

# Limitor®- PTD Back-up Fuses

with Controlled Power Dissipation

## 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.

Limitor®-PTD HV fuses are back-up fuses as defined in the standard: IEC 60282-1 and dedicated to protect transformers against the thermal and dynamic effects of short-circuit currents.

Limitor®-PTD HV fuses are perfectly designed to be used in combination with HV switchgear.

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.

### Features Benefits

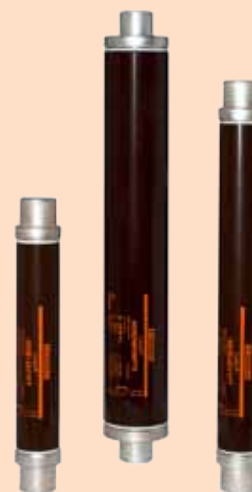
- High breaking capacity
- High current limitation
- Low switching voltage
- Medium striker 80N/30mm
- CPD striker: controlled power dissipation
- Indoor and outdoor applications
- Quick breaking
- Non-ageing
- Energy efficiency
- New cap design for a better compatibility with all types of clips and easier assembly
- Coordination with IEC 60787, IEC 62271-105, IEC/TR 62655 and VDE 0670 T303

### Applications

- HV Transformer protection

### 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 <sub>n</sub>	6/12kV	10/24 kV	20/36 kV
Nominal voltage of transformer	10 kV	20 kV	30 kV
Package	1	1	1

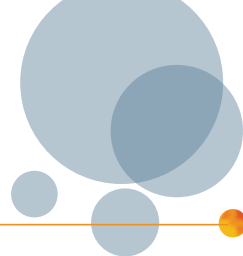


### Standards

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



# Limitor®- PTD Back-up Fuses with Controlled Power Dissipation



## Product range



45DB120V10PTD

### Rated voltage 6 / 12 kV, length 292mm

Catalog number	Reference number	Rated current $I_n$	Clearing $I^2t$ at Rated Voltage	Breaking capacity $I_b$	Minimum breaking current $I_s = I_{min}$	Cold resistance	Power dissipation at $I_n$	Weight
<b>Ø56mm</b>								
45DB120V10PTD	S1000263	10 A	3 kA <sup>2</sup> s	63 kA	35 A	227 mΩ	29 W	1.6 kg
45DB120V16PTD	T1000264	16 A	3.7 kA <sup>2</sup> s	63 kA	64 A	66 mΩ	21 W	1.6 kg
45DB120V20PTD	V1000265	20 A	4.7 kA <sup>2</sup> s	63 kA	90 A	51 mΩ	25 W	1.6 kg
45DB120V25PTD	W1000266	25 A	4.9 kA <sup>2</sup> s	63 kA	95 A	40 mΩ	29 W	1.6 kg
45DB120V32PTD	X1000267	31.5 A	7 kA <sup>2</sup> s	63 kA	110 A	30 mΩ	39 W	1.6 kg
45DB120V40PTD	Y1000268	40 A	14 kA <sup>2</sup> s	63 kA	134 A	20 mΩ	46 W	1.6 kg
45DB120V50PTD	Z1000269	50 A	25 kA <sup>2</sup> s	63 kA	190 A	15 mΩ	62 W	1.6 kg

### Ø65mm

45DB120V63PTD	A1000270	63 A	63 kA <sup>2</sup> s	63 kA	220 A	12 mΩ	62 W	2.1 kg
45DB120V80PTD	B1000271	80 A	87 kA <sup>2</sup> s	63 kA	345 A	8.7 mΩ	85 W	2.1 kg
45DB120V100PTD	C1000272	100 A	140 kA <sup>2</sup> s	63 kA	500 A	8.1 mΩ	152 W	2.1 kg

### Ø88mm

45DB120V125PTD	D1000273	125 A	430 kA <sup>2</sup> s	63 kA	480 A	4.5 mΩ	117 W	3.7 kg
45DB120V160PTD	E1000274	160 A	670 kA <sup>2</sup> s	63 kA	610 A	4 mΩ	175 W	3.7 kg

