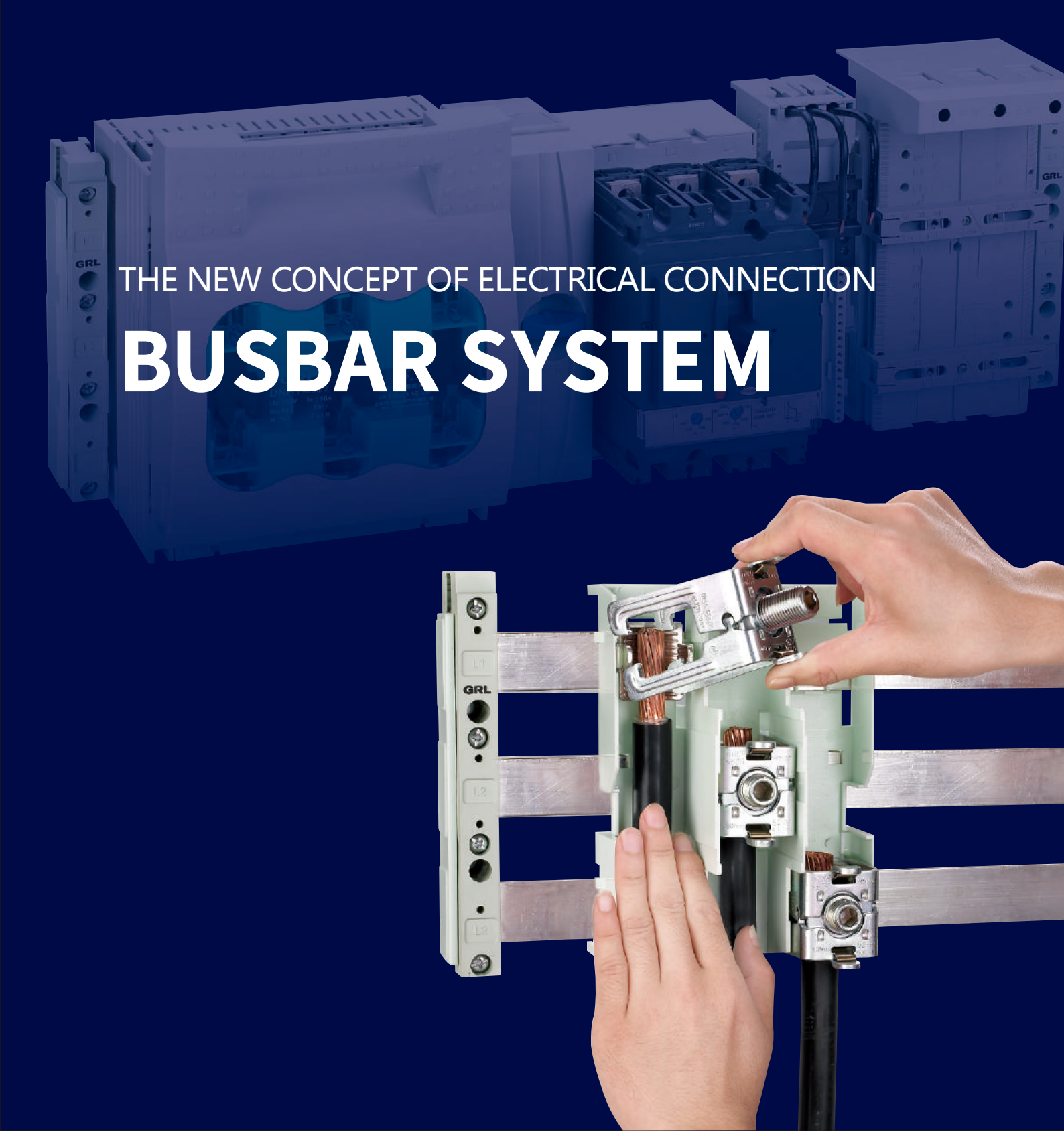

THE NEW CONCEPT OF ELECTRICAL CONNECTION

BUSBAR SYSTEM

GRL Electric

GRL

ENERGY POWER SAVE

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BUSBAR SYSTEM

The new concept of power supply and distribution from high-quality - GRL Busbar System

GRL busbar system, is a standard system of busbars, applied to low-voltage power supply and distribution switchgear and control equipment, to make the busbar both conductive and support on the electrical components. GRL busbar system has 40, 60,100 and 185 mm systems.This manual mainly introduces 60, 100, 185 mm busbar system and centre feeding unit, other system products on request.

Technological characteristics

GRL busbar system (above figure) compared with traditional wiring way (left figure),the new technological characteristics are following:

* Electrical components directly connect to busbar
* Connect with busbar without drilling
* Space-saving for installation
* Rapid and convenient installation
* Reduce wiring and easy maintenance
* Convenient for electrical component replacement and circuit increase

Product introduction

System advantages

In 60 mm busbar system,take advantage of the different cross sections of flat and section busbar, realized the best distribution of current strength class, combined with high safety and stability.

Technology

New adapter technology in 60 mm busbar system: busbar adapter safe connection to busbars from 12 x 5 mm - 30 x 10 mm, and double-T and triple-T sections up to 2500A. With its double structures, much safer to be offered to new areas of application. No need to cut off the power when the switch components are being replaced

Connection technology

Conductors with a cross section of up to 300mm2 can be connected using universal conductor terminals or connecting terminal plates, and no drilling is required. Even uncut conductors can be connected to the connecting terminal plates to connect two busbar systems. With their saddle-clamp terminal technology, allow rapid connections to be made to both round and laminated conductors. End-to-end busbar connections, which permit fast and easy extension of busbar systems, are also available.

Bus-Mounting Fuse Bases

The 60mm-system can be fitted with size D0 and size D 3-pole bus-mounting. NH fuse with shock protection are available up to size 2. Additionally, special low-voltage power bases can be supplied for semi-conductor fuses.

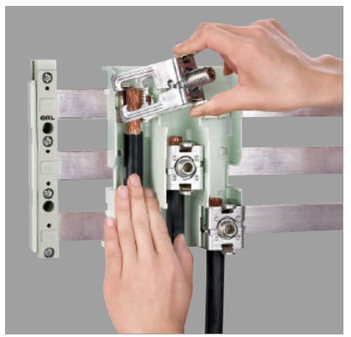
Size 000 - 3 NH bus-mounting fuse switch disconnectors can be fitted with terminals at either the bottom or top. Externally sprung contact blades ensure easy and secure connection on the busbar system.

Size 00 NH in-line fuse switch disconnector is available to support the use of all components of 60 mm busbar system. The combined pin and mechanical slot with patented technology ensure NH in-line fuse switch disconnector connect with busbar without drilling conveniently.Top and bottom connection replacement is available.

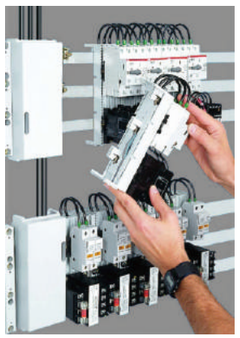
Customized system technology

According to customer needs, GRL company is able to provide the best selection scheme of busbar system.

Rapid and convenient installation

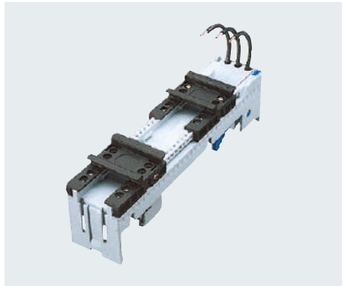


With busbar adapter, various low voltage switching components are able to mounted on the busbar directly.



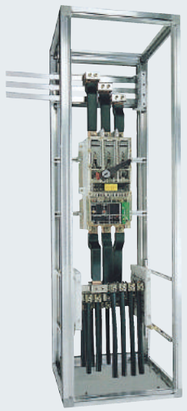
Conductor connection terminal and connection plate are easy to make connections to the busbar without drilling.

Product introduction



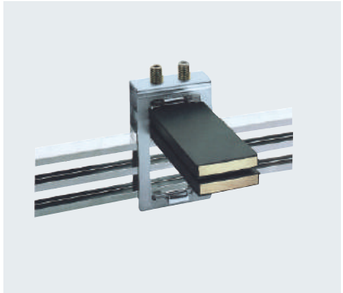
* Busbar adapter
* Realizing connection with various switching devices conveniently
* Various current strength、width and length

* Connection unit, 3 phase
* Easy to adjust the space of phase to phase
* Available for connection with 120-300mm^2 conductors and 32 x 20 laminated Cu busbar
* Available to adjust the width of system cover for selection

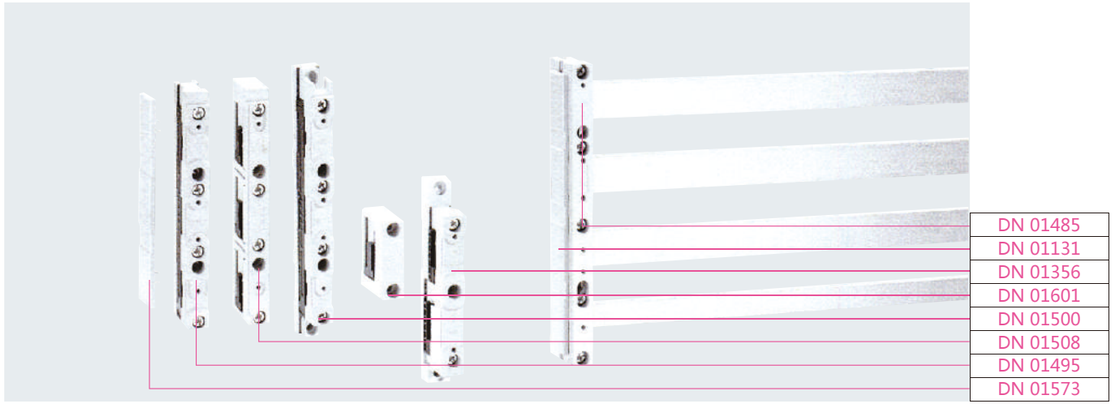


* Centre feeding unit 3200A,combines the benefits of high short-circuit withstand capacity, assembly without drilling, clamp-type terminals and simple construction.

* Busbar adapter
* The newest solution for new requirment
* Realizing the monitoring of unloading load with double-layer and integrated auxiliary switch.

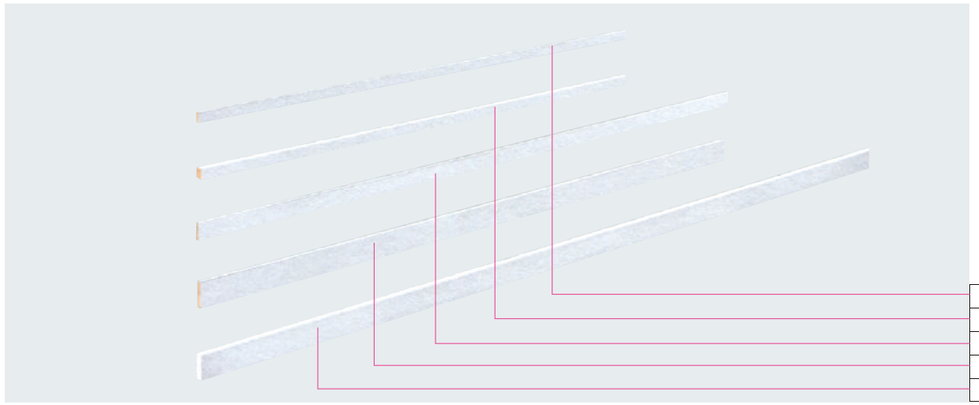


* Profile terminals for triple-T section busbars
* Maximum connection with 2 x 100 x 10mm^2 laminated busbars

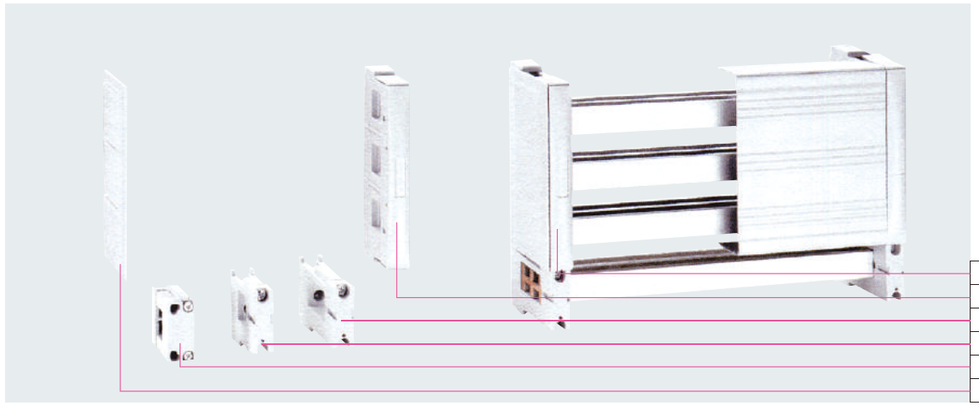


Type	For busbars	Weight kg/100	Part no.
Universal busbar supports			
2-pole with internal screw holes	12，20，30×5，10	8.3	DN 01602
3-pole with internal screw holes	12，15，20，25，30×5，10	12.7	DN 01495
3-pole with additional external screw holes	12，15，20，25，30×5，10	13.7	DN 01500
4-pole with internal screw holes	12，15，20，25，30×5，10	26.6	DN 01485
UL busbar supports			
3-pole with internal screw holes	12，20，30×5，10	14.0	DN 01508
spacer 18mm，fits under DN 01508		9.1	DN 01358
4-pole with internal screw holes	12，20，30×5，10	19.7	DN 01357
spacer，fits under DN 01357		13.1	DN 01359
Base plate, for UL busbar supports DN 01508. DN 01231. DN 01232			
230×1100		73.7	DN 01518
230×700		46.9	DN 01515
PE/N busbar supports, including PE and N labels			
2-pole, indiv. mountable	12，15，20，25，30×5，10	9.5	DN 01356
1-pole, indiv. mountable	12，20，30×5，10	5.9	DN 01601
Connection busbar support			
3-pole, with integrated terminals1.5-16mm^2	12，15，20，25，30×5，10	27.9	DN 01484
End cover, for covering busbar ends			
for busbar support DN 01602		1.5	DN 01363
for busbar support DN 01495，DN 01500，DN 01508，DN 01484		2.0	DN 01573
for busbar support DN 01357 and DN 01485		5.6	DN 01131

BUSBAR SYSTEM

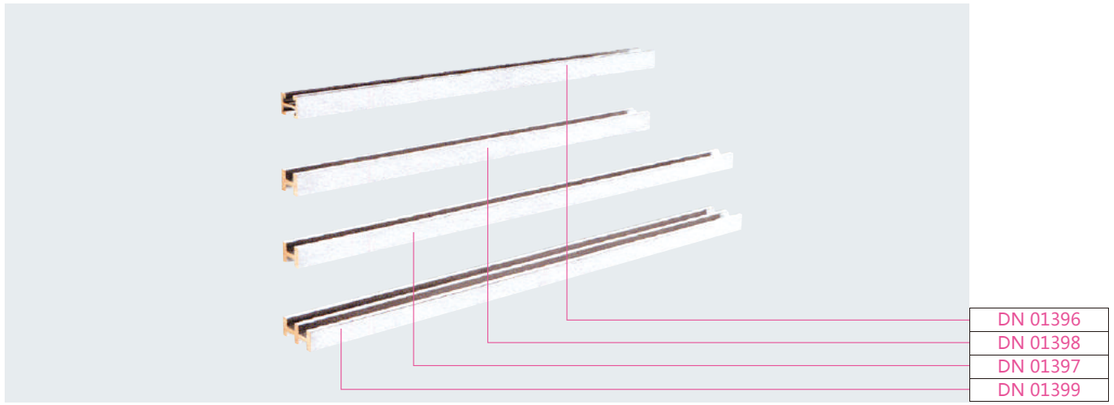


Size	Length mm	Cross section mm²	Weight kg/100	Part no.
Busbar E-CU, flat busbars, tin-plated				
12 × 5	2400	60	128.2	DN 01618
	790	60	42.8	DN 01381
	590	60	32.0	DN 01382
15 × 5	2400	75	160.2	DN 01619
20 × 5	2400	100	213.6	DN 01620
	790	100	71.3	DN 01383
	590	100	53.4	DN 01384
25 × 5	2400	125	267.0	DN 01621
30 × 5	2400	150	320.4	DN 01622
	790	150	107.0	DN 01387
	590	150	80.1	DN 01388
12 × 10	2400	120	256.3	DN 01623
	790	120	85.6	DN 01389
	590	120	64.0	DN 01390
20 × 10	3600	200	650.0	DN 01140
	2400	200	427.2	DN 01624
	790	200	142.6	DN 01391
	590	200	106.8	DN 01392
30 × 10	3600	300	961.0	DN 01204
	2400	300	640.8	DN 01625
	790	300	214.0	DN 01393
	590	300	160.2	DN 01394

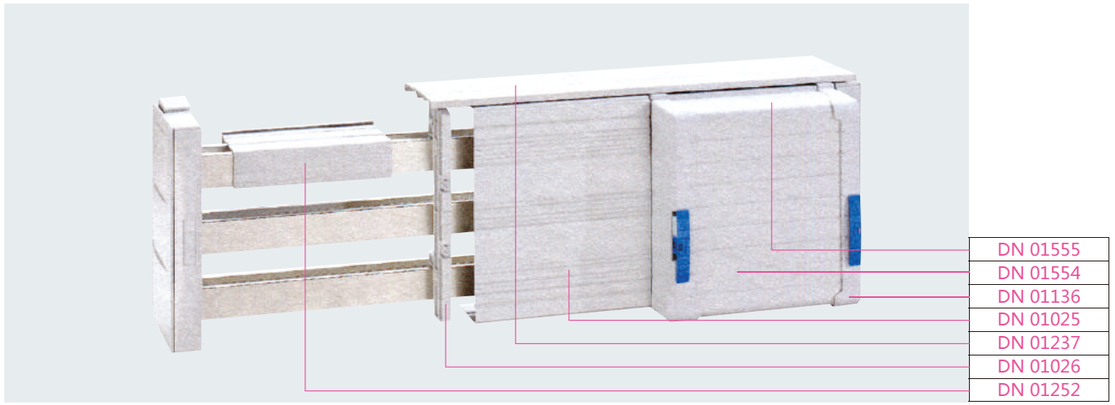


Type	Weight kg/100	Part no.
Busbar supports, for double-T section, without end cover		
1-pole, indiv. mountable only	15.8	DN 01876
1-pole, for connection to DN 01231 and individually mountable	13.0	DN 01116
3-pole, with internal screw holes	59.1	DN 01231
Busbar supports, for triple-T section, without end cover		
1-pole, for connection to DN 01232 and individually mountable	15.0	DN 01132
3-pole, with internal screw holes	69.7	DN 01232
End cover		
for busbar supports DN 01116, DN 01132	1.8	DN 01373
for busbar supports DN 01231, DN 01232	4.8	DN 01234

BUSBAR SYSTEM

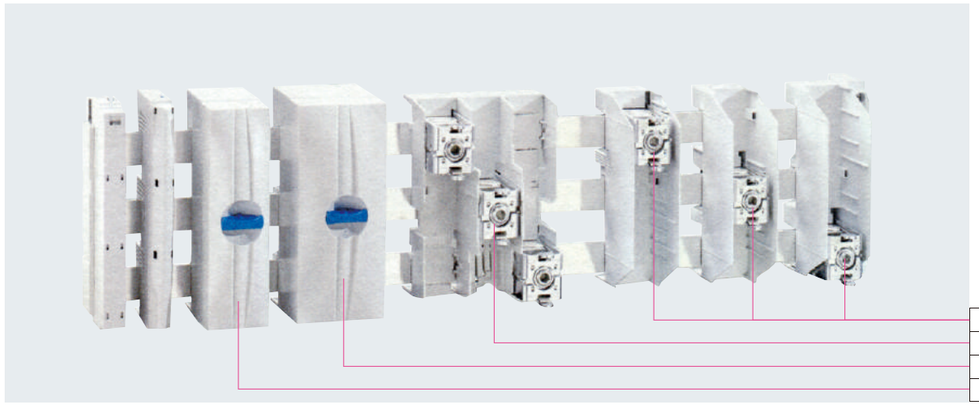


Size	Length mm	Cross section mm²	Weight kg/100	Part no.
Busbar E-CU, section busbars, tin-plated				
Double-T section busbars 500mm²	3600	500	1566.0	DN 01224
	2400	500	1044.0	DN 01609
	790	500	348.6	DN 01395
	650	500	288.1	DN 01226
	590	500	261.0	DN 01396
	450	500	198.8	DN 01225
Double-T section busbars 720mm²	3600	720	2310.0	DN 01190
	2400	720	1540.0	DN 01609
	790	720	514.3	DN 01397
	653	720	419.0	DN 01831
	590	720	385	DN 01398
	453	720	291	DN 01838
Triple-T section busbars 1140mm²	3600	1140	3654.0	DN 01227
	2400	1140	2436.0	DN 01187
	790	1140	813.6	DN 01399
	653	1140	672.3	DN 01189
	590	1140	609.0	DN 01400
	453	1140	464.0	DN 01188
Busbar E-CU, section busbars, tin-plated				
Double-T section busbars 500mm²	3600	500	1566.0	DN 01223
	2400	500	1044.0	DN 01250
Double-T section busbars 720mm²	3600	720	2310.0	DN 01229
	2400	720	1540.0	DN 01249



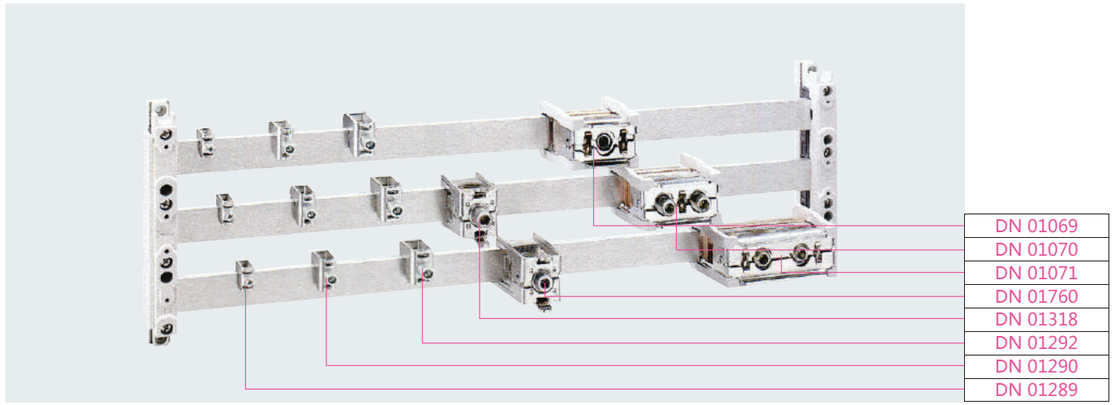
Type	Weight kg/100	Part no.
Busbar cover		
for 12–30 × 5 busbar, 1m long	8.7	DN 01244
for 12–30 × 10 busbar, 1m long	10.1	DN 01245
for double-T and triple-T section, 1m long	38.0	DN 01252
for 12 × 5 busbar, 1m long	3.2	DN 78463
independent of the system, for individual busbars		
Cover section, 3-pole		
0.7m long, can only be used with mount DN 01026 or DN 01320	47.8	DN 01025
mount, 32mm depth, for cover section DN 01025	3.9	DN 01026
mount, 107mm depth, for cover section DN 01025, can be combined with DN 01237, DN 01238	12.0	DN 01320
for systems with 12 – 30 x 5/10mm busbars, double-T and triple-T section		
System cover, 3-pole		
holder set (left + right) for cover sections, 3-pole	18.0	DN 01136
front cover section (3-pole), 1.1m long, only with holder DN 01136	45.1	DN 01554
top/bottom cover section, 1.1m long, only with holder DN 01136 or DN 01137	27.1	DN 01555
can be used for systems with 12, 15, 20, 25, 30 x 5/10 busbars, double-T and triple-T section		
System cover, 4-pole		
holder set (left + right) for cover sections, 4-pole	21.0	DN 01137
front cover section (4-pole), 1.1m long, only with holder DN 01137	58.0	DN 01599
top / bottom cover section, 1.1m long, only with holder DN 01136 or DN 01137	57.1	DN 01555
can be used for systems with 12, 15, 20, 25, 30 x 5/10 busbars, double-T and triple-T section		
Compartment section, for adjusting the installation depth in double-T and triple-T busbar systems		
48mm deep, 2.4m long	70.0	DN 01236
76mm deep, 2.4m long	105.0	DN 01237
106mm deep, 2.4m long	140.0	DN 01238

BUSBAR SYSTEM



Connection	Size (Width×Height)	For use (up to max.)	Weight kg/100	Part no.
Connection module, for 12×5 - 30×10 mm, 3-pole,with spring terminals, shock protected				
1.5–16mm²	20×200	80A	18.1	DN 01563
Connecting terminal plate, 3-pole, for 12×5 - 30×10 and double-T and triple-T section, with cover cap				
6–50mm², s(r), f, f+AE, la. Cu 6×9×0.8	54×200	300A	45.1	DN 01240
35–120mm², s(r), f, f+AE, la. Cu 6/10×15.5×0.8	81×200	400A	53.5	DN01243
Connecting terminal plate, 3-pole, for 20× 5 - 30×10 and double-T and triple-T section, with cover cap				
Cu and Al* 95–185mm², s(r), s(s), f	135×200	460A	132.2	DN 01199
Cu and Al* 120–300mm², s(r), s(s), f	135×200	560A	165.7	DN 01754
for la. Cu up to 32 x 20	135×200	800A	144.7	DN 01753
* Not maintenance–free if aluminium conductors are used; ** Observer minimum terminal space				
Connection set, 3-pole, for 20×5 - 30×10mm and double-T and triple-T section, without cover cap				
Cu and Al* 120–300mm², s(r), s(s), f	153×184	560A	155.5	DN 01537
for flat busbars up to 32 x 20	153×184	800A	132.5	DN 01538
* Not maintenance–free if aluminium conductors are used				
Connection set, 4-pole, for 20×5 - 30×10mm and double-T and triple-T section, without cover cap				
Cu and Al* 120–300mm², s(r), s(s), f	204×224	560A	210.0	DN 01147
for flat busbars up to 32 x 20	204×224	800A	180.0	DN 01162
* Not maintenance–free if aluminium conductors are used				

