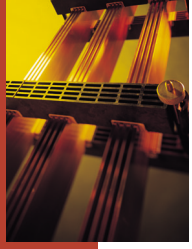


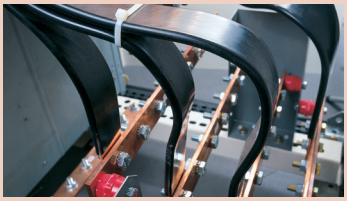
Insulated flexible copper bars

Busbar

barre_011_a_1_cat

The solution for

- Industrial Control Panels Manufacturers (UL 508A)
- Switchboards Manufacturers (UL 891)
- Distributors
- OEM/Machine Builders



Strong points

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

Conformity to standards

- UL 67 and UL 891
  CSA-C22.2
  No. 29 and 244
  Guide QUEY
  File E495516

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 behavior 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 6.56 ft / 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: 221 °F / 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 °F / -40 °C to + 221 °F / +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 68 °F / 20 °C.

Available on request

- Specific lengths
- Halogen-free
- Please consult us

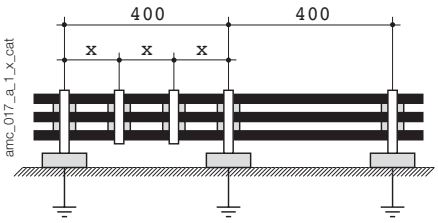
References

I x N x e (mm)	L (mm)	Permissible amperage for ΔT (°C) (1) 104°F / 40°C (A)	122°F / 50°C (A)	140°F / 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 104 °F / 40 °C.
Important: max. busbar temperature = 221 °F / 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.

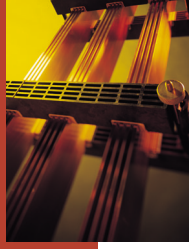
I_{cc} max. (kA rms)	Distance x between straps (mm)(1)
20	350
25	200
35	100
45	70

(1) 9 mm straps, load 176 lbs / 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 104°F/40°C	Correction factor
I	any intensity	1
II	< 900A	1,72
II	> 900A	1,65
III	< 900A	2,25
III	> 900A	2,12

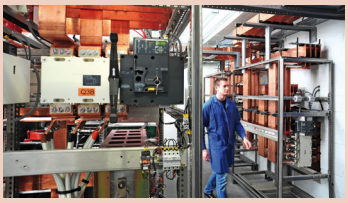


Insulated copper braids

Busbar

The solution for

- Industrial Control Panels Manufacturers (UL 508A)
- Switchboards Manufacturers (UL 891)
- Distributors
- OEM/Machine Builders



Strong points

- Easy to install
- Wide range of applications
- Compatibility

Customised solutions

- For any other length, please contact us

Function

SOCOMEC **insulated copper braids** are mainly utilized for providing the power connections between distribution busbars and the devices within an electrical panel.
Their flexibility is particularly suited to complex and diverse connections in confined spaces.

Technical characteristics

- Electrolytic copper, annealing state
- Operating voltage 1000 VAC - 1500 VDC
- Dielectric strength 20 KV / mm
- Operating temperature: -40°F/-40°C | +221°F/+105°C
- Self-extinguishing: UL 94 V0
- Contact surface: Bare copper

Advantages

Easy to install
- Compact design.
- Length and orientation are easily adapted.
- Prewired.

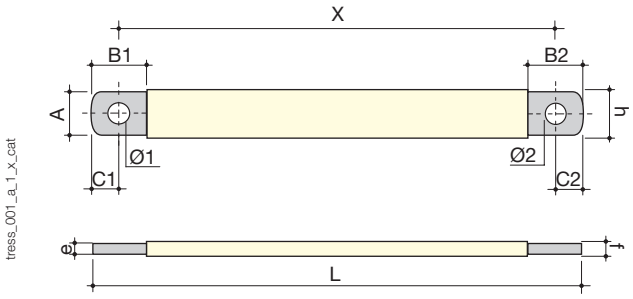
Wide range of applications
- Amperage up to 1000 A.
- Suitable for various connection ranges.
- Lengths from 7.87 in / 200 mm to 31.5 in / 800 mm.

Compatibility
- With SOCOMEC devices.
- With most commercial circuit breakers.

