

Limitor[®]- 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[®]-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[®]-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 0670 T303

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 kA ² s | 63 kA | 35 A | 227 mΩ | 29 W | 1 | 1.7 kg |
| 45DB120V16PTD | T1000264 | 16 A | 3.7 kA ² s | 63 kA | 64 A | 66 mΩ | 21 W | 1 | 1.7 kg |
| 45DB120V20PTD | V1000265 | 20 A | 4.7 kA ² s | 63 kA | 90 A | 51 mΩ | 25 W | 1 | 1.7 kg |
| 45DB120V25PTD | W1000266 | 25 A | 4.9 kA ² s | 63 kA | 95 A | 40 mΩ | 29 W | 1 | 1.7 kg |
| 45DB120V32PTD | X1000267 | 31.5 A | 7 kA ² s | 63 kA | 110 A | 30 mΩ | 39 W | 1 | 1.7 kg |
| 45DB120V40PTD | Y1000268 | 40 A | 14 kA ² s | 63 kA | 134 A | 20 mΩ | 46 W | 1 | 1.7 kg |
| 45DB120V50PTD | Z1000269 | 50 A | 25 kA ² s | 63 kA | 190 A | 15 mΩ | 62 W | 1 | 1.7 kg |
| Ø65mm | | | | | | | | | |
| 45DB120V63PTD | A1000270 | 63 A | 63 kA ² s | 63 kA | 220 A | 12 mΩ | 62 W | 1 | 2.2 kg |
| 45DB120V80PTD | B1000271 | 80 A | 87 kA ² s | 63 kA | 345 A | 8.7 mΩ | 85 W | 1 | 2.2 kg |
| 45DB120V100PTD | C1000272 | 100 A | 140 kA ² s | 63 kA | 500 A | 8.1 mΩ | 152 W | 1 | 2.2 kg |
| Ø88mm | | | | | | | | | |
| 45DB120V125PTD | D1000273 | 125 A | 430 kA ² s | 63 kA | 480 A | 4.5 mΩ | 117 W | 1 | 3.8 kg |
| 45DB120V160PTD | E1000274 | 160 A | 670 kA ² s | 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 kA ² s | 63 kA | 23 A | 640 mΩ | 31 W | 1 | 2.4 kg |
| 45DB240V10PTD | G1000276 | 10 A | 2 kA ² s | 63 kA | 36 A | 386 mΩ | 48 W | 1 | 2.4 kg |
| 45DB240V16PTD | H1000277 | 16 A | 2.3 kA ² s | 63 kA | 73 A | 127 mΩ | 42 W | 1 | 2.4 kg |
| 45DB240V20PTD | J1000278 | 20 A | 3.9 kA ² s | 63 kA | 91 A | 97 mΩ | 53 W | 1 | 2.4 kg |
| 45DB240V25PTD | K1000279 | 25 A | 6.5 kA ² s | 63 kA | 116 A | 73 mΩ | 60 W | 1 | 2.4 kg |
| 45DB240V32PTD | L1000280 | 31.5 A | 7 kA ² s | 63 kA | 125 A | 57 mΩ | 84 W | 1 | 2.4 kg |
| 45DB240V40PTD | M1000281 | 40 A | 14.2 kA ² s | 63 kA | 161 A | 41 mΩ | 96 W | 1 | 2.4 kg |
| Ø65mm | | | | | | | | | |
| 45DB240V50PTD | N1000282 | 50 A | 24.2 kA ² s | 63 kA | 230 A | 35 mΩ | 146 W | 1 | 3.2 kg |
| 45DB240V63PTD | P1000283 | 63 A | 46.4 kA ² s | 63 kA | 350 A | 24 mΩ | 163 W | 1 | 3.2 kg |
| 45DB240V80PTD | Q1000284 | 80 A | 104 kA ² s | 63 kA | 460 A | 19 mΩ | 196 W | 1 | 3.2 kg |
| Ø88mm | | | | | | | | | |
| 45DB240V100PTD | R1000285 | 100 A | 140 kA ² s | 63 kA | 420 A | 14 mΩ | 279 W | 1 | 4.3 kg |

