

# Limitor<sup>®</sup>- 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.

Limitor<sup>®</sup>-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.

Limitor<sup>®</sup>-PTD HV fuse-links are perfectly designed to be used in combination with HV switchgear.

Siemens and Ormazabal recommend Limitor<sup>®</sup>-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 <sub>n</sub>	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 0670 T303

## APPLICATIONS

- HV Transformer protection

## STANDARDS

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



MERSEN reserves the right to change, update or correct, without notice, any information contained in this datasheet.

# Limitor®- PTD Back-up Fuses

with Controlled Power Dissipation

## PRODUCT RANGE

### 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	1.7 kg
45DB120V16PTD	T1000264	16 A	3.7 kA <sup>2</sup> s	63 kA	64 A	66 mΩ	21 W	1.7 kg
45DB120V20PTD	V1000265	20 A	4.7 kA <sup>2</sup> s	63 kA	90 A	51 mΩ	25 W	1.7 kg
45DB120V25PTD	W1000266	25 A	4.9 kA <sup>2</sup> s	63 kA	95 A	40 mΩ	29 W	1.7 kg
45DB120V32PTD	X1000267	31.5 A	7 kA <sup>2</sup> s	63 kA	110 A	30 mΩ	39 W	1.7 kg
45DB120V40PTD	Y1000268	40 A	14 kA <sup>2</sup> s	63 kA	134 A	20 mΩ	46 W	1.7 kg
45DB120V50PTD	Z1000269	50 A	25 kA <sup>2</sup> s	63 kA	190 A	15 mΩ	62 W	1.7 kg
<b>Ø65mm</b>								
45DB120V63PTD	A1000270	63 A	63 kA <sup>2</sup> s	63 kA	220 A	12 mΩ	62 W	2.2 kg
45DB120V80PTD	B1000271	80 A	87 kA <sup>2</sup> s	63 kA	345 A	8.7 mΩ	85 W	2.2 kg
45DB120V100PTD	C1000272	100 A	140 kA <sup>2</sup> s	63 kA	500 A	8.1 mΩ	152 W	2.2 kg
<b>Ø88mm</b>								
45DB120V125PTD	D1000273	125 A	430 kA <sup>2</sup> s	63 kA	480 A	4.5 mΩ	117 W	3.8 kg
45DB120V160PTD	E1000274	160 A	670 kA <sup>2</sup> s	63 kA	610 A	4 mΩ	175 W	3.8 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	2.4 kg
45DB240V10PTD	G1000276	10 A	2 kA <sup>2</sup> s	63 kA	36 A	386 mΩ	48 W	2.4 kg
45DB240V16PTD	H1000277	16 A	2.3 kA <sup>2</sup> s	63 kA	73 A	127 mΩ	42 W	2.4 kg
45DB240V20PTD	J1000278	20 A	3.9 kA <sup>2</sup> s	63 kA	91 A	97 mΩ	53 W	2.4 kg
45DB240V25PTD	K1000279	25 A	6.5 kA <sup>2</sup> s	63 kA	116 A	73 mΩ	60 W	2.4 kg
45DB240V32PTD	L1000280	31.5 A	7 kA <sup>2</sup> s	63 kA	125 A	57 mΩ	84 W	2.4 kg
45DB240V40PTD	M1000281	40 A	14.2 kA <sup>2</sup> s	63 kA	161 A	41 mΩ	96 W	2.4 kg
<b>Ø65mm</b>								
45DB240V50PTD	N1000282	50 A	24.2 kA <sup>2</sup> s	63 kA	230 A	35 mΩ	146 W	3.2 kg
45DB240V63PTD	P1000283	63 A	46.4 kA <sup>2</sup> s	63 kA	350 A	24 mΩ	163 W	3.2 kg
45DB240V80PTD	Q1000284	80 A	104 kA <sup>2</sup> s	63 kA	460 A	19 mΩ	196 W	3.2 kg
<b>Ø88mm</b>								
45DB240V100PTD	R1000285	100 A	140 kA <sup>2</sup> s	63 kA	420 A	14 mΩ	279 W	4.3 kg

MERSEN reserves the right to change, update or correct, without notice, any information contained in this datasheet.



