

Insulated copper flexibars Moflex

Insulated copper flexibars Moflex are manufactured out of highly flexible copper strips either in bare or tinned version. They are insulated with high quality mechanical, electrical and self-extinguishing PVC.

Technical details

Electrolytic copper Cu-ETP 99,90%
Available in plain or tin plated copper

Insulation

Self extinguishing UL 94 V-0 black PVC insulation
Elongation: > 200 %
Tensile strength: > 15 N/mm²

Electrical characteristics

Nominal voltage 1000 V AC – 1500 V DC
Dielectric strength of the insulation: > 20 KV/mm
Operating temperature: -40 °C* up to 105 °C*
** not during dynamic pressure*



5 year
warranty



Due to skin effect,
on average

45 %

smaller cross-section
compared to regular
copper cable

Copper cable
150 mm²

1 x Moflex
24 x 1 x 2
48 mm²



320 A
68 %
smaller

Copper cables
2 x 150 mm²
300 mm²

1 x Moflex
32 x 1 x 5
160 mm²



630 A
47 %
smaller

Copper cables
3 x 240 mm²
720 mm²

1 x Moflex
80 x 1 x 6
480 mm²



1250 A
33 %
smaller

In all examples above, intensities of Moflex and regular cable are calculated using the temperature rise value of 50° C.

Remarks about the tables

Description of the order code

E.g., MMC0801001

MM – Moflex

C – red copper

(T - in case of tinned copper)

080 – width

10 – number of sheets

* Products with the length of 3 meters can be ordered separately

** Reduction factor for the use of flexibars in parallel (see table on page 62)

When you use the Moflex flexibars parallel for the same phase, you need to use the reduction factoras shown in the following example.

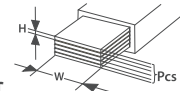
MMC0500401 Moflex 50x1x4, 200 mm², 732A at ΔT=50

2 flexibars in parallel: 732 x1,72 = 1259A

3 flexibars in parallel: 732 x2,25 = 1647A



The table on the page 62 indicates the temperature rise produced by chosen current in the given cross section. This calculation does not take into account the heat dissipation from the switchboard.

Technical specification (based on width)



