



General notes

Wöhner busbar systems and components are the result of expert development based on many years of experience. They have been exhaustively tested and hold many approvals. The correct selection of busbars and components is the responsibility of a system's planner.

Planning, construction requirements and the required test certifications are prescribed in the parts of the IEC or DIN EN 61439 standard "Low-voltage switchgear and control-gear assemblies".

To avoid hazards to people and materials which can arise when working with electricity, these systems and components should only be used by suitably trained personnel, and relevant regulations must be observed.

In particular, installation, maintenance, modifications and additions must only be carried out by qualified personnel in accordance with the general construction and safety regulations applicable to high-current electrical systems. Modern technological developments and the way in which

Provide further separation of this line from the paragraph above.

Detailed technical information is available on the internet at: www.woehner.com

the components of the system interact must be taken into account. It is essential that all accessible parts are electrically isolated during installation and maintenance.

All connections must be correctly tightened with the specified torque (Md), correct gauges must be used and components that provide protection against accidental contact with live parts must be fitted. After transportation, all connections must be checked and, if necessary, re-tightened.

Products are to be used and operated correctly in the manner intended.

The technical information contained in the product manual and the installation instructions should be observed and retained for future modifications, maintenance or additions to the installation. Wöhner reserves the right to make modifications to its components, as the result of developments and technical advances.

Operating conditions

Unless special instructions are given, the information contained in the documentation applies for the recommended mounting position and the ambient conditions of indoor installation (contamination level 3; 2 in exceptional cases) according to IEC 61439-1/2/3.

Plant-specific reduction factors must be considered, depending on the exact conditions of use.

The rated loading factors listed below represent guide values and refer to a maximum +35°C temperature of the air directly surrounding the products.

Number of main circuits	Rated diversity factor	
	to IEC/EN 61439-2	to IEC/EN 61439-2
2 and 3	0.9	0.8
4 and 5	0.8	0.7
6 to 9 inclusive	0.7	0.6
10 and more	0.6	0.5

IEC 61439

Part 2: Power switchgear and controlgear assemblies

Part 3: Installation distributor for operation by lay people

In products intended to hold fuse links, please observe the requirements governing connected cross-sections from the relevant product standards. Comply with the stated temperature specifications of all plastics used. Some of the material properties described here refers to several products.

In isolated cases, values may exceed the levels stated.

See www.woehner.com for further information.

We recommend vertically mounting the device on a horizontal busbar system. The fixing handle must be placed on top for switchgears mounted vertically. For this mounting position, the rated diversity factors contained in Table 1 or Table 101 apply to components with permitted dissipation in the worst-case scenario and with ambient conditions in conformity with IEC/EN 61439-2/3, section 7.1.1.1.

In case of deviating mounting positions and conditions, all influencing factors are on maximum temperature such as:

- Power output per fuse and the device in operation,
 - Simultaneous full and partial load cycles,
 - Alignment in the system, devices affecting each other,
 - Busbar cross-section, conductor cross-section,
 - Ambient temperature, current conditions, require the observation of additional correction factors
- by additional correction factors.

Mounting positions are prohibited where gravity and the contact direction of motion are opposed.

Air and creepage distances must be calculated in compliance with EN 60664-1 (VDE 0110 part 1). For values of 12mm and greater, these requirements are automatically satisfied up to 690V AC in compliance with IEC. Additional specifications, such as the minimum distance to earthed parts, must be observed. This is especially relevant for applications in compliance with UL.

Detrimental effects from chemical substances during storage, processing and operation must be prevented.

In order to ease the locking of the busbar components and the insertion of the NH fuse units, the spring clips will be lubricated with special grease during manufacturing.

On other parts, especially on screw threads, it must be ensured that no supplementary change of the friction coefficient takes place.

Conductor connections

Specifications regarding conductor terminals are only valid for copper conductors. The maintenance-free resistance to ageing for selected connections has been verified by testing.

If the standards-compliant connection of aluminium conductors has been confirmed for connection terminals, this is stated expressly.

Before connecting aluminium conductors, any oxide deposits must be removed from the conductor surfaces and further oxidation prevented.

After removal of the oxide deposit, chips and abrasives cannot be permitted to damage the contacting.

Multiwire conductors should be shortened and exposed to the bare metallic conductor section.

The contact points are to be sealed (e.g. using acid-free contact grease) so that they airtight to protect them against further oxidation.

The terminal points need to be checked, taking operating conditions into account.

For normal ambient conditions and loads, we recommend inspections at 6-month intervals. In case of unfavourable operating conditions or frequent temperature fluctuations at the terminal points, a shorter interval may be necessary. It is possible to place temperature measuring strips and a record of the maximum values in the immediate vicinity of the terminal points, which may be useful for an objective assessment during regular tests.

All contact positions are suitable for connecting one conductor, unless expressly otherwise indicated. Double-function terminals are characterised by 2 contact positions.

In principle, the tightening torques specified on the device, the installation instructions or on the Internet are to be applied. Where no limits are specified, the tolerance on the tightening torque M_d of screw and clamp connections may be a maximum of +/-20% of the nominal value.

The relationship between conductor cross-sections in mm² and AWG / MCM sizes are subsequently listed:

0.75mm ²	18 AWG	(0.82mm ²)
1.5mm ²	16 AWG	(1.3mm ²)
2.5mm ²	14 AWG	(2.1mm ²)
4mm ²	12 AWG	(3.3mm ²)
6mm ²	10 AWG	(5.3mm ²)
10mm ²	8 AWG	(8.4mm ²)
16mm ²	6 AWG	(13.3mm ²)
25mm ²	4 AWG	(21.2mm ²)
35mm ²	2 AWG	(33.6mm ²)
50mm ²	0 AWG	(53.5mm ²)
70mm ²	2/0 AWG	(67.4mm ²)
95mm ²	3/0 AWG	(85.0mm ²)
120mm ²	250 MCM	(127mm ²)
150mm ²	300 MCM	(152mm ²)
185mm ²	350 MCM	(177mm ²)
240mm ²	500 MCM	(253mm ²)
300mm ²	600 MCM	(304mm ²)

Conductor types are designated as follows:

	Abbreviation	Standard name
solid round	sol(r)	Class 1 (IEC/EN 60228)
stranded round	s(r)	Class 2 (IEC/EN 60228)
solid sectored	sol(s)	Class 1 (IEC/EN 60228)
stranded sectored	s(s)	Class 2 (IEC/EN 60228)
flexible	f	Class 5 (IEC/EN 60228)
stranded	str	Class B (UL 486E)

The following abbreviations are also used:

laminated flexible	
copper busbar	fl. Cu
wire-end ferrules	AE

Wire-end ferrules are only permitted for applications in compliance with IEC/EN standards. Wöhner has tested the use of wire end ferrules. This does not result in a general approval for different ferrules and crimping methods. The maximum conductor cross-sections may need to be reduced.

Lead connections are to be set up with consideration given to the requirements as per IEC/EN 60999-1 or -2.

Lead connections set-up is to be such that no tension load and – with respect to the application – no alternating bending load develop.

Notes for the dimensioning of AC string collectors

When AC string collectors are used, a few strings supply one inverter. The power of several string inverters is pooled on the alternating current side, e.g. via a 60mm busbar system.

When dimensioning components for a busbar system of this kind, the direction of the energy – which is inverted to that of industrial applications – is unimportant. The same types of fuse (gG) are also used. It is the cables and leads going to the inverter that have to be protected from overload and short circuit. However, the rated diversity factor of the switchgear and the simultaneity factor of this application (= 1) do not match.

If, for example, a SECUR® 60Classic, PowerLiner is equipped with 35A-D02 fuses in a power distribution unit, the switchgear device will be able to carry its nominal current of 35A continuously on its own. However, this value must be reduced through thermal interaction with neighbouring devices.

The standard takes account of this situation by means of a switchgear assembly's rated diversity factor (RDF). This states the factor of the rated current to which all power circuits of a power distribution unit in a switchgear assembly can be permanently and simultaneously subjected. Here, the values from the table on page 8/1 apply, in accordance with IEC 61439-2:2011 and IEC 61439-3:2011.

At any rate, care must be taken to ensure that the rated diversity factor is always based on the fuse that is used, not the rated current of the switch disconnecter or fuse holder. Furthermore, the use of fuse links with silver-plated contacts is recommended. The size of the copper conductors is determined on the basis of the applicable product standard, e.g. IEC/EN 60947-3 for SECUR® 60Classic, PowerLiner.

For the above example, this means that from 10 devices or more, the SECUR® 60Classic, PowerLiner (rated current 63A) with side-mounted module and 35A fuse links may be operated at 21A maximum. Here, the rated current of the fuse is reduced to 60%. If the maximum current of the inverter does not exceed this value, and if fuse protection at 35A is permitted by the wiring and the inverter datasheet, the dimensions are correct.

If higher power ratings with correspondingly higher currents need to be pooled, there are two choices for adaptation:

With the right lead dimensions, the nominal current of the fuse links can be increased. However, this must fit in with the requirements for inverter fuse protection. Thus, in this example the use of a 50A fuse permits a maximum current of 30A.

Alternatively, the thermal influence of the switchgear is reduced by modifying the layout. With the SECUR® 60Classic, PowerLiner fuse switch disconnecter, in a test with 6 power circuits, a distance equal to the width of two devices (54mm) between the switchgear devices increased the rated diversity factor from 0.7 to 0.9. This is only possible because the distance considerably reduces the thermal influence of the fuse links. Based on the example with the 35A fuse, the new arrangement would enable an inverter current of 31A.

The rated diversity factors must always be selected in conformity with the application of the switch fuse unit, in accordance with IEC 61439-2 or IEC 61439-3. See table on page 8/1. Non-compliance with these reduction factors leads to unacceptably high temperatures in switchgear assemblies. This may in turn result in damaged or incorrectly triggered switchgear devices. Both fuse links and cable insulation age when exposed to high temperatures. In all cases, failures in photovoltaic systems can be expected.

For the correct design and layout of cables and leads, accumulation – as well as the ambient temperature – need to be taken into consideration. Here too, mutual thermal influence leads to raised temperatures and so to lower permitted currents. It is important to consider size and the corresponding factors. If the leads to the inverters in the AC string collector are routed in a cable duct (routing method F), and ambient temperatures of 50°C are anticipated there, when 6 conductors are used the permitted current capacity slashed to less than 50% of the nominal current.

When cables and fuses have the correct dimensions, they also produce less dissipation, and therefore less waste heat. This in turn facilitates cabinet selection or thermal management.

Note on operating NH fuse switch disconnectors and NH in-line fuse switch disconnectors

NH fuses are only intended for use by authorized electricians or trained electrical personnel, see IEC 60269-2. When switching devices observe the following instructions:

- Operation (release, switching on, switching off and fuse replacement) only permitted for authorized electricians or trained electrical personnel in accordance with VDE 0105-100.

- Quick activation of fuse cover using the relevant operating handle.
- Before switching on, care must be taken that the fuse cover is mounted or guided exactly into the open position.
- If the cover is only partially open, the fuse links may still be energized. Only open and close the cover using the handle.

Using busbars

To ensure that single and multi-pole busbar components are securely mounted and contacts are firmly connected, the busbars in question must comply with the required tolerances shown here.

- Tensile strength: min. 300N/mm²
- Permitted tolerances:
- Radius R 0.3 ... 0.7
- Width: + 0.1 / - 0.5
- Thickness: + 0.1 / - 0.1
- Centre distance:
- + 0.5 / - 0.5 (60mm system)
- + 1.0 / - 1.0 (100mm system, 185mm system)
- Deviation in the contact level: 0.4

Using comb-type busbars

A range of Wöhner fuse holders and switches are suitable for use with comb-type busbars. We recommend that you used the comb-type busbars listed on the corresponding pages in the current Wöhner catalogue (IEC/EN 61439-1/2, level of soiling: 2).

Ensure that the required air and creepage distances left in standard installation positions are observed (comb-type busbars are angled towards the operator). Power must be supplied via the connection terminals sold separately by Wöhner. The additional connection terminal is not required for Wöhner products with double-function terminals. Connect terminals using the maximum torque stated on the fuse holder.

Processing and using plastic profiles

The mechanical, thermal and electric properties of the profiles, which are listed in the Wöhner catalogue, are optimised for covering busbars or busbar systems and bottom troughs. Take particular care when mechanically processing the profiles to avoid the formation of cracks (narrow saw blade, high speed of cutting, low tooth advance and strong saw guiding).

The cutting of profiles with a cap circular saw and an AKE circular saw blade for plastics is reliable with the following specific values:
D = 300mm, B = 2.2mm, Z = 120W
with 5° negative tooth change (w),
cutting speed of 50 - 65m/s,
tooth feed 0.05 - 0.1mm.
The plastic parts must be fixed in order to exclude vibrations.

When processing and using plastic profiles, contact with oil, grease and other chemicals must be avoided.

Dimensions

All lengths are given in millimetres, unless otherwise stated.

Mounting rails of adapters and clip-on fixings generally comply with EN 60715.

CE marking

In association with the 2006/95/ EG low voltage directive, Wöhner products are subject to the CE marking commitment.

The CE mark is applied to the individual packing units. Even some of the products are marked accordingly. In doing so, Wöhner confirms that the products comply with the valid regulations.

Wöhner holds the corresponding conformity declarations.

Additional requirements for compliance with UL



Components that have also been tested for feeder circuits up to 600V AC in compliance with UL 508A are labelled in the approval overview.

ROHS, WEEE and REACH

Currently, Wöhner products do not come under the scope of ROHS Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment, or WEEE Directive 2002/96/EG governing waste electrical and electronic equipment.

Irrespective of these directives, measures have been initiated, which ensure that the use of pollutant-free plastics complies with the ROHS Directive.

The metallic surface coatings shall correspond to the substance ban in accordance with the ROHS Directive.

Fuse links may contain function-specific components which do not comply with the ROHS Directive.

According to current knowledge, there are no substances in our products or their packaging with a concentration above 0.1 percent by mass, in accordance with the candidate list (as of 16.06.2014), article 59 (1, 10) of Regulation (EC) no. 1907/2006 ("REACH").

We are in constant contact with our suppliers as regards substances subject to registration and information relevant to REACH is forwarded without delay to our customers.

You will find further information in the download area under Service at www.woehner.com

Busbar supports

System 30Compact

for 60mm busbar systems in acc. with IEC and UL

3-pole for busbars 12x5 and 12x10 as per IEC/UL
 4-pole, 5-pole for busbars 12x5 as per IEC
 With end cover, can also be used as a centre support



System 60Classic

for 60mm busbar systems in acc. with IEC

1-pole for busbars 12 x 5 - 30 x 10, double-T busbars
 2-pole for busbars 12 x 5 - 30 x 10
 3-pole for busbars 12 x 5 - 30 x 10 and 12/20/30 x 5/10
 4-pole for busbars 12 x 5 - 30 x 10
 3-pole for double-T and triple-T busbars



System 60Classic

for 60mm busbar systems in acc. with UL

3-pole for busbars 12/20/30 x 5/10
 3-pole for double-T and triple-T busbars



System 100Energy

for 100mm busbar systems in acc. with IEC

3-pole for busbars 30 x 10 - 60 x 10



System 185Power

for 185mm busbar systems in acc. with IEC

3-pole for flat busbars up to 120mm wide
 3-pole for undrilled flat busbars 30-120 x 10,
 double-T and triple-T section busbars



Typical arrangements of busbars have been tested in recognised laboratories for short-circuit strength. The results are summarised on page 8/43 and 8/44.

Busbars, in compliance with EN 13601

Flat busbars

Tin-plated copper busbars make contact position preparation much easier.

Cu busbars are effectively protected against corrosive substances.

The current capacities of flat busbars with components fitted in the table below were calculated by testing at an ambient temperature of 35°C under optimal conditions (IEC and UL).

Current carrying capacities higher than those specified in DIN 43 671 were obtained under operating conditions. The busbar temperature is normally positively influenced by mounting components on the busbar and by air circulation within the installation.

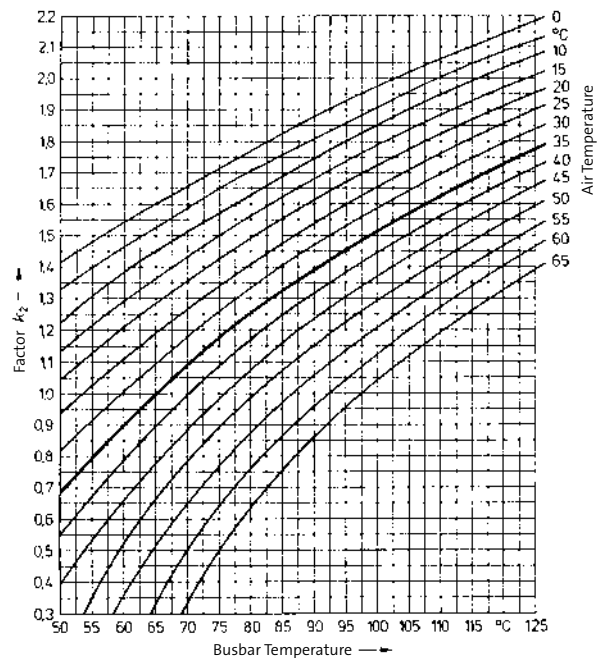
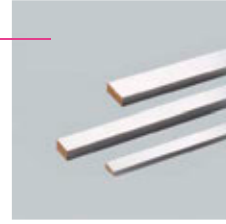
A correction factor k_2 that complies with DIN 43 671 can be determined for flat busbars using the diagram on the right. The factor is dependent on the relevant ambient temperature. This correction factor should be taken into account when conditions change and loading is continuous.

Alternatively a higher load can be applied if the components have a higher thermal endurance level.

A 30x10 galvanised busbar can, under normal operating conditions, be loaded with 630A. A correction factor k_2 of 1.3, for example, is required if a load of 800A is applied. This diagram demonstrates that the busbar heats up to approx. 85°C if this correction factor and an air temperature of 35°C apply.

Dimensions	Cross sections	Current carrying capacities at busbar temperature of	
		65°C	85°C
12x5	60mm ²	200A	250A
15x5	75mm ²	250A	320A
20x5	100mm ²	320A	400A
25x5	125mm ²	400A	500A
30x5	150mm ²	450A	550A
12x10	120mm ²	360A	450A
20x10	200mm ²	520A	630A
30x10	300mm ²	630A	800A
40x10	400mm ²	850A	1000A
50x10	500mm ²	1000A	1200A
60x10	600mm ²	1250A	1500A
80x10	800mm ²	1500A	1800A
100x10	1000mm ²	1800A	2100A
120x10	1200mm ²	2100A	2500A

Tensile strength: min. 300N/mm²
 Permissible tolerance:
 Radius R 0.3 ... 0.7
 Width: +0.1 / - 0.5
 Thickness: +0.1 / - 0.1
 Centre spacing:
 + 0.5 / - 0.5 (60mm system)
 + 1.0 / - 1.0 (100mm system / 185mm system)
 Deviation in the contact levels: 0.4



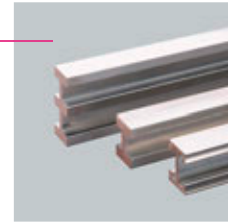
Busbars, in compliance with EN 13601

Section busbars

Tin-plated copper busbars make contact position preparation far easier.
Cu busbars are effectively protected against corrosive substances.

The following current capacities of flat busbars with components fitted were calculated by testing at an ambient temperature of 30°C under optimal conditions (IEC).

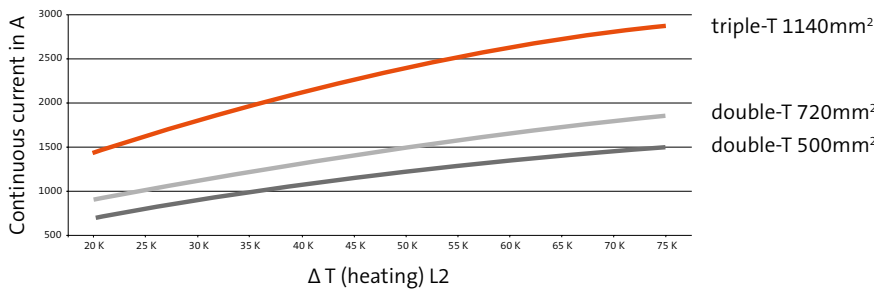
Tensile strength: min. 300N/mm²
Permissible tolerance:
Radius R 0.3 ... 0.7
Width: + 0.1 / - 0.5
Thickness: + 0.1 / - 0.1
Centre spacing:
+ 0.5 / - 0.5 (60mm system)
+ 1.0 / - 1.0 (100mm system / 185mm system)
Deviation in the contact levels: 0.4



Dimensions	Cross sections	Current carrying capacities at busbar temperature of 85°C in compliance with IEC	Current carrying in compliance with UL508 (UL-File E123577)
double-T	500mm ²	1250A	1200A
double-T	720mm ²	1600A	1400A
triple-T	1140mm ²	2500A	1800A/2000A*

* staggered load

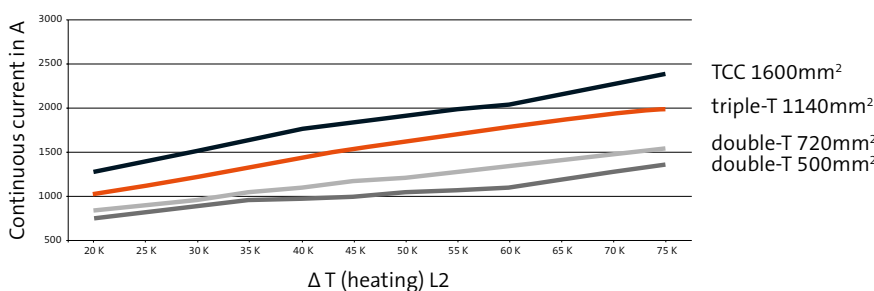
Current capacities of section busbars with components fitted



For the type verification corresponding to IEC/EN 61439-1, the maximum heating of the busbars must be taken into account.

Current capacities of section busbars without components fitted

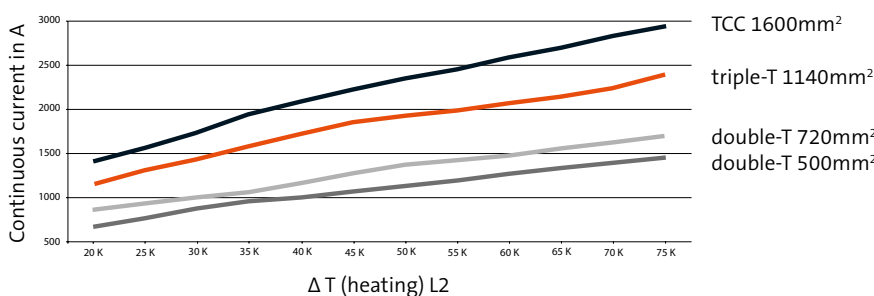
Under unfavourable conditions with constant continuous current over the entire length and with self-convection only, the heating of busbars without components fitted is as follows:



Busbar arrangement in 60mm-system:



one above the other



side by side

CRITO® Universal conductor connection terminals, brace terminals

Universal conductor terminals are used to connect conductors with cross-sections extending from 1.5 - 120mm² to busbars with a thickness of 5 or 10mm. Installation is simplified by integrated retaining springs, open terminals and captive screws.