# Limitor®- PTD Back-up Fuses

with Controlled Power Dissipation

## PRODUCT RANGE

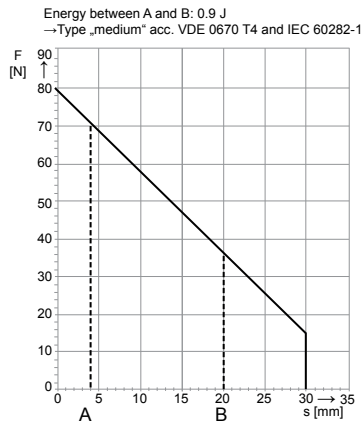


45DB360V6,3PTD

### 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 $I_s = I_{min}$	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	2.8 kg
45DB360V10PTD	T1000287	10 A	2 kA <sup>2</sup> s	31.5 kA	34 A	529 mΩ	66 W	2.8 kg
45DB360V16PTD	V1000288	16 A	2.35 kA <sup>2</sup> s	31.5 kA	70 A	190 mΩ	67 W	2.8 kg
45DB360V20PTD	W1000289	20 A	3.9 kA <sup>2</sup> s	31.5 kA	100 A	153 mΩ	84 W	2.8 kg
45DB360V25PTD	X1000290	25 A	6.5 kA <sup>2</sup> s	31.5 kA	110 A	118 mΩ	100 W	2.8 kg
<b>Ø65mm</b>								
45DB360V32PTD	Y1000291	31.5 A	7 kA <sup>2</sup> s	31.5 kA	135 A	82 mΩ	119 W	3.8 kg
45DB360V40PTD	Z1000292	40 A	14.2 kA <sup>2</sup> s	20 kA	205 A	63 mΩ	176 W	3.8 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

