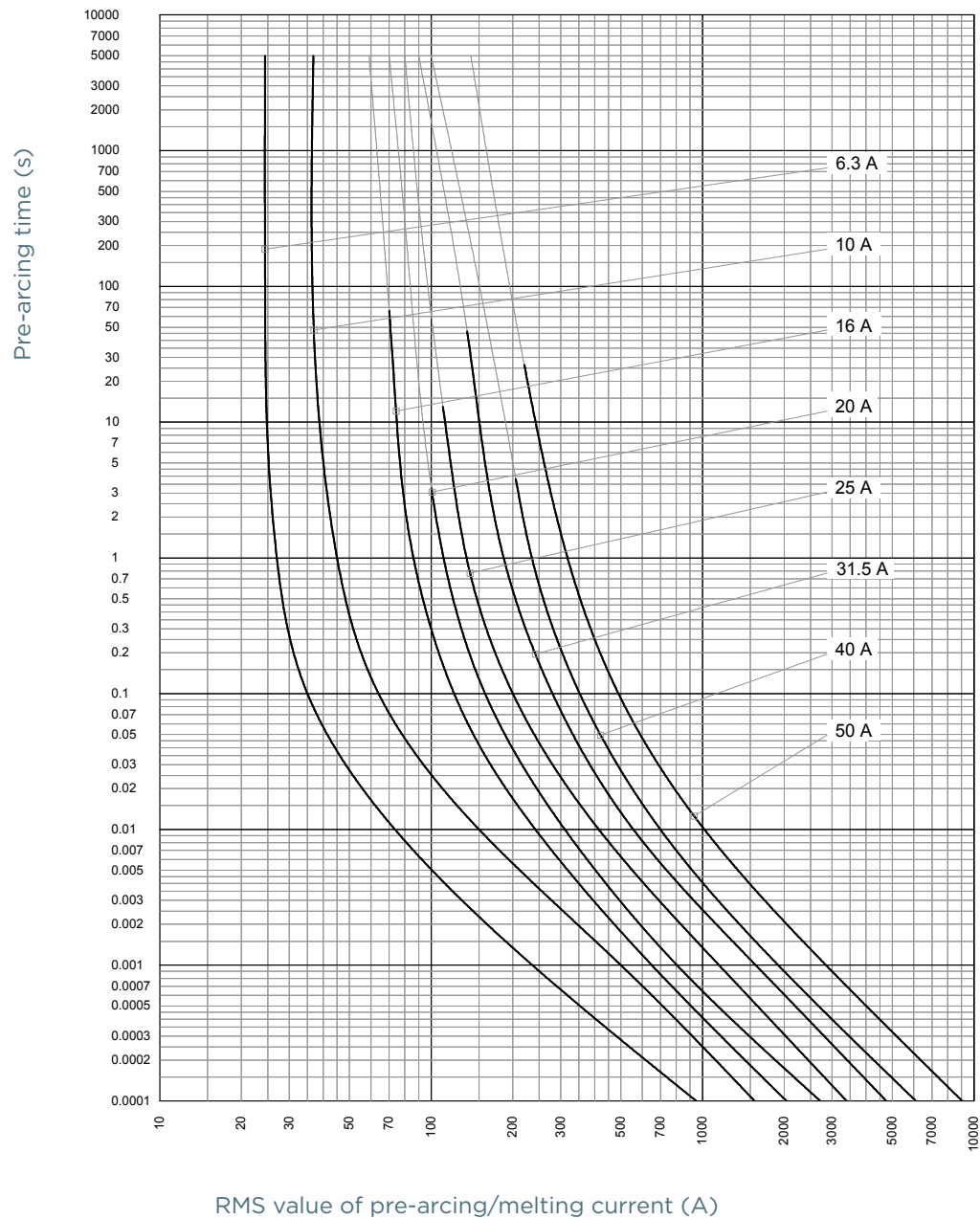
TIME CURRENT CHARACTERISTIC CURVES

Limiter®-PTD 24kV 6.3-100A



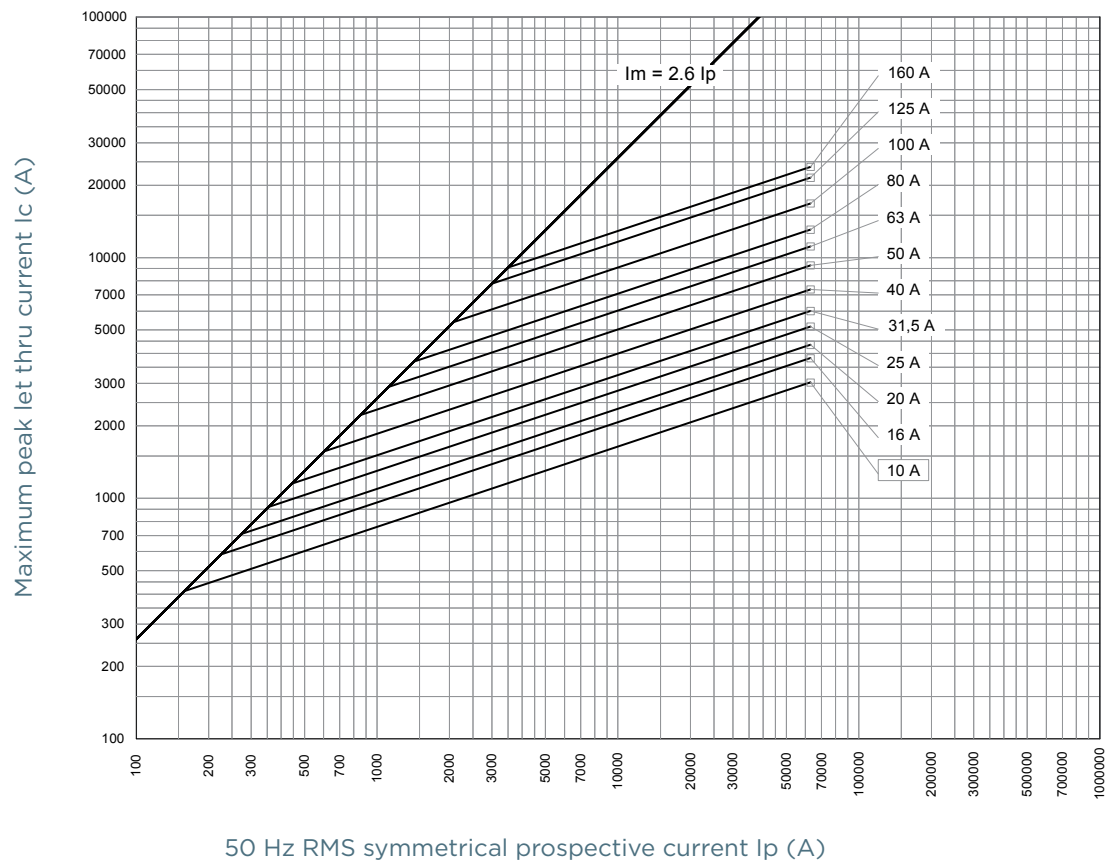