Brace terminals for connecting 95 - 300mm² round conductors and lamellated flexible copper busbars. The jaw-type clamping method allows the busbar to be encompassed on both sides and for the conductors to be connected without drilling.



Conductors used	Current carrying capacity of contacts*	Terminal space WxH	Busbars WxH	Part no.
1.5 - 16mm ² Cu, sol(r), s(r), f, f+AE**, fl. Cu 8x6x0.5	180A	7.5 x 7.5	... x 5	01 284
			... x 10	01 289
4 - 35mm ² Cu, sol(r), s(r), f, f+AE**, fl. Cu 3/6x9x0.8	270A	10.5 x 11	... x 5	01 285
			... x 10	01 290
16 - 70mm ² Cu, s(r), f, f+AE**, 2xla. Cu 3/6x9x0.8, 6x13x0.5	400A	14 x 14	... x 5	01 287
			... x 10	01 292
			TT, TTT	
16 - 120mm ² Cu, s(r), f, f+AE**, fl. Cu 4/6/10x15.5x0.8	440A	17 x 15	... x 5	01 068
			... x 10	01 203
			TT, TTT	
35 - 150mm ² Cu, Al*** s(r), f, f+AE**	480A		12 - 20x5 - 10	01 135
95 - 185mm ² Cu, Al*** s(r), s(s), f	500A		20x5 - 30 x 10 TT, TTT	01 318
120 - 300mm ² Cu, Al*** s(r), s(s), f	600A		20 x 5 - 30 x 10 TT, TTT	01 760
fl. Cu 3 x 20 x 1 up to 10 x 24 x 1	750A	30 x 25	20 x 5 - 30 x 10 TT, TTT	01 319
fl. Cu 3 x 20 x 1 up to 10 x 32 x 1	800A	32 x 25	20 x 5 - 30 x 10 TT, TTT	01 759
95 - 300mm ² Cu, Al***, sol(r), sol(s), s(r), s(s), f, f+AE**	630A		30x10 TT, TTT	01 094
fl. Cu 5 x 32 x 1 up to 10 x 40 x 1	1250A	41 x 25	30 x 10 TT, TTT	01 092

* The specified ratings reflect the thermal capacity of the terminals under optimal conditions (with the largest connectable conductors).

The allocation of conductor cross-sections and current carrying capacities by national or international specifications does not affect the terminal's thermal capacity.

** Reducing the maximum conductor cross-sections may be required.

*** Connections with aluminium conductors are not maintenance-free (see page 8/2).

Explanation of abbreviations on page 8/2.

Additional terminal space details on page 9/1, 9/8 and 9/19.

CRITO®30Compact
CRITO®60Classic
Connecting terminal plates
incl. cover
Connection module, shock-protected



60mm distance between busbar centres
 3-pole, 690V~

Conductors used	Current carrying capacity of contacts*	Terminal space W x H	Busbars W x H	Part no.
1.5 - 16mm ² Cu, re, rm, f, f+AE*	80A		12 x 5, 12 x 10	01 562
1.5 - 16mm ² Cu, re, rm, f, f+AE**	80A		... x 5 - 10 TT, TTT	01 563
1.5 - 16mm ² Cu, re, rm, f+AE*	80A		... x 5 - 10	01 484
6 - 50 (70)mm ² Cu, rm, f, f+AE**, la. Cu 6 x 9 x 0.8	300A	10 x 15	... x 5 - 10 TT, TTT	01 240
6 - 50 (70)mm ² Cu, rm, f, f+AE**, la. Cu 6 x 9 x 0.8	300A	10 x 15	12 x 5 - 10	01 401
95 - 185mm ² Cu, Al***, rm, sm, f	460A		20 x 5 - 30 x 10 TT, TTT	01 199
35 - 120mm ² Cu, rm, f, f+AE**, se la. Cu 6/10 x 13/15.5 x 0.5/0.8	440A	15 x 15	... x 5 - 10 TT, TTT	01 243
35 - 150mm ² Cu, rm, f, f+AE**	480A		12 x 5 - 10	01 165
120 - 300mm ² Cu, Al***, rm, sm, f	560A		20 x 5 - 30 x 10 TT, TTT	01 754
la. Cu 3 x 20 x 1 up to 10 x 32 x 1	800A	32 x 25	20 x 5 - 30 x 10 TT, TTT	01 753

CRITO®60Classic
Connection set, 3-pole and 4-pole
without cover

1-pole, 690V~



Conductors used	Current carrying capacity of contacts*	Terminal space W x H	Busbars W x H	Part no.
10 - 120mm ² Cu, rm, f	300A	15 x 15	12 x 5 - 10	01 370 01 426
120 - 300mm ² Cu, Al***, rm, sm, f	560A		20 x 5 - 30 x 10 TT, TTT	01 537 01 147
la. Cu 3 x 20 x 1 up to 10 x 32 x 1	800A	32 x 25	20 x 5 - 30 x 10 TT, TTT	01 538 01 162

* The specified ratings reflect the thermal capacity of the terminals under optimal conditions (with the largest connectable conductors).

The allocation of conductor cross-sections and current carrying capacities by national or international specifications does not affect the terminal's thermal capacity.

** Reducing the maximum conductor cross-sections may be required.

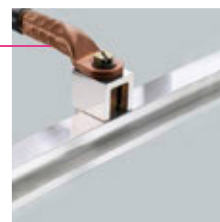
*** Connections with aluminium conductors are not maintenance-free (see page 8/2).

Explanation of abbreviations on page 8/2.

Additional terminal space details on page 9/8.

CRITO® Clip-on screw clamp connection

The clip-on screw connector is used to connect cables fitted with cable lugs as per DIN 46 234 and DIN 46 235 to busbars with a thickness of 5 or 10mm without the need for drilling.



Connection	Current carrying capacity of terminals*	Terminal space	Busbars W x H	Part no.
Cable lug, fl. Cu	360A	M5 x 8	... x 5	01 747
			... x 10	01 512
Cable lug, fl. Cu	490A	M8 x 8	... x 5	01 748
			... x 10	01 514
			TT, TTT	
Cable lug, fl. Cu	630A	M10 x 10	... x 5	01 749
			... x 10	01 047
			TT, TTT	

* The specified ratings reflect the thermal capacity of the terminals under optimum conditions. Allocating conductor cross-sections and current carrying capacities by national or international specifications does not affect the terminal's thermal capacity.

Busbar connectors

For the connection of identical busbars without drilling.

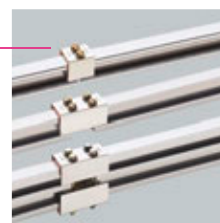
Current carrying capacity of terminals	Overall length	Permissible displacement busbar	Clamp screws	Spacing between systems	Part no.
630A	40	2mm	1xM12	13 - 20	01 823
630A	40	2mm	2xM8	9 - 20	01 990
630A	55	1mm	2xM8	5 - 10	01 166
630A	95	5mm	2xM10	50 - 60	01 141
630A	150	1mm	2xM8	100 - 110	01 193
630A	150	5mm	2xM12	100 - 110	01 886
1600A	50	2mm	2xM8	9 - 20	01 827
1600A	70	0mm	2xM16	5 - 10	01 905
1600A	95	5mm	4xM8	50 - 60	01 145
1600A	150	5mm	2xM16	5 - 30	30 322
1600A	150	5mm	4xM8	100 - 110	01 829
2500A	95	2mm	4xM8	50 - 60	01 274
2500A	150	2mm	4xM8	100 - 110	01 275
2500A	200	5mm	2xM16	5 - 30	01 295
750A	47	0mm	1 x M10	11 - 14	01 480
1000A	47	0mm	2 x M10	11 - 14	01 481

The separating bar set (part no. 01 360/01 361/01 362) is needed to comply with the air distances required by UL 508A.

At typical ambient conditions the use of flexible connectors after 5m system length has been proven.

In each case the distance of flexible connectors depends on the actual conditions,

e.g. arrangement and equipment of the system, value, and speed of temperature fluctuations.



CRITO®
Brace terminals for connecting flat busbars and laminated copper

The jaw-type clamping method allows the busbar to be encompassed on both sides and for the conductors to be connected without drilling.



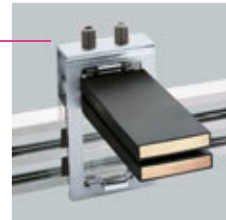
Current carrying capacity of terminals	Section	Terminal space W x H	Part no.
1600A/2000A*	30 x 10, TT, TTT, TCC	55 x 10 - 28	01 069
1600A/2000A*	30 x 10, TT, TTT, TCC	68 x 10 - 28	01 070
1600A/2800A*	30 x 10, TT, TTT, TCC	105 x 10 - 28	01 071

* current capacity for centre feeding

Use spacers provided when two flexible busbars are connected in parallel.

CRITO®
Profiles terminals for double T and triple T bars

For the connection of laminated copper busbars.



Current carrying capacity of terminals	Section	Terminal space W x H	Part no.
1600A	double-T	51 x 5 - 28	01 906
1600A	double-T	64 x 5 - 28	01 907
1600A	double-T	41 x 20 - 42	01 185
1600A (2000A)*	double-T	51 x 20 - 42	01 936
1600A (2000A)*	double-T	64 x 20 - 42	01 911
1600A (2500A)*	double-T	81 x 20 - 42	01 934
1600A (2800A)*	double-T	101 x 20 - 42	01 935
2000A (2500A)*	triple-T	64 x 23 - 45	01 008
2500A (3200A)*	triple-T	101 x 23 - 45	01 186

* centre feeding

Use spacers provided when two flexible busbars are connected in parallel.

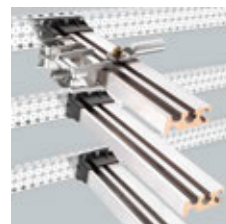
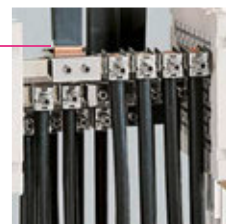
Busbar system for centre-feed unit

- Rated operating voltage 690V-
- Rated insulation voltage 1000V-
- Double-T section busbars up to 2000A, 3 and 4-pole
- Triple-T section busbars up to 3200A, 3-pole
- Special profile up to 4000A, 3-pole

The incoming conductors should be arranged in such a way that the maximum current only flows through short busbar lengths to ensure the lowest possible temperature increases.

The centre-feed unit (part no. 35 004) was tested with the following components mounted: 12 terminals (part no. 01 318) for the incoming conductors and 3 profile terminals (part no. 01 911) – each with two flexible copper busbars 10 x 63 x 1 – for the outgoing conductors to the circuit breaker.

The centre feed unit with special TCC profiles enables connection with brace terminals and special connection screws. Connection screw M10 x 45 (01 379) is suitable for retrofitting; version M12 x 60 (01 380) cannot be retrofitted! The use of Wöhner's special connection screws is absolutely necessary!



EQUES®30Compact **Busbar adapter, 1-pole up to 63A**

1-pole, 690V

For 3, 4, 5-pole 60mm busbar system

Attachable on 12 x 5mm bars.

Mounting rail firmly fixed, for snapping on automatic fuse devices.

Ultra-sonic welded copper conductor.

Current limitation of the assigned automatic devices for short-circuit protection.

Maintain contact-free conductor routing.



EQUES®30Compact **Busbar adapter, 3-pole up to 63A**

3-pole, 690V~

Attachable on 12 x 5mm and 12 x 10 bars in the 60mm system.

Combined foot ensures suitability for 5 and 10mm bar thickness.

Mounting rail EN 60715, plastic, movable in the 1.25-mm grid.

Ultra-sonic welded copper conductors.

32A: AWG 10 2.9mm x 2.9mm

63A: AWG 8 3.2mm x 3.6mm

Current limitation of the assigned switchgear ensures short-circuit protection.

Maintain contact-free conductor routing.



EQUES®60Classic
Busbar adapter, 3-pole up to 80A

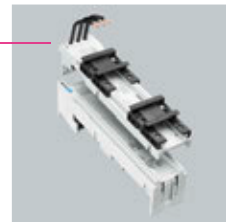


3-pole, 690V~
Can be fitted on all busbars in the 60mm system.
Combined foot ensures suitability for 5 and 10mm busbar thickness.
Mounting rail EN 60715, plastic, movable in the 1.25mm grid.
Ultra-sonic welded copper conductors.

- 12/16A: AWG 14 1.8mm x 1.8mm
- 25A: AWG 12 2.3mm x 2.3mm
- 25A: Connection terminal (Cu 0.75 - 6mm², re, f, f+AE)
- 32A: Spring terminals (1.5 - 6mm², re, f, f+AE)
- 32A: AWG 10 2.9mm x 2.9mm
- 45A: AWG 8 3.2mm x 3.6mm
- 63A: AWG 8 3.2mm x 3.6mm
- 80A: Connection terminals (Cu 1.5 - 16mm², re, rm, f, f+AE)

Current limitation of the assigned switchgear for short-circuit protection.
Maintain contact-free conductor routing.

EQUES®60Classic
Busbar adapter, 3-pole up to 45A, with removable upper section



3-pole, 690V~
Can be fitted to all busbars in the 60mm system.
Combined foot ensures suitability for 5 and 10mm busbar thickness.
Mounting rail EN 60715, plastic, movable in the 1.25mm grid.
Ultra-sonic welded copper conductors.

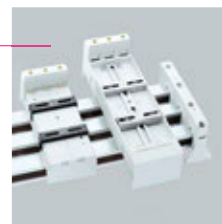
- 16A: AWG 14 1.8mm x 1.8mm
- 25A: AWG 12 2.3mm x 2.3mm
- 32A: AWG 10 2.9mm x 2.9mm
- 45A: AWG 8 3.2mm x 3.6mm

Current limitation of the assigned switchgear ensures short-circuit protection.
Maintain contact-free conductor routing.

Up to 45A with upper section which can be removed and locked in the disconnect position.
Lower section stays contact-protected on busbar system.
Micro-switch (change-over contact) for fusing load shedding.
Rated operating voltage (rated operating current) 250V AC (5A).

EQUES®60Classic Universal busbar adapters 200A/250A, special adapters 100A, busbar adapters 200A

for sharp-edged and rounded busbars (EN 12167/EN 13601).



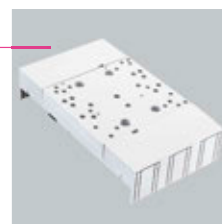
Parameter	Universal adapter 200A	Universal adapter 250A	Adapter 250A
Type	3-pole, 690V~	3-pole, 690V~	3-pole, 690V~
Busbar system	60mm	60mm	100mm
Busbar connection	claw terminals	claw terminals	claw terminals
Connecting switchgear	top or bottom	top or bottom	top
	box terminals Md 8 - 10Nm	box terminals Md 10 - 12Nm	clamps Md 3Nm
	Cu 6 - 70mm ² s(r), f, f + AE, fl. Cu 10 x 16 x 0.8	Cu 35 - 120mm ² s(r), f, f + AE, fl. Cu 10 x 20 x 0.8	Cu 6 - 70mm ² s(r), f + AE

EQUES®60Classic Universal busbar adapter 630A

3-pole, 690V~

For busbars 12 - 30mm and double-T and triple-T profiles
with screw connection M10 at bottom and top.

You can find the mounting options for the associated switchgear on the Internet at
www.woehner.com



EQUES®185Power Busbar adapter up to 1600A

3-pole, 690V~

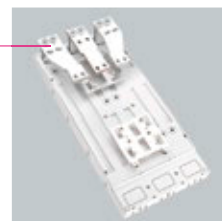
For adaptation of compact circuit-breakers up to 1600A.

For 30 – 120 x 10mm bars.

Terminal connection design for assembly without drilling and mounting on the CrossLink system
covering system.

Screw-connection design for mounting on drilled busbars.

The assigned circuit-breakers ensure short-circuit protection and current limitation.



MOTUS®30Compact
MOTUS®60Classic
MOTUS®Panel
Hybrid motor starter with reversing function



For 3-pole symmetrical loads up to 4kW.
 22.5mm wide, for 60mm busbar systems and EN 60715 mounting rail, integrated overload, short-circuit protection and safety function

EN 60947-1 / EN 60947-4, IEC 61508, ISO 13849
 ATEX approval to EX II (2) G [Exe] [Exd] [Exp] and EX II (2) D [Ext] [Exp]
 cULus-listed to UL 60947-1 and UL 60947-4-1A

The amount of wiring required is reduced to a minimum by the internal locking circuit and the load wiring.

Types	max. 0.6A	max. 2.4A	max. 9A
Main circuit			
Switching principle	Safety output stage with bypass, three-phase electrically isolated switch-off		
Rated operating voltage (U _e) to IEC 60947-1	500V AC (50/60Hz)	500V AC (50/60Hz)	500V AC (50/60Hz)
Operating voltage range to IEC 60947-1 Operating voltage range to UL 508	42 - 500V AC	42 - 500V AC	42 - 500V AC
Operating range of current monitoring at 20° C	0.075 - 0.6A	0.18 - 2.4A	1.2 - 9A
Rated operating current (I _e) to IEC 60947-1 AC-51 to IEC 60947-4-3 AC-53a to IEC 60947-4-2 To UL 508	0.6A 0.6A 0.6A	2.4A 2.4A 2.4A	9A 9A 6.5A
Nominal switching power to UL 508 Full Load (Power Factor = 0.4) Full Load (Power Factor = 0.8)	0.3kW (0.4HP) 0.5kW (0.6HP)	0.9kW (1.2HP) 1.7kW (2.2HP)	2.3kW (3.0HP) 4.6kW (6.1HP)
Short-circuit current rating SCCR to UL 508a	With Class CC fuse 30A CCMR30 suitable for use in circuits that do not supply more than 100kA _{eff} symmetrical current, max. 500V. For other values see product description.		
Leakage current (input, output)	0mA	0mA	0mA
Residual voltage at I _e	< 300mV	< 400mV	< 500mV
Surge current	100A (t = 10ms)	100A (t = 10ms)	100A (t = 10ms)
Input protective circuit	Varistors, fuses		
Assignment types to IEC60947-4	with fuse 10 x 38 16 A FR10GR69V16		with fuse 10 x 38 20 A FR10GR69V20
1	50kA (500V)	50kA (500V)	50kA (500V)
2	10kA (500V)	10kA (500V)	5kA (400V)
Assignment types to IEC60947-4	with Class CC fuse 30A CCMR30		
1	30kA (500V)	30kA (500V)	30kA (500V)
Control circuit			
Rated control supply voltage U _e to IEC 60 947-1/ UL 508	24V DC	24V DC	24V DC
Control supply voltage range	19.2 - 30V DC (32V DC, max. 1 min.)		
Control supply voltage range switching level "Safe Off"	< 5V DC	< 5V DC	< 5V DC
Rated control supply current to IEC 60974-1	≤ 40mA	≤ 40mA	≤ 40mA
Control input L, R Switching level "Low" Switching level "Safe Off" Switching level "High" Input current	3 - 9.6V DC < 0.5V DC 19.2 - 30V DC ≤ 3mA	3 - 9.6V DC < 0.5V DC 19.2 - 30V DC ≤ 3mA	3 - 9.6V DC < 0.5V DC 19.2 - 30V DC ≤ 3mA
Motor overload protection to IEC / CEI 60947	Class 10A		
Safety level to IEC/CEI 61508-1 ISO 13849-1	SIL 3 Cat. 3PLe		

SmartWire-DT® Communication system

SmartWire-DT® replaces the control wiring.

Wiring system for higher-level bus via gateways for Profibus, Profinet, CANopen and Ethernet IP/MODBUS.

SmartWire-DT-Assist project planning software is available to download at www.woehner.com.

Automatic address management.

Diagnostic LED on participants.

8-pole ribbon cable for device communication.

15V +/- for supplying the electronics.

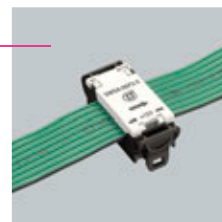
24V +/- for activating the switchgear.

3 data cables.

1 address cable.

Direction unmistakably indicated by black arrow.

Special pliers for adapting the cable connectors.



Module for connection to SmartWire-DT® for all MOTUS®

Plug-in module for the control circuit connections.

Replaces all control wiring via SmartWire-DT®.

Enable inputs 24V +/- for functional reliability.



Module for connection to SmartWire-DT® For all EQUES®60Classic

For all EQUES®60Classic adapters up to 80A.

Enables communication with switchgear devices (motor circuit breakers and contactors) via SmartWire-DT®.

3 inputs for signalling switches.

2 outputs for activating contactors.

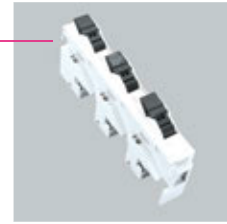
24V, 0.5A continuous current, with freewheeling diode.



AMBUS®60Classic
Holder for cylindrical fuse 10 x 38

VDE 0660 part 107 / EN 60947-3 / IEC 60947-3 / IEC 60269-2 / UL 4248-1, -18
1, 2 and 3-pole, 3-pole optionally as + N
For IEC 60269-2 cylindrical fuses.
LED: 110 - 700V AC/DC resp. 400 - 1000V DC
Suitable for mounting on 60mm systems with undrilled busbars.
Combination base accommodates busbars 5 and 10mm thick.

Screwless conductor connections
Complies with IEC: Cu 1.5 - 6mm² (f)
Complies with UL/CSA: AWG 16 - AWG 10 (str)



Size		10 x 38***	10 x 38	10 x 38***	10 x 38
Poles		1-pole	2-pole	2-pole	3-pole (3-pole + N)
Type of current		DC	AC (50/60Hz)	DC	AC (50/60Hz)
Max. rated operating voltage (U _e)	IEC/EN	1000V DC	690V AC	1000V DC	690V AC
	UL/CSA	1000V DC	-	-	600V AC
Rated insulation voltage (U _i)	IEC/EN	1000V	1000V	1000V	800V
Rated surge withstand capacity (U _{imp})	IEC/EN	6kV	6kV	6kV	6kV
Max. rated operating current (I _e)*	IEC/EN	30A	32A	20A	32A
	UL/CSA	30A	-	-	30A
Utilisation categories	IEC/EN	DC-20B	DC-20B	DC-20B	AC-22B (500V) AC-21B (690V) AC-20B (690V) 3-pole + N
	UL/CSA	only for use as a fuse holder	-	-	only for use as fuse holder
Conditional rated short circuit current	IEC/EN	-	-	-	100kA (400V, 500V, 690V)**
	UL/CSA	33kA	-	-	50kA (600V)
For fuses with power dissipation per phase up to		4W	3W	3W	3W

* When several devices are used side-by-side, the rated load factor specified according to IEC/EN 61439-2, table 101, should be observed.