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PRODUCT RANGE

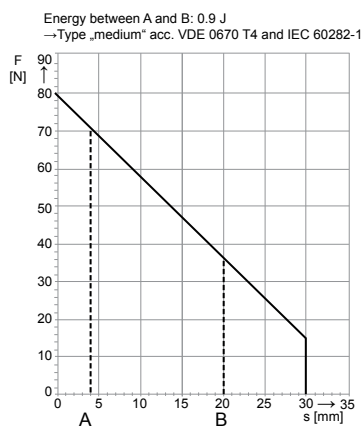


45DB360V6,3PTD

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 kA ² s | 31.5 kA | 23 A | 889 mΩ | 39 W | 1 | 2.7 kg |
| 45DB360V10PTD | T1000287 | 10 A | 2 kA ² s | 31.5 kA | 34 A | 529 mΩ | 66 W | 1 | 2.7 kg |
| 45DB360V16PTD | V1000288 | 16 A | 2.35 kA ² s | 31.5 kA | 70 A | 190 mΩ | 67 W | 1 | 2.7 kg |
| 45DB360V20PTD | W1000289 | 20 A | 3.9 kA ² s | 31.5 kA | 100 A | 153 mΩ | 84 W | 1 | 2.7 kg |
| 45DB360V25PTD | X1000290 | 25 A | 6.5 kA ² s | 31.5 kA | 110 A | 118 mΩ | 100 W | 1 | 2.7 kg |
| Ø65mm | | | | | | | | | |
| 45DB360V32PTD | Y1000291 | 31.5 A | 7 kA ² s | 31.5 kA | 135 A | 82 mΩ | 119 W | 1 | 3.7 kg |
| 45DB360V40PTD | Z1000292 | 40 A | 14.2 kA ² s | 20 kA | 205 A | 63 mΩ | 176 W | 1 | 3.7 kg |
| Ø88mm | | | | | | | | | |
| 45DB360V50PTD | A1000293 | 50 A | 40 kA ² s | 20 kA | 220 A | 41 mΩ | 183 W | 1 | 6.5 kg |