TIME CURRENT CHARACTERISTIC CURVES

Limiter®-PTD 36kV 6.3-50A



CUT-OFF CURRENT CHARACTERISTIC

Limiter®-PTD 12kV 10-160A

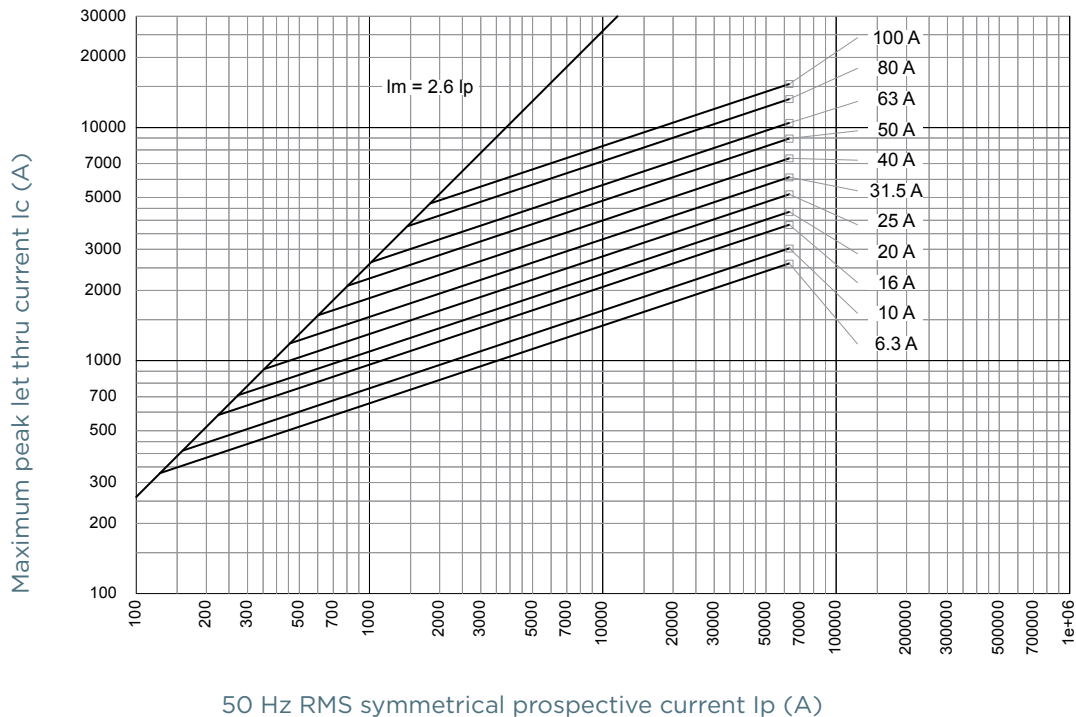