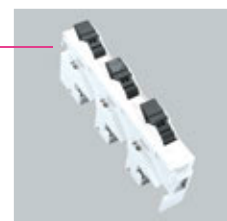
** Type tested with fuses of characteristic gL/gG.

*** Special model for photovoltaic applications

AMBUS®60Classic
Holder for Class CC fuse links

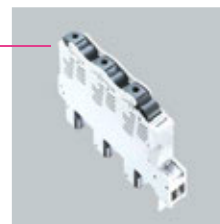
UL 4248-4
3-pole
For Class CC fuse links, in acc. with UL 248-4.
LED: 110 - 600V AC
Suitable for mounting on 60mm systems with undrilled busbars.
Combination base accommodates busbars 5 and 10mm thick.

Screwless conductor connections
Complies with IEC: Cu 1.5 - 6mm² (f)
Complies with UL/CSA: AWG 16 - AWG 10 (str)



Size	Class CC
Rated voltage	600V AC
Rated current	30A
Conditional rated short circuit current	200kA

SECUR®60Classic
PowerLiner
Bus-mounting in-line fuse switch disconnectors for
D0 and cylindrical fuse links



VDE 0660 part 107 / EN 60947-3 / IEC 60947-3

1/3-pole switching

For D0 fuse links in acc. with IEC 60269-3 and cylindrical fuse links in acc. with IEC 60269-2.

LED: 110 - 400V AC or 55 - 250V DC

Suitable for mounting on 60mm systems with undrilled busbars.

Cable connections at bottom.

Reversible combination base accommodates busbars 5 and 10mm thick.

Fuses can be inserted into associated sockets; the fuses can be fitted with gauge rings if D0 fuses are used.

Captive fuse carrier.

Fuse may only be changed if the circuit has been fully interrupted by opening the switch lever.

Operator-independent busbar, fuse and switch mechanism contact.

Safe from finger-touch even when the switch lever is open.

Box terminals for conductor connection:

Cu 1.5 - 6mm² (sol(r))

Cu 1.5 - 16mm² (f)

Cu 1.5 - 16mm² (f+AE)

Pilot switch to indicate the switch position:

1 changeover switch

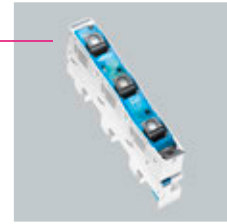
Rated operating voltage (rated operating current) 250V AC (5A).

Type	for D0 fuses	for cylindrical fuses
		10 x 38
Type of current	AC (50Hz), DC	AC (50/60Hz)
Rated operating voltage (U _e)	400V AC 110V DC (2-pole) 48V DC (1-pole)	up to 660/690V AC
Rated insulation voltage (U _i)	800V	800V
Rated surge withstand capacity (U _{imp})	6kV	6kV
Rated operating current (I _e)*	63A	up to 32A
Conditional rated short-circuit current**	50kA (AC) 8kA (DC)	50kA
Permissible power dissipation per phase for individual fuses without side modules in operation or for fuse groupings with side modules.	5.5W	3W

* When several devices are used side-by-side, the rated load factor specified according to IEC/EN 61439-2, table 101, should be observed. The distance to earthed parts must be at least 9mm.

** Type tested with fuses of characteristic gL/gG.

SECUR®60Classic
EasyLiner
Bus-mounting switch disconnecter with fuses for
D0 fuse links



VDE 0660 Part 107 / EN 60947-3 / IEC 60947-3

3-pole switching

For D0 fuse links in acc. with IEC 60269-3.

LED: 110 - 400V AC or 55 - 250V DC

For mounting on a 60mm system with undrilled busbars.

Outgoing connection at top or bottom

Combination base accommodates busbars 5 and 10mm thick.

Fuses can be inserted in the appropriate holders. D0 fuses can be equipped with adapter sleeves.

Captive fuse carrier.

Fuse replacement is only possible after the circuit has been completely disconnected.

User-independent contacting of busbars, fuses and switching mechanisms.

Shock protection assured even when drawer is open

Easy mounting thanks to spring-loaded terminals

Pilot switch for indicating the switch setting:

1 changeover switch

Rated operating voltage (rated operating current) 250V AC (5 A).

Cu 1.5 - 16mm² (rm, f)

Cu 1.5 - 10mm² (f+AE)

Cu 1.5 - 16mm² (re)

Type	for D0 fuse links
Type of current	AC (50 Hz)
Max. rated operating voltage (U _e)	400V AC
Rated insulation voltage (U _i)	500V
Rated surge withstand capacity (U _{imp})	6kV
Rated operating current (I _e)*	63A
Conditional rated short-circuit current**	50kA (AC)
Permitted power dissipation per phase for individually operating fuses without side modules, or for groups of fuses with side modules	5.5W
* When several devices are used side-by-side, the rated load factor specified in IEC/EN 61439-2, table 101, must be observed. The distance from earthed parts must be at least 9mm.	
** Type tested with fuse links of operating class gL/gG	

CUSTO®60Classic D0 bus-mounting fuse base

3-pole

60mm distance between busbar centres

Can be used with combination base for busbars 5 and 10mm thick in the 60mm system.

For D0 fuse links and sleeve fitting inserts in acc. with IEC 60269-3.

When used with special retaining springs and special gauge rings, also suitable for D01.

Box terminals:

Cu 1.5 - 2mm² (f, f+AE), Cu 1.5 - 10mm² (sol(r))

With 36mm wide version, offers enhanced lead placement and heat dissipation.



TRITON®Panel D0 mounted fuse base

1/3-pole

For D0 fuse links and sleeve fitting inserts in acc. with IEC 60269-3.

Box terminals:

Cu 1.5 - 35mm² (f, f+AE), Cu 1.5 - 10mm² (sol(r))



CUSTO®Panel D0 mounted fuse base

1/3-pole

For D0 fuse links and sleeve fitting inserts in acc. with IEC 60269-3.

Clip-on mounting for EN 60715 mounting rails

Dual-function terminal:

Cu 1.5 - 35mm² (f, f+AE)



Rated values according to IEC 60269-3

Size	D01	D02
Type of current	AC (50Hz) / DC	AC (50Hz) / DC
Rated voltage	400V AC / 250V DC	400V AC / 250V DC
Rated current	16A	63A
Conditional rated short circuit current	50kA (AC) 8kA (DC)	50kA (AC) 8kA (DC)
For fuses with power dissipation per phase up to	2.5W	5.5W

**CUSTO®60Classic
D bus-mounting fuse base**

3-pole

60mm distance between busbar centres

Can be used with combination base for 5 and 10mm thick busbars in the 60mm system.

For D fuse links, ring fitting inserts and/or screw fitting inserts in acc. with IEC 60269-3.

Both types have same external shape.

Box terminals:

DII Cu 1.5 - 25mm² (f, f+AE), Cu 1.5 - 10mm² (sol(r))

DIII Cu 1.5 - 35mm² (f, f+AE), Cu 1.5 - 10mm² (sol(r))



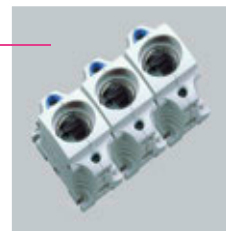
**TRITON®Panel
D0 mounted fuse base**

1-/3-pole

For D fuse links, ring fitting inserts and/or screw fitting inserts in acc. with IEC 60269-3.

Box terminals:

Cu 1.5 - 35mm² (f, f+AE), Cu 1.5 - 10mm² (sol(r))



Rated values according to IEC 60269-3

Size	DII	DIII
Type of current	AC (50Hz) / DC	AC (50Hz) / DC
Rated voltage	500V AC / DC	500V AC / DC*
Rated current	25A	63A
Conditional rated short circuit current	50kA (AC) 8kA (DC)	50kA (AC) 8kA (DC)
For fuses with power dissipation per phase up to	4.0W	7.0W
* in acc. with VDE 0636-3011 in acc. with IEC 60269-3 also 690V AC / 600V DC		

SECUR®Panel Switch disconnectors for D0 fuse links



VDE 0660 part 107/EN 60947-3/IEC 60947-3

VDE 0638

1, 2- and 3-pole / 1 and 3-pole + N as required

N-conductor leads at switch-on, trails at switch-off.

LED: 110 - 400V AC or 55 - 250V DC

Shock protection in acc. with EN 50274/BGV A3.

For D0 fuse links in acc. with IEC 60269-3.

Reducer for D01 fuses.

Clip-on mounting for EN 60715 mounting rails.

Captive fuse carrier.

Fuse may only be changed if the circuit has been fully interrupted by opening the switch lever.

Operator-independent fuse contact.

Safe from finger-touch even when switch levers are open.

Dual-function terminal:

Cu 1.5 - 35mm² (f, f+AE)

Pilot switch to indicate the switch position:

1 N/O, 1 N/C

400V AC (2A), 24V DC (6A)

Type	Standard
Size	D02
Type of current	AC (50Hz) DC
Max. rated operating voltage (U _e)	400V AC / 460V AC 130V DC
Rated insulation voltage (U _i)	500V
Rated surge withstand capacity (U _{imp})	6kV
Rated operating current (I _e)	63A / 35A 63A
Utilisation category IEC 60947-3 all pole models 1 pole, 1 pole + N 3 pole, 3 pole + N 1 pole 2 pole	AC-22B 400V 63A AC-23B 266V 35A AC-23B 460V 35A DC-22B 65V 63A DC-22B 130V 63A
Utilisation category VDE 0638	AC-22 400V 63A
Conditional rated short circuit current*	50kA (AC) 8kA (DC)
For fuses with power dissipation per phase up to	5.5W
* Type tested with fuses of characteristic gL/gG. 400V AC / 250V DC - 63A or 440V AC - 35A.	

**AMBUS®Panel
Holder for cylindrical fuses 10 x 38, 14 x 51, 22 x 58**



1, 2- and 3-pole, 1 and 3-pole + N as required
LED: 12 - 72V AC/DC resp. 110 - 690V AC/DC resp. 400 - 1000V DC

Pilot switch:
1 changeover switch 250V AC (5A), 30V DC (4A)
Flat lug 2.8x0.5mm (e.g. DIN 46 245)

Clip-on mounting on EN 60715 mounting rail

Conductor terminals:

Size	Conductor terminals according to IEC		Conductor terminals according to IEC UL / CSA	
10x38	1x Cu 0.75 - 25mm ²	f, f+AE	1x AWG 18 - AWG 4	str
	2x Cu 0.75 - 10mm ² *	f, f+AE	2x AWG 18 - AWG 6 *	str
Integrated N-pole	1x Cu 1.5 - 10mm ²	f, f+AE		
14x51	1x Cu 1.5 - 35mm ²	f, f+AE	1x AWG 14 - AWG 2	str
22x58	1x Cu 4 - 50mm ²	f, f+AE	1x AWG 10 - AWG 1/0	str

* 2 identical conductors next to each other in the contact position

Overall size		10 x 38 PV	10 x 38	14 x 51	22 x 58
According to standard	IEC/EN	IEC 60269-2	IEC 60947-3, EN 60947-3, VDE 0660 part 107		
	UL/CSA	UL 4248-1, 4248-18	UL 4248-1		
Current type		DC	AC (50/60Hz)/DC	AC (50/60Hz)/DC	AC (50/60Hz)/DC
Maximum rated operating voltage (U _e)	IEC/EN	1000V DC	690V AC	690V AC	690V AC
	UL/CSA	1000V DC	600V AC / DC	600V AC / DC	600V AC / DC
Rated insulation voltage (U _i)	IEC/EN	1000V DC	800V	800V	800V
Rated surge withstand capacity (U _{imp})	IEC/EN	6kV	6kV	6kV	6kV
Rated operating current (I _e)	IEC/EN	30A	32A	50A	100A /
	UL/CSA	30A	30A	50A / 40A	80A
Application category, version 1P, 1P+N, 2P	IEC/EN	-	AC-22B (400V)	AC-22B (400V)	AC-20B (690V)
	UL/CSA	only applicable as fuse holder			
Application category, version 3P, 3P+N	IEC/EN	-	AC-22B (690V)	AC-21B (690V)	AC-20B (690V)
	UL/CSA	only applicable as fuse holder			
Conditional rated short-circuit current (AC) version 1P, 1P+N, 2P	IEC/EN	20kA**	100kA (500V)*	100kA (400V)*	100kA (500V)*
	UL/CSA	33kA	100kA (600V)	100kA (600V)	100kA (600V)
Conditional rated short-circuit current (AC) version 3P, 3P+N	IEC/EN	-	100kA (500V)*	100kA (400V)*	100kA (500V)*
	UL/CSA	-	100kA (600V)	100kA (600V)	100kA (600V)
Allowable power dissipation for each fuse, standard version		-	3W (gG)	5W (gG)	9.5W (gG)
Allowable power dissipation for each fuse, semi-conductor protection version		4.0W (gPV)	4.3W (aR/gR) (10mm ² , 25A)	6.5W (aR/gR) (25mm ² , 40A)	11W (aR/gR) (50mm ² , 80A)

* Type tested with fuses of characteristic gL/gG (IEC 60269-2)

** Type tested with fuses of characteristic gPV (IEC 60269-6)

AMBUS®Panel Holder for Class CC fuse links

UL 4248-4
1, 2- and 3-pole
LED: 12 - 72V AC resp. 110 - 600V AC
Clip-on mounting for EN 60715 mounting rails



Conductor terminals:

Conductor terminals according to IEC		Conductor terminals according to UL / CSA	
1x Cu 0.75 - 25mm ²	f, f+AE	1x AWG 18 - AWG 4	str
2x Cu 0.75 - 10mm ² *	f, f+AE	2x AWG 18 - AWG 6*	str

* 2 identical conductors next to each other in the contact position

Size	Class CC
Rated voltage	600V AC / DC
Rated current	30A
Conditional rated short circuit current AC	200kA

AMBUS®Panel Holder for Class J fuse links

UL 4248-4
1-, 2- and 3-pole
LED: 110 - 600V AC
Clip-on mounting for EN 60715 mounting rails



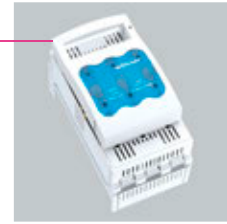
Conductor terminals:

Size	Conductor terminals according to IEC		Conductor terminals according to UL / CSA	
0–30A (21x57)	1x Cu 0.75 - 1mm ²	f, f+AE	1x AWG 18 - AWG 1	str
	1x Cu 1.5 - 50mm ²	f, f+AE		
	2x Cu 0.75 - 1mm ² *	f, f+AE	2x AWG 18 - AWG 6*	str
	2x Cu 1.5 - 10mm ² *	f, f+AE		
31–60A (27x60)	1x Cu 2.5 - 50mm ²	f, f+AE	1x AWG 14 - AWG 1	str
	2x Cu 2.5 - 16mm ² *	f, f+AE	2x AWG 14 - AWG 6*	str

* 2 identical conductors next to each other in the contact position

Size	0 - 30A	31 - 60A
Rated voltage	600V AC / DC	600V AC / DC
Rated current	30A	60A
Conditional rated short circuit current AC	200kA	200kA

**QUADRON®60Classic
Holder for Class J fuses**



UL 4248-8
Busbar-mounting
3-pole
Shock-protected
For Class J fuse links in acc. with U L248-8.

Busbar-mounting version:
For mounting on 60mm system to busbars with a thickness of 5 or 10mm, TT and TTT section bars
Screwless busbar contacting; Gentle snapping onto busbar systems.
Conversion from outgoing connection top to bottom by changing connection modules.

Panel-mounting version:
For screwing to mounting plate and fitting to 2 mounting rails EN 60715 at a distance of 125 or 150mm.

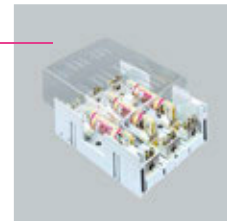
Conductor connections:

Size	Conductor connections according to IEC	Conductor connections according to UL /CSA
1 - 30A (21 x 75)	Cu 4 - 35mm ² (re/rm, f, f+AE*)	Cu AWG 12-AWG 2/0, str
31 - 60A (27 x 60)	Cu 4 - 35mm ² (re/rm, f, f+AE*)	Cu AWG 12-AWG 2/0, str
61 - 100A (29 x 117)	Cu 4 - 35mm ² (re/rm, f, f+AE*)	Cu AWG 12-AWG 2/0, str
101 - 200A (41 x 146)	Cu 35 - 150mm ² (re/rm, f, f+AE*)	Cu AWG 2-MCM 300, str

* possible reduction of the maximum conductor cross-sections necessary

Size	1 - 30A	31 - 60A	61 - 100A	101 - 200A
Rated voltage	30A	60A	100A	200A
Rated current	600V	600V	600V	600V
Conditional rated short circuit current AC	200kA	200kA	200kA	200kA

**QUADRON®60Classic
Holder for Class J fuses**



UL 4248-8
Panel-mounting and busbar-mounting
3-pole
Shock protected by clip-on covers
For Class J fuse links in acc. with U L248-8.

Panel-mounting version:
100A, 200A: mounting on 2 EN 60715 mounting rails with a spacing of 125 or 150mm using the mounting set.

Busbar-mounting version:
For mounting on 60mm system to busbars with a thickness of 10mm, TT and TTT section bars.
Screwless busbar contacting; Gentle snapping onto busbar systems.
Conversion from outgoing connection top to bottom by changing connection modules.

Conductor connections:

Size	Conductor connections according to IEC	Conductor connections according to UL /CSA
210 - 400A (54x181)	Cu 16 - 300mm ² (s(r), f, f+AE*)	Cu AWG 4-MCM 600, str

* possible reduction of the maximum conductor cross-sections necessary

Size	201 - 400A	
Rated voltage	600V AC / DC	
Rated current	400A	
Conditional rated short circuit current AC	Panel-mounting version	200kA
	Busbar-mounting version	65kA

SECUR®Panel Holder for cylindrical fuses 10 x 85

1-pole
1500V DC / 1000V AC
For fuse links IEC 60269-2 and -6, max. 6.0W.
Snap fastening onto mounting rail EN 60715.



QUADRON®60Classic NH bus-mounting fuse base

3-pole
Suitable for mounting on a 60mm system with undrilled busbars by locking it into place.
Refitting a connection for top or bottom.



Conductor connections:

Size	Screw connection	Clamp connection	Clamp space terminal box	Prism connection	Other connections
00	M8 70mm ^{2**}	Cu 1.5 - 70mm ² rm, f+AE, la. Cu 12x (1 - 10) mm	Cu 1.5 - 70mm ² f, f+AE Cu 1.5 - 70mm ² re, rm 2x10 - 25mm ² f+AE, Identical conductors, side by side, square crimping 2x10 - 35mm ² f, identical conductors, side by side la. Cu 10 - 13mm wide Clamp space 13 x 13mm	Cu, Al* 1 - 70mm ² rm, sm, f, f + AE	Tunnel terminal 3 x Cu 1.5 - 16mm ² rm, f+AE Md 3 Nm
1	M10 120mm ^{2**}	Cu 70 - 150mm ² rm, f, f+AE, la. Cu 18 x (2 - 14) mm	Cu 35 - 185mm ² f Cu 35 - 15mm ² rm Cu 35 - 120mm ² f+AE la. Cu 15.5 - 24mm wide Clamp space 24.5 x 21mm	Cu, Al* 70 - 150mm ² rm, sm, f, f + AE	Double prism Cu, 2 x 35 - 70mm ² rm, sm, f+AE 2 x 70mm ² f

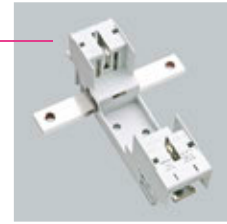
* Connections with aluminium conductors are not maintenance-free (see page 8/2).

** Copper conductor for corresponding rated currents according to IEC/EN 60947-1.

Size	00	1
Type of current	AC (50 - 60Hz) / DC	AC (50 - 60Hz) / DC
Rated operating voltage	690V AC / 440V DC	690V AC / 440V DC
Rated current*	160A	250A
For NH fuses in acc. with IEC 60269-2 with power losses per phase up to	12W	32W

* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.

**QUADRON® Panel
NH fuse bases for photovoltaic applications, 1-pole**



Design
Version with screw on both sides
Version with internal busbar connection
For NH fuse links in acc. with IEC 60269-6.

Conductor connections:

Size	Busbar outgoing connection	Screw connector
1XL	1/2 x 30 x 10	M 10
2XL/3L	1/2 x 40 x 10	M 12

Installed size	1XL	2XL/3L
Type of current	AC (50 - 60 Hz) / DC	AC (50 - 60Hz) / DC
Rated voltage	1000V AC / 1500V DC	1000V AC / 1500V DC
Rated current	250A	600A
Max. power dissipation of fuse	50W	100W

Information on current capacity and rated diversity factors is available on request or at www.woehner.com

**QUADRON®
NH bus-mounting fuse bases**



For NH fuse links in acc. with IEC 60269-2.
1/3-pole
Size 00 to 160A / size 1 to 250A / size 2 to 400A / size 3 to 630A
690V~/440V-
Max. power dissipation:
Size 00: 12W / size 1: 32W / size 2: 45W / size 3: 60W

Outgoing contacts:
– size 00 screw M8
– size 00 clamp Cu 1.5 - 70mm², s(r), f+AE, fl. Cu max. 12x10mm
– size 00 tunnel terminal 3 x Cu 16mm², each 2x M5
– size 1 screw M10
– size 2 screw M10
– size 3 screw M12

**QUADRON®
NH fuse bases**



For NH fuse links in acc. with IEC 60269-2.
1/3-pole
Size 00 to 160A / size 1 to 250A / size 2 to 400A / size 3 to 630A
690V~/440V-
Max. power dissipation:
Size 00: 12W / size 1: 32W / size 2: 45W / size 3: 60W

Outgoing contacts:
– size 00 screw M8, Md 12 - 14Nm
– size 00 clamp Cu 1.5 - 70mm², s(r), f+AE, fl. Cu max. 12x10mm, Md 3Nm
– size 1 screw M10, Md 18 - 22Nm
– size 1 clamp 2xM6, Md 8 - 10Nm, internal width 17mm
– size 2 screw M10, Md 18 - 22Nm
– size 3 screw M12, Md 28 - 32Nm

QUADRON®60Classic NH fuse switch disconnecter



Panel- and busbar-mounting

3-pole switching

VDE 0660 part 107/EN 60947-3/IEC 60947-3

Shock protection with integrated positive action closure and arc chambers.

Fuses with mechanical retention in disconnecter lid.

For NH fuse links in acc. with IEC 60269-2 Size 000 – 00 – 1 – 2 – 3 – 4A.

Front-side degree of protection IP30 as per EN 60529, degree of protection near terminal depends on installation.

Test openings in disconnecter lid self-closing.

Recommended mounting position: handle at top.

Busbar-mounting version:

60mm system (sizes 000, 00, 1, 2, 3)

Screwless busbar contacting.

Locks on and makes contact easily and securely.

Refitting a connection for top or bottom is easy.