Type	Weight kg/100	Part no.
Accessories		
additional individual cover for the terminals in DN 01240	0.4	DN 01300
additional individual cover for the terminals in DN 01243	0.5	DN 01301



For busbars	Connection mm² (min.–max.)	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Universal conductor terminal					
5mm flat busbars	1.5–16	7.5×7.5	180A	2.1	DN 01284
	4–35	10.5×11	270A	4.6	DN 01285
	16–70	14×14	400A	7.1	DN 01287
	16–120	17×5	440A	10.6	DN 01068
10mm flat busbars	1.5–16	7.5×7.5	180A	2.3	DN 01289
	4–35	10.5×11	270A	4.7	DN 01290
10mm flat busbars double–T and triple–T section	16–70	14×14	400A	7.5	DN 01292
	16–120	17×5	440A	10.9	DN 01203

For busbars	Connection	For use (up to max.)	Weight kg/100	Part no.
Brace terminals				
20×5–30×10, double–T and triple–T section	for flat busbars up to 30×20	750A	30.3	DN 01319
	Cu and Al* 95–185mm², s(r), s(s), f	500A	31.2	DN 01318
	for flat busbars up to 30×20	800A	34.7	DN 01759
	Cu and Al* 120–300mm², s(r), s(s), f	600A	42.5	DN 01760

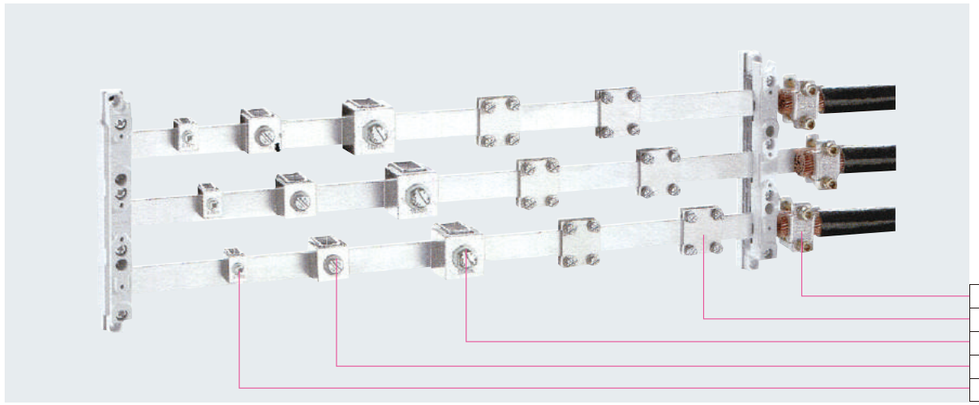
* Not maintenance–free if aluminium conductors are used

For busbars	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Brace terminals, for the connection of flat busbars and laminated copper				
30×10, double–T and triple–T section	55×28	1600A / 2000A*	50.0	DN 01069
	68×28	1600A / 2000A*	63.0	DN 01070
	105×28	1600A / 2800A*	84.0	DN 01071

* Centre feed

Type (W×H×D)	For busbars	Weight kg/100	Part no.
Cover cap, 3-pole, can also be used as reserve section cover			
54×200×55	12×5–30×10, double–T and triple–T section	14.7	DN 01590
84×200×55	12×5–30×10, double–T and triple–T section	14.9	DN 01413
135×200×90	20×5–30×10, double–T and triple–T section	29.5	DN 01756
180×200×90	12×5–30×10, double–T and triple–T section	33.0	DN 01539
228×200×90	12×5–30×10, double–T and triple–T section	37.3	DN 01596
250×200×90	12×5–30×10, double–T and triple–T section	39.3	DN 01540
270×200×90	20×5–30×10, double–T and triple–T section	64.7	DN 01757
Cover cap, 4-pole, can also be used as reserve section cover			
228×200×90	12×5–30×10, double–T and triple–T section	45.0	DN 01597

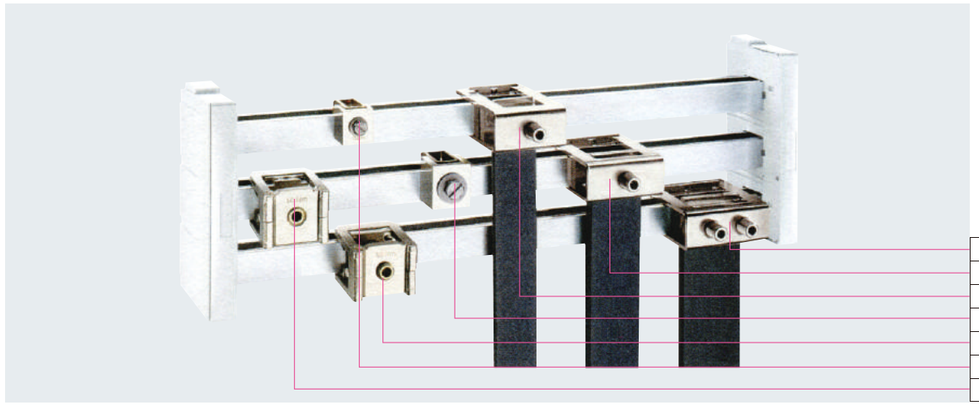
BUSBAR SYSTEM



Type		For use (up to max.)	Weight kg/100	Part no.
Clip-on screw connector, for cable lugs DIN 46 234				
for undrilled flat busbars, 5mm thick	M5×8	360A	4.8	DN 01747
	M8×8	490A	16.0	DN 01748
	M10×10	630A	35.8	DN 01749
for undrilled flat busbars, 10mm thick	M5×8	360A	5.0	DN 01512
for undrilled flat busbars, 10mm thick and	M8×8	490A	16.5	DN 01514
double-T and triple-T section	M10×10	630A	36.2	DN 01047

Terminal space (W×H)	Terminal space (max. height)	Weight kg/100	Part no.
Busbar connector, to connect flat busbars and la. Cu			
25×20	20	1.9	DN 01996
30×20	20	16.2	DN 01997
30×30	20	19.8	DN 01586
35×30	20	21.5	DN 01587
40×20	20	17.8	DN 01206
40×32	30	27.6	DN 01616

For busbars	Connection mm^2 (min. - max.)	Terminal space (W×H)	Weight kg/100	Part no.
Busbar connection, along length with wedge clamp terminal				
15×5	70-150	18×4-18	5.9	DN 01200
20×5-10	120-240	21×4-20	11.0	DN 01201
25×5	150-300	25×5-20	13.4	DN 01202



Connection cross section mm^2	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Profile terminal, for double-T section busbars				
320-800	41×20-42	1600A	67.0	DN 01185
500-750	51×5-28	1600A	70.5	DN 01906
600-900	64×5-28	1600A	84.0	DN 01907
500-1000	51×20-42	1600A / 2000A*	73.5	DN 01936
600-1200	64×20-42	1600A / 2000A*	85.9	DN 01911
800-1600	81×20-42	1600A / 2500A*	101.1	DN 01934
1000-2000	101×20-42	1600A / 2800A*	113.7	DN 01935

* For the connection of flat busbars and laminated copper busbars; * Centre feed

Profile terminal, for triple-T section busbars				
320-800	41×23-45	1600A	105.0	DN 01513
500-1260	64×23-45	2500A	124.0	DN 01008
1200-3600	101×23-45	3200A	172.7	DN 01186

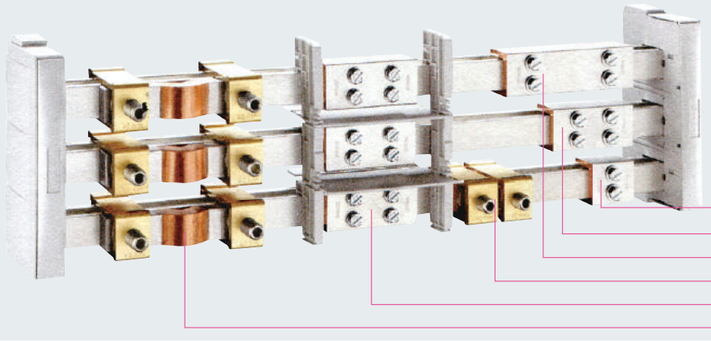
For busbars	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Brace terminals, for busbars 30×10 and section busbars				
for 30×10, double-T and triple-T section	55×28	1600A / 2000A*	50.0	DN 01069
	68×28	1600A / 2000A*	63.0	DN 01070
	105×28	1600A / 2800A*	84.0	DN 01071

* For the connection of flat busbars and laminated copper busbars; * Centre feed

For busbars		For use (up to max.)	Weight kg/100	Part no.
Terminal				
for 30×10, double-T	95-300mm^2, sol(r), s(r), sol(s), s(s), f	630A	85.7	DN 01094
and triple-T section	for flat busbars up to 40×25	1250A	81.7	DN 01092

Connection	Rated current (50K)	Cross section mm^2	Weight kg/100	Part no.
Laminated copper busbars, Cu blank, insulated, length 2m				
10×40×1	1053A	400	712.0	DN 01615
10×50×1	1244A	500	890.0	DN 01509
10×63×1	1481A	630	1121.4	DN 01510
10×80×1	1777A	800	1424.0	DN 01061
10×100×1	2110A	1000	1780.0	DN 01273

BUSBAR SYSTEM

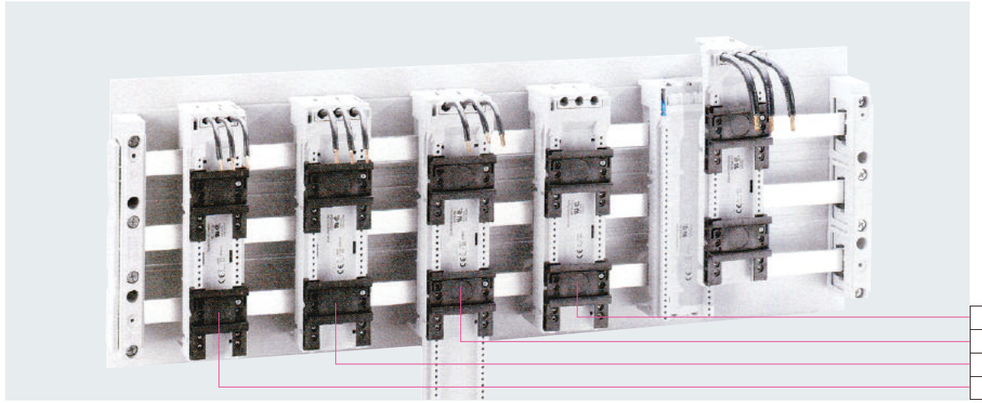


For busbars	Length	System spacing	For use (up to max.)	Weight kg/100	Part no.
Busbar connector, for same-size busbars					
12–20 × 5 /10	55	5–10	630A	19.2	DN 01166
	150	100–110	630A	52.4	DN 01193
12–30 × 5 /10	40	9–20	630A	23.3	DN 01990
	40	13–20	630A	25.2	DN 01823
	95	50–60	630A	54.4	DN 01141
	150	100–110	630A	86.6	DN 01886
double–T section	50	9–20	1600A	49.4	DN 01827
	95	50–60	1600A	94.3	DN 01145
	150	100–110	1600A	146.1	DN 01829
	70	5–10	1600A	113.9	DN 01905
triple–T section	95	50–60	2500A	120.6	DN 01274
	150	100–110	2500A	178.0	DN 01275

3 units required for a 3–pole connection, use DN 01026 or DN 01320 and DN 01025 as a cover

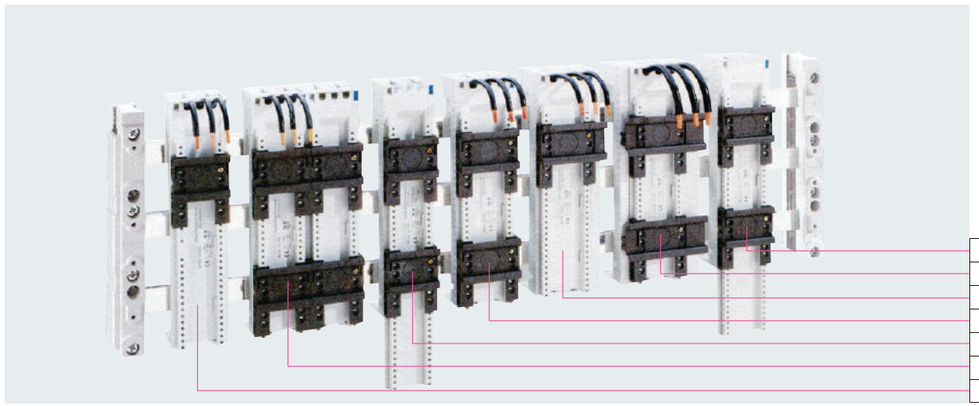
Type	For use (up to max.)	Weight kg/100	Part no.
Connection terminal, 3-pole, for double-T section busbars			
for a flexible connection, double–T section	1600A	536.0	DN 30322
for a flexible corner coupling, double–T section	1600A	638.0	DN 30473
for a flexible connection, triple–T section	2500A	940.0	DN 01295
one set is required for a 3–pole connection			

Type	Width (mm)	Weight kg/100	Part no.
Connection terminal, 3-pole, for double-T section busbars			
for connections DN 01166，DN 01990，DN 01823，DN 01827*	105	17.2	DN 01360
for connections DN 01141，DN 01145，DN 01274*	145	19.6	DN 01361
for connections DN 01193，DN 01886，DN 01829，DN 01275	200	21.8	DN 01362
* Each depth dimension has to be cut to size			

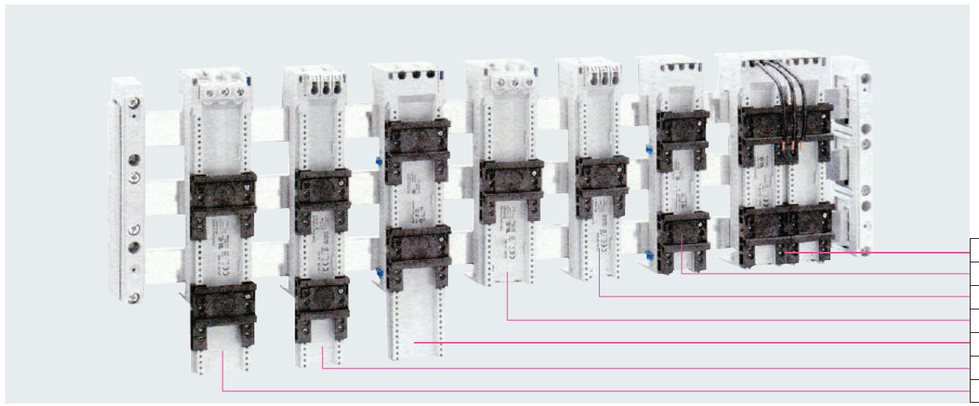


Type	Adapter width	Adapter Length	Weight kg/100	Part no.
25A, busbar adapter,separable, AWG 12 (4mm²) leads				
16A, 2 mounting rails, leads 2.5mm², 125 long	45	200	42.7	DN 32401
2 mounting rails	45	200	42.7	DN 32400
2 mounting rails	45	260	45.0	DN 32402
32A, busbar adapter,separable, AWG 10 (6mm²) leads				
2 mounting rails	54	200	49.2	DN 32404
2 mounting rails	54	260	54.4	DN 32408
45A, busbar adapter,separable, AWG 8 (10mm²) leads				
2 mounting rails	54	200	52.9	DN 32412
2 mounting rails	54	260	56.7	DN 32416
Busbar adapter, separable, without electrical contact				
2 mounting rails	45	200	34.9	DN 32420
2 mounting rails	54	200	38.8	DN 32421
2 mounting rails	45	260	36.2	DN 32425
2 mounting rails	54	260	42.1	DN 32426
side module, connectable on both sides	9	200	4.3	DN 32964
Microswitch, to interrupt the coil current				
1 break contact, 250V, 5A			0.9	DN 32956
all adapters for 12, 15, 20, 25, 30 × 5 – 10mm busbars，double–T and triple–T section				
Accessories				
mounting rail	45		1.4	DN 32947
mounting rail	54		1.5	DN 32948
mounting rail	63		1.8	DN 32949
mounting rail	72		2.0	DN 32950
mounting rail	81		2.1	DN 32951
mounting rail end stop			0.1	DN 32969
connecting element, universal			0.1	DN 32954
8–pole connector, with support，2.5mm²，250V	45		3.4	DN 32511
10–pole connector, with support，2.5mm²，250V	54		4.0	DN 32513

BUSBAR SYSTEM



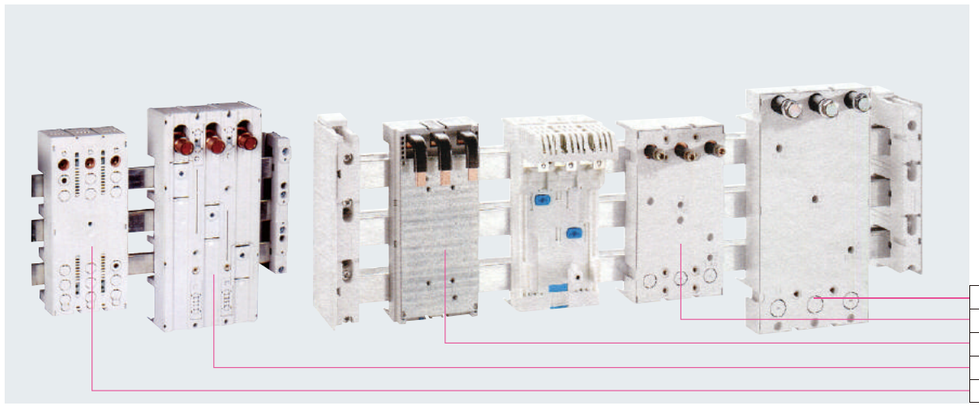
Type	Adapter width	Adapter length	Weight kg/100	Part no.
25A, busbar adapter with leads AWG 12 (4mm²)				
1 mounting rail	45	200	32.5	DN 32430
2 mounting rails	45	200	32.6	DN 32431
2 mounting rails	90	200	57.1	DN 32432
2 mounting rails	45	200	35.7	DN 32433
25A, busbar adapter with 6mm² connection terminals, without leads				
2 mounting rails	54	200	32.2	DN 32436
2 mounting rails	54	260	35.2	DN 32439
UL terminal cap for DN 32436 and DN 32439	54	200	0.7	DN 32973
32A, busbar adapter with leads AWG 10 (6mm²)				
1 mounting rail	54	200	36.6	DN 32441
2 mounting rails	54	200	38.0	DN 32442
1 mounting rail	63	200	44.5	DN 32443
1 mounting rail	72	200	44.3	DN 32444
2 mounting rails	81	200	49.5	DN 32446
2 mounting rails	54	200	43.3	DN 32449
63A, busbar adapter with leads AWG 8 (10mm²)				
1 mounting rail	54	200	39.2	DN 32454
2 mounting rails	54	200	41.0	DN 32455
1 mounting rail	63	200	44.9	DN 32456
1 mounting rail	72	200	47.6	DN 32457
2 mounting rails	81	200	51.3	DN 32459
2 mounting rails	54	200	43.0	DN 32461
80A, busbar adapter with 16mm² connection terminals, without leads				
1 mounting rail	54	200	37.3	DN 32466
2 mounting rails	54	200	38.9	DN 32467
1 mounting rail	72	200	45.0	DN 32469
2 mounting rails	54	260	43.8	DN 32472
UL terminal cap for DN 32466，DN 32467，DN 32469 and DN 32472	54		0.8	DN 32474
PE/N, adapter module, with 16mm² terminals, top and bottom, without leads				
for EEC adapters, connectable on both sides	18	260	14.1	DN 32146
2×32A, busbar adapter with 16mm² connection terminals, with double leads AWG10(2×32)				
2 mounting rails, with two sets of conductor, 3 per set, first set 130 mm length, second set 280 mm length.	54	260		DN 32471



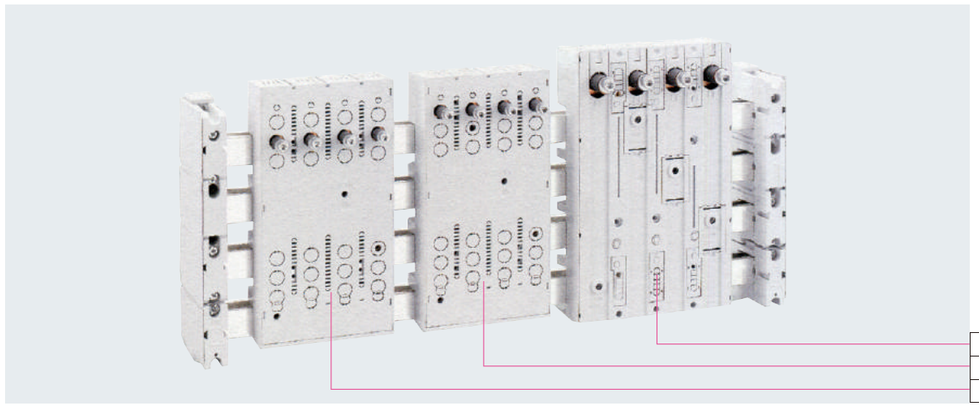
Type	Mounting rails	Adapter width	Adapter length	Weight kg/100	Part no.
Busbar adapter					
32A, special type with spring term. 1.5–6mm² at front	1	45	200	32.5	DN 32486
32A, special type with spring term. 1.5–6mm² at front	2	45	260	35.5	DN 32487
80A, special type with screw terminal 1.5–16mm² at front	1	54	200	37.3	DN 32464
80A, special type with screw terminal 1.5–16mm² at front	2	54	260	41.2	DN 32465
Busbar adapter, without electrical contacts					
universal	2	45	200	24.8	DN 32477
universal	2	54	200	27.7	DN 32478
universal	2	45	260	27.9	DN 32484
universal	2	54	260	38.5	DN 32485
side module, connectable on both sides		9	200	2.3	DN 32963
16A, busbar adapter with leads AWG 14 (2.5mm²)					
for direct/reversing starters with spring terminal connection Allen-Bradley 140M-RC2E, Eaton PKZM0, Siemens S00, Schneider Electric GV2	2	45	200	31.0	DN 32429
	2	90	200	57.0	DN 32440
25A*, busbar adapter with leads AWG 12 (4mm²)					
for direct starter Allen-Bradley 140MC/D	2	45	200		DN 32533
for reversing starter Allen-Bradley 140M-C/D	2	54	200		DN 32534
for direct starter Eaton PKZM0/BG1	1	45	200		DN 32450
for reversing starter Eaton PKZM0/BG1	1	90	200		DN 32452
for direct starter Siemens S00 with screw connection	1	45	200		DN 32445
for reversing starter Siemens S00 with screw connection	1	90	200		DN 32448
32A*, busbar adapter with leads AWG 10 (6mm²)					
for direct starter Eaton PKZM0/BG2	2	45	200		DN 32451
for reversing starter Eaton PKZM0/BG2	2	90	200		DN 32453
for direct starter Schneider Electric GV2-M/P	2	45	200		DN 32434
for direct starter Schneider Electric GV2-M/P	2	45	260		DN 32438
for direct starter Schneider Electric LUB12/32	1	45	200		DN 32427
for reversing starter Schneider Electric LU2B12/32	1	45	260		DN 32428
63A*, busbar adapter with leads AWG 8 (10mm²)					
for direct starter ABB MS45x, Eaton PKZM4,Siemens S2	2	55	260		DN 32460
for direct starter Allen-Bradley 140M-F	2	54	200		DN 32535
for direct starter ABB MS45x and Eaton PKZ5	2	72	260		DN 32463

* These special adapters differ from the universal model of the busbar adapters: in terms of mounting rail spacing or additional parts and additional approvals.