| W (mm) | Red copper Order code | Tinned copper Order code | W x H x Pcs | Length* | Package (pcs) | Copper weight per meter (kg) |
|--------|-----------------------|--------------------------|-----------------|---------|---------------|------------------------------|
| 9 | MMC0090201 | MMT0090201 | 9 x 0,8 x 2 | 2 m | 10 | 0,128 |
| | MMC0090301 | MMT0090301 | 9 x 0,8 x 3 | 2 m | 10 | 0,193 |
| | MMC0090401 | MMT0090401 | 9 x 0,8 x 4 | 2 m | 10 | 0,256 |
| | MMC0090501 | MMT0090501 | 9 x 0,8 x 5 | 2 m | 10 | 0,321 |
| | MMC0090601 | MMT0090601 | 9 x 0,8 x 6 | 2 m | 10 | 0,385 |
| 15,5 | MMC0160201 | MMT0160201 | 15,5 x 0,8 x 2 | 2 m | 10 | 0,214 |
| | MMC0160401 | MMT0160401 | 15,5 x 0,8 x 4 | 2 m | 10 | 0,428 |
| | MMC0160601 | MMT0160601 | 15,5 x 0,8 x 6 | 2 m | 10 | 0,642 |
| | MMC0161001 | MMT0161001 | 15,5 x 0,8 x 10 | 2 m | 10 | 1,071 |
| 20 | MMC0200201 | MMT0200201 | 20 x 1 x 2 | 2 m | 5 | 0,357 |
| | MMC0200301 | MMT0200301 | 20 x 1 x 3 | 2 m | 5 | 0,535 |
| | MMC0200401 | MMT0200401 | 20 x 1 x 4 | 2 m | 5 | 0,714 |
| | MMC0200501 | MMT0200501 | 20 x 1 x 5 | 2 m | 5 | 0,892 |
| | MMC0200601 | MMT0200601 | 20 x 1 x 6 | 2 m | 5 | 1,071 |
| | MMC0201001 | MMT0201001 | 20 x 1 x 10 | 2 m | 5 | 1,784 |
| 24 | MMC0240201 | MMT0240201 | 24 x 1 x 2 | 2 m | 5 | 0,428 |
| | MMC0240301 | MMT0240301 | 24 x 1 x 3 | 2 m | 5 | 0,642 |
| | MMC0240401 | MMT0240401 | 24 x 1 x 4 | 2 m | 5 | 0,857 |
| | MMC0240501 | MMT0240501 | 24 x 1 x 5 | 2 m | 5 | 1,071 |
| | MMC0240601 | MMT0240601 | 24 x 1 x 6 | 2 m | 5 | 1,285 |
| | MMC0240801 | MMT0240801 | 24 x 1 x 8 | 2 m | 5 | 1,713 |
| | MMC0241001 | MMT0241001 | 24 x 1 x 10 | 2 m | 5 | 2,142 |
| 32 | MMC0320201 | MMT0320201 | 32 x 1 x 2 | 2 m | 5 | 0,571 |
| | MMC0320301 | MMT0320301 | 32 x 1 x 3 | 2 m | 5 | 0,857 |
| | MMC0320401 | MMT0320401 | 32 x 1 x 4 | 2 m | 5 | 1,142 |
| | MMC0320501 | MMT0320501 | 32 x 1 x 5 | 2 m | 5 | 1,428 |
| | MMC0320601 | MMT0320601 | 32 x 1 x 6 | 2 m | 5 | 1,713 |
| | MMC0320801 | MMT0320801 | 32 x 1 x 8 | 2 m | 5 | 2,284 |
| | MMC0321001 | MMT0321001 | 32 x 1 x 10 | 2 m | 5 | 2,851 |
| 40 | MMC0400201 | MMT0400201 | 40 x 1 x 2 | 2 m | 5 | 0,714 |
| | MMC0400301 | MMT0400301 | 40 x 1 x 3 | 2 m | 5 | 1,071 |
| | MMC0400401 | MMT0400401 | 40 x 1 x 4 | 2 m | 5 | 1,428 |
| | MMC0400501 | MMT0400501 | 40 x 1 x 5 | 2 m | 5 | 1,784 |
| | MMC0400601 | MMT0400601 | 40 x 1 x 6 | 2 m | 5 | 2,141 |
| | MMC0400801 | MMT0400801 | 40 x 1 x 8 | 2 m | 5 | 2,855 |
| | MMC0401001 | MMT0401001 | 40 x 1 x 10 | 2 m | 5 | 3,569 |
| 50 | MMC0500301 | MMT0500301 | 50 x 1 x 3 | 2 m | 2 | 1,338 |
| | MMC0500401 | MMT0500401 | 50 x 1 x 4 | 2 m | 2 | 1,784 |
| | MMC0500501 | MMT0500501 | 50 x 1 x 5 | 2 m | 2 | 2,231 |
| | MMC0500601 | MMT0500601 | 50 x 1 x 6 | 2 m | 2 | 2,677 |
| | MMC0500801 | MMT0500801 | 50 x 1 x 8 | 2 m | 2 | 3,569 |
| | MMC0501001 | MMT0501001 | 50 x 1 x 10 | 2 m | 2 | 4,461 |
| 63 | MMC0630301 | MMT0630301 | 63 x 1 x 3 | 2 m | 2 | 1,686 |
| | MMC0630401 | MMT0630401 | 63 x 1 x 4 | 2 m | 2 | 2,248 |
| | MMC0630501 | MMT0630501 | 63 x 1 x 5 | 2 m | 2 | 2,811 |
| | MMC0630601 | MMT0630601 | 63 x 1 x 6 | 2 m | 2 | 3,373 |
| | MMC0630801 | MMT0630801 | 63 x 1 x 8 | 2 m | 2 | 4,497 |
| | MMC0631001 | MMT0631001 | 63 x 1 x 10 | 2 m | 2 | 5,621 |
| 80 | MMC0800301 | MMT0800301 | 80 x 1 x 3 | 2 m | 2 | 2,141 |
| | MMC0800401 | MMT0800401 | 80 x 1 x 4 | 2 m | 2 | 2,851 |
| | MMC0800501 | MMT0800501 | 80 x 1 x 5 | 2 m | 2 | 3,569 |
| | MMC0800601 | MMT0800601 | 80 x 1 x 6 | 2 m | 2 | 4,283 |
| | MMC0800801 | MMT0800801 | 80 x 1 x 8 | 2 m | 2 | 5,710 |
| | MMC0801001 | MMT0801001 | 80 x 1 x 10 | 2 m | 2 | 7,138 |
| 100 | MMC1000401 | MMT1000401 | 100 x 1 x 4 | 2 m | 2 | 3,569 |
| | MMC1000501 | MMT1000501 | 100 x 1 x 5 | 2 m | 2 | 4,461 |
| | MMC1000601 | MMT1000601 | 100 x 1 x 6 | 2 m | 2 | 5,353 |
| | MMC1000801 | MMT1000801 | 100 x 1 x 8 | 2 m | 2 | 7,138 |
| | MMC1001001 | MMT1001001 | 100 x 1 x 10 | 2 m | 2 | 8,922 |