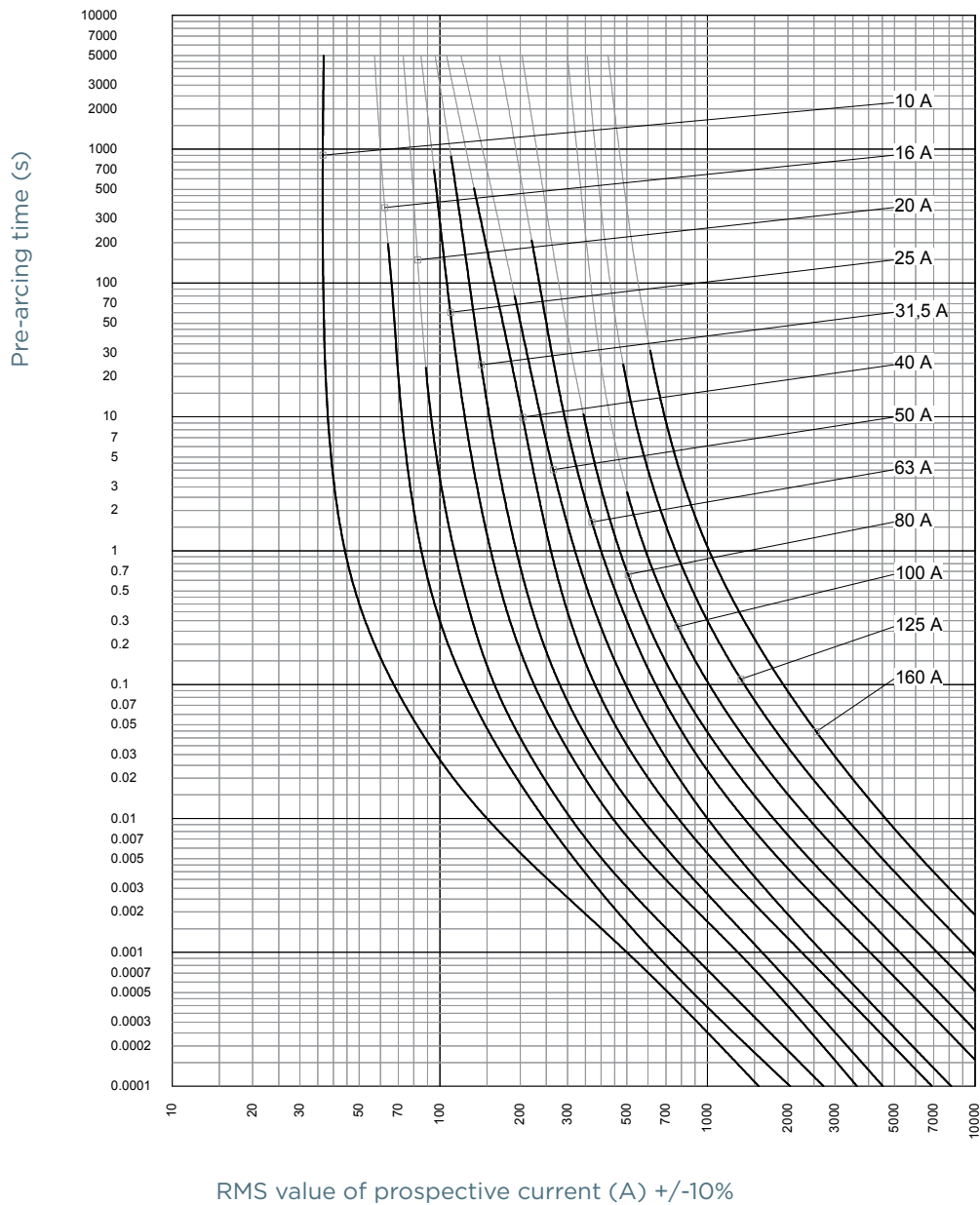
## CHARACTERISTICS OF TRIP INDICATOR



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