BUSBAR SYSTEM

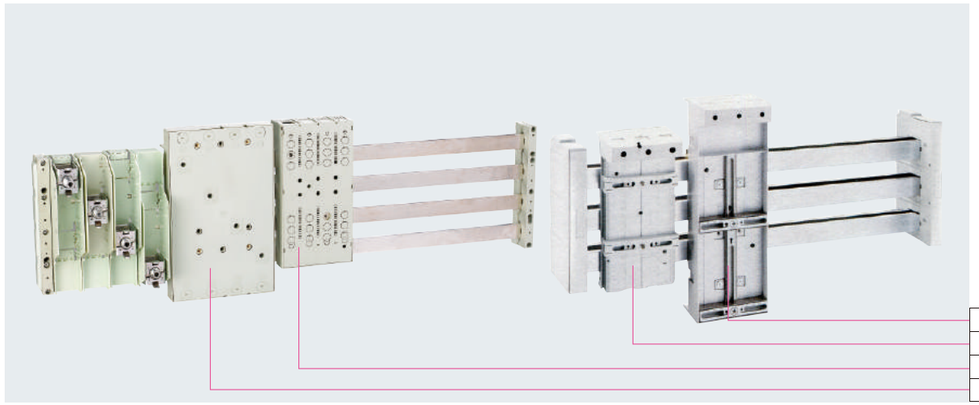


Type	Adapter width	Adapter length	Weight kg/100	Part no.
Busbar adapter, 3-pole, phase division 23-30mm				
160A, for ABB T-max T1, T-max T2, GE FD160,Schneider El. NS80, NSX80,top connection to system	90	200	81.0	DN 32575
125A, for Allen-Bradley 140-CMN, top connection to system	90	200	81.0	DN 32549
160A, for Eaton NZM1	90	200	81.0	DN 32570
100A, for Siemens S3, ABB MS49x, top connection to system	72	200	66.5	DN 32981
Busbar adapter, 3-pole, phase division 35-36mm				
290A，for ABB T-max T4, top connection to system	105	300	122.6	DN 32601
250A，for Allen-Bradley 140U-J	106	192	90.0	DN 32137
250A，for Schneider Electric NSX100-NSX250, GV7	106	192	93.8	DN 32156
250A，for Eaton NZM2-XKR4O and NZM2-XKR4U	106	192	90.1	DN 32140
160A，for Siemens 3VL1 UL	106	192	95.3	DN 32976
250A，for Siemens 3VL2，3VL3 UL	106	192	95.3	DN 32977
225A，for Terasaki S250-NJ, top connection to system	105	240	102.0	DN 32592
Busbar adapter, 3-pole, phase division 43-45mm				
580A，for ABB Tmax T5	140	270	252.7	DN 32593
600A，for Allen-Bradley 140U-K, -L	140	272	212.0	DN 32138
570A，for Schneider Electric NSX400, NSX630	140	272	222.6	DN 32157
630A，for Eaton NZM3-XKR130	140	300	255.7	DN 32978
400A，for Siemens 3VL4	140	295	222.4	DN 32975
Busbar adapter, 3-pole, phase division 63mm, top connection				
580A，for Siemens 3VL5, top connection	184	325	276.0	DN 32980
Busbar adapte, 4-pole, phase division 35-36mm, top connection				
250A，for ABB Tmax T4	140	270		DN 32584
250A，for Schneider Electric NSX100-NSX250	140	270		DN 32582
250A，for Eaton NZM2-XKR4	140	270		DN 32580
250A，for Siemens 3VL2，3VL3	140	270		DN 32578
Top connection of switch to busbar system				
Busbar adapter, 4-pole, phase division 43-45mm, top connection				
500A，for ABB Tmax T5	185	300		DN 32585
500A，for Schneider Electric NSX400-NSX630	185	300		DN 32583
500A，for Eaton NZM3-XKR130	185	300		DN 32581
500A，for Siemens 3VL400	185	300		DN 32579
Top connection of switch to busbar system				



Type	Adapter width	Adapter length	Weight kg/100	Part no.
Busbar adapter, 4-pole, phase division 35-36mm, top connection				
250A，for ABB Tmax T4	140	270	180.0	DN 32584
250A，for Schneider Electric NSX100-NSX250	140	270	180.0	DN 32582
250A，for Eaton NZM2-XKR4	140	270	180.0	DN 32580
250A，for Siemens 3VL2，3VL3	140	270	180.0	DN 32578
Top connection of switch to busbar system				
Busbar adapter, 4-pole, phase division 43-45mm, top connection				
500A，for ABB Tmax T5	105	300	122.6	DN 32585
500A，for Schneider Electric NS400/630,NSX 400/630	106	192	90.0	DN 32583
500A，for Eaton NZM3-XKR130	106	192	93.8	DN 32581
500A，for Siemens 3VL400	106	192	90.1	DN 32579
Top connection of switch to busbar system				

BUSBAR SYSTEM

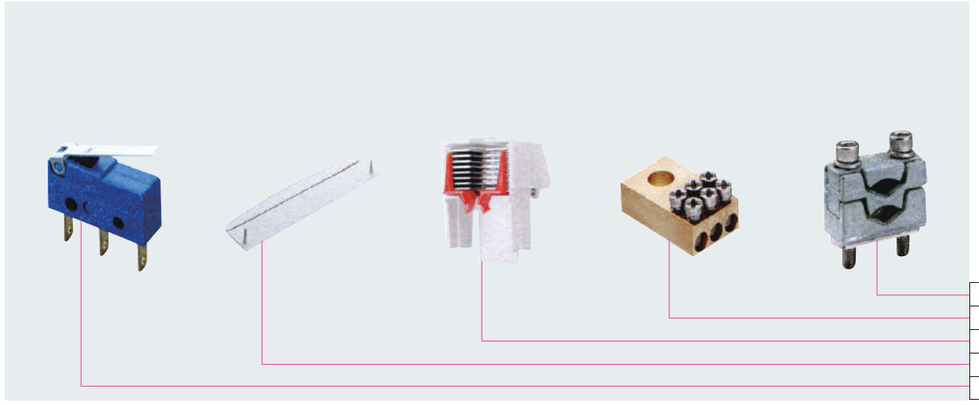


Type	Adapter width	Adapter length	Weight kg/100	Part no.
Universal busbar adapter				
200A，top connection to system	108	222	84.2	DN 32214
200A，bottom connection to system	108	222	86.0	DN 32215
250A，top connection to system	110	320	160.4	DN 32168
250A，bottom connection to system	110	320	164.0	DN 32216
For all commercially available switchgear with M4 fixing screws				
Accessories for universal busbar adapters				
M5 slide nut for DN 32214, DN 32215, DN 32168 and DN 32216			0.4	DN 32937
M6 slide nut for DN 32214, DN 32215, DN 32168 and DN 32216			0.4	DN 32938
Busbar adapter 630A				
screw M10 top or bottom	184	320	278.0	DN 32004
metal accessory plate	184	320	95.2	DN 32910
DN 32910 with drillings,available for multiple switches				
Special busbar adapter				
250A，for ABB-S3	106	192		DN 32169
530A，for ABB-S5	140	272		DN 32171
All adapters for 12-30×5-10mm section busbars, double-T and triple-T section				

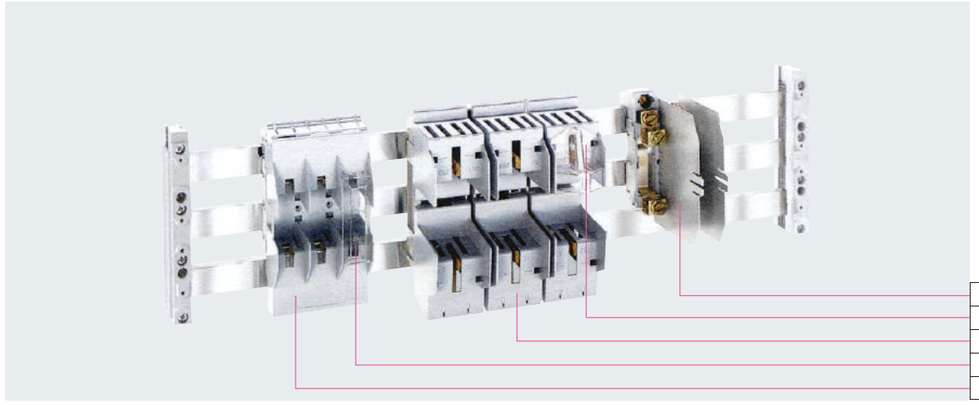
Rated current for circuit breaker (A)	Adapter width	Adapter length	Weight kg/100	Part no.
Universal busbar adapter				
100、160 top or bottom connection to system	90	220		DN 00160
200、250 top or bottom connection to system	110	267		DN 00250
400、630 top or bottom connection to system	140	320		DN 00630
250（RCBO） top connection to system	140	300		DN 40250
250（RCBO CM1L-225）top or bottom connection to system	140	270		DN 42580
400（RCBO CM1L-400）top or bottom connection to system	198	315		DN 42157

Type	Rated current (A)	Size	Weight kg/100	Part no.
NH size 000 to 3, NH bus-mounting fuse switch disconnector, bottom/top connection, 3-pole				
box terminal 50mm^2	125	000	113.0	DN 33216
box terminal 70/95mm^2	160	00	100.0	DN 33198
connection screw M8	160	00	100.0	DN 33398
connection screw M10	250	1	246.0	DN 33601
connection screw M10	400	2	522.0	DN 33602
connection screw M12	630	3	756.0	DN 33603
NH size 000 to 3, NH bus-mounting fuse switch disconnector, bottom/top connection, 3-pole with electro-mechanical fuse monitoring				
box terminal 70/95mm^2	160	00	117.0	DN 33324
connection screw M8	160	00	117.0	DN 33394
connection screw M10	250	1	304.0	DN 33325
connection screw M10	400	2	572.0	DN 33326
connection screw M12	630	3	796.0	DN 33327
NH size 000 to 3, NH bus-mounting fuse switch disconnector, bottom/top connection, 3-pole with electro-mechanical fuse monitoring				
box terminal 70mm^2 / connection screw M8	160	00	180.0	DN 33206
connection screw M10	250	1	330.0	DN 33160
connection screw M10	400	2	574.0	DN 33161
connection screw M12	630	3	824.0	DN 33162
Conversion kit				
for 5mm busbars	1-2	106	6.5	DN 33148
For mounting on 12, 15, 20, 25 and 30×5mm busbars for size 1 and 2				
Devices can be connected directly to 12, 15, 20, 25, 30×5, 10mm busbars, double-T and triple-T section.				
Conversion kit 33 148 is required for mounting size 1and 2 onto 5mm busbars, size 3 is not suitable for 5mm busbars.				

BUSBAR SYSTEM



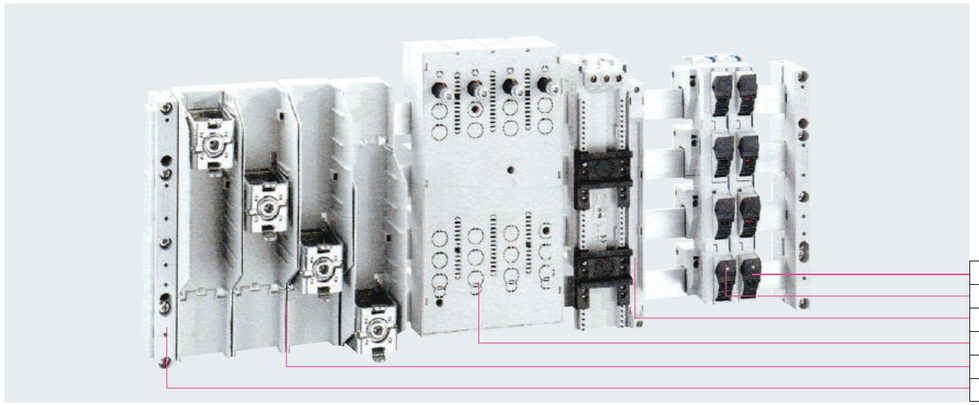
Type	Rated current (A)	Weight kg/100	Part no.
Connection terminal cover cap			
for cable lugs, can be clipped on top and bottom	NH1，320A		DN 33142
Pilot switch			
for monitoring the switch position	NH1，320A		DN 33908
Door coupling twist handle, IP 66,lockable in 'off' position, with up to 3 padlocks,door locking can be activated			
black	DN 33513，DN33514，DN 33553，DN 33554		DN 33910
red-yellow	DN 33513，DN33514，DN 33553，DN 33554		DN 33911
* switch can also be installed at a 90° angle to left/right, with the handle in the same position			
Extension shaft			
290mm long	DN 33513，DN33514，DN 33553，DN 33554		DN 33912
490mm long	DN 33513，DN33514，DN 33553，DN 33554		DN 33913
Connection accessories			
box terminal for Cu conductors 35-150mm^2 s(r), f, f+AE, la.Cu	NH1，320A		DN 33909
box terminal for Cu conductors 70-150mm^2 s(r), f, f+AE, la.Cu	NH1，320A		DN 33163
wedge clamp terminal, single, for Cu/AL conductors 70-150mm^2 s(r), s(s), f, f+AE	NH1，320A		DN 33166
wedge clamp terminal, double, for Cu conductors 2×35-70mm^2 s(r), s(s), f+AE	NH1，320A		DN 33145
* Not maintenance-free if aluminium conductors are used			



Type	Rated current (A)	Size	Weight kg/100	Part no.
NH bus-mounting fuse base, 3-pole,top/bottom connection				
box terminal 70/95mm^2	160	00	87.0	DN 03199
connection screw M8	160	00	87.0	DN 03299
with shock protection, without grip lug covers				
NH can be fastened directly on busbars 12，15，20，25，30×5，10mm double-T and triple-T section				
NH bus-mounting fuse base size 00, 3-pole, top connection				
box terminal 70mm^2	160	00	66.5	DN 03654
connection screw M8	160	00	64.5	DN 03656
with shock protection, without grip lug covers				
NH bus-mounting fuse base size 1-2, 3-pole, bottom connection				
connection screw M10	250	1	291.2	DN 03704
connection screw M10	400	2		DN 03693
with shock protection, without grip lug covers				
Grip lug cover, suitable for NH bases with shock protection				
1 units required to cover an NH base		00	1.2	DN 79448
2 units required to cover an NH base		1-2	2.5	DN 79449

Type	Rated current (A)	Gauge	Connection mm^2 max.	Weight kg/100	Part no.
Semiconductor bus-mounting fuse base, 3-pole, top connection					
connection screw M8	160	80	70	72.2	DN 03520
with two barriers for semiconductors (super-fast) fuse links with bolt-on lugs as per DIN 43653, gauge 80mm					
Semiconductor bus-mounting fuse base, 3-pole, bottom connection					
connection screw M10	400	110	240	239.7	DN 03518
with two barriers for semiconductors (super-fast) fuse links with bolt-on lugs as per DIN 43653, gauge 110mm					
NH bus-mounting fuse base for direct fastening on busbars 12-30×5-10mm, double-T and triple-T section. for further NH bus-mounting fuse bases					

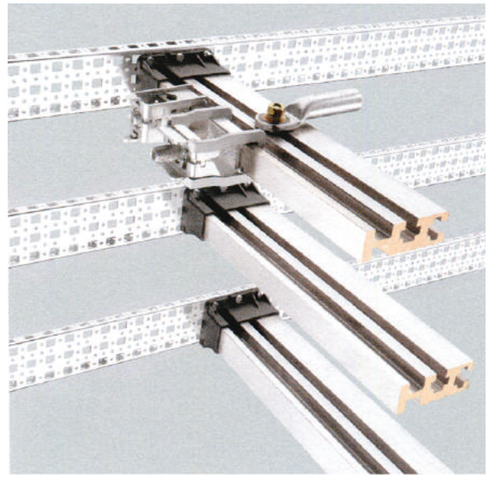
BUSBAR SYSTEM



Type	Weight kg/100	Part no.
Busbar supports		
4-pole,for 12 × 5 – 30 × 10 section busbar	26.6	DN 01485
1-pole, for connection to DN 01231 and double-T section busbar.	13.0	DN 01116
1-pole, for connection to DN 01232 and double-T section busbar.	15.0	DN 01132
Connection set, 4-pole, for 20×5 - 30×10mm, double-T and triple-T section, without cover cap		
560A, Cu u. Al 120 – 300mm², rm, sm, f	210.0	DN 01147
800A, for la. Cu and flat busbars up to 32 × 10	180.0	DN 01162
* not maintenance-free if aluminium conductors are used		
System cover, 4-pole		
holder set (left + right) for cover sections, 4-pole	21.0	DN 01137
front cover section (4-pole), 1.1m long, only with holder DN 01137	58.0	DN 01599
top/bottom cover section, 1.1m long, only with holder DN 01136 or DN 01137	27.1	DN 01555
can be used for systems with 12, 15, 20, 25, 30 × 5/10 busbars, double-T and triple-T section		
Cover cap, 4-pole, for 20× 5 - 30×10, double-T and triple-T section		
220 (W) × 260 (H) × 90 (D) mm	45.0	DN 01597

Type	Adapter width	Adapter length	Weight kg/100	Part no.
PE/N module, with 2 connection terminals 16mm², without leads				
80A, connectable to all connectors	18	242	14.1	DN 03146
Busbar adapter, 4-pole				
250A, for ABB Tmax T4	140	270	180.0	DN 32584
250A, for Schneider Electric NSX100-NSX250	140	270	180.0	DN 32582
250A, for Eaton NZM2-XKR4	140	270	180.0	DN 32580
250A, for Siemens 3VL2, 3VL3	140	270	180.0	DN 32578
500A, for ABB Tmax T5	185	300	360.0	DN 32585
500A, for Schneider Electric NSX400-NSX630	185	300	360.0	DN 32583
500A, for Eaton NZM3-XKR130	185	300	360.0	DN 32581
500A, for Siemens 3VL400	185	300	360.0	DN 32579

Type	Rated current (A)/ Rated voltage(V)	Weight kg/100	Part no.
Bus-mounting fuse base, 3-pole + N, 4-pole isolating, with spring terminals			
for fuses 10 × 38mm IEC 60 269-6	32 / 690	25.2	DN 31963
for fuses 10 × 38mm IEC 60 269-2 with LED	32 / 690	25.2	DN 31964



New product

* Centre feed unit 4000A
* New TCC section busbar: Connection options with (screw in c-slot).
* 1-pole, side busbar support forvariable, multi-pole structures; also suitable for double-T and triple-T sections

System benefits

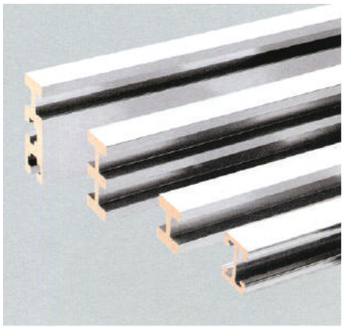
The fuse-free construction of this feed unit requires a high short-circuit rating. The centre feed unit 4000A is de signed specifi cally for this purpose.

Centre feed unit 4000A

Triple-T section and corresponding profile terminals allow a secure transmission of currents up to 4000A in centre feeds. The clear design, the drill-free assembly and the electrical direct-contacting with the aid of embracing reduce the assembly time to a minimum.The ability to accommodate multiple incoming connections of up to 300mm² in Cu or Al, and the wide range of outgoing connections up to 2 x 100 x 10mm², together with a choice of 3 or 4-pole construction, make it possible to create customised solutions.

The new TCC section busbars offer even more connection options: one side with a 30 x 10 T section for connection with universal and brace terminals Ensure secure and fast connection – and can be retrofitted easily. Two other sides of this busbar are fitted with C-slots for securing screws. Busbars, for example, can be easily connected here; connections can be made on up to three sides simultaneously.

Standardised production and type-testing ensure that units always meet relevant safety standards. Current carrying capacity, which is fully confirmed by type-testing,and a short-circuit withstand capacity of up to 120kA,guarantee that these units are suitable for use in even the most demanding applications.

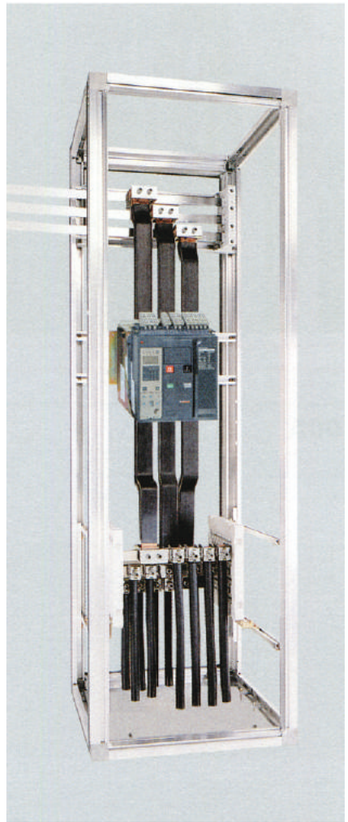


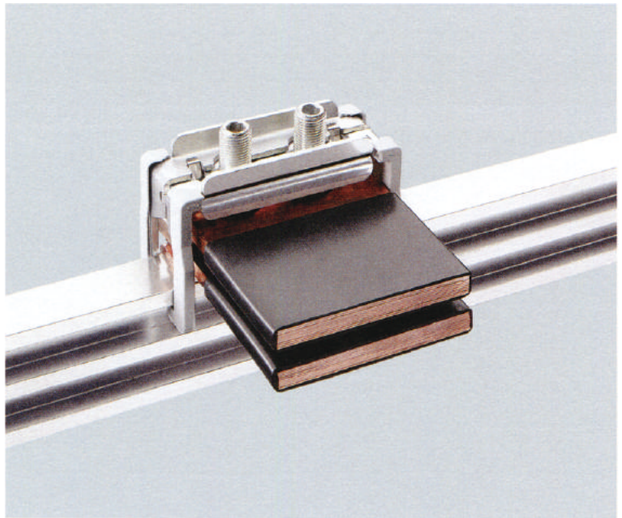
New product

* Busbars for centre-feed unit 4000A
* Double-T and triple-T sections with two different cross-sections
* Triple-T sections
* TCC section busbar for strong currents and triple-sided connection options
* Prefabricated lengths for various enclosure widths

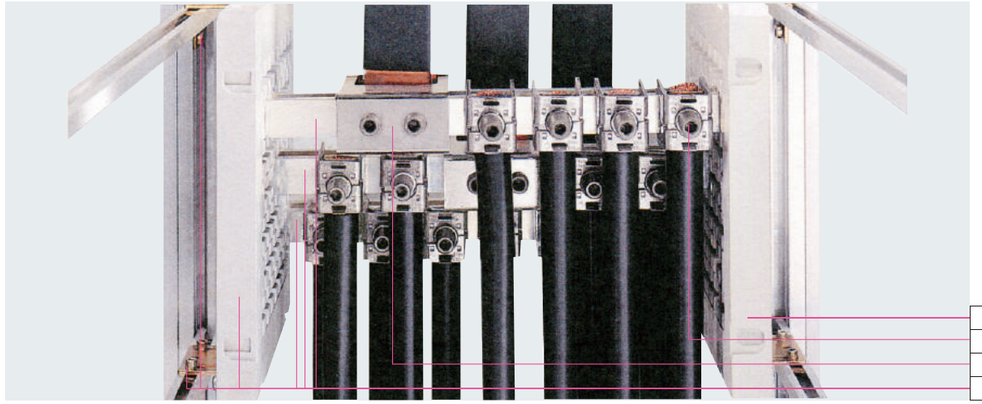
BUSBAR SYSTEM

Centre feed unit up to 4000A
combines the benefits of high short-circuit withstand capacity,assembly without drilling, clamp-type terminals and simple construction





Brace terminals for 50, 63 and 100mm flexible copper busbars
For 30 x 10mm busbars and section busbars
For feeder circuits up to 600V applicable according to UL 508A



Cabinet width	Mounting dimensions	Busbar length (m)	Rated current (A)	Weight kg/100	Part no.
Centre feed unit up to 4000A					
600	488-563	0.45	1250	1434.0	DN 35007
800	688-763	0.65	1250	1716.0	DN 35006
600	488-563	0.45	2000	1716.0	DN 35005
800	688-763	0.65	2000	2488.0	DN 35004
600	488-563	0.45	3200	2200.0	DN 35015
800	688-763	0.65	3200	2940.0	DN 35016
800	688-763	0.65	4000	3500.0	DN 35034

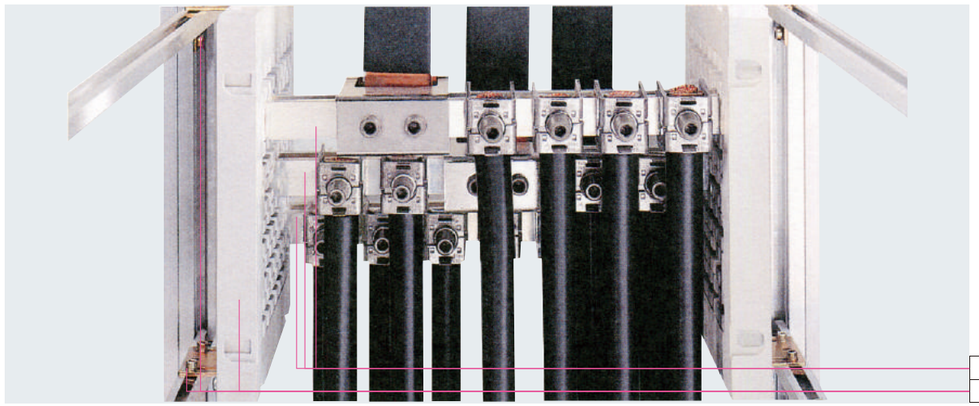
basic system: 2 busbar supports, 6 fixing brackets with screws, 3 busbars cut to length; 8 supports for covers

Connection	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Universal conductor terminal				
16-120mm^2, s(r), f, f+AE and la.Cu	17 × 15	440A	10.9	DN 01203
95-300mm^2, sol(r), sol(s), s(s), f, f+AE	41 × 25	630A	85.7	DN 01094
Brace terminals				
Cu and Al 95-185mm^2, s(r), s(s), f	30 × 20	500A	31.2	DN 01318
Cu and Al 120-300mm^2, s(r), s(s), f	32 × 25	600A	42.5	DN 01760
* not maintenance-free if aluminium conductors are used				
Screw-type terminal, clip-on				
for cable lug DIN 46 234	M8 × 8 M10 × 10	490A 630A		DN 01514 DN 01047