Panel-mounting version:

– size 000: Fixing on 1 EN 60715 mounting rail with 112.5 or 125mm spacing using fast fixing plate.

– size 00, 1, 2: Fixing on 2 EN 60715 mounting rails with 125 or 150mm spacing using fixing kit.

Size	000	00
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)
	DC	DC
Rated operating voltage (U _e)**	690V AC	690V AC
	440V DC	440V DC
Rated insulation voltage (U _i)**	800V	800V
Rated surge withstand capacity (U _{imp})**	6kV	6kV
Max. rated operating current (I _e)*	125A	160A
Conditional rated short-circuit current***	50kA	50kA
For NH fuse links in acc. with IEC 60269-2 with power losses per phase up to	9W	12W
* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.		
** Electromechanical fuse monitoring AC 24 - 690V, DC 24 - 250V (mains connections). DC specifications: 2 current paths (L1, L3) in series.		
*** Type tested with fuses of characteristic gL/gG.		

**QUADRON®60Classic
NH fuse switch disconnecter**



Size	1	2	3	4 a
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)
	DC	DC	DC	DC
Rated operating voltage (U _e)**	690V AC	690V AC	690V AC	690V AC
	440V DC	440V DC	440V DC	440V DC
Rated insulation voltage (U _i)**	800V	800V	800V	800V
Rated surge withstand capacity (U _{imp})**	6kV	6kV	6kV	8kV
Rated operating current (I _e)*	250A	400A	630A	1600A
Conditional rated short-circuit current***	80kA	50kA	50kA	50kA
For NH fuse links in acc. with IEC 60269-2 with power losses per phase up to	23W	34W	48W	140W
* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.				
** Electro-mechanical fuse monitoring AC 24 - 690V, DC 24 - 250V (mains connections). DC specifications: 2 current paths (L1, L3) in series.				
*** Type tested with fuses of characteristic gL/gG.				

NH switch disconnecter, size NH 1, arc chamber retrofit package for higher utilisation category as an accessory.

Pilot switch for lid position indicator:

Size 00: 1 (changeover) switch can be used.

Size 000, 1, 2, 3: 2 (changeover) switches can be used.

Connections by means of lugs for tabs 2.8 x 0.5mm (e.g. DIN 46245)

Rated operating voltage (rated operating current):

250V AC (5A), 30V DC (4A).

Fuse monitor (size 00, 1, 2, 3):

Use fuses with live grip lugs.

For electronic fuse monitoring see www.woehner.com

Electro-mechanical fuse monitoring:

Integrated auxiliary switch: 1 N/O + 1 N/C

Rated operating voltage (rated operating current):

Outgoing auxiliary contacts, conductor connection 4-pole plug 1.5mm² re / f/AE

Rated operating voltage (rated operating current):

24V AC (2A), 230V* AC (0.5A)

24V DC (1A), 48V DC (0.3A), 60V DC (0.15A)

Circuit diagram on page 9/49.

* Level of soiling 2, excess voltage category II

QUADRON® 60Classic NH fuse switch disconnecter



Conductor connections:

Size	Screw connection	Clamp connection	Clamp space for flat conductor	Prism connection	Other connections
000	–	–	2.5 - 50mm ² f 1.5 - 50mm ² f+AE, sol(r)/s(r) fl. Cu 6 - 9mm wide terminal space 10 x 10mm	–	
00	M8 70mm ² **	Cu 1.5 - 70mm ² s(r), f+AE, fl. Cu 12 x (1 - 10)mm	Cu 1.5 - 70mm ² , f, f+AE Cu 1.5 - 70mm ² , sol(r), s(r) 2x10 - 25mm ² f+AE, identical conductors, aligned side by side, square crimping 2x6 - 50mm ² f, identical conductors, aligned side by side, fl. Cu 10 - 13mm wide terminal space 13 x 13mm	Cu, Al* 16 - 70mm ² s(r), s(s), f, f + AE	tunnel terminal 3 x Cu 1.5 - 16mm ² s(r), f+AE Md 3 Nm
1	M10 120mm ² **	Cu 70 - 150mm ² s(r), f, f+AE, fl. Cu 18 x (2 - 14)mm	Cu 70 - 185mm ² f Cu 35 - 150mm ² rm Cu 35 - 120mm ² f+AE la. Cu 15.5 - 24mm wide Clamp space 24.5 x 12mm min. clamp space height 3mm	Cu, Al* 35 - 150mm ² rm, sm, f, f + AE	double prism Cu, 2 x 35 - 70mm ² s(r), s(s), f+AE 2 x 70mm ² f
2	M10 240mm ² **	Cu 120 - 240mm ² s(r), f+AE, fl. Cu 21 x (1 - 14)mm	–	Cu, Al* 50 - 150/ 120 - 240mm ² s(r), s(s), f, f + AE	double prism Cu, 2 x 70 - 120mm ² s(r), s(s), f+AE
3	M12 2x 185mm ² **	Cu 150 - 300mm ² s(r), f+AE, fl. Cu 25 x (1 - 13)mm	–	Cu, Al* 150 - 300mm ² s(r), s(s), f, f + AE	double prism Cu, 2x150/185mm ² s(r), s(s), f+AE
4a	2xM12	–	–	–	–

* Connections with aluminium conductors are not maintenance-free (see page 8/2).

** Copper conductor for appropriate rated currents according to IEC/EN 60947-1.

Comb-type busbars and connection terminals for QUADRON®60Classic NH, size 000/00:



Recommended assembly situation: Feed with the comb-type busbar in case of NH-LTS from below:

In case of differing fitting positions, reductions must be regarded.

Protection type: IP 20 frontally in connection with NH-LTS, comb-type busbars and connections terminals possible.

Protection type depends on assembly in the connection area.

Shock protection: According to EN 50274/BGV A3.

Rated operating voltage: 690V AC /440V DC.

Rated insulation voltage: 800V at contamination level 2; 690V at contamination level 3.

Rated surge withstand capacity: 6kV.

Rated surge withstand capacity: 25kA/400V.

Rated short-time withstand capacity: 12.5kA - 100ms/400V.

Size 000: connection terminal: Cu 6 - 35mm² sol(r), s(r); Cu 4 - 25 f, f+AE (max. connection diameter 11mm).

Comb-type busbar cross-section: 35mm².

Size 00: Connection terminal: Cu 25 - 95mm² sol(r), s(r); Cu 35 - 95mm² s(s) ; Cu 25 - 70mm² f+AE (quadratic or trapezoid pressed, max. connection diameter 14mm).

Rated current: supply centre 1 x 260A / 2 x 260A; supply side 1 x 130A (see table).

Rated current according to test assembly EN 60947-3 at an environment temperature of 25°C:

Assembly	Position	Ingoing feeder Comb-type busbar	Operating current	NH-fuse gL/gG	Outgoing feeder NH-LTS
Double centre feed with 95mm ² , 4 NH-LTS size 00, 2 x 260A with connection terminals	Exterior	–	140A	160A	70mm ²
	Interior	95mm ²	120A	125A/160A	70mm ²
	Interior	95mm ²	120A	125A/160A	70mm ²
	Exterior	–	140A	160A	70mm ²
Centre feed with 95mm ² , 3 NH-LTS size 00, 1 x 260A with connection terminals	Exterior	–	50A	63A	16mm ²
	Interior	95mm ²	160A	160A	70mm ²
	Exterior	–	50A	63A	16mm ²

The allocation of conductor cross-sections and current capacities according to national and international specifications as well as installation conditions must be regarded.

QUADRON® 60Classic NH bus-mounting switch disconnecter with fuses



Panel-mounting and busbar-mounting

VDE 0660 part 107 / EN 60947-3 / IEC 60947-3

3-pole switching, double-breaking main contacts.

For NH fuse links in acc. with IEC 60269-2.

Safe, operator-independent switching, lockable in neutral position, with up to 3 padlocks.

Can be used as a mains disconnecter as per IEC/EN 60204-1 (main switch).

Also as an emergency switch in combination with the red-yellow door coupling twist handle.

Additional air gap can be seen by removing the lid, including fuses.

Shock protection complies with EN 50274.

Fuse links are mechanically locked in the lid.

Front-side degree of protection IP20 as per EN 60529, degree of protection near terminal depends on installation.

Test openings in lid are self-closing.

Recommended mounting position: handle at top.

Busbar-mounting version:

Mounting on a 60mm system (size 00/1).

Screwless busbar contacting.

Gentle snapping onto busbar systems.

Panel-mounting version:

– size 00/1: to be screwed on to mounting plate

Conductor connections:

Size	Screw connection	Clamp connection	Clamp space for flat conductor	Prism connection	other connections
NH00	–	–	Cu 1.5 - 70mm ² , f, f+AE Cu 1.5 - 70mm ² , sol(r), s(r) 2 x (10 - 25)mm ² f+AE, identical conductors, aligned side by side, square crimping, 2 x (6 - 50) mm ² f, identical conductors, aligned side by side, fl. Cu 10 - 13mm wide terminal space 13 x 13mm	–	connection terminal Cu, 35 - 95mm ² sm Cu, 25 - 70mm ² f+AE Cu, 25 - 120mm ² s(r)
NH1	M10 120mm ² **	Cu 70 - 150mm ² s(r), f, f+AE, fl. Cu 18 x (2 - 14) mm	Cu 70 - 185mm ² , s(r), Cu 35 - 150mm ² rm Cu 35 - 120mm ² f+AE la. Cu 15.5 - 24mm wide terminal space 24.5 x 21mm min. clamp space height 3mm	Cu, Al* 35 - 150mm ² rm, sm, f, f+AE	double prism Cu, 2 x 35 - 70mm ² rm, sm, f+AE 2 x 70mm ² f

* Connections with aluminium conductors are not maintenance-free (see page 8/2).

** Copper conductor for appropriate rated currents according to IEC/EN 60947-1

**QUADRON®60Classic
NH bus-mounting switch disconnecter with fuses**



Size	00	1
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)
	DC	
Max. rated operating voltage (U _e) **	690V AC, 440V DC	690V AC
Rated insulation voltage (U _i) **	800V	800V
Rated surge withstand capacity (U _{imp}) **	6kV	6kV
Max. rated operating current (I _e)*	125A	250A
Conditional rated short-circuit current with fuses gG	50kA size 00; 125A - 690V	50kA size 1; 250A - 690V
For NH fuse links in acc. with IEC 60269-2 with power losses per phase up to	10W	23W
* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.		
** Electronic fuse monitoring 2/3 x AC 65 - 690V, DC 65 - 250V (L1, L3) (mains connections, U _{imp} 6 kV, level of soiling 3).		

Pilot switch for lid position indication
 1 (changeover) switch can be used
 Connections by means of receptacles for tabs 2.8 x 0.5mm (e.g. DIN 46245)
 Rated operating voltage (rated operating current)
 250V AC (5A), 30V DC (4A)

Electronic fuse monitoring:
 – No auxiliary power required, mains voltage (L1 and L3) must be present
 – Test button to simulate fuse failure
 – Automatic reset after fuse replacement
 Green LED on: ready
 Red LED on: Fuse has blown in at least one phase, no display if mains voltage not present
 Output (auxiliary contacts):
 – N/O / N/C, isolated, a.c. 3A/250V*, d.c. 5A/30V, d.c. 0.2A/250V*
 – Conductor connection 4-pole plug up to 1.5mm² sol(r)/f/AE
 Circuit diagram on page 9/25
 * Level of soiling 2, excess voltage category II

Door coupling twist handle IP 66, lockable in off position, with up to 3 padlocks, with door interlock that can be defeated.

QUADRON®60Classic Bus-mounting switch disconnecter



Panel-mounting and busbar-mounting

VDE 0660 part 107 / EN 60947-3 / IEC 60947-3

3-pole switching, double-breaking main contacts.

Operator-independent, Safe switching, lockable with 3 padlocks in OFF position.

Shock protection complies with EN 50274.

Can be used as a mains disconnecter as per IEC/EN 60204-1 (main switch).

Also as an emergency switch in combination with the red-yellow door coupling twist handle.

As main switch or emergency stop switch only with the following maximum operating currents:

Design 160A: 125A/690V AC; design 320A: 280A/400 AC, 250A/690V AC.

Front-side degree of protection IP20 as per EN 60529, degree of protection near terminal depends on installation.

Recommended mounting position: handle at top.

Busbar-mounting version:

Mounting on a 60mm system (160A, 320A).

Screwless busbar contacting.

Gentle snapping onto busbar systems.

Panel-mounting version:

– (160A, 320A): to be screwed on to mounting plate.

Size	160A	320A
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)
Max. rated operating voltage (U_e)	690V AC	690V AC
Rated insulation voltage (U_i)	800V	800V
Rated surge withstand capacity (U_{imp})	8kV	8kV
Max. rated operating current (I_e)*	200A	320A
Rated short-circuit making capacity (I_{cm})	7kA (690V AC)	12kA (690V AC)
Short-circuit withstand capacity	4.5kA-1s (690V AC)	7kA (690V AC)
Conditional rated short-circuit current with series fuses gG	50kA size 00; 125A - 690V	50kA size 1; 250A - 690V

* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.

Pilot switch for lid position indication

1 (changeover) switch can be used

Connections by means of receptacles for tabs 2.8 x 0.5mm (e.g. DIN 46245)

Rated operating voltage (rated operating current)

250V AC (5A), 30V DC (4A)

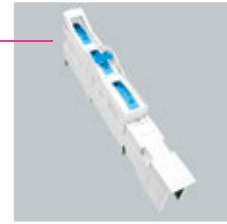
Door coupling twist handle IP 66, lockable in off position, with up to 3 padlocks, with door interlock that can be defeated.

Conductor connections:

Size	Screw connection	Clamp connection	Clamp space for flat conductor	Prism connection	Other connections
160A	–	–	Cu 1.5 - 70mm ² , f, f+AE Cu 1.5 - 70mm ² , sol(r), s(r) 2 x (10 - 25)mm ² f+AE, identical conductors, side by side, square crimping, 2 x (6 - 50)mm ² f, identical conductors, side by side fl. Cu 10 - 13mm wide terminal space 13 x 13mm	–	connection terminal Cu, 35 - 95mm ² s(s) Cu, 25 - 70mm ² f+AE Cu, 25 - 120mm ² s(r)
320A	M10 185mm ² 320A	Cu 70 - 150mm ² s(r), f, f+AE, fl. Cu 18 x (2 - 14)mm 250A	Cu 70 - 185mm ² f / 300A Cu 35 - 150mm ² rm / 275A Cu 35 - 120mm ² f+AE / 250A la. Cu 15.5 - 24mm wide / 300A Clamp space 24.5 x 21mm min. clamp space height 3mm	Cu, Al* 70 - 150mm ² rm, sm, f, f+AE 250A	double prism Cu, 2 x 35 - 70mm ² rm, sm, f+AE 2 x 70mm ² f 250A

* Connections with aluminium conductors are not maintenance-free (see page 8/2).

QUADRON®60Classic
QUADRON®100Energy
NH in-line fuse switch disconnecter



VDE 0660 part 107 / EN 60 947-3 / IEC 60 947-3

3-pole switching

Outgoing connection top and bottom.

Arc chamber.

For NH fuse links in acc. with IEC 60269-2 Size NH00.

Shock-protected even with lid open and in park position.

Mechanical fuse retention.

Degree of protection IP30 (front side), degree of protection near terminal depends on installation.

Connection contacts:

- M8 screw; 2x M5 clamp, 12mm clear width
- Prism clamp terminal Cu, Al* 16 - 70mm² s(r), s(s), f +AE

(* Connections with aluminium conductors are not maintenance-free (see page 8/2)

For 60mm distance between busbar centres:

- screwless busbar connection

For 100mm distance between busbar centres:

- screw-on connection to drilled busbars, screw M8
- mounting without drilling using a terminal clamp

Type	3-pole switching
Type of current	AC (50 - 60Hz)
Rated operating voltage (U _e)**	690V AC
Rated insulation voltage (U _i)**	1000V
Rated surge withstand capacity (U _{imp}) without fuse monitoring**	8kV
Rated operating current (I _e)*	160A
Utilisation categories without fuse monitoring**	AC-22B (690V) AC-23B (400V) AC-23B (500V 125A)
Conditional rated short-circuit current***	50kA
For NH fuse links in acc. with IEC 60269-2 with power losses per phase up to	12W
* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.	
** Fuse monitoring U _e , U _i 400V AC, U _{imp} 4kV, level of soiling: 2 (mains connections)	
*** Type tested with fuses of characteristic gL/gG.	

for screwing onto drilled busbars, screw M12

Pilot switch for lid position indication:

2 (changeover) switches can be used

Rated operating voltage (rated operating current) 250V AC (5A), 30V DC (4A)

Electronic fuse monitoring:

2 LEDs

with latching properties or remote reset, programmable using

2 changeover switches

2 x Cu 2.5mm² solid conductors, DIN 46 288 or

2 x Cu 1.5mm² stranded conductors with sleeves, DIN 46 228-1/-2/-3

The internal resistance of the measuring needle lies above the MOhm level and thereby meets

VDE requirements regarding contact voltage (>1000 Ohm/V)

To release turn off the upstream main switch.

Circuit diagram on page 9/25

QUADRON®100Energy NH fuse block

100mm-System

3-pole

Up to 160A

Connection below and above.

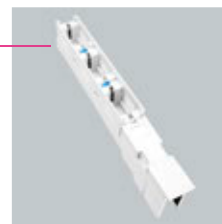
Busbar contact:

- for fixing to drilled busbars, M8 screw
- undrilled assembly clamp locks

Connection contacts:

- prism connection terminals Cu, Al* 16 - 70mm² s(r), s(s), f +AE

* Connections with aluminium conductors are not maintenance-free (see page 8/2).



QUADRON®185Power NH fuse block

185mm-System power

3-pole

For NH fuse links in acc. with IEC 60269-2 Size NH 00, 1,2,3.

For screwing onto drilled busbars.

Optional mounting on undrilled busbars.

Cable connections at bottom.

Shock protection.

Connection space covers.

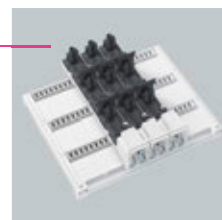
Busbar contact with screws:

Screw M12.

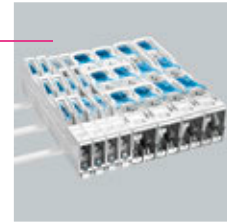
drill – less contact with clamp bracket.

busbars (10mm thick), profile bars.

Short-circuit capability up to 50kA with fuse links gL/gG.



QUADRON®185Power
NH in-line fuse disconnectors



VDE 0660 Part 107 / EN 60947-3 / IEC 60947-3

1 and 3-pole switching

For NH fuse links in acc. with IEC 60269-2 Size NH 00, 1, 2, 3.

Mounting onto a 185mm system by screwing down onto drilled busbars, M 8 screw with Size 00 or M12 screw Sizes 1 - 3.

Optionally drill-free with clamp for busbars (10mm thick) and section busbars.

Turning the strip base for top or bottom cable connections.

Touch safe covers with fuse insertion guide.

Touch-safe protection even with the switch covers opened and in the parking position.

Fuse links mechanically locked in switch covers.

Degree of protection (front) IP 20, the fitting determines the protection degree at the connection.

Inspection openings in the switch covers of the self-closing type.

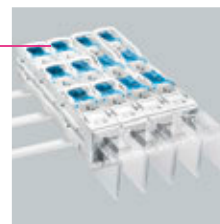
Terminal space cover (accessory) for additional shock protection.

Conductor terminals:

Size	Screw terminal	Direct connection terminals Cu and Al*	V-direct connection terminals Cu and Al*	Box terminal	Clamp resp. prism connection	Clamp/prism clamping space for flat copper conductor Cu
00	M8 70mm ² **	–	–	1 x 1.5 - 70mm ²	1 x 10 - 70mm ² rm, sm, f, f+AE 1 x 95mm ² rm, sm, f	12 x (1 - 10)mm
1	M12 2 x 185mm ² - 240mm ² **	1 x 35 - 150mm ² sm 1 x 50 - 185mm ² se 1 x 35 - 70mm ² rm 1 x 50mm ² re Md 32 - 40Nm 2 x 35 - 150mm ² sm 2 x 50 - 185mm ² se 2 x 35 - 70mm ² rm 2 x 35 - 50mm ² re Md 18 - 24Nm	1 x 70 - 240mm ² sm 1 x 95 - 240mm ² se	–	–	–
2	M12 2 x 185mm ² - 240mm ² **	1 x 35 - 150mm ² sm 1 x 50 - 185mm ² se 1 x 35 - 70mm ² rm 1 x 50mm ² re Md 32 - 40Nm 2 x 35 - 150mm ² sm 2 x 50 - 185mm ² se 2 x 35 - 70mm ² rm 2 x 35 - 50mm ² re Md 18 - 24Nm	1 x 70 - 240mm ² sm 1 x 95 - 240mm ² se	–	–	–
3	M12 2 x 185mm ² - 240mm ² **	1 x 35 - 150mm ² sm 1 x 50 - 185mm ² se 1 x 35 - 70mm ² rm 1 x 50mm ² re Md 32 - 40Nm 2 x 35 - 150mm ² sm 2 x 50 - 185mm ² se 2 x 35 - 70mm ² rm 2 x 35 - 50mm ² re Md 18 - 24Nm	1 x 120 - 400mm ² rm 1 x 185 - 240mm ² sm 1 x 185 - 300mm ² se	–	–	–

* not maintenance-free when aluminium conductors are used (see page 8/2)

** copper conductor for associated rated currents in compliance with IEC/EN 60947-1

QUADRON®185Power
NH in-line fuse switch disconnectors


Size	00	1	2	3
Type of current	AC (50Hz)	AC (50Hz)	AC (50Hz)	AC (50Hz)
Rated operating voltage (U_e)**	690V AC	690V AC	690V AC	690V AC
Rated insulation voltage (U_i)**	1000V	1000V	1000V	1000V
Rated surge withstand capacity (U_{imp}) without fuse monitoring**	8kV	8kV	8kV	8kV
Rated operating current (I_e)*	160A	250A	400A	630A
Utilisation categories without fuse monitoring**	AC-22B (160A/500V) AC-21B (125A/690V)	AC-23B (250A/400V) AC-22B (250A/690V) AC-21B (250A/690V)	AC-23B (400A/400V) AC-22B (400A/690V) AC-21B (400A/690V)	AC-23B (630A/400V) AC-22B (630A/400V) AC-21B (630A/400V)
Conditional rated short-circuit current, 3-pole switching***	100kA/500V 100kA/690V	120kA/500V 100kA/690V	120kA/500V 100kA/690V	80kA/500V 80kA/690V
Conditional rated short-circuit current, 1-pole switching***	100kA/500V 100kA/690V	120kA/500V 100kA/690V	120kA/500V 100kA/690V	80kA/500V 80kA/690V
For NH fuse links VDE 0636-2**** with power losses per phase up to	12W	23W	34 W	48W

* When continuously operating a number of devices next to each other, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.
Keep 50mm away from the earthed parts at the top and 25mm at the side.

