

Flexible connectors made out of copper- and aluminium foils

We offer a wide range of standardized laminated connectors as well as multifarious designs according to your drawings or wishes. All articles are produced in high quality on modern plants with suitable materials and manufacturing processes in coordination with your applications. Following manufacturing processes are at our disposal:

- press-/diffusion welding
- inert gas welding (WIG/MIG)
- electron-beam welding
- soldering/brazing
- riveting
- extrusion of insulated supple bars

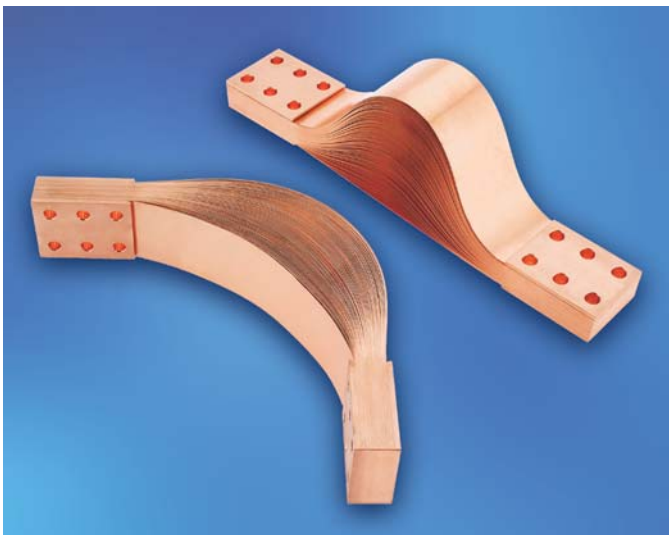
Take the chance to profit from our experience in designing and manufacturing of flexible high current components and contact us. With pleasure our employees assist your company in finding optimal solutions.



**Flexible laminated connectors
used in welding guns
manufactured out of copper strips**



**Flexible laminated connectors
used in welding machines
manufactured out of copper strips**

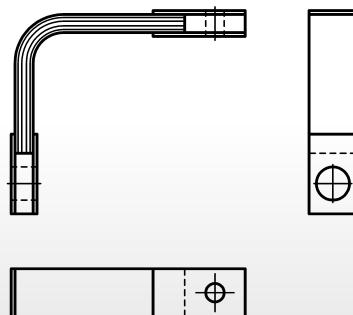


Necessary order information

Identical with the information on the opposite page.

To realize two-dimensional movements inside of welding guns our flexible laminated copper connectors are needed. In standard design they are manufactured out of E-Cu/Cu-ETP strips with a thickness of 0,10 mm or 0,20 mm. A special press-riveting procedure enables an optimal connection of the strips. The contact areas are additionally equipped with copper sheets or caps. To guarantee durability and functioning it is necessary to use copper material with the right and optimal strength in coordination with the application. Only connectors with the right dimensions manufactured out of the right material enable an optimal lifetime. For special applications we deliver also electron-beam welded components. By using this special welding process the connection of the copper material can be realized without worth mentioning thermal restriction. So it is possible to preserve the needed elasticity of the laminated connectors. When designing new products or if problems must be solved, don't hesitate to contact us. With pleasure we offer our "know how" and support your efforts.

Additionally to our connectors for welding guns, we manufacture also a wide range of flexible elements used in welding machines. So we offer designs from the little laminated connector, similar to the welding gun designs, up to conductor cross-sections of 2000 mm² or more, with contact areas up to 200 mm width. Just as much we are specialized of the manufacturing of flexible as well as solid copper components for electrical heating equipments. Everywhere where flexible components for current transfer in conjunction with a realization of movements are needed we are the right partner. Whether riveted or welded, whether with air- or water cooled contact areas, we deliver the right components coordinated with your applications. Also solid copper components according to your drawings or wishes, manufactured of CNC-machines, are part of our product range. We deliver spare parts as well as components in serious production or complete machine equipments.



Flexible expansion connectors
material: copper HCP-foils
contact areas: press-welded



The expansion connectors in the following tables consist out of copper HCP-foils according to DIN EN 13599 with a thickness of 0,1 mm or 0,3 mm. The contact areas are manufactured in a press-welded design.

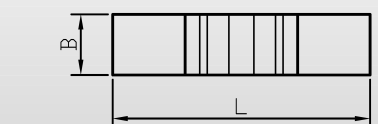
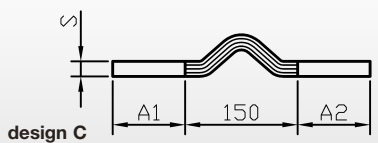
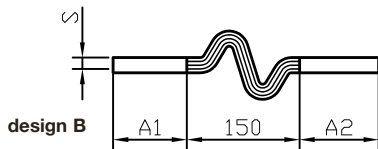
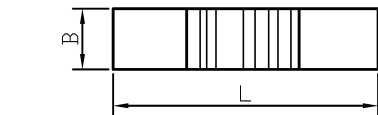
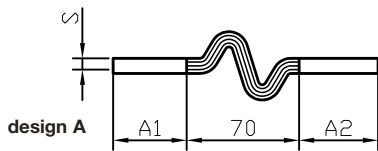
The press-welding procedure is a special resistance welding process, which enables a welding of packages of copper foils with different strength in a defined area together. By working with this procedure it is not necessary to use any form of welding additives.

So press-welded connectors are excellent electrical conductors due to their perfect molecular connection. The contact areas can be bored, milled or bent without problem. The width of the contact areas are so selected that it is possible to install several expansion connectors in a distance of 2 mm side by side (e.g. for generator connections etc.). With drilling on request, e.g. according to DIN 43673 page 1 + 2, DIN 46206 page 2 or according to your drawings/samples or wishes.

