



Product Information
01/2008

Flexible connectors • Solderless terminals • Contact systems

druseidt
Elektrotechnik

Busbars, non-ferrous metal working and accessories.

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Busbars, non-ferrous metal working and accessories

We are specialized in manufacturing of busbars and components for energy distribution consisting out of copper, aluminium or brass. Our wide range of manufacturing processes enables an individual manufacturing of high current components for various kinds of applications.

Modern plants supported by CAD/CAM technique guarantee a repeatable and economic production. So we are able to offer individual items as well as series of punched, bended, milled or welded components designed in coordination with your applications. Our longtime experience in construction and formulation of special solutions for high current applications offers the possibility to realize solutions in cooperation with our customers.

Our product range busbar and non ferrous metal working is complemented by our additional production department of flexible air- and water cooled high current connections. On demand, we'll send with pleasure our complete set of catalogues.

More information about our company and our product ranges are contained in our internet homepage:

www.druseidt.de

Our business activities

- Manufacturing of punched copper and aluminium busbars
- Manufacturing of earth and neutral busbars
- Manufacturing of stamped and punched copper and aluminium parts according to your samples or drawings
- Manufacturing of bended and finished-worked copper- and aluminium bars
- Manufacturing of punched and bended copper- and bimetallic sheets
- Manufacturing of welded copper- and aluminium parts
- Manufacturing of non ferrous metal parts on metal working lathes and milling machines
- Manufacturing of insulating parts consisting out of high performance materials up to a temperature resistance of + 1500° C
- Manufacturing of busbar supports and other accessories



Components for energy distribution

We manufacture and deliver high current components for various kinds of application:

- Busbars and busbar components
- Earth and neutral busbars
- Stamped and punched copper- and aluminium parts according to your samples or drawings
- Punched and bended sheets
- Welded copper- and aluminium components
- Components manufactured out of high performance materials
- Insulating materials up to a temperature resistant of + 1500° C
- Non ferrous metal parts manufactured on metal working lathes and milling machines
- Standoff insulators
- Busbar holders and busbar supports

Busbars with or without punched holes

We manufacture and deliver busbars consisting out of copper, aluminium or aluminium alloys in punched as well as in designs without holes. When working with punched busbars it is possible to make connections with busbars, which have the same or different dimensions, as well as with insulated supple bars

or other flexible connectors. Because a separate drilling is not necessary, you can realize a professional and timesaving installation also inside of existing plants. On request, we deliver also busbars with coated surfaces or threaded holes.



Deliverable designs:

- width 15-200 mm
 - thickness 3-15 mm
 - length up to 4 m
 - with round or slot holes
 - optional with rounded edges
 - with or without threaded holes
- Or according to your requirements
made out of Al 99,5 / AlMgSi0,5/AlMgSi1 etc.

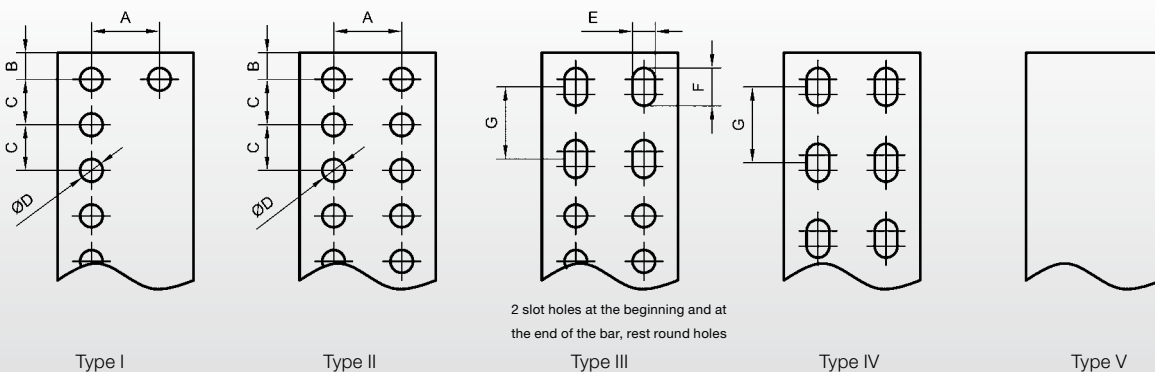
Timesaving installation when connecting:

- busbars which have the same dimensions
- busbars which have different dimensions
- busbars with insulated supple bars
- busbars with flexible connectors
- busbars with assembled leadings

With hole pattern according to your wishes or drawings on request. We deliver individual items as well as small or bigger series according to your instructions.

Possible designs:

- Type I round holes on one side
- Type II round holes on both sides
- Type III 2 slot holes at the beginning and the end of the bar, rest round holes
- Type IV slot holes on both sides
- Type V without holes



Ordering Information

Material:

- E-Copper
- AL 99,5
- other materials

Surface coating:

- uncoated
- tinned
- other coatings

Dimensions:

width: A: D Ø:

thickness: B: E :

length: C: F :

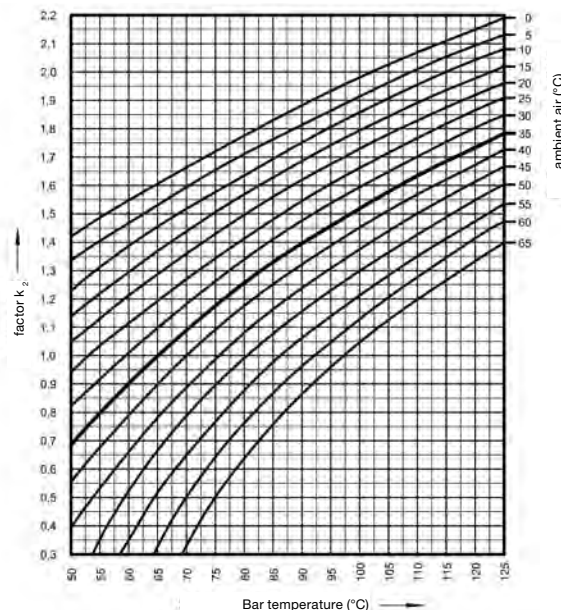
G :

type: pieces:

Table for the current load of copper- and aluminium busbars acc. to DIN 43671 and 43670

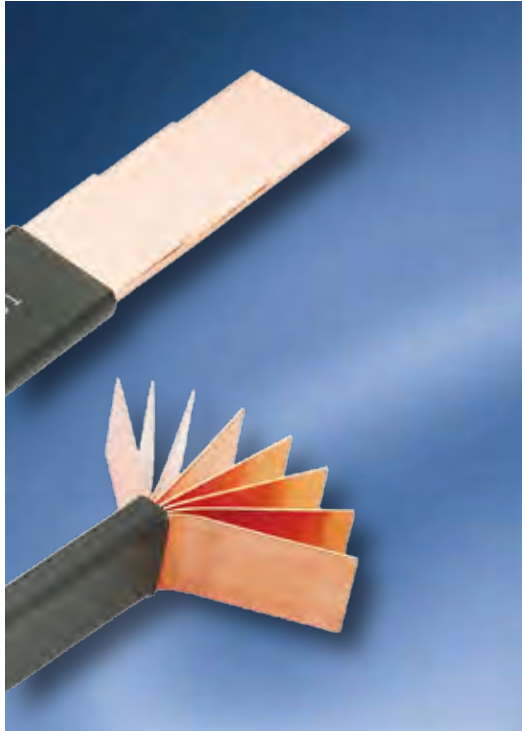
Continuous currents for busbars Cu-ETP/E-Cu according to the DIN regulations for rectangular bars in interior systems at + 35° C air temperature and + 65° C bar temperature and vertical bar position. Values for a changed ambient temperature and reducing factors for changed applications are contained in the DIN 43671 or 43670 respectively in the correction factor diagram K2.

Supported by the correction factor K2 it is possible to correct the current load acc. to the following table to a changed ambient- and bar-temperature. All values for the current load based on the conditions of an unmoved ambient air, uncoated bars, partial oxidized, so that the emission ratio is 0,35 by aluminium, 0,4 by copper resp. 0,9 when working with painted bars. Under changed or other conditions, please take notice to the values of the norms.



| width x thickness mm | weight kg/meter | Material E-copper F30 current load in A | | | | Material E-Al current load in A | | | | |
|----------------------|-----------------|---|---------|-----------------------------|---------|---------------------------------|---------|-----------------------------|---------|------|
| | | AC up to 60 Hz bar | | DC + AC up to 16 2/3 Hz bar | | AC up to 60 Hz bar | | DC + AC up to 16 2/3 Hz bar | | |
| | | uncoated | painted | uncoated | painted | uncoated | painted | uncoated | painted | |
| 12 x 2 | 0,210 | 108 | 123 | 108 | 123 | 0,060 | 84 | 97 | 84 | 97 |
| 15 x 2 | 0,270 | 128 | 148 | 128 | 148 | 0,080 | 100 | 118 | 100 | 118 |
| 15 x 3 | 0,400 | 162 | 187 | 162 | 187 | 0,120 | 126 | 148 | 126 | 148 |
| 20 x 2 | 0,360 | 162 | 189 | 162 | 189 | 0,110 | 127 | 150 | 127 | 150 |
| 20 x 3 | 0,530 | 204 | 237 | 204 | 237 | 0,160 | 159 | 188 | 159 | 188 |
| 20 x 5 | 0,890 | 274 | 319 | 274 | 320 | 0,270 | 214 | 254 | 214 | 254 |
| 20 x 10 | 1,780 | 427 | 497 | 428 | 499 | 0,540 | 331 | 393 | 331 | 393 |
| 25 x 3 | 0,670 | 245 | 287 | 245 | 287 | 0,200 | 190 | 228 | 191 | 228 |
| 25 x 5 | 1,115 | 327 | 384 | 327 | 384 | 0,340 | 255 | 305 | 255 | 305 |
| 30 x 3 | 0,800 | 285 | 337 | 286 | 337 | 0,240 | 222 | 267 | 222 | 268 |
| 30 x 5 | 1,340 | 379 | 447 | 380 | 448 | 0,410 | 295 | 356 | 296 | 356 |
| 30 x 10 | 2,670 | 573 | 676 | 579 | 683 | 0,810 | 445 | 536 | 447 | 538 |
| 40 x 3 | 1,070 | 366 | 435 | 367 | 436 | 0,320 | 285 | 346 | 285 | 346 |
| 40 x 5 | 1,780 | 482 | 573 | 484 | 576 | 0,540 | 376 | 456 | 376 | 457 |
| 40 x 10 | 3,560 | 715 | 850 | 728 | 865 | 1,080 | 557 | 677 | 561 | 682 |
| 50 x 5 | 2,230 | 583 | 697 | 588 | 703 | 0,680 | 455 | 556 | 456 | 558 |
| 50 x 10 | 4,450 | 852 | 1020 | 875 | 1050 | 1,350 | 667 | 815 | 674 | 824 |
| 60 x 5 | 2,670 | 688 | 826 | 696 | 836 | 0,810 | 533 | 655 | 536 | 658 |
| 60 x 10 | 5,340 | 985 | 1180 | 1020 | 1230 | 1,620 | 774 | 951 | 787 | 966 |
| 80 x 5 | 3,560 | 885 | 1070 | 902 | 1090 | 1,080 | 688 | 851 | 694 | 858 |
| 80 x 10 | 7,120 | 1240 | 1500 | 1310 | 1590 | 2,160 | 983 | 1220 | 1010 | 1250 |
| 100 x 5 | 4,450 | 1080 | 1300 | 1110 | 1340 | 1,350 | 846 | 1050 | 858 | 1060 |
| 100 x 10 | 8,900 | 1490 | 1810 | 1600 | 1940 | 2,700 | 1190 | 1480 | 1240 | 1540 |
| 120 x 10 | 10,680 | 1740 | 2110 | 1890 | 2300 | 3,240 | 1390 | 1730 | 1460 | 1830 |
| 160 x 10 | 14,240 | 2220 | 2700 | 2470 | 3010 | 4,320 | 1780 | 2220 | 1900 | 2380 |
| 200 x 10 | 17,800 | 2690 | 3290 | 3040 | 3720 | 5,400 | 2160 | 2710 | 2350 | 2960 |

**PVC insulated supple bars insulated by a black vinyl compound,
standard length 2 m**



Construction and application

Supple bars are insulated flat electrical conductors. They consist of several layers of uncoated or tin plated Cu-ETP strips (99,9% copper) and are insulated with a flexible high quality vinyl compound.

This special compound is self-extinguishing and free of lead. The flexibility of the bars offers an installation into difficult equipment or small places. They have become particularly well established as connectors in switchgears and between transformers, generators, switching devices and prefabricated power networks up to a operating voltage of 1 kV. As a consequence of their large surface area and hence their favourable thermal radiation properties, they can handle heavier current loads than solid busbars of the same cross-section. So it is possible to use components with smaller dimensions. The elasticity of the vinyl compound realizes a deforming of bars also when working with larger cross-sections.

The connection level can also be changed by bending and twisting through 180°. Our supple bars enable an individual fitting of the components, a reduction of the cross-section and a reduction of the installation time. So they are a very interesting cost-saving product.

Technical data

Electrical conductor

- copper strips Cu-ETP (99,9% copper)
- surface uncoated or tinned
- stability > = 200 N/mm²
- electrical conductivity 57 S x m/mm²

Insulation

- special vinyl compound
- black, free of lead
- thickness 1,8-2 mm
- self-extinguishing acc. to UL 94 VO
- shore hardness 85 A
- elasticity 365%
- AC voltage between potential and insulating material 16,5 kV
- AC voltage between two insulated supple bars in contact 33 kV
- operating voltage max 1 kV
- operating temperature -20° C up to +105° C



Installation

Simple mounting by drilling, punching or underside clamping. The copper strips are sliding when bending the bars, therefore it is necessary to bend the bars before starting the cutting, drilling or punching process.

To prevent a displacement of the copper strips a tightly clamping of the bars is necessary too when carrying out the drilling or punching process.

