MCF, V50 and V20
The new team to combat surge voltages
Top of the agenda at the BET Test Centre is the expert testing of OBO’s surge voltage and lightning protection systems. This also includes the testing of new developments, as well as the modifications to existing OBO lightning protection components, surge protection devices and lightning arrestors.
Safety with surge protective devices

Surge protective devices (SPDs) increase safety and prevent dangerous surge voltage from entering the building via the power and telecommunication lines. The SPDs reduce the surge voltage to a level which is not dangerous to terminals. This means they prevent short circuits and the resulting risk of fire.

Surge voltage damage

Damage from surge voltages occurs not only from direct lightning strikes, which can cause significant destruction. Serious damage to electronic devices and systems is more commonly caused by surge voltages from lightning strikes within a radius of two kilometres.

Household contents insurance usually offers protection against direct lightning strikes. However, standard policies frequently do not cover the cost of surge damage to electronic devices. Additionally, the result of lightning strikes and the subsequent surge voltages can lead to costs from data loss and from loss of production.

Standards

IEC 60364-4-44 - Surge protection
Required since October 2016

When is surge protection required?
- In every new electrical installation
- In every new or extended building
- Insurance companies demand surge protection

IEC 62305 - Lightning protection

When is a lightning protection system required?
- State building regulations (e.g. for schools, etc.)
- Risk analysis according to IEC 62305-2
- Insurance companies demand surge protection

Conclusion

Surge voltages endanger electronic devices and data
Surge protection is required for new buildings or modifications
This provides safety and protection for electrical installations and buildings
Type classes of surge protective devices

Building with lightning protection

**T1 T2**

Type 1 + 2 combination arrestor

Used at the feed point of the building.

Building with exposed cable supply

Buildings without lightning protection

**T2**

Type 2 surge protection

They are used in the main distributor and in sub-distributors / switching cabinets.

Main and sub-distributor board
Industry
Office, commercial and residential buildings

MCF Compact
Lightning protection class 1-4

Fulfils the requirement to 100 kA (10/350) per SPD

Office, commercial and residential buildings

V50
Lightning protection class 3-4

Fulfils the requirement to 50 kA (10/350) per SPD

Main and sub-distributor board

V20

They are used in the main distributor and in sub-distributors / switching cabinets.
MCF

- Type 1 + 2 SPD: Imp = 25 kA per pole and up to 100 kA in total
- Usable in buildings with lightning protection class 1-4
- Compact design, only 105 mm wide: Space savings of up to 25% for TNS and TT applications
- Protection level: < 1.5 kV, coordinated to Type 3 SPD
- Safe up to mains following current of 50 kA
- Universally usable for industry, offices, commercial and residential buildings
- Quality according to EN 61643-11 certified by an external testing institute
- Corresponds to the pre-meter requirements TAB and VDE-NAR 4100
- System protection up to 315 A usable without separate fusing
- Remote signalling, potential-free changeover (RS)
- Operating instructions always available online via QR code
- Type 1 + 2 SPD: Imp = 12.5 kA per pole and up to 50 kA in total
- Usable in buildings with lightning protection class 3+4
- Protection level: < 1.5 kV, coordinated to Type 3 SPD
- Quality according to EN 61643-11 certified by an external testing institute
- Universally usable for offices, commercial and residential buildings
- Can be installed universally through 90° labelling
- System protection up to 160 A usable without separate fusing
- Locking function with vibration protection
- Voltage variants: 150 V, 280 V, 320 V, 385 V
- Optional remote signalling, potential-free changeover (RS)
- Variants in one to four-pole versions
- Operating instructions always available online via QR code
V20