** Fuse monitoring U_e , U_i 400V AC, U_{imp} 4kV, VG 2 (grid connections)

*** Type verification test with fuse links Operating Class gL/gG

**** Size 1 NH fuse links deployable in Size 2 QUADRON®185Power

Size 3 as double NH-fuse breaker 1250A.

3-pole, 690V AC, 2 x 630A, 3-pole switching, rated conditional short-circuit current up to 80kA.

With fuses gL/gG, Utilisation Categories AC20B (690V).

Conductor connections: four M12 screw clamp connections each up to 240mm².

Electronic fuse monitoring:

2 LED displays

Storage property and remote reset, programmable.

2 change-over contacts.

2 x Cu 2.5mm² solid, DIN 46288 or 2 x Cu 1.5mm² flexes with sleeve, DIN 46228-1/-2/-3.

Internal resistance of the measurement paths in the MOhm range, VDE provisions in respect of contact voltage (>1000 Ohm/V) are complied with.

To isolate, switch off upstream mains switch!

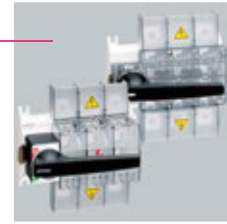
Circuit diagram on page 9/25.

Signalling switch for lid positioning indication:

3 switches (change-over contacts) can be used with sizes 00, 1, 2, 3.

Rated operating voltage (rated operating current) 250V AC (5A), 30V DC (4A).

CAPUS® Panel
Switch disconnecter up to 800A
Switch disconnecter for NH fuse up to 630A



VDE 0660 part 107 / EN 60947-3 / IEC 60947-3
 screwing onto mounting plate
 For NH fuse links in acc. with IEC 60269-2 Size NH 00, 1,2,3.
 3-pole switching, double-breaking main contacts
 operator-independent switching; visible air gap
 Front shock protection with terminal cover

Switch disconnecter up to 800A IP40 degree of protection (front).
 Switch disconnecter for NH fuse 630A IP20 degree of protection (front).
 Degree of protection near terminal depends on installation
 voltage-free fuse replacement

Conductor terminals:

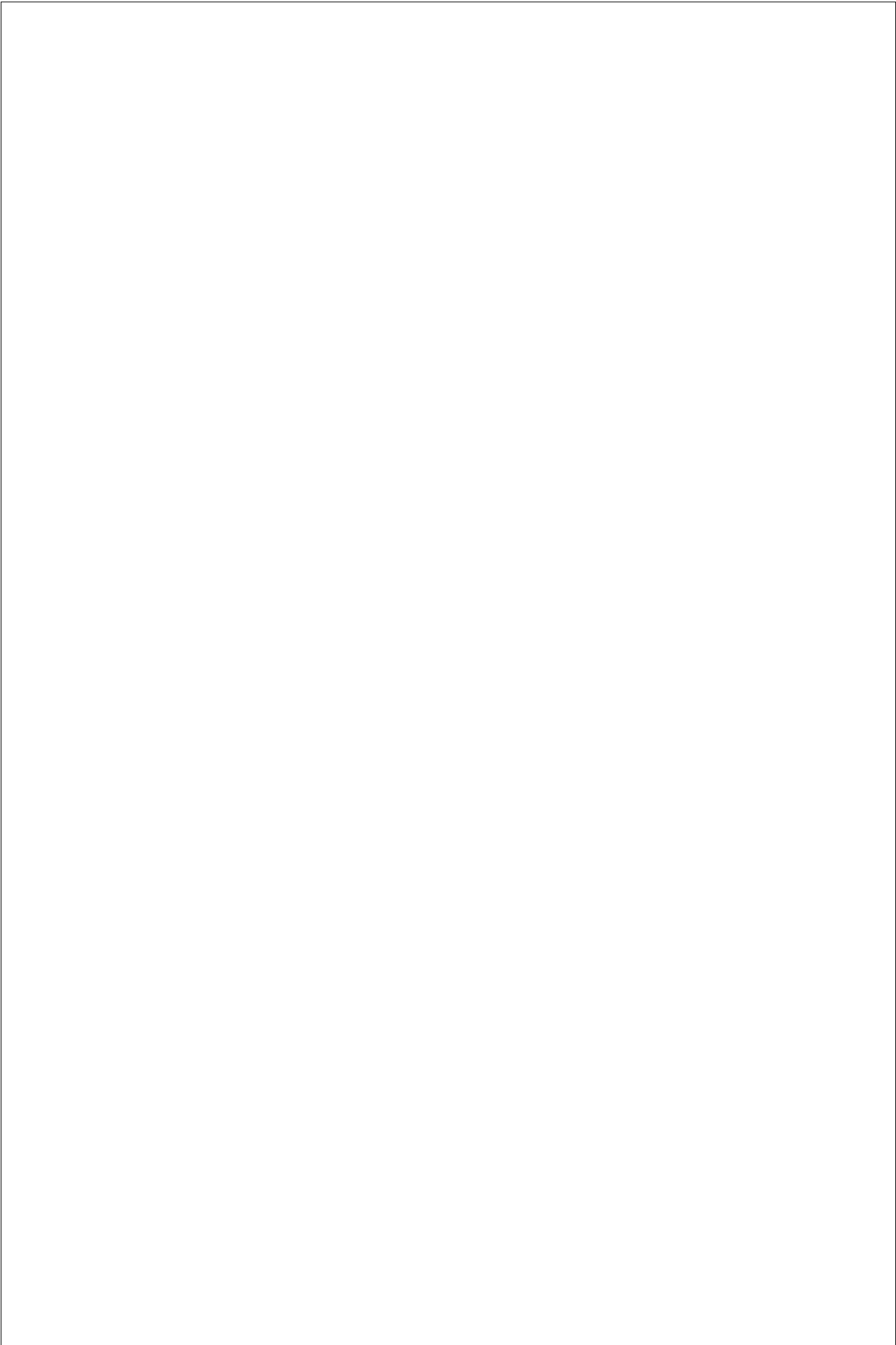
Size	Screw terminal	Clamp-type terminal	Terminal space	Wedge-type terminal Cu and Al*
LTS-250	M10	fl. Cu	14 x 1 - 9	70 - 120mm ² s(r), f, f + AE**
LTS-400	M10	fl. Cu	18 x 1 - 10	70 - 150mm ² s(r), f, f + AE** Md 6 - 8Nm
LTS-630	M10	fl. Cu	21 x 1 - 13	120 - 240mm ² s(r), f, f + AE**
LTS-800	M12	fl. Cu	25 x 1 - 13	
LTS-F160	M8 Md 14Nm +/- 10%	Cu 2.5 - 70mm ² s(r), f, fl. Cu Md 3Nm	12 x 1 - 10	
LTS-F250	M10	fl. Cu	18 x 1 - 10	70 - 150mm ² s(r), f, f + AE**
LTS-F400	M10	fl. Cu	21 x 1 - 13	120 - 240mm ² s(r), f, f + AE**
LTS-F630	M12	fl. Cu	25 x 1 - 13	

* Not maintenance-free when aluminium conductors are used (see page 8/2).
 ** Reducing the maximum conductor cross-sections may be required

Covers for door and permanent mounting
 not lockable, IP 64 degree of protection.
 Triple lockable, degree of protection IP54.

Pilot switch for switch position indicator
 Rated operating voltage (rated operating current) 250V AC (4A), 400V AC (3A)

CAPUS®Panel Switch disconnecter up to 800A				
Size	250A	400A	630A	800A
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)
Max. rated voltage (U_e)	500V AC	500V AC	500V AC	500V AC
Rated insulation voltage (U_i)	1000V	1000V	1000V	1000V
Rated surge withstand capacity (U_{imp})	12kV	12kV	12kV	12kV
Conv. therm. current in the case (I_{the}) horizontal installation (side-by-side pole)* vertical installation (vertical pole)**	250A 250A	400A 400A	630A 630A	800A 800A
Max. rated operating current (I_e)*	250A	400A	630A	800A
Utilisation categories	AC-23B (250A/415V) AC-23A (200A/500V) AC-22B (250A/500V)	AC-23B (400A/500V)	AC-23B (630A/500V)	AC-23B (800A/500V)
Mechanical durability (switch clearance)	7000	7000	7000	2500
Rated short circuit making capacity (I_{cm})	20kA	30kA	30kA	40kA
Short-circuit withstand capacity (I_{cw})	7kA - 1s	15kA - 1s	15kA - 1s	20kA - 1s
Conditional rated short-circuit current with gG fuses	80/50kA size 1 - 200/250A - 500V	80kA size 3 - 630A - 500V	80kA size 3 - 630A - 500V	50kA size 4 - 800A - 500V
* Metal casing, interior dimensions HxWxD [mm]: LTS-250 (encapsulated) 252 x 378 x 302, LTS-400 (encapsulated) 504 x 378 x 302, LTS-630 (ventilated) 504 x 378 x 302, LTS-800 (ventilated) 756 x 378 x 428				
** Metal casing, dimensions [mm]: LTS-250 (encapsulated) 300 x 400 x 200, LTS-400 (encapsulated) 500 x 500 x 300, LTS-630 (encapsulated) 500 x 500 x 300, LTS-800 (encapsulated) 600 x 600 x 400				
*** When continuously operating a number of devices, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.				
CAPUS®Panel Switch disconnecter for NH fuse up to 630A				
Size	160A	250A	400A	630A
Fuse size	NH 00	NH 1	NH 2	NH 3
Type of current	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)	AC (50 - 60Hz)
Max. rated voltage (U_e)	690V AC	690V AC	690V AC	690V AC
Rated insulation voltage (U_i)	1000V	1000V	1000V	1000V
Rated surge withstand capacity (U_{imp})	8kV	8kV	8kV	12kV
Conv. therm. current in the case (I_{the}) horizontal installation (side-by-side pole)* vertical installation (vertical pole)**	160A 145A	250A 250A	400A 315A	630A 470A
Max. rated operating current (I_e)*	160A	250A	400A	630A
Utilisation categories	AC-23A (160A/500V) AC-23A (125A/690V) AC-22A (160A/690V)	AC-23B (250A/690V)	AC-23B (400A/690V)	AC-23B (630A/690V)
Mechanical durability (switch clearance)	7000	7000	7000	4000
Conditional rated short-circuit current with gG fuses	80kA size 00 - 160A - 690V	80kA size 1 - 250A - 690V	80kA size 2 - 400A - 690V	80kA size 3 - 630A - 690V
For NH fuse links in acc. with IEC 60269-2 with power losses per phase up to	12W	23W	34W	48W
* Metal casing, interior dimensions HxWxD [mm]: LTS-F160 (encapsulated) 252 x 378 x 302, LTS-F250 (encapsulated) 504 x 378 x 302, LTS-F400 (ventilated) 504 x 378 x 302, LTS-F630 (ventilated) 756 x 378 x 428				
** Metal casing, dimensions [mm]: LTS-F160 (encapsulated) 500 x 500 x 300, LTS-F250 (encapsulated) 500 x 500 x 300, LTS-F400 (encapsulated) 500 x 500 x 300, LTS-F630 (encapsulated) 600 x 600 x 400				
*** When continuously operating a number of devices, pay attention to the rated loading factor in acc. with IEC/EN 61439-2, Table 101.				



CAPUS® Panel
Switch disconnecter 3-pole up to 3150A ,
Switch disconnecter 3-pole + N up to 3150A

To IEC/EN 60947-3		125A	160A	200A	250A	315A	400A	630A
Thermal current (I_{th}) [A]	40°C	125	160	200	250	315	400	630
	50°C	125	160	200	250	315	400	630
	65°C	90	110	140	175	220	280	440
Rated insulation voltage (U_i) [V]		1000	1000	1000	1000	1000	1000	1000
Electric strength (50Hz, 1min) [V]		4000	4000	4000	5000	5000	5000	8000
Rated surge withstand capacity (U_{imp}) [kV]		8	8	8	8	8	8	12
Nominal operating current AC (I_e) [A]	AC-23A (U_e 400V)	125	160	160	160	315	400	630
	AC-23A (U_e 500V)	100	125	125	125	250	315	500
	AC-23A (U_e 690V)	80	80	80	80	160	160	315
	AC-20A (U_e 800V)	125	160	200	250	315	400	630
	AC-20A (U_e 1000V)	125	160	200	250	315	400	630
Working capacity AC ¹ (P_e) [kW]	AC-23A (3 x 230V)	39.8	50.9	50.9	50.9	100.3	127.4	200.7
	AC-23A (3 x 400V)	69.2	88.6	88.6	88.6	174.5	221.7	349.1
	AC-23A (3 x 500V)	69.2	86.6	86.6	86.6	173.2	218.2	346.4
	AC-23A (3 x 690V)	76.4	76.4	76.4	76.4	152.9	152.9	301.1
Reactive power [kVAR]	400V, $\sin \phi = 0.65$	56.2	72.0	72.0	72.0	141.8	180.1	283.7
Rated breaking capacity [A]	400V, $\cos \phi = 0.35 - 0.45$	1000	1280	1280	1280	2520	3200	5000
Rated making capacity [A]	400V, $\cos \phi = 0.45$	1250	1600	1600	1600	3150	4000	6300
Short-circuit behaviour		125A	160A	200A	250A	315A	400A	630A
Conditional short-circuit current (peak value) ² (I_{cm}) [kA]		13	13	13	13	20	20	26
Rated short-time withstand current (1s) (I_{cw}) [kA] rms		7	7	7	7	12	12	16
Rated current in the event of short-circuit (rms value) ³ [kA] rms		100	100	100	100	100	100	100
Max. limited rated peak current [kA]		17	20	20	20	33	33	39
Max. power dissipation (I^2t) [A^2s] ($\times 10^3$)		55	198	198	198	1000	1000	1600
Mechanical service life without load ⁴ [switching operations]		30000	30000	30000	30000	20000	20000	10000
Mechanical service life with load ⁵ AC-23 (400V) [switching cycles]		1000	1000	1000	1000	1000	1000	1000
Weight (3-pole) [kg]		0.85	0.85	0.9	0.9	1.7	1.9	4.2
Weight (3-pole+N) [kg]		1.0	1.0	1.0	1.0	1.9	2.1	4.5
Types of connection		125A	160A	200A	250A	315A	400A	630A
Cable (Cu) [mm^2]		95	95	120	120	185	240	2x240
Laminated copper busbars (thickness/width) [mm]		5/25	5/25	5/30	5/30	7/25	7/40	2x5/40
Tightening torque [Nm]		4/13 ⁵	4/13 ⁵	13/18	13/18	18	24	24

¹ Values for guidance only. The respective current depends on the motor manufacturer.

² Without limiting protective device (short-circuit duration: 50 ... 100ms).

³ With protective device, which limits the peak current and power dissipation to the stated values.

⁴ AC-22B.

⁵ Terminal/blade-type connection.

You can find further voltages and switchgear characteristics at www.woehner.com

To IEC/EN 60947-3		800A	1250A	1600A	1800A	2000A	2500A	3150A
Thermal current (I_{th}) [A]	40°C	800	1250	1600	1800	2000	2500	3150
	50°C	800	1250	1600	1800	2000	2500	3150
	65°C	560	875	1600	1600	2000	2000	2200
Rated insulation voltage (U_i) [V]		1000	1000	1000	1000	1000	1000	1000
Electric strength (50Hz, 1min) [V]		8000	8000	10000	10000	10000	10000	10000
Rated surge withstand capacity (U_{imp}) [kV]		12	12	12	12	8	8	8
Nominal operating current AC (I_e) [A]	AC-23A (U_e 400V)	630	800	1000	1250 ⁴	1600	1800	2000 ⁴
	AC-23A (U_e 500V)	500	800	900	1000 ⁴	1250	1600 ⁴	1600 ⁴
	AC-23A (U_e 690V)	315	500	630	800 ⁴	1000	1000	1000
	AC-20A (U_e 800V)	800	1250	1600	1800	2000	2500	3150
	AC-20A (U_e 1000V)	800	1250	1600	1800	2000	2500	3150
Working capacity AC ¹ (P_e) [kW]	AC-23A (3 x 230V)	200.7	254.9	318.6	398.3	509.9	573.6	637.3
	AC-23A (3 x 400V)	349.1	443.4	554.2	692.8	886.8	997.6	1108.5
	AC-23A (3 x 500V)	346.4	554.2	623.5	692.8	866.0	1108.5	1108.5
	AC-23A (3 x 690V)	301.1	478.0	602.3	764.8	956.0	956.0	956.0
Reactive power [kVAR]	400V, $\sin \phi = 0.65$	283.7	360.2	450.3	562.9	720.5	810.5	900.6
Rated breaking capacity [A]	400V, $\cos \phi = 0.35 - 0.45$	5000	6400	8000	10000	12800	14400	16000
Rated making capacity [A]	400V, $\cos \phi = 0.45$	6300	8000	10000	12500	16000	18000	20000
Short-circuit behaviour		800A	1250A	1600A	1800A	2000A	2500A	3150A
Conditional short-circuit current (peak value) ² (I_{cm}) [kA]		26	60	75	75	100	100	100
Rated short-time withstand current (1s) (I_{cw}) [kA] rms		16	25	50	50	50	50	50
Rated current in the event of short-circuit (rms value) ³ [kA] rms		100	72	–	–	–	–	–
Max. limited rated peak current [kA]		39	55	–	–	–	–	–
Max. power dissipation (I^2t) [A ² s] ($\times 10^3$)		1600	4900	–	–	–	–	–
Mechanical service life without load ⁵ [switching operations]		10000	10000	10000	10000	–	2500	2500
Mechanical service life with load ⁵ AC-23 (400V) [switching cycles]		500	500	500	500	–	500	500
Weight (3-pole) [kg]		4.2	7.0	18.5	18.5	–	50.0	50.0
Weight (3-pole+N) [kg]		4.5	7.6	20.8	20.8	–	58.0	58.0
Types of connection		800A	1250A	1600A	1800A	2000A	2500A	3150A
Cable (Cu) [mm ²]		2x240	2x300	–	–	–	–	–
Laminated copper busbars (thickness/width) [mm]		2x5/40	2x10/50	2x7/80	2x7/80	–	3x12/80	3x12/100
Tightening torque [Nm]		24	45	55	55	–	45	45

¹ Values for guidance only. The respective current depends on the motor manufacturer.

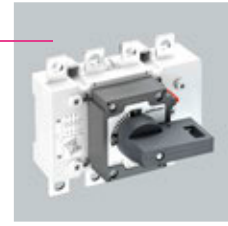
² Without limiting protective device (short-circuit duration: 50 ... 100ms).

³ With protective device, which limits the peak current and power dissipation to the stated values.

⁴ AC-22B.

⁵ Terminal/blade-type connection.

You can find further voltages and switchgear characteristics at www.woehner.com



CAPUS®Panel
Change-over switch 3-pole up to 1000A,
Change-over switch 3-pole + N up to 1000A



To IEC/EN 60947-3		125A	160A	200A	250A	315A	400A	630A	800A	1000A
Thermal current (I _{th}) [A]	40°C	125	160	200	250	315	400	630	800	1000
	in control cabinet	–	–	–	250	315	400	630	800	1000
Rated insulation voltage (U _i) [V]		1000	1000	1000	1000	1000	1000	1000	1000	1000
Electric strength (50Hz, 1min) [V]		4000	4000	4000	6000	6000	6000	8000	8000	8000
Rated surge withstand capacity (U _{imp}) [kV]		8	8	8	8	8	8	12	12	12
Nominal operating current AC (I _e) [A]	AC-23A (U _e 400V)	125	160	160	–	–	–	–	–	–
	AC-23B (U _e 400V)	–	–	–	180	200	250	500	630	1000
	AC-23A (U _e 500V)	100	125	125	–	–	–	–	–	–
	AC-23B (U _e 500V)	–	–	–	150	160	200	315	400	800
	AC-22A (U _e 690V)	100	125	160	200	250	315 ⁴	500	630 ⁴	800
	AC-23A (U _e 690V)	80	80	–	–	–	–	–	–	–
	AC-23B (U _e 690V)	–	–	–	100	125	160	250	315	630
	AC-20A (U _e 800V)	125	160	200	250	315	400	630	800	1000
Working capacity AC ¹ (P _e) [kW]	AC-23A (3 x 400V)	69.2	88.6	88.6	90.0	100.0	125.0	250.0	315.0	501.0
	AC-23A (3 x 500V)	69.2	86.6	86.6	94.0	100.0	125.0	197.0	250.0	501.0
	AC-23A (3 x 690V)	76.4	76.4	76.4	86.0	108.0	138.0	216.0	272.0	544.0
Reactive power [kVAR]	400V	–	–	–	1040	131.0	166.0	261.0	333.0	416.0
Rated breaking capacity [A]	AC-23 400V	–	–	–	1440	1600	2000	4000	4000	8000
Rated making capacity [A]	AC-23 400V	–	–	–	1800	2000	2500	5000	5000	10000
Short-circuit behaviour										
Short-circuit behaviour		125A	160A	200A	250A	315A	400A	630A	800A	1000A
Conditional short-circuit current (peak value) ² (I _{cm}) [kA]		13	13	13	12	12	12	20	20	32
Rated short-time withstand current (1s) ² (I _{cw}) [kA] rms		7	7	7	8	8	8	13	13	25
Mechanical service life without load [switching operations]		30000	30000	30000	10000	10000	10000	10000	10000	10000
Mechanical service life with load AC-22A (400V) [switching cycles]		–	–	1000	1000	1000	200	1000	100	500
Operating frequency [cycles per hour]		–	–	–	120	120	60	60	20	20
Tightening torque ³ [Nm]		–	–	–	11/13	11/13	11/13	25/30	25/40	50/62
Weight (3-pole) [kg]		1.8	1.8	1.9	4.8	5	5	11.5	11.9	22.5
Weight (3-pole+N) [kg]		2.1	2.1	2.2	5.3	5.5	5.5	12.6	13.2	25
Types of connection										
Types of connection		125A	160A	200A	250A	315A	400A	630A	800A	1000A
Cable (Cu) [mm ²]		95	95	120	240	240	240	2x240	2x240	–
Laminated copper busbars (thickness/width) [mm]		5/25	5/25	5/30	2x5/30	2x5/30	2x5/30	2x6/45	2x6/45	2x10/60
Tightening torque [Nm]		4/12	4/13	13/18	24	24	24	45	45	55

¹ Values for guidance only. The respective current depends on the motor manufacturer

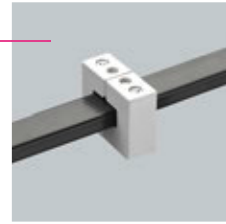
² Without limiting protective device (short-circuit duration: 50 ... 100ms).

³ Typical value for switches that work with continuous current in an uninterrupted state.

⁴ AC-22B.