Limiter®- PTD Back-up Fuses

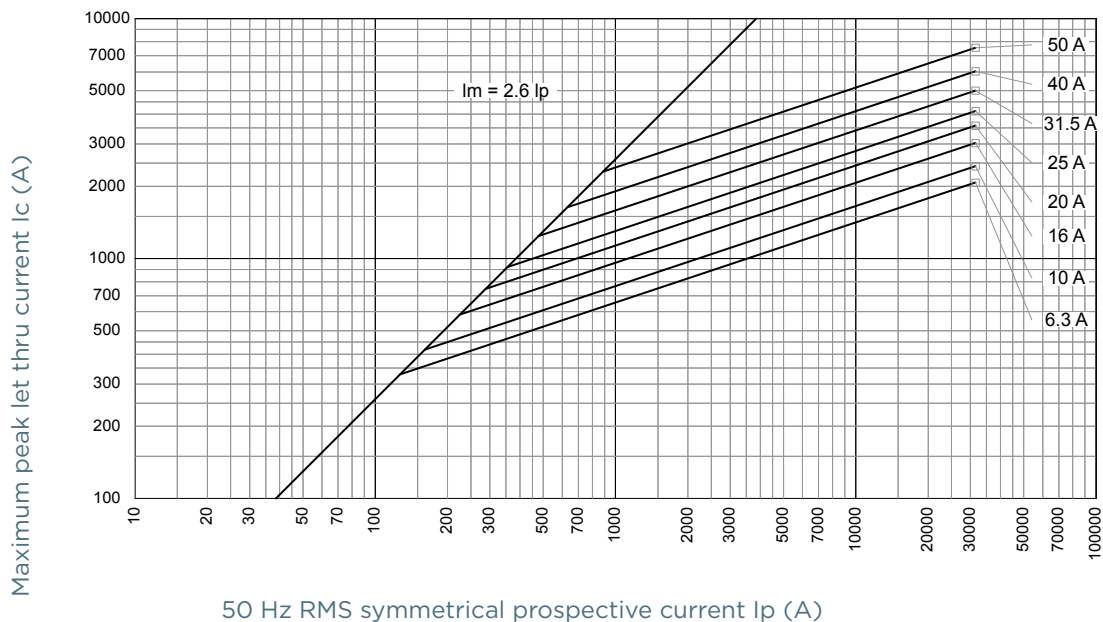
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CUT-OFF CURRENT CHARACTERISTIC