- Type 2 SPD: In = 20 kA (L-N) / 40 kA (N-PE) and up to 60 kA per pole
- Protection level: < 1.5 kV, coordinated to Type 3 SPD
- Exceeds the increased requirements according to IEC 60364-4-44
- Quality according to EN 61643-11 certified by an external testing institute
- Universally usable for industry, offices, commercial and residential buildings
- Locking function with vibration protection
- System protection up to 160 A usable without separate fusing
- Can be installed universally through 90° labelling
- Voltage variants: 75 V, 150 V, 280 V, 320 V, 385 V, 440 V, 550 V
- Optional remote signalling, potential-free changeover (RS)
- Variants in one to four-pole versions
- Operating instructions always available online via QR code
OBO checklist

Complete lightning and surge protection
As a manufacturer, OBO offers both components for external lightning protection and earthing as well as for equipotential bonding and surge protection.

Support
For us, active customer proximity means offering help and advice whenever we are needed:
Customer Service Germany
Service hotline: +49 (0)2373 89-1700
Fax: +49 (0)2373 89-1238
E-mail: export@obo.de
www.obo-bettermann.com

Brochures and selection aids
The OBO lightning protection guide and brochures offer support in the planning of lightning and surge protection systems.

Seminars and workshops
At the OBO Campus and also on-site, we are available to pass on our practical knowledge to you through seminars and planner days.

Expertise
At the BET Test Centre, highly qualified specialists test the OBO lightning protection components and surge protection devices in accordance with the relevant standards.

Certified
External tests, e.g. to VDE, ÖVE, KEMA and UL standards, are available for many products.

Warranty
OBO is renowned for its high quality, and offers surge protection devices with a 5-year warranty.
Lightning protection guide. Safely routed.

**Reference work and planning aid for electrical installation engineers and technical planners**

At OBO Bettermann, we can look back on more than 90 years of experience in the field of lightning and surge protection. This experience and, of course, the latest standards and technical innovations have flowed into the company's new lightning protection guide. The brochure allows you to plan installations in the field of lightning and surge protection faster and more easily.

It contains a balanced mixture of both basic and expert knowledge, as well as planning and selection aids for the protection of buildings and systems.

The new lightning protection guide can be requested and is also available for download at www.obo-bettermann.com.

**Topics**

- Basic principles
- The external lightning protection system
- Air-termination and down-conductor systems
- Examples and selection aids for wind load calculation conform with Eurocode 1+3
- Earthing systems with foundation earth to current DIN 18014
- The internal lightning protection system
- Equipotential bonding systems
- Overvoltage protection systems
- Current standards
- New selection and planning aids
- Examples
Contact Customer Service

Customer Service Germany
Tel.: +49 (0)2373 89-1700
Fax: +49 (0)2373 89-1238
export@obo.de

Service times:
Mon. to Thurs. 7.30 a.m. to 5.00 p.m.
Fri. 7.00 a.m. to 3.00 p.m.

www.obo-bettermann.com
**Combination arrester MCF, 3-pole 255 V, for TN-C system**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF75-3+FS</td>
<td>255</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
</tr>
</tbody>
</table>

/MCF75-3+FS

**Connection options**

- Lightning surge current (10/350 μs) $U_{\text{imp}}$ 25 kA
- Nominal discharge current (8/20 μs) $I_{\text{In}}$ 25 kA
- Protection level $U_p$ 1.5 kV
- Total discharge current (10/350) $I_{\text{Itotal}}$ 75 kA

**Combination arrester MCF, 3-pole+NPE 255 V, for TNS- and TT system**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCF100-3+NPE+FS</td>
<td>255</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
</tr>
</tbody>
</table>

/MCF100-3+NPE+FS

**Connection options**

- Lightning surge current (10/350 μs) $U_{\text{imp}}$ 25 kA
- Nominal discharge current (8/20 μs) $I_{\text{In}}$ 25 kA
- Protection level $U_p$ 1.5 kV
- Total discharge current (10/350) $I_{\text{Itotal}}$ 100 kA
**Combination arrestor V50, 1-pole 280 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>16.400</td>
<td>5093500</td>
</tr>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V50-1-280**
- Lightning surge current (10/350 $\mu$s) $I_{imp}$: 12.5 kA
- Nominal discharge current (8/20 $\mu$s) $I_{N}$: 30 kA
- Total discharge current (10/350) $I_{total}$: — kA
- Protection level $U_p$: 1.3 kV