You can find further voltages and switchgear characteristics at www.woehner.com

Short-circuit withstand capacity diagrams in acc. with IEC/EN 61439-1 for laminated flexible copper busbars

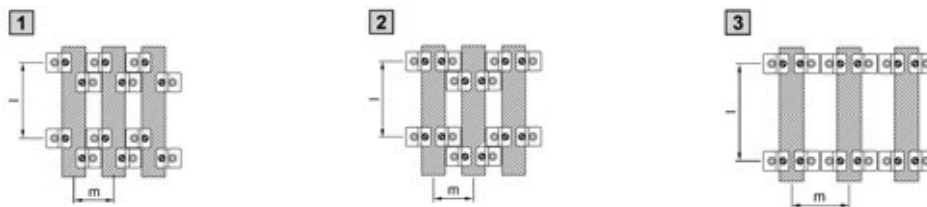


Dimensions	Characteristic curve (short-circuit withstand capacity)	Type of installation*	Part no. Tin-plated	Part no. plain
6 x 15.5 x 0.8	a	1	01 900	01 035
10 x 15.5 x 0.8	a	1	01 091	01 583
5 x 24 x 1	a	1	01 075	01 611
10 x 24 x 1	b	1	01 076	01 184
5 x 32 x 1	b	2/3	01 095	01 612
10 x 32 x 1	c	2/3	01 096	01 613
5 x 40 x 1	b	2/3	01 097	01 614
10 x 40 x 1	c	2/3	01 099	01 615
5 x 50 x 1	b	2/3	01 112	01 060
10 x 50 x 1	c	2/3	01 113	01 509
10 x 63 x 1	d	2/3	01 123	01 510

* Mounting on commercially available standard C-rail

Characteristic curve	Distance between supports (l) mm		Centre distance (m) mm	
	min.	max.	min.	max.
a	150	300	34	60
b	150	350	42	85
c	200	400	51	85
d	200	450	81	100

Type of installation with universal holder



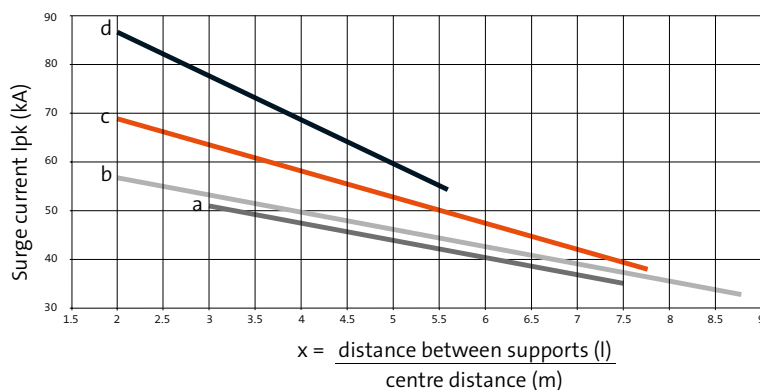
Short-circuit withstand capacity diagram

Basis of testing: IEC/EN 61439-1

Implemented test: Dynamic short-circuit resistance in acc. with IEC/EN 61439-1.

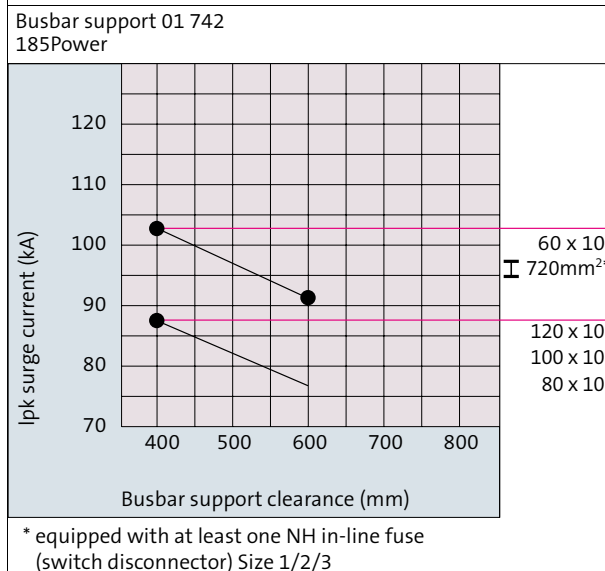
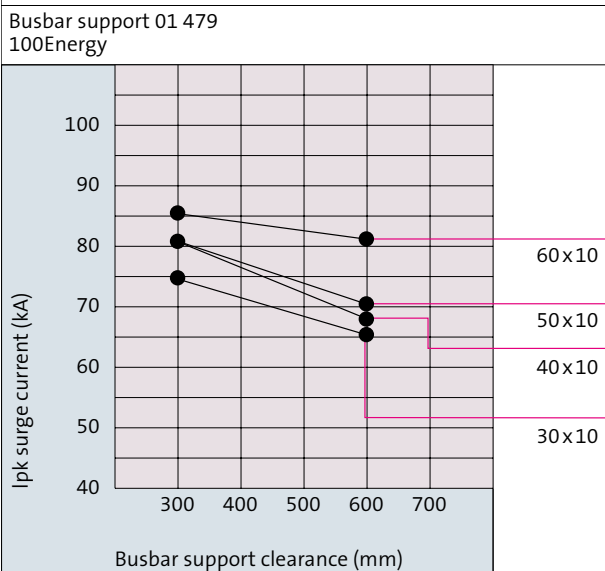
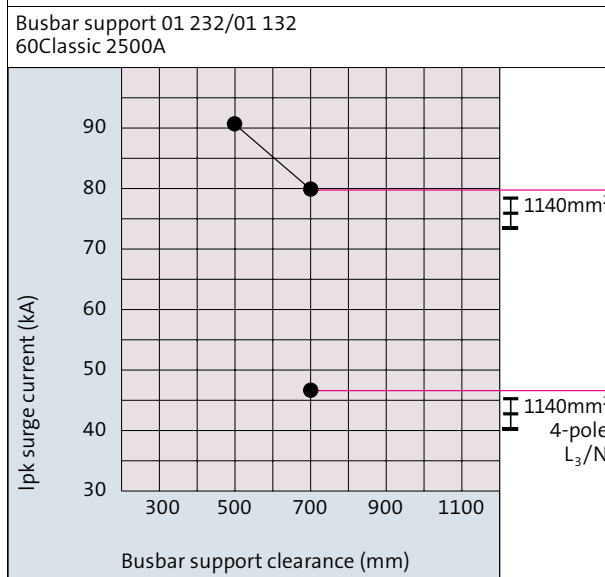
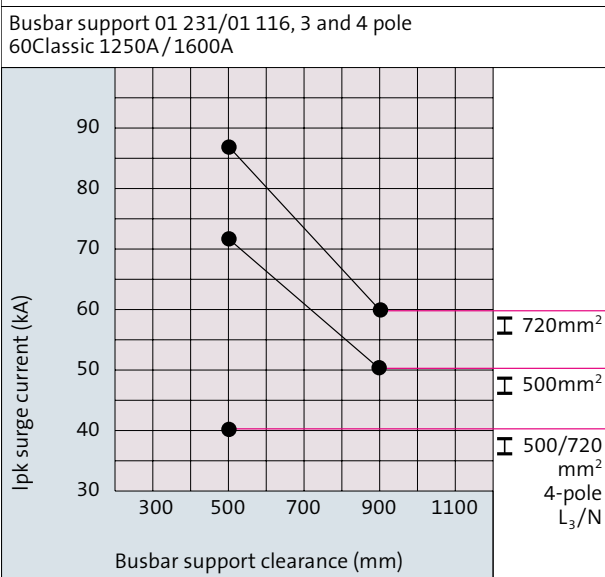
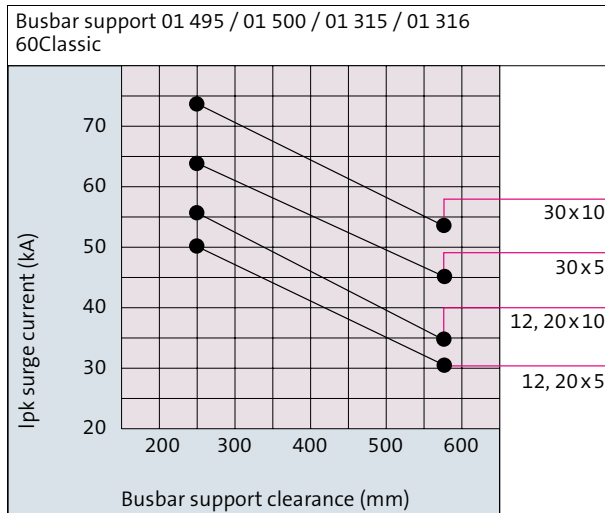
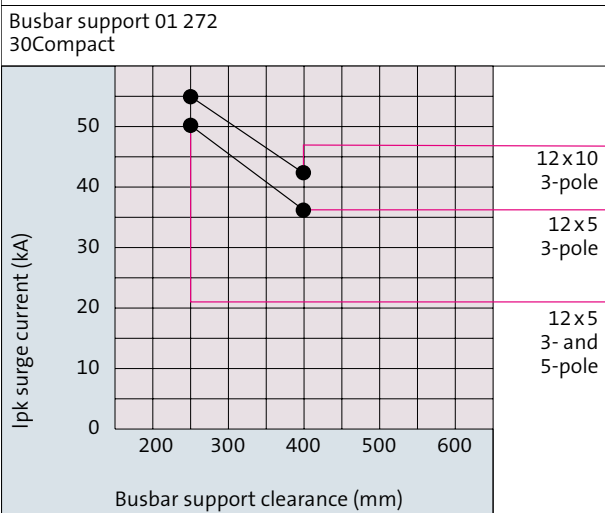
The dimensions for the distance between supports (m) and the centre distance (a) must be within the stated min./max. limits. Using curves a to d and quotients from l/m the permitted surge current I_{pk} can be determined.

The specified installation method must be adhered to.



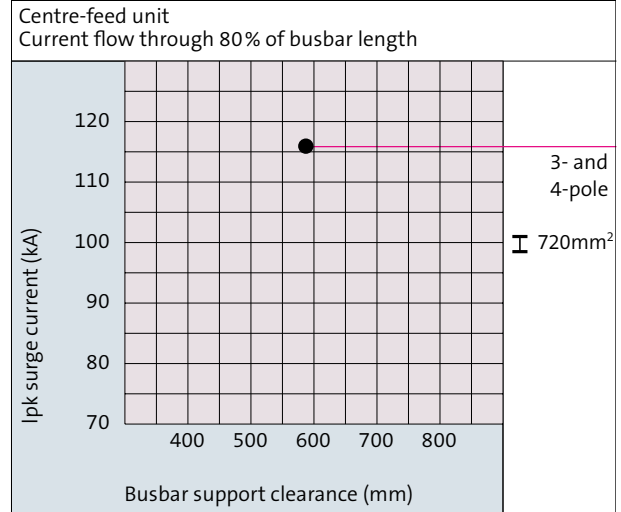
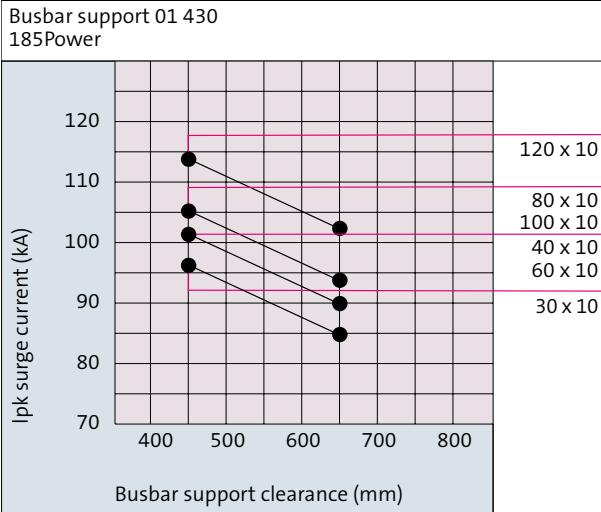
Short-circuit withstand capacity diagrams in acc. with IEC/EN 61439-1 for 60, 100 and 185mm busbar systems

(●) Measured values from type tests



Short-circuit withstand capacity diagrams in acc. with IEC/EN 61439-1 for 85mm busbar systems and central in-feed

(●) Measured values from type tests



Assignment of surge current to effective figure of the short-circuit current IEC/EN 61439-1

Values of factor *n*

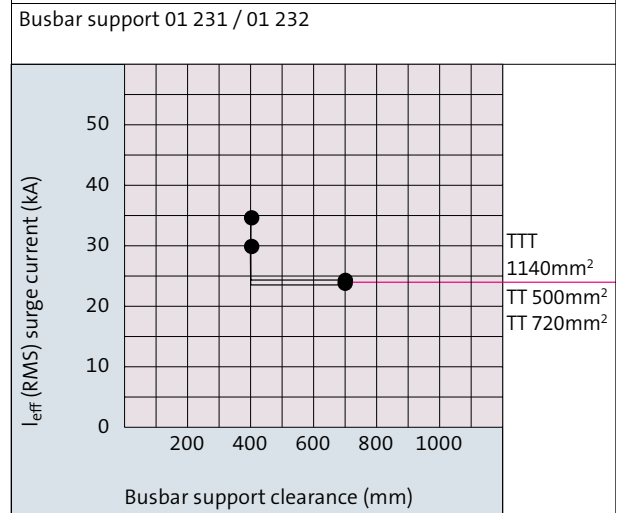
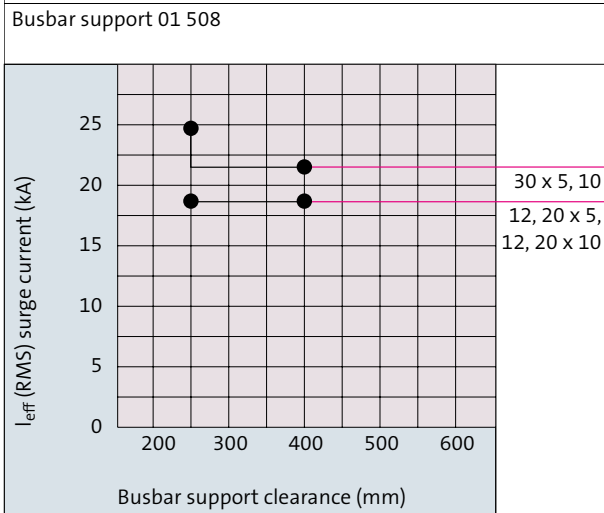
Effective value of the short-circuit current	cos φ	<i>n</i>
/ ≤ 5	0.7	1.5
5 < / ≤ 10	0.5	1.7
10 < / ≤ 20	0.3	2
20 < / ≤ 50	0.25	2.1
50 < /	0.2	2.2

According to Table 7 as per IEC/EN 61439-1 or Table 4 according to IEC/EN 61439-1, the factor *n* is used to determine the ratio between surge current *I_{pk}* and the effective value of the short-circuit current by taking the power factor into account.

See IEC/EN 61439-1 for deviations.

Short-circuit strength diagrams according to UL 845 for 60mm busbar systems

(●) Measured values from type tests



Additional SCCR values in installation instructions 94717
e.g. SCCR 100kA: —□— 500A, 30 x 10, 800mm centre distance

Overview of the applicability of Wöhner products in terms of operating voltage

(only the conditions according to IEC standards are taken into consideration)

All specifications apply for overvoltage category III in accordance with IEC 60439-1 or IEC 61439-1

The applicability for other overvoltage categories can be derived from the rated surge withstand capacity U_{imp} .

The following clearances must be maintained:

Rated surge withstand capacity U_{imp}	Minimum clearance
4kV	3.0mm
6kV	5.5mm
8kV	8.0mm
12kV	14mm

All specifications apply for level of soiling 3 in accordance with IEC 60439-1 or IEC 61439-1

(Wöhner uses insulating parts made from materials in material class IIIa).

The following creepage distances must be maintained:

Rated insulation voltage U_i	Creepage distance
400V AC / DC	6.3mm
500V AC / DC	8.0mm
690V AC / DC	10.0mm
800V AC / DC	12.5mm
1000V AC / DC	16.0mm
1250V DC	20.0mm
1500V DC	25.0mm

The values shown in the table below apply for the Wöhner items themselves.

The user is responsible for maintaining the proper clearances and creepage distances, taking the installation conditions into account.

The maximum permitted power dissipation of the fuse links must be taken into account with components having fuses.

Short circuit data for DC applications is available upon request.

Values for selected items with regard to insulation coordination

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
01 008	690			2000	800	800	2)
01 047	690				1000	1500	2)
01 068	690				1000	1500	2)
01 069	690			1600	800	800	2)
01 070	690			1600	800	800	2)
01 071	690			1600	800	800	2)
01 092	690				1000	1500	2)
01 094	690			630	1000	1500	2)
01 116	690		8		1000	1500	2)
01 132	690		6		1000	1500	2)
01 135	690				1000	1500	2)
01 141	690				1000	1000	2)
01 145	690				1000	1000	2)
01 147	690		6		800	800	
01 162	690		6		800	800	
01 165	690		6		800	800	
01 166	690				1000	1000	2)
01 185	690			1600	800	800	2)
01 186	690			2500	800	800	2)
01 193	690				1000	1000	2)
01 198	690	1000	4	225	1000	1000	

1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.

2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
01 199	690		6		800	800	
01 203	690				1000	1500	2)
01 230	690		8		1000	1500	
01 231	690		8		1000	1500	
01 232	690		8		1000	1500	
01 240	690		6		800	800	
01 243	690		6		800	800	
01 272	690		6		1000	1500	
01 274	690				800	800	2)
01 275	690				800	800	2)
01 284	690				1000	1500	2)
01 285	690				1000	1500	2)
01 287	690				1000	1500	2)
01 289	690				1000	1500	2)
01 290	690				1000	1500	2)
01 292	690				1000	1500	2)
01 295	690				800	800	
01 318	690				1000	1500	2)
01 319	690				1000	1500	2)
01 355	690		6		1000	1500	2)
01 356	690		6		1000	1500	
01 357	690		8		1000	1500	
01 360	690		6		690		
01 361	690		6		690		
01 362	690		6		690		
01 401	690		6		800	800	
01 422	690		8		1000	1500	
01 430	690		8		1000		
01 441	690			1000	1000		
01 442	690			1600	1000		
01 443	690			1600	1000		
01 479	690		6		1000	1500	
01 480	690		8		1000		2)
01 481	690		8		1000		2)
01 484	690		6		1000	1500	
01 485	690		8		1000	1500	
01 495	690		8		1000	1500	
01 498	400	250	6	63	500	250	
01 500	690		8		1000	1500	
01 508	690		8		1000	1500	
01 512	690				1000	1500	2)
01 513	690			1600	800	800	2)
01 514	690				1000	1500	2)
01 537	690		6		800	800	
01 538	690		6		800	800	
01 562	690		6	80	1000	1000	
01 563	690		6	80	1000	1000	
01 601	690		6		1000	1500	2)
01 602	690	1000	6		1000	1500	
01 603	690		8		1000	1500	
01 647	400	250	6	63	500	250	
01 747	690				1000	1500	2)
01 748	690				1000	1500	2)
01 749	690				1000	1500	2)
01 753	690		6		800	800	

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- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
01 754	690		6		800	800	
01 759	690				1000	1500	2)
01 760	690			600	1000	1500	2)
01 823	690				1000	1000	2)
01 827	690				1000	1000	2)
01 829	690				1000	1000	2)
01 886	690				1000	1000	2)
01 905	690				1000	1000	2)
01 906	690			1600	800	800	2)
01 907	690			1600	800	800	2)
01 911	690			1600	800	800	2)
01 934	690			1600	800	800	2)
01 935	690			1600	800	800	2)
01 936	690			1600	800	800	2)
01 990	690				1000	1000	2)
03 173	690			160	800	800	2)
03 193	690			160	800	800	2)
03 195	690			250	800	800	2)
03 196	690			250	800	800	2)
03 197	690			630	800	800	2)
03 198	690			630	800	800	2)
03 199	690	440	6	160	800	800	
03 213	690			630	800	800	2)
03 214	600			70	600		
03 215	600			80	600		
03 217	600			100	600		
03 219	600			125	600		
03 220	600			150	600		
03 221	600			175	600		
03 222	600			200	600		
03 224	600			250	600		
03 225	600			300	600		
03 226	600			350	600		
03 227	600			400	600		
03 228	600	300		70	600	300	
03 229	600	300		80	600	300	
03 230	600	300		90	600	300	
03 231	600	300		100	600	300	
03 233	600	300		125	600	300	
03 234	600	300		150	600	300	
03 235	600	300		175	600	300	
03 236	600	300		200	600	300	
03 238	600	300		250	600	300	
03 239	600	300		300	600	300	
03 240	600	300		350	600	300	
03 241	600	300		400	600	300	
03 288	1000	1500	6	250	1000	1500	
03 289	1000	1500	6	250	1000	1500	
03 290	1000	1500	6	250	1000	1500	
03 293	1000	1500	6	600	1000	1500	
03 294	1000	1500	6	600	1000	1500	
03 299	690	440	6	160	800	800	
03 300	690	440	6	250	800	800	
03 301	690	440	6	250	800	800	
03 316	690	440	6	125	800	800	

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
03 350	690	440	6	160	1000	1000	2)
03 351	690	440	6	160	800	800	
03 354	690	440	6	160	1000	1000	2)
03 355	690	440	6	160	800	800	
03 369	690	440	6	160	1000	1000	
03 370	690	440	6	160	1000	1000	
03 384	690	440	6	250	800	800	
03 518	690	440	6	400	800	800	
03 519	690			160	800	800	2)
03 520	690	440	6	160	800	800	
03 587	690	440	6	160	800	800	
03 599	690	440	6	400	800	800	
03 601	690	440	6	250	800	800	
03 620	690			160	800	800	2)
03 654	690	440	6	160	800	800	
03 656	690	440	6	160	800	800	
03 657	690			250	800	800	2)
03 668	690			160	800	800	2)
03 693	690	440	6	400	800	800	
03 757	690			400	800	800	2)
03 758	690	440	6	160	1000	1000	2)
03 759	690	440	6	160	800	800	
03 760	690	440	6	160	1000	1000	2)
03 761	690	440	6	160	800	800	
03 762	690	440	6	250	1000	1000	2)
03 763	690	440	6	250	800	800	
03 765	690	440	6	250	800	800	
03 766	690	440	6	400	1000	1000	2)
03 767	690	440	6	400	800	800	
03 768	690	440	6	630	1000	1000	2)
03 769	690	440	6	630	800	800	
03 790	690	440	6	630	800	800	
03 795	690	440	6	400	800	800	
05 188	690			63	800	800	2)
05 779	600	600			600	600	2)
05 780	1500	1500			1500	1500	2)
05 781	1500	1500			1500	1500	2)
05 782	1500	1500			1500	1500	2)
05 783	2000	2000			2000	2000	2)
05 784	2000	2000			2000	2000	2)
05 786	2000	2000			2000	2000	2)
05 787	2000	2000			2000	2000	2)
05 788	2000	2000			2000	2000	2)
05 789	3000	3000			3000	3000	2)
05 790	2000	2000			2000	2000	2)
05 791	2000	2000			2000	2000	2)
05 792	1500	1500			1500	1500	2)
05 800	1500	1500			1500	1500	2)
05 801	1500	1500			1500	1500	2)
05 802	1500	1500			1500	1500	2)
30 322	690				800	800	
30 473	690				800	800	
31 008	500			1		250	
31 009	500			8		250	
31 010	500			12		250	

