



# Insulated flexible copper bars

## Busbar

Enclosures  
& accessories

barre\_011\_a\_1\_cat



### The solution for

- > Electrical distribution



### Strong points

- > Easy to install
- > Increased safety by the elimination of crimped connections

### Conformity to standards

- > VDE 207 Y16
- > BS 6746
- > NF A 51-050
- > VDE 207 YM4
- > DIN 40050



### Available on request

- > Specific lengths
- > Halogen-free
- > Please consult us

## Function

SOCOMEK **insulated flexible** copper bars are mainly used for providing the power connections between busbars and the disconnection devices within an electrical panel.

The insulated layered copper allows the flexible copper bar to be easily formed to provide a customised solution.

## Advantages

### Easy to install

- Compact version.
- High level of flexibility enabling easy manipulation of the busbar.
- Reduced installation time with the elimination of terminal lugs and their crimping.

### Increased safety by the elimination of crimped connections

- Better behaviour under short-circuit conditions.
- Decreased number of heating points.
- More reliable connections.

## Characteristics

- Width of 9 to 100 mm.
- Copper layer thickness from 0.8 to 1 mm.
- Length of 2 m.

### Conductor

- Layers of electrolytic copper Cu/ETP, final annealing state.

### Insulator

- High temperature co-extruded vinyl compound on the copper strips (insulation thickness: 1.5 to 2 mm).
- Self-extinguishing: NFC 32200 and UL 94 V0.
- Continuous temperature withstand: 105 °C.
- Shore hardness A: 89 +/- 2.
- Module 100 % elongation: 16 Mpa.
- Resistance to elongation: < 15 % mini.
- Breaking stress: 20 Mpa.
- Transversal volume resistivity: 6.1015 Ω.
- Oxygen index: 29.5 %.
- Scratch and tear resistant.

### Insulated flexible busbar

- Operating-temperature range: from -40 °C to +105 °C.
- Maximum operating voltage: 1000 VAC / 1500 VDC.
- Alternating voltage withstand (10 minute test):
  - between core and insulation: 16.5 kV,
  - between two insulating elements in contact: 33 kV,
- Conductivity: 100 IACS,
- HV < 50,
- Resistance to traction  $R_m > 200 \text{ N/cm}^2$ ,
- Stretch before break 35 %,
- Resistivity: 1.724 micro Ω/cm at 20 °C.