**Connection options**

**Combination arrestor V50, 1-pole with FS 280 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+FS-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>16.600</td>
<td>5093502</td>
</tr>
<tr>
<td>PA Polyamide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V50-1+FS-280**
- Lightning surge current (10/350 $\mu$s) $I_{imp}$: 12.5 kA
- Nominal discharge current (8/20 $\mu$s) $I_{N}$: 30 kA
- Total discharge current (10/350) $I_{total}$: — kA
- Protection level $U_p$: 1.3 kV

**Connection options**

**Combination arrestor V50, 1-pole + NPE 280 V, for TN-S and TT-system**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE-280</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>30.300</td>
<td>5093522</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V50-1+NPE-280**
- Lightning surge current (10/350 $\mu$s) $I_{imp}$: 12.5 kA
- Nominal discharge current (8/20 $\mu$s) $I_{N}$: 30 kA
- Total discharge current (10/350) $I_{total}$: 25 kA
- Protection level $U_p$: 1.3 kV

**Connection options**

**Combination arrestor V50, 1-pole + NPE with FS 280 V, for TN-S and TT-system**

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-1+NPE+FS-280</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>30.600</td>
<td>5093531</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**V50-1+NPE+FS-280**
- Lightning surge current (10/350 $\mu$s) $I_{imp}$: 12.5 kA
- Nominal discharge current (8/20 $\mu$s) $I_{N}$: 30 kA
- Total discharge current (10/350) $I_{total}$: 25 kA
- Protection level $U_p$: 1.3 kV

**Connection options**
Combination arrestor V50, 3-pole 280 V, for TN-C-system

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3-280</td>
<td>280</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>46.500</td>
<td>5093511</td>
</tr>
</tbody>
</table>

Connection options

V50-3-280
- Lightning surge current (10/350 µs) \( I_{\text{imp}} \) 12.5 kA
- Nominal discharge current (8/20 µs) \( I_{\text{L-N}} \) 30 kA
- Total discharge current (10/350) \( I_{\text{total}} \) 37.5 kA
- Protection level \( U_p \) 1.3 kV

Combination arrestor V50, 3-pole with FS 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5093516</td>
<td>280</td>
<td>3</td>
<td>IP20</td>
<td>1</td>
<td>46.900</td>
<td>5093516</td>
</tr>
</tbody>
</table>

Connection options

5093516
- Lightning surge current (10/350 µs) \( I_{\text{imp}} \) 12.5 kA
- Nominal discharge current (8/20 µs) \( I_{\text{L-N}} \) 30 kA
- Total discharge current (10/350) \( I_{\text{total}} \) 37.5 kA
- Protection level \( U_p \) 1.3 kV

Combination arrestor V50, 3-pole + NPE 280 V, for TN-S and TT-system

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>58.800</td>
<td>5093526</td>
</tr>
</tbody>
</table>

Connection options

V50-3+NPE-280
- Lightning surge current (10/350 µs) \( I_{\text{imp}} \) 12.5 kA
- Nominal discharge current (8/20 µs) \( I_{\text{L-N}} \) 30 kA
- Total discharge current (10/350) \( I_{\text{total}} \) 50 kA
- Protection level \( U_p \) 1.3 kV

Combination arrestor V50, 3-pole + NPE with FS 280 V, for TN-S and TT-system

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest continuous voltage AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V50-3+NPE+FS-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>59.300</td>
<td>5093533</td>
</tr>
</tbody>
</table>