CHARACTERISTICS OF TRIP INDICATOR

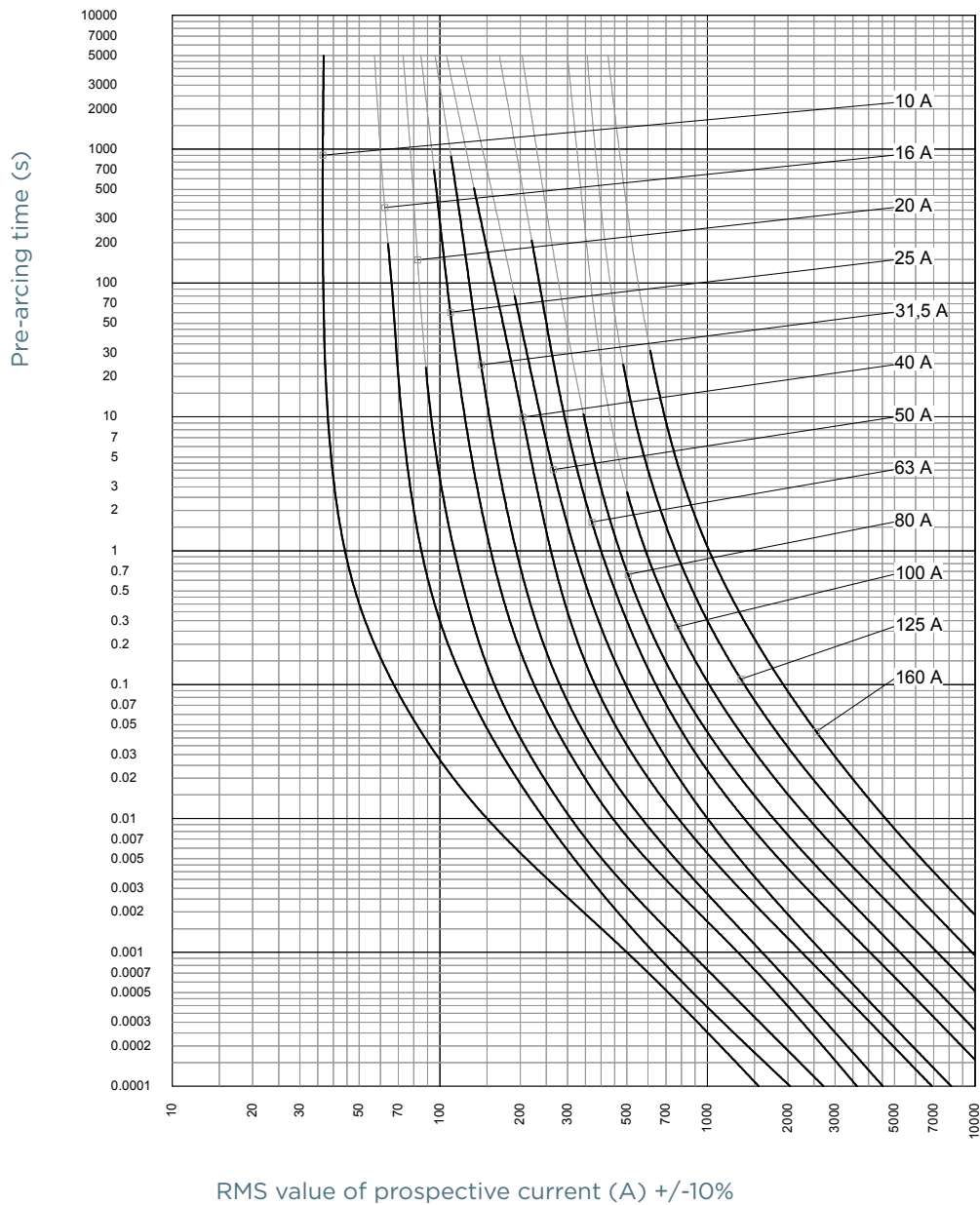


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TIME CURRENT CHARACTERISTIC CURVES

