

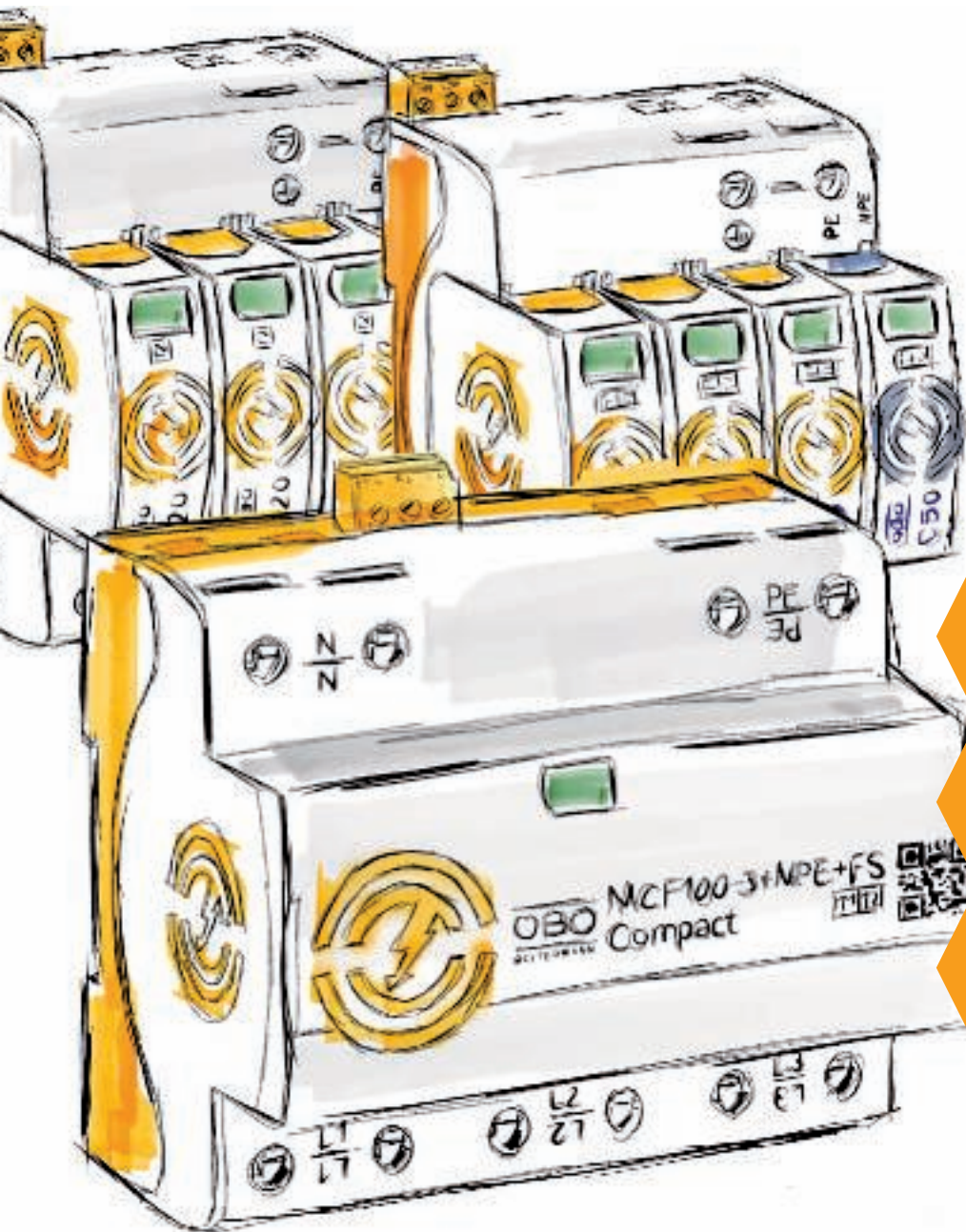


According to the new IEC/EN standards
IEC 60364-4-44
IEC 60364-5-53
surge protection has been
mandatory since 2016.



MCF, V50 and V20 The new team to combat surge voltages





Tested quality

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.

OBO development

OBO production

External certification



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



Building with exposed cable supply



Type 1 + 2 combination arrestor

Used at the feed point of the building.



Buildings without lightning protection



Main and sub-distributor board



Type 2 surge protection

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



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



Office, commercial and residential buildings



Main and sub-distributor board

V20

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



MCF



- Type 1 + 2 SPD: $I_{mp} = 25$ 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



V50



- Type 1 + 2 SPD: $I_{mp} = 12.5$ 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: $I_n = 20 \text{ kA (L-N) / 40 \text{ kA (N-PE)}$ and up to 60 kA per pole
- Protection level: $< 1.5 \text{ kV}$, 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





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MCF, type 1 + 2 combination arrester

Combination arrester MCF, 3-pole 255 V, for TN-C system



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	
MCF75-3+FS	255	3	IP20	1	5096981

/pc.

Connection options

MCF75-3+FS					
Lightning surge current (10/350 μ s)	I_{imp}	25 kA			
Nominal discharge current (8/20 μ s)	$I_{n/L-N}$	25 kA			
Protection level	U_p	1.5 kV			
Total discharge current (10/350)	I_{total}	75 kA			

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



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	
MCF100-3+NPE+FS	255	3+N/PE	IP20	1	5096987

/pc.