Connection options

V50-3+NPE+FS-280
- Lightning surge current (10/350 µs) \( I_{\text{imp}} \) 12.5 kA
- Nominal discharge current (8/20 µs) \( I_{\text{L-N}} \) 30 kA
- Total discharge current (10/350) \( I_{\text{total}} \) 50 kA
- Protection level \( U_p \) 1.3 kV
**Combination arrestor V50, 4-pole 280 V, for TN-S-system**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V50-4-280</strong></td>
<td>280</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>61.000</td>
</tr>
</tbody>
</table>

**Connection options**

**Combination arrestor V50, 4-pole with FS 280 V, for TN-S and TT-system**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V50-4+FS-280</strong></td>
<td>280</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>61.500</td>
</tr>
</tbody>
</table>

**Connection options**

**Upper part V50 280 V**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>V50-0-280</strong></td>
<td>280</td>
<td>—</td>
<td>IP20</td>
<td>1</td>
<td>8.500</td>
</tr>
</tbody>
</table>

**Upper part NPE-C50**

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. Weight</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>C50-0-255</strong></td>
<td>255</td>
<td>N/PE</td>
<td>IP20</td>
<td>1</td>
<td>7.215</td>
</tr>
</tbody>
</table>
## Surge Arrestor V20, 1-Pole, 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest Continuous Voltage AC V</th>
<th>Pole Version</th>
<th>Protection Rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>12.900</td>
<td>5095161</td>
</tr>
</tbody>
</table>

### Connection Options

- **V20-1-280**
  - Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA
  - Arrestor surge current (8/20 µs) [total] \( I_{\text{total}} \): 40 kA
  - Protection level \( U_p \): 1.3 kV

## Surge Arrestor V20, 1-Pole with Remote Signalling, 280 V

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest Continuous Voltage AC V</th>
<th>Pole Version</th>
<th>Protection Rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+FS-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>13.100</td>
<td>5095281</td>
</tr>
</tbody>
</table>

### Connection Options

- **V20-1+FS-280**
  - Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA
  - Arrestor surge current (8/20 µs) [total] \( I_{\text{total}} \): 40 kA
  - Protection level \( U_p \): 1.3 kV

## Surge Arrestor V20, 1-Pole + NPE, 280 V, for TN-S and TT-System

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest Continuous Voltage AC V</th>
<th>Pole Version</th>
<th>Protection Rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE-280</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>24.300</td>
<td>5095251</td>
</tr>
</tbody>
</table>

### Connection Options

- **V20-1+NPE-280**
  - Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA
  - Arrestor surge current (8/20 µs) [total] \( I_{\text{total}} \): 80 kA
  - Protection level \( U_p \): 1.3 kV

## Surge Arrestor V20, 1-Pole + NPE and Remote Signalling, 280 V, for TN-S and TT-System

<table>
<thead>
<tr>
<th>Type</th>
<th>Highest Continuous Voltage AC V</th>
<th>Pole Version</th>
<th>Protection Rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-1+NPE+FS-280</td>
<td>280</td>
<td>1+N/PE</td>
<td>IP20</td>
<td>1</td>
<td>24.600</td>
<td>5095331</td>
</tr>
</tbody>
</table>

### Connection Options

- **V20-1+NPE+FS-280**
  - Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA
  - Arrestor surge current (8/20 µs) [total] \( I_{\text{total}} \): 60 kA
  - Protection level \( U_p \): 1.3 kV
Surge arrestor V20, 3-pole, 280 V, for TN-C- system

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3-280</td>
<td>280</td>
<td>3</td>
<td>P20</td>
<td>1</td>
<td>36.000</td>
<td>5095163</td>
</tr>
</tbody>
</table>

**Nominal discharge current (8/20 μs)** \(I_{\text{nom}}\) = 20 kA

**Arrestor surge current (8/20 μs) [total]** \(I_{\text{ fus}}\) = 120 kA

**Protection level**

In / L-N

Itotal

Up

Connection options

Surge arrestor V20, 3-pole with remote signalling, 280 V, for TN-C-system

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+FS-280</td>
<td>280</td>
<td>3</td>
<td>P20</td>
<td>1</td>
<td>36.400</td>
<td>5095283</td>
</tr>
</tbody>
</table>