Limitor[®]-PTD 12kV 10-160A

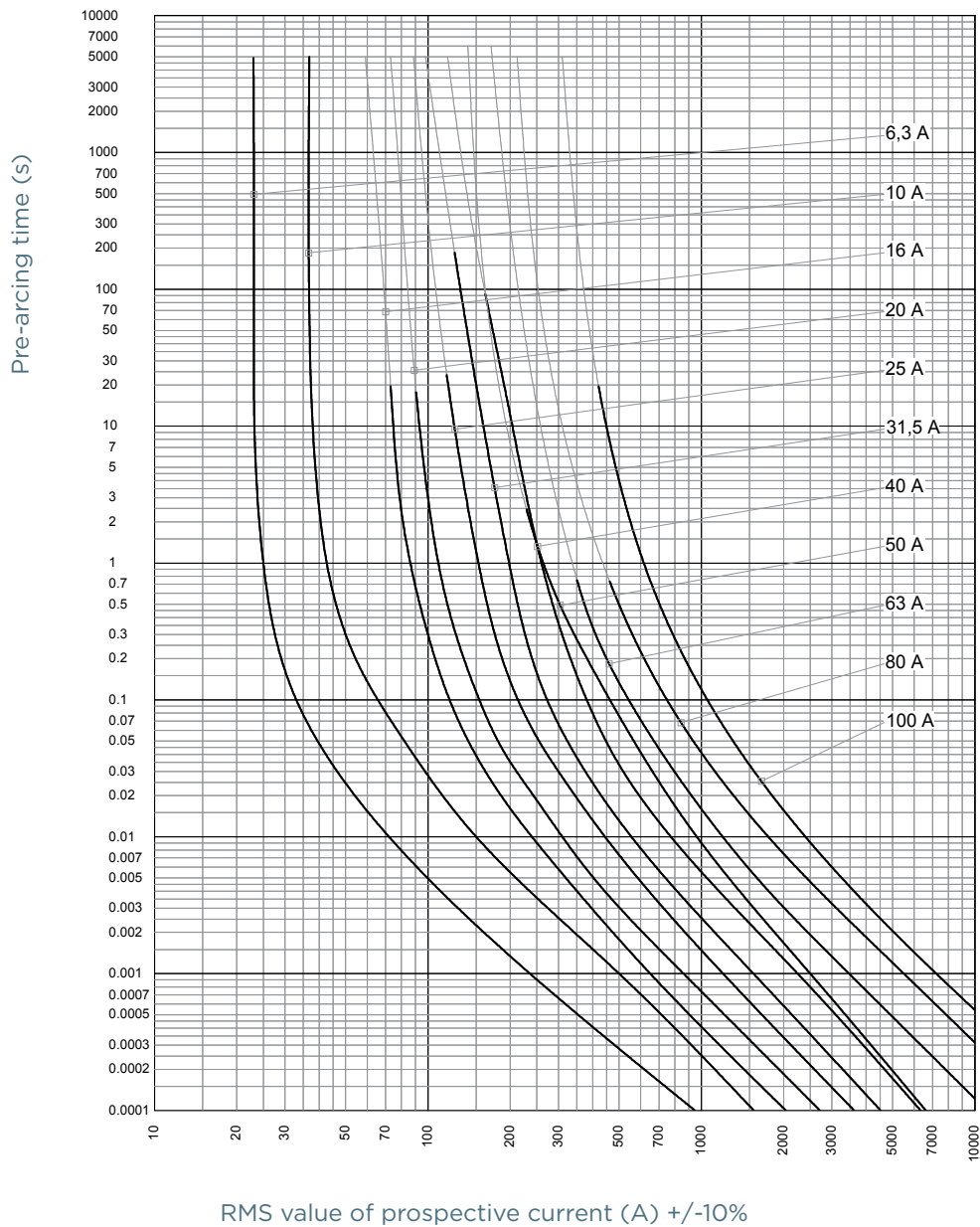


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TIME CURRENT CHARACTERISTIC CURVES