Connection options

MCF100-3+NPE+FS					
Lightning surge current (10/350 μ s)	I_{imp}	25 kA			
Nominal discharge current (8/20 μ s)	$I_{n/L-N}$	25 kA			
Protection level	U_p	1.5 kV			
Total discharge current (10/350)	I_{total}	100 kA			

Combination arrester V50, 1-pole 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1-280	280	1	IP20	1	16.400	5093500

PA Polyamide



Connection options

V50-1-280

Lightning surge current (10/350 μ s)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μ s)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	— kA
Protection level	U_n	1.3 kV

Combination arrester V50, 1-pole with FS 280 V

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+FS-280	280	1	IP20	1	16.600	5093502

PA Polyamide



Connection options

V50-1+FS-280

Lightning surge current (10/350 μ s)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μ s)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	— kA
Protection level	U_n	1.3 kV

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

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE-280	280	1+N/PE	IP20	1	30.300	5093522

V50-1+NPE-280

Lightning surge current (10/350 μ s)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μ s)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	25 kA
Protection level	U_n	1.3 kV



Connection options

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

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-1+NPE+FS-280	280	1+N/PE	IP20	1	30.600	5093531

V50-1+NPE+FS-280

Lightning surge current (10/350 μ s)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μ s)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	25 kA
Protection level	U_n	1.3 kV



Connection options

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



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3-280	280	3	IP20	1	46.500	5093511

Connection options

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

Combination arrestor V50, 3-pole with FS 280 V



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
5093516	280	3	IP20	1	46.900	5093516

Connection options

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

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



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V50-3+NPE-280	280	3+N/PE	IP20	1	58.800	5093526

Connection options

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

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



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

Connection options

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

Combination arrester V50, 4-pole 280 V, for TN-S-system

Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V50-4-280	280	4	IP20	1	61.000	5093513



V50-4-280

Lightning surge current (10/350 μs)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μs)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	50 kA
Protection level	U_p	1.3 kV

Connection options

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

Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V50-4+FS-280	280	4	IP20	1	61.500	5093518



V50-4+FS-280

Lightning surge current (10/350 μs)	I_{imp}	12.5 kA
Nominal discharge current (8/20 μs)	$I_n / L-N$	30 kA
Total discharge current (10/350)	I_{total}	50 kA
Protection level	U_p	1.3 kV

Connection options

Upper part V50 280 V

Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V50-0-280	280	—	IP20	1	8.500	5093508



Upper part NPE-C50

Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
C50-0-255	255	N/PE	IP20	1	7.215	5095609



Surge arrester V20, 1-pole, 280 V



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1-280	280	1	IP20	1	12.900	5095161

Connection options

V20-1-280						
Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA				
Arrestor surge current (8/20 μs) [total]	I_{total}	40 kA				
Protection level	U_o	1.3 kV				

Surge arrester V20, 1-pole with remote signalling, 280 V



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+FS-280	280	1	IP20	1	13.100	5095281

Connection options

V20-1+FS-280						
Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA				
Arrestor surge current (8/20 μs) [total]	I_{total}	40 kA				
Protection level	U_o	1.3 kV				

Surge arrester V20, 1-pole + NPE, 280 V, for TN-S and TT- System



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE-280	280	1+N/PE	IP20	1	24.300	5095251

Connection options

V20-1+NPE-280						
Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA				
Arrestor surge current (8/20 μs) [total]	I_{total}	60 kA				
Protection level	U_o	1.3 kV				

Surge arrester V20, 1-pole + NPE and remote signalling, 280 V, for TN-S and TT-system



Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-1+NPE+FS-280	280	1+N/PE	IP20	1	24.600	5095331

Connection options

V20-1+NPE+FS-280						
Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA				
Arrestor surge current (8/20 μs) [total]	I_{total}	60 kA				
Protection level	U_o	1.3 kV				

Surge arrester V20, 3-pole, 280 V, for TN-C- system

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3-280	280	3	IP20	1	36.000	5095163



V20-3-280

Nominal discharge current (8/20 μ s)	$I_{n / L-N}$	20 kA
Arrestor surge current (8/20 μ s) [total]	I_{total}	120 kA
Protection level	U_o	1.3 kV

Connection options

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

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+FS-280	280	3	IP20	1	36.400	5095283



V20-3+FS-280

Nominal discharge current (8/20 μ s)	$I_{n / L-N}$	20 kA
Arrestor surge current (8/20 μ s) [total]	I_{total}	120 kA
Protection level	U_o	1.3 kV

Connection options

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

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE-280	280	3+N/PE	IP20	1	45.800	5095253



V20-3+NPE-280

Nominal discharge current (8/20 μ s)	$I_{n / L-N}$	20 kA
Arrestor surge current (8/20 μ s) [total]	I_{total}	60 kA
Protection level	U_o	1.3 kV

Connection options

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

Type	Highest continuous voltage AC V	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
V20-3+NPE+FS-280	280	3+N/PE	IP20	1	46.300	5095333



V20-3+NPE+FS-280

Nominal discharge current (8/20 μ s)	$I_{n / L-N}$	20 kA
Arrestor surge current (8/20 μ s) [total]	I_{total}	60 kA
Protection level	U_o	1.3 kV

Connection options

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



Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V20-4-280	280	4	IP20	1	47.000	5095164

Connection options

V20-4-280

Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA
Arrestor surge current (8/20 μs) [total]	I_{total}	160 kA
Protection level	U_o	1.3 kV

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



Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V20-4+FS-280	280	4	IP20	1	47.500	5095284

Connection options

V20-4+FS-280

Nominal discharge current (8/20 μs)	$I_n / L-N$	20 kA
Arrestor surge current (8/20 μs) [total]	I_{total}	160 kA
Protection level	U_o	1.3 kV

Upper part V20 280 V



Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
V20-0-280	280	1	IP20	1	5.000	5095364

Upper part C20 280 V



Type	Highest continuous voltage	Pole version	Protection rating	Pack. pcs	Weight kg/100 pcs.	Item No.
	AC V					
C20-0-255	255	N/PE	IP20	1	3.680	5095600



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