### Rated voltage 10 / 24 kV, length 442mm

Catalog number	Reference number	Rated current $I_n$	Clearing $I^2t$ at Rated Voltage	Breaking capacity $I_b$	Minimum breaking current $I_s = I_{min}$	Cold resistance	Power dissipation at $I_n$	Weight
<b>Ø56mm</b>								
45DB240V6,3PTD	F1000275	6.3 A	0.8 kA <sup>2</sup> s	63 kA	23 A	640 mΩ	31 W	2.3 kg
45DB240V10PTD	G1000276	10 A	2 kA <sup>2</sup> s	63 kA	36 A	386 mΩ	48 W	2.3 kg
45DB240V16PTD	H1000277	16 A	2.3 kA <sup>2</sup> s	63 kA	73 A	127 mΩ	42 W	2.3 kg
45DB240V20PTD	J1000278	20 A	3.9 kA <sup>2</sup> s	63 kA	91 A	97 mΩ	53 W	2.3 kg
45DB240V25PTD	K1000279	25 A	6.5 kA <sup>2</sup> s	63 kA	116 A	73 mΩ	60 W	2.3 kg
45DB240V32PTD	L1000280	31.5 A	7 kA <sup>2</sup> s	63 kA	125 A	57 mΩ	84 W	2.3 kg
45DB240V40PTD	M1000281	40 A	14.2 kA <sup>2</sup> s	63 kA	161 A	41 mΩ	96 W	2.3 kg

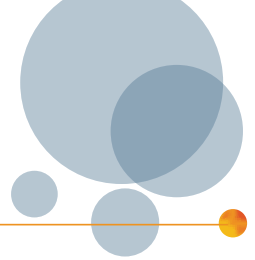
### Ø65mm

45DB240V50PTD	N1000282	50 A	24.2 kA <sup>2</sup> s	63 kA	230 A	35 mΩ	146 W	3.1 kg
45DB240V63PTD	P1000283	63 A	46.4 kA <sup>2</sup> s	63 kA	350 A	24 mΩ	163 W	3.1 kg
45DB240V80PTD	Q1000284	80 A	104 kA <sup>2</sup> s	63 kA	460 A	19 mΩ	196 W	3.1 kg

### Ø78mm

45DB240V100PTD	R1000285	100 A	140 kA <sup>2</sup> s	63 kA	420 A	14 mΩ	279 W	4.1 kg
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# Limitor®- PTD Back-up Fuses with Controlled Power Dissipation



## Product range

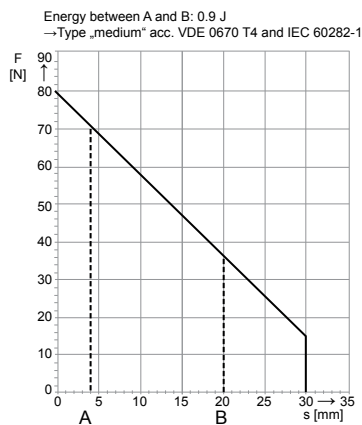


45DB360V6,3PTD

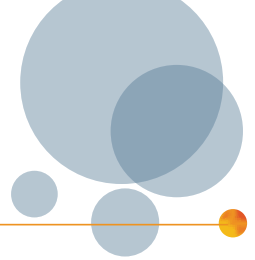
Rated voltage 20 / 36 kV, length 537mm

Catalog number	Reference number	Rated current $I_n$	Clearing $I^2t$ at Rated Voltage	Breaking capacity $I_b$	Minimum breaking current $I_3 = I_{min}$	Cold resistance	Power dissipation at $I_n$	Weight
<b>Ø56mm</b>								
45DB360V6,3PTD	S1000286	6.3 A	0.6 kA <sup>2</sup> s	31.5 kA	23 A	889 mΩ	39 W	2.7 kg
45DB360V10PTD	T1000287	10 A	2 kA <sup>2</sup> s	31.5 kA	34 A	529 mΩ	66 W	2.7 kg
45DB360V16PTD	V1000288	16 A	2.35 kA <sup>2</sup> s	31.5 kA	70 A	190 mΩ	67 W	2.7 kg
45DB360V20PTD	W1000289	20 A	3.9 kA <sup>2</sup> s	31.5 kA	100 A	153 mΩ	84 W	2.7 kg
45DB360V25PTD	X1000290	25 A	6.5 kA <sup>2</sup> s	31.5 kA	110 A	118 mΩ	100 W	2.7 kg
<b>Ø65mm</b>								
45DB360V32PTD	Y1000291	31.5 A	7 kA <sup>2</sup> s	31.5 kA	135 A	82 mΩ	119 W	3.7 kg
45DB360V40PTD	Z1000292	40 A	14.2 kA <sup>2</sup> s	20 kA	205 A	63 mΩ	176 W	3.7 kg
<b>Ø88mm</b>								
45DB360V50PTD	A1000293	50 A	40 kA <sup>2</sup> s	20 kA	220 A	41 mΩ	183 W	6.5 kg