Limiter®-PTD 24kV 6.3-100A



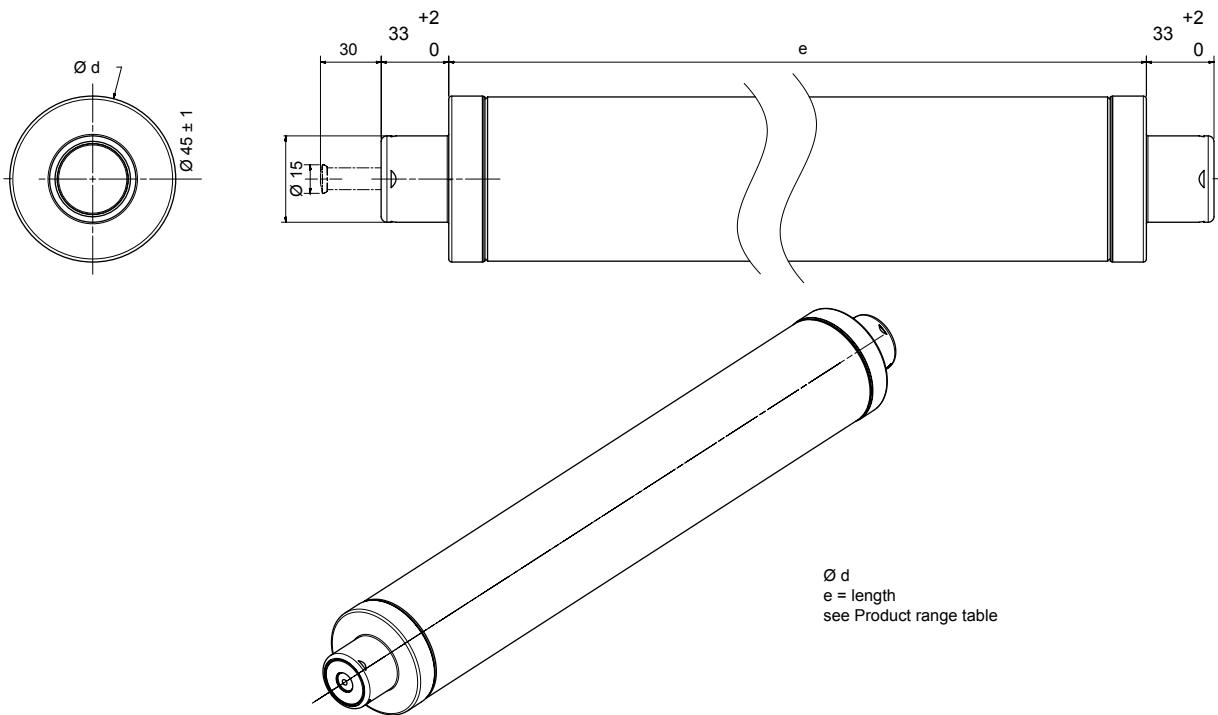
Limiter®-PTD 36kV 6.3-50A



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DIMENSIONS



Dimensions in mm

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SELECTION TABLE

Rated voltage range of fuse-link [kV]		6/12			10/24			20/36		
Service voltage of transformer [kV]		10			20			30		
Relative short-circuit voltage	Transformer output [kVA]	Transformer rated current [A]	Rated current of fuse-link [A]	Power dissipation of HV fuse-links at rated current of transformer [W]	Transformer rated current [A]	Rated current of fuse-link [A]	Power dissipation of HV fuse-links at rated current of transformer [W]	Transformer rated current [A]	Rated current of fuse-link [A]	Power dissipation of HV fuse-links at rated current of transformer [W]
U _k = 4%	100	5.8	16	2.4	2.9	10	3.3	1.9	6.3	2.8
	125	7.2	16	3.6	3.6	10	5	2.4	10	3
	160	9.2	20	4.5	4.6	16	2.9	3.1	10	4.7
	200	11.4	25	5.3	5.8	16	4.6	3.8	16	3
	250	14.4	31.5	6.7	7.2	16–25	3.8–7.2	4.8	16	4.5
	315	18.2	40	8.6	9.1	25	6.2	6.1	20	5.6
	400	23.1	50	10.7	11.6	25–31	8.3–10.2	7.7	25	6.5
	500	28.9	63	10.4	14.4	31.5	13	9.6	25	10
U _k = 5%	630	36.4	80	13.1	18.2	40	15.2	12.1	31.5	12.3
	800	46.2	100	20.8	23.1	50	15.9	15.4	40	16.9
	1000	57.7	125	18.3	28.9	63	22.7	19.2	40–50	17.3–27.6
U _k = 6%	1250	72.2	125	26.3	36.1	63	24.1	24.1	40	46.9
	1600	92.4	160	42.1	46.1	80	36.9	30.8	50	51.7
	2000	–	–	–	57.8	100	48.1	38.6	63	45.7