PVC insulated supple bars

made out of uncoated or tin plated Cu-ETP strips

insulated by a black vinyl compound, standard length 2 m

| Part.-No. | | technical data | | | | | | | | | | | |
|-----------|----------|----------------------------------|--|---|------|---|-----|--------|--------|--------|-------------------------|--------|--------|
| uncoated | tinned | cross-section mm ² | copper-strips number x dimension mm | | | current load in dependence of the conductor in °C | | | | | copper weight kg/% m | | |
| | | | | | | 65° | 75° | 85° | 95° | 105° | | | |
| 15650 | 15650 vz | 14,4 | 2 | x | 9 | x | 0,8 | 95 A | 114 A | 130 A | 144 A | 157 A | 13,80 |
| 15651 | 51700* | 21,6 | 3 | x | 9 | x | 0,8 | 119 A | 141 A | 162 A | 180 A | 196 A | 20,70 |
| 15652 | 15652 vz | 28,8 | 4 | x | 9 | x | 0,8 | 139 A | 166 A | 190 A | 211 A | 230 A | 27,60 |
| 15653 | 15653 vz | 36 | 5 | x | 9 | x | 0,8 | 158 A | 189 A | 215 A | 240 A | 262 A | 34,50 |
| 15654 | 51705* | 43,2 | 6 | x | 9 | x | 0,8 | 176 A | 210 A | 240 A | 266 A | 291 A | 41,40 |
| 15655 | 15655 vz | 13 | 2 | x | 13 | x | 0,5 | 97 A | 116 A | 132 A | 147 A | 160 A | 12,50 |
| 15656 | 51710* | 19,5 | 3 | x | 13 | x | 0,5 | 120 A | 143 A | 163 A | 181 A | 198 A | 18,70 |
| 15657 | 15657 vz | 26 | 4 | x | 13 | x | 0,5 | 140 A | 166 A | 190 A | 211 A | 231 A | 25,00 |
| 15658 | 51715* | 39 | 6 | x | 13 | x | 0,5 | 174 A | 207 A | 237 A | 263 A | 288 A | 37,50 |
| 15661 | 15661 vz | 24,8 | 2 | x | 15,5 | x | 0,8 | 141 A | 168 A | 192 A | 214 A | 234 A | 23,80 |
| 15662 | 51720* | 49,6 | 4 | x | 15,5 | x | 0,8 | 205 A | 244 A | 279 A | 310 A | 339 A | 47,60 |
| 15663 | 51725* | 74,4 | 6 | x | 15,5 | x | 0,8 | 257 A | 306 A | 350 A | 389 A | 424 A | 71,40 |
| 15664 | 15664 vz | 99,2 | 8 | x | 15,5 | x | 0,8 | 303 A | 361 A | 412 A | 458 A | 501 A | 95,20 |
| 15665 | 51730* | 124 | 10 | x | 15,5 | x | 0,8 | 345 A | 411 A | 470 A | 523 A | 571 A | 119,00 |
| 15666 | 15666 vz | 40 | 2 | x | 20 | x | 1 | 193 A | 230 A | 263 A | 292 A | 319 A | 38,30 |
| 15667 | 15667 vz | 60 | 3 | x | 20 | x | 1 | 240 A | 286 A | 326 A | 363 A | 396 A | 57,50 |
| 15668 | 15668 vz | 80 | 4 | x | 20 | x | 1 | 280 A | 334 A | 381 A | 424 A | 463 A | 76,60 |
| 15669 | 15669 vz | 100 | 5 | x | 20 | x | 1 | 317 A | 377 A | 431 A | 479 A | 523 A | 95,80 |
| 15670 | 15670 vz | 120 | 6 | x | 20 | x | 1 | 351 A | 418 A | 477 A | 531 A | 580 A | 115,00 |
| 15671 | 15671 vz | 160 | 8 | x | 20 | x | 1 | 413 A | 492 A | 562 A | 625 A | 683 A | 153,30 |
| 15672 | 15672 vz | 200 | 10 | x | 20 | x | 1 | 470 A | 560 A | 640 A | 711 A | 777 A | 191,60 |
| 51731 | 51732* | 240 | 11 | x | 20 | x | 1 | 497 A | 592 A | 676 A | 752 A | 821 A | 229,90 |
| 15673 | 15673 vz | 48 | 2 | x | 24 | x | 1 | 223 A | 265 A | 303 A | 337 A | 368 A | 46,00 |
| 15674 | 15674 vz | 72 | 3 | x | 24 | x | 1 | 276 A | 329 A | 375 A | 417 A | 456 A | 69,00 |
| 15675 | 15675 vz | 96 | 4 | x | 24 | x | 1 | 322 A | 383 A | 438 A | 487 A | 532 A | 92,00 |
| 15676 | 15676 vz | 120 | 5 | x | 24 | x | 1 | 363 A | 433 A | 494 A | 550 A | 600 A | 115,00 |
| 15677 | 15677 vz | 144 | 6 | x | 24 | x | 1 | 402 A | 479 A | 547 A | 608 A | 664 A | 138,00 |
| 15678 | 15678 vz | 192 | 8 | x | 24 | x | 1 | 471 A | 562 A | 641 A | 713 A | 779 A | 183,90 |
| 15679 | 51735 * | 240 | 10 | x | 24 | x | 1 | 534 A | 637 A | 727 A | 809 A | 883 A | 229,90 |
| 15690 | 15690 vz | 64 | 2 | x | 32 | x | 1 | 280 A | 334 A | 382 A | 424 A | 463 A | 61,30 |
| 15691 | 15691 vz | 96 | 3 | x | 32 | x | 1 | 346 A | 413 A | 471 A | 524 A | 572 A | 92,00 |
| 15692 | 15692 vz | 128 | 4 | x | 32 | x | 1 | 403 A | 480 A | 548 A | 610 A | 666 A | 122,60 |
| 15693 | 15693 vz | 160 | 5 | x | 32 | x | 1 | 453 A | 540 A | 617 A | 686 A | 749 A | 153,30 |
| 15694 | 15694 vz | 192 | 6 | x | 32 | x | 1 | 500 A | 596 A | 680 A | 756 A | 826 A | 183,90 |
| 15695 | 15695 vz | 256 | 8 | x | 32 | x | 1 | 583 A | 695 A | 793 A | 882 A | 963 A | 245,30 |
| 15696 | 15696 vz | 320 | 10 | x | 32 | x | 1 | 657 A | 783 A | 894 A | 995 A | 1086 A | 306,60 |
| 15697 | 15697 vz | 120 | 3 | x | 40 | x | 1 | 415 A | 494 A | 565 A | 628 A | 686 A | 115,00 |
| 15698 | 15698 vz | 160 | 4 | x | 40 | x | 1 | 481 A | 574 A | 655 A | 729 A | 796 A | 153,30 |
| 15699 | 15699 vz | 200 | 5 | x | 40 | x | 1 | 541 A | 644 A | 736 A | 818 A | 894 A | 191,60 |
| 15700 | 15700 vz | 240 | 6 | x | 40 | x | 1 | 594 A | 708 A | 809 A | 900 A | 982 A | 229,90 |
| 15701 | 15701 vz | 320 | 8 | x | 40 | x | 1 | 690 A | 822 A | 939 A | 1044 A | 1140 A | 306,60 |
| 15702 | 15702 vz | 400 | 10 | x | 40 | x | 1 | 774 A | 922 A | 1053 A | 1171 A | 1279 A | 383,20 |
| 15703 | 15703 vz | 200 | 4 | x | 50 | x | 1 | 577 A | 688 A | 786 A | 874 A | 954 A | 191,60 |
| 15704 | 15704 vz | 250 | 5 | x | 50 | x | 1 | 646 A | 770 A | 880 A | 978 A | 1068 A | 239,50 |
| 15705 | 15705 vz | 300 | 6 | x | 50 | x | 1 | 709 A | 844 A | 965 A | 1073 A | 1171 A | 287,40 |
| 15706 | 15706 vz | 400 | 8 | x | 50 | x | 1 | 818 A | 975 A | 1114 A | 1238 A | 1352 A | 383,20 |
| 15707 | 15707 vz | 500 | 10 | x | 50 | x | 1 | 914 A | 1089 A | 1244 A | 1383 A | 1510 A | 479,00 |
| 15708 | 15708 vz | 252 | 4 | x | 63 | x | 1 | 698 A | 832 A | 950 A | 1056 A | 1153 A | 241,40 |
| 15709 | 15709 vz | 315 | 5 | x | 63 | x | 1 | 779 A | 929 A | 1061 A | 1179 A | 1288 A | 301,80 |
| 15710 | 15710 vz | 378 | 6 | x | 63 | x | 1 | 852 A | 1015 A | 1159 A | 1289 A | 1408 A | 362,10 |
| 15711 | 15711 vz | 504 | 8 | x | 63 | x | 1 | 978 A | 1166 A | 1332 A | 1481 A | 1617 A | 482,80 |
| 15712 | 15712 vz | 630 | 10 | x | 63 | x | 1 | 1088 A | 1296 A | 1481 A | 1646 A | 1798 A | 603,50 |
| 15713 | 15713 vz | 400 | 5 | x | 80 | x | 1 | 947 A | 1128 A | 1289 A | 1433 A | 1565 A | 383,20 |
| 15714 | 15714 vz | 480 | 6 | x | 80 | x | 1 | 1032 A | 1229 A | 1404 A | 1562 A | 1705 A | 459,80 |
| 15715 | 15715 vz | 640 | 8 | x | 80 | x | 1 | 1179 A | 1405 A | 1604 A | 1784 A | 1948 A | 613,10 |
| 15716 | 15716 vz | 800 | 10 | x | 80 | x | 1 | 1305 A | 1556 A | 1777 A | 1976 A | 2157 A | 766,40 |
| 15717 | 15717 vz | 500 | 5 | x | 100 | x | 1 | 1136 A | 1354 A | 1546 A | 1720 A | 1878 A | 479,00 |
| 15718 | 15718 vz | 600 | 6 | x | 100 | x | 1 | 1235 A | 1471 A | 1681 A | 1869 A | 2041 A | 574,80 |
| 15720 | 15720 vz | 800 | 8 | x | 100 | x | 1 | 1404 A | 1674 A | 1912 A | 2126 A | 2321 A | 766,40 |
| 15722 | 15722 vz | 1000 | 10 | x | 100 | x | 1 | 1550 A | 1848 A | 2110 A | 2347 A | 2562 A | 958,00 |

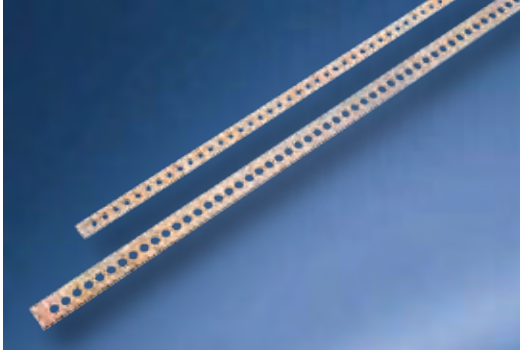
Remark: Stocked standard design bare and the * marked tinned designs. In special design all dimensions are deliverable with a tin coated surface and in variable lengths (e.g. 3 m). All information about current load are approxi-mate values in consideration of the cables heat for single laying of air cooled cables and ambient temperature +35° C. The temperature of the conductor is in dependent on the installation, the application, the cooling, the ambient temperature etc., so that if necessary reducing factors are to be considered. With pleasure our employees assist your company in finding optimal solutions.

Earth and neutral busbars

We manufacture and deliver earth and neutral busbars consisting out of copper or brass with coated as well as uncoated surfaces. Our standardized delivery program is completed by the manufacturing of designs according

to clients wishes or drawings. We deliver busbars up to a length of ca. 4 m with special hole pattern, threads or special coatings.

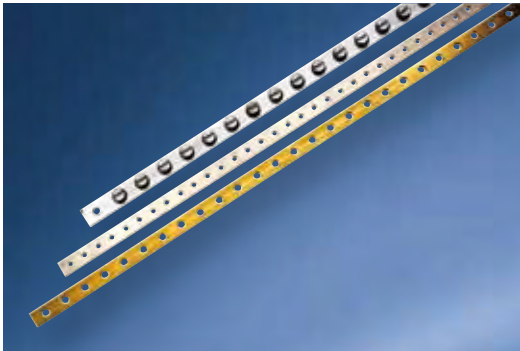
Punched E-Copper bars in customized design



We manufacture punched E-Copper bars with and without screw threads beginning in a width from 15 mm and a thickness of 3 mm. with coated or uncoated surface. We deliver bars coordinated with your application whether with round or slot holes, or with a hole combination of round and slot holes in different dimensions. Additionally to the delivery of mass produced articles we deliver individual items shortly and to a favourable price.

Earth and neutral busbars

with and without screws
length: 1000 mm
material: brass



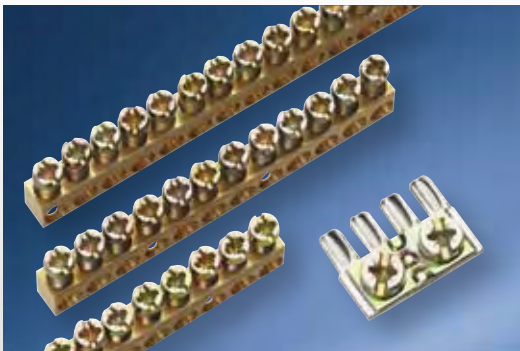
| Part-No. | | | | dimensions mm | connections | distance | weight |
|----------|---------|----------|---------|---------------|-------------|--------------|-----------|
| Type I | Type II | Type III | Type IV | B x S | | hole to hole | kg/% pcs. |
| 02700 | 02715 | 02730 | 02745 | 10 x 2 | 62 x M 5 | 16 | 14,0 |
| 02701 | 02716 | 02731 | 02746 | | 90 x M 5 | 11 | 12,0 |
| 02702 | 02717 | 02732 | 02747 | 12 x 3 | 83 x M 4 | 12 | 26,0 |
| 02703 | 02718 | 02733 | 02748 | | 64 x M 5 | 15,5 | 29,0 |
| 02704 | 02719 | 02734 | 02749 | | 58 x M 6 | 17 | 27,0 |
| 02705 | 02720 | 02735 | 02750 | 15 x 3 | 105 x M 4 | 9,5 | 36,0 |
| 02706 | 02721 | 02736 | 02751 | | 86 x M 5 | 11,5 | 35,0 |
| 02707 | 02722 | 02737 | 02752 | | 50 x M 5 | 20 | 37,0 |
| 02708 | 02723 | 02738 | 02753 | | 50 x M 6 | 20 | 36,0 |
| 02709 | 02724 | 02739 | 02754 | 15 x 4 | 42 x M 8 | 24 | 45,0 |
| 02710 | 02725 | 02740 | 02755 | 25 x 5 | 31 x M10 | 34 | 98,0 |

Type I = busbar brass uncoated, without screws
Type II = busbar brass nickel uncoated, without screws
Type III = busbar brass uncoated, with screws
Type IV = busbar brass nickel coated, with screws

Steel-screws DIN 84 not mounted and standard.
On request it is possible to deliver a mounted design or screws Made out of Brass.

Earth- and neutral busbars

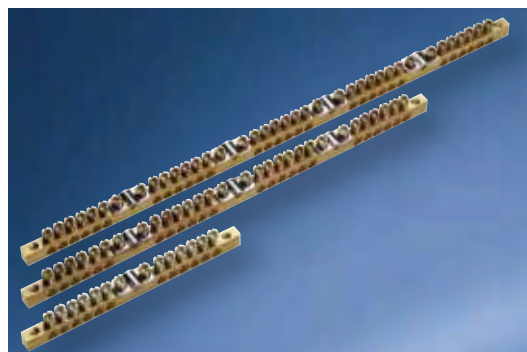
with self locking protection
rated current 63 A
material: brass



| Part-No. | cross-section mm ² | connections | dimensions mm | | | weight kg/% pcs. |
|----------|-------------------------------|--|---------------|-------|--------|------------------|
| | | | height | width | length | |
| 10535 | 10 | 8 | 9 | 6,5 | 51,5 | 2,5 |
| 10536 | | 12 | | | 77,5 | 3,7 |
| 10537 | | 18 | | | 103,5 | 5,8 |
| 10538 | | 24 | | | 155,0 | 8,1 |
| 10539 | | 151 | | | 1000,0 | 43,0 |
| 10541 | 35 | Connection terminal for Part-No. 10535-10539 | | | | 0,3 |

Earth and neutral busbars with connection clamps

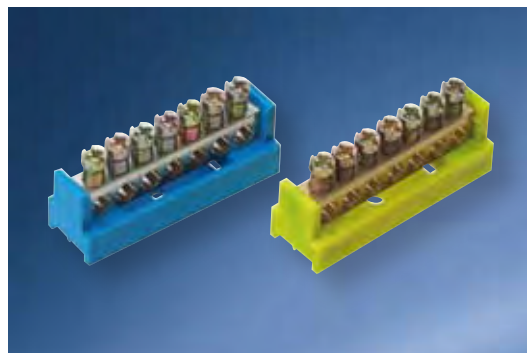
with self locking protection
 rated current 63 A
 Material: brass



| Part-No. | no. of contact positions | | dimensions mm | | | weight kg/% pcs. |
|----------|---|-----------------------------|---------------|-------|--------|---------------------|
| | incoming 25 mm ² | outgoing 10 mm ² | height | width | length | |
| 10526 | 1 clamp | 6 | 9 | 6,5 | 61,5 | 2,8 |
| 10527 | 1 clamp | 12 | 9 | 6,5 | 124,0 | 6,1 |
| 10528 | 2 clamps | 18 | 9 | 6,5 | 186,5 | 9,4 |
| 10529 | 3 clamps | 24 | 9 | 6,5 | 249,0 | 12,9 |
| 10531 | 4 clamps | 30 | 9 | 6,5 | 311,5 | 16,4 |
| 10532 | 5 clamps | 36 | 9 | 6,5 | 374,0 | 19,4 |
| 10533 | without clamps | 96 | 9 | 6,5 | 1000,0 | 48,0 |
| 10544 | Connection terminal 25 mm ² for Part-No. 10533 | | | | | 0,3 |

Insulated earth and neutral terminals

rated current: 63 A



| Part-No. | cross-section mm ² | connections | colour | weight kg/% pcs. |
|--------------------------------------|----------------------------------|-------------|----------------------|---------------------|
| for fixing to flat busbars 12 x 2 mm | | | | |
| 10555 | 10 | 7 | blue (neutral) | 2,8 |
| 10556 | | | yellow/green (earth) | |
| for clip mounting | | | | |
| 10538 | 10 | 7 | blue (neutral) | 2,8 |
| 10539 | | | yellow/green (earth) | |

Terminal supports

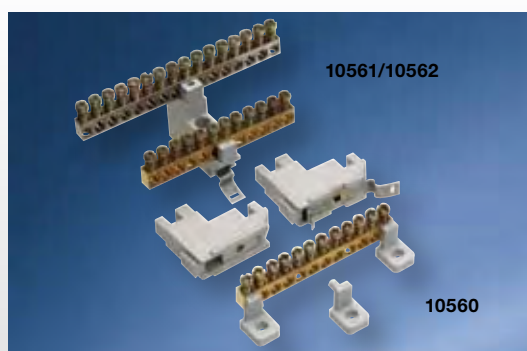
for earth and neutral busbars



| Part-No. | description | weight kg/% pcs. |
|----------|--|---------------------|
| 02763 | Terminal supports with turnable head for busbars 6 x 6 and 10 x 2 up to 15 x 4 mm. Rated voltage: 500 V AC (VDE 0110 Gr. C). | 1,6 |

Terminal supports

for earth and neutral busbars 9 x 6,5 mm

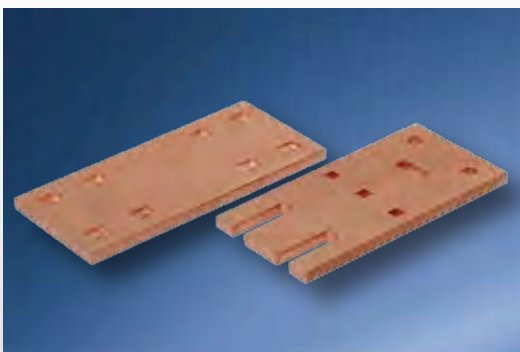
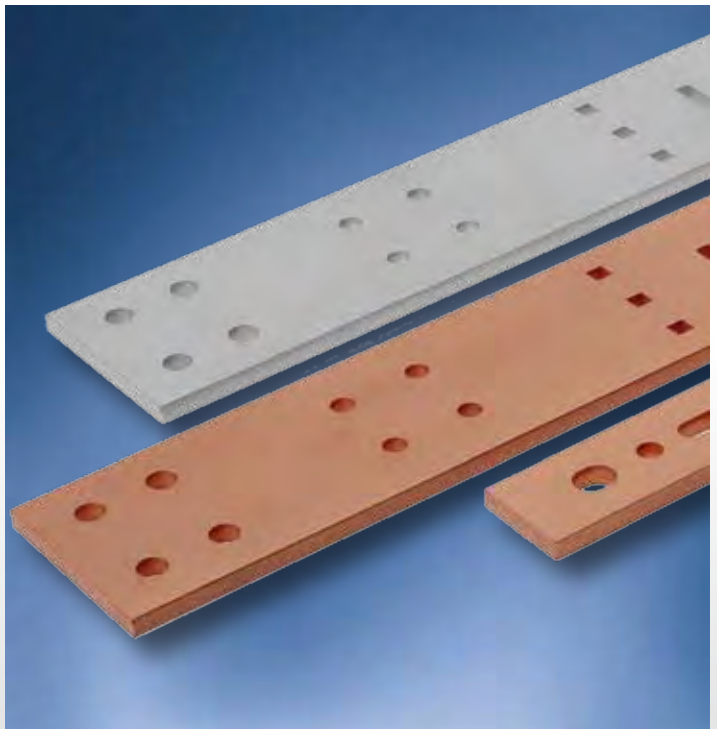
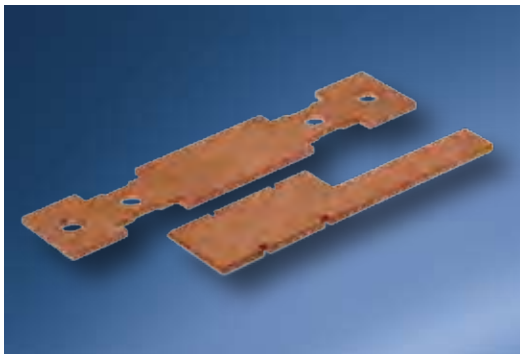
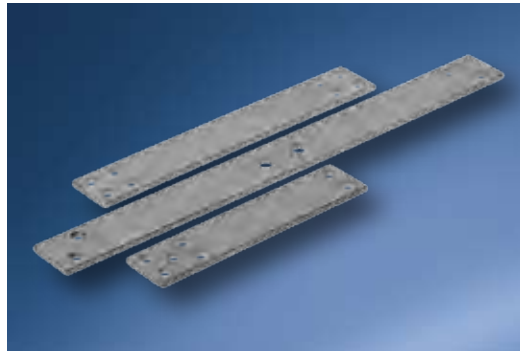
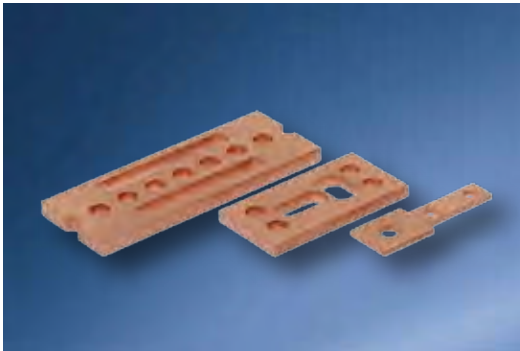
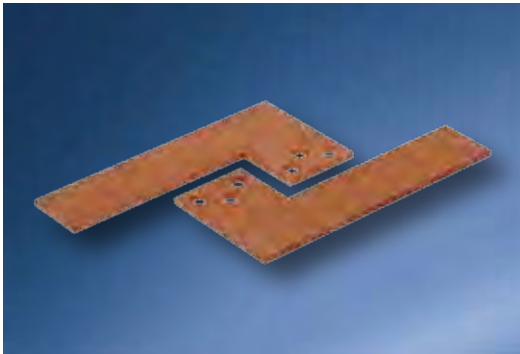


| Part-No. | mounting | weight kg/% pcs. |
|----------|----------------|---------------------|
| 10560 | screw mounting | 0,1 |
| 10561 | screw mounting | 0,7 |
| 10562 | clip mounting | 0,8 |

Stamped and punched copper and aluminium parts

We deliver stamped and punched copper and aluminium parts made out of busbars in various designs and forms. Our company offers a lot of economically production processes for the manufacturing of individual – as well as mass-produced-articles in a width of 15 mm up to 200 mm and a thickness of 3 mm up to 15 mm.