## Characteristics of trip indicator

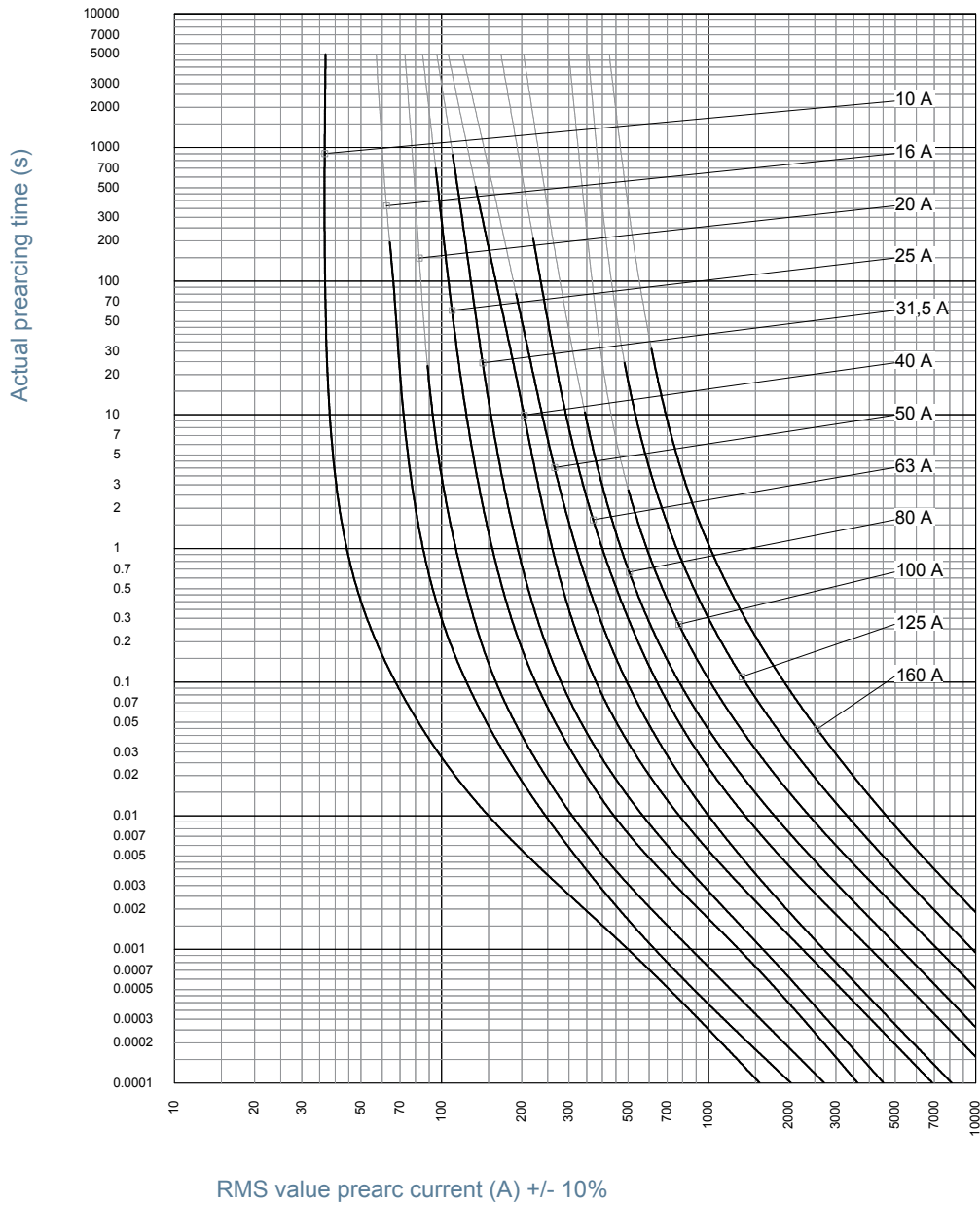


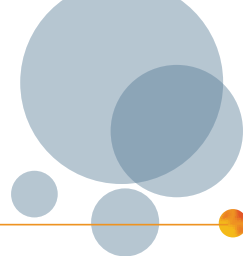
# Limitor<sup>®</sup>- PTD Back-up Fuses with Controlled Power Dissipation