Limitor[®]-PTD 24kV 6.3-100A

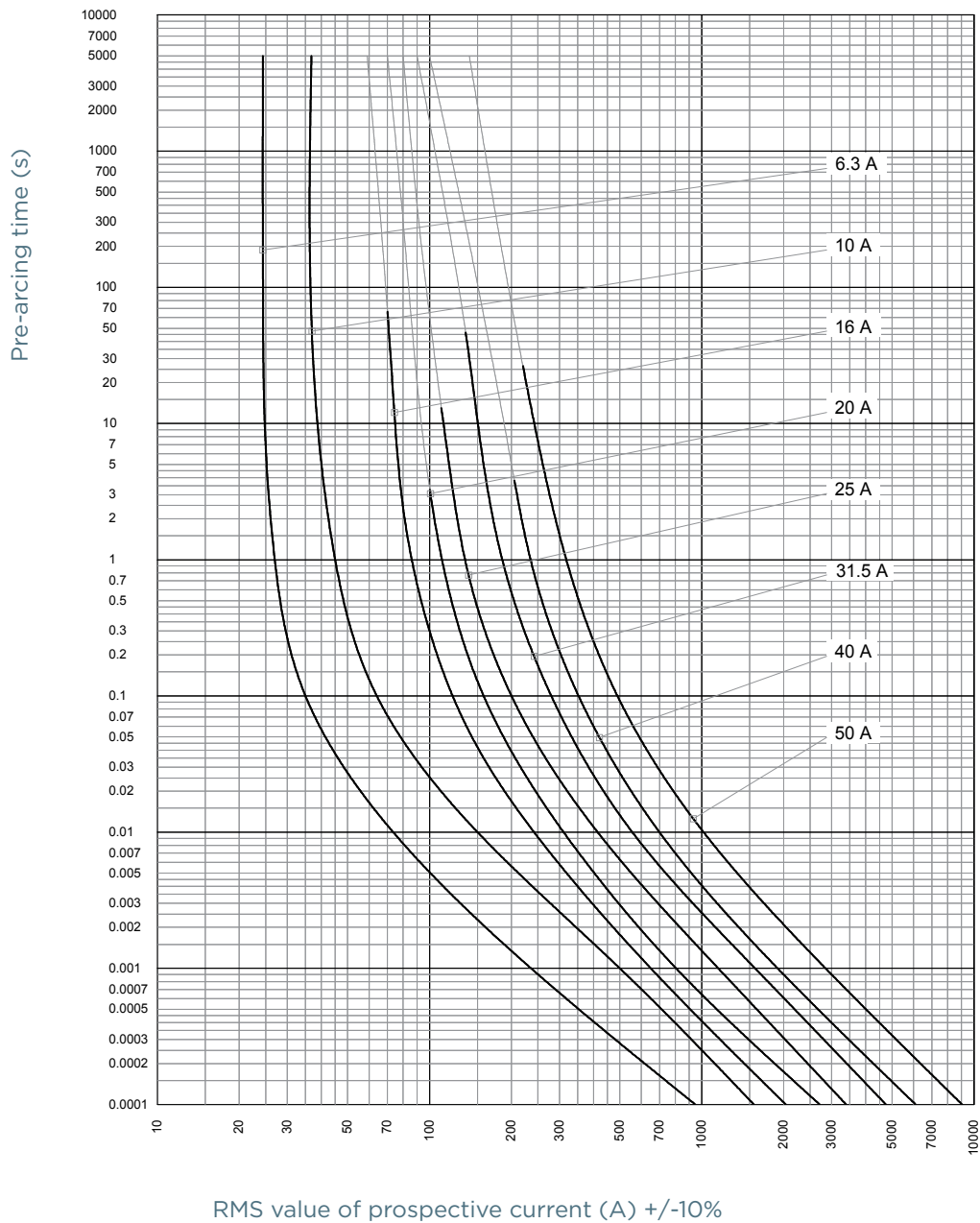


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TIME CURRENT CHARACTERISTIC CURVES

Limitor[®]-PTD 36kV 6.3-50A

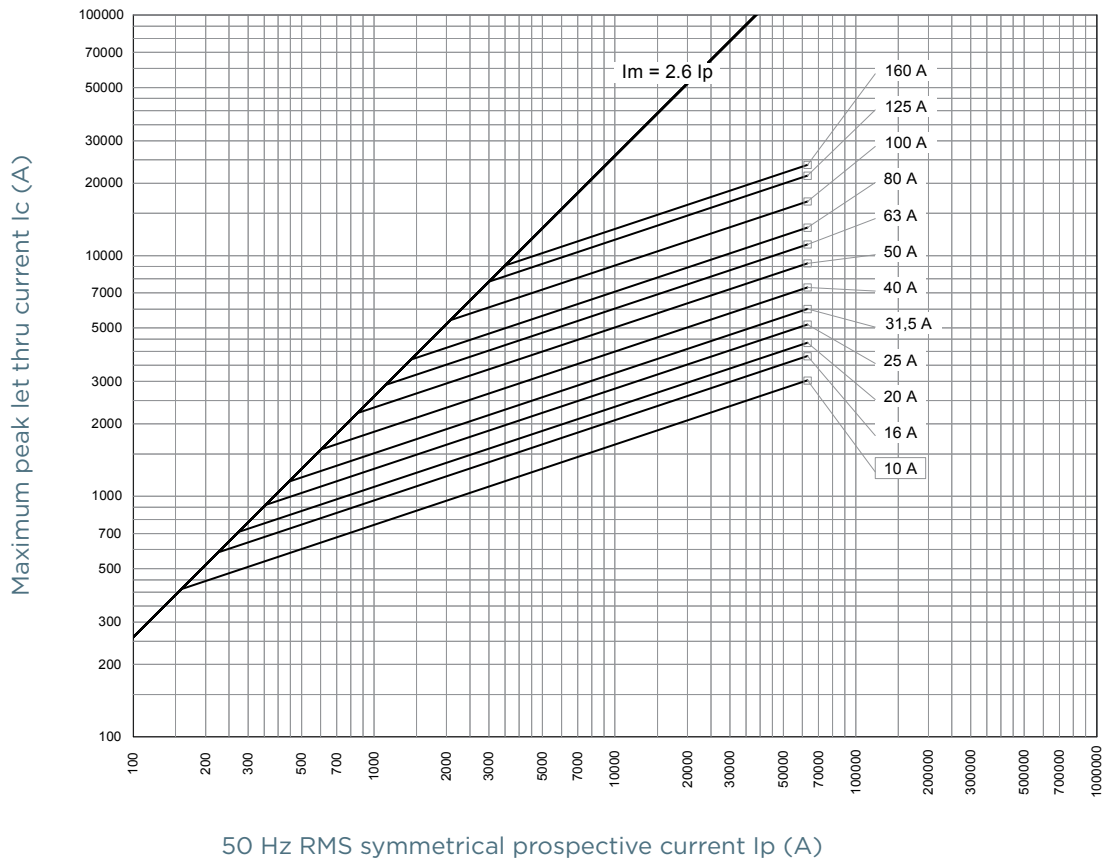


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CUT-OFF CURRENT CHARACTERISTIC