## TIME CURRENT CHARACTERISTIC CURVES

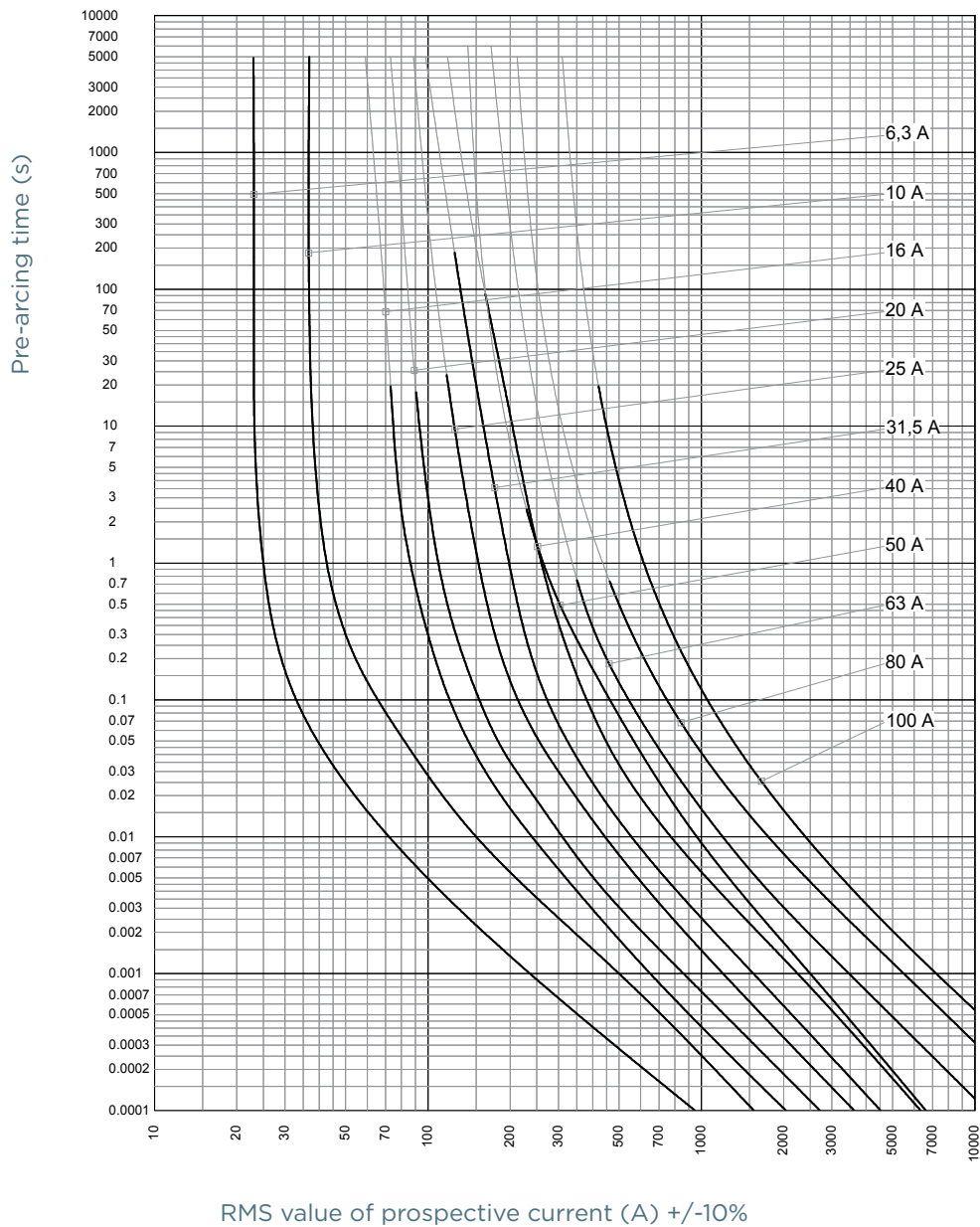
### Limitor<sup>®</sup>-PTD 12kV 10-160A