Connection	Section	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Universal conductor terminal					
320-800 mm^2	2T	41 × 20-42	1600A	67.0	DN 01185
500-750 mm^2	2T	51 × 5-28	1600A	70.5	DN 01906
600-900 mm^2	2T	64 × 5-28	1600A	84.0	DN 01907
500-1000 mm^2	2T	51 × 20-42	1600A/2000A*	73.5	DN 01936
600-1200 mm^2	2T	64 × 20-42	1600A/2000A*	85.9	DN 01911
800-1600 mm^2	2T	81 × 20-42	1600A/2500A*	101.1	DN 01934
1000-2000 mm^2	2T	101 × 20-42	1600A/2800A*	113.7	DN 01935
320-800 mm^2	3T	41 × 23-45	1600A	105.0	DN 01513
500-1260 mm^2	3T	64 × 23-45	2000A/2500A*	124.0	DN 01008
1200-3600 mm^2	3T	101 × 23-45	2500A/3200A*	172.7	DN 01186

Can also be used on circuit-breaker connection, * centre feed

BUSBAR SYSTEM



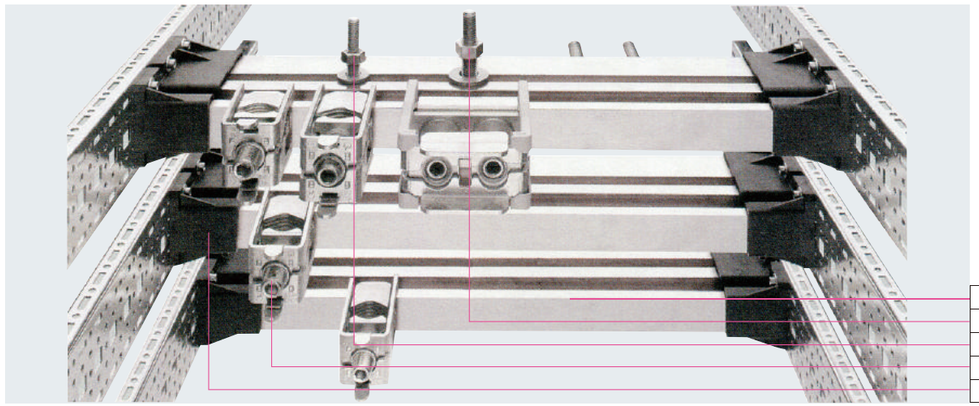
DN 01188
DN 35008

For busbars	Terminal space	For use (up to max.)	Weight kg/100	Part no.
Brace terminals, for the 30×10 and section				
for 20×5–30×10 and double–T and triple–T section	55×28	1600A/2000A*	50.0	DN 01069
	68×28	1600A/2000A*	63.0	DN 01070
	105×28	1600A/2800A*	84.0	DN 01071

* for the connection of flat busbars and laminated copper
* centre feed

Connection	Rated current (A)	Cross section mm^2	Weight kg/100	Part no.
Laminated copper busbars, Cu blank, insulated, length 2m				
10×40×1	1053	400	712.0	DN 01615
10×50×1	1244	500	890.0	DN 01509
10×63×1	1481	630	1121.4	DN 01510
10×80×1	1777	800	1424.0	DN 01061
10×100×1	2110	1000	1780.0	DN 01273

Connection	Length (m)	Section	Cross section mm^2	Weight kg/100	Part no.
Components, for individual mounting					
busbar support, outer, universal,incl. fixing materials				458.0	DN 35008
busbar support for double–T section, central, 4–pole, incl. fixing materials				458.0	DN 35009
busbar support for double and triple–T section, central, 3–pole, incl. fixing materials				458.0	DN 35001
additional support for cover, including screw				1.4	DN 35017
section busbar, E–Cu, tin–plated	0.45	2T	500	198.8	DN 01225
section busbar, E–Cu, tin–plated	0.65	2T	500	288.1	DN 01226
section busbar, E–Cu, tin–plated	0.45	2T	720	291.0	DN 01838
section busbar, E–Cu, tin–plated	0.65	2T	720	419.0	DN 01831
section busbar, E–Cu, tin–plated	0.45	3T	1140	464.0	DN 01188
section busbar, E–Cu, tin–plated	0.65	3T	1140	672.3	DN 01189



DN 01378
DN 01379
DN 01380
DN 01760
DN 01369

Type	Weight kg/100	Part no.
Busbar supports, 1-pole, lateral		
for 30×10, double–T, triple–T and TCC section busbars, 7.5mm insulation between busbar and mounting plate	11.2	DN 01369

Type	Length (m)	Cross section mm^2	Weight kg/100	Part no.
E-CU busbar				
TCC section busbars, tin–plated	0.492	1600	691.5	DN 01377
	0.692m	1600	972.6	DN 01378

Type	For lengths	Thread	Weight kg/100	Part no.
Special connection screws, with nut and spring washer for TCC section busbars				
connection screw for TCC sections,can be retrofitted	10 – 25	M10×45	5.1	DN 01379
connection screw for TCC sections,can be retrofitted	10 – 40	M12×60	9.1	DN 01380

For busbars	Connection	For use (up to max.)	Weight kg/100	Part no.
Brace terminals				
for 20×5 – 30×10, double–T and triple–T section	for flat busbars up to 30×20	750A	30.3	DN 01319
	Cu and Al*95 – 185mm^2, S(r), S(S), f	500A	31.2	DN 01318
	for flat busbars up to 32×20	800A	34.7	DN 01759
	Cu and Al 120 – 300mm^2, S(r), S(S), f	600A	42.5	DN 01760

For busbars	Terminal space	For use (up to max.)	Weight kg/100	Part no.
Brace terminals, for the connection of flat busbars and laminated copper				
for 30×10, double–T and triple–T section and TCC sections	55×28	1600A/2000A*	50.0	DN 01069
	68×28	1600A/2000A*	63.0	DN 01070
	105×28	1600A/2800A*	84.0	DN 01071

* centre feed

BUSBAR SYSTEM

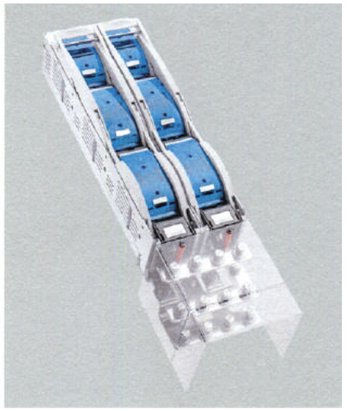
with electronic fuse monitoring
Choice of outgoing connection at top or bottom

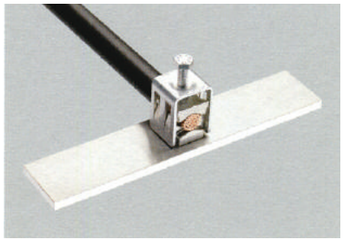
System advantages

The 100mm and 185mm-System power is designed for use in efficient power distribution assemblies with a high short-circuit withstand capacity. The narrow design of the NH in-line fuse switch disconnectors typical for these systems enables the best possible use of the restricted space in the control cabinet. Thanks to the large centre distance of the 100mm and185mm-System power, a short-circuit withstand capacity of at least 100kA can be achieved. Fast connection means that all components of the 100mm and 185mm-System power can also be fitted in a few simple steps. Time-consumingdrilling of busbars can be dispensed with.

Connection technology

GRL offers universal conductor terminals, (brace terminals) and profile terminals for connecting conductors in busbar systems without drilling. Clip-on screw-type terminals are also available to permit the connection,without drilling, of conductors fitted with cable lugs. Busbar connectors up to 80 x 40mm are used to connect flat conductors and laminated busbars.





Assembly of the busbar in the 185mm-System power with no drilling required

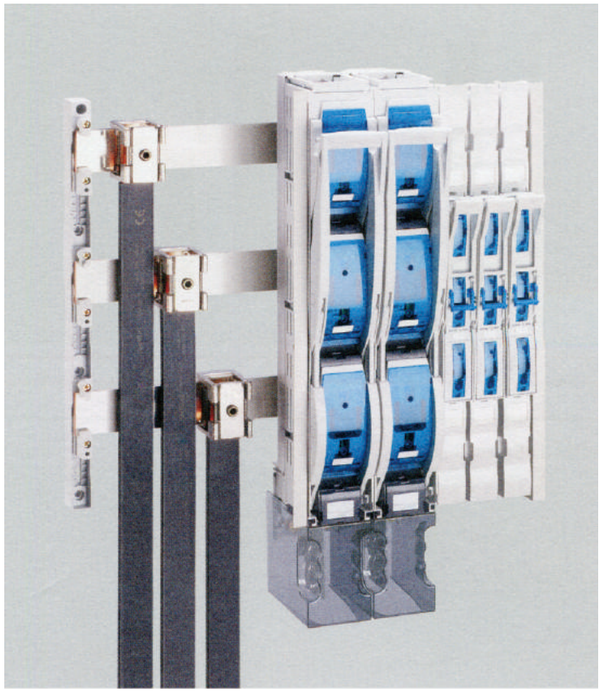
Current transformers can be retro-fitted sizes 00 to 3

NH bus-mounting fuse bases

Single-pole NH fuse bases up to size 3, with protection against accidental contact with live parts, are available for the 100mm and 185mm-Systempower. Three-pole block-form NH fuse bases in size 00 up to 3 are also available for directconnection to the 100 mm and 185mm-System.

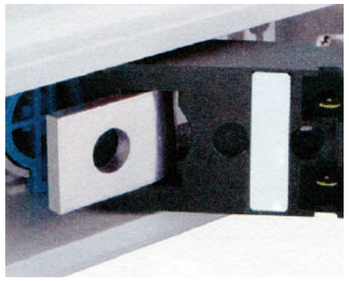
NH in-line fuse switch disconnectors in sizes 00 to 3 are installed in the 100mm and185mm-System power in just a few easy steps. Thanks to new technology, can be mounted without drilling. Current transformers are fully integrated in the basic body of NH in-line fuse switch disconnectors sizes1 to 3. The transformer can be subsequently installed in sizes 1 to 3 at any time. As an option, the transformer can be wired via the terminals of a component support.

Size 00 can be fitted in the 100mm and185mm-System power using single or double adapters. Now, the current transformer can also be used with the size 00 NH in-line fuse disconnector switch in the 185mm-System power. The transformer can be installed in the single or double adapter at any time. A version with electronic fuse monitoring is available for monitoring fuses. As well as 1-pole and 3-pole switching NH in-line fuse switch disconnectors, also offered in the form of open strips. The extensive range of connection accessories permits the connection of circular and sector-shaped conductors.

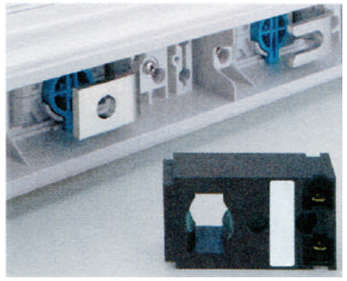


The universal busbar support allows 10mm thick DIN flat and section busbars to be assembled without drilling

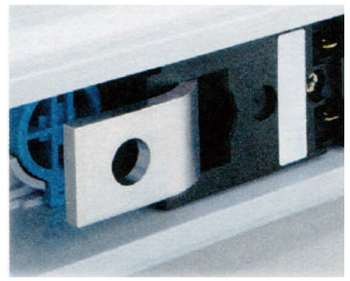
The NH in-line fuse switch disconnectors size 00 to 3 are accommodated in the 185mm-System power without drilling



Current transformer mounting is generally prepared

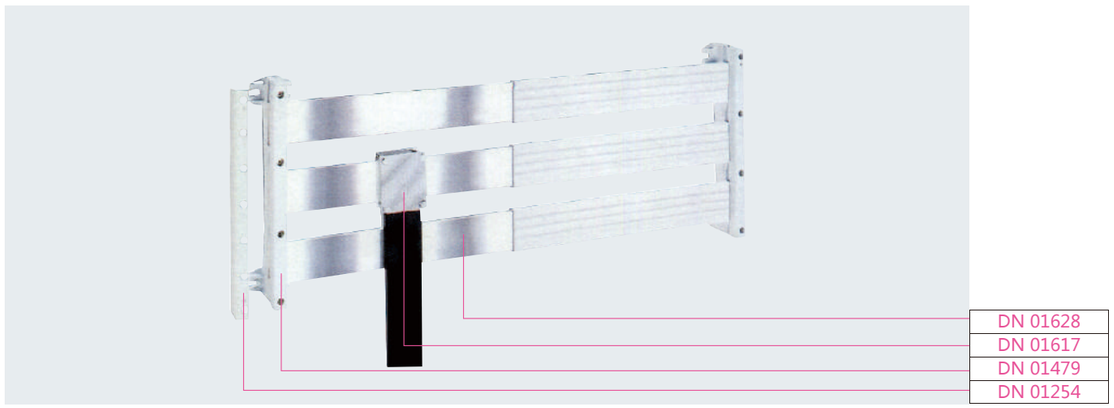


No additional space requirements, simply swivel



Transformer available in various measurement ranges and precision classes

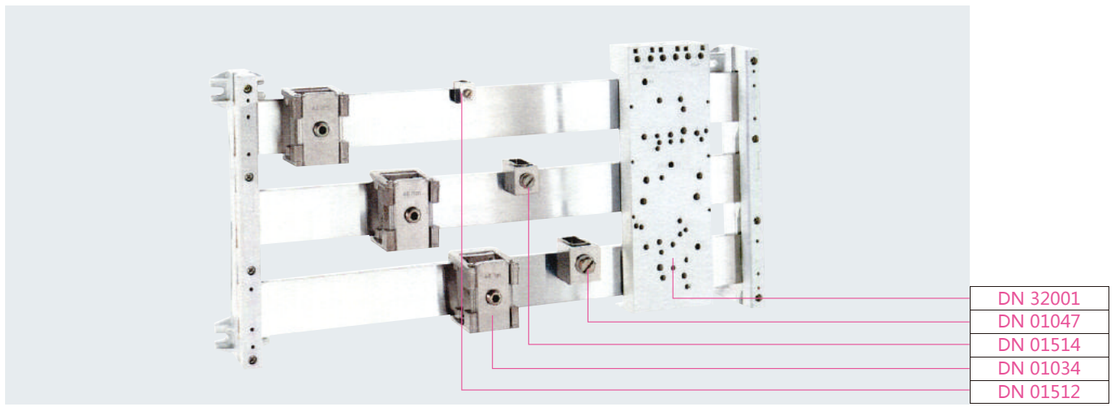
BUSBAR SYSTEM



Type	Weight kg/100	Part no.
Universal busbar supports 100mm, 3-pole		
for undrilled busbars 30，40，50，60 × 10	47.1	DN 01479
End cover		
for busbar supports DN 01479	5.3	DN 01254

Size	Rated current	Weight kg/100	Part no.
Standard copper busbar, tin-plated, length 2.40m, shorter lengths on request			
30 × 10	630A	640.8	DN 01625
40 × 10	850A	854.4	DN 01626
50 × 10	1000A	1068.0	DN 01627
60 × 10	1250A	1281.6	DN 01628
Busbar cover, length 1m			
30 × 10		10.1	DN 01245
30–60 × 10		17.6	DN 01251

Terminal space (W x L)	Terminal space (max height)	Tightening torque Nm	Weight kg/100	Part no.
Busbar connector, to connect flat busbars and flexible Cu				
40 × 20	20	6	17.8	DN 01206
40 × 32	30	6	27.6	DN 01616
50 × 35	30	6	32.2	DN 01207
63 × 40	30	6	43.4	DN 01218
63 × 50	30	6	51.5	DN 01617



Connection mm² min.-max.	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Standard copper busbar, tin-plated, length 2.40m, shorter lengths on request				
16 – 70mm², S(r), f, f+AE	14 × 14	400A	7.5	DN 01292
16 – 120mm², S(r), f, f+AE	17 × 15	440A	10.9	DN 01203

For busbars	Connection	For use (up to max.)	Weight kg/100	Part no.
Brace terminals				
20 × 5 – 30 × 10，double-T and triple-T section	for flat busbars up to 30 × 20	750A	30.3	DN 01319
	Cu and Al 95 – 185mm², S(r), S(S), f	500A	31.2	DN 01318
	for flat busbars up to 32 × 20	800A	34.7	DN 01759
	Cu and Al 120 – 300mm², S(r), S(S), f	600A	42.5	DN 01760

For busbars	Connection mm² min.-max.	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Connection terminal					
30 × 10	95 – 300mm², S(r), Sol(r), Sol(s), S(s), f, f+AE	41 × 25	630A	85.7	DN 01094
30 × 10	flat busbars, fl. Cu	41 × 25	1250A	81.7	DN 01092
40 × 10	flat busbars, fl. Cu	41 × 25	1250A	89.3	DN 01032
50 × 10	flat busbars, fl. Cu	41 × 25	1250A	98.0	DN 01033
60 × 10	flat busbars, fl. Cu	41 × 25	1250A	104.6	DN 01034

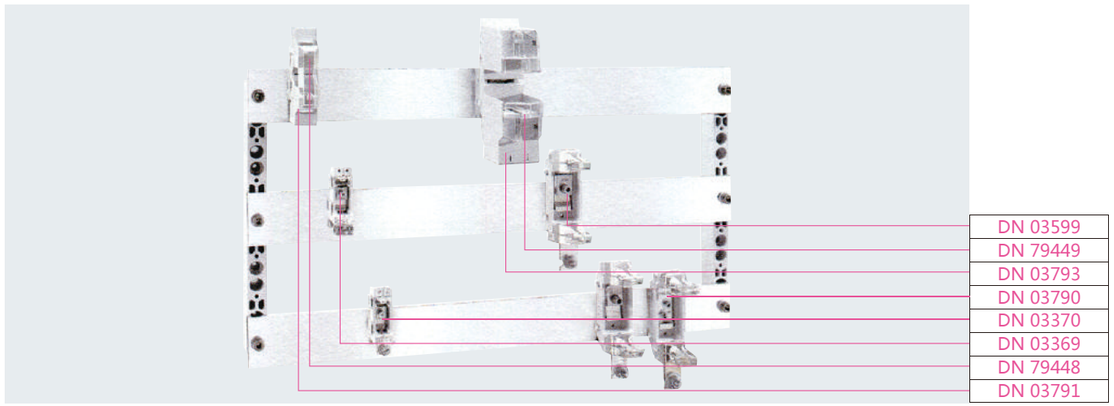
Type	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Screw-type terminal, clip-on				
for cable lug DIN 46234	M5 × 8	360A	5.0	DN 01512
	M8 × 8	490A	16.5	DN 01514
	M10 × 10	630A	36.2	DN 01047

Type	Adapter length	Adapter width	Weight kg/100	Part no.
Busbar adapter 200A, with clamp-type terminal 70mm²				
mounting plate: plastic	315	108	87.7	DN 32001

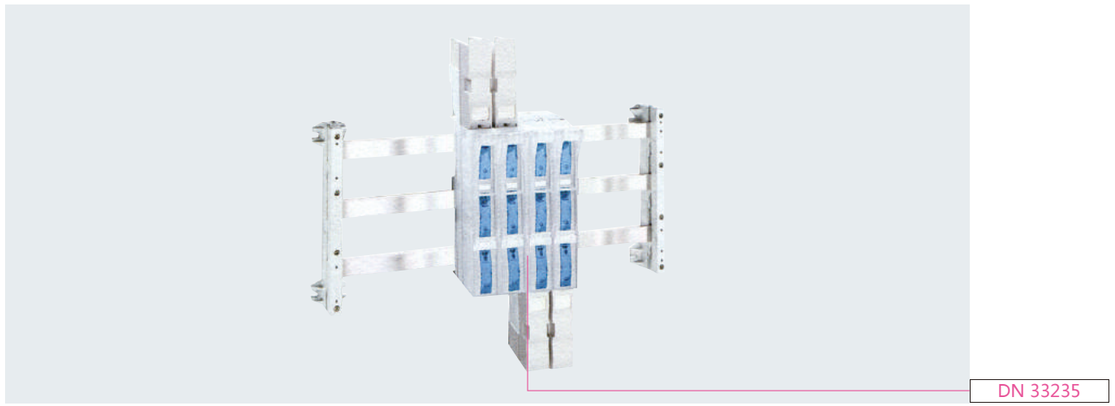
Mounting options for following switches:

Merlin Gerin NS100,NS160
Misubishi NF30,NF50,NF60,NF100
Siemens 3VF3
Telemecanique Integral 63
Terasaki XS125,XH125
Weber BS125,BH125
GRL DN 33199,DN33200,DN33207,DN33208

BUSBAR SYSTEM

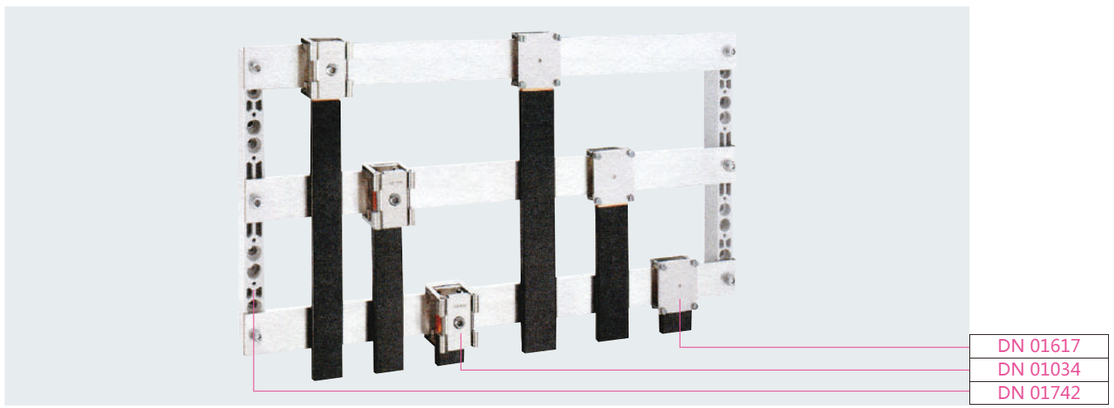


Type	Rated current (A)	Size	Weight kg/100	Part no.
NH bus-mounting fuse base, size 00-1-2				
clamp 70mm²	160	00	14.9	DN 03369
screw M8	160	00	14.2	DN 03370
screw M10	250	1	54.0	DN 03384
screw M10	400	2	75.8	DN 03599
1-pole, without shock protection, suitable for direct mounting on busbars				
NH bus-mounting fuse base, size 00-1-2-3				
screw M8	160	00	11.5	DN 03587
screw M10	250	1	46.0	DN 03601
screw M10	400	2	68.5	DN 03795
screw M12	630	3	45.9	DN 03790
1-pole, without shock protection, for screwing onto drilled busbars				
Protection cover, for 1-pole NH bus-mounting fuse base				
2 sections		00	3.5	DN 03791
		1	12.6	DN 03792
		2	17.1	DN 03793
		3	21.0	DN 03794
Grip lug cover, suitable for NH bases with shock protection				
1 unit required to cover a fuse		00	1.2	DN 79448
2 unit required to cover a fuse		1 - 3	1.5	DN 79449
NH inline fuse base, size00, 3-pole				
wedge clamp terminal 70mm²	160	00	99.5	DN 33384

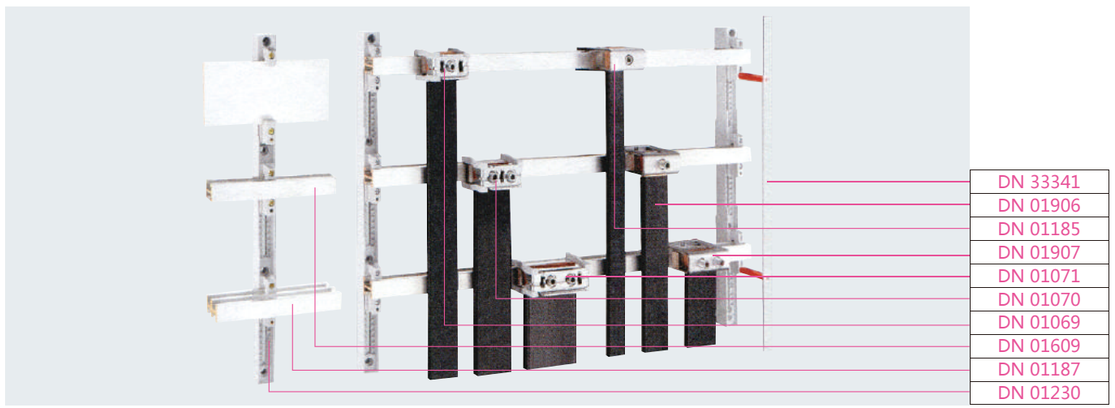


Type	Rated current (A)	Size	Weight kg/100	Part no.
Size 00, NH in-line fuse switch disconnector, 3-pole switching, bottom/top connection				
clamp 70mm² / screw M8	160A	00	137.00	DN 33235
with terminal compartment cover, directly connectable in the 100mm-system				
Size 00, NH in-line fuse switch disconnector, 3-pole switching, bottom/top connection,with electronic fuse monitoring, 400V AC				
clamp 70mm² / screw M8	160A	00	143.0	DN 33286
with terminal compartment cover, directly connectable in the 100mm-system				
Accessories, for DN 33235				
terminal clamp for assembly without drilling,in the 100mm-system, on 10mm busbars	160A	00	3.1	DN 33238
Trim strips				
for DN 33235 in the 100mm-system		00	5.3	DN 33036
Support bracket				
for fixing the front trims		00 - 3	0.5	DN 33113
Pilot switch, for monitoring lid position				
1 changeover switch 250V AC/5A; 30V DC/4A		00-3	1.1	DN 33156
flat push-on connector 2.8 × 0.5 (DIN4 6 244-A)				
Connection accessories				
clamp connector 1.5 - 70mm², for Cu conductors, s(r) , f+AE, Ia, Cu		00	1.5	DN 03727
M8 screw connector		00	1.4	DN 30894
wedge clamp terminal 16 - 70mm², or Cu and Al* conductors, s(r) , s(s), f+AE		00	3.0	DN 33224
* not maintenance-free if aluminium conductors are used				