### References

I x N x e (mm)	L (mm)	Permissible amperage for $\Delta T$ (°C) <sup>(1)</sup>			To be ordered in multiples of	Reference
		40°C (A)	50°C (A)	60°C (A)		
9 x 2 x 0.8	2000	113	129	143	1	4518 0902
9 x 3 x 0.8	2000	140	160	178	1	4518 0903
9 x 4 x 0.8	2000	165	188	209	1	4518 0904
9 x 5 x 0.8	2000	187	214	238	1	4518 0905
9 x 6 x 0.8	2000	208	238	264	1	4518 0906
13 x 3 x 0.5	2000	142	162	180	1	4518 1303
13 x 4 x 0.5	2000	165	189	210	1	4518 1304
13 x 5 x 0.5	2000	186	213	237	1	4518 1305
13 x 6 x 0.5	2000	206	235	261	1	4518 1306
15.5 x 2 x 0.8	2000	167	191	212	1	4518 1502
15.5 x 3 x 0.8	2000	207	237	263	1	4518 1503
15.5 x 4 x 0.8	2000	242	277	308	1	4518 1504
15.5 x 6 x 0.8	2000	304	347	386	1	4518 1506
15.5 x 8 x 0.8	2000	358	409	455	1	4518 1508
15.5 x 10 x 0.8	2000	408	466	519	1	4518 1510
20 x 2 x 1	2000	228	261	290	1	4518 2002
20 x 3 x 1	2000	283	324	360	1	4518 2003
20 x 4 x 1	2000	331	378	421	1	4518 2004
20 x 5 x 1	2000	374	428	476	1	4518 2005
20 x 6 x 1	2000	415	474	527	1	4518 2006
20 x 8 x 1	2000	488	558	621	1	4518 2008
20 x 10 x 1	2000	556	635	705	1	4518 2010
24 x 2 x 1	2000	263	301	335	1	4518 2402
24 x 3 x 1	2000	326	373	414	1	4518 2403
24 x 4 x 1	2000	380	435	483	1	4518 2404
24 x 5 x 1	2000	429	491	546	1	4518 2405
24 x 6 x 1	2000	475	542	603	1	4518 2406
24 x 8 x 1	2000	557	636	708	1	4518 2408
24 x 10 x 1	2000	632	722	803	1	4518 2410
32 x 2 x 1	2000	331	379	421	1	4518 3202
32 x 3 x 1	2000	409	468	520	1	4518 3203
32 x 4 x 1	2000	476	544	605	1	4518 3204
32 x 5 x 1	2000	536	612	681	1	4518 3205
32 x 6 x 1	2000	591	675	751	1	4518 3206
32 x 8 x 1	2000	689	787	876	1	4518 3208
32 x 10 x 1	2000	777	887	987 <sup>(1)</sup>	1	4518 3210
40 x 2 x 1	2000	398	455	506	1	4518 4002
40 x 3 x 1	2000	490	560	623	1	4518 4003
40 x 4 x 1	2000	569	650	723	1	4518 4004
40 x 5 x 1	2000	639	730	812	1	4518 4005
40 x 6 x 1	2000	703	803	893	1	4518 4006
40 x 8 x 1	2000	815	932	1036	1	4518 4008
40 x 10 x 1	2000	915	1045	1163	1	4518 4010
50 x 3 x 1	2000	589	673	749	1	4518 5003
50 x 4 x 1	2000	682	780	867	1	4518 5004
50 x 5 x 1	2000	764	873	971	1	4518 5005
50 x 6 x 1	2000	838	957	1062	1	4518 5006
50 x 8 x 1	2000	967	1105	1229	1	4518 5008
50 x 10 x 1	2000	1080	1234	1373	1	4518 5010
63 x 3 x 1	2000	715	816	908	1	4518 6303
63 x 4 x 1	2000	825	943	1048	1	4518 6304
63 x 5 x 1	2000	921	1052	1171	1	4518 6305
63 x 6 x 1	2000	1041	1187	1324	1	4518 6306
63 x 8 x 1	2000	1157	1321	1470	1	4518 6308
63 x 10 x 1	2000	1286	1469	1634	1	4518 6310
80 x 3 x 1	2000	874	998	1110	1	4518 8003
80 x 4 x 1	2000	1006	1149	1278	1	4518 8004
80 x 5 x 1	2000	1119	1279	1422	1	4518 8005
80 x 6 x 1	2000	1220	1393	1550	1	4518 8006
80 x 8 x 1	2000	1393	1592	1771	1	4518 8008
80 x 10 x 1	2000	1543	1763	1961	1	4518 8010
100 x 4 x 1	2000	1211	1383	1538	1	4518 9004
100 x 5 x 1	2000	1343	1534	1707	1	4518 9005
100 x 6 x 1	2000	1460	1668	1855	1	4518 9006
100 x 8 x 1	2000	1660	1897	2110	1	4518 9008
100 x 10 x 1	2000	1833	2094	2329	1	4518 9010
100 x 12 x 1	2000	1993	2277	2531	1	4518 9012

(1) For ambient air temperature of 40 °C.

Important: max. busbar temperature = 105 °C.

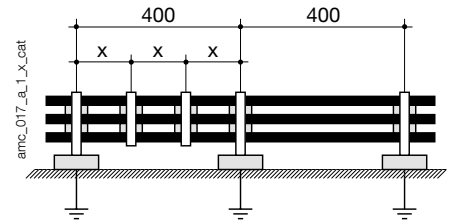
L: length of bar in metres.

I: width of bare busbar in mm.

N: number of copper layers.

e: copper layer thickness in mm.

### Implementation



Flexible bars should be mounted on insulated supports with a maximum distance of 400 mm. Bars should also be held together with straps, as shown in the above diagram. The distance between successive straps depends on the electro-dynamic constraints in the event of a short-circuit. The table below gives the recommended distances between straps.

I <sub>cc</sub> max. (kA rms)	Distance x between straps (mm) <sup>(1)</sup>
20	350
25	200
35	100
45	70

(1) 9 mm straps, load 80 kg.

### Parallel systems

Putting bars in parallel increases the temperature of the air near the bar, which forms a reduction coefficient

No. of bars in parallel	Aamperage at $\Delta T$ 40°C	Correction factor
I	any intensity	1
II	< 900A	1,72
II	> 900A	1,65
III	< 900A	2,25
III	> 900A	2,12