Technical specification (based on amperage)

| Amperage (A) | Red copper Part no. | Tinned copper Part no. | Diagram | | | Copper weight per meter (kg) | Cu cross section (mm ²) | Ampacity at rise of temperature from 35° C to: | | | | | Reduction factor** | | | |
|--------------|---------------------|------------------------|---------|---|-----|------------------------------|-------------------------------------|--|-------|-------|-------|-------------|---|---|------|------|
| | | | W | H | Pcs | | | 105 °C | 95 °C | 85 °C | 75 °C | 65 °C |  |  | | |
| | | | | | | | | ΔT=70 | ΔT=60 | ΔT=50 | ΔT=40 | ΔT=30 | | | | |
| > 80 | MMC0090201 | MMT0090201 | 9 | x | 0,8 | x | 2 | 0,128 | 14 | 113 | 105 | 96 | 86 | 74 | 1,72 | 2,25 |
| > 125 | MMC0090301 | MMT0090301 | 9 | x | 0,8 | x | 3 | 0,193 | 21,6 | 160 | 149 | 136 | 121 | 104 | 1,72 | 2,25 |
| > 160 | MMC0090401 | MMT0090401 | 9 | x | 0,8 | x | 4 | 0,256 | 29 | 204 | 189 | 173 | 155 | 133 | 1,72 | 2,25 |
| | MMC0090501 | MMT0090501 | 9 | x | 0,8 | x | 5 | 0,321 | 36 | 272 | 253 | 231 | 206 | 177 | 1,72 | 2,25 |
| > 250 | MMC0160201 | MMT0160201 | 15,5 | x | 0,8 | x | 2 | 0,214 | 24,8 | 197 | 183 | 167 | 149 | 128 | 1,72 | 2,25 |
| | MMC0090601 | MMT0090601 | 9 | x | 0,8 | x | 6 | 0,385 | 43,2 | 340 | 316 | 289 | 258 | 221 | 1,72 | 2,25 |
| > 320 | MMC0200201 | MMT0200201 | 20 | x | 1 | x | 2 | 0,357 | 40 | 329 | 306 | 280 | 250 | 215 | 1,72 | 2,25 |
| > 320 | MMC0160401 | MMT0160401 | 15,5 | x | 0,8 | x | 4 | 0,428 | 49,6 | 379 | 353 | 322 | 288 | 247 | 1,72 | 2,25 |
| | MMC0200301 | MMT0200301 | 20 | x | 1 | x | 3 | 0,535 | 60 | 427 | 397 | 363 | 324 | 278 | 1,72 | 2,25 |
| | MMC0240201 | MMT0240201 | 24 | x | 1 | x | 2 | 0,428 | 48 | 451 | 419 | 384 | 342 | 294 | 1,72 | 2,25 |
| > 400 | MMC0160601 | MMT0160601 | 15,5 | x | 0,8 | x | 6 | 0,642 | 74,4 | 489 | 455 | 416 | 371 | 319 | 1,72 | 2,25 |
| | MMC0161001 | MMT0161001 | 15,5 | x | 0,8 | x | 10 | 1,071 | 124 | 539 | 501 | 458 | 409 | 351 | 1,72 | 2,25 |
| | MMC0200401 | MMT0200401 | 20 | x | 1 | x | 4 | 0,714 | 80 | 478 | 444 | 406 | 363 | 311 | 1,72 | 2,25 |
| | MMC0200501 | MMT0200501 | 20 | x | 1 | x | 5 | 0,892 | 100 | 497 | 463 | 423 | 378 | 324 | 1,72 | 2,25 |
| | MMC0200601 | MMT0200601 | 20 | x | 1 | x | 6 | 1,071 | 120 | 547 | 509 | 465 | 415 | 356 | 1,72 | 2,25 |
| | MMC0240301 | MMT0240301 | 24 | x | 1 | x | 3 | 0,642 | 72 | 491 | 457 | 418 | 373 | 320 | 1,72 | 2,25 |