BUSBAR SYSTEM



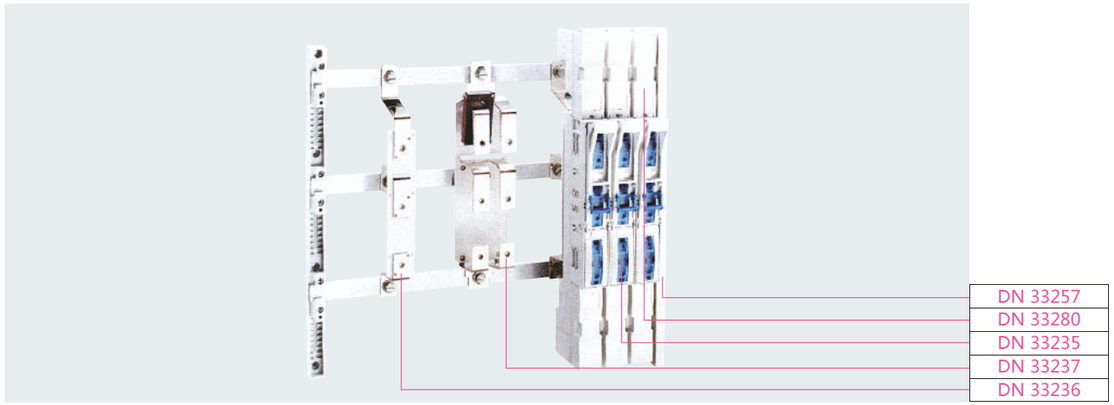
Type			Weight kg/100	Part no.
Universal busbar supports 185mm, 3-pole				
for drilled flat busbars			70.3	DN 01742
Dimensions (W×H)		Current-carrying capacity	Weight kg/100	Part no.
Standard copper busbar, tinned, length 2.40m, shorter lengths on request				
50×10		1000A	1068.0	DN 01627
60×10		1250A	1281.6	DN 01628
80×10		1500A	1708.8	DN 01765
100×10		1800A	2136.0	DN 01766
120×10		2100A	2563.0	DN 01767
Terminal space (W×L)	Terminal space (max height)	Terminal space torque Nm	Weight kg/100	Part no.
Busbar connector, to connect flat busbars and flexible Cu				
50×32	20	6	32.2	DN 01207
63×40	30	6	43.4	DN 01218
63×50	30	6	51.5	DN 01617
80×40	30	6	84.0	DN 01222
Busbars	Connection	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Connection terminal					
30×10	flat busbars, fl. Cu	41×25	1250A	81.7	DN 01092
40×10	flat busbars, fl. Cu	41×25	1250A	89.3	DN 01032
50×10	flat busbars, fl. Cu	41×25	1250A	98	DN 01033
60×20	flat busbars, fl. Cu	41×25	1250A	104.6	DN 01034
Terminal space (W × L)		Terminal space (max height)	Terminal space torque Nm	Weight kg/100	Part no.
Screw-type terminal, clip-on, for cable lug DIN 46234					
undrilled flat busbars, 10mm thick		M5×8	360A	5.0	DN 01512
undrilled flat busbars, 10mm thick and double-T and triple-T section		M8×8	490A	16.5	DN 01514
undrilled flat busbars, 10mm thick and double-T and triple-T section		M10×10	630A	36.2	DN 01047



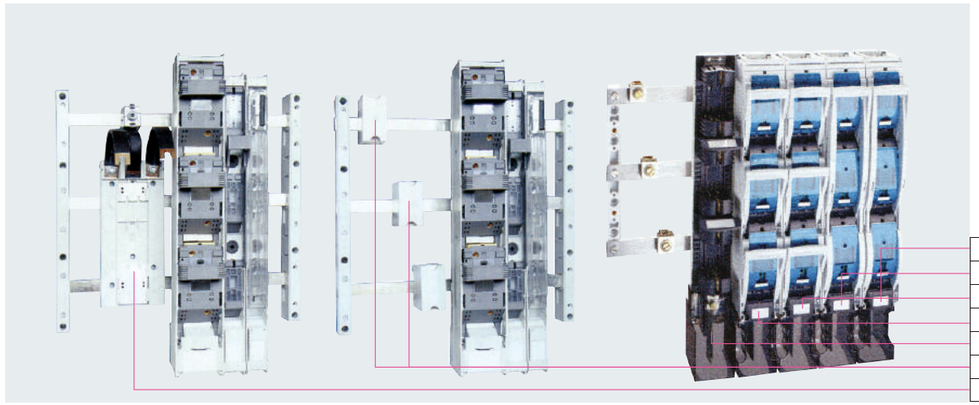
Type	Weight kg/100	Part no.
Universal busbar supports 185mm, 3-pole		
for undrilled flat busbars 30, 40, 50 ... 120×10 and section busbars	50.0	DN 01230
Combined with size 1 – 3 can be mounted above. Terminal clamps can only be connected on busbars up to 60mm wide.		
End cover, for covering busbars ends, incl. mounting material		
for part no. DN 01230	2.8	DN 33341

Type	Length	Cross section *mm²	Weight kg/100	Part no.
Standard copper busbar, shorter lengths on request				
double-T and triple-T section busbar, tin-plated	2.40m	500	1044.0	DN 01609
	2.40m	720	1540.0	DN 01608
	2.40m	1140	2436.0	DN 01187
Busbars	Terminal space	For use (up to max.)	Weight kg/100	Part no.
Brace terminal, suitable for 30×10 flat and section busbar				
for 20×5 – 30×10, double-T and triple-T section busbars	55×28	1600A/2000A*	50.0	DN 01069
	68×28	1600A/2000A*	63.0	DN 01070
	105×28	1600A/2800A*	84.0	DN 01071
*for the connection of flat and flexible copper busbars; * centre feed				
Connection	Section	Terminal space (W×H)	For use (up to max.)	Weight kg/100	Part no.
Profile terminal, connection at front and back of busbar section					
320 – 800 mm²	2T	41×20 – 42	1600A	67.0	DN 01185
500 – 750 mm²	2T	51×5 – 28	1600A	70.5	DN 01906
600 – 900 mm²	2T	64×5 – 28	1600A	84.0	DN 01907
500 – 1000 mm²	2T	51×20 – 42	1600A/2000A*	73.5	DN 01936
600 – 1200 mm²	2T	64×20 – 42	1600A/2000A*	85.9	DN 01911
800 – 1600 mm²	2T	81×20 – 42	1600A/2500A*	101.1	DN 01934
1000 – 2000 mm²	2T	101×20 – 42	1600A/2800A*	113.7	DN 01935
320 – 800 mm²	3T	41×23 – 45	1600A	105.0	DN 01513
500 – 1260 mm²	3T	64×23 – 45	2000A/2500A*	124.0	DN 01008
1200 – 3600 mm²	3T	101×23 – 45	2500A/3200A*	172.7	DN 01186
can also be used on circuit-breaker connection; * for centre feeding					

BUSBAR SYSTEM



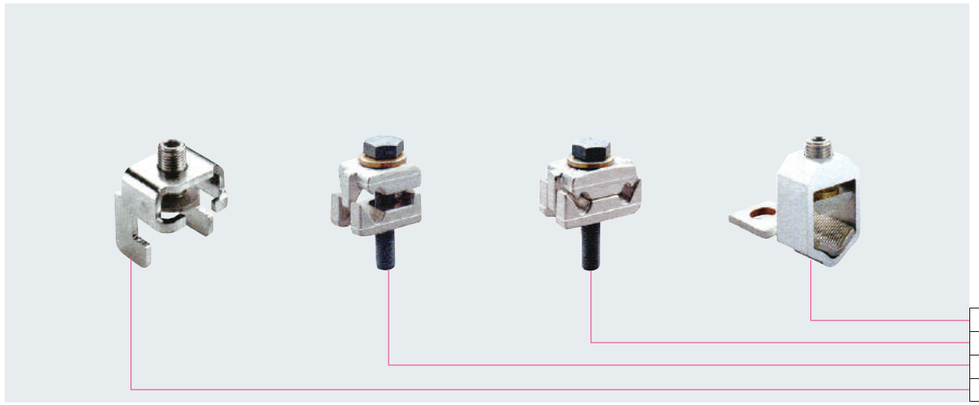
Type	Rated current (A)	Size	Weight kg/100	Part no.
Size 00, NH in-line fuse switch disconnector, 3-pole switching, bottom/top connection				
clamp 70mm² / screw M8	160	00	137.0	DN 33235
with terminal compartment cover, directly connectable in the 185mm-system power DN 33236, DN 33237 and DN 33282				
Size 00, NH in-line fuse switch disconnector, 3-pole switching, bottom/top connection, with electronic fuse monitoring, 400V AC				
clamp 70mm² / screw M8	160	00	143.00	DN 33286
with terminal compartment cover, directly connectable in the 185mm-system power DN 33236, DN 33237 and DN 33282				
Adapter, for DN 33235				
single, screw-on	160	00	52.0	DN 33236
double, screw-on	2 × 160	00	104.0	DN 33237
single, terminal clamp for assembly without drilling*	160	00	62.0	DN 33282
connecting space cover or equalising trim for the extension in the 185mm-System power	160	00	9.0	DN 33280
current transformer fixing clip for adapter		00	0.4	DN 33300
* on 10mm busbars, double-T and triple-T section				
Accessories				
pilot switch for monitoring lid position 1 changeover switch 250V AC / 5A; 30V DC / 4A flat push-on connector 2.8 × 0.5 (DIN 46 244-A)		00-3	1.1	DN 33156
support angle for fixing front trims		00 - 3	0.5	DN 33113
trim strips for the 185mm-System power,trims for outer units can be screwed on from side		00 - 3	10.7	DN 33257
Connection accessories				
clamp connector 1.5 - 70mm², for Cu conductors, S(r) , f+AE, Ia, Cu		00	1.5	DN 03727
M8 screw connector		00	1.4	DN 30894
wedge clamp terminal 16-70mm² , for Cu and Al* conductors, s(r), s(s), f + AE		00	3.0	DN 33224
*not maintenance-free if aluminium conductors are used				



Type	Rated current (A)	Size	Weight kg/100	Part no.
Size 1-2-3, NH in-line fuse switch disconnector, 3-pole switching, bottom/top connection				
screw M10	250	1	520.0	DN 33097
screw M10	400	2	630.0	DN 33098
screw M12	630	3	700.0	DN 33099
V-direct connection	250	1	560.0	DN 33243
V-direct connection	400	2	670.0	DN 33244
V-direct connection	630	3	750.0	DN 33245
Size 1-2-3, NH in-line fuse switch disconnector, 1-pole switching, bottom/top connection				
screw M10	250	1	520.0	DN 33093
screw M10	400	2	630.0	DN 33094
screw M12	630	3	700.0	DN 33095
Size 1-2-3, in-line fuse switch disconnector, 3-pole switching, bottom/top connection, with electronic fuse monitoring, 400V AC				
screw M10	250	1	520.0	DN 33287
screw M10	400	2	630.0	DN 33288
screw M12	630	3	700.0	DN 33289
Size 1-2-3, NH fuse block, open type, bottom/top connection				
screw M10	250	1	430.0	DN 33087
screw M10	400	2	450.0	DN 33088
screw M12	630	3	535.0	DN 33089
1250A, 2 × size 3, double-NH fuse switch disconnector,3-pole switching, bottom/top connection				
4 × screw M12	1250	2 × 3	1400.0	DN 33321
Universal adapter 185mm				
400、630 top/bottom connect with system	320	140		DN 18630

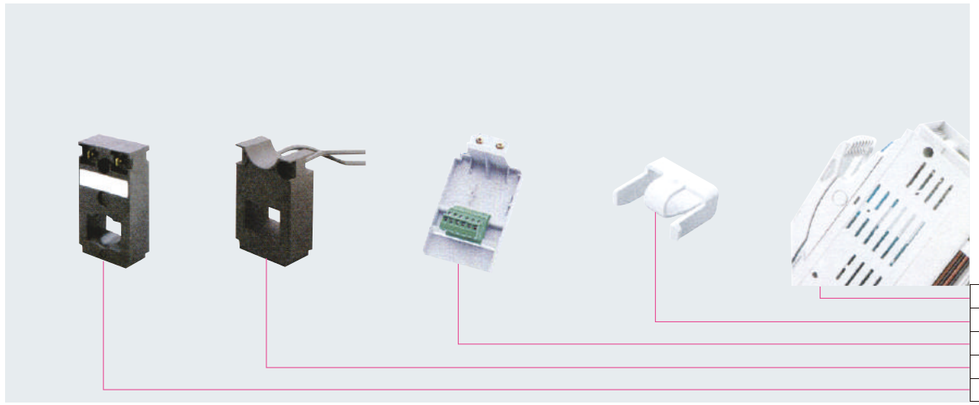
For busbars	Connection	For use (up to max.)	Weight kg/100	Part no.
Brace terminals				
20 × 5-30 × 10, double-T and triple-T section	for max 32 × 20 section Cu and AL*120 - 300mm², s(r), s(s), f	800A 600A	34.7 42.5	DN 11759 DN 11760
for 1-pole connecting terminal plate in 185mm-system				

BUSBAR SYSTEM



Type	Size	Weight kg/100	Part no.
Trim strips			
for open and switch fuse units	1 – 3	137.0	DN 33257
trims for outer units can be screwed on from side			
Terminal clamp, for assembly without drilling in the 185mm system, on 10mm busbars, double-T and triple-T section section			
for bottom connection	1 – 3	143.0	DN 33301
for top connection	1 – 3		DN 33101
Pilot switch, for monitoring lid position			
1 changeover switch 250V AC / 5A; 30V DC、4A	00-3	52.0	DN 33156
flat push-on connector 2.8 × 0.5 (DIN 46 244-A)			
Support bracket			
for fixing the front trims	00 – 3	1.1	DN 33113

Type	Connection (mm² min. - max.)	Size	Weight kg/100	Part no.
clamp connector for Cu conductors, S(r) ,f,+AE,Ia,Cu	120-140/21 × 1-12	1-3	1.4	DN 33164
wedge clamp terminal, single, for Cu and Al* conductors, S(r) ,S(s),f,F+AE,Ia,Cu	120-240/21 × 10-21	1-3	3.0	DN 33167
wedge clamp terminal, double, for Cu* conductors, S(r) ,S(s),f+AE(600A)	2 × 120-185	1-3		DN 33372
direct connection terminal for Cu and Al* conductors	35-70 s(r); 35-150 s(s); 35-185 sol(s)	1 – 2		DN 33267
	35-70 s(r); 35-150 s(s); 35-185 sol(s)	3		DN 33268
D-direct connection terminal for Cu and Al* conductors	2 × 35-70 s(r); 2 × 35-150 s(s); 2 × 35-185 sol(s)	1 – 2		DN 33269
	2 × 35-70 s(r); 2 × 35-150 s(s); 2 × 35-185 sol(s)	3		DN 33270
V-direct connection terminal for Cu and Al* conductors	50-185 s(r); 70-240 s(s); 95-300 sol(s)	1 – 2		DN 33273
	120-300 s(r); 120-240 s(s); 150-300 sol(s)	3		DN 33274
connection extension for 2 cable lugs		1 – 2		DN 33271
		3		DN 33272



Type	Rated current (A)	Size	Rated apparent power (VA)	Weight kg/100	Part no.
Current transformer, precision class 1, rated secondary current 5A, flat push-on connector 6.3 x 0.8 (DIN 46 244-A)					
for direct mounting in the NH in-line fuse switch disconnector*, for size 00 using an adapter requires a fixing clip	150A	00-3	3	14.0	DN 33126
	200A	00-3	3	14.3	DN 33127
	250A	00-3	4	14.4	DN 33128
	300A	00-3	5	14.3	DN 33173
	400A	00-3	5	14.7	DN 33174
	500A	00-3	5	15.0	DN 33179
	600A	00-3	5	15.3	DN 33180
current transformer fixing clip application in 185mm-System power with adapter DN 33236, DN 33237 and DN 33282		00		0.4	DN 33300

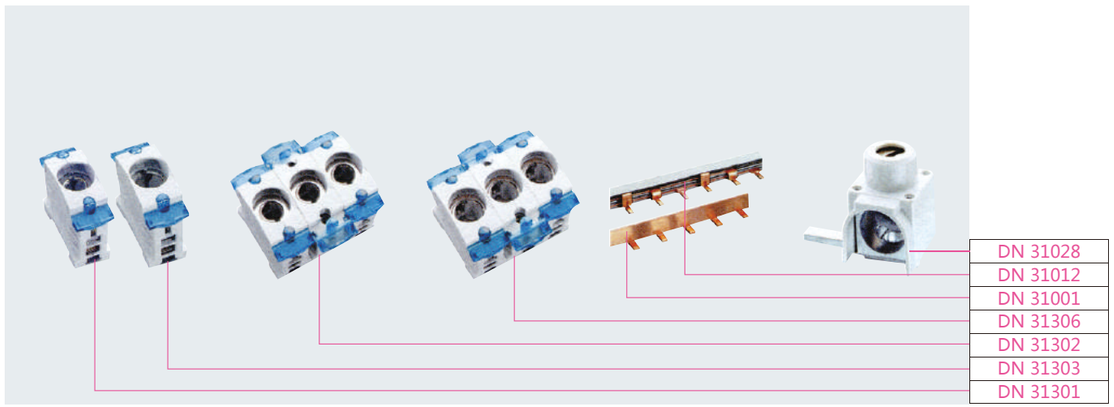
* The transformer cannot be combined in conjunction with the terminal clamp with the following busbars: terminal clamp 33 301 and 33 101 with 100mm and 120mm busbars.

Current transformer, suitable for calibration, precision class 0.5, rated secondary current 5A,conductor cross section 2.5mm², conductor length 1.5m					
for direct mounting in the NH in-line fuse switch disconnector*, for size 00 using an adapter, requires a fixing clip	200A	00 – 3	1.5**	28.0	DN 33292
	250A	00 – 3	2.5**	28.0	DN 33294
	300A	00 – 3	2.5**	28.0	DN 33296
	400A	00 – 3	2.5**	28.0	DN 33298
current transformer fixing clip application in 185mm-System power with adapter DN 33236,DN 33237 and DN 33282		00		0.4	DN 33300

* The transformer cannot be combined in conjunction with the terminal clamp with the following busbars:terminal clamp DN 33301 with 120mm busbars and DN 33101 with 80mm, 100mm and 120mm busbars. ** Rat. apparent power at the conductor end.

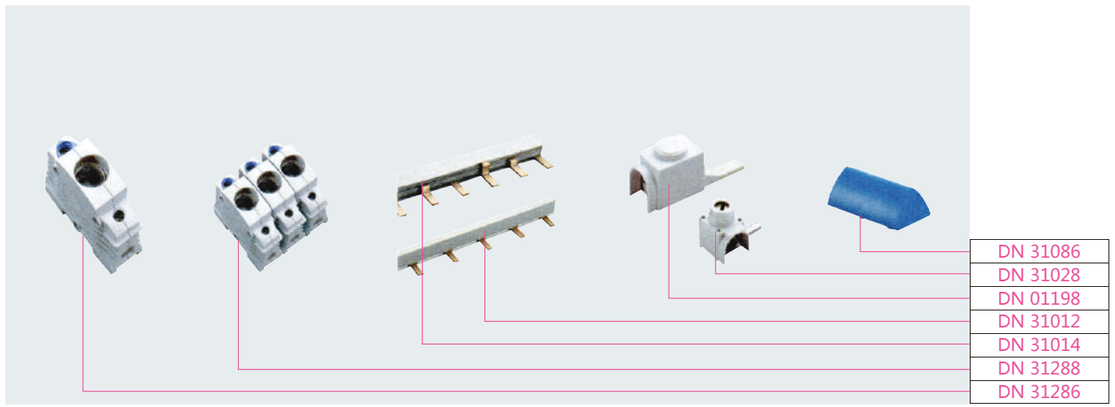
Fixing clip, for conductors					
for connecting on the back side, 6 pieces per NH in-line fuse switch disconnector		1-3		0.9	DN 33373
Mounting support					
with mounting rail		1-3		15.0	DN 33375
with mounting rail and 6-lines cable lug terminals		1-3		21.0	DN 33323
Mounting rail					
for mounting support to mount other cable lug terminals		1-3		2.0	DN 30930
Cable lug terminal					
6 lines terminals,with clip-on unit		00-3		5.9	DN 33322
Connection space cover					
for mounting support		1-3		23.0	DN 33281

BUSBAR SYSTEM



Thread / rated current / rated voltage	Type	Connection (mm^2)	Weight kg/100	Part no.
Fuse base, pitch 27mm				
E14 / 16A / 400V AC, 250V DC	1-pole	1.5 – 35	7.6	DN 31301
	3-pole	1.5 – 35	23.0	DN 31302
E18 / 63A / 400V AC, 250V DC	1-pole	1.5 – 35	7.6	DN 31303
	3-pole	1.5 – 35	23.0	DN 31306

Type	Supply (centre)	Supply (side)	Cross section (mm^2)	Weight kg/100	Part no.
Comb-type busbar, pitch 27mm, length 1m					
1-pole, plain, bridge	200A	100A	30	31.5	DN 31001
1-pole, insulated, bridge	130A	80A	16	19.0	DN 31014
1-pole, insulated, bridge	220A	130A	35	50.0	DN 31057
3-pole, insulated, bridge, 400V	130A	80A	16	56.2	DN 31012
3-pole, insulated, bridge, 400V	220A	130A	35	125.0	DN 31056
Connection terminal, for comb-type busbar as bridge version					
for 1-pole comb-type busbars 16mm^2, side connection up to 50mm^2			25	2.5	DN 31028
for 3-pole comb-type busbars 16mm^2, side connection up to 50mm^2			25	2.9	DN 31029
for 3-pole comb-type busbars 16mm^2, front connection up to 50mm^2			25	2.9	DN 31085
for 1-pole comb-type busbars 35mm^2, front connection up to 95mm^2			3	9.0	DN 01198
for 3-pole comb-type busbars 35mm^2, front connection up to 95mm^2			3	9.3	DN 01228
a connecting terminal is needed for each phase					
End cover					
for 3-pole comb-type busbars 16mm^2			50	0.1	DN 31027
for 3-pole comb-type busbars 35mm^2			10	0.2	DN 31084



Thread / rated current / rated voltage	Type	Connection (mm^2)	Weight kg/100	Part no.
Fuse base, pitch 27mm				
E14 / 16A / 400V AC, 250V DC	1-pole	1.5 – 35	12.8	DN 31286
	3-pole	1.5 – 35	38.4	DN 31288
E18 / 63A / 400V AC, 250V DC	1-pole	1.5 – 35	13.9	DN 31291
	3-pole	1.5 – 35	41.4	DN 31293

Type	Supply (centre)	Supply (side)	Cross section (mm^2)	Weight kg/100	Part no.
Comb-type busbar, pitch 27mm, length 1m					
1-pole, insulated, fork	130A	80A	16	24.6	DN 31024
3-pole, insulated, fork, 400V	130A	80A	16	56.0	DN 31026
1-pole, insulated, bridge	130A	80A	16	19.0	DN 31014
1-pole, insulated, bridge	220A	130A	35	50.0	DN 31057
3-pole, insulated, bridge, 400V	130A	80A	16	56.2	DN 31012
3-pole, insulated, bridge, 400V	220A	130A	35	125.0	DN 31056
Connection terminal, for comb-type busbar as bridge version					
for 1-pole comb-type busbars 16mm^2, side connection up to 50mm^2				2.5	DN 31028
for 3-pole comb-type busbars 16mm^2, side connection up to 50mm^2				2.9	DN 31029
for 3-pole comb-type busbars 16mm^2, front connection up to 50mm^2				2.9	DN 31085
for 1-pole comb-type busbars 35mm^2, front connection up to 95mm^2				9.0	DN 01198
for 3-pole comb-type busbars 35mm^2, front connection up to 95mm^2				9.3	DN 01228
a connecting terminal is needed for each phase					
End cover					
for 3-pole comb-type busbars 16mm^2				0.1	DN 31027
for 3-pole comb-type busbars 35mm^2				0.2	DN 31084
Label holder					
for clipping onto all fuse bases for label DN 78801 and clip-on tag				0.1	DN 310865
Label					
clip, 20 × 9mm				0.1	DN 31004
sticker (108 pcs / A5 paper)				0.4	DN 78801

BUSBAR SYSTEM TECHNICAL DESCRIPTION

summarize

GRL 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 type certifications are prescribed in the parts of the IEC or DIN EN 61439 standard “Low-voltage switchgear and controlgear 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 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 uturemodifications, maintenance or additions to the installation.
GRL reserves the right to make modifications to its components, as the result of developments and technical advances.

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

operating conditions

The information contained in this document, unless specifically stated to the contrary, is valid for the recommended mounting position and the indoor ambient conditions (level of soiling 3, in exceptional cases 2) defined in IEC 60439-1 or IEC 61439-1/2.
The user must inform the manufacturer of any particular operating conditions that deviate from this standard.

Plant-specific reduction factors should be taken into account in accordance with the exact conditions of use.The stated maximumvalues apply for each product in combination with other optimised components. Observe all temperature specifications for the plastics in use.
The material properties described refer, in part, to multiple products. In isolated cases, values may exceed the levels specified.
Further information at www.grlele.com.

