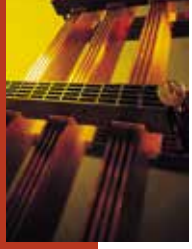


Insulated flexible copper bars

Busbar

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

SOCOMEC **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 Rm > 200 N/cm²,
  - Stretch before break 35 %,
  - Resistivity: 1.724 micro Ω/cm at 20 °C.

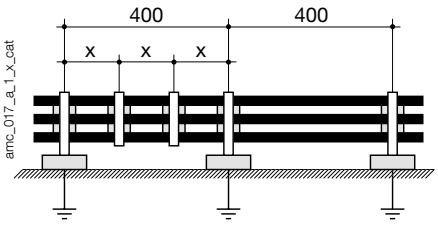
References

I x N x e (mm)	L (mm)	Permissible amperage for ΔT (°C) (1) 40°C (A)	50°C (A)	60°C (A)	To be ordered in multiples of	Reference
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(1)	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_{cc} max. (kA rms)	Distance x between straps (mm)(1)
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 barres in parallel	Aamperage at ΔT 40°C	Correction factor
I	any intensity	1
II	< 900A	1,72
II	> 900A	1,65
III	< 900A	2,25
III	> 900A	2,12