| | MMC0240401 | MMT0240401 | 24 | x | 1 | x | 4 | 0,857 | 96 | 553 | 514 | 470 | 420 | 360 | 1,72 | 2,25 |
| | MMC0320201 | MMT0320201 | 32 | x | 1 | x | 2 | 0,571 | 64 | 483 | 450 | 411 | 367 | 315 | 1,72 | 2,25 |
| | MMC0320301 | MMT0320301 | 32 | x | 1 | x | 3 | 0,857 | 96 | 569 | 529 | 484 | 432 | 371 | 1,72 | 2,25 |
| | MMC0400201 | MMT0400201 | 40 | x | 1 | x | 2 | 0,714 | 80 | 535 | 498 | 455 | 406 | 349 | 1,72 | 2,25 |
| > 500 | MMC0240501 | MMT0240501 | 24 | x | 1 | x | 5 | 1,071 | 120 | 610 | 568 | 519 | 463 | 398 | 1,72 | 2,25 |
| | MMC0240601 | MMT0240601 | 24 | x | 1 | x | 6 | 1,285 | 144 | 674 | 626 | 573 | 511 | 439 | 1,72 | 2,25 |
| | MMC0320401 | MMT0320401 | 32 | x | 1 | x | 4 | 1,142 | 128 | 652 | 606 | 554 | 495 | 425 | 1,72 | 2,25 |
| | MMC0400301 | MMT0400301 | 40 | x | 1 | x | 3 | 1,071 | 120 | 618 | 575 | 525 | 469 | 403 | 1,72 | 2,25 |
| | MMC0400401 | MMT0400401 | 40 | x | 1 | x | 4 | 1,428 | 160 | 727 | 676 | 618 | 552 | 474 | 1,72 | 2,25 |
| > 500 | MMC0500301 | MMT0500301 | 50 | x | 1 | x | 3 | 1,338 | 150 | 701 | 652 | 597 | 532 | 457 | 1,72 | 2,25 |
| > 630 | MMC0201001 | MMT0201001 | 20 | x | 1 | x | 10 | 1,784 | 200 | 763 | 709 | 649 | 579 | 497 | 1,72 | 2,25 |
| | MMC0240801 | MMT0240801 | 24 | x | 1 | x | 8 | 1,713 | 192 | 800 | 744 | 681 | 607 | 522 | 1,72 | 2,25 |
| | MMC0241001 | MMT0241001 | 24 | x | 1 | x | 10 | 2,142 | 240 | 875 | 814 | 744 | 664 | 570 | 1,72 | 2,25 |
| | MMC0320501 | MMT0320501 | 32 | x | 1 | x | 5 | 1,428 | 160 | 762 | 708 | 648 | 578 | 496 | 1,72 | 2,25 |
| | MMC0320601 | MMT0320601 | 32 | x | 1 | x | 6 | 1,713 | 192 | 850 | 790 | 723 | 645 | 554 | 1,72 | 2,25 |
| | MMC0400501 | MMT0400501 | 40 | x | 1 | x | 5 | 1,784 | 200 | 903 | 840 | 768 | 686 | 589 | 1,72 | 2,25 |
| | MMC0500401 | MMT0500401 | 50 | x | 1 | x | 4 | 1,784 | 200 | 861 | 801 | 732 | 654 | 561 | 1,72 | 2,25 |
| | MMC0630301 | MMT0630301 | 63 | x | 1 | x | 3 | 1,686 | 189 | 802 | 746 | 683 | 609 | 523 | 1,65 | 2,12 |
| > 800 | MMC0320801 | MMT0320801 | 32 | x | 1 | x | 8 | 2,284 | 256 | 1023 | 951 | 870 | 777 | 667 | 1,72 | 2,25 |
| | MMC0400601 | MMT0400601 | 40 | x | 1 | x | 6 | 2,141 | 240 | 1018 | 947 | 866 | 773 | 663 | 1,72 | 2,25 |
| | MMC0500501 | MMT0500501 | 50 | x | 1 | x | 5 | 2,231 | 250 | 1098 | 1021 | 934 | 834 | 716 | 1,72 | 2,25 |
| | MMC0630401 | MMT0630401 | 63 | x | 1 | x | 4 | 2,248 | 252 | 1013 | 942 | 861 | 769 | 660 | 1,65 | 2,12 |