We recommend vertically mounting the device on a horizontal busbar system.
The fixing handle must be placed on top for switchgears mounted vertically.

The rated load factor according to Table 1 or Table 101 applies for this mounting position, components with permissible power dissipation in the worst case and the ambient conditions in accordance with IEC 60439-1, section 6.1.1.1 or IEC 61439-2, section 7.1.1.1.

In case of deviating mounting positions and conditions, all influencing factors are on maximumtemperature 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 distancesmust 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 minimumdistance 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.

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.

conductor connection

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 aluminiumconductors, 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 maximumvalues 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 Md of screw and clamp connections may be a maximumof +/-20% of the nominal value.

The relationship between conductor cross-sections in mm^2 and AWG / MCMsizes are subsequently listed:

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

Wire-end ferrules are only permitted for applications in compliance with IEC/EN standards.GRL 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.
Conductors must be connected according to the requirements in compliance with IEC/EN 60999-1 or -2.
Conductors must be connected so as to avoid tensile loading.

BUSBAR SYSTEM

Busbar supports

60mm-System in compliance with IEC

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

60mm-System in compliance with UL

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

100mm-System

3-pole for busbars 30 × 10 – 60 × 10

185mm-System power

3-pole for flat busbars up to 120mm width
3-pole for undrilled flat busbars 30 – 120 × 10,double-T and triple-T section busbars

Typical arrangements of busbars have been tested in recognised laboratories for short-circuit strength.

Busbars, in compliance with EN 13601

Flat busbars

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

The current capacities of flat busbarswith components fitted in the table below were calculated by testing at an ambient temperature of 35℃ under optimal conditions (IEC and UL):

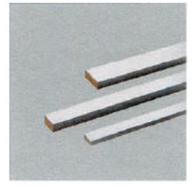
Current carrying capacities higher than those specified in DIN 43671were obtained under operating conditions.

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 43671 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.

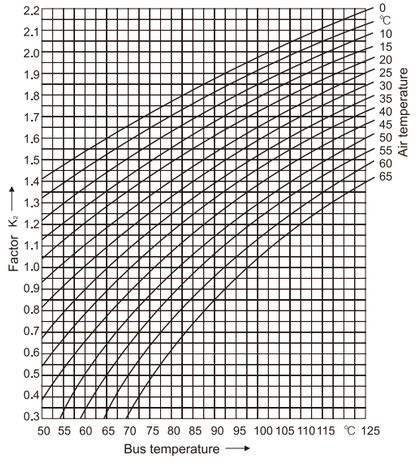
Alternatively a higher load can be applied if the components have a higher thermal endurance level.

A 30x10 galvanised busbar can, under normal operating conditions, be loaded with 630A. A correction factor k2 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℃ if this correction factor and an air temperature of 35℃ apply.



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 power)
Deviation in the contact levels: 0.4

Dimensions	Cross section (mm^2)	Current carrying capacities at busbar temperature of	
		65℃	85℃
12 × 5	60	200 A	250 A
15 × 5	75	250 A	320 A
20 × 5	100	320 A	400 A
25 × 5	125	400 A	500 A
30 × 5	150	450 A	550 A
12 × 10	120	360 A	450 A
20 × 10	200	520 A	630 A
30 × 10	300	630 A	800 A
40 × 10	400	850 A	1000 A
50 × 10	500	1000 A	1200 A
60 × 10	600	1250 A	1500 A
80 × 10	800	1500 A	1800 A
100 × 10	1000	1800 A	2100 A
120 × 10	1200	2100 A	2500 A



BUSBAR SYSTEM

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.
1.5–16 mm² Cu, sol(r), r(r), f, f+AE**	80 A		... × 5–10 TT, TTT	DN 01563
6–50(70) mm² Cu, s(r), f, f+AE**, la. Cu 6 × 9 × 0.8	300 A	10 × 15	... × 5–10 TT, TTT	DN 01240
6–70(70) mm² Cu, s(r), f, f+AE**, la. Cu 6 × 9 × 0.8	300 A	10 × 15	12 × 5–10	DN 01401
95–185 mm² Cu, Al***, s(r), s(s), f	460 A		20 × 5–30 × 10 TT, TTT	DN 01199
35–120 mm² Cu, s(r),f ,f+AE**, sol(s), la. Cu 6/10 × 13/15.5 × 0.5/0.8	440 A	15 × 15	... × 5–10 TT, TTT	DN 01243
35–150 mm² Cu, s(r), f	480 A		12 × 5–10	DN 01165
120–300mm² Cu, Al***, s(r), s(s), f	560 A		20 × 5–30 × 10 TT, TTT	DN 01754
la, Cu 3 × 20 × 1 max up to 10 × 32 × 1	800 A	32 × 25	20 × 5–30 × 10 TT, TTT	DN 01753

Connection set, 3-pole and 4-pole without cover

300mm², 10 × 32 × 1
1–pole, 690V~
60mm distance between busbar centres
20 × 5–30 × 10, double–T and triple–T busbars

without silicon resin and chlorine
thermostability 120℃
self–extinguishing in compliance with UL 94
CTI 200

* 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 maximumconductor cross–sections may be required.
*** Connections with aluminiumconductors are not maintenance–free

Conductors used	Current carrying capacity of contacts*	Torque	Terminal space (W x H)	Busbars (W x H)	Part no.
120–300mm2Cu, Al**, s(r), s(s), f	560A	30		20 × 5–30 × 10 TT, TTT	DN 01537
la.Cu 3 × 20 × 1 max up to 10 × 32 × 1	800A	30	32 × 25	20 × 5–30 × 10 TT, TTT	DN 01538

Conductor 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.

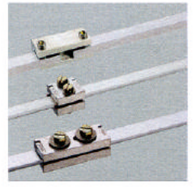
For connecting round conductors 95 – 300mm² and flexible copper busbars.The clamp–type terminals enable the busbar to be gripped completely and conductors to beconnected without drilling.

Conductors used	Current carrying capacity of contacts*	Torque	Terminal space (W×H)	For busbars (W×H)	Part no.
1.5–16mm² Cu, sol(r), s(r), f, f+AE**, la.Cu 8 × 6 × 0.5	180 A	4	7.5 × 7.5	... × 5	DN 01284
				... × 10	DN 01289
4–35mm² Cu, sol(r), s(r), f, f+AE**, la.Cu 3/6 × 9 × 0.8	270 A	6	10.5 × 11	... × 5	DN 01285
				... × 10	DN 01290
16–70mm² Cu, s(r), f, f+AE**, 2 × la.Cu 3/6 × 9 × 0.8, 6 × 13 × 0.5	400 A	10	14 × 14	... × 5	DN 01287
				... × 10 TT, TTT	DN 01292
16–120mm² Cu, s(r), f, f+AE**, la.Cu 4/6/10 × 15.5 × 0.8	440 A	15	17 × 15	... × 5	DN 01068
				... × 10 TT, TTT	DN 01203
95–185mm² Cu, Al*** s(r), s(s), f	500 A	30		20 × 5–30 × 10 TT, TTT	DN 01318
150–300mm² Cu, Al*** s(r), s(s), f	600 A	30		20 × 5–30 × 10 TT, TTT	DN 01760
la.Cu 3 × 20 × 1 max up to 10 × 24 × 1	750 A	30	30 × 25	20 × 5–30 × 10 TT, TTT	DN 01319
la.Cu 3 × 20 × 1 max up to 10 × 32 × 1	800 A	30	32 × 25	20 × 5–30 × 10 TT, TTT	DN 01759
95–300mm² Cu,sol(r),sol(s),s(r), s(s), f, f+AE**	630 A	40		30 × 10 TT, TTT	DN 01094
la.Cu 5 × 32 × 1 max up to 10 × 40 × 1	1250 A	40	41 × 25	30 × 10 TT, TTT	DN 01092
				40 × 10	DN 01032
				50 × 10	DN 01033
				60 × 10	DN 01034

Busbar connectors

For the connection of identical busbars without drilling

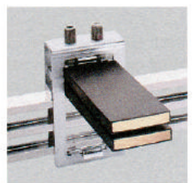
Current carrying capacity of contacts	Overall length	Permissible displacement busbar	Connect screw torque (Nm)	Space between systems	Part no.
630 A	40	2 mm	1×M12，Md30	13 – 20	DN 01823
630 A	40	2 mm	2×M8，Md15	9 – 20	DN 01990
630 A	55	1 mm	2×M8，Md12	5 – 10	DN 01166
630 A	95	5 mm	2×M10，Md20	50 – 60	DN 01141
630 A	150	1 mm	2×M8，Md12	100 – 110	DN 01193
630 A	150	5 mm	2×M12，Md30	100 – 110	DN 01886
1600 A	50	2 mm	2×M8，Md20	9 – 20	DN 01827
1600 A	95	5 mm	4×M8，Md20	50 – 60	DN 01145
1600 A	150	5 mm	4×M8，Md20	100 – 110	DN 01829
2500 A	95	2 mm	4×M8，Md20-25	50 – 60	DN 01274
2500 A	150	2 mm	4×M8，Md20-25	100 – 110	DN 01275



Profile terminals for double-T and triple-T section busbars

For the connection of laminated copper busbars.

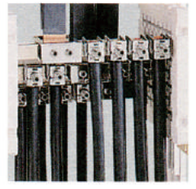
Current carrying capacity of contacts	For busbars	Terminal space (W×H)	Torque (Nm)	Part no.
1600 A	Double-T section	51×5-28	40	DN 01906
1600 A	Double-T section	64×5-28	30	DN 01907
1600 A	Double-T section	41×20-42	40	DN 01185
1600A (2000A)*	Double-T section	51×20-42	40	DN 01936
1600A (2000A)*	Double-T section	64×20-42	30	DN 01911
1600A (2500A)*	Double-T section	81×20-42	40	DN 01934
1600A (2800A)*	Double-T section	101×20-42	40	DN 01935
2000A (2500A)*	Triple-T section	64×23-45	40	DN 01008
2500A (3200A)*	Triple-T section	101×23-45	40	DN 01186



* 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
* The incoming conductors should be arranged in such a way that the maximumcurrent only flows through short busbar lengths to ensure the lowest possible temperature increases.
* The centre-feed unit (part no. DN 35004) was tested with the following components mounted:12 terminals (part no. DN 01318) for the incoming conductors and 3 profile terminals (part no. DN 01911) – each with two flexible copper busbars 10×63×1 – for the outgoing conductors to the circuit breaker.

Busbar adapter 25A 32A 45A 63A 80A

* 3-pole, 690V~
* Can be fitted to all busbars in the 60mm-System.
* Combination base accommodates busbars 5 and 10mm thick.
* EN 60715 plastic mounting rail, for staggered arrangement in 1.25mm pitch.

Copper conductors, ultrasound-welded:

12/16A: AWG 14 1.8mm×1.8mm
12/25A: AWG 12 2.3mm×2.3mm
12/25A: terminals (Cu0.75-6mm^2, sol(r), f, f+AE), Md 1.5-2Nm
12/32A: AWG 10 2.9mm×2.9mm
12/45A: AWG 8 3.2mm×3.6mm
12/63A: AWG 8 3.2mm×3.6mm
12/80A: terminals (Cu1.5-16mm^2, sol(r), f, f+AE), Md 3Nm

* Short-circuit protection through current limitation of the associated switchgear. Ensure cabling is shock-protected.
* Up to size 45A also available with a lockable and removable upper section when separated.
* (Changeover) microswitch protects the load release.
* Rated operating voltage (rated operating current) 250V AC (5A).

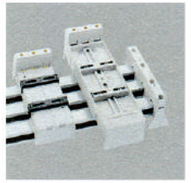
Body:
temperature stability 125℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 200
halogen-free

Mounting rail:
halogen-free
temperature stability 100℃

PVC insulated conductors:
temperature stability 105℃

Universal busbar adapters 200A-250A/special busbar adapters 100A

for sharp-edged and rounded busbars (DIN EN T12167/DIN EN T13601).



Parameter	Universal adapter 100A	Universal adapter 200A	Universal adapter 250A
Type	3-pole，400V~	3-pole，690V~	3-pole，690V~
Busbar system	60 mm	60 mm	60 mm
Busbar contacting	claw terminals Md 8-10Nm	claw terminals Md 8-10Nm	claw terminals Md 12-14Nm
Connecting switchgear	top connect to system	top or bottom connect to system	top or bottom connect to system
	busbars 30 mm^2	box terminals Md 8-10Nm	box terminals Md 10-12Nm
	directly connect Siemens S3(3RV1)	Cu 6-70mm^2, s(r),f,f+AE Ia.Cu 10×16×0.8	Cu 35-120mm^2, s(r),f,f+AE Ia.Cu 10×20×0.8

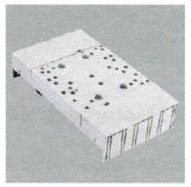
Body:
temperature stability 125℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 200
halogen-free

Universal busbar adapters 630A

* 3-pole, 690 V~
* mounting on 60mm system
* for mount on 12 , 20 , 30 x 10 mm busbars
* screwless busbar contacting
* easy to took down from busbar system.
* conversion from outgoing connection top to bottom by changing terminal plate and cover cap.

Conduct connection

* Screw connection M12, torque 40 - 45 Nm.
* Box clamp be connected by terminal plate;Ia. Cu 25×14mm section, torque 6 -7 Nm



Body:
temperature stability 120℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 200
halogen-free

Adapter plate:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

Cover:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

NH-fuse switch disconnector

for fuse links IEC 60269-2 -1 (I) / DIN VDE 0636-201, size 000 - 00 - 1 - 2 - 3 - 4A

Panel- and busbar-mounting

* 3-pole switching
* DIN 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 disconnector lid.
* test openings in disconnector 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.

Body: (Size000,00)
temperature stability 120℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 200
halogen-free

Body: (Size1,2,3)
temperature stability 150℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 225
halogen-free

Shock protection:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

Cover:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

Adapter plate:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

Panel-mounting version:

* not maintenance-free when aluminiumconductors are used
** can not be applied to switch disconnector with electronic fuse monitoring

Size	Screw connection	Clamp connection	Terminal space	Wedge clamp terminal	Other connections
000	-	-	-	-	box terminals Cu1.5-50mm^2 s(r)，f+AE，Ia.Cu Md 4Nm
00	M8 M12-14Nm	Cu1.5-70mm^2 s(r)，f+AE，Ia.Cu Md 3Nm	12×1-10	Cu，Al*16-70mm^2 s(r)，s(s)，f+AE Md 3Nm	plug terminal 3×Cu1.5-16mm^2 s(r)，f+AE Md 3Nm
1	M10 Md 30-35Nm	Cu70-150mm^2 s(r)，f+AE，Ia.Cu Md 5-6Nm	18×2-14	Cu，Al*70-150mm^2 s(r)，s(s)，f，f+AE Md 5-6Nm	** double wedge clamp terminal Cu 2×35-70mm^2 s(r)，s(s)，f+AE 2×70mm2 f Md 5-6Nm
2	M10 Md 30-35Nm	Cu120-240mm^2 s(r)，f+AE，Ia.Cu Md 6-8Nm	21×1-14	Cu，Al*120-240mm^2 s(r)，s(s)，f，f+AE Md 6-8Nm	** double wedge clamp terminal Cu 2×70-120mm^2 s(r)，s(s)，f+AE Md 5-6Nm
3	M12 Md 35-40Nm	Cu150-300mm^2 s(r)，f+AE，Ia.Cu Md 6-8Nm	25×1-13	Cu，Al*150-300mm^2 s(r)，s(s)，f，f+AE Md 6-8Nm	** double wedge clamp terminal Cu 2×150-185mm^2 s(r)，s(s)，f+AE Md 6-8Nm
4a	2×M12 Md 35-45Nm	-	-	-	-

BUSBAR SYSTEM

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

Electromechanical fuse monitoring:

* integrated auxiliary switch: 1 N/O + 1 N/C
* rated operating voltage (rated operating current):
  24V AC (2A), 230V DC (0.5A)
  24V DC (1A), 48V DC (0.3A),
  60V DC (0.15A)
* rated margin short-circuit stability (Icu) 100kA

Electronic fuse monitoring:

* when fuse failure and red led on, automatic reset after fuse replacement
* integrated auxiliary switch: 1 N/O + 1 N/C
* rated voltage (rated current):
  250V AC (5A), 30V DC (4A)
* 4 lines,plug terminals

Pilot switch for lid position indicator:

* Size 00: able to with a contact
* Size 000, 1, 2, 3: able to with two contacts
* Rated voltage (rated current):
  250V AC (5A), 30V DC (4A).
* Auxiliary switch and pilot switch of fuse monitoring connected by flat plug 2.8 x 0.5mm
* DIN T46224

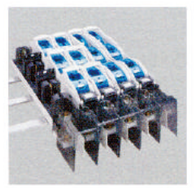
Size	000	00	1	2	3	4a
Type of current	AC(50-60Hz) DC	AC(50-60Hz) DC	AC(50-60Hz) DC	AC(50-60Hz) DC	AC(50-60Hz) DC	AC(50-60Hz) DC
Rated voltage (Ue)	690V AC 250V DC	690V AC 250V DC	690V AC 440V DC	690V AC 440V DC	690V AC 440V DC	690V AC 440V DC
Rated insulation voltage (Ui)	800V	800V	800V	800V	800V	800V
Rated surge withstand capacity (Uimp)	6kV	6kV	6kV	6kV	6kV	6kV
Rated current (Ie)*	125A	160A	250A	400A	630A	1600A
Utilisation categories with/without fuse monitoring	AC-23B(400V) AC-22B(500V) AC-21B(690V)	AC-23B(400V) AC-22B 500V 125A AC-22B(690V) AC-21B(690V)	AC-23B(400V) AC-22B(690V) AC-21B(690V)	AC-23B(400V) AC-22B(690V) AC-21B(690V)	AC-23B(400V) AC-22B(690V) AC-21B(690V)	AC-22B(400V/1250A) AC-21B(690V/1250A)
Without fuse monitoring**	DC-22B 440V 63A DC-22B 220V 100A DC-21B 440V 80A DC-21B 220V 125A	DC-22B 440V 125A DC-22B 220V 160A DC-21B 440V 160A	DC-22B(440V) DC-21B(440V)	DC-22B(440V) DC-21B(440V)	DC-22B(440V) DC-21B(440V)	DC- 21B(440V/1250A)
Rated short-circuit current***	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA
For DIN T43620 NH-fuses of all operating classes with power dissipation per phase	9 W	12 W	23 W	34 W	48 W	140 W

*For continuous operation of multiple devices next to one another, observe the rated load factor as specified in VDE 0660 Part 500/EN 60439-1, Table 1
For Size 000/00/1/2/3, the distances to earthed parts must be at least 140/150/250/290/300 mm at the top, 45/55/95/105/130 mm at the side

** Electromechanical fuse monitoring AC 24 - 690V, DC 24 - 250V (input voltage).
Electronic fuse monitoring AC 400 - 690V (input voltage, excess voltage category II , level of soiling: 2).
*** Type tested with fuses of characteristic gL/gG.

NH in-line fuse switch disconnector

for fuses IEC 60269-2-1 (I) / DIN VDE 0636-201 size 00,DIN VED 0660 part 107 / EN 60947-3



3-pole switching
Outgoing connection top and bottom.
Arc chamber.
Shock-protected even with lid open and in park position.
Mechanical fuse retention.

Connection contacts:

- M8 screw, torque12 - 14Nm
- 2 x M5 clamp,torque 3Nm,12mm clear width
- Prism clamp terminal Cu, Al* 16 - 70mm s(r), s(s), f +AE, torque 3Nm (*not maintenance-free when aluminiumconductors are used)

Electronic fuse monitoring:

2 LEDs.
with latching properties or remote reset, programmable using.
2 changeover switches.
2 x Cu 2.5mm^2 solid conductors, DIN 46288 or 2 x Cu 1.5mm^2 stranded conductors with sleeves, DIN T 46 228-1/-2/-3.
the internal resistance of the measuring needle lies above the MOhmlevel and thereby meets
VDE requirements regarding contact voltage (>1000 Ohm/V.).

For 60mm distance between busbar centres:

- screwless busbar contacting

Pilot switch for lid position indication:

2 (changeover) switches can be used
Rated voltage (rated current)
250V AC (5A), 30V DC (4A)

Bar base:
temperature stability 120℃
self-extinguishing in acc. to UL 94
creepage resistance CTI 225
halogen-free

Shell:
temperature stability 120℃
self-extinguishing in acc. to UL 94
halogen-free

Outer over:
temperature stability 120℃
halogen-free

Connection terminal cover:
temperature stability 120℃
halogen-free

Type	3-pole switching
Type of current	AC(50-60Hz)
Rated voltage (Ue)**	690V AC
Rated insulation voltage (Ui)	1000V
Rated surge withstand capacit y(Uimp) without electronic fuse monitoring**	8kV
Rated current (Ie)*	160A
Utilisation categories, without electronic fuse monitoring	AC-22B(690V) AC-23B(400V) AC-23B(500V 125A)
Rated short-circuit current***	50kA
NH fuses of all operating classes with power dissipation per phase	12W

*For continuous operation of multiple devices next to one another, observe the rated load factor as specified in VDE 0660 Part 500/EN 60439-1, Table 1
the distance to earthed parts must be at least 50mm at the top and 25mm at the side.

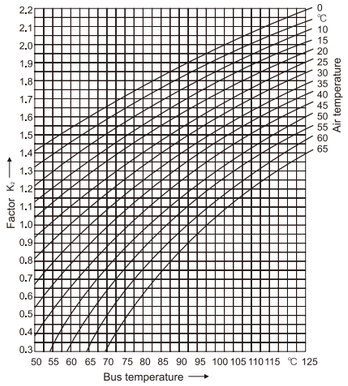
** Fuse monitoring Ue, Ui 400V AC, Uimp 4kV, level of soiling: 2

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

BUSBAR SYSTEM

* A correction factor k2 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 30 × 10 galvanised busbar can, under normal operating conditions, be loaded with 630A.

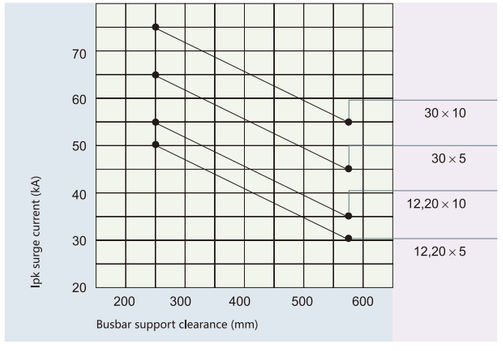
* A correction factor k2 of 1.3, for example, is required if a load of 800A is applied.
* This diagram demonstrates that the busbar heats up to approx. 83℃ if this correction factor and an air temperature of 35℃ apply.