## Time current characteristic curves

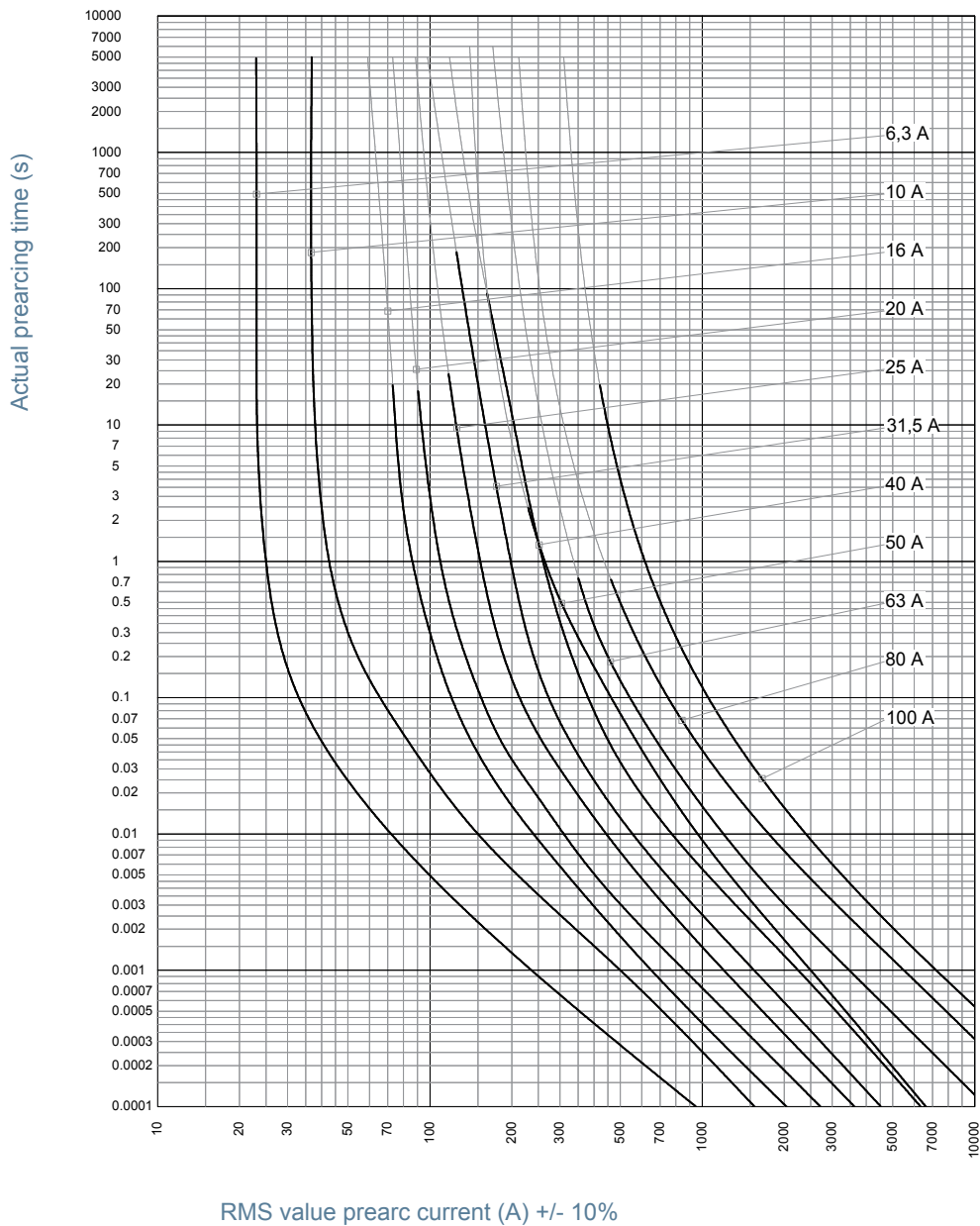
### Limitor<sup>®</sup>-PTD 12kV 10-160A