| > 800 | MMC0800301 | MMT0800301 | 80 | x | 1 | x | 3 | 2,141 | 240 | 977 | 909 | 831 | 742 | 637 | 1,65 | 2,12 |
| > 1000 | MMC0321001 | MMT0321001 | 32 | x | 1 | x | 10 | 2,851 | 320 | 1233 | 1147 | 1049 | 936 | 804 | 1,72 | 2,25 |
| | MMC0400801 | MMT0400801 | 40 | x | 1 | x | 8 | 2,855 | 320 | 1233 | 1146 | 1048 | 936 | 803 | 1,72 | 2,25 |
| | MMC0401001 | MMT0401001 | 40 | x | 1 | x | 10 | 3,569 | 400 | 1397 | 1300 | 1189 | 1061 | 911 | 1,65 | 2,12 |
| | MMC0500601 | MMT0500601 | 50 | x | 1 | x | 6 | 2,677 | 300 | 1226 | 1140 | 1043 | 931 | 799 | 1,65 | 2,12 |
| | MMC0500801 | MMT0500801 | 50 | x | 1 | x | 8 | 3,569 | 400 | 1392 | 1295 | 1184 | 1057 | 907 | 1,65 | 2,12 |
| | MMC0630501 | MMT0630501 | 63 | x | 1 | x | 5 | 2,811 | 315 | 1223 | 1137 | 1040 | 928 | 797 | 1,65 | 2,12 |
| | MMC0630601 | MMT0630601 | 63 | x | 1 | x | 6 | 3,373 | 378 | 1442 | 1341 | 1226 | 1095 | 940 | 1,65 | 2,12 |
| | MMC0800401 | MMT0800401 | 80 | x | 1 | x | 4 | 2,851 | 320 | 1202 | 1118 | 1022 | 912 | 783 | 1,65 | 2,12 |
| | MMC0800501 | MMT0800501 | 80 | x | 1 | x | 5 | 3,569 | 400 | 1395 | 1298 | 1187 | 1059 | 909 | 1,65 | 2,12 |
| | MMC1000401 | MMT1000401 | 100 | x | 1 | x | 4 | 3,569 | 400 | 1449 | 1348 | 1233 | 1100 | 945 | 1,6 | 2,02 |
| > 1250 | MMC0501001 | MMT0501001 | 50 | x | 1 | x | 10 | 4,461 | 500 | 1651 | 1535 | 1404 | 1253 | 1076 | 1,65 | 2,12 |
| | MMC0630801 | MMT0630801 | 63 | x | 1 | x | 8 | 4,497 | 504 | 1656 | 1540 | 1409 | 1257 | 1079 | 1,65 | 2,12 |
| | MMC0800601 | MMT0800601 | 80 | x | 1 | x | 6 | 4,283 | 480 | 1630 | 1516 | 1387 | 1238 | 1063 | 1,65 | 2,12 |
| | MMC1000501 | MMT1000501 | 100 | x | 1 | x | 5 | 4,461 | 500 | 1638 | 1523 | 1393 | 1243 | 1067 | 1,6 | 2,02 |
| | MMC1000601 | MMT1000601 | 100 | x | 1 | x | 6 | 5,353 | 600 | 1845 | 1715 | 1569 | 1400 | 1202 | 1,6 | 2,02 |
| > 1600 | MMC0631001 | MMT0631001 | 63 | x | 1 | x | 10 | 5,621 | 630 | 1901 | 1768 | 1617 | 1443 | 1239 | 1,65 | 2,12 |
| | MMC0800801 | MMT0800801 | 80 | x | 1 | x | 8 | 5,71 | 640 | 1902 | 1769 | 1618 | 1444 | 1240 | 1,65 | 2,12 |
| | MMC0801001 | MMT0801001 | 80 | x | 1 | x | 10 | 7,138 | 800 | 2106 | 1958 | 1791 | 1599 | 1372 | 1,65 | 2,12 |
| | MMC1000801 | MMT1000801 | 100 | x | 1 | x | 8 | 7,138 | 800 | 2152 | 2001 | 1830 | 1634 | 1402 | 1,6 | 2,02 |
| > 2000 | MMC1001001 | MMT1001001 | 100 | x | 1 | x | 10 | 8,922 | 1000 | 2353 | 2188 | 2001 | 1786 | 1533 | 1,6 | 2,02 |