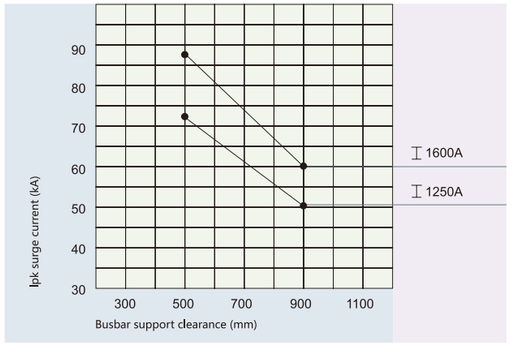
Short-circuit strength diagrams,for 60mm busbar systems

(·) Measured values from type tests

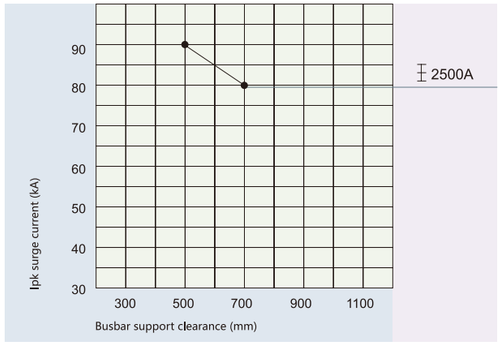
Busbar supports DN 01495 / DN 01500 / DN 01315 / DN 01316, 60mm busbar system



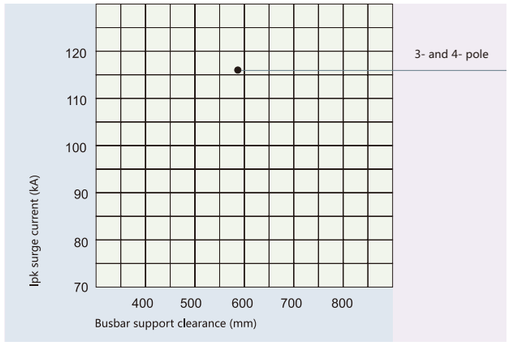
Busbar supports DN 01231, 60mm busbar system 1600A



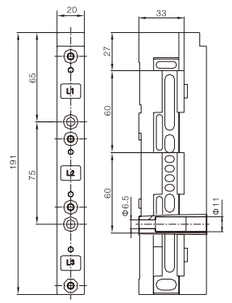
Busbar supports DN 01232, 60mm busbar system 2500A



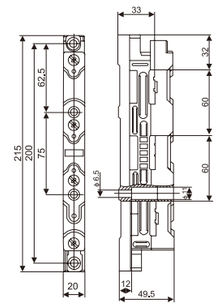
Centre-feed unit current flow through whole busbar length



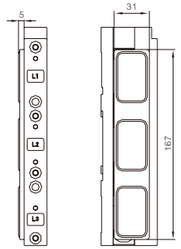
DN 01495



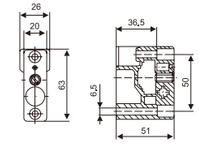
DN 01500



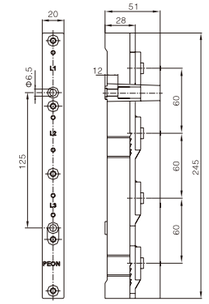
DN 01573



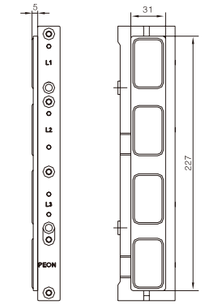
DN 01489



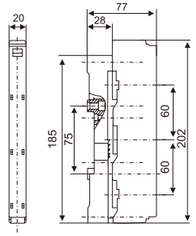
DN 01485



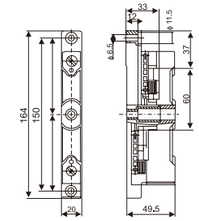
DN 01131



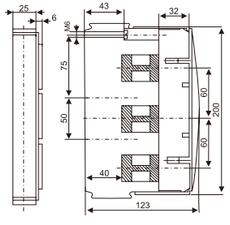
DN 01484



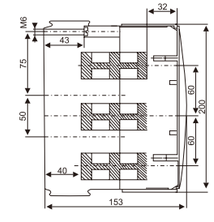
DN 01356



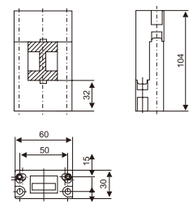
DN 01231



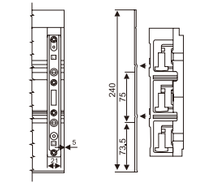
DN 01232



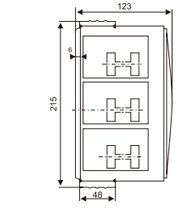
DN 01756



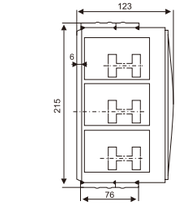
DN 01508 DN 01515 DN 01518



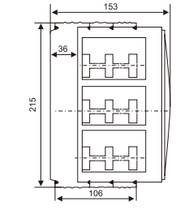
DN 01236



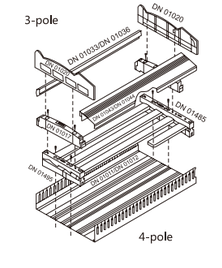
DN 01237



DN 01238

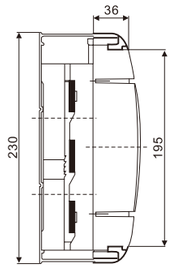


3 lines system,with wiring trough or 4 lines,whole sealing

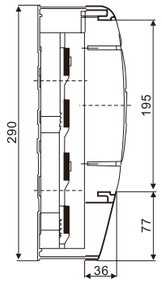


BUSBAR SYSTEM

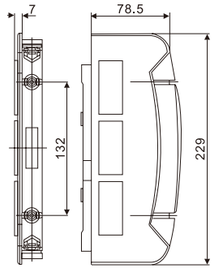
DN 01037
DN 01038
DN 01048



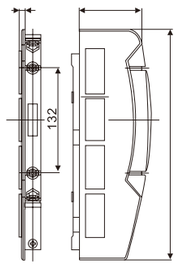
DN 01037 DN 01044
DN 01038 DN 01048
DN 01043 DN 01053



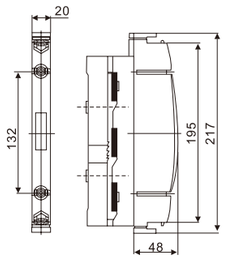
DN 01019



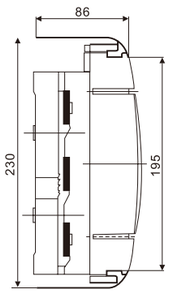
DN 01020



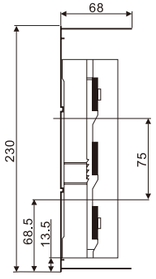
DN 01017



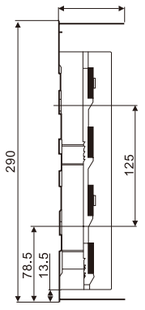
DN 01024 DN 01030
DN 01039 DN 01041
DN 01040 DN 01042



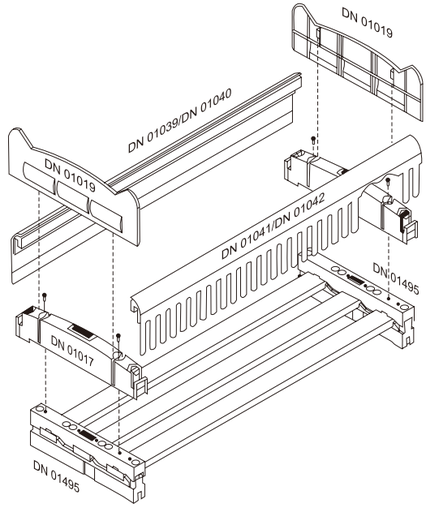
DN 01009
DN 01010
DN 01045



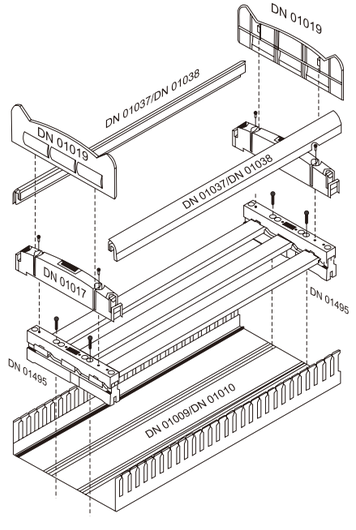
DN 01011
DN 01012
DN 01046



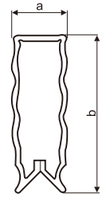
3 lines system,5 sides sealing



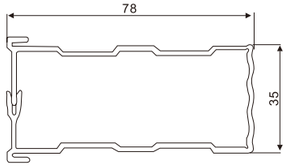
3 lines system,whole sealing



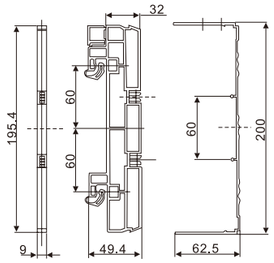
	busbars	b	c
DN 01037	12-30×5	9	40
DN 01038	12-30×10	14	40
DN 01048	12-30×10	13	70



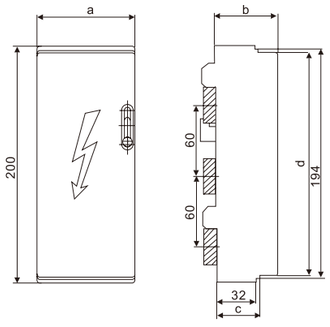
DN 01019



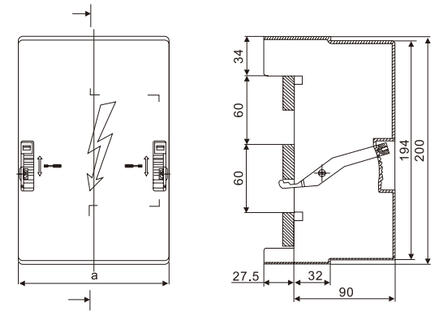
DN 01020



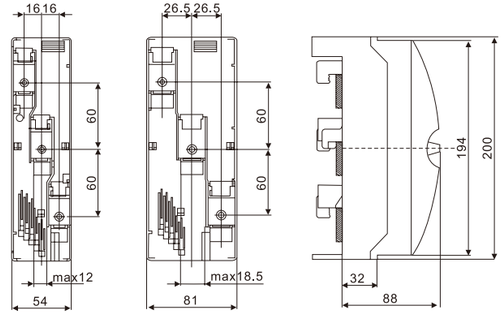
	a	b	c	d
DN 01590	54	9	35	189
DN 01413	84	14	35	189
DN 01093	228	13		



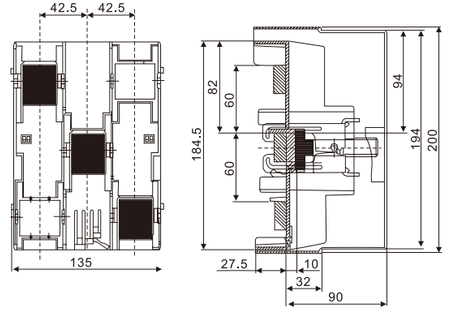
	a
DN 01756	135
DN 01757	270



DN 01240
DN 01243

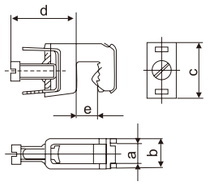


DN 01199
DN 01753
DN 01754

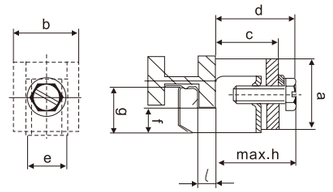


BUSBAR SYSTEM

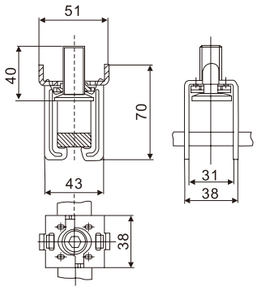
	a	b	c	d	e
DN 01284	7.5	11.5	22.5	25	5
DN 01285	10.5	15.5	29	36	5
DN 01287	14.5	20.5	32	42	5
DN 01068	17	23.5	36	55	5
DN 01289	7.5	11.5	22.5	25	10
DN 01290	10.5	15.5	29	35	10
DN 01292	14.5	20.5	32	42	10
DN 01203	17	23.5	17	55	10



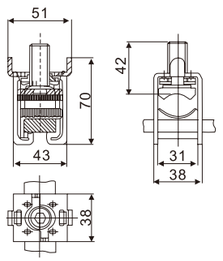
	a	b	c	d	e	f	g	max.h	l
DN 01047	42	38	37	47	23.5	15	27.5	55	10
DN 01749	42	38	37	47	23.5	15	27.5	55	5
DN 01514	32	29.5	29	36	20.5	12	24	42	10
DN 01748	32	29.5	29	36	20.5	12	24	42	5
DN 01512	24	17.5	19.5	24.5	11.5	9	23	30	10
DN 01747	24	17.5	19.5	24.5	11.5	9	23	30	5



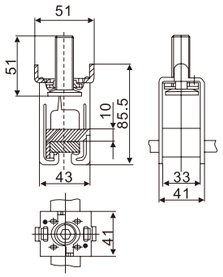
DN 01319



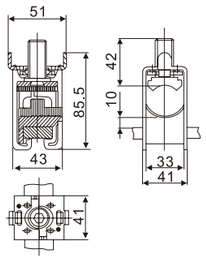
DN 01318



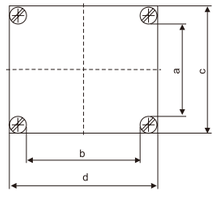
DN 01759



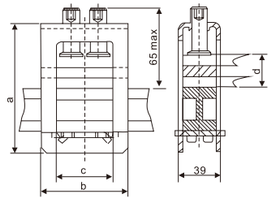
DN 01760



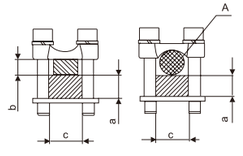
	a	b	c	d	h
DN 01205	12	25	38	45	20
DN 01996	20	25	40	45	20
DN 01997	20	30	40	50	20
DN 01206	30	40	40	60	20
DN 01586	30	30	50	50	20
DN 01587	30	35	50	55	20
DN 01616	32	40	50	60	30



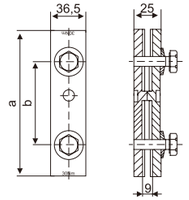
	a	b	c	d min	e max
DN 01008	154	94	64	23	45
DN 01185	118	72	41	20	42
DN 01186	154	132	101	23	45
DN 01906	103	82	51	5	28
DN 01907	103	94	64	5	28
DN 01911	118	94	64	20	42
DN 01934	118	112	81	20	42
DN 01935	118	132	101	20	42
DN 01936	118	82	51	20	42



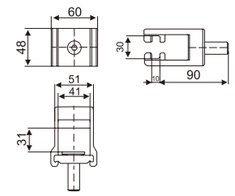
	a+b	a	c
DN 01200	8–24	70–150	18
DN 01201	10–26	120–240	21
DN 01202	10–26	150–300	25



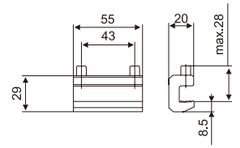
	a	b
DN 01823	40	–
DN 01141	95	36
DN 01886	150	85



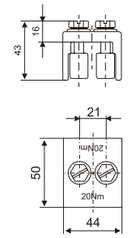
	a	b
DN 01092	30	48
DN 01094	30	48
DN 01032	40	58
DN 01033	50	68
DN 01034	60	78



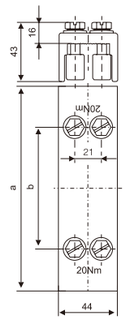
DN 01166



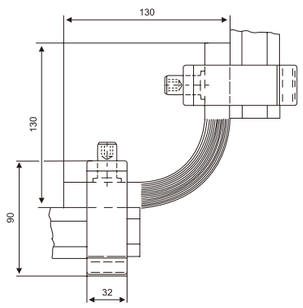
DN 01827



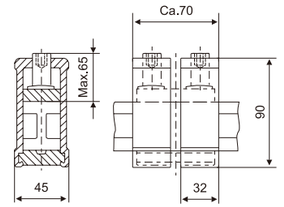
	a	b
DN 01145	95	40
DN 01829	150	90



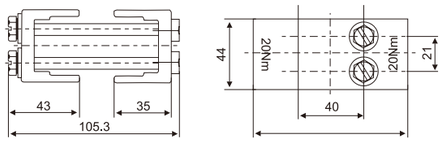
DN 30473



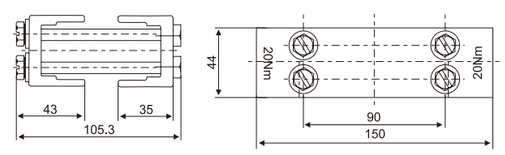
DN 01095



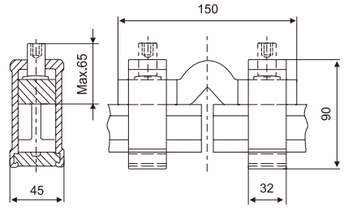
DN 01274



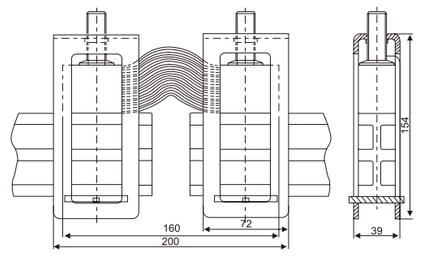
DN 01275



DN 30322

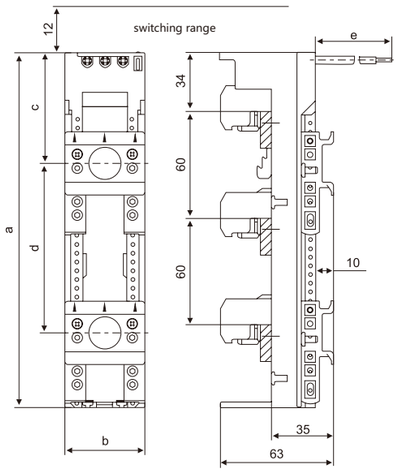


DN 01295

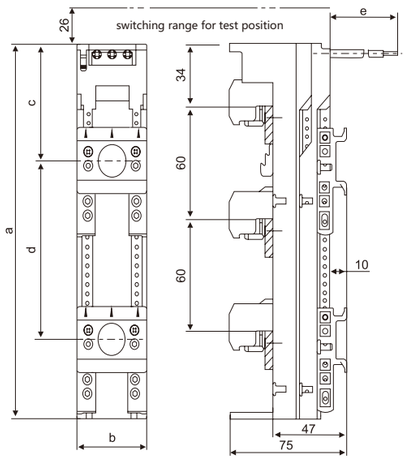


BUSBAR SYSTEM

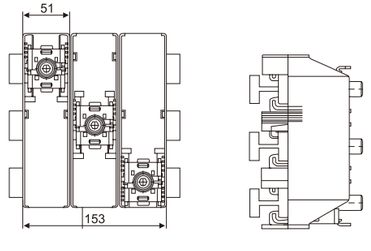
	a	b	c	d	e
DN 32430	200	45	63	–	73
DN 32431	200	45	63	95	73
DN 32432	200	90	63	95	73
DN 32433	260	45	63	95	73
DN 32436	200	45	63	95	terminal 6mm²
DN 32439	260	45	63	95	terminal 6mm²
DN 32441	200	54	63	–	73
DN 32442	200	54	63	95	73
DN 32443	200	63	63	–	73
DN 32444	200	72	63	–	73
DN 32446	200	81	63	95	73
DN 32449	260	54	63	95	73
DN 32454	200	54	63	–	95
DN 32455	200	54	63	95	95
DN 32456	200	63	63	–	95
DN 32457	200	72	63	95	95
DN 32459	200	81	63	95	95
DN 32461	260	54	63	–	95
DN 32466	200	54	63	95	terminal 16mm²
DN 32467	200	54	63	95	terminal 16mm²
DN 32472	260	54	63	95	terminal 16mm²
DN 32477	200	45	63	95	–
DN 32478	200	54	63	95	–
DN 32484	260	45	63	95	–
DN 32485	260	54	63	95	–



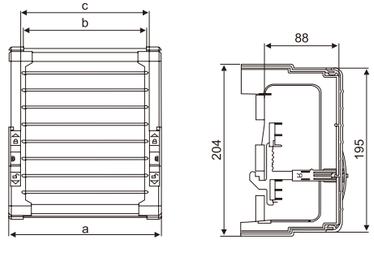
	a	b	c	d	e
DN 32400	200	45	63	95	73
DN 32402	260	45	63	95	73
DN 32404	200	54	63	95	73
DN 32408	260	54	63	95	73
DN 32412	200	54	63	95	95
DN 32416	260	54	63	95	95
DN 32420	200	45	63	95	–
DN 32421	200	54	63	95	–
DN 32425	260	45	63	95	–
DN 32426	260	54	63	95	–



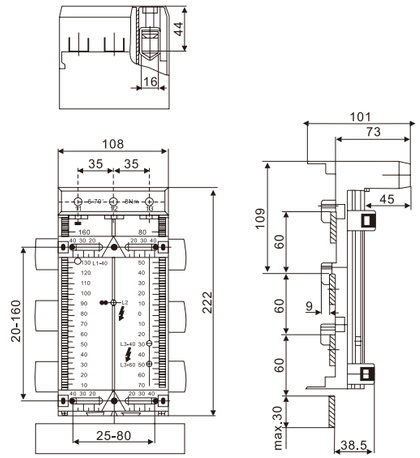
DN 01537
DN 01538



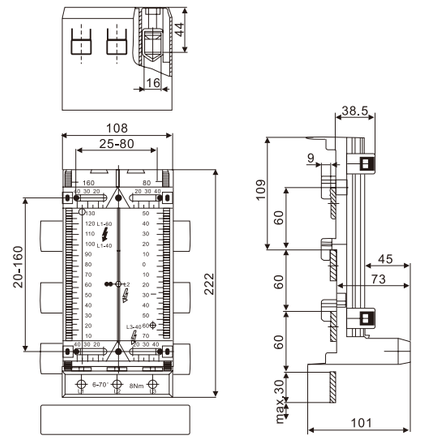
	a	b	c
DN 01539	180	146	166
DN 01540	250	216	236



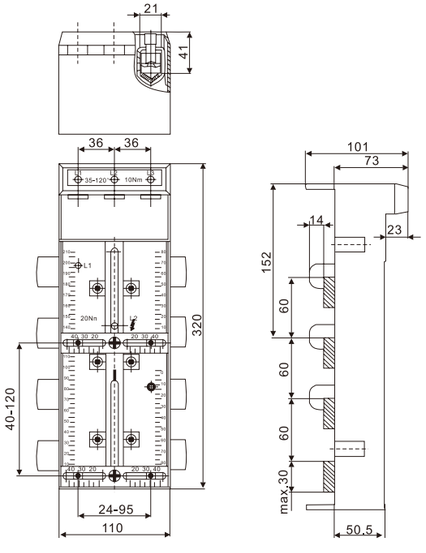
DN 32214



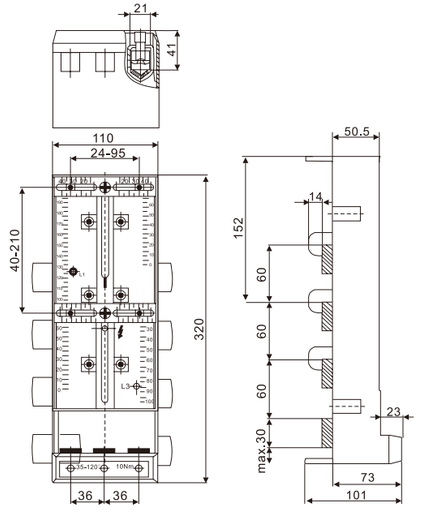
DN 32215



DN 32168

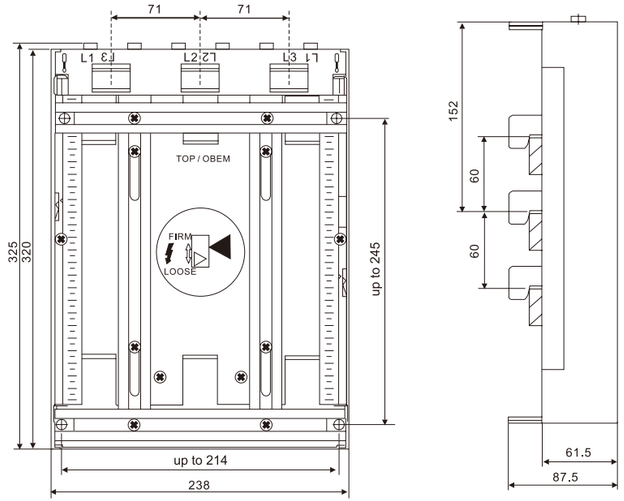


DN 32216



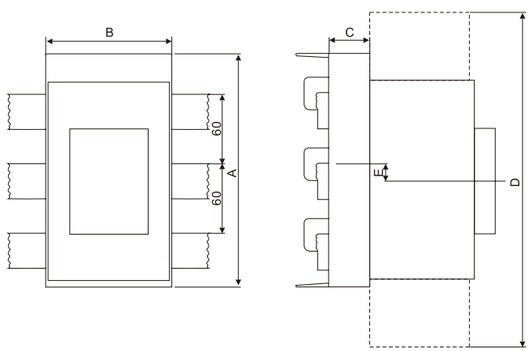
BUSBAR SYSTEM

DN 32262

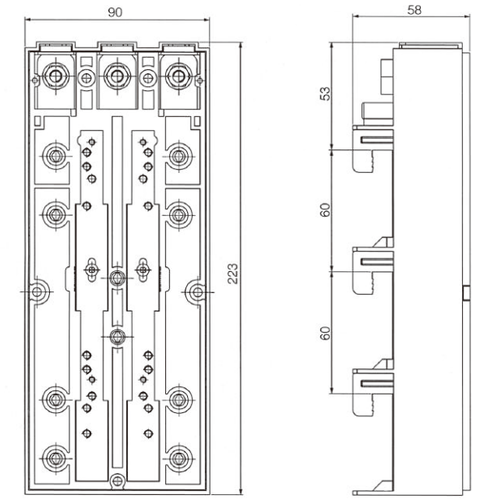


	Switchgear	A	B	C	D	EO*	EU*
DN 32226	Siemens S3	182	70	26	–	22	–
DN 32570	Moeller NZM1	200	90	38	–	17	–
DN 32575	ABB T-max1，T-max2，GE FD 160，Merlin Gerin NS80	200	90	26	–	10-20	–
DN 32549	Allen-Bradley 140-CMN	200	90	50	–	11	–
DN 32109	Siemens 3VL1	172	108	29	–	-6	–
DN 32110	Siemens 3VL3	172	108	26	–	15	–
DN 30388	Siemens 3VF3	172	108	26	–	2	4
DN 32156	Merlin NS250，GE FD 250	190	106	35	–	12	12
DN 32140	Moeller NZM2-XKR4	190	106	35	–	22	2
DN 32016	Moeller NZM7	190	106	35	–	15	10
DN 32157	Merlin Gerin NS630	270	140	35	–	12	12
DN 32170	Moeller NZM3-XKR130	270	140	35	280	22	–
DN 32148	ABB T-max4	270	140	52	325	24	–
DN 32154	ABB T-max5	270	140	52	325	24	–

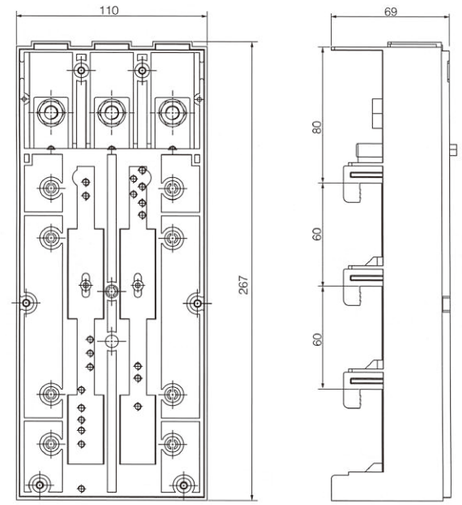
*EO top connection, **EU bottom connection