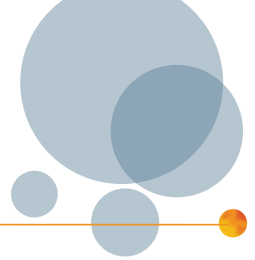




## Time current characteristic curves

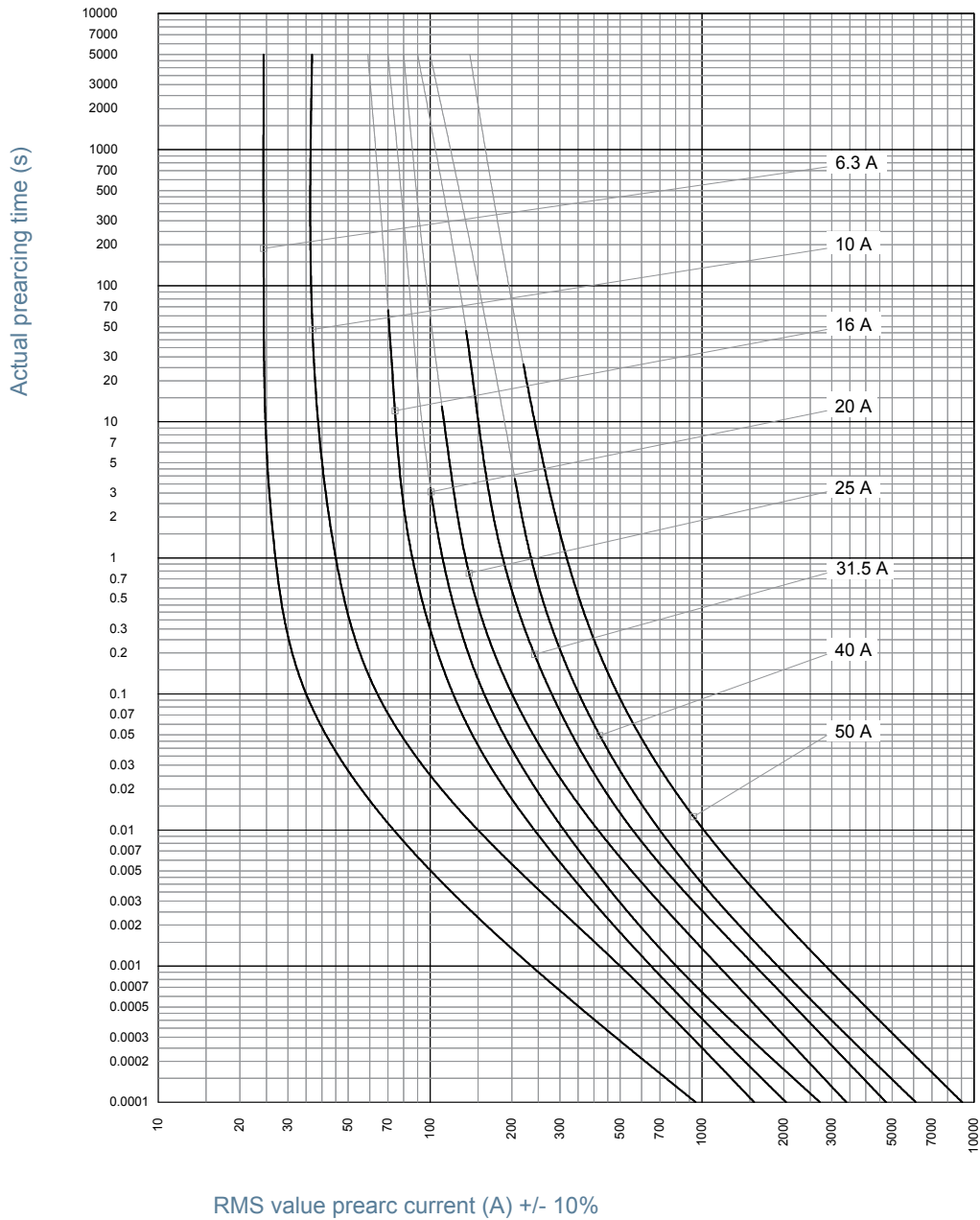
Limitor<sup>®</sup>-PTD 24kV 6.3-100A

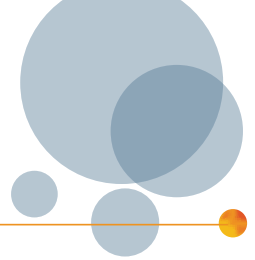




**Time current characteristic curves**

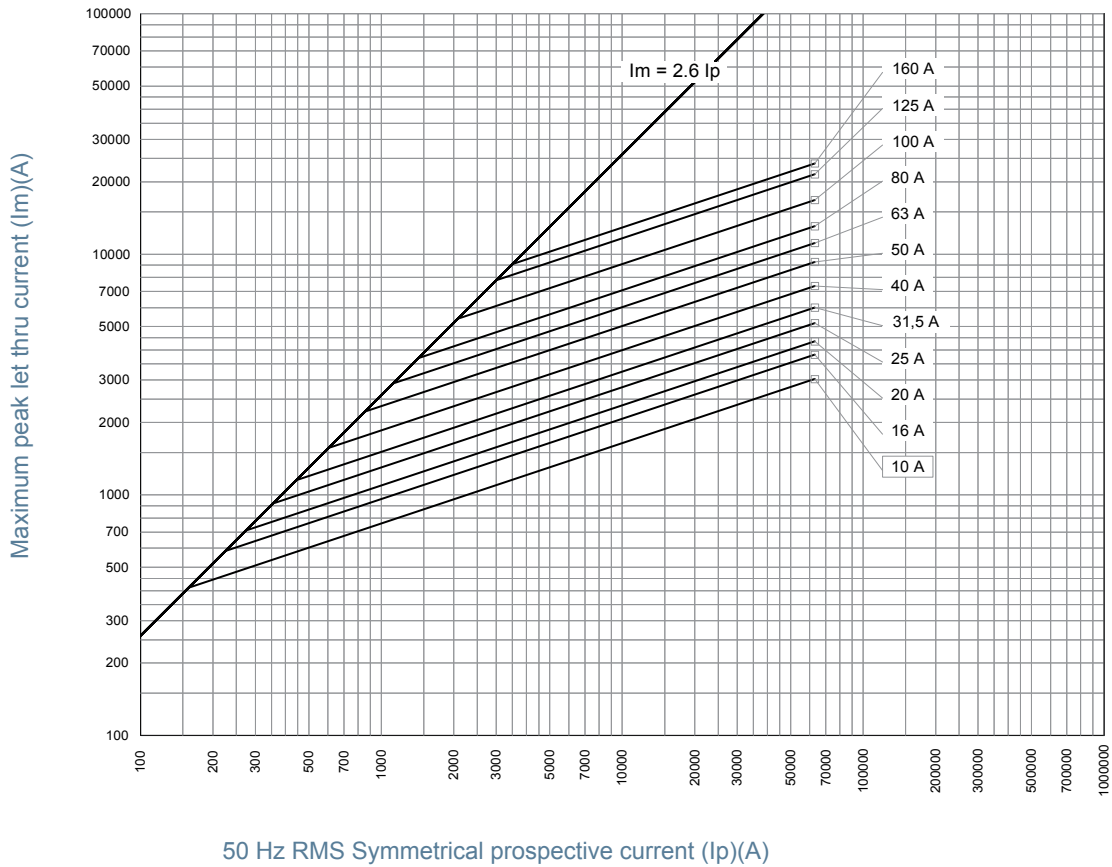
Limitor<sup>®</sup>-PTD 36kV 6.3-50A



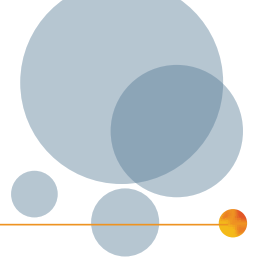


## Current limiting diagram

Limitor<sup>®</sup>-PTD 12kV 10-160A