Selection of Moflex

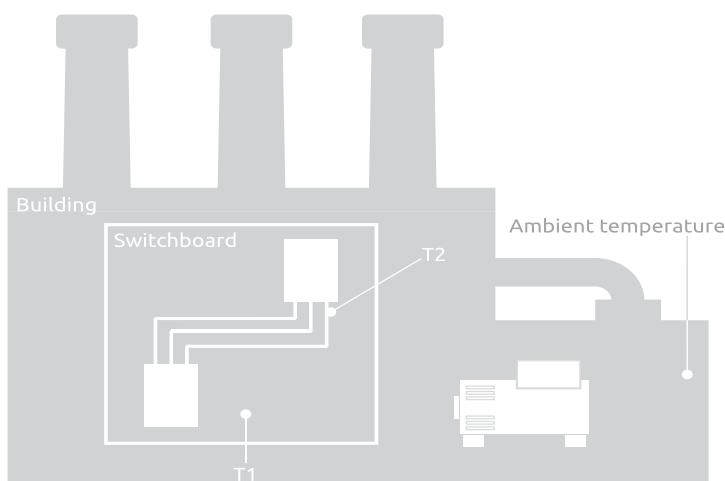
ΔT = temperature rise of the Moflex conductor (°C)
 T1 = internal temperature of the switchboard (°C)
 T2 = temperature of the Moflex conductor (°C)

For example $I_n = 1000A$ connection

Step 1: T1 = 35 °C and T2 = 85 °C
 $\Delta T = T2 - T1$
 $\Delta T = 85 °C - 35 °C$
 $\Delta T = 50 °C$

Step 2: Please find from the page 62 table on the column $\Delta T = 50$ the closest value of the 1000A.
 MMC0321001 Moflex 32x1x10, 320 mm², 1049A
 or
 MMC0630501 Moflex 63x1x5, 315 mm², 1040A.

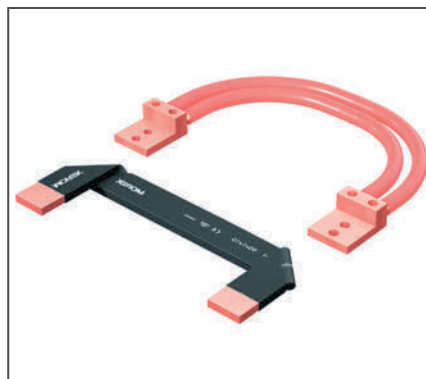
Step 3: Select the Moflex flexibar according to the equipment terminal width.



Moflex saves you time and money



Does not require additional connection parts and saves the time of installation

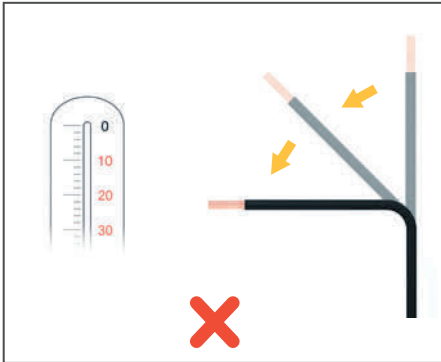


Makes direct connection without additional connectors, enables you to save space in the panel



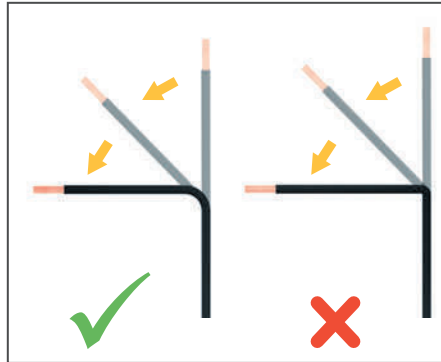
Gives additional flexibility comparing to standard rigid bar and it is easily adapted to unexpected project change

Assembly instructions



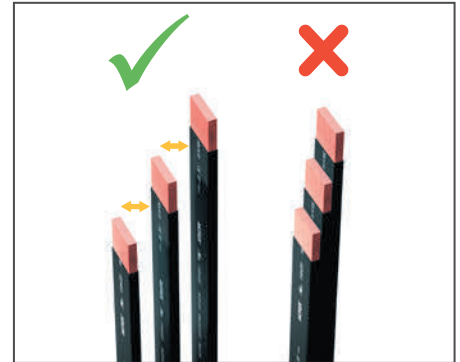
No bending at low temperatures (< 0°C or < 30F)

Elongation of the coating before breakage is reduced at low temperatures. Recommended is bending at room temperature.