With pleasure we offer a constructive support too when planning projects or new products. Here are some examples to generate ideas for your constructions or inquiries.

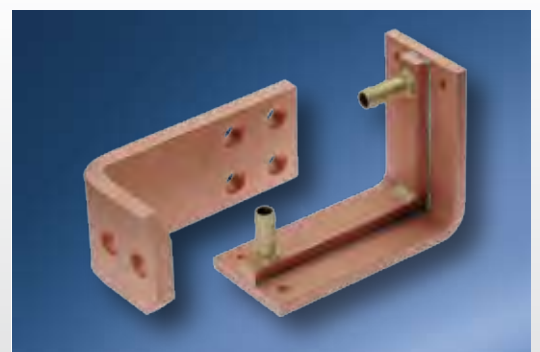
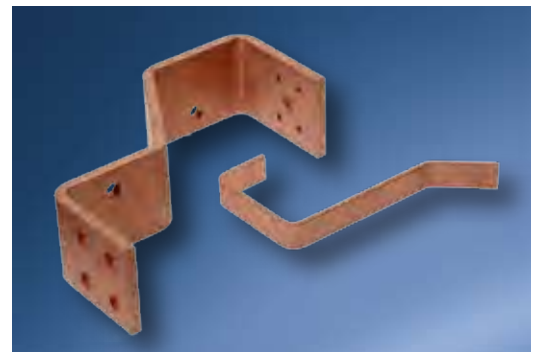


Bended and punched copper and aluminium busbars

Additionally to our delivery program of stamped busbar parts we are able to manufacture bended and punched busbar parts too. We manufacture on high automated machines and are able to deliver dimensions up to cross-sections of 200 x 20 mm in copper as well as aluminium design. The construction is carried out exactly to your wishes or drawings. All processes and forms are repeatable every time without problem.

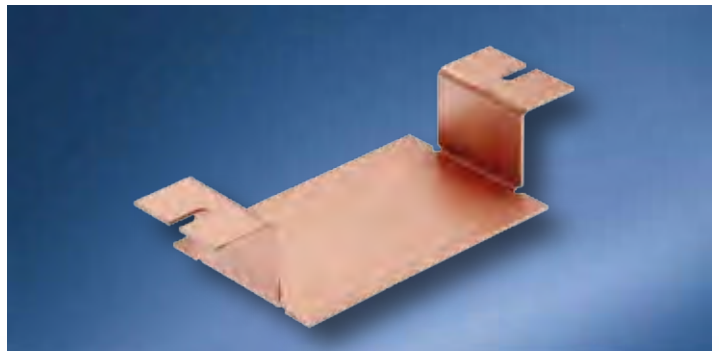
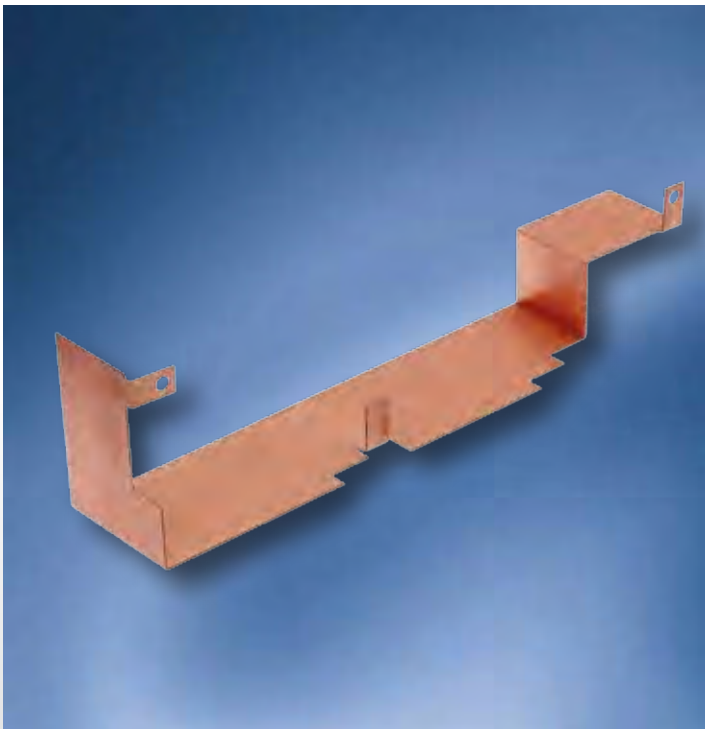
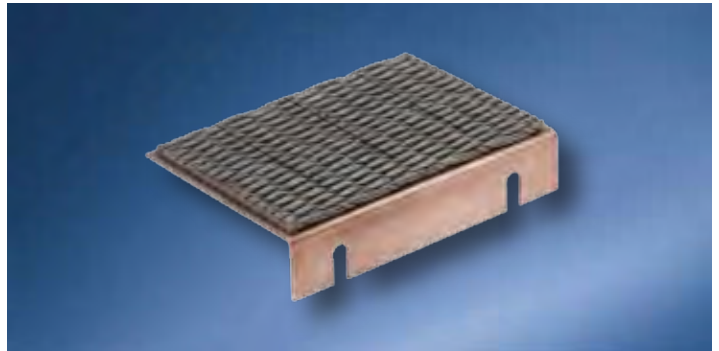
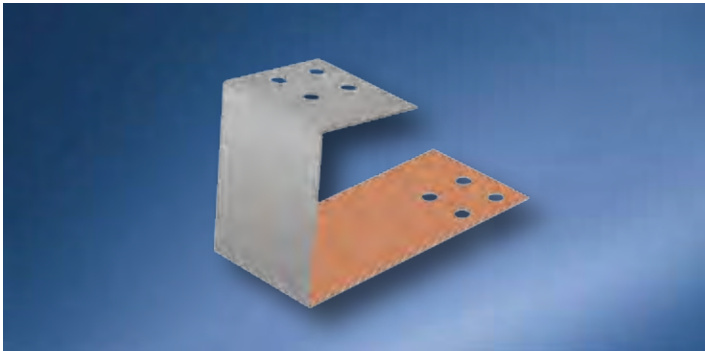
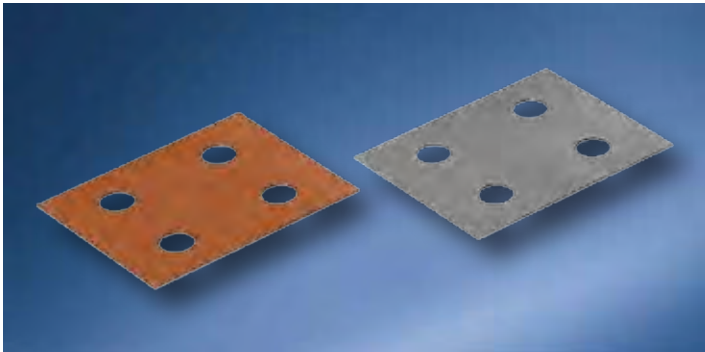
With pleasure we assist your efforts in designing of high current components and busbar-systems.

Our effort is to work together with our customers in the sense of a real partnership.



Punched and bended copper and bimetallic sheets

We manufacture smaller parts of finished sheets. The basic materials are copper sheets in a thickness up to 5 mm or bimetallic sheets in a thickness up to 2 mm. All designs are acc. to your drawings or wishes. On request coated designs as well as designs with soldered contact parts are deliverable too. Following some examples:



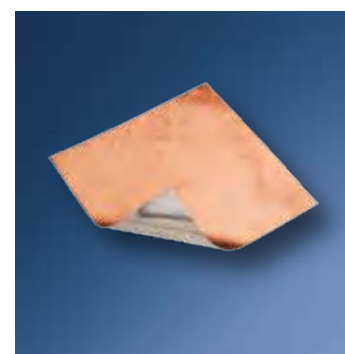
Supports

Bimetallic sheets

Bimetallic elements consist of copper plated aluminium plates. Since the connection area of both metals is in the middle, it is kept away from air and humidity.

This material enables a secure contact and a corrosion protected connection between copper and aluminium. Besides bimetallic plates and spacers we can also supply cut-outs with and without drill holes especially for your specific application.

| Part-No. | technical data | | | |
|----------|----------------|-------|-----------|---------------------|
| | dimensions mm | | | weight kg/% pcs. |
| | length | width | thickness | |
| 02670 | 2000 | 500 | 1 | 4,70 |
| 02671 | | | 1,5 | 7,00 |
| 02672 | | | 2 | 9,35 |



Bimetallic washers

| Part-No. | technical data | | | | |
|----------|---------------------------------|----------------|----------------|-----|---------------------|
| | dimensions mm for drill hole | | | | weight kg/% pcs. |
| | M | d ₁ | d ₂ | S | |
| 13295 | 3 | 8 | 3,5 | 1 | 0,02 |
| 13296 | 4 | 10 | 4,5 | 1 | 0,03 |
| 13297 | 5 | 12 | 5,5 | 1 | 0,05 |
| 02675 | 6 | 15 | 6,5 | 1 | 0,07 |
| 02676 | 8 | 18 | 8,5 | 1 | 0,09 |
| 02677 | 10 | 22 | 10,5 | 1,5 | 0,18 |
| 02678 | 12 | 25 | 13 | 2 | 0,68 |
| 02679 | 12 | 28 | 13 | 2 | 0,44 |
| 02680 | 16 | 35 | 17 | 2 | 0,66 |

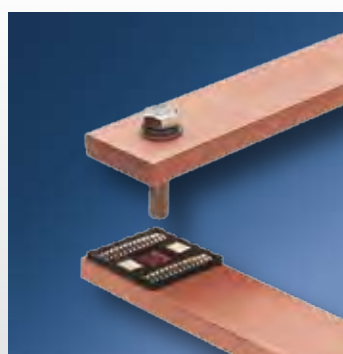


Seal-contact-modules for high current transmission

Seal-contacts are constructed for high current transmission with busbars and plates (copper/copper, Alu/copper or Alu/Alu) in indoor as well as outdoor-installations. It is possible to connect unplated, unmachined and uncleaned busbars or plates also in corrosive atmospheres (e.g. sulphur dioxide, salt laden air, chlorine etc.).

The modules are suitable for bolted joints in busbars according to DIN. By using these elements the high current transmission is made in hermetically sealed chambers, so that no oxidation or corrosion is possible.

So you get low loss over a long time of use. The torsion springlover of the multilam permits the contact force as well as the electrical performance of the busbar joint to remain constant even when the compression force drops to 50 % of its initial value. The torsion springlover of the multilam get through the oxydlayer of the busbar, so that a cleaning or coating of the contact areas is not necessary. So screw connections with low loss and without any servicing over a long time of use are guaranteed.



| Part-No. | description | technical data | | |
|----------|----------------------|----------------|-------|-----------|
| | | dimensions mm | | |
| | | length | width | thickness |
| 02696 | contact module | 40 | 13,33 | 1,4 |
| 02697 | support module long | 40 | 13,33 | 1,4 |
| 02698 | support module short | 13,33 | 13,33 | 1,4 |

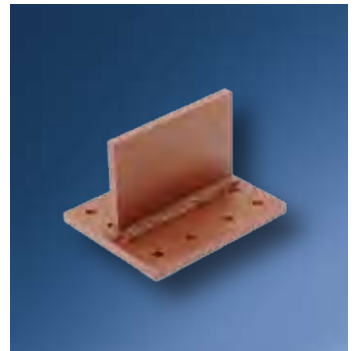
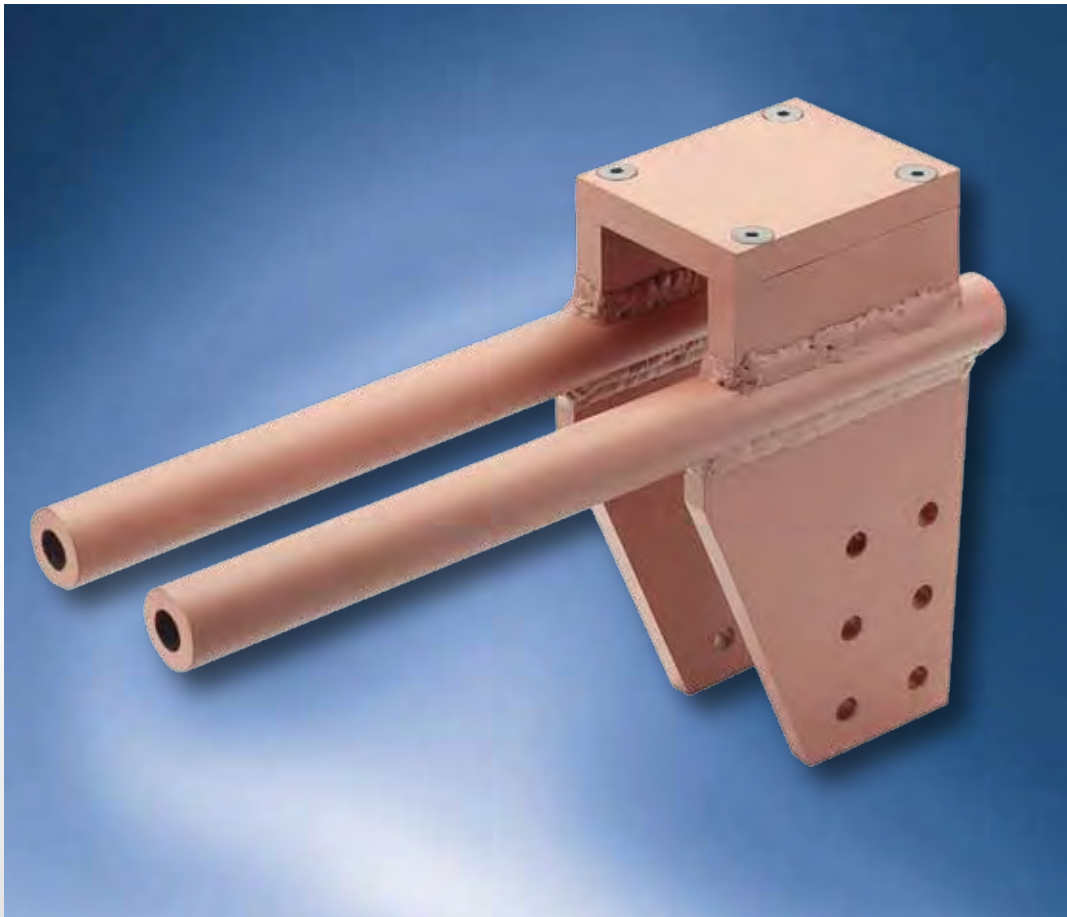
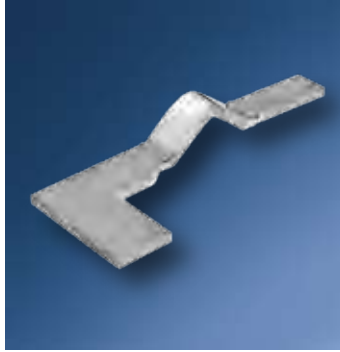
Remark:

Continuous operating temperature up to +100° C,
short circuit current 1 s = 20 kA.

Welded copper and aluminium parts

We are specialized in the welding of high current components made out of copper or aluminium materials. This part of our production is supported by our construction department and a modern metal-cutting fabrication. So we are able to offer suitable components and solutions in the field of high current

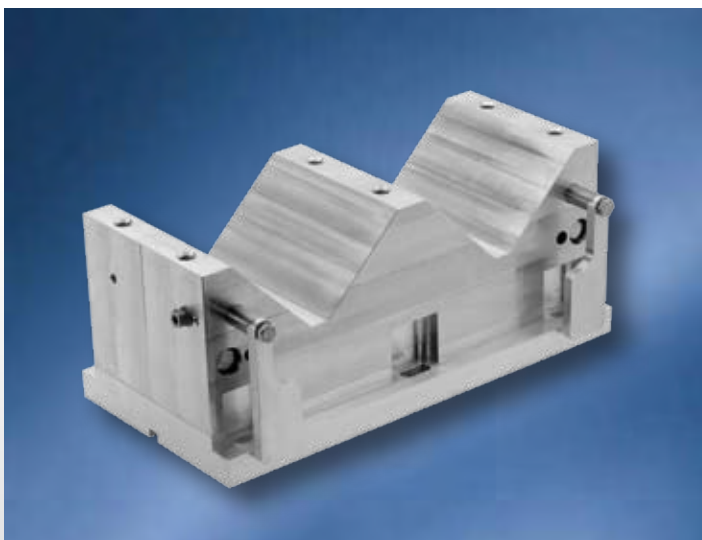
distribution and other applications. Combined with our different production-lines for the manufacturing of flexible connectors we offer also solutions for welded components in conjunction with flexible requirements or expansion compensation.