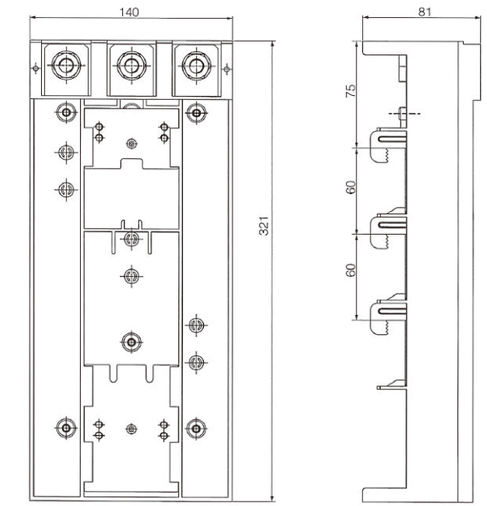
DN 00160



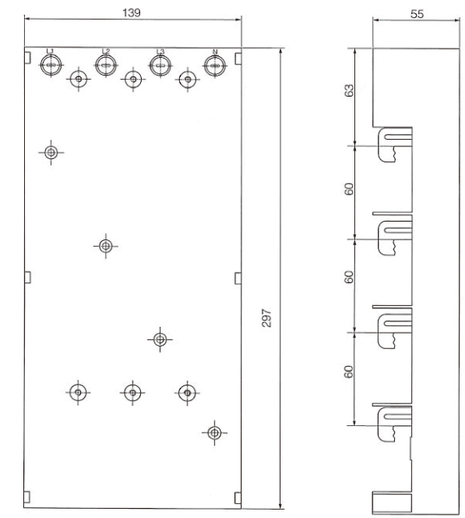
DN 00250



DN 00630

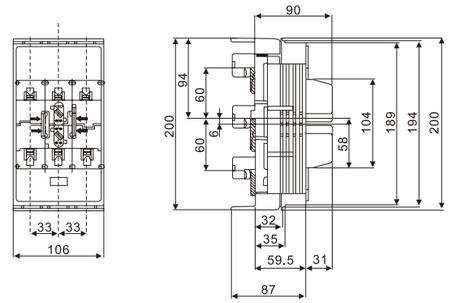


DN 40250

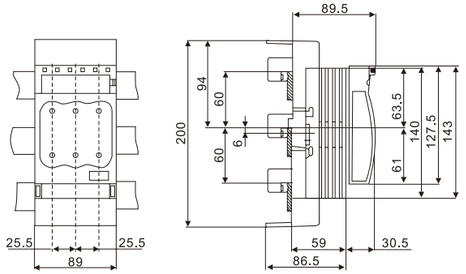


BUSBAR SYSTEM

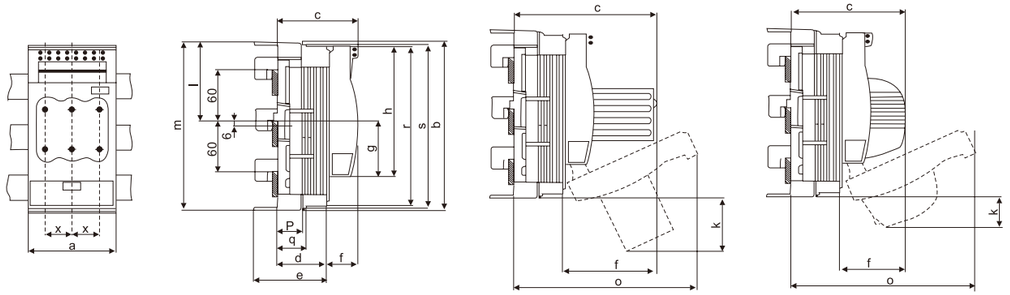
DN 03199



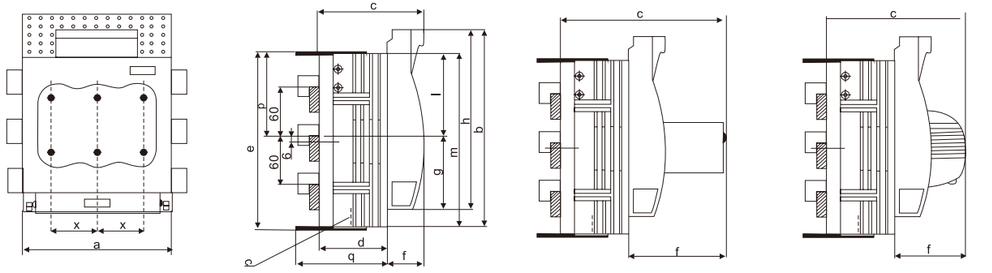
DN 33216



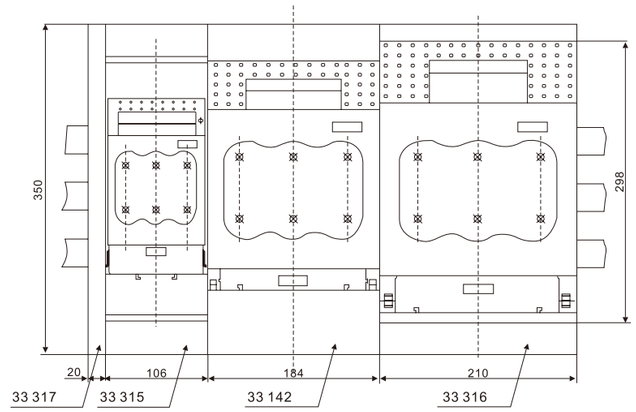
	Size	a	b	c	d	e	f	g	h	k	l	m	o	p	q	r	s	x
DN 33198	00	106	200	97	59.5	87	37	66	155	-	94	200	220.5	32	35	189	194	33
DN 33206	00	106	200	171.5	59.5	87	112	66	155	64	94	200	220.5	32	35	189	194	33
DN 33324	00	106	200	171.5	59.5	87	77	66	155	36	94	200	220.5	32	35	189	194	33

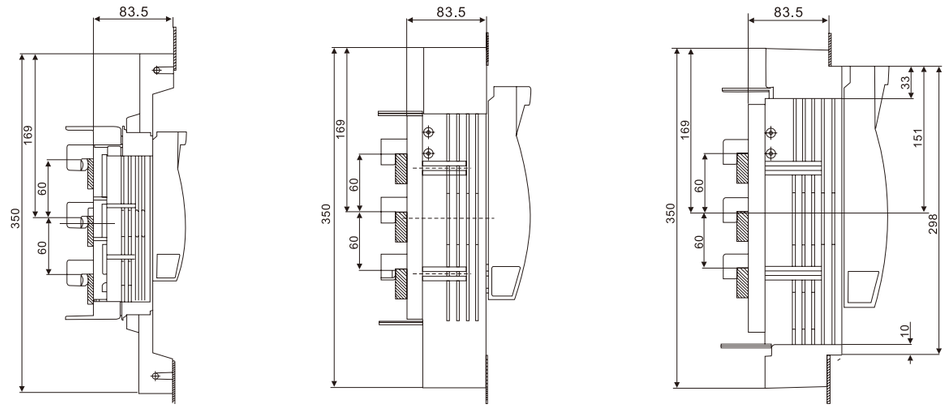


	Size	a	b	c	d	e	f	g	h	l	m	p	q	r	x
DN 33601	1	184	243	128.5	83	221	45.5	90	220	101	214.5	104.5	110.5	M10	57
DN 33602	2	210	288	145	97	268	48	98	249	118	255	128	124.5	M10	65
DN 33603	3	256	300	159.5	111.5	285	48	104.5	259	121.5	267	136.5	139	M12	81
DN 33160	1	184	243	203.5	83	221	120.5	90	220	101	214.5	104.5	110.5	M10	57
DN 33161	2	210	288	220	97	268	123	98	249	118	255	128	124.5	M10	65
DN 33162	3	256	300	234.5	111.5	285	123	104.5	259	121.5	267	136.5	139	M12	81
DN 33325	1	184	243	203.5	83	221	120.5	90	220	101	214.5	104.5	110.5	M10	57
DN 33326	2	210	288	220	97	268	123	98	249	118	255	128	124.5	M10	65
DN 33327	3	256	300	234.5	111.5	285	123	104.5	259	121.5	267	136.5	139	M12	81

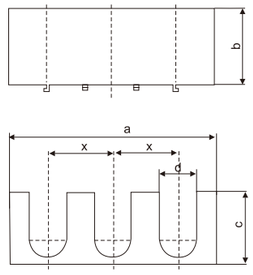


	Size
DN 33317	00
DN 33315	00
DN 33142	1
DN 33316	0

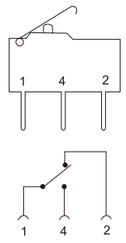




	a	b	c	d	e
DN 79811	105	34	46	22	33
DN 33142	182.5	68	65	33	57
DN 33143	208.5	51.5	79	43	65
DN 33144	254	48	93.5	43	81



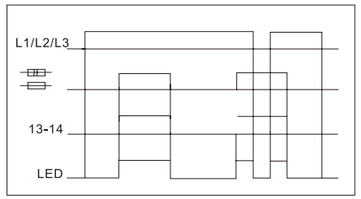
DN 33156



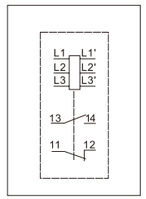
BUSBAR SYSTEM

NH fuse switch disconnector (with electronic fuse monitoring)

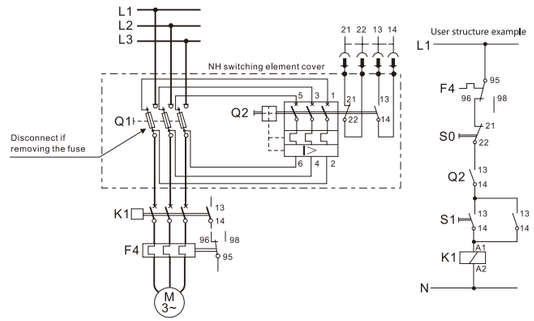
Function diagram



Connection diagram

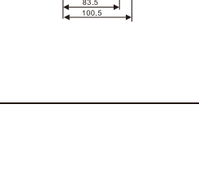


NH fuse switch disconnector (with electromechanical fuse monitoring)

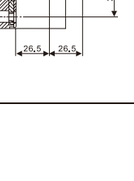


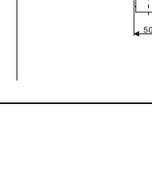
NH in-line fuse switch disconnector (with electronic fuse monitoring)

Circuit diagram



Connection diagram

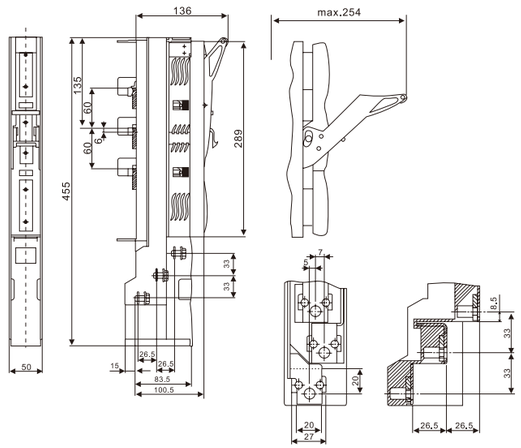




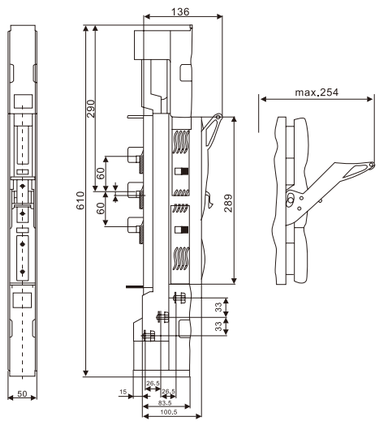
Without jumper: storage
With jumper: no storage

Function diagram

DN 33234

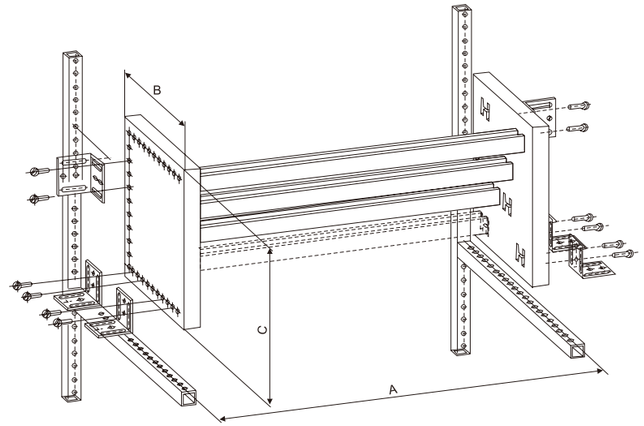


DN 33285

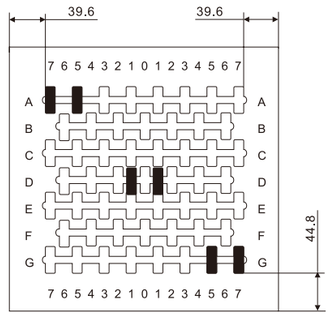


GRL

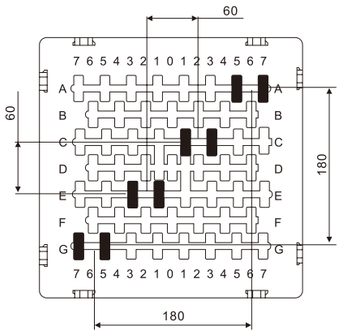
	A	B	C
DN 35007	488 – 563	300	300
DN 35006	688 – 763	300	300
DN 35005	488 – 563	300	300
DN 35004	688 – 763	300	300
DN 35015	488 – 563	300	300
DN 35016	688 – 763	300	300



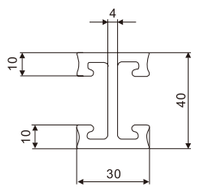
DN 35008



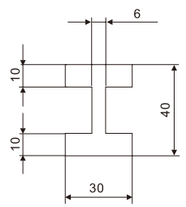
DN 35009



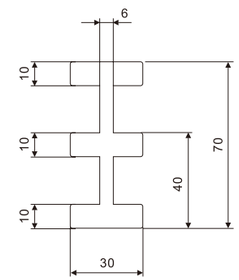
DN 01223 DN 01224 DN 01225 DN 01226 DN 01250 DN 01609



DN 01190 DN 01229 DN 01249 DN 01608 DN 01831 DN 01838



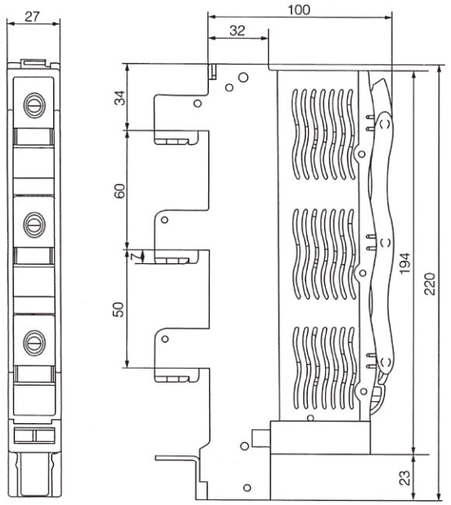
DN 01187 DN 01188 DN 01189 DN 01227



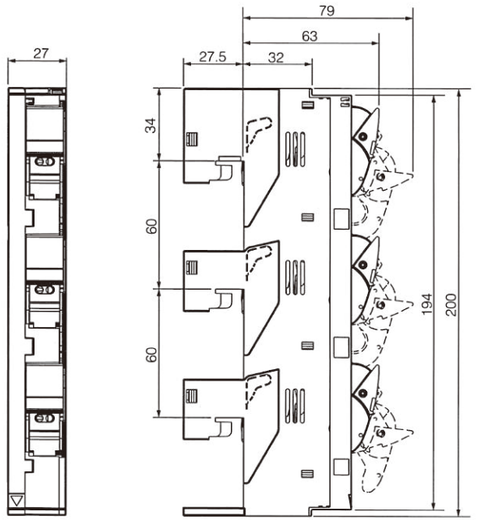
GRL

BUSBAR SYSTEM

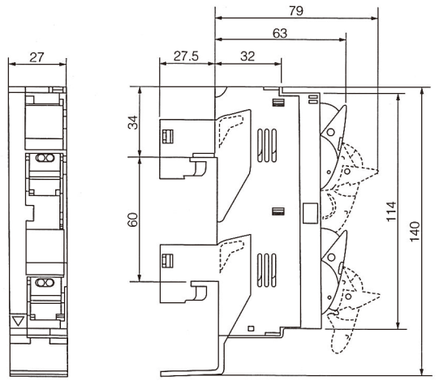
DN 31158



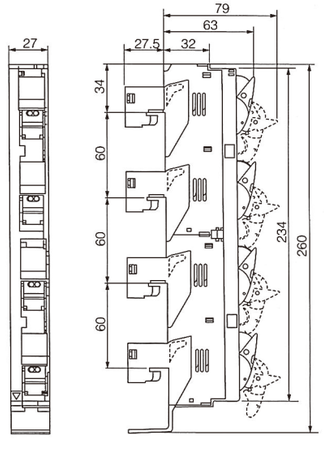
DN 31954



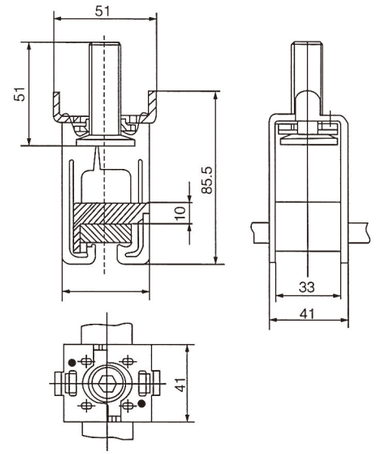
DN 31956



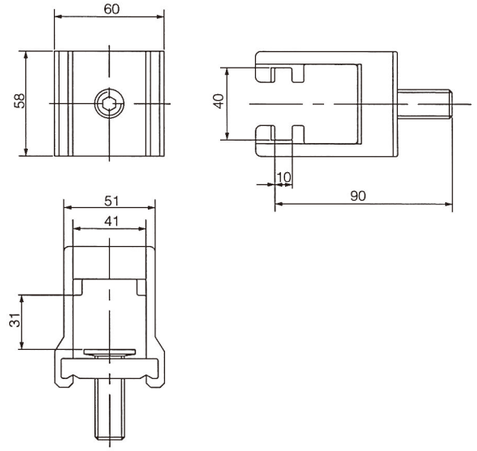
DN 31963



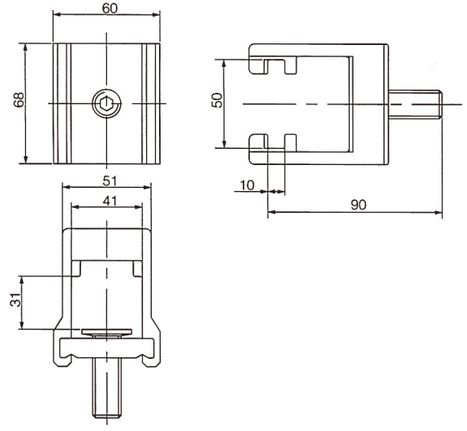
DN 01759



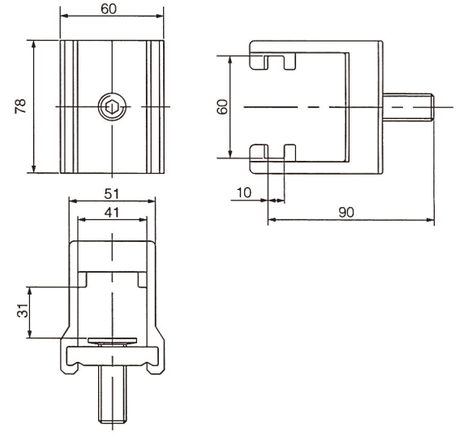
DN 01032



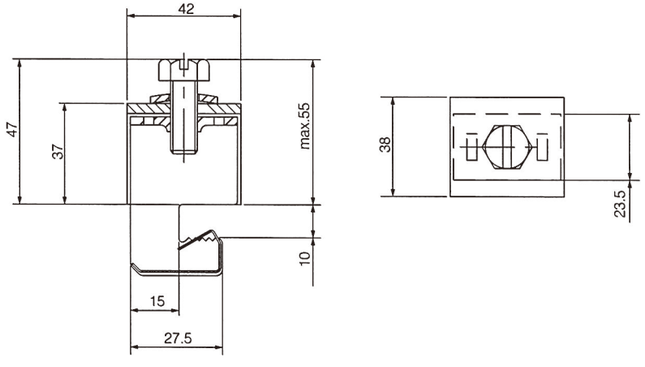
DN 01033



DN 01034



DN 01047



BUSBAR SYSTEM

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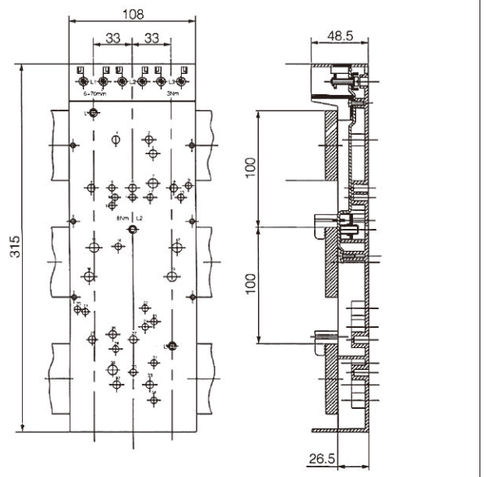

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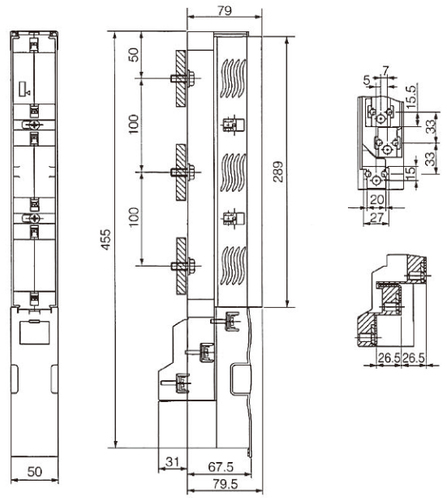

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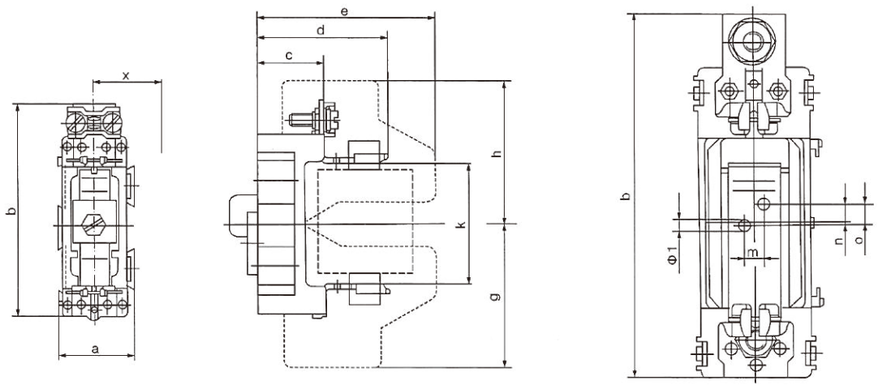

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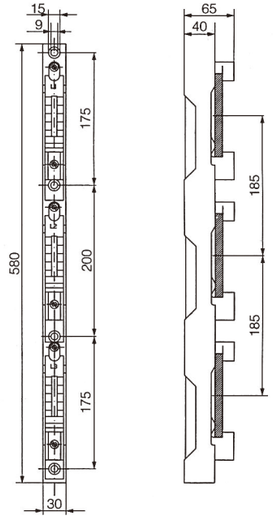

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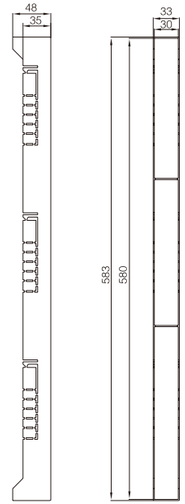

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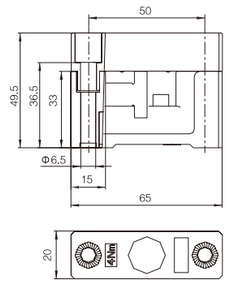

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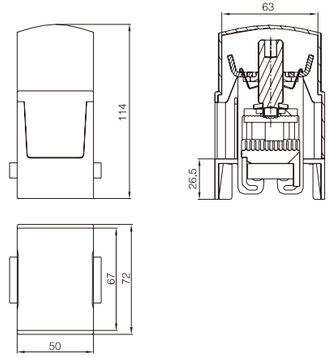

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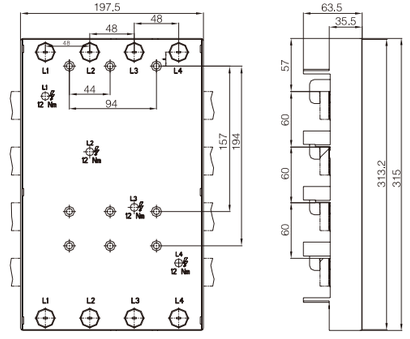

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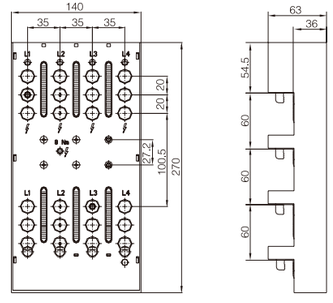

Notes

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