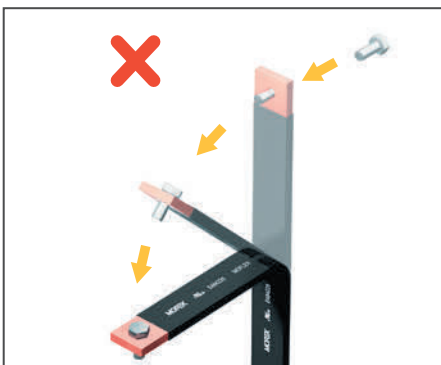
No sharp-edged bending

Recommended inner radius for bending:
 busbar thickness 1 - 5 mm: radius 5 mm
 busbar thickness 6 - 10 mm: radius = thickness



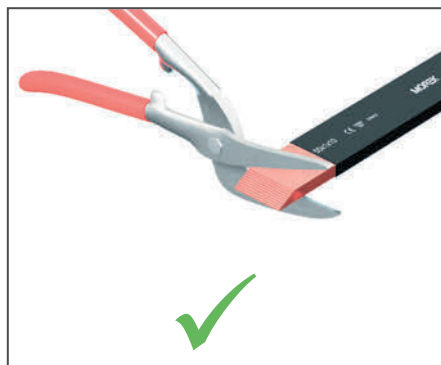
Parallel assembly has influence to heat radiation

Recommended distance between bars = min. 1 x bar width. Please pay attention to correction factors for parallel assembly!

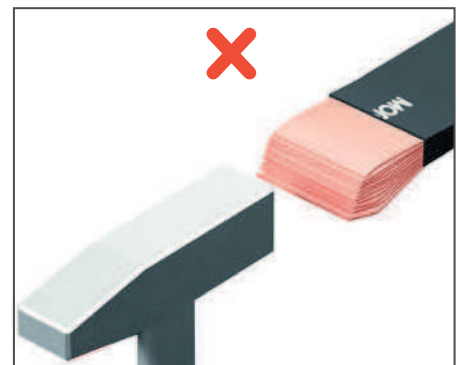


Copper files slide when bending to compensate the different length of inner and outer file

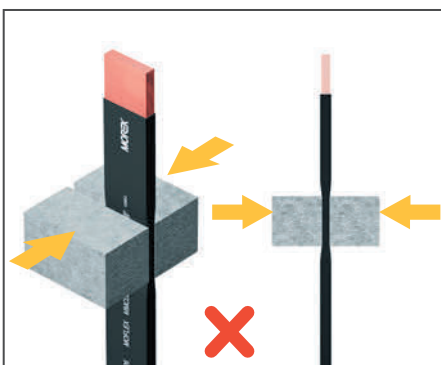
No fixation before bending! It hinders the slide and may lead to burst of PVC-coating.



Bars must be cut if copper slides emerge after bending

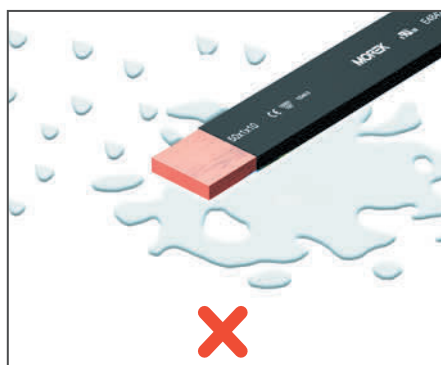


Heavy push back of copper files may cause deformation with resulting damage of PVC-coating



Please avoid crushing of the PVC coating

Damage of coating or reduced wall thickness endangers function of isolation.



Do not expose to dirt, water and humidity

Humidity may invade by the open ends of the busbars. This causes copper oxidation and endangers operating safety.



Do not drill holes exceeding half of the width of the bar