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

## TIME CURRENT CHARACTERISTIC CURVES

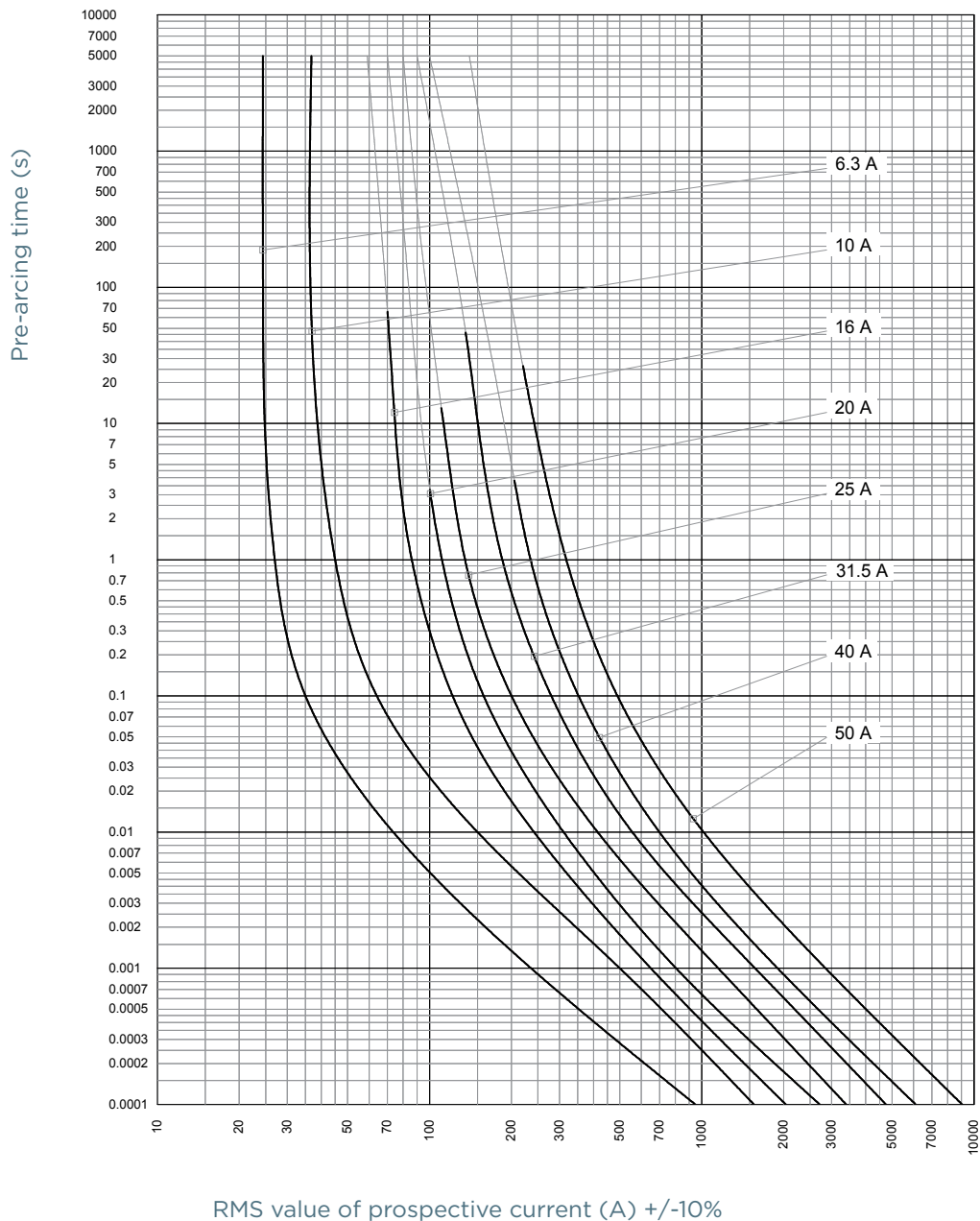
### Limitor<sup>®</sup>-PTD 24kV 6.3-100A