Limitor[®]-PTD 12kV 10-160A



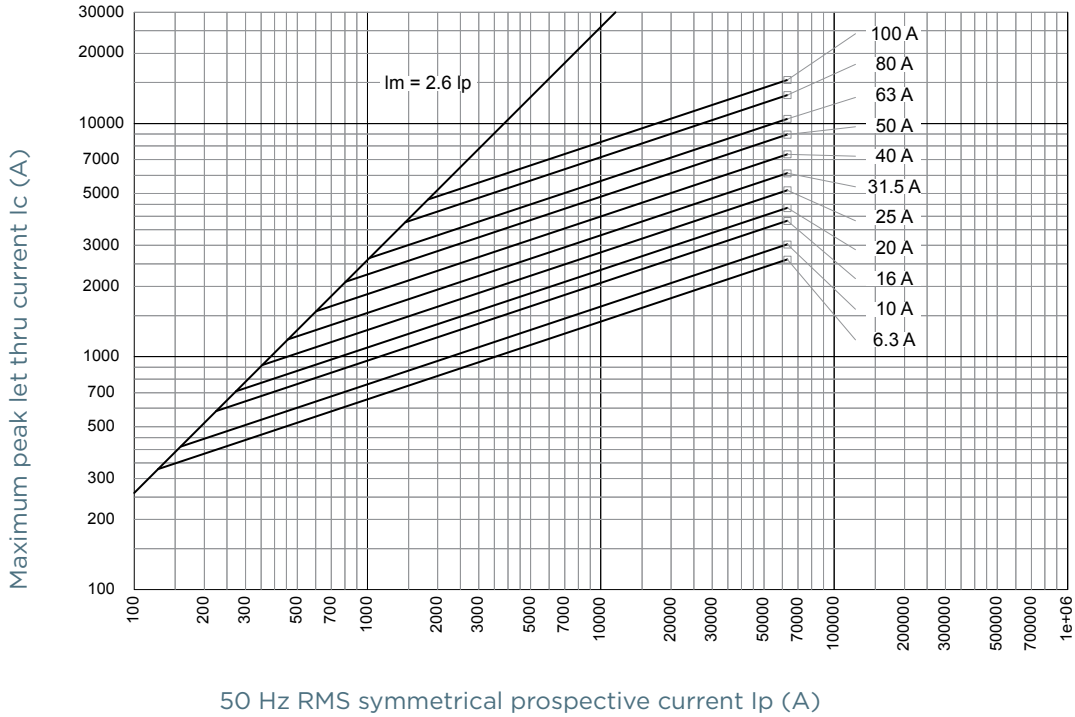
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Limitor[®]- PTD Back-up Fuses