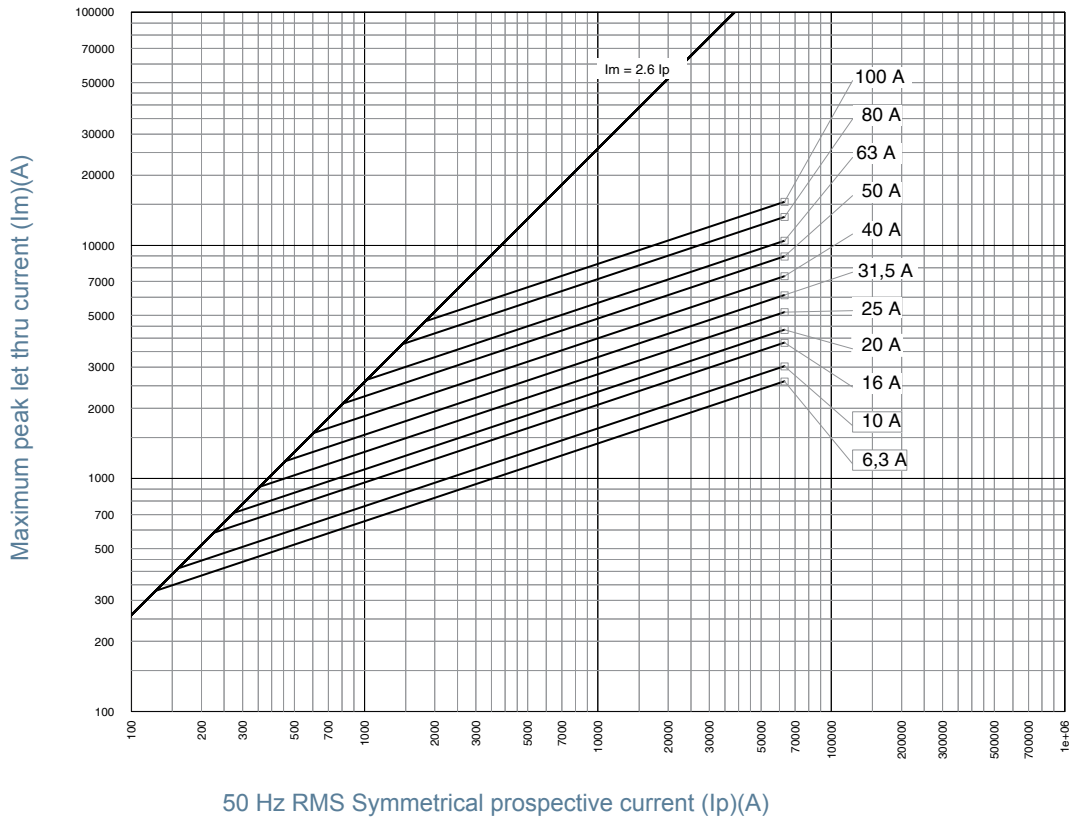


# Limitor<sup>®</sup>- PTD Back-up Fuses with Controlled Power Dissipation

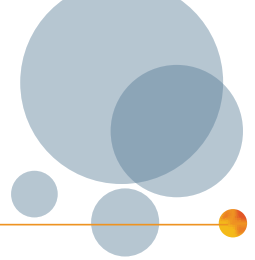


## Current limiting diagram

Limitor<sup>®</sup>-PTD 24kV 6.3-100A

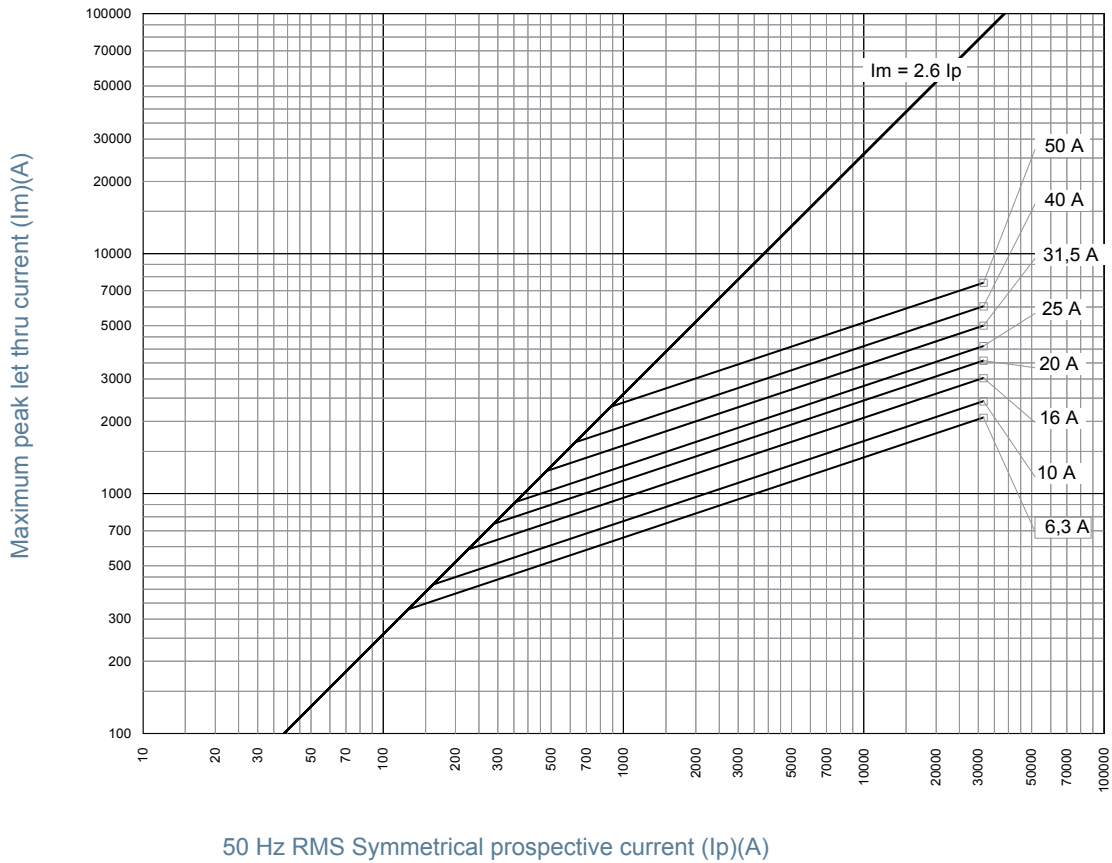






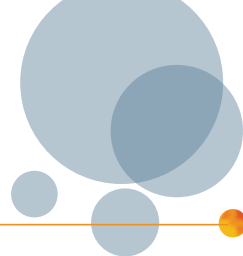
**Current limiting diagram**

Limator®-PTD 36kV 6.3-50A

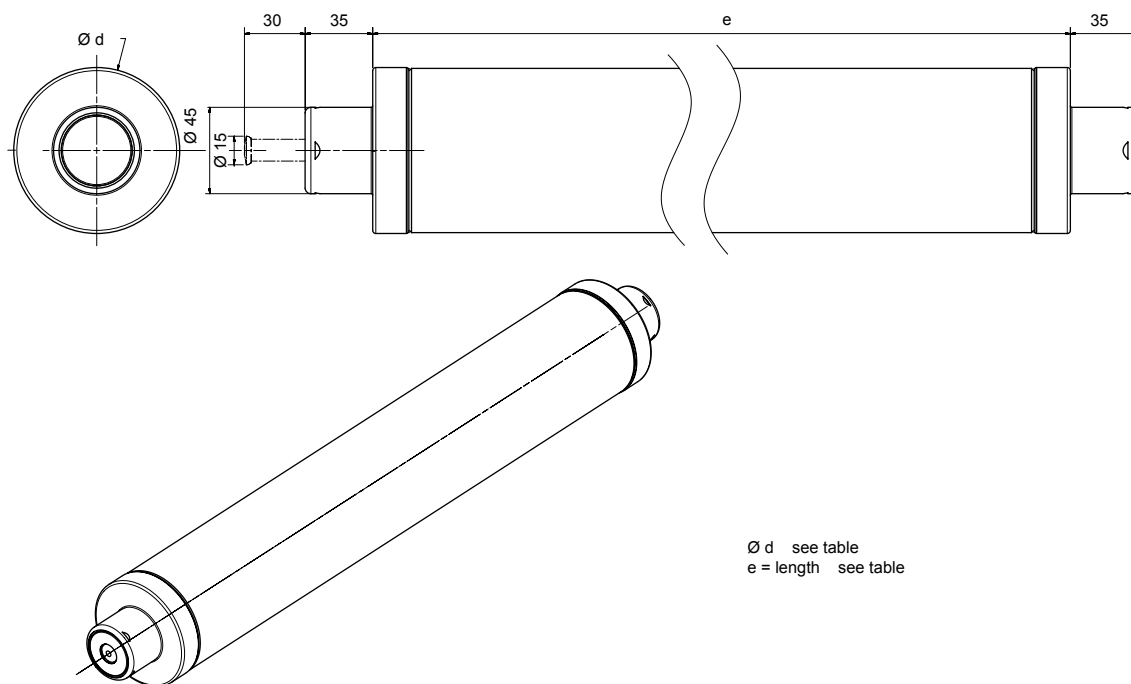


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## Dimensions



$\varnothing d$  see table  
 $e$  = length see table

Dimensions in mm

## 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-links [A]	Power dissipation of fuse-link at the rated current of transformer [W]	Transformer rated current [A]	Rated current of fuse-links [A]	Power dissipation of fuse-link at the rated current of transformer [W]	Transformer rated current [A]	Rated current of fuse-links [A]	Power dissipation of fuse-link at the rated current of transformer [W]
Uk = 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	7.2-3.8	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	10.2-8.3	7.7	25	6.5
	500	28.9	63	10.4	14.4	31.5	13	9.6	25	10
Uk = 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	63	14	15.4	40	16.9
	1000	57.7	125	18.3	28.9	63	22.7	19.2	40-50	27.6-17.3