Non-ferrous metal parts manufactured on milling machines and metal working lathes

We are specialized in designing and producing of high current components made out of non ferrous metals. We work with modern machines for milling, turning, drilling and grinding processes. We attach importance of highest quality and

repeatable processes. Therefore we work with modern CAD/CAM systems. We are able to manufacture individual items as well as mass-produced-articles. Our modular machine concept places us in a position to work efficiently in a very short time.



Heat resistant insulating materials

Heat resistant insulating materials up to + 1500° C

Additionally to our non-ferrous metal working we are specialized too in the delivery of heat resistant insulating, sliding and high performance materials. We deliver such materials in plates or tubes as well as in finished components according to your drawings. With pleasure we support your construction department in finding the right material and the right design.

Product overview:

Special wooden materials up to + 130° C

Wooden plates compressed with high pressure by using phenolic resin. Assign to a specified use in the field of transformers, busbar holders or similar applications.

High performance materials up to + 260° C

Well balanced resin compounds based on phenol, epoxide, melamine, polyester, silicone and polyamide combined with high quality substrates like cellulose or cotton, aramid or glass filament fabrics.

Sliding materials up to + 600° C

High performance materials consisting of organic fibres, special resins as well as sliding additives, all pressed together.

Electrical insulating materials up to + 800° C

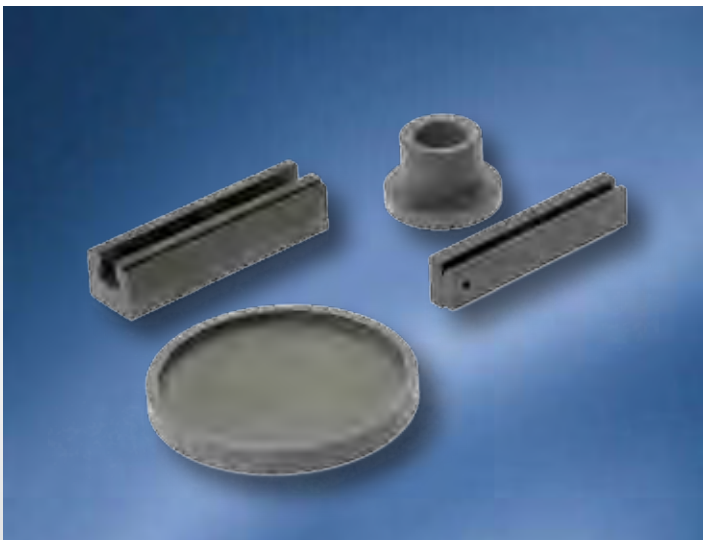
Based on mica materials in various crystal structures. So muscovite and phlogopite as well as silicone impregnated mica paper compressed under high pressure are used.

Engineering ceramics up to + 1000° C

Special materials for sliding application, also for hot working areas.

Insulating materials up to + 1500° C

Asbestos free insulating materials with high strength characteristics up to + 1500° C based on fibre elements, mica, calcium-silicates or aluminium-oxyd ceramics. With a special adhesive temperature resistant up to + 1000° C it is possible to stick the material together.



Finished articles consisting out of high performance materials

Additionally to our production processes for high current components and components for energy distribution, we deliver and design suitable insulating components consisting out of high performance materials too.

Deliverable are finished components manufactured on milling machines up to 1300 mm x 3000 mm plate format as well as work pieces manufactured on working lathes up to a diameter of 500 mm and 1500 mm length. We deliver shortly individual items as well as mass-produced articles according to your drawings or wishes.

Fields and branches of applications are:

Generator-, transformer- or switchgear application

e.g. insulating cases, insulating plates or insulating discs.

High current application

e.g. insulating material for high current tubes, cable and busbar supports.

Welding and soldering devices

e.g. temperature resistant insulating plates, spacer or distance pieces.

Chemical industry

e.g. chemical and heat resistance components according to your wishes or drawings.

Engine building and construction

e.g. sliding bars, sliding profiles or –strips for various kinds of temperatures.

Foundries- and electrical steel works

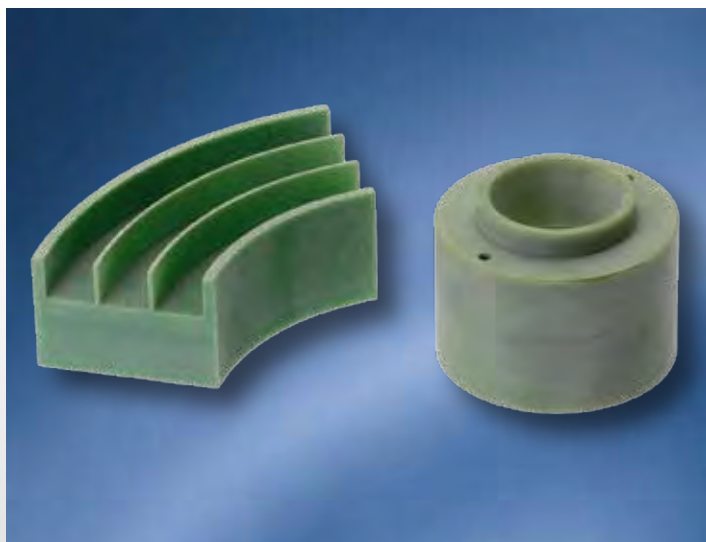
e.g. insulation materials for electric- arc- and ladle furnaces, insulating materials for high current tubes, electrodes holders and pot-, furnace- or oven-caps.

Inductive heating plants

e.g. plates- and spacers for inductor boxes, brace supports, insulating flanges and tube insulations for induction plants.

Foundries and forging lines

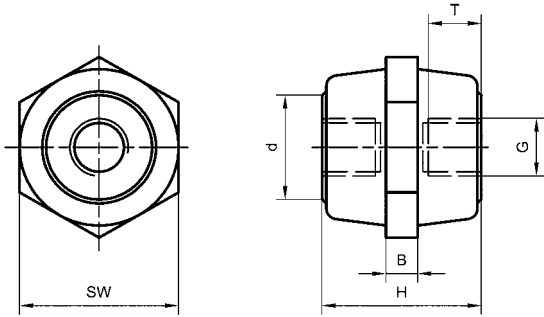
e.g. highly heat resistant clamping- and holding devices, insulating plates, insulation parts for screw connections, etc.



Standoff insulators 1-3 kV made out of Polyamide with spanner flat for indoor applications

Standoff insulators manufactured out of reinforced, flame protected and heat stabilized Polyamide. The compound is free of halogen and Phosphor. The material can be converted efficiently and is characterized by his excellent values for tensile strength (Z) and the rated load limit on the upper

insulator edge (F).The differences to the design made out of glass-fibre reinforced unsaturated polyester resin are basically in the values for the behaviour in case of fire (class V2 to V-0) and the temperature range - 25° C up to + 120° C to - 40° C up to + 130° C.



Technical data of the material

- | | | |
|---------------------------------|------------------------|----------------------|
| • Behaviour in case of fire | UL 94 | Class V2 |
| • Density | ISO 1183 | ca. 1,45 g/ccm |
| • Special throughout resistance | IEC 60093 | 10 ¹⁰ Ohm |
| • Dielectric strength | IEC 60243 | 25 kV/mm |
| • Deposit tracking | IEC 60/112 | CTI 550 |
| • Colour | natural coloured | |
| • Inserts | steel zinc coated | |
| • Temperature range | - 25° C up to + 120° C | |

| Part-No. | dimensions mm | | | | | | | | | | | weight kg/% pcs. | |
|----------|---------------|----|------|----|----|----|-------|------|------|------|--------|---------------------|--------|
| | H | SW | G | T | d | B | Md/Nm | F/kN | Z/kN | D/kN | BWS/kV | | PWS/kV |
| 06100 | 18 | 15 | M 4 | 6 | 11 | 4 | 3,3 | 1,1 | 2,2 | 13 | 1,0 | 5 | 0,60 |
| 06103 | 25 | 25 | M 6 | 8 | 16 | 6 | 17 | 2,2 | 5,5 | 38 | 1,0 | 10 | 2,00 |
| 06105 | 30 | 30 | M 6 | 8 | 20 | 6 | 22 | 2,6 | 6,8 | 49 | 1,5 | 15 | 3,00 |
| 06106 | | | M 8 | 9 | | | 44 | 4,2 | 13,0 | 63 | | | 5,00 |
| 06109 | 35 | 30 | M 6 | 8 | 20 | 6 | 30 | 3,2 | 10,0 | 50 | 1,5 | 15 | 5,00 |
| 06110 | | | M 8 | 9 | | | 50 | 4,0 | 18,0 | 60 | | | 6,00 |
| 06111 | | | M 10 | 9 | | | 55 | 4,4 | 20,0 | 66 | | | 6,00 |
| 06115 | 40 | 40 | M 8 | 9 | 28 | 8 | 60 | 8,8 | 18,0 | 95 | 2,0 | 20 | 8,00 |
| 06116 | | | M 10 | 14 | | | 95 | 10,0 | 28,0 | 100 | | | 10,00 |
| 06117 | | | M 12 | 14 | | | 105 | 12,0 | 30,0 | 122 | | | 10,00 |
| 06120 | 50 | 40 | M 8 | 9 | 28 | 8 | 60 | 5,5 | 18,0 | 92 | 3,0 | 25 | 10,00 |
| 06121 | | | M 10 | 14 | | | 95 | 8,0 | 28,0 | 100 | | | 12,00 |
| 06122 | | | M 12 | 16 | | | 105 | 9,5 | 30,0 | 122 | | | 14,00 |
| 06125 | 50 | 50 | M 10 | 14 | 32 | 10 | 132 | 12,0 | 25,0 | 140 | 3,0 | 25 | 18,00 |
| 06126 | | | M 12 | 16 | | | 220 | 14,0 | 30,0 | 180 | | | 19,50 |
| 06129 | 60 | 40 | M 8 | 9 | 28 | 8 | 55 | 6,0 | 16,0 | 92 | 3,0 | 25 | 12,00 |
| 06130 | | | M 10 | 14 | | | 99 | 8,0 | 22,0 | 100 | | | 14,00 |

SW = wrench size
Z = tensile force
PWS = testing voltage (AC)

Md = torque
D = compressive force

F = rated load Limit on Upper insulator edge
BWS = operating voltage (AC)



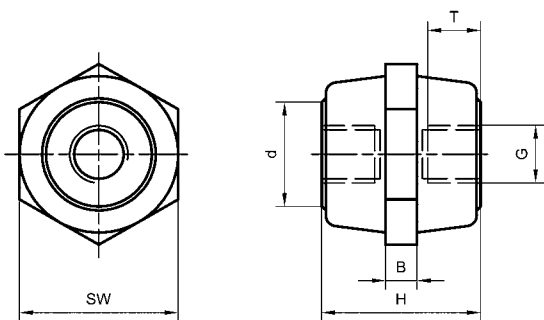
High heat resistant standoff insulators

For applications which require a continuously heat resistance up to ca. + 220° C we offer standoff insulators in special design. The material is Polyphenylensulfide with 40 % fibre glass (PPS GF 40) in a black colour. The behaviour in case of fire is in accordance with the UL 94 class V-0. Please contact us for further information.

Standoff insulators 1-3 kV made out of polyester resin material (UPE)

with spanner flat for indoor applications

Standoff insulators manufactured out of a glass fibre reinforced unsaturated polyester resin (UPE). The characteristic of the material is in accordance with DIN 16911 type 803. The compound is free of halogen with an excellent behaviour in case of fire (UL 94 V-0) and a very good strength of shape.



Technical data of the material

- Strength of shape ISO 75 + 250° C
- Behaviour in case of fire UL 94 Class V-0
- Density ISO 1183 Ca. 1,80 g/ccm
- Special throughout resistance IEC 60093 10¹⁰ Ohm
- Dielectric strength IEC 60243 20-30 kV/mm
- Deposit tracking IEC 60112 CTI 600
- Colour brown
- Inserts steel zinc coated
- Temperature range - 40° C up to + 130° C

| Part-No. | dimensions mm | | | | | | | | | | | | | weight kg/% pcs. |
|----------|---------------|----|-----|----|----|----|-------|------|------|------|--------|--------|-------|---------------------|
| | H | SW | G | T | d | B | Md/Nm | F/kN | Z/kN | D/kN | BWS/kV | PWS/kV | | |
| 06135 | 18 | 15 | M 4 | 6 | 11 | - | 3 | 1,0 | 2 | 12 | 1,0 | 5 | 0,70 | |
| 06138 | 20 | 20 | M 5 | 7 | 14 | 5 | 6 | 1,3 | 3 | 20 | 1,0 | 5 | 1,20 | |
| 06140 | 25 | 25 | M 6 | 8 | 16 | 6 | 15 | 2,0 | 5 | 35 | 1,0 | 10 | 2,40 | |
| 06143 | 30 | 30 | M 6 | 8 | 20 | 6 | 20 | 2,5 | 6 | 45 | 1,5 | 15 | 3,80 | |
| 06144 | | | M 8 | 9 | | | 40 | 4,0 | 12 | 60 | | | 5,40 | |
| 06147 | 35 | 30 | M 6 | 8 | 20 | 6 | 20 | 2,0 | 6 | 45 | 1,5 | 15 | 4,50 | |
| 06148 | | | M 8 | 9 | | | 40 | 3,5 | 12 | 60 | | | 6,00 | |
| 06149 | | | M10 | 9 | | | 50 | 4,0 | 16 | 75 | | | 7,00 | |
| 06152 | 40 | 30 | M 6 | 8 | 20 | 6 | 20 | 1,5 | 6 | 45 | 2,0 | 20 | 5,00 | |
| 06153 | | | M 8 | 9 | | | 40 | 3,0 | 12 | 60 | | | 6,60 | |
| 06156 | 40 | 40 | M 8 | 9 | 28 | 8 | 50 | 6,0 | 14 | 90 | 2,0 | 20 | 10,00 | |
| 06157 | | | M10 | 14 | | | 90 | 8,0 | 20 | 100 | | | 12,00 | |
| 06158 | | | M12 | 14 | | | 100 | 10,0 | 22 | 120 | | | 13,50 | |
| 06161 | 40 | 50 | M10 | 14 | 32 | 8 | 120 | 12,5 | 23 | 140 | 2,0 | 20 | 16,00 | |
| 06162 | | | M12 | 14 | | | 200 | 14,0 | 28 | 180 | | | 17,00 | |
| 06165 | 50 | 40 | M 8 | 9 | 28 | 8 | 50 | 5,0 | 14 | 90 | 3,0 | 25 | 12,00 | |
| 06166 | | | M10 | 14 | | | 90 | 7,0 | 20 | 100 | | | 14,00 | |
| 06167 | | | M12 | 16 | | | 100 | 8,5 | 22 | 120 | | | 16,00 | |
| 06170 | 50 | 50 | M10 | 14 | 32 | 10 | 120 | 11,0 | 23 | 140 | 3,0 | 25 | 20,00 | |
| 06171 | | | M12 | 16 | | | 200 | 13,0 | 28 | 180 | | | 21,50 | |
| 06174 | 60 | 40 | M 8 | 9 | 28 | 8 | 50 | 4,0 | 14 | 90 | 3,0 | 25 | 14,00 | |
| 06175 | | | M10 | 14 | | | 90 | 6,0 | 20 | 100 | | | 16,00 | |
| 06178 | 60 | 50 | M10 | 14 | 32 | 10 | 120 | 9,0 | 23 | 140 | 3,0 | 25 | 23,00 | |
| 06179 | | | M12 | 16 | | | 200 | 11,0 | 28 | 180 | | | 25,00 | |
| 06182 | 60 | 60 | M12 | 16 | 40 | 12 | 200 | 15,0 | 32 | 220 | 3,0 | 25 | 33,00 | |
| 06183 | | | M16 | 20 | | | 300 | 18,0 | 37 | 240 | | | 35,00 | |
| 06186 | 80 | 60 | M12 | 16 | 40 | 12 | 200 | 11,0 | 32 | 220 | 3,0 | 25 | 41,00 | |
| 06187 | | | M16 | 20 | | | 300 | 15,0 | 37 | 240 | | | 43,00 | |

Part-No. 06135 cylindrical design without spanner flat

SW = wrench size

Md = torque

F = rated load Limit on Upper insulator edge

Z = tensile force

D = compressive force

BWS = operating voltage (AC)

PWS = testing voltage (AC)

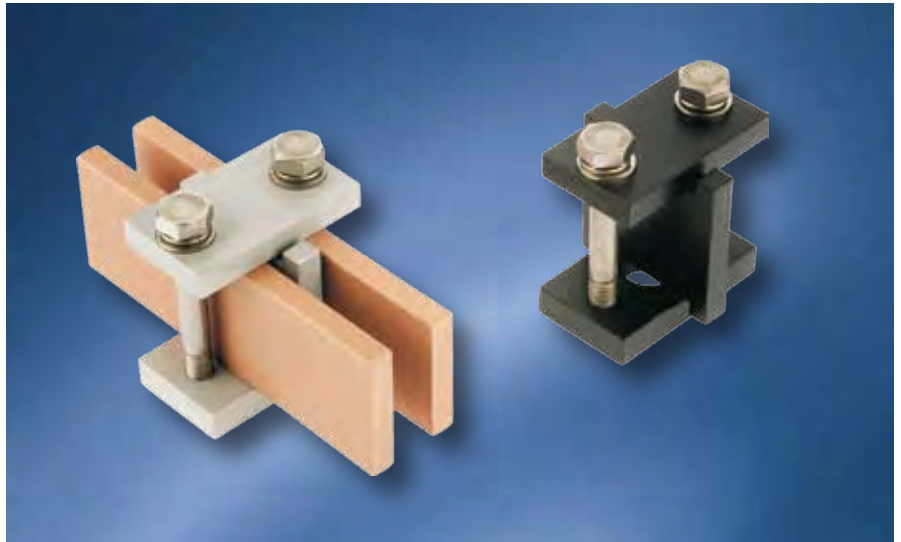
Busbar holders

for vertical busbar laying
and mounting on insulators

Busbar holders for clamping of one or two short busbars securely in the holder.