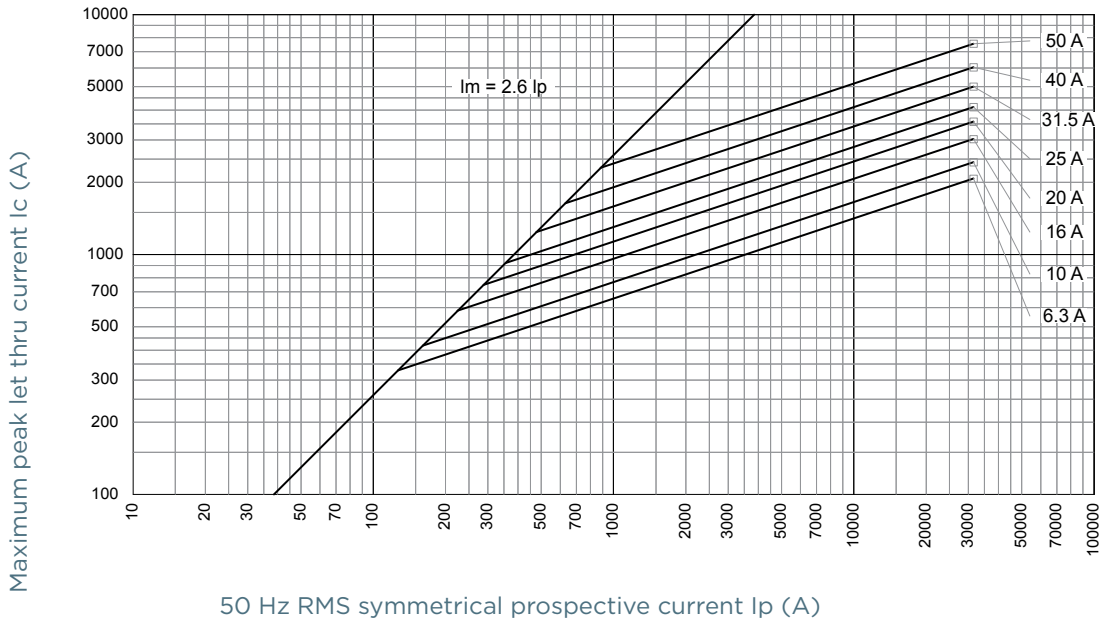
with Controlled Power Dissipation

CUT-OFF CURRENT CHARACTERISTIC

Limitor[®]-PTD 24kV 6.3-100A



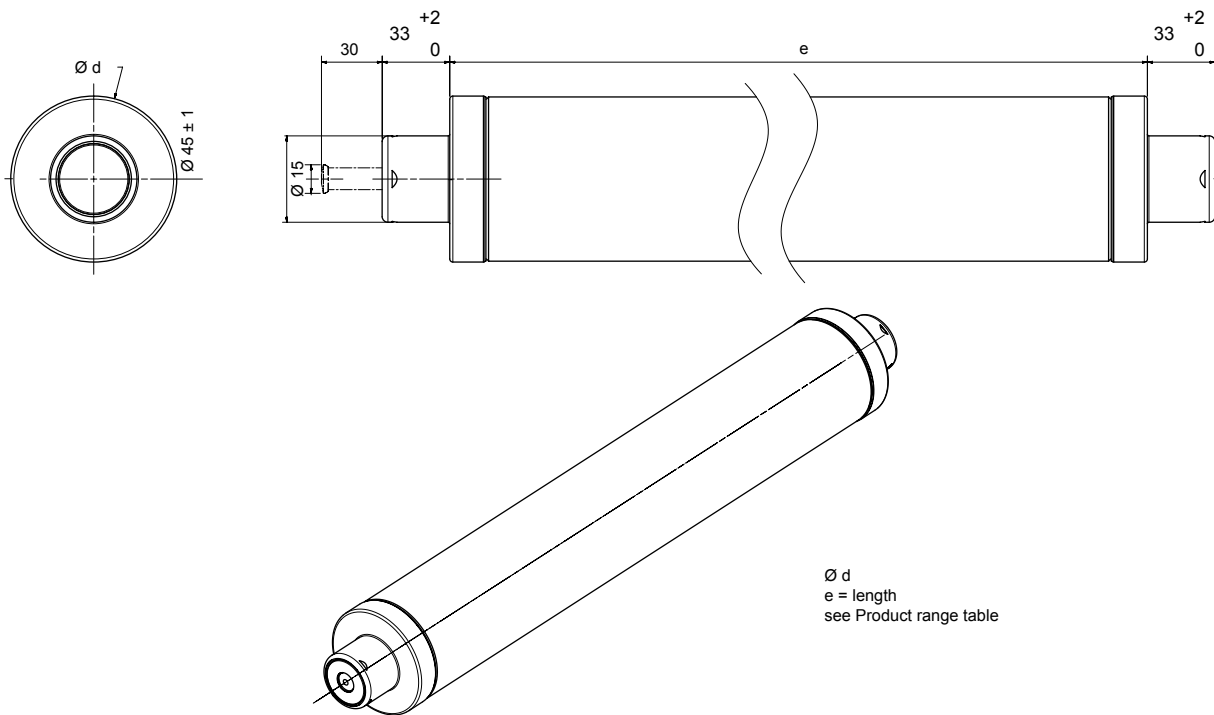
Limitor[®]-PTD 36kV 6.3-50A



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Limiter[®]- PTD Back-up Fuses with Controlled Power Dissipation

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] |
| 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 |

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