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- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
31 011	690			2		250	
31 012	400			80	500		
31 014	690	1000	4	80	1000	1000	2)
31 017	690			6		250	
31 024	400		4	80	1000	1000	2)
31 039	690		4	115	1000	1000	
31 057	690	1000	4	130	1000	1000	2)
31 101	690	1000	4	80	1000	1000	2)
31 110	690		6	32	800		1)
31 111	690		6	32	800		1)
31 112	690		6	32	800		1)
31 113	690		6	32	800		1)
31 114	690		6	32	800		1)
31 115	690		6	50	800		1)
31 116	690		6	50	800		1)
31 117	690		6	50	800		1)
31 118	690		6	50	800		1)
31 119	690		6	50	800		1)
31 120	690		6	100	800		1)
31 121	690		6	100	800		1)
31 122	690		6	100	800		1)
31 123	690		6	100	800		1)
31 124	690		6	100	800		1)
31 130	690		6	32	690		1)
31 132	690		6	32	690		1)
31 133	690		6	32	690		1)
31 135	690		6	50	690		1)
31 138	690		6	50	690		1)
31 140	690		6	100	690		1)
31 143	690		6	100	690		1)
31 158	400	110	6	63	800	110	1)
31 168	690		6	50	800		1)
31 171	690		6	100	800		1)
31 173	500		6	25	500	500	
31 174	500	500	6	25	500	500	
31 175	500	500	6	63	690	600	
31 176	500	500	6	63	690	600	
31 182	500			2		250	
31 183	500			4		250	
31 184	500			6		250	
31 185	500			10		250	
31 186	500			16		250	
31 187	500			20		250	
31 188	500			25		250	
31 189	400			32		200	
31 190	690			10		250	
31 191	690			16		250	
31 192	690			20		250	
31 193	690			25		250	
31 194	500			32		250	
31 195	500			40		250	
31 196	400			50		200	
31 198	690			32		250	
31 199	690			40		250	
31 200	690			50		250	

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
31 201	690			63		250	
31 202	500			80		250	
31 203	500			100		250	
31 204	400			125		200	
31 232	690	110	6	32	800	110	1)
31 275	690		6	32	800		1)
31 276	690		6	32	800		1)
31 277	690		6	32	800		1)
31 278	690		6	50	800		1)
31 279	690		6	50	800		1)
31 280	690		6	50	800		1)
31 281	690		6	100	800		1)
31 282	690		6	100	800		1)
31 283	690		6	100	800		1)
31 284	600	600		30	600	600	
31 285	600	600		30	600	600	
31 286	400	250	6	16	400	250	
31 287	600	600		30	600	600	
31 288	400	250	6	16	400	250	
31 291	400	250	6	63	400	250	
31 293	400	250	6	63	400	250	
31 295	600	600		30	600	600	
31 296	600	600		30	600	600	
31 297	600	600		30	600	600	
31 298	600	600		30	600	600	
31 299	600	600		30	600	600	
31 300	600	600		30	600	600	
31 301	400	250	6	16	400	250	
31 302	400	250	6	16	400	250	
31 303	400	250	6	63	400	250	
31 306	400	250	6	63	400	250	
31 307	400	65	6	63	500	250	1)
31 308	400	65	6	63	500		1)
31 309	400		4	80	1000	1000	2)
31 311	400		4	80	1000	1000	2)
31 313	400	130	6	63	500	250	1)
31 314	400	130	6	63	500		1)
31 315	400	130	6	63	500		1)
31 323	600			10	600		
31 324	600	200		15	600	200	
31 325	600	200		20	600	200	
31 326	600	200		25	600	200	
31 327	600	200		30	600	200	
31 333	600	300		1	600	300	
31 338	600	300		2	600	300	
31 342	600	300		3	600	300	
31 345	600	300		4	600	300	
31 349	600	300		6	600	300	
31 351	600	300		8	600	300	
31 353	600	300		10	600	300	
31 354	600	300		12	600	300	
31 355	600	300		15	600	300	
31 357	600	300		20	600	300	
31 358	600	300		25	600	300	
31 359	600	300		30	600	300	

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
31 360	600	300		35	600	300	
31 361	600	300		40	600	300	
31 362	600	300		45	600	300	
31 363	600			50	600		
31 364	600			60	600		
31 366	500			6		250	
31 368	500			10		250	
31 370	500			16		250	
31 371	500			20		250	
31 372	500			25		250	
31 373	500			32		250	
31 374	500			40		250	
31 385	690			50		250	
31 386	500			63		250	
31 387	500			80		250	
31 441	500	500	6	25	690	500	
31 442	500	500	6	63	690	600	
31 511	600	175		35	600	175	
31 512	600	175		40	600	175	
31 514	600	175		50	600	175	
31 515	600	175		60	600	175	
31 525	400	110	6	63	700	110	1)
31 548	690	1000	4	100	1000	1500	2)
31 549	690		4	100	690		
31 550	690		4	115	1000	1000	
31 554	400	250	6	63	500	250	
31 555	1000	1500	6	32	1000	1500	
31 556	400	65	6	63	500	250	1)
31 557	400	130	6	63	500		1)
31 561	690	600	4	100	690	690	
31 570		1000		30		1000	
31 572		1000		30		1000	
31 574	400		6	63	800		1)
31 575	400		6	63	800		1)
31 578	400		6	63	800		1)
31 579	400		6	63	800		1)
31 588	400		6	63	800		1)
31 918	500	500	6	25	690	500	
31 919	500	500	6	63	690	600	
31 920	600	600		60	600	600	
31 921	600	600		60	600	600	
31 922	600	600		60	600	600	
31 923	600	600		60	600	600	
31 924	600	600		60	600	600	
31 925	600	600		60	600	600	
31 929	72	72		30	72	72	
31 930	72		6	32	72		1)
31 932	600	600		30	600	600	
31 933	600	600		30	600	600	
31 934	600	600		30	600	600	
31 935	400	250	6	63	500	250	
31 936	400	250	6	63	500	250	
31 940	690		6	50	800		1)
31 941	690		6	50	800		1)
31 942	690		6	100	800		1)

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
31 943	690		6	100	800		1)
31 946	500	500	6	25	690	500	
31 947	500	500	6	63	690	600	
31 950	500	500	6	25	690	500	
31 951	500	500	6	63	690	600	
31 954	690	600	6	32	800	800	1)
31 955	690	600	6	32	700	700	1)
31 956	1000	1000	6	20	1000	1000	1)
31 957	690		6	100	800		1)
31 958	600		6	30	600		
31 959	600		6	30	600		
31 960	1000	1000	6	20	1000	1000	1)
31 961	690	600	6	32	800	800	1)
31 963	690	600	6	32	800	800	1)
31 964	690	600	6	32	700	700	1)
31 968	600	600		30	600	600	
31 970	600	600		60	600	600	
31 971		1000	6	30		1000	
31 972	690		6	50	800		1)
31 973		1000	6	30		1000	
31 974		1000	6	30		1000	1)
32 004	690		6	630	800	800	
32 017	690		6	250	800	800	
32 018	690		6	160	800	800	
32 020	690		6	160	800	800	
32 023	690		6	250	800	800	
32 137	690		6	250	800	800	
32 138	690		6	600	800	800	
32 140	690		6	250	800	800	
32 156	690		6	250	800	800	
32 157	690		6	570	800	800	
32 168	690		6	250	800	800	
32 214	690		6	200	800	800	
32 215	690		6	200	800	800	
32 216	690		6	250	800	800	
32 400	690		6	25	800	800	
32 401	690		6	16	800	800	
32 402	690		6	25	800	800	
32 404	690		6	32	800	800	
32 408	690		6	32	800	800	
32 412	690		6	45	800	800	
32 416	690		6	45	800	800	
32 420	690		6		800	800	
32 421	690		6		800	800	
32 425	690		6		800	800	
32 426	690		6		800	800	
32 427	690		6	32	800	800	
32 428	690		6	32	800	800	
32 429	690		6	16	800	800	
32 430	690		6	25	800	800	
32 431	690		6	25	800	800	
32 432	690		6	25	800	800	
32 433	690		6	25	800	800	
32 434	690		6	32	800	800	
32 436	690		6	25	800	800	

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
32 438	690		6	32	800	800	
32 439	690		6	25	800	800	
32 440	690		6	16	800	800	
32 441	690		6	32	800	800	
32 442	690		6	32	800	800	
32 443	690		6	32	800	800	
32 444	690		6	32	800	800	
32 445	690		6	25	800	800	
32 446	690		6	32	800	800	
32 448	690		6	25	800	800	
32 449	690		6	32	800	800	
32 450	690		6	25	800	800	
32 451	690		6	32	800	800	
32 452	690		6	25	800	800	
32 453	690		6	32	800	800	
32 454	690		6	63	800	800	
32 455	690		6	63	800	800	
32 456	690		6	63	800	800	
32 457	690		6	63	800	800	
32 459	690		6	63	800	800	
32 460	690		6	63	800	800	
32 461	690		6	63	800	800	
32 463	690		6	63	800	800	
32 464	690		6	80	800	800	
32 465	690		6	80	800	800	
32 466	690		6	80	800	800	
32 467	690		6	80	800	800	
32 469	690		6	80	800	800	
32 472	690		6	80	800	800	
32 477	690		6		800	800	
32 478	690		6		800	800	
32 484	690		6		800	800	
32 485	690		6		800	800	
32 498	690		6	32	800	800	
32 533	690		6	25	800	800	
32 534	690		6	25	800	800	
32 535	690		6	63	800	800	
32 549	690		6	160	800	800	
32 570	690		6	160	800	800	
32 575	690		6	160	800	800	
32 577	690		6	160	800	800	
32 578	690		6	250	800	800	
32 579	690		6	400	800	800	
32 580	690		6	250	800	800	
32 581	690		6	500	800	800	
32 582	690		6	250	800	800	
32 583	690		6	500	800	800	
32 584	690		6	250	800	800	
32 585	690		6	500	800	800	
32 588	690		6	32	800	800	
32 590	690		6	32	800	800	
32 591	690		6	63	800	800	
32 592	690		6	250	800	800	
32 593	690		6	580	800	800	
32 594	690	440		200	800	800	

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
32 601	690		6	290	800	800	
32 637	690		6	25	800	800	
32 638	690		6	32	800	800	
32 639	690		6	32	800	800	
32 641	690		6	600	800	800	
32 651	690		6	250	800	800	
32 655	690		6	32	800	800	
32 659	690		6	32	800	800	
32 660	690		6	160	800	800	
32 661	690		6	160	800	800	
32 662	690		6	80	800	800	
32 663	690		6	80	800	800	
32 664	690		6	80	800	800	
32 752	690		8	1000	800		
32 753	690		8	1000	800		
32 754	690		8	1000	800		
32 755	690		8	1000	800		
32 756	690		8	1450	800		
32 757	690		8	1250	800		
32 758	690		8	1250	800		
32 759	690		8	1250	800		
32 760	690		8	1000	800		
32 761	690		8	1440	800		
32 762	690		8	1440	800		
32 763	690		8	1440	800		
32 764	690		8	1250	800		
32 765	690		8	1250	800		
32 766	690		8	1000	800		
32 767	690		8	800	800		
32 768	690		8	1440	800		
32 771	690		8	1000	800		
32 772	690		8	1000	800		
32 773	690		8	1000	800		
32 774	690		8	1000	800		
32 775	690		8	1450	800		
32 776	690		8	1250	800		
32 777	690		8	1250	800		
32 778	690		8	1250	800		
32 779	690		8	1440	800		
32 780	690		8	1440	800		
32 781	690		8	1440	800		
32 782	690		8	1440	800		
32 784	690		8	1250	800		
32 785	690		8	1000	800		
32 786	690		8	1000	800		
32 975	690		6	400	800	800	
32 976	690		6	160	800	800	
32 977	690		6	250	800	800	
32 978	690		6	630	800	800	
32 980	690		6	580	800	800	
32 981	690		6	100	800	800	
33 075	690	440	6	160	800	800	1)
33 079	690	440	6	160	800	800	1)
33 087	690		6	250	1000	1000	
33 088	690		6	400	1000	1000	

1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.







2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.







Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
33 089	690		6	630	1000	1000	
33 093	690		8	250	1000	1000	1)
33 094	690		8	400	1000	1000	1)
33 095	690		8	630	1000	1000	1)
33 097	690		8	250	1000	1000	1)
33 098	690		8	400	1000	1000	1)
33 099	690		8	630	1000	1000	1)
33 149	690	250	6	250	690	250	1)
33 150	690	250	6	400	690	250	1)
33 151	690	250	6	630	690	250	1)
33 160	690	250	6	250	690	250	1)
33 161	690	250	6	400	690	250	1)
33 162	690	250	6	630	690	250	1)
33 194	690	440	6	250	800	800	1)
33 198	690	440	6	160	800	800	1)
33 199	690	440	6	160	800	800	1)
33 200	690	440	6	160	800	800	1)
33 201	690	440	6	250	800	800	1)
33 202	690	440	6	400	800	800	1)
33 203	690	440	6	630	800	800	1)
33 206	690	250	2	160	690	250	1)
33 207	690	250	6	160	690	250	1)
33 208	690	250	6	160	690	250	1)
33 216	690	440	6	125	800	800	1)
33 217	690	440	6	125	800	800	1)
33 221	690	440	6	160	800	800	1)
33 222	690	440	6	160	800	800	1)
33 234	690		8	160	800	800	1)
33 235	690		8	160	800	800	1)
33 243	690		8	250	1000	1000	1)
33 244	690		8	400	1000	1000	1)
33 245	690		8	630	1000	1000	1)
33 285	690		4	160	800	250	1)
33 286	690		4	160	800	250	1)
33 308	600	600		400	600	600	
33 311	600	600		400	600	600	
33 321	690		8	1250	1000	1000	1)
33 324	690	250	6	160	690	250	1)
33 325	690	250	2	250	690	250	1)
33 326	690	250	2	400	690	250	1)
33 327	690	250	2	630	690	250	1)
33 328	690	250	2	160	690	250	1)
33 329	690	250	2	160	690	250	1)
33 330	690	250	2	250	690	250	1)
33 331	690	250	2	400	690	250	1)
33 332	690	250	2	630	690	250	1)
33 384	690		6	160	800	800	
33 393	690	440	6	250	800	800	1)
33 394	690	250	6	160	690	250	1)
33 398	690	440	6	160	800	800	1)
33 402	600			100	600	600	
33 403	600			200	600	600	
33 408	600			100	600	600	
33 409	600	600		200	600	600	
33 416	690	440	6	125	800	800	1)



- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Rated operating Voltage U_e (V)		Rated surge capacity U_{imp} (kV)	Rated operating current I_e (A)	Maximum permitted operating voltage (V)		Note
	AC	DC			AC	DC	
33 420	690	250	2	160	690	250	1)
33 421	600			30	600	600	
33 422	600	600		60	600	600	
33 600	690	440	6	250	800	800	1)
33 601	690	440	6	250	800	800	1)
33 602	690	440	6	400	800	800	1)
33 603	690	440	6	630	800	800	1)
33 700	690		8	160	1000		1)
33 701	690		8	250	1000		1)
33 702	690		8	400	1000		1)
33 703	690		8	630	1000		1)
33 704	690		8	160	1000		1)
33 705	690		6	160	1000	1000	
33 706	690		6	250	1000	1000	
33 707	690		6	400	1000	1000	
33 708	690		6	630	1000	1000	
33 715	690		8	160	1000		1)
33 716	690		8	250	1000		1)
33 717	690		8	400	1000		1)
33 718	690		8	630	1000		1)
33 719	690		8	160	1000		1)
33 720	690		4	160	800	250	1)
33 721	690		4	250	800	250	1)
33 722	690		4	400	800	250	1)
33 723	690		4	630	800	250	1)
33 724	690		4	160	800	250	1)
33 730	690		8	910	1000		1)
33 731	690		8	1250	1000		1)
33 770	690		8	160	1000		1)
33 771	690		4	160	800	250	1)
33 772	690		8	160	1000		1)
33 773	690		8	160	1000		1)
33 774	690		4	160	800	250	1)
33 775	690		8	160	1000		1)
36 100	500		6	0.6	500		
36 101	500		6	0.6	500		
36 102	500		6	0.6	500		
36 103	500		6	2.4	500		
36 104	500		6	2.4	500		
36 105	500		6	2.4	500		
36 106	500		6	9	500		
36 107	500		6	9	500		
36 108	500		6	9	500		
36 109	500		6	0.6	500		
36 110	500		6	2.4	500		
36 111	500		6	9	500		

- 1) The value for the maximum permitted operating voltage of fuse combination units in accordance with IEC 60947-3 is only valid when the device is used as a fuse holder **without a load-switching function**.
- 2) Due to the insulating characteristics, the use of single-pole devices is determined exclusively by the installation conditions.

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
							
01 008	HH64.2	UL*	•				○
01 025	C025-L	•*	•	•			○
01 026	C026-L	•*	•	•			○
01 027	3x20x1	UL*		•			○
01 028	6x20x1	UL*		•			○
01 029	10x20x1	UL*		•			○
01 035	6x15,5x0,8	UL*		•			○
01 047	520			•			○
01 054	3x9x0,8	UL*		•			○
01 060	5x50x1	UL*		•			○
01 061	10x80x1	UL*		•			○
01 063	6x20x1	UL*		•			○
01 064	10x20x1	UL*		•			○
01 068	524	UL	•	•			○
01 069	CPC50-L	•*					○
01 070	CPC63-L	•*					○
01 071	CPC100-L	•*					○
01 075	5x24x1	UL*		•			○
01 076	10x24x1	UL*		•			○
01 084	6x9x0,8	UL*		•			○
01 089	4x15,5x0,8	UL*		•			○
01 090	6x15,5x0,8	UL*		•			○
01 091	10x15,5x0,8	UL*		•			○
01 092				•			○
01 094				•			○
01 095	5x32x1	UL*		•			○
01 096	10x32x1	UL*		•			○
01 097	5x40x1	UL*		•			○
01 099	10x40x1	UL*		•			○
01 112	5x50x1	UL*		•			○
01 113	10x50x1	UL*		•			○
01 114							○
01 116	S635-L	•*		•			○
01 119							○
01 120							○
01 121							○
01 123	10x63x1	UL*		•			○
01 126							○
01 127							○
01 128							○
01 129							○
01 130							○
01 131	511	UL	•	•			○
01 132	S645-L	•*		•			○
01 135	515-L	•*					○

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
							
01 136	TC60-L	•*	•	•			○
01 137	TC60-L	•*	•	•			○
01 138							○
01 139							○
01 140	20x10-L	•*	•	•			○
01 141	LV30-L	•*		•			○
01 143							○
01 144							○
01 145	LVH-L	•*					○
01 147	M300-L	•*		•			○
01 162				•			○
01 165	M150-L	•*					○
01 166				•			○
01 170							○
01 184	10x24x1	UL*		•			○
01 185	H41.2	UL*	•	•			○
01 186	HH101.2	UL*	•				○
01 187	HH1140-L	•*	•	•			○
01 188	HH1140-L	•*	•	•			○
01 189	HH1140-L	•*	•	•			○
01 190	H720-L	•*	•	•			○
01 193				•			○
01 194	6x9x0,8	UL*		•			○
01 196	4x15,5x0,8	UL*		•			○
01 198							○
01 199							○
01 201							○
01 202							○
01 203	528	UL	•	•			○
01 204	30x10-L	•*	•	•			○
01 206							○
01 207							○
01 218							○
01 222							○
01 223	H500-L	•*	•	•			○
01 224	H500-L	•*	•	•			○
01 225	H500-L	•*	•	•			○
01 226	H500-L	•*	•	•			○
01 227	HH1140-L	•*	•	•			○
01 228							○
01 229	H720-L	•*	•	•			○
01 230							○
01 231	S630-L	•*	•	•			○
01 232	S640-L	•*	•				○
01 234	234-L	•*	•	•			○

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
01 236							○
01 237							○
01 238							○
01 240	240-L	●*	●	●			○
01 243	243-L	●*	●	●			○
01 244	C30x5-L	●*	●	●			○
01 245	C30x10-L	●*	●	●			○
01 249	H720-L	●*	●	●			○
01 250	H500-L	●*	●	●			○
01 251							○
01 252	CHH-L	●*	●	●			○
01 253	4x24x1			●			○
01 254							○
01 255	6x24x1			●			○
01 256	6x40x1			●			○
01 257							○
01 258							○
01 272	S612-L	●*					○
01 273	10x100x1			●			○
01 274	LVHH-L	●*					○
01 275	LVHH-L	●*					○
01 284	521		●	●			○
01 285	522		●	●			○
01 287	523		●	●			○
01 289	525		●	●			○
01 290	526		●	●			○
01 292	527		●	●			○
01 295							○
01 298							○
01 299							○
01 300	240		●	●			○
01 301	243		●	●			○
01 303							○
01 314	C314-L	●*					○
01 317	C317-L	●*					○
01 318	518		●	●			○
01 319	519		●	●			○
01 320	C026-L	●*					○
01 323	8x24x1			●			○
01 324	5x63x1			●			○
01 325							○
01 343	8x50x1			●			○
01 355							○
01 356	S356-L	●*					○
01 357	S62015-L	●*		●			○

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
01 358	D620-L	●*					○
01 359	D620-L	●*					○
01 360	P620-L	●*					○
01 361	P620-L	●*					○
01 362	P620-L	●*					○
01 363							○
01 364							○
01 367							○
01 369							○
01 370	M120-L	●*					○
01 371							○
01 373							○
01 374	D612-L	●*					○
01 376							○
01 377							○
01 378							○
01 379							○
01 380							○
01 381	12x5-L	●*	●	●			○
01 382	12x5-L	●*	●	●			○
01 383	20x5-L	●*	●	●			○
01 384	20x5-L	●*	●	●			○
01 387	30x5-L	●*	●	●			○
01 388	30x5-L	●*	●	●			○
01 389	12x10-L	●*	●	●			○
01 390	12x10-L	●*	●	●			○
01 391	20x10-L	●*	●	●			○
01 392	20x10-L	●*	●	●			○
01 393	30x10-L	●*	●	●			○
01 394	30x10-L	●*	●	●			○
01 395	H500-L	●*	●	●			○
01 396	H500-L	●*	●	●			○
01 397	H720-L	●*	●	●			○
01 398	H720-L	●*	●	●			○
01 399	HH1140-L	●*	●	●			○
01 400	HH1140-L	●*	●	●			○
01 401	240-L	●*	●	●			○
01 413	412		●	●			○
01 417	C60.2-L	●*					○
01 420							○
01 421							○
01 422							○
01 424				●			○
01 425							○
01 426							○