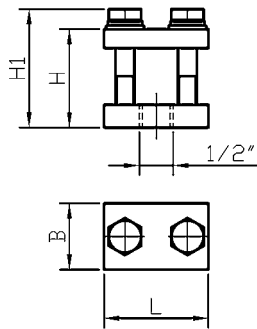
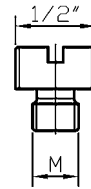
Type A: Suitable for aluminium-bars.
Material of the holder AlMgSi 1,0.
Fastening material stainless-steel.

Type B: Suitable for copper-bars or outdoor installations.
Material of the holder AlMgSi 1,0 with coated surface.
Fastening material stainless-steel.

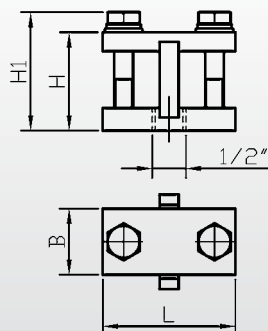


Deliverable threaded reducing-nipples made out of stainless-steel:

| Part-No. | |
|----------|------|
| 16020 | M 8 |
| 16021 | M 10 |
| 16022 | M 12 |
| 16023 | M 16 |



| Part-No. | | technical data | | | | | | |
|----------|--------|----------------|-----------|-----------|----|---------------|-----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 15900 | 15920 | 1 | 30 | 3 - 20 | 55 | 35 | 52 | 63 |
| 15901 | 15921 | 1 | 40 | 3 - 20 | 55 | 35 | 62 | 73 |
| 15902 | 15922 | 1 | 50 | 5 - 20 | 55 | 40 | 72 | 83 |
| 15903 | 15923 | 1 | 60 | 5 - 20 | 55 | 40 | 82 | 93 |
| 15904 | 15924 | 1 | 80 | 5 - 20 | 55 | 40 | 107 | 118 |
| 15905 | 15925 | 1 | 100 | 5 - 20 | 65 | 50 | 127 | 140 |
| 15908 | 15926 | 1 | 120 | 5 - 20 | 85 | 50 | 147 | 160 |



| Part-No. | | technical data | | | | | | |
|----------|--------|----------------|-----------|-----------|----|---------------|-----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 15910 | 15930 | 2 | 30 | 3 - 10 | 70 | 35 | 52 | 63 |
| 15911 | 15931 | 2 | 40 | 3 - 10 | 70 | 35 | 62 | 73 |
| 15912 | 15932 | 2 | 50 | 5 - 10 | 70 | 40 | 72 | 83 |
| 15913 | 15933 | 2 | 60 | 5 - 10 | 70 | 40 | 82 | 93 |
| 15914 | 15934 | 2 | 80 | 5 - 10 | 70 | 40 | 107 | 118 |
| 15915 | 15935 | 2 | 100 | 5 - 10 | 80 | 50 | 127 | 140 |
| 15916 | 15936 | 2 | 120 | 5 - 10 | 80 | 50 | 147 | 160 |

Busbar holders

for vertical busbar laying
and mounting on insulators

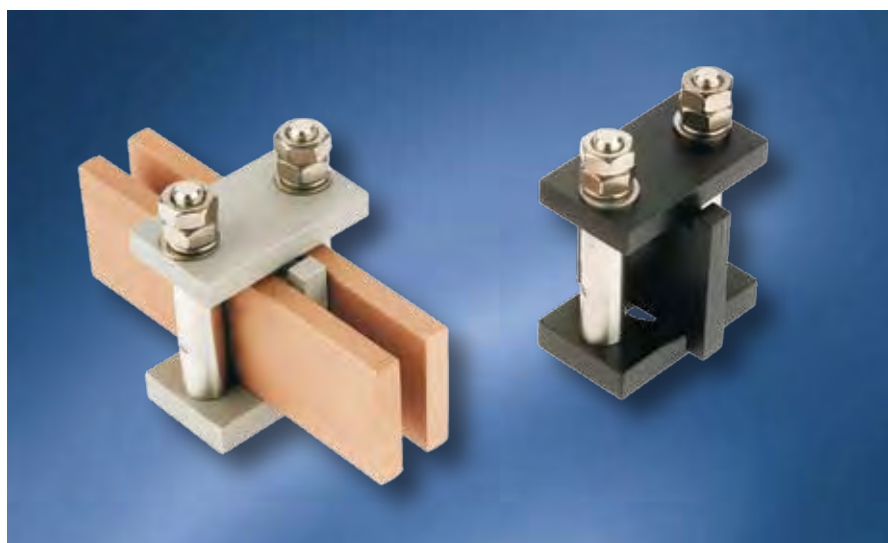
Busbar supports for use as sliding support for long busbars which must slide in the holder to allow the thermal expansion.

By using this design the lower part of the holder is fastened to the support by means of the stay bolts prior to assembly.

Now a simple insertion of the busbars between the stay bolts is possible and a time saving assembly is realized.

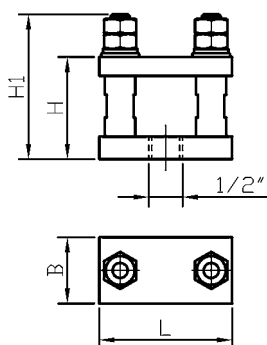
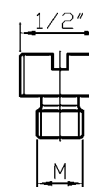
Type A: Suitable for aluminium-bars.
Material of the holder AlMgSi 1,0.
Fastening material stainless-steel.

Type B: Suitable for copper-bars or outdoor installations.
Material of the holder AlMgSi 1,0 with coated surface. Fastening material stainless-steel.

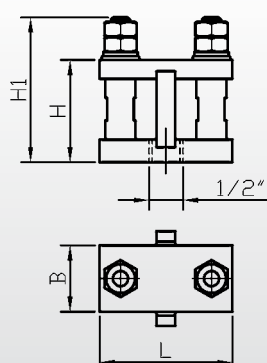


Deliverable threaded reducing-nipples made out of stainless-steel:

| Part-No. | |
|----------|------|
| 16020 | M 8 |
| 16021 | M 10 |
| 16022 | M 12 |
| 16023 | M 16 |



| Part-No. | | technical data | | | | | | |
|----------|--------|----------------|-----------|-----------|----|---------------|-----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 16420 | 16540 | 1 | 30 | 3 - 20 | 70 | 35 | 54 | 77 |
| 16421 | 16541 | 1 | 40 | 3 - 20 | 70 | 35 | 64 | 87 |
| 16422 | 16542 | 1 | 50 | 5 - 20 | 70 | 40 | 74 | 97 |
| 16423 | 16543 | 1 | 60 | 5 - 20 | 70 | 40 | 84 | 107 |
| 16424 | 16544 | 1 | 80 | 5 - 20 | 70 | 40 | 109 | 132 |
| 16425 | 16545 | 1 | 100 | 5 - 20 | 80 | 50 | 129 | 157 |
| 16426 | 16546 | 1 | 120 | 5 - 20 | 80 | 50 | 149 | 177 |



| Part-No. | | technical data | | | | | | |
|----------|--------|----------------|-----------|-----------|----|---------------|-----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 16430 | 16550 | 2 | 30 | 3 - 10 | 70 | 35 | 54 | 77 |
| 16431 | 16551 | 2 | 40 | 3 - 10 | 70 | 35 | 64 | 87 |
| 16432 | 16552 | 2 | 50 | 5 - 10 | 70 | 40 | 74 | 97 |
| 16433 | 16553 | 2 | 60 | 5 - 10 | 70 | 40 | 84 | 107 |
| 16434 | 16554 | 2 | 80 | 5 - 10 | 70 | 40 | 109 | 132 |
| 16435 | 16555 | 2 | 100 | 5 - 10 | 80 | 50 | 129 | 157 |
| 16436 | 16556 | 2 | 120 | 5 - 10 | 80 | 50 | 149 | 177 |

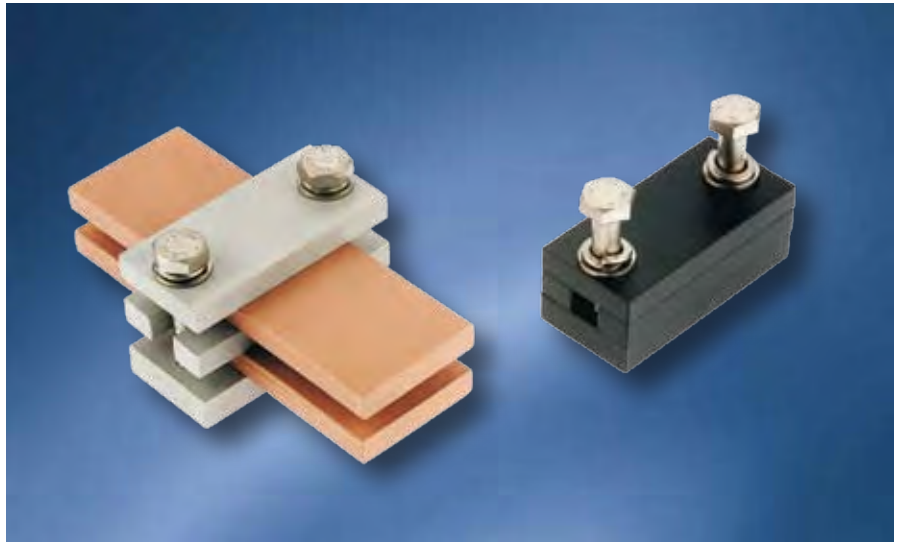
Busbar holders

for horizontal busbar laying
and mounting on insulators

Busbar holders for clamping of one or two short busbars securely in the holder.

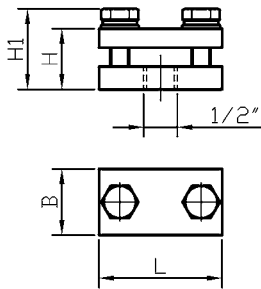
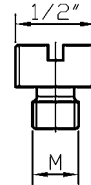
Type A: Suitable for aluminium-bars.
Material of the holder AlMgSi 1,0.
Fastening material stainless-steel.

Type B: Suitable for copper-bars or outdoor installations.
Material of the holder AlMgSi 1,0 with coated surface.
Fastening material stainless-steel.

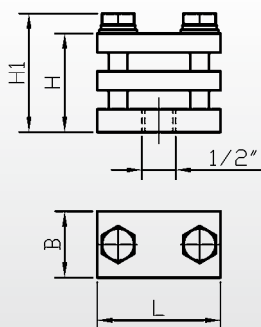


Deliverable threaded reducing-nipples made out of stainless-steel:

| Part-No. | |
|----------|------|
| 16020 | M 8 |
| 16021 | M 10 |
| 16022 | M 12 |
| 16023 | M 16 |



| Part-No. | | technical data | | | | | | |
|----------|----------|----------------|-----------|-----------|-----|---------------|----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 15960/5 | 15980/5 | 1 | 30 | 5 | 65 | 35 | 27 | 38 |
| 15960/10 | 15980/10 | 1 | 30 | 10 | 65 | 35 | 32 | 43 |
| 15961/5 | 15981/5 | 1 | 40 | 5 | 75 | 35 | 27 | 38 |
| 15961/10 | 15981/10 | 1 | 40 | 10 | 75 | 35 | 32 | 43 |
| 15962/5 | 15982/5 | 1 | 50 | 5 | 85 | 40 | 27 | 38 |
| 15962/10 | 15982/10 | 1 | 50 | 10 | 85 | 40 | 32 | 43 |
| 15963/5 | 15983/5 | 1 | 60 | 5 | 95 | 40 | 27 | 38 |
| 15963/10 | 15983/10 | 1 | 60 | 10 | 95 | 40 | 32 | 43 |
| 15964/5 | 15984/5 | 1 | 80 | 5 | 115 | 40 | 27 | 38 |
| 15964/10 | 15984/10 | 1 | 80 | 10 | 115 | 40 | 32 | 43 |
| 15965/5 | 15985/5 | 1 | 100 | 5 | 145 | 50 | 35 | 48 |
| 15965/10 | 15985/10 | 1 | 100 | 10 | 145 | 50 | 40 | 53 |
| 15966/10 | 15986/10 | 1 | 120 | 10 | 165 | 50 | 40 | 53 |



| Part-No. | | technical data | | | | | | |
|----------|----------|----------------|-----------|-----------|-----|---------------|----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 15970/5 | 15990/5 | 2 | 30 | 5 | 65 | 35 | 27 | 38 |
| 15970/10 | 15990/10 | 2 | 30 | 10 | 65 | 35 | 32 | 43 |
| 15971/5 | 15991/5 | 2 | 40 | 5 | 75 | 35 | 27 | 38 |
| 15971/10 | 15991/10 | 2 | 40 | 10 | 75 | 35 | 32 | 43 |
| 15972/5 | 15992/5 | 2 | 50 | 5 | 85 | 40 | 27 | 38 |
| 15972/10 | 15992/10 | 2 | 50 | 10 | 85 | 40 | 32 | 43 |
| 15973/5 | 15993/5 | 2 | 60 | 5 | 95 | 40 | 27 | 38 |
| 15973/10 | 15993/10 | 2 | 60 | 10 | 95 | 40 | 32 | 43 |
| 15974/5 | 15994/5 | 2 | 80 | 5 | 115 | 40 | 27 | 38 |
| 15974/10 | 15994/10 | 2 | 80 | 10 | 115 | 40 | 32 | 43 |
| 15975/5 | 15995/5 | 2 | 100 | 5 | 145 | 50 | 35 | 48 |
| 15975/10 | 15995/10 | 2 | 100 | 10 | 145 | 50 | 40 | 53 |
| 15976/10 | 15996/10 | 2 | 120 | 10 | 165 | 50 | 40 | 53 |

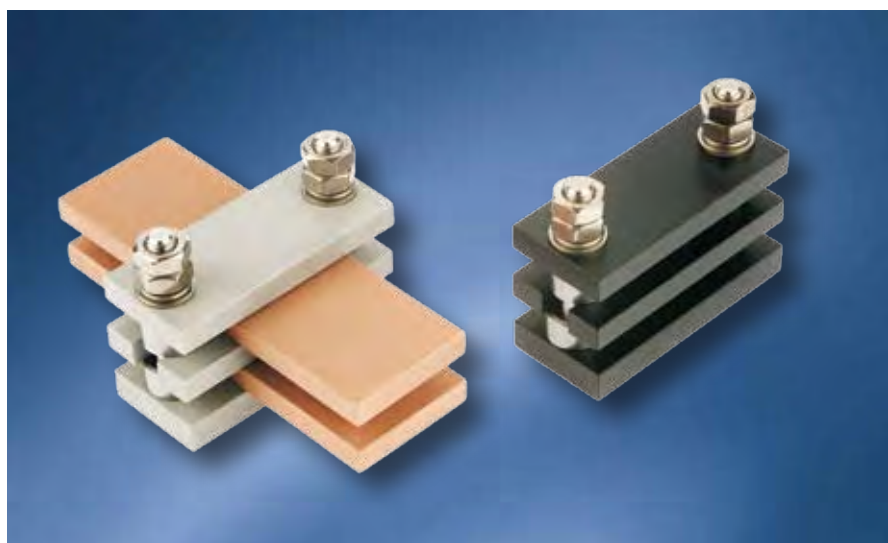
Busbar holders

for horizontal busbar laying
and mounting on insulators

Busbar supports for use as sliding support for long busbars which must slide in the holder to allow the thermal expansion. By using this design the lower part of the holder is fastened to the support by means of the stay bolts prior to assembly. Now a simple insertion of the busbars between the stay bolts is possible and a time saving assembly is realized.

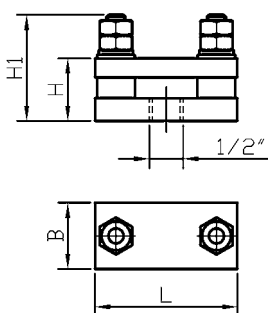
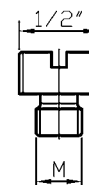
Type A: Suitable for aluminium-bars.
Material of the holder AlMgSi 1,0.
Fastening material stainless-steel.

Type B: Suitable for copper-bars or outdoor installations.
Material of the holder AlMgSi 1,0 with coated surface.
Fastening material stainless-steel.