**Nominal discharge current (8/20 μs)** \(I_{\text{nom}}\) = 20 kA

**Arrestor surge current (8/20 μs) [total]** \(I_{\text{ fus}}\) = 120 kA

**Protection level**

In / L-N

Itotal

Up

Connection options

Surge arrestor V20, 3-pole + NPE, 280 V, for TN-S and TT system

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>P20</td>
<td>1</td>
<td>45.800</td>
<td>5095253</td>
</tr>
</tbody>
</table>

**Nominal discharge current (8/20 μs)** \(I_{\text{nom}}\) = 20 kA

**Arrestor surge current (8/20 μs) [total]** \(I_{\text{ fus}}\) = 60 kA

**Protection level**

In / L-N

Itotal

U_p

Connection options

Surge arrestor V20, 3-pole + NPE and remote signalling, 280 V, for TN-S and TT-system

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-3+NPE+FS-280</td>
<td>280</td>
<td>3+N/PE</td>
<td>P20</td>
<td>1</td>
<td>46.300</td>
<td>5095333</td>
</tr>
</tbody>
</table>

**Nominal discharge current (8/20 μs)** \(I_{\text{nom}}\) = 20 kA

**Arrestor surge current (8/20 μs) [total]** \(I_{\text{ fus}}\) = 60 kA

**Protection level**

In / L-N

Itotal

U_p

Connection options
## Surge arrester V20, 4-pole, 280 V, for TN-C-system

**Nominal discharge current (8/20 µs) \( I_{\text{nom}} \):** 20 kA  
**Arrester surge current (8/20 µs) \( I_{\text{max}} \):** 160 kA  
**Protection level \( U_p \):** 1.3 kV

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4-280</td>
<td>280</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>47.000</td>
<td>5095164</td>
</tr>
</tbody>
</table>

### Connection options

**V20-4-280**

Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA  
Arrester surge current (8/20 µs) \( I_{\text{max}} \) [total]: 160 kA  
Protection level \( U_p \): 1.3 kV

## Surge arrester V20, 4-pole with remote signalling, 280 V, for TN-C-system

**Nominal discharge current (8/20 µs) \( I_{\text{nom}} \):** 20 kA  
**Arrester surge current (8/20 µs) \( I_{\text{max}} \):** 160 kA  
**Protection level \( U_p \):** 1.3 kV

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-4+FS-280</td>
<td>280</td>
<td>4</td>
<td>IP20</td>
<td>1</td>
<td>47.500</td>
<td>5095284</td>
</tr>
</tbody>
</table>

### Connection options

**V20-4+FS-280**

Nominal discharge current (8/20 µs) \( I_{\text{nom}} \): 20 kA  
Arrester surge current (8/20 µs) \( I_{\text{max}} \) [total]: 160 kA  
Protection level \( U_p \): 1.3 kV

## Upper part V20 280 V

**Nominal discharge current (8/20 µs) \( I_{\text{nom}} \):** 20 kA  
**Protection level \( U_p \):** 1.3 kV

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>V20-0-280</td>
<td>280</td>
<td>1</td>
<td>IP20</td>
<td>1</td>
<td>5.000</td>
<td>5095364</td>
</tr>
</tbody>
</table>

## Upper part C20 280 V

**Nominal discharge current (8/20 µs) \( I_{\text{nom}} \):** 20 kA  
**Protection level \( U_p \):** 1.3 kV

<table>
<thead>
<tr>
<th>Type</th>
<th>AC V</th>
<th>Pole version</th>
<th>Protection rating</th>
<th>Pack. pcs</th>
<th>Weight kg/100 pcs.</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C20-0-255</td>
<td>255</td>
<td>N/PE</td>
<td>IP20</td>
<td>1</td>
<td>3.680</td>
<td>5095600</td>
</tr>
</tbody>
</table>