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

## TIME CURRENT CHARACTERISTIC CURVES

### Limitor<sup>®</sup>-PTD 36kV 6.3-50A

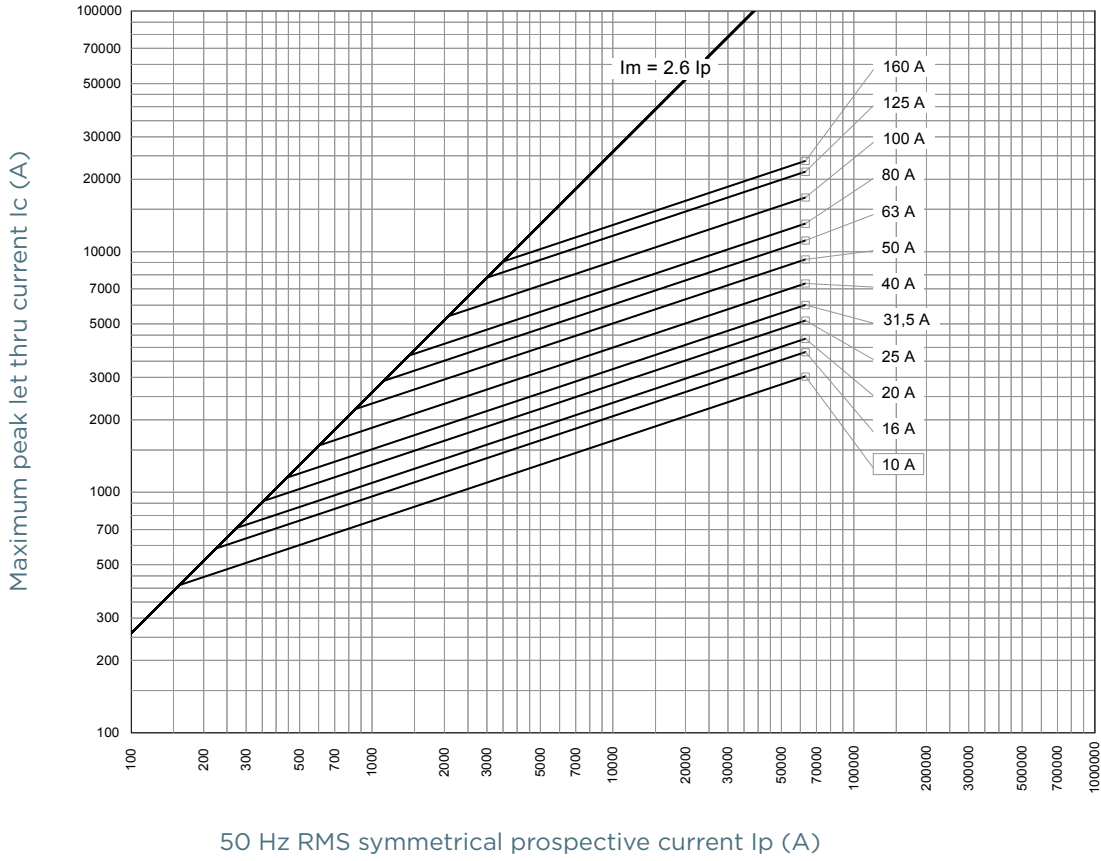


# Limitor<sup>®</sup>- PTD Back-up Fuses

with Controlled Power Dissipation

## CUT-OFF CURRENT CHARACTERISTIC

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

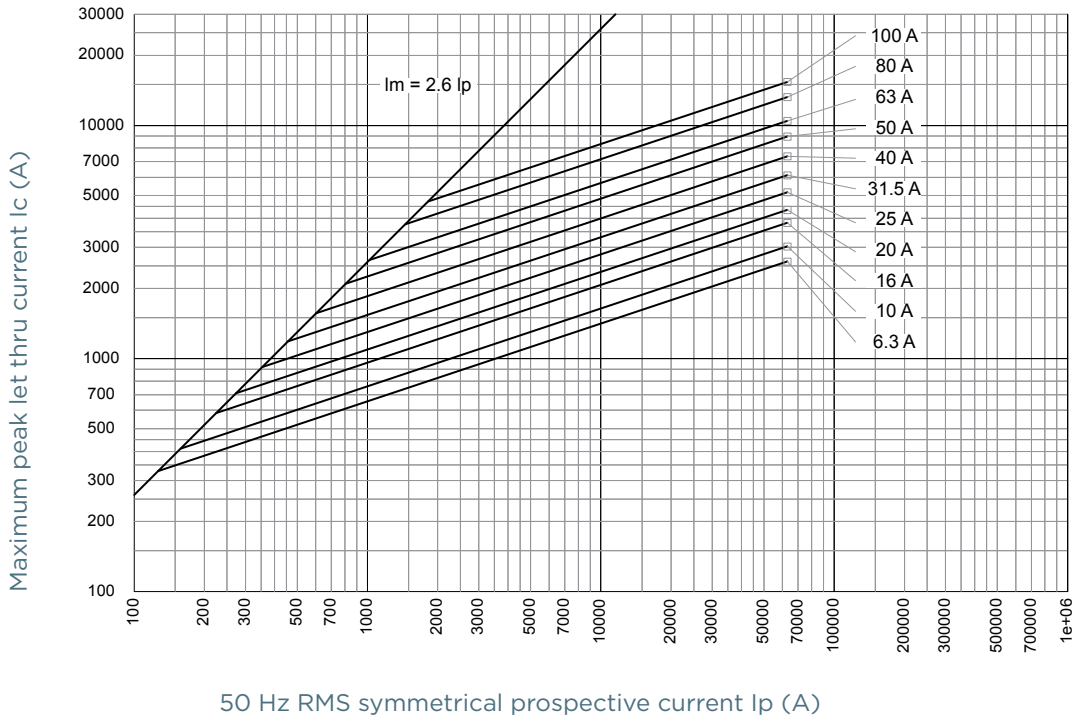


# Limitor<sup>®</sup>- PTD Back-up Fuses

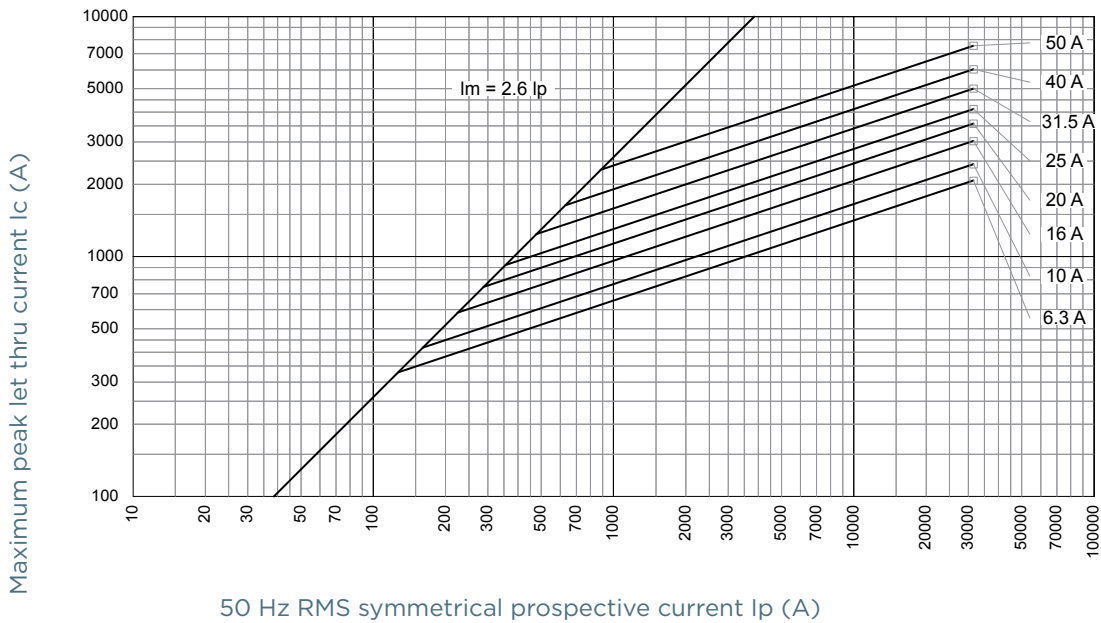
with Controlled Power Dissipation

## CUT-OFF CURRENT CHARACTERISTIC

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



### Limitor<sup>®</sup>-PTD 36kV 6.3-50A

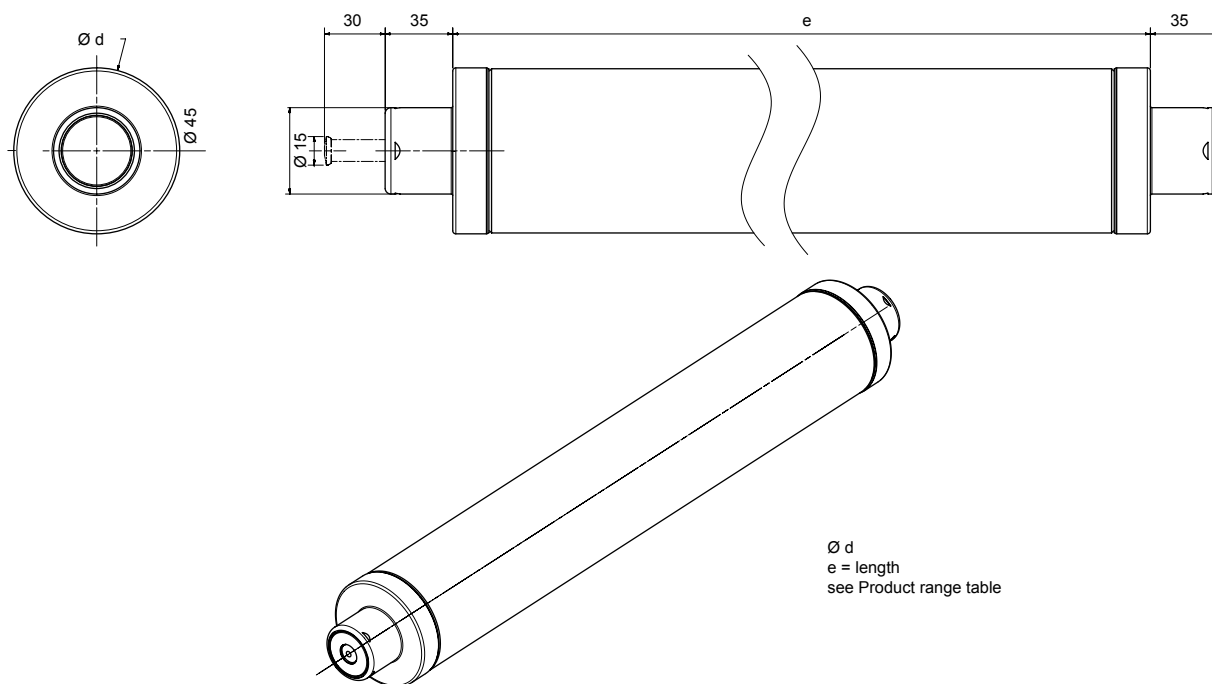




# Limitor<sup>®</sup>- PTD Back-up Fuses

with Controlled Power Dissipation

## DIMENSIONS



Dimensions in mm

# Limitor®- PTD Back-up Fuses

with Controlled Power Dissipation

## 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]
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	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
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	50	15.9	15.4	40	16.9
Uk = 6%	1000	57.7	125	18.3	28.9	63	22.7	19.2	40–50	17.3–27.6
	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

MERSEN reserves the right to change, update or correct, without notice, any information contained in this datasheet.