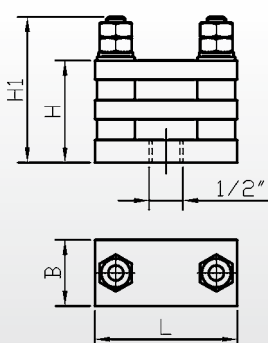


Deliverable threaded reducing-nipples made out of stainless-steel:

| Part-No. | |
|----------|------|
| 16020 | M 8 |
| 16021 | M 10 |
| 16022 | M 12 |
| 16023 | M 16 |



| Part-No. | | technical data | | | | | | |
|----------|----------|----------------|-----------|-----------|-----|---------------|----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 16470/5 | 16580/5 | 1 | 30 | 5 | 75 | 35 | 28 | 56 |
| 16470/10 | 16580/10 | 1 | 30 | 10 | 75 | 35 | 33 | 56 |
| 16471/5 | 16581/5 | 1 | 40 | 5 | 85 | 40 | 28 | 56 |
| 16471/10 | 16581/10 | 1 | 40 | 10 | 85 | 40 | 33 | 56 |
| 16472/5 | 16582/5 | 1 | 50 | 5 | 95 | 40 | 28 | 56 |
| 16472/10 | 16582/10 | 1 | 50 | 10 | 95 | 40 | 33 | 56 |
| 16473/5 | 16583/5 | 1 | 60 | 5 | 105 | 40 | 28 | 56 |
| 16473/10 | 16583/10 | 1 | 60 | 10 | 105 | 40 | 33 | 56 |
| 16474/5 | 16584/5 | 1 | 80 | 5 | 135 | 50 | 36 | 69 |
| 16474/10 | 16584/10 | 1 | 80 | 10 | 135 | 50 | 41 | 69 |
| 16475/5 | 16585/5 | 1 | 100 | 5 | 155 | 50 | 36 | 69 |
| 16475/10 | 16585/10 | 1 | 100 | 10 | 155 | 50 | 41 | 69 |
| 16476/10 | 16586/10 | 1 | 120 | 10 | 175 | 50 | 41 | 69 |



| Part-No. | | technical data | | | | | | |
|----------|----------|----------------|-----------|-----------|-----|---------------|----|----------------|
| type A | type B | number | bar-width | thickness | L | dimensions mm | | |
| | | | | | | B | H | H ₁ |
| 16480/5 | 16590/5 | 2 | 30 | 5 | 75 | 35 | 44 | 77 |
| 16480/10 | 16590/10 | 2 | 30 | 10 | 75 | 35 | 54 | 77 |
| 16481/5 | 16591/5 | 2 | 40 | 5 | 85 | 40 | 44 | 77 |
| 16481/10 | 16591/10 | 2 | 40 | 10 | 85 | 40 | 54 | 77 |
| 16482/5 | 16592/5 | 2 | 50 | 5 | 95 | 40 | 44 | 77 |
| 16482/10 | 16592/10 | 2 | 50 | 10 | 95 | 40 | 54 | 77 |
| 16483/5 | 16593/5 | 2 | 60 | 5 | 105 | 40 | 44 | 77 |
| 16483/10 | 16593/10 | 2 | 60 | 10 | 105 | 40 | 54 | 77 |
| 16484/5 | 16594/5 | 2 | 80 | 5 | 135 | 50 | 52 | 90 |
| 16484/10 | 16594/10 | 2 | 80 | 10 | 135 | 50 | 62 | 90 |
| 16485/5 | 16595/5 | 2 | 100 | 5 | 155 | 50 | 52 | 90 |
| 16485/10 | 16595/10 | 2 | 100 | 10 | 155 | 50 | 62 | 90 |
| 16486/10 | 16596/10 | 2 | 120 | 10 | 175 | 50 | 62 | 90 |

Busbar supports

type tested acc. to VDE 0660 part 500,
operating voltage 1 kV AC, temperature range - 40° C up to + 130° C

Busbar supports made out of glass fibre reinforced unsaturated polyester (UPE) similar to DIN 16911 type 803. Free of halogen, in light grey colour. Three-phase supports, phasing-distance 100 mm (Part-No. 15645), resp. 125 mm (Part-No. 15646).

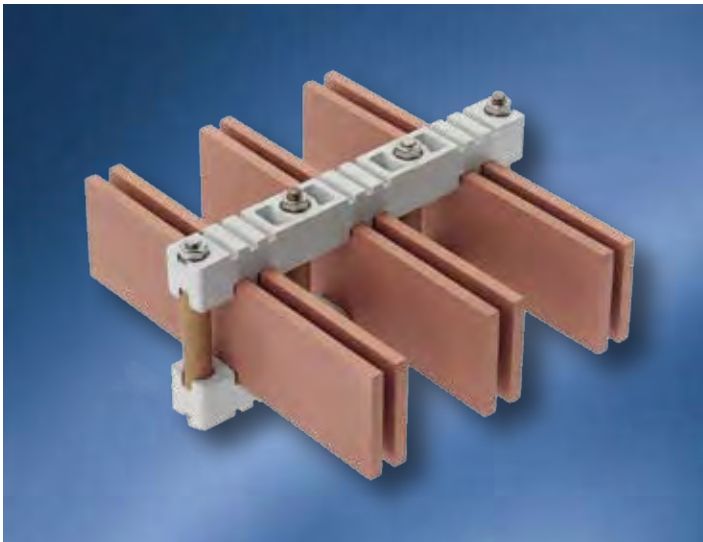
Two-phase supports with a phasing-distance of 70 mm (Part-No. 15647) suitable for N- and PE-bars. The supports offer a vertical clamping of busbars with a thickness of 5 mm or 10 mm resp. 10 mm or 12,7 mm (1/2 "). The adjustment of the height can be regulated by the length of the distance bushings.

Part-No. 15645

Busbar supports, phasing-distance 100 mm. For two busbars with a thickness of 10 mm or three busbars with a thickness of 5 mm per phase. The values for the short-circuit-strength and the necessary support distances are listed on page 32.

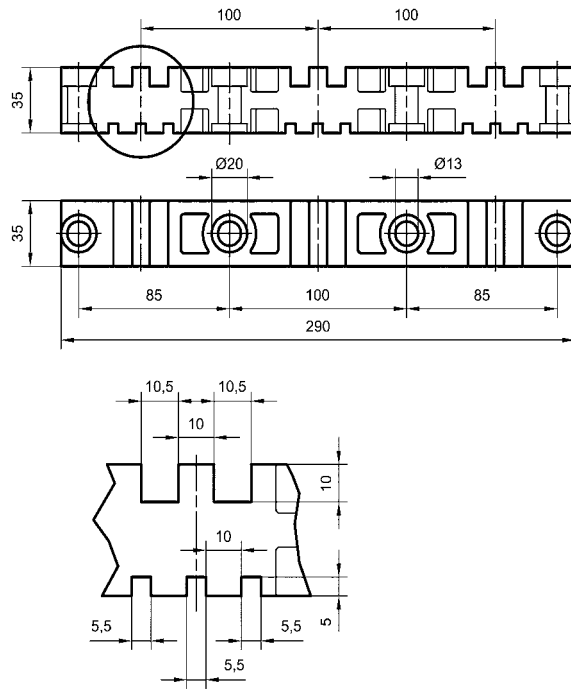
Part-No. 15639

Distance bushings length 1 m in a paper laminate.



Technical data of the material

| | | |
|---------------------------------|-----------|----------------------|
| • Deformation resistance | ISO 75 | + 250° C |
| • Behaviour in case of fire | UL 94 | Class V-0 |
| • Density | ISO 1183 | Ca. 1,80 g/ccm |
| • Special throughout resistance | IEC 60093 | 10 ¹⁰ Ohm |
| • Dielectric strength | IEC 60243 | 20-30 kV/mm |
| • Deposit tracking | IEC 60112 | CTI 600 |

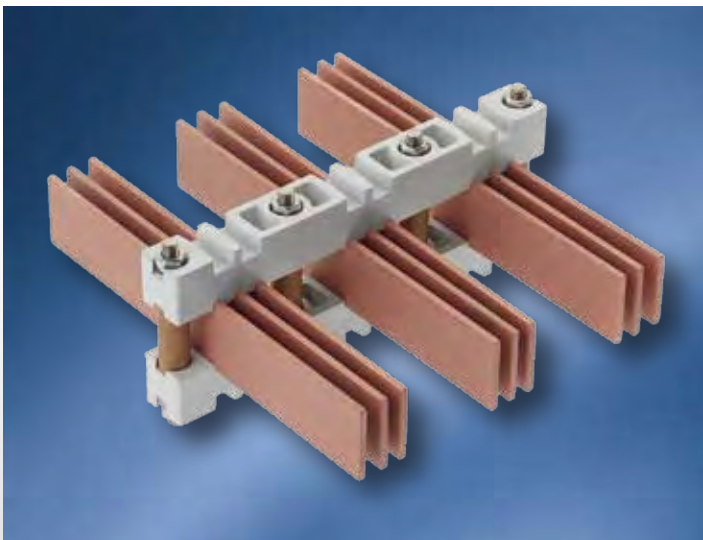


Current load

AC up to 60 Hz

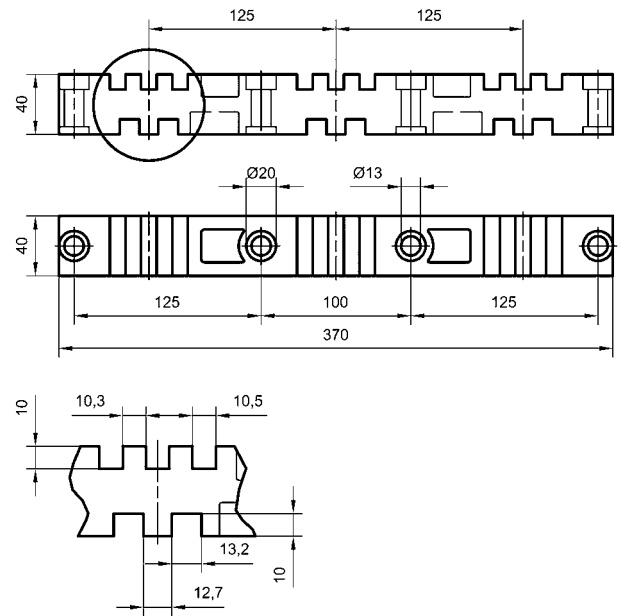
| E-copper bars dimensions mm | continuously current load by no. of busbars | | |
|--------------------------------|---|--------|--------|
| | 1 | 2 | 3 |
| 20 x 5 | 320 A | 590 A | 210 A |
| 30 x 5 | 445 A | 790 A | 1050 A |
| 40 x 5 | 565 A | 980 A | 1280 A |
| 50 x 5 | 685 A | 1170 A | 1475 A |
| 20 x 10 | 500 A | 965 A | - |
| 30 x 10 | 670 A | 1240 A | - |
| 40 x 10 | 840 A | 1510 A | - |
| 50 x 10 | 1000 A | 1770 A | - |
| 60 x 10 | 1155 A | 2015 A | - |
| 80 x 10 | 1450 A | 2470 A | - |
| 100 x 10 | 1745 A | 2900 A | - |
| 120 x 10 | 2035 A | 3350 A | - |
| 160 x 10 | 2700 A | 4350 A | - |

All values in acc. with DIN 43671 by an ambient temperature of + 35° C and a busbar temperature of + 75° C



Busbar supports

type tested acc. to VDE 0660 part 500,
operating voltage 1 kV AC, temperature range - 40° C up to + 130° C

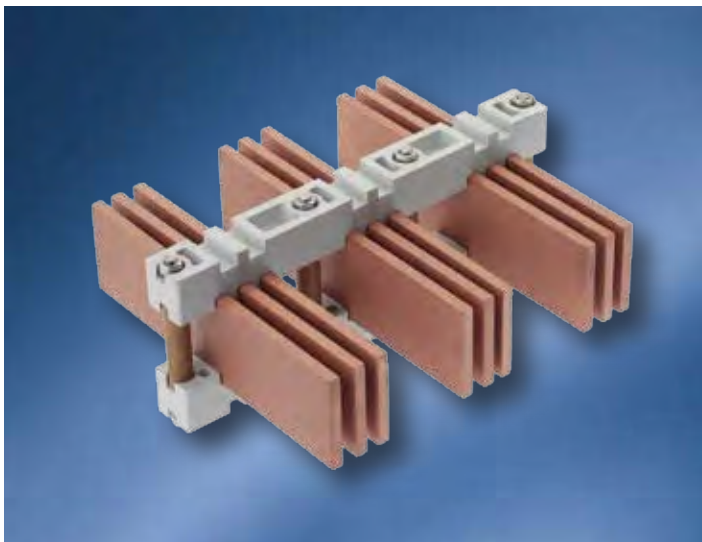


Part-No. 15646

Busbar supports, phasing-distance 125 mm. For three busbars with a thickness of 10 mm or two busbars with a thickness of 12,7 mm (1/2 ") per phase. The values for the short-circuit-strength and the necessary support distances are listed on page 32.

Part-No. 15639

Distance bushings length 1 m in paper laminate.



Current load

AC up to 60 Hz

| E-copper bars dimensions mm | continuously current load by no. of busbars | | |
|--------------------------------|---|--------|--------|
| | 1 | 2 | 3 |
| 40 x 10 | 840 A | 1510 A | 2070 A |
| 50 x 10 | 1000 A | 1770 A | 2390 A |
| 60 x 10 | 1155 A | 2015 A | 2690 A |
| 80 x 10 | 1450 A | 2470 A | 3265 A |
| 100 x 10 | 1745 A | 2900 A | 3815 A |
| 120 x 10 | 2035 A | 3350 A | 4375 A |
| 160 x 10 | 2700 A | 4350 A | 5500 A |

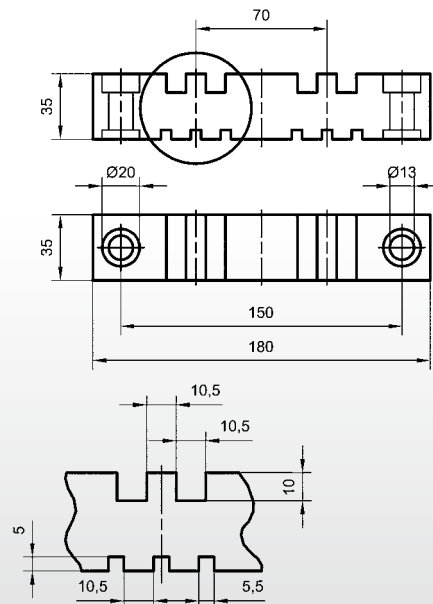
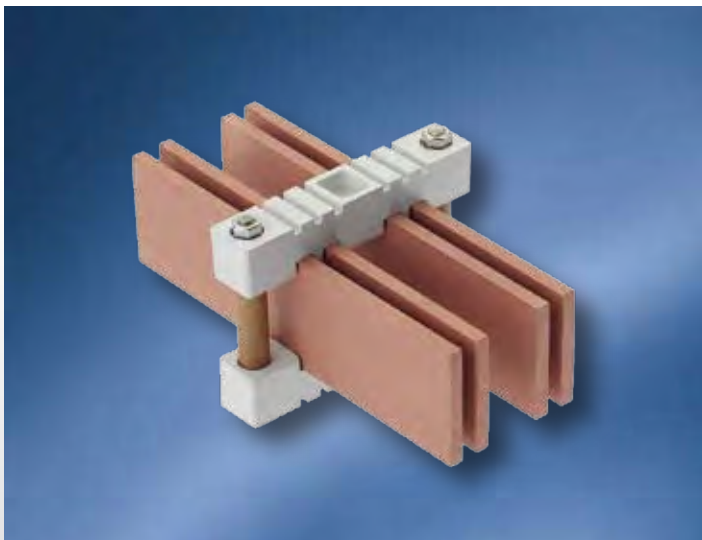
All values in acc. with DIN 43671 by an ambient temperature of + 35° C and a busbar temperature of + 75° C

Part-No. 15647

Busbar supports, phasing distance 70 mm for N + PE bars, suitable for 2 busbars with a thickness of 10 mm or 3 busbars with a thickness of 5 mm per phase.

Part-No. 15539

Distance bushings length 1 m in paper laminate.



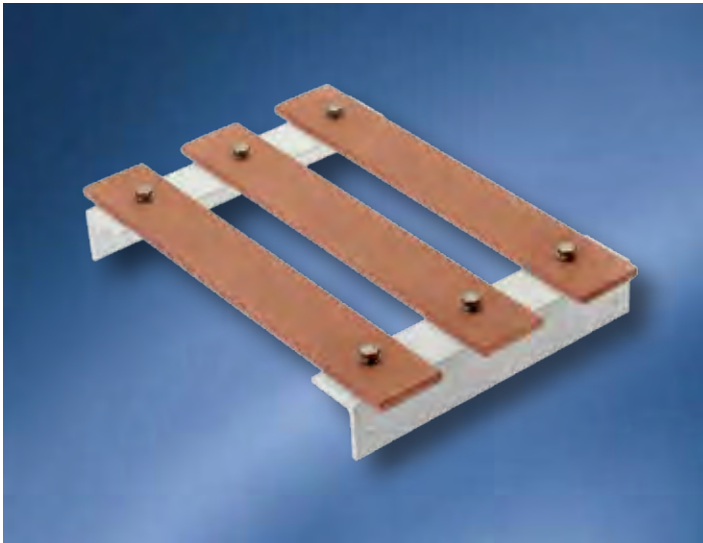
Busbar supports in L-shaped design

type tested acc. to VDE 0660 part 500,
operating voltage 1 kV AC, temperature range - 40 up to + 130° C

Busbar supports in L-shaped design made out of glass fibre reinforced unsaturated polyester (UPE). Suitable for a horizontal laying of busbars with a thickness of 10 mm. When working with two busbars per phase it is necessary to assemble an adapter-piece between the bars.

Part-No. 15610

Busbar supports in L-shaped design, phasing-distance 100 mm with one screw connection M8 per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit-strength and the necessary support-distances are listed on page 33.



Technical data of the material

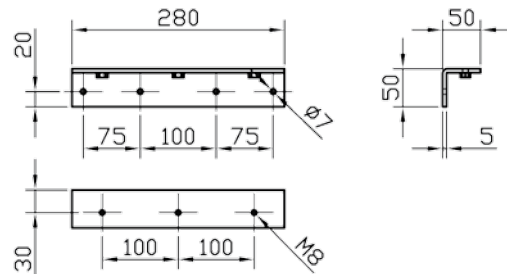
| | | |
|-------------------------------|-----------|----------------------------|
| Deformation resistance HDT-A | ISO 75 | + 250° C |
| Density | ISO 1183 | ca. 1,70 g/cm ³ |
| Behaviour in case of fire | UL 94 | class HB |
| Special throughout resistance | IEC 60093 | 10 ¹² Ohm |
| Dielectric strength | IEC 60243 | 20-30 kV/mm |
| Deposit tracking | IEC 60112 | CTI 600 |

Current load

AC up to 60 Hz

| E-copper bars dimensions mm | continuously current load by no. of busbars | |
|--------------------------------|---|--------|
| | 1 | 2 |
| 30 x 10 | 670 A | 1240 A |
| 40 x 10 | 840 A | 1510 A |
| 50 x 10 | 1000 A | 1770 A |
| 60 x 10 | 1155 A | 2015 A |
| 80 x 10 | 1450 A | 2470 A |

All values in acc. with DIN 46371 by an ambient temperature of + 35° C and a busbar temperature of + 75° C.