Part numbers and dimensions

Current rating at ambient temperature of 630 to 7000 A					Dimensions										Range		
95°F / 35°C (A)	Nominal rating 113°F / 45°FC (A)	131°F / 55°C (A)	Reference	Section mm²	A Width (mm)	e Thickness (mm)	X Distance (mm)	L Length (mm)	Ø 1 (mm)	Ø 2 (mm)	C1 (mm)	C2 (mm)	h Width (mm)	f Thickness (mm)	B1 (mm)	B2 (mm)	Weight (lb)
180	**160**	140	4516 **1620**	25	20	1.5	200	220	8.5	10.5	8	12	22	3.5	25	30	0.17
180	**160**	140	4516 **1625**	25	20	1.5	250	270	8.5	10.5	8	12	22	3.5	25	30	0.19
180	**160**	140	4516 **1630**	25	20	1.5	300	320	8.5	10.5	8	12	22	3.5	25	30	0.24
180	**160**	140	4516 **1635**	25	20	1.5	350	370	8.5	10.5	8	12	22	3.5	25	30	0.26
180	**160**	140	4516 **1640**	25	20	1.5	400	420	8.5	10.5	8	12	22	3.5	25	30	0.31
180	**160**	140	4516 **1650**	25	20	1.5	500	520	8.5	10.5	8	12	22	3.5	25	30	0.37
280	**250**	220	4516 **2520**	50	20	3	200	220	8.5	10.5	8	12	22	5	25	30	0.31
280	**250**	220	4516 **2525**	50	20	3	250	270	8.5	10.5	8	12	22	5	25	30	0.35
280	**250**	220	4516 **2530**	50	20	3	300	320	8.5	10.5	8	12	22	5	25	30	0.42
280	**250**	220	4516 **2535**	50	20	3	350	370	8.5	10.5	8	12	22	5	25	30	0.49
280	**250**	220	4516 **2540**	50	20	3	400	420	8.5	10.5	8	12	22	5	25	30	0.55
280	**250**	220	4516 **2550**	50	20	3	500	520	8.5	10.5	8	12	22	5	25	30	0.66
440	**400**	320	4516 **4020**	120	32	5	200	222	10.5	10.5	10	12	34	7	25	30	0.66
440	**400**	320	4516 **4025**	120	32	5	250	272	10.5	10.5	10	12	34	7	25	30	0.79
440	**400**	320	4516 **4030**	120	32	5	300	322	10.5	10.5	10	12	34	7	25	30	0.95
440	**400**	320	4516 **4035**	120	32	5	350	372	10.5	10.5	10	12	34	7	25	30	1.08
440	**400**	320	4516 **4040**	120	32	5	400	422	10.5	10.5	10	12	34	7	25	30	1.23
440	**400**	320	4516 **4050**	120	32	5	500	522	10.5	10.5	10	12	34	7	25	30	1.52
440	**400**	320	4516 **4060**	120	32	5	600	622	10.5	10.5	10	12	34	7	25	30	1.81
440	**400**	320	4516 **4080**	120	32	5	800	822	10.5	10.5	10	12	34	7	25	30	2.36
690	**630**	560	4516 **6325**	240	32	10	250	274	12.5	10.5	12	12	34	12	35	30	1.57
690	**630**	560	4516 **6330**	240	32	10	300	324	12.5	10.5	12	12	34	12	35	30	1.85
690	**630**	560	4516 **6335**	240	32	10	350	374	12.5	10.5	12	12	34	12	35	30	2.12
690	**630**	560	4516 **6340**	240	32	10	400	424	12.5	10.5	12	12	34	12	35	30	2.40
690	**630**	560	4516 **6350**	240	32	10	500	524	12.5	10.5	12	12	34	12	35	30	2.98
690	**630**	560	4516 **6360**	240	32	10	600	624	12.5	10.5	12	12	34	12	35	30	3.53
690	**630**	560	4516 **6380**	240	32	10	800	824	12.5	10.5	12	12	34	12	35	30	4.63

Dimensions



Parallel systems

Putting braids in parallel increases the temperature of the air near the braid, which forms a reduction coefficient

Correction factor	
	Current
	2 x current x 0.8
	3 x current x 0.65