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
01 427							○
01 430							○
01 431							○
01 432							○
01 433							○
01 434							○
01 436							○
01 437							○
01 438							○
01 439							○
01 440							○
01 441							○
01 442							○
01 443							○
01 444							○
01 479							○
01 480							○
01 481							○
01 482							○
01 484							○
01 485	485		●	●			○
01 495	S610		●	●			○
01 498	5683			●	●		
01 500	S610		●	●			○
01 508	S620-L	●*	●	●			○
01 509	10x50x1			●			○
01 510	10x63x1			●			○
01 512				●			○
01 513	HH41.2		●				○
01 514				●			○
01 515	B620-L	●*	●	●			○
01 518	B620-L	●*	●	●			○
01 537	M300-L	●*	●	●			○
01 538	M3210-L	●*	●	●			○
01 539	CTC60-L	●*	●	●			○
01 540	CTC60-L	●*	●	●			○
01 554	C60.1-L	●*	●	●			○
01 555	C60.2-L	●*	●	●			○
01 562		●*					
01 563	CPL16-L	●*					○
01 573	511-L	●*	●	●			○
01 583	10x15,5x0,8			●			○
01 586							○
01 587							○
01 590	502		●	●			○
01 596	CTC60-L	●*	●	●			○
01 597	CTC60-L	●*	●	●			○
01 599	C60.1-L	●*	●	●			○
01 601	S489-L	●*		●			○
01 602							○
01 603							○
01 608	H720-L	●*	●	●			○
01 609	H500-L	●*	●	●			○
01 610							○
01 611	5x24x1			●			○
01 612	5x32x1			●			○
01 613	10x32x1			●			○
01 614	5x40x1			●			○
01 615	10x40x1			●			○
01 616							○
01 617							○
01 618	12x5-L	●*	●	●			○
01 619	15x5			●			○
01 620	20x5-L	●*	●	●			○
01 621	25x5			●			○
01 622	30x5-L	●*	●	●			○
01 623	12x10-L	●*	●	●			○
01 624	20x10-L	●*	●	●			○
01 625	30x10-L	●*	●	●			○
01 626							○
01 627							○
01 628							○
01 647	5683			●	●		
01 742							○
01 747				●			○
01 748				●			○
01 749				●			○
01 753				●			○
01 754	413		●	●			○
01 756	512-L	●*	●	●			○
01 757	513-L	●*	●	●			○
01 759	530-L	●	●	●			○
01 760	529		●	●			○
01 765							○
01 766							○
01 767							○
01 823	LV30-L	●*		●			○
01 827	LVH-L	●*					○
01 829	LVH-L	●*					○
01 831	H720-L	●*	●	●			○

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01 838	H720-L	●*	●	●			○
01 886	LV30-L	●*		●			○
01 888							○
01 890							○
01 905							○
01 906	H51.1	RU*	●	●			○
01 907	H64.1	RU*	●	●			○
01 911	H64.2	RU*	●	●			○
01 926							○
01 927							○
01 928							○
01 929							○
01 930							○
01 931							○
01 932							○
01 934	H81.2	RU*	●	●			○
01 935	H101.2	RU*	●	●			○
01 936	H51.2	RU*	●	●			○
01 980				●			
01 981				●			
01 990	LV30-L	●*		●			○
01 996							○
01 997							○
03 173							○
03 193							○
03 195							○
03 196							○
03 197							○
03 198							○
03 199	NH-00				●		
03 213							○
03 214		●					
03 215		●					
03 217		●					
03 219		●					
03 220		●					
03 221		●					
03 222		●					
03 224		●					
03 225		●					
03 226		●					
03 227		●					
03 228		●					
03 229		●					
03 230		●					

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
03 231		●					
03 233		●					
03 234		●					
03 235		●					
03 236		●					
03 238		●					
03 239		●					
03 240		●					
03 241		●					
03 289	PVH-NH1XL-30	RU					
03 290	PVH-NH1XL	RU					
03 293	PVH-NH2XL/3L	RU					
03 294	PVH-NH2XL/3L-40	RU					
03 299					●		
03 350	NH-00			●			
03 351	NH-00			●			
03 354	NH-00			●			
03 355	NH-00			●			●
03 369				●			
03 370				●			
03 519							○
03 620							○
03 654				●			
03 656				●			
03 657							○
03 668							○
03 692							○
03 693				●			
03 757							○
03 758	NH-00			●			
03 759	NH-00			●			
03 760	NH-00			●			
03 761	NH-00			●			
03 762				●			
03 763				●			
03 765				●			
03 766				●			
03 767				●			
03 768				●			
03 769				●			
03 835							○
05 188							○
05 779							○
05 780							○
05 781							○

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
05 782							○
05 783							○
05 784							○
05 786							○
05 787							○
05 788							○
05 789							○
05 790							○
05 791							○
05 792							○
05 800							○
05 801							○
05 802							○
08 824							○
08 825							○
30 322							○
30 473							○
31 012							○
31 014							○
31 024							○
31 026							○
31 027							○
31 028							○
31 029							○
31 039	CTB-T35.1	●*					○
31 042	CTB-C1.1	●*					○
31 056							○
31 057							○
31 070				●			
31 071				●			
31 072				●			
31 073				●			
31 084							○
31 085							○
31 101							○
31 102							○
31 103							○
31 110	AES10x38	●	●				●
31 111	AES10x38	●	●				●
31 112	AES10x38	●	●				●
31 113	AES10x38	●	●			●	●
31 114	AES10x38	●	●			●	●
31 115	AES14x51	●	●				●
31 116	AES14x51	●	●				●
31 117	AES14x51	●	●				●

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
31 118	AES14x51	●	●				●
31 119	AES14x51	●	●				●
31 120	AES22x58	●	●				●
31 121	AES22x58	●	●				●
31 122	AES22x58	●	●				●
31 123	AES22x58	●	●				●
31 124	AES22x58	●	●				●
31 130	AES10x38	●	●				●
31 132	AES10x38	●	●				●
31 133	AES10x38	●	●				●
31 135	AES14x51	●	●				●
31 138	AES14x51	●	●				●
31 140	AES22x58	●	●				●
31 143	AES22x58	●	●				●
31 157							○
31 158	SPL-D0			●	●		
31 168	AES14x51	●	●				●
31 171	AES22x58	●	●				●
31 173				●			
31 174				●			
31 175				●			
31 176				●			
31 205		RU					
31 206		RU					
31 207		RU					
31 208		RU					
31 209		RU					
31 210		RU					
31 211		RU					
31 212		RU					
31 213		RU					
31 214		RU					
31 215		RU					
31 216		RU					
31 217		RU					
31 219		RU					
31 220		RU					
31 221		RU					
31 225		RU					
31 226		RU					
31 227		RU					
31 228		RU					
31 229		RU					
31 232	SPL-10x38			●			
31 235		●					

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
31 236		●					
31 237		●					
31 238		●					
31 239		●					
31 240		●					
31 241		●					
31 242		●					
31 243		●					
31 244		●					
31 245		●					
31 246		●					
31 247		●					
31 248		●					
31 249		●					
31 250		●					
31 251		●					
31 252		●					
31 275	AES10x38	●	●				●
31 276	AES10x38	●	●				●
31 277	AES10x38	●	●				●
31 278	AES14x51	●	●				●
31 279	AES14x51	●	●				●
31 280	AES14x51	●	●				●
31 281	AES22x58	●	●				●
31 282	AES22x58	●	●				●
31 283	AES22x58	●	●				●
31 284	AJC 30	●	●				
31 285	AJC 30	●	●				
31 286				●			
31 287	AJC 30	●	●				
31 288				●			
31 291				●			
31 293				●			
31 295	AES CC	●	●				
31 296	AES CC	●	●				
31 297	AES CC	●	●				
31 298	AES CC	●	●				
31 299	AES CC	●	●				
31 300	AES CC	●	●				
31 301	CEB14			●	●		
31 302	CEB14			●	●		
31 303	CEB18			●	●		
31 306	CEB18			●	●		
31 307	APS-D0			●	●		
31 308	APS-D0			●	●		

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
31 309							○
31 310							○
31 311							○
31 312							○
31 313	APS-D0			●	●		
31 314	APS-D0			●	●		
31 315	APS-D0			●	●		
31 323		●					
31 324		●					
31 325		●					
31 326		●					
31 327		●					
31 333		●					
31 338		●					
31 342		●					
31 345		●					
31 349		●					
31 351		●					
31 353		●					
31 354		●					
31 355		●					
31 357		●					
31 358		●					
31 359		●					
31 360		●					
31 361		●					
31 362		●					
31 363		●					
31 364		●					
31 390							○
31 394		●					
31 395		●					
31 396		●					
31 397		●					
31 398		●					
31 399		●					
31 400		●					
31 401		●					
31 404		●					
31 405		●					
31 406		●					
31 407		●					
31 441				●			
31 442				●			
31 511		●					

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
31 512		●					
31 514		●					
31 515		●					
31 525	SPL-D0			●	●		
31 548	CTB25-118	●*					○
31 549	CTB25-318	●*					○
31 550	CTB-T35	●*					○
31 552	CTB-C3	●*					○
31 555	AES10x85	●					
31 557				●	●		
31 561	CTB25-318	●*					○
31 570	AEL10x38/PV-30						●
31 572	AEL10x38/PV-20						●
31 574	SEL				●		●
31 575	SEL				●		●
31 578	SEL				●		●
31 579	SEL				●		●
31 588	SEL				●		●
31 918				●			
31 919				●			
31 920	AJC 60	●	●				
31 921	AJC 60	●	●				
31 922	AJC 60	●	●				
31 923	AJC 60	●	●				
31 924	AJC 60	●	●				
31 925	AJC 60	●	●				
31 929	AES CC	●	●				
31 930	AES10x38	●	●				●
31 932	AJC 30	●	●				
31 933	AJC 30	●	●				
31 934	AJC 30	●	●				
31 935	CEL18			●	●		
31 936	CEL18			●	●		
31 940	AES14x51	●	●				●
31 941	AES14x51	●	●				●
31 942	AES22x58	●	●				●
31 943	AES22x58	●	●				●
31 946				●			
31 947				●			
31 950				●			
31 951				●			
31 954	AEL10x38		●		●		
31 955	AEL10x38		●		●		
31 956	AEL10x38				●		
31 957	AES22x58	●	●				●
31 958	AELCC	●	●				
31 959	AELCC	●	●				
31 960	AEL10x38				●		
31 961	AEL10x38				●		
31 963	AEL10x38				●		
31 964	AEL10x38				●		
31 968	EEC6032AJC30		●				
31 970	EEC6080AJC60		●				
31 971	AES10x38/PV	●	●				●
31 972	AES14x51	●	●				●
31 973	AES10x38/PV	●	●				
31 974	AES10x38/PV	●	●				●
32 001							○
32 004							○
32 017	EPC60250-L	●*		●			○
32 018	EPC60160-L	●*	●				○
32 020	EPC60160		●				○
32 023	60250.1-L	●*		●			○
32 137	60250.1-L	●*	●	●			○
32 138	60630.1-L	●*	●	●			○
32 140	60250.1-L	●*	●	●			○
32 146		●*					○
32 156	60250.1-L	●*	●	●			○
32 157	60630.1-L	●*	●	●			○
32 168	60250		●	●			○
32 214	60200		●	●			○
32 215	60200		●	●			○
32 216	60250		●	●			○
32 400	EMC6025-L	●*	●	●			○
32 401	EMC6025-L	●*	●	●			○
32 402	EMC6025-L	●*	●	●			○
32 404	EMC6032-L	●*	●	●			○
32 408	EMC6032-L	●*	●	●			○
32 412	EMC6045-L	●*	●	●			○
32 416	EMC6045-L	●*	●	●			○
32 420	EMC6000-L	●*	●	●			○
32 421	EMC6000-L	●*	●	●			○
32 425	EMC6000-L	●*	●	●			○
32 426	EMC6000-L	●*	●	●			○
32 427	EEC6025-L	●*	●	●			○
32 428	EEC6025-L	●*	●	●			○
32 429	EEC6025		●	●			○
32 430	EEC6025-L	●*	●	●			○
32 431	EEC6025-L	●*	●	●			○
32 432	EEC6025-L	●*	●	●			○

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
32 433	EEC6025-L	●*	●	●			○
32 434	EEC6025-L	●*	●	●			○
32 436	EEC6025-L	●*	●	●			○
32 438	EEC6025-L	●*	●	●			○
32 439	EEC6025-L	●*	●	●			○
32 440	EEC6025		●	●			○
32 441	EEC6032-L	●*	●	●			○
32 442	EEC6032-L	●*	●	●			○
32 443	EEC6032-L	●*	●	●			○
32 444	EEC6032-L	●*	●	●			○
32 445	EEC6025-L	●*	●	●			○
32 446	EEC6032-L	●*	●	●			○
32 448	EEC6025-L	●*	●	●			○
32 449	EEC6032-L	●*	●	●			○
32 450	EEC6025-L	●*	●	●			○
32 451	EEC6025-L	●*	●	●			○
32 452	EEC6025-L	●*	●	●			○
32 453	EEC6025-L	●*	●	●			○
32 454	EEC6063-L	●*	●	●			○
32 455	EEC6063-L	●*	●	●			○
32 456	EEC6063-L	●*	●	●			○
32 457	EEC6063-L	●*	●	●			○
32 459	EEC6063-L	●*	●	●			○
32 460	EEC6063-L	●*	●	●			○
32 461	EEC6063-L	●*	●	●			○
32 463	EEC6063-L	●*	●	●			○
32 464	EEC6080		●	●			○
32 465	EEC6080		●	●			○
32 466	EEC6080-L	●*	●	●			○
32 467	EEC6080-L	●*	●	●			○
32 469	EEC6080-L	●*	●	●			○
32 472	EEC6080-L	●*	●	●			○
32 477	EEC6000-L	●*	●	●			○
32 478	EEC6000-L	●*	●	●			○
32 484	EEC6000-L	●*	●	●			○
32 485	EEC6000-L	●*	●	●			○
32 486							○
32 487							○
32 498	EEC6025-L	●*	●	●			○
32 511							○
32 513							○
32 533	EEC6025-L	●*	●	●			○
32 534	EEC6025-L	●*	●	●			○
32 535	EEC6063-L	●*	●	●			○
32 549	EPC60160-L	●*	●				○

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
32 570	ECL60160-L	●*					○
32 575	EPC60160-L	●*	●				○
32 577	EPC60160-L	●*	●				○
32 578	EPC60250-L	●*		●			○
32 579	EPC60630-L	●*					○
32 580	EPC60250-L	●*		●			○
32 581	EPC60630-L	●*					○
32 582	EPC60250-L	●*		●			○
32 583	EPC60630-L	●*					○
32 584	EPC60250-L	●*		●			○
32 585	EPC60630-L	●*		●			○
32 588	EEC6025-L	●*					○
32 590	EEC6025-L	●*	●	●			○
32 591	ECC6063-L	●*	●	●			○
32 592	EPC60250-L	●*		●			○
32 593	EPC60630-L	●*		●			○
32 601	EPC60250-L	●*		●			○
32 628							○
32 629							○
32 630							○
32 631							○
32 632							○
32 633							○
32 634							○
32 637	EEC6025-L	●*	●	●			○
32 638	EEC6025-L	●*	●	●			○
32 639	EEC6025-L	●*	●	●			○
32 640							○
32 641	EPC60630-L	●*		●			○
32 651	EPC60250-L						○
32 655	EEC6025-L	●*	●	●			○
32 659	EEC6025-L	●*	●	●			○
32 660							○
32 661	EPC60160-L						○
32 662							○
32 663	EEC6080-L	●*					○
32 664	EEC6080-L	●*					○
32 750							○
32 751							○
32 752	EPC1851600						○
32 753	EPC1851600						○
32 754	EPC1851600						○
32 755	EPC1851600						○
32 756	EPC1851600						○
32 757	EPC1851600						○

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32 758	EPC1851600						○
32 759	EPC1851600						○
32 760	EPC1851600						○
32 761	EPC1851600						○
32 762	EPC1851600						○
32 763	EPC1851600						○
32 764	EPC1851600						○
32 765	EPC1851600						○
32 766	EPC1851600						○
32 767	EPC1851600						○
32 768	EPC1851600						○
32 771	EPC1851600						○
32 772	EPC1851600						○
32 773	EPC1851600						○
32 774	EPC1851600						○
32 775	EPC1851600						○
32 776	EPC1851600						○
32 777	EPC1851600						○
32 778	EPC1851600						○
32 779	EPC1851600						○
32 780	EPC1851600						○
32 781	EPC1851600						○
32 782	EPC1851600						○
32 784	EPC1851600						○
32 785	EPC1851600						○
32 786	EPC1851600						○
32 907							○
32 912							○
32 914							○
32 915							○
32 921							○
32 937							○
32 947	TS35-L	●*	●	●			○
32 948	TS35-L	●*	●	●			○
32 949	TS35-L	●*	●	●			○
32 950	TS35-L	●*	●	●			○
32 951	TS35-L	●*	●	●			○
32 954	X-L	●*	●	●			○
32 956							○
32 963				●			○
32 964				●			○
32 969							○
32 973	EEC25-L	●*	●	●			○
32 974	EEC80-L	●*	●	●			○
32 975	60630.1-L	●*	●	●			○

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
32 976	60250.1-L	●*	●	●			○
32 977	60250.1-L	●*	●	●			○
32 978	EPC60630-L	●*		●			○
32 980							○
32 981	EEC6080-L	●*					○
32 982							○
32 983							○
32 984							○
32 985							○
32 986							○
32 987							○
33 075	QCB-NH 00			●	●		●
33 079	QCB-NH 00			●	●		●
33 093	SLS1						●
33 094	SLS2						●
33 095	SLS3						●
33 097	SLS1						●
33 098	SLS2						●
33 099	SLS3						●
33 126							○
33 127							○
33 128							○
33 149	QCB-NH1				●		
33 150	LTS2			●		●	●
33 151	LTS3			●		●	●
33 160	QCB-NH1				●		●
33 161	LTS2			●		●	●
33 162	LTS3			●		●	●
33 173							○
33 174							○
33 179							○
33 180							○
33 198	QCB-NH 00			●	●		●
33 199	LTS00			●			●
33 200	LTS00			●			●
33 201	QCB-NH1				●		●
33 202	LTS2			●		●	●
33 203	LTS3			●		●	●
33 206	QCB-NH 00			●			●
33 207	LTS00						●
33 208	LTS00						●
33 216	LTS000			●			●
33 217	LTS000			●			●
33 221	LTS00			●			●
33 222	LTS00			●			●

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33 234	SLS00						●
33 235	SLS00						●
33 243	SLS1						●
33 244	SLS2						●
33 245	SLS3						●
33 285	SLS00						●
33 286	SLS00						●
33 287	SLS1						●
33 288	SLS2						●
33 289	SLS3						●
33 292							○
33 293							○
33 294							○
33 295							○
33 296							○
33 297							○
33 298							○
33 299							○
33 308	JC400	●	●				
33 311	JC400B	RU	●				
33 321	SLS3						●
33 324	QCB-NH00			●			●
33 325	QCB-NH1				●		●
33 326	LTS2			●		●	●
33 327	LTS3			●		●	●
33 328	LTS00						●
33 329	LTS00						●
33 330	QCB-NH1				●		
33 331	LTS2			●		●	●
33 332	LTS3			●		●	●
33 333	LTS-250					●	
33 334	LTS-400					●	
33 335	LTS-630					●	
33 336	LTS-800					●	
33 337	LTS-F160					●	
33 338	LTS-F250					●	
33 339	LTS-F400					●	
33 340	LTS-F630					●	
33 341							○
33 355	LTS-250					●	
33 356	LTS-400					●	
33 357	LTS-630					●	
33 358	LTS-800					●	
33 359	LTS-F160					●	
33 360	LTS-F250					●	

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
33 361	LTS-F400						●
33 362	LTS-F630						●
33 394	QCB-NH00			●	●		●
33 398	QCB-NH 00			●	●		●
33 402	QCC-Class J 100A	RU					
33 403	QCC Class J 200A	RU					
33 408	QCC Class J 100A	RU					
33 409	QCC Class J 200A	RU					
33 416	QCB-NH00			●	●		●
33 420	QCB-NH 00			●			●
33 421	QCC-Class J 30A	RU					
33 422	QCC-Class J 60A	RU					
33 500	QCS-NH 00			●	●		●
33 501	QCS-NH 00			●	●		●
33 502	QCS-NH 00			●	●		●
33 503	QCS-NH 00			●	●		●
33 504	QCS-NH 00			●	●		●
33 505	QCS-NH 00			●	●		●
33 506	QCS-NH 00			●	●		●
33 507	QCS-NH 00			●	●		●
33 510	QCS-NH1				●		
33 511	QCB-NH1				●		
33 512	QCB-NH1				●		
33 513	QCB-NH1				●		
33 514	QCB-NH1				●		
33 515	QCB-NH1				●		
33 516	QCB-NH1				●		
33 544	QCS-200						●
33 600	QCB-NH1				●		●
33 601	QCB-NH1				●		●
33 602	LTS2			●		●	●
33 603	LTS3			●		●	●
33 700	QU185-00						
33 701	QU185-1						
33 702	QU185-2						
33 703	QU185-3						
33 704	QU185-00						
33 715	QU185-00						
33 716	QU185-1						
33 717	QU185-2						
33 718	QU185-3						
33 719	QU185-00						
33 720	QU185-00						
33 721	QU185-1						
33 722	QU185-2						

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Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
33 723	QU185-3						
33 724	QU185-00						
33 730	QU185-3						
33 741							
33 742							
33 744							
33 745							
33 746							
33 747							
33 748							
33 749							
33 750							
33 751							
33 752							
33 753							
33 754							
33 772	QU185-00						
33 775	QU185-00						
35 001	Z1140-L	●*					
35 004	Centre Feed Unit	●*					
35 005	Centre Feed Unit	●*					
35 006	Centre Feed Unit	●*					
35 007	Centre Feed Unit	●*					
35 008	Z1140-L	●*					
35 009	Z1140-L	●*					
35 015	Centre Feed Unit	●*					
35 016	Centre Feed Unit	●*					
35 017							
36 100	MCC 36100	●					
36 101	MCC 36101	●					
36 102	MCC 36102	●					
36 103	MCC 36103	●					
36 104	MCC 36104	●					
36 105	MCC 36105	●					
36 106	MCC 36106	●					
36 107	MCC 36107	●					
36 108	MCC 36108	●					
36 109	36109	●					
36 110	36110	●					
36 111	36111	●					
36 112	36112	●					
36 113	36113	●					
36 114	36114	●					
36 209	SWD 36209	●					
36 215	EU5C-SWD-PF2-1	●	●				

Part no.	Type no.	USA	Canada	Germ. Lloyd	Germany	Netherlands	China
36 216	EU5C-SWD-DP	●	●				
36 218	EU5C-SWD-CAN	●	●				
36 219	EU5C-SWD-EIP-MODTCP	●	●				
36 220		●	●				
36 905	SWD4-3LF8-24-2S	●	●				
36 906	SWD4-8SF2-5	●	●				
36 907	SWD4-8MF2	●	●				
36 908	SWD4-RC8-10	●	●				
36 911		●	●				
36 912		●	●				
36 913		●	●				

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