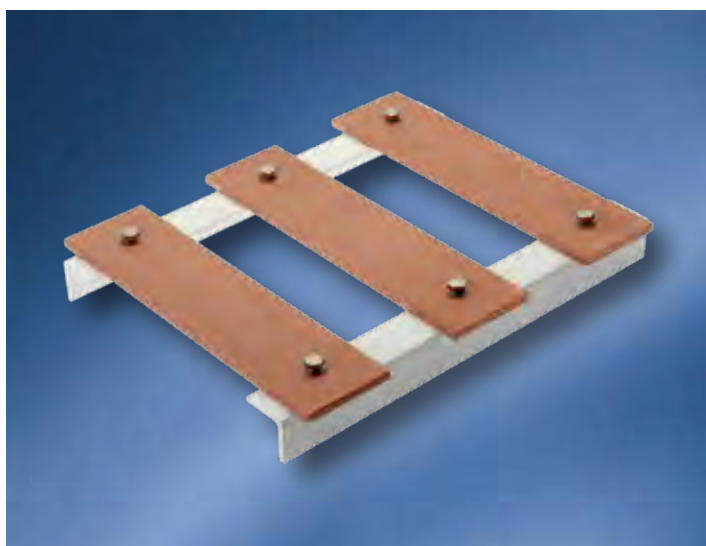


Busbar supports in L-shaped design

type tested acc. to VDE 0660 part 500,
operating voltage 1 kV AC, temperature range - 40° C up to + 130° C

Part-No. 15612

Busbar supports in L-shaped design, phasing-distance 185 mm with one screw connection M10 per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit- strength and the necessary support-distances are listed on page 33.

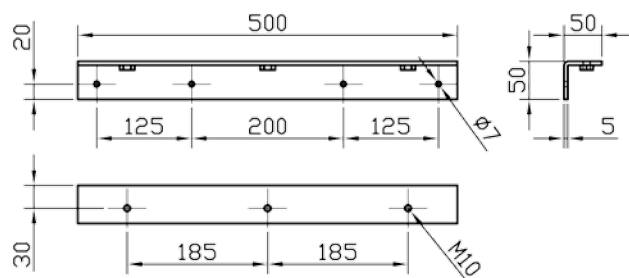


Current load

AC up to 60 Hz

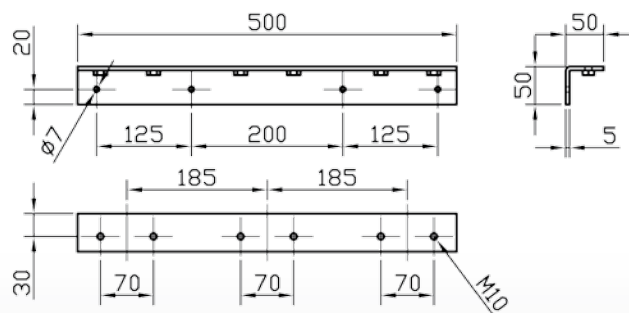
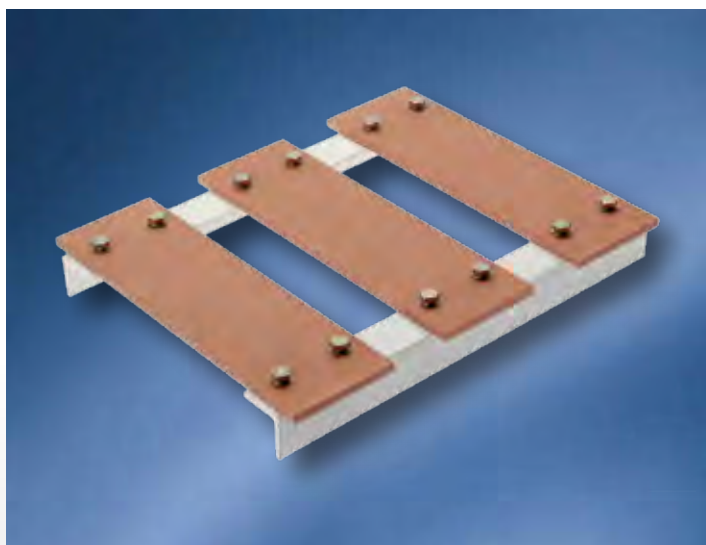
| E-copper bars dimensions mm | continuously current load by no. of busbars | |
|--------------------------------|---|--------|
| | 1 | 2 |
| 15612 | | |
| 30 x 10 | 670 A | 1240 A |
| 40 x 10 | 840 A | 1510 A |
| 50 x 10 | 1000 A | 1770 A |
| 60 x 10 | 1155 A | 2015 A |
| 80 x 10 | 1450 A | 2470 A |
| 15612 + 15613 | | |
| 100 x 10 | 1745 A | 2900 A |
| 120 x 10 | 2035 A | 3350 A |
| 160 x 10 | 2700 A | 4350 A |

All values in acc. with DIN 46371 by an ambient temperature of + 35° C and a busbar temperature of + 75° C.



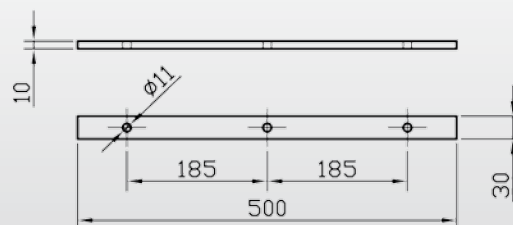
Part-No. 15613

Busbar supports in L-shaped design, phasing-distance 185 mm with two screw connections M10 per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit-strength and the necessary support-distances are listed on page 33.



Part-No. 15615

Spacing strip working with two copper bars per phase as well as when working with longer bars.



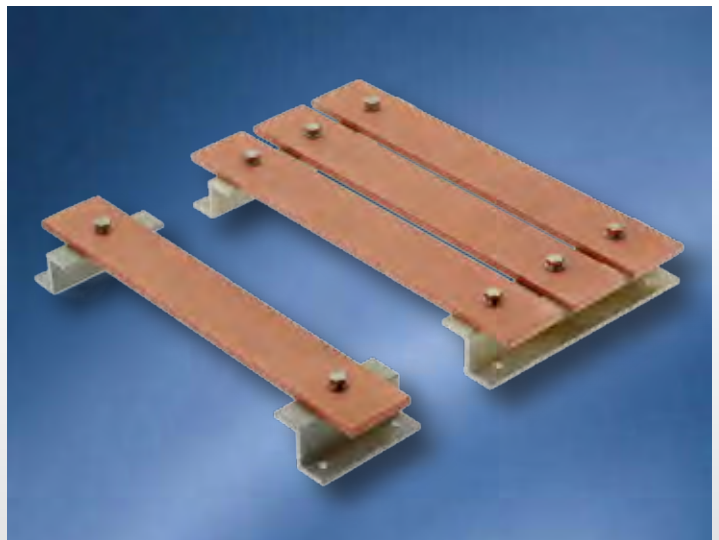
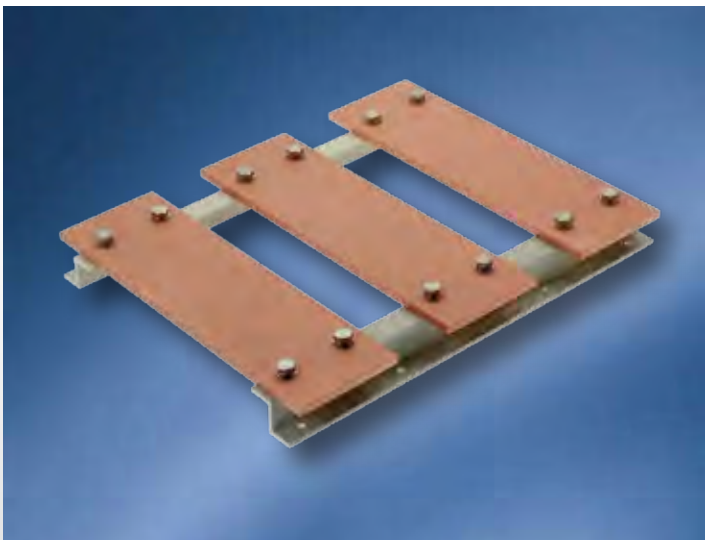
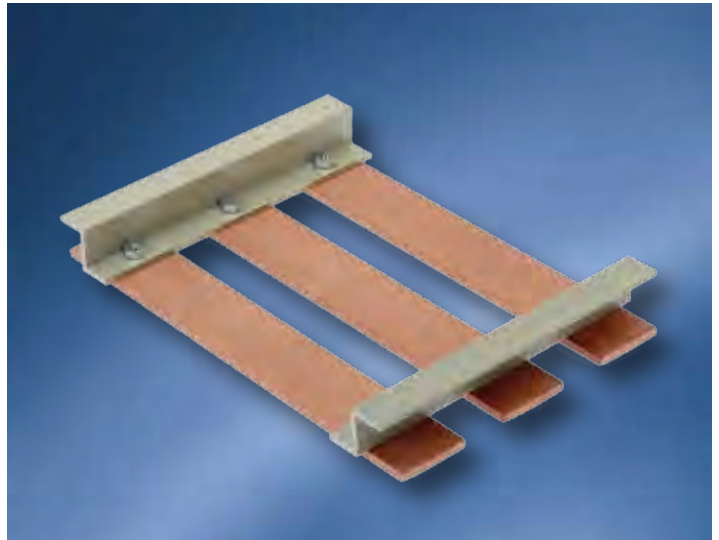
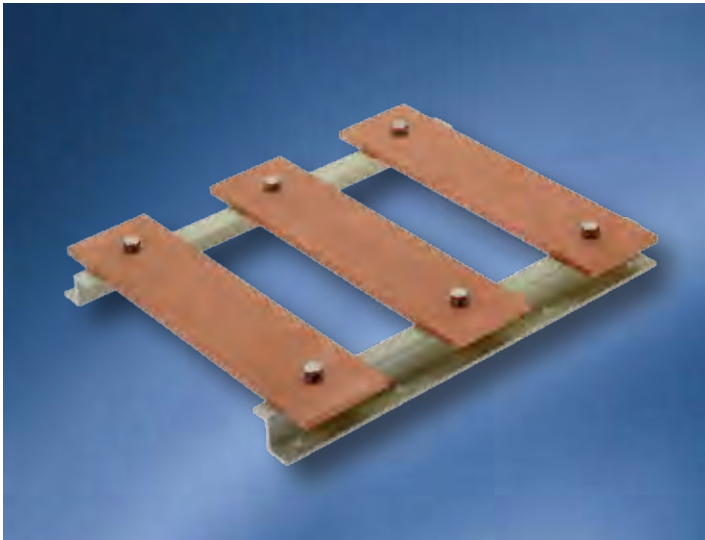
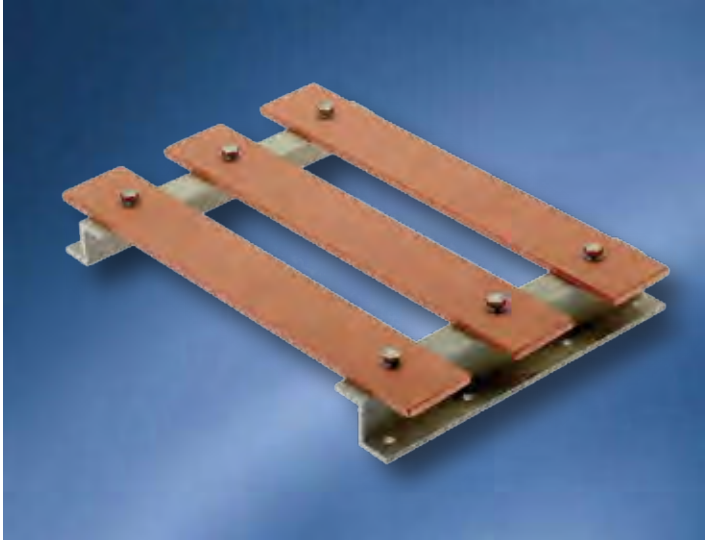
Busbar supports in Z-shaped design

type tested acc. to VDE 0660 Part 500,
operating voltage 1kV AC, temperature range - 40° C up to + 130 ° C

Busbar supports in Z-shaped design, made out of glass fibre reinforced unsaturated polyester (UPE). Suitable for a horizontal laying of busbars with a thickness of 10 mm. When working with two busbars per phase it is necessary to assemble an adapter-piece between the bars.

Technical data of the material

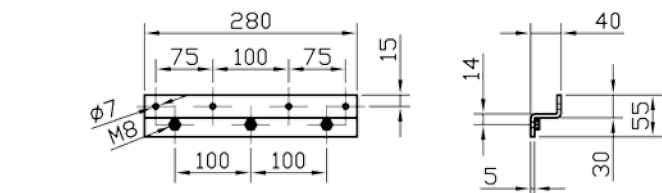
| | | |
|-------------------------------|-----------|----------------------------|
| Deformation resistance HDT-A | ISO 75 | + 250° C |
| Density | ISO 1183 | ca. 1,70 g/cm ³ |
| Behaviour in case of fire | UL 94 | class HB |
| Special throughout resistance | IEC 60093 | 10 ¹² Ohm x cm |
| Dielectric strength | IEC 60243 | 20-30 kV/mm |
| Deposit tracking | IEC 60112 | CTI 600 |



Busbar supports in Z-shaped design

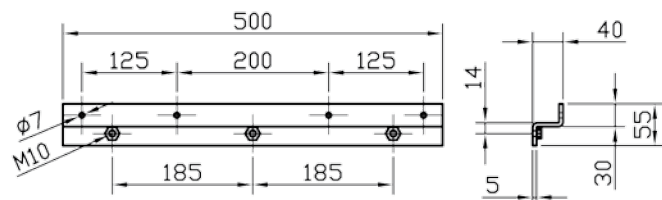
type tested acc. to VDE 0660 part 500,

operating voltage 1 kV AC, temperature range - 40° C up to + 130° C



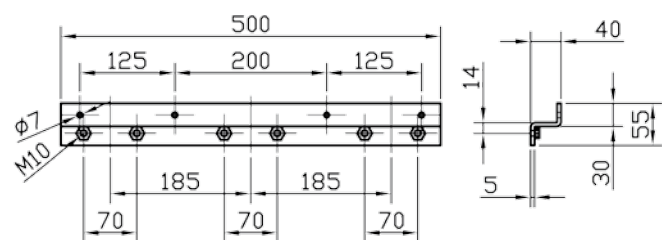
Part-No. 15617

Busbar supports in Z-shaped design, phasing-distance 100 mm with **one screw connection M8** per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit-strength and the necessary support-distances are listed on page 34.



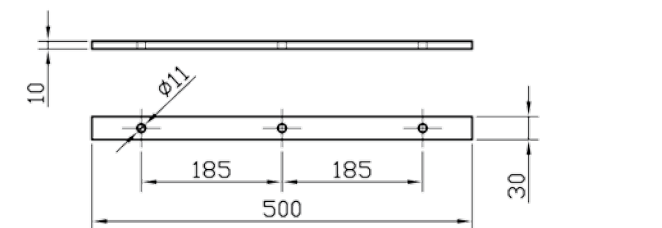
Part-No. 15619

Busbar supports in Z-shaped design, phasing-distance 185 mm with **one screw connection M10** per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit-strength and the necessary support-distances are listed on page 34.



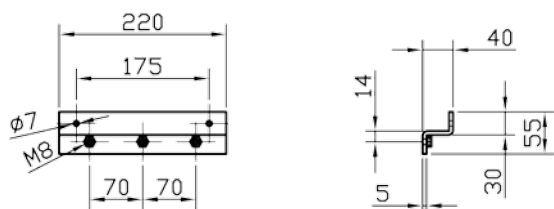
Part-No. 15620

Busbar supports in Z-shaped design, phasing-distance 185 mm with **two screw connections M10** per phase. Suitable for 1 or 2 busbars with a thickness of 10 mm per phase. The values for the short-circuit-strength and the necessary support-distances are listed on page 34.



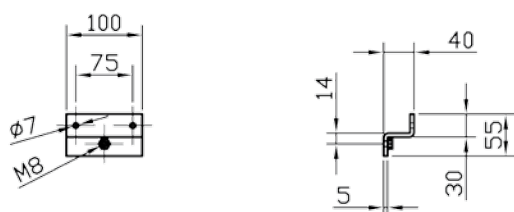
Part-No. 15615

Spacing strip when working with two copper bars per phase as well as when working with longer bars.



Part-No. 15622

Three pole busbar support for N and PE bars.



Part-No. 15623

One pole busbar support for N and PE bars

Current load

AC up to 60 Hz when using our support Part-No. 15619/15620

| E-copper bars dimensions mm | continuously current load by no. of busbars | |
|-----------------------------|---|--------|
| | 1 | 2 |
| 15619 | | |
| 30 x 10 | 670 A | 1240 A |
| 40 x 10 | 840 A | 1510 A |
| 50 x 10 | 1000 A | 1770 A |
| 60 x 10 | 1155 A | 2015 A |
| 80 x 10 | 1450 A | 2470 A |
| 15619 + 15620 | | |
| 100 x 10 | 1745 A | 2900 A |
| 120 x 10 | 2035 A | 3350 A |
| 160 x 10 | 2700 A | 4350 A |

All values in acc. with DIN 43671 by an ambient temperature of + 35° C and a busbar temperature of + 75° C.

Current load

AC up to 60 Hz when using our support Part-No. 15617

| E-copper bars dimensions mm | continuously current load by no. of busbars | |
|-----------------------------|---|--------|
| | 1 | 2 |
| 30 x 10 | 670 A | 1240 A |
| 40 x 10 | 840 A | 1510 A |
| 50 x 10 | 1000 A | 1770 A |
| 60 x 10 | 1155 A | 2015 A |
| 80 x 10 | 1450 A | 2470 A |

All values in acc. with DIN 43671 by an ambient temperature of + 35° C and a busbar temperature of + 75° C.

Technical appendix

short circuit-values/support-distances

Busbar supports, Part-No. 15645

phasing-distance 100 mm, fixed with 4 screws M12

| E-copper bars | | max. support-distance mm | | | | | | | | | | | |
|--------------------|---------------|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| no. and dimensions | rated current | low up to lpk up to | 10 kA 21 kA | 15 kA 32 kA | 20 kA 42 kA | 25 kA 53 kA | 30 kA 63 kA | 40 kA 84 kA | 50 kA 105 kA | 60 kA 132 kA | 65 kA 143 kA | 70 kA 154 kA | 80 kA 176 kA |
| 1 x 20 x 5 | 320 A | | 610 | 390 | 300 | 230 | 200 | | | | | | |
| 2 x 20 x 5 | 590 A | | 860 | 560 | 420 | 330 | 280 | 210 | | | | | |
| 3 x 20 x 5 | 810 A | | 1060 | 690 | 520 | 410 | 340 | 260 | 200 | | | | |
| 1 x 30 x 5 | 445 A | | 750 | 480 | 370 | 290 | 240 | | | | | | |
| 2 x 30 x 5 | 790 A | | 1060 | 690 | 520 | 410 | 340 | 260 | 200 | | | | |
| 3 x 30 x 5 | 1050 A | | 1200 | 840 | 640 | 500 | 420 | 310 | 250 | 200 | | | |
| 1 x 40 x 5 | 565 A | | 860 | 560 | 420 | 330 | 280 | 210 | | | | | |
| 2 x 40 x 5 | 980 A | | 1200 | 790 | 600 | 470 | 400 | 300 | 240 | | | | |
| 3 x 40 x 5 | 1280 A | | 1200 | 970 | 740 | 580 | 490 | 360 | 290 | 230 | 215 | 200 | |
| 1 x 50 x 5 | 685 A | | 980 | 630 | 470 | 370 | 310 | 230 | | | | | |
| 2 x 50 x 5 | 1170 A | | 1200 | 890 | 670 | 530 | 450 | 330 | 260 | 210 | | | |
| 3 x 50 x 5 | 1475 A | | 1200 | 1090 | 830 | 650 | 550 | 410 | 320 | 260 | 240 | 220 | |
| 1 x 20 x 10 | 500 A | | 1200 | 790 | 600 | 470 | 400 | 300 | 240 | | | | |
| 2 x 20 x 10 | 965 A | | 1200 | 1130 | 850 | 670 | 560 | 420 | 340 | 270 | 250 | 230 | 200 |
| 1 x 30 x 10 | 670 A | | 1200 | 970 | 740 | 580 | 490 | 360 | 290 | 230 | 210 | 200 | |
| 2 x 30 x 10 | 1240 A | | 1200 | 1200 | 1050 | 830 | 690 | 520 | 400 | 330 | 300 | 280 | 220 |
| 1 x 40 x 10 | 840 A | | 1200 | 1130 | 850 | 670 | 560 | 420 | 340 | 270 | 250 | 230 | 200 |
| 2 x 40 x 10 | 1510 A | | 1200 | 1200 | 1200 | 950 | 800 | 600 | 480 | 380 | 340 | 290 | 220 |
| 1 x 50 x 10 | 1000 A | | 1200 | 1200 | 950 | 750 | 630 | 470 | 380 | 300 | 270 | 250 | 220 |
| 2 x 50 x 10 | 1770 A | | 1200 | 1200 | 1200 | 1200 | 900 | 670 | 530 | 400 | 340 | 290 | 220 |
| 1 x 60 x 10 | 1155 A | | 1200 | 1200 | 1050 | 830 | 690 | 520 | 400 | 330 | 300 | 280 | 220 |
| 2 x 60 x 10 | 2015 A | | 1200 | 1200 | 1200 | 1200 | 980 | 730 | 580 | 400 | 340 | 290 | 220 |
| 1 x 80 x 10 | 1450 A | | 1200 | 1200 | 1200 | 950 | 800 | 600 | 480 | 380 | 340 | 290 | 220 |
| 2 x 80 x 10 | 2470 A | | 1200 | 1200 | 1200 | 1200 | 1130 | 850 | 630 | 400 | 340 | 290 | 220 |
| 1 x 100 x 10 | 1745 A | | 1200 | 1200 | 1200 | 1200 | 900 | 670 | 530 | 400 | 340 | 290 | 220 |
| 2 x 100 x 10 | 2900 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 980 | 630 | 400 | 340 | 290 | 220 |
| 1 x 120 x 10 | 2035 A | | 1200 | 1200 | 1200 | 1200 | 980 | 730 | 580 | 400 | 340 | 290 | 220 |
| 2 x 120 x 10 | 3350 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 980 | 630 | 400 | 340 | 290 | 220 |
| 1 x 160 x 10 | 2700 A | | 1200 | 1200 | 1200 | 1200 | 1130 | 850 | 630 | 400 | 340 | 290 | 220 |
| 2 x 160 x 10 | 4350 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 980 | 630 | 400 | 340 | 290 | 220 |

Busbar supports Part-No. 15646

Phasing-distance 125 mm, fixed with 4 screws M12

| E-copper bars | | max. support-distance mm | | | | | | | | | | | |
|--------------------|---------------|--------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| no. and dimensions | rated current | low up to lpk up to | 15 kA 32 kA | 20 kA 42 kA | 25 kA 53 kA | 30 kA 63 kA | 40 kA 84 kA | 50 kA 105 kA | 60 kA 132 kA | 65 kA 143 kA | 70 kA 154 kA | 80 kA 176 kA | 100 kA 220 kA |
| 1 x 40 x 10 | 840 A | | 1200 | 940 | 750 | 630 | 470 | 380 | 300 | 270 | 260 | 220 | |
| 2 x 40 x 10 | 1510 A | | 1200 | 1200 | 1070 | 900 | 670 | 530 | 420 | 390 | 360 | 320 | 250 |
| 3 x 40 x 10 | 2070 A | | 1200 | 1200 | 1200 | 1100 | 820 | 650 | 520 | 480 | 440 | 390 | 270 |
| 1 x 50 x 10 | 1060 A | | 1200 | 1070 | 840 | 710 | 530 | 420 | 330 | 310 | 280 | 250 | 200 |
| 2 x 50 x 10 | 1770 A | | 1200 | 1200 | 1190 | 1000 | 750 | 600 | 470 | 440 | 400 | 350 | 270 |
| 3 x 50 x 10 | 2390 A | | 1200 | 1200 | 1200 | 1200 | 920 | 730 | 580 | 540 | 500 | 430 | 270 |
| 1 x 60 x 10 | 1155 A | | 1200 | 1170 | 920 | 770 | 580 | 460 | 370 | 340 | 310 | 270 | 220 |
| 2 x 60 x 10 | 2015 A | | 1200 | 1200 | 1200 | 1100 | 820 | 650 | 520 | 480 | 440 | 390 | 270 |
| 3 x 60 x 10 | 2690 A | | 1200 | 1200 | 1200 | 1200 | 1010 | 800 | 640 | 590 | 540 | 430 | 270 |
| 1 x 80 x 10 | 1450 A | | 1200 | 1200 | 1070 | 900 | 670 | 530 | 420 | 390 | 360 | 320 | 250 |
| 2 x 80 x 10 | 2470 A | | 1200 | 1200 | 1200 | 1200 | 950 | 760 | 600 | 550 | 510 | 430 | 270 |
| 3 x 80 x 10 | 3265 A | | 1200 | 1200 | 1200 | 1200 | 1160 | 930 | 740 | 650 | 560 | 430 | 270 |
| 1 x 100 x 10 | 1745 A | | 1200 | 1200 | 1190 | 1000 | 750 | 600 | 470 | 440 | 400 | 350 | 270 |
| 2 x 100 x 10 | 2900 A | | 1200 | 1200 | 1200 | 1200 | 1060 | 850 | 670 | 620 | 560 | 430 | 270 |
| 3 x 100 x 10 | 3815 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 1040 | 760 | 650 | 560 | 430 | 270 |
| 1 x 120 x 10 | 2035 A | | 1200 | 1200 | 1200 | 1100 | 820 | 650 | 520 | 480 | 440 | 390 | 270 |
| 2 x 120 x 10 | 3200 A | | 1200 | 1200 | 1200 | 1200 | 1160 | 930 | 740 | 650 | 560 | 430 | 270 |
| 3 x 120 x 10 | 4375 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 1140 | 760 | 650 | 560 | 430 | 270 |
| 1 x 160 x 10 | 2700 A | | 1200 | 1200 | 1200 | 1200 | 950 | 760 | 600 | 550 | 510 | 430 | 270 |
| 2 x 160 x 10 | 4350 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 1070 | 760 | 650 | 560 | 430 | 270 |
| 3 x 160 x 10 | 5500 A | | 1200 | 1200 | 1200 | 1200 | 1200 | 1200 | 760 | 650 | 560 | 430 | 270 |

Technical appendix

short circuit-values/support-distances

Busbar supports L-shaped design, Part-No. 15610

phasing-distance 100 mm, fixed with 1 x M8 per phase

| E-copper bars | | max. support-distance mm | | | | | | |
|--------------------|---------------|-----------------------------|-------|-------|-------|-------|-------|--------|
| no. and dimensions | rated current | l _{cw} up to 10 kA | 15 kA | 20 kA | 25 kA | 30 kA | 40 kA | 50 kA |
| | | l _{pk} up to 21 kA | 32 kA | 42 kA | 53 kA | 63 kA | 84 kA | 105 kA |
| 1 x 30 x 10 | 670 A | 1200 | 1200 | 1200 | 1010 | 770 | 430 | 270 |
| 2 x 30 x 10 | 1240 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 1 x 40 x 10 | 840 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 2 x 40 x 10 | 1200 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 1 x 50 x 10 | 1000 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 2 x 50 x 10 | 1770 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 1 x 60 x 10 | 1155 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 2 x 60 x 10 | 2015 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 1 x 80 x 10 | 1450 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |
| 2 x 80 x 10 | 2470 A | 1200 | 1200 | 1200 | 1100 | 770 | 430 | 270 |

Busbar supports L-shaped design, Part-No. 15612

phasing-distance 185 mm, fixed with 1 x M10 per phase

| E-copper bars | | max. support-distance mm | | | | | | | | |
|--------------------|---------------|-----------------------------|-------|-------|--------|--------|--------|--------|--------|--------|
| no. and dimensions | rated current | l _{cw} up to 25 kA | 30 kA | 40 kA | 50 kA | 60 kA | 65 kA | 70 kA | 80 kA | 100 kA |
| | | l _{pk} up to 53 kA | 63 kA | 84 kA | 105 kA | 132 kA | 143 kA | 154 kA | 176 kA | 220 kA |
| 1 x 30 x 10 | 670 A | 1200 | 850 | 860 | 690 | 550 | 500 | 460 | 350 | 220 |
| 2 x 30 x 10 | 1240 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 40 x 10 | 840 A | 1200 | 1130 | 1150 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 40 x 10 | 1510 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 50 x 10 | 1000 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 50 x 10 | 1770 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 60 x 10 | 1155 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 60 x 10 | 2015 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 80 x 10 | 1450 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 80 x 10 | 2470 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 100 x 10 | 1745 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 100 x 10 | 2900 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 120 x 10 | 2035 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 120 x 10 | 3350 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 1 x 160 x 10 | 2700 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |
| 2 x 160 x 10 | 4350 A | 1200 | 1200 | 1200 | 1000 | 630 | 540 | 460 | 350 | 220 |

Busbar supports L-shaped design, Part-No. 15613

Phasing-distance 185 mm, fixed with 2 x M10 per phase

| E-copper bars | | max. support-distance mm | | | | | | | | |
|--------------------|---------------|-----------------------------|-------|-------|--------|--------|--------|--------|--------|--------|
| no. and dimensions | rated current | l _{cw} up to 25 kA | 30 kA | 40 kA | 50 kA | 60 kA | 65 kA | 70 kA | 80 kA | 100 kA |
| | | l _{pk} up to 53 kA | 63 kA | 84 kA | 105 kA | 132 kA | 143 kA | 154 kA | 176 kA | 220 kA |
| 1 x 100 x 10 | 1745 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |
| 2 x 100 x 10 | 2900 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |
| 1 x 120 x 10 | 2035 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |
| 2 x 120 x 10 | 3350 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |
| 1 x 160 x 10 | 2700 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |
| 2 x 160 x 10 | 4350 A | 1200 | 1200 | 1200 | 1200 | 1200 | 1060 | 910 | 700 | 440 |

Technical appendix

short circuit-values/support-distances

Busbar supports Z-shaped design, Part-No. 15617 phasing-distance 100 mm, fixed with 1 x M8 per phase

| E-copper bars | | max. support-distance mm | | | | | | | |
|-----------------------|---------------|--|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| no. and dimensions mm | rated current | l _{cw} up to 20 kA l _{pk} up to 42 kA | 25 kA 53 kA | 30 kA 63 kA | 40 kA 84 kA | 50 kA 105 kA | 60 kA 132 kA | 65 kA 143 kA | 70 kA 154 kA |
| 1 x 30 x 10 | 670 A | 1200 | 1010 | 850 | 630 | 500 | 310 | 270 | 230 |
| 2 x 30 x 10 | 1240 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 1 x 40 x 10 | 840 A | 1200 | 1200 | 1130 | 780 | 500 | 310 | 270 | 230 |
| 2 x 40 x 10 | 1510 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 1 x 50 x 10 | 1000 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 2 x 50 x 10 | 1770 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 1 x 60 x 10 | 1155 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 2 x 60 x 10 | 2015 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 1 x 80 x 10 | 1450 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |
| 2 x 80 x 10 | 2470 A | 1200 | 1200 | 1200 | 780 | 500 | 310 | 270 | 230 |

Busbar supports Z-shaped design, Part-No. 15619 phasing-distance 185 mm, fixed with 1 x M10 per phase

| E-copper bars | | max. support-distance mm | | | | | | | |
|-----------------------|---------------|--|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| no. and dimensions mm | rated current | l _{cw} up to 25 kA l _{pk} up to 53 kA | 30 kA 63 kA | 40 kA 84 kA | 50 kA 105 kA | 60 kA 132 kA | 65 kA 143 kA | 70 kA 154 kA | 80 kA 176 kA |
| 1 x 30 x 10 | 670 A | 1200 | 1160 | 860 | 650 | 410 | 350 | 300 | 230 |
| 2 x 30 x 10 | 1240 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 40 x 10 | 840 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 40 x 10 | 1510 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 50 x 10 | 1000 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 50 x 10 | 1770 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 60 x 10 | 1155 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 60 x 10 | 2015 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 80 x 10 | 1450 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 80 x 10 | 2470 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 100 x 10 | 1745 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 100 x 10 | 2900 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 120 x 10 | 2035 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 120 x 10 | 3350 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 1 x 160 x 10 | 2700 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |
| 2 x 160 x 10 | 4350 A | 1200 | 1200 | 1020 | 650 | 410 | 350 | 300 | 230 |

Busbar supports Z-shaped design, Part-No. 15620 phasing-distance 185 mm, fixed with 2 x M10 per phase

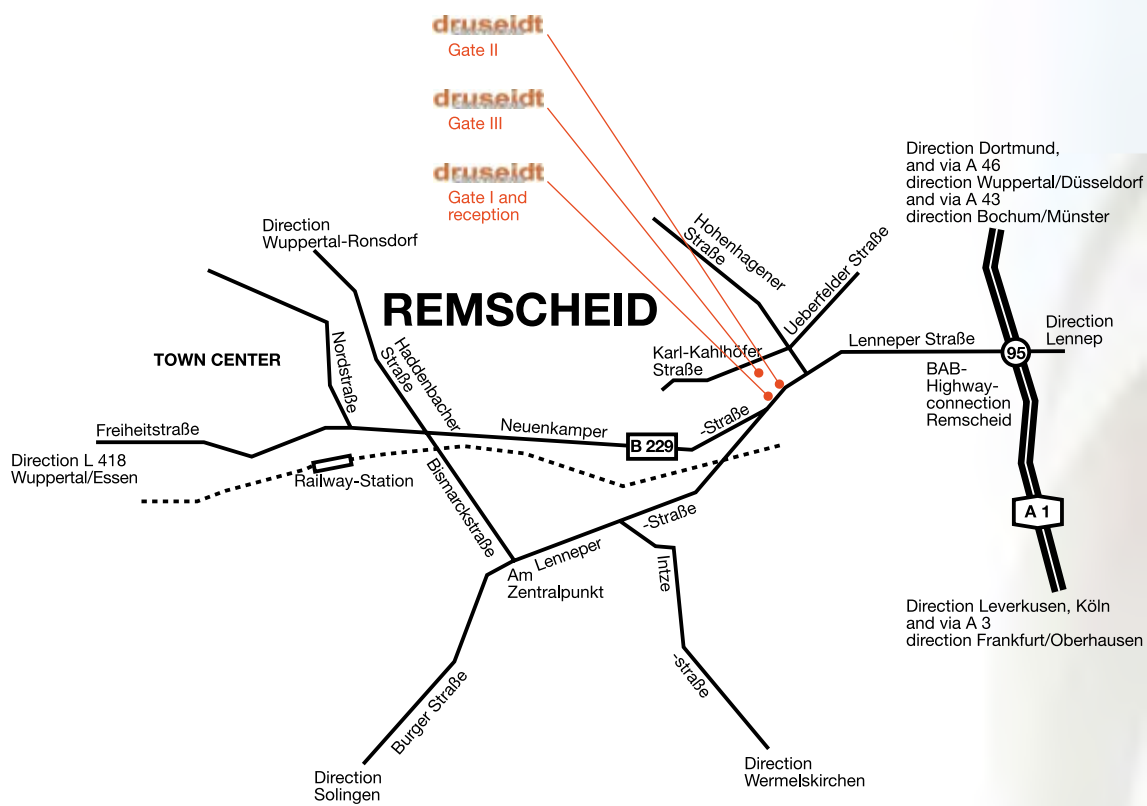
| E-copper bars | | max. support-distance mm | | | | | | | |
|-----------------------|---------------|--|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| no. and dimensions mm | rated current | l _{cw} up to 30 kA l _{pk} up to 63 kA | 40 kA 84 kA | 50 kA 105 kA | 60 kA 132 kA | 65 kA 143 kA | 70 kA 154 kA | 80 kA 176 kA | 100 kA 220 kA |
| 1 x 100 x 10 | 1745 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |
| 2 x 100 x 10 | 2900 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |
| 1 x 120 x 10 | 2035 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |
| 2 x 120 x 10 | 3350 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |
| 1 x 160 x 10 | 2700 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |
| 2 x 160 x 10 | 4350 A | 1200 | 1200 | 1200 | 830 | 710 | 610 | 460 | 290 |

Notice and explanations of the tables of pages 32-34:

- All values in acc. with DIN 43671 by an ambient temperature of + 35° C and a busbar temperature of + 75° C.
- Values refer to the use of copper (Rp 0,2) with a strength of 300 N/mm².
- l_{cw} = Rated short-time withstand current
- l_{pk} = Rated peak withstand current

General advice

The measurements and technical information written in this catalogue have been determined with greatest care and are updated continuously in our documentation. We reserve us the right to make technical as well as changes of measurements, colours or formats after print. **Our information especially the values for possible current-loads are not binding, they are only approximate values under optimized conditions. The relation between conductor cross-section and current-load fixed in national or international regulations are not cancelled through our information.** Only the values in our written order confirmations are binding for us.



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