On request it is also possible to deliver designs with coated contact areas (e.g. tinned or silvered).

When placing an order, please specify:

- Part-No.
 - thickness of the foils (0,1 mm or 0,3 mm)
 - design A, B or C
 - length of the contact areas A1/A2
 - with or without drilling
- Part-No. 15509 (B x S = 98 x 10 mm)
 - design B (expansion part 150 mm)
 - contact areas A1/A2 100 mm = total length 350 mm (100 + 100 + 150 mm)
 - thickness of the foils 0,1 mm
 - without drilling

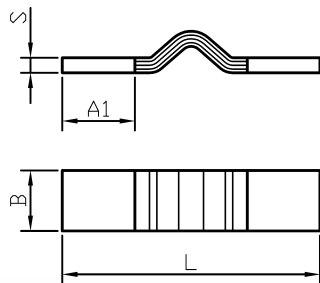
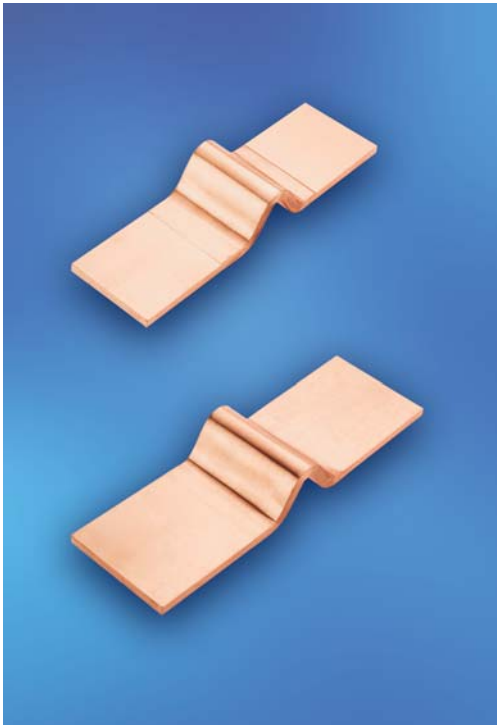


Part-No.	technical data				
	cross-section mm ²	dimensions mm			
		B	S	A ₁	A ₂
15500	140	28	5		
15501	190	38	5		
15502	240	48	5		
15503	290	58	5		
15504	390	78	5		
15505	380	38	10	wishes	wishes
15506	480	48	10	wishes	wishes
15507	580	58	10	wishes	wishes
15508	780	78	10	wishes	wishes
15509	980	98	10	wishes	wishes
15510	570	38	15	according to	according to
15511	720	48	15	customers'	customers'
15512	870	58	15	wishes	wishes
15513	1170	78	15	according to	according to
15514	1470	98	15	customers'	customers'
15515	760	38	20	wishes	wishes
15516	960	48	20	wishes	wishes
15517	1160	58	20	wishes	wishes
15518	1560	78	20	wishes	wishes
15519	1960	98	20	wishes	wishes

Remark:

The minimum current capacity of expansion connectors is in accordance with the values of solid busbars (cf. DIN 43671 resp. DIN 46276 part 1 + 2).

Flexible expansion connectors
material: copper HCP-foils
contact areas: press-welded



Expansion connectors in standard design. The width and the thickness of the contact areas are in coordination with the usual dimensions of the traditional busbar systems. With drilling on request, e.g. according to DIN 43673 page 1 +2, DIN 46206 page 2 or according to your drawings/samples or wishes. On request it is also possible to deliver expansion connectors with other dimensions or in bended design according to your drawings as well as with coated contact areas (e.g. tinned or silvered).

Part-No.	technical data					
	cross-section mm ²	dimensions mm			L	weight kg/piece
B	A ₁	S				
15730	200	40	40	5	230	0,48
15731	320	40	40	8	230	0,77
15732	400	40	40	10	230	0,96
15733	480	40	40	12	230	1,15
15734	600	40	40	15	230	1,28
15735	800	40	40	20	230	1,92
15736	250	50	50	5	250	0,65
15737	400	50	50	8	250	1,04
15738	500	50	50	10	250	1,30
15739	600	50	50	12	250	1,55
15740	750	50	50	15	250	1,95
15741	1000	50	50	20	250	2,60
15742	300	60	60	5	270	0,83
15743	480	60	60	8	270	1,33
15744	600	60	60	10	270	1,66
15745	720	60	60	12	270	1,99
15746	900	60	60	15	270	2,51
15747	1200	60	60	20	270	3,32
15748	400	80	80	5	310	1,25
15749	640	80	80	8	310	1,99
15750	800	80	80	10	310	2,50
15751	960	80	80	12	310	3,01
15752	1200	80	80	15	310	3,75
15753	1600	80	80	20	310	5,00
15754	500	100	100	5	350	1,74
15755	800	100	100	8	350	2,81
15756	1000	100	100	10	350	3,48
15757	1200	100	100	12	350	4,17
15758	1500	100	100	15	350	5,27
15759	2000	100	100	20	350	6,96
15760	2500	100	100	25	350	8,70
15761	600	120	120	5	390	2,26
15762	960	120	120	8	390	3,68
15763	1200	120	120	10	390	4,52
15764	1440	120	120	12	390	5,50
15765	1800	120	120	15	390	6,97
15766	2400	120	120	20	390	9,04
15767	3000	120	120	25	390	11,57
15768	800	160	160	5	470	3,64
15769	1280	160	160	8	470	5,99
15770	1600	160	160	10	470	7,28
15771	1920	160	160	12	470	8,72
15772	2400	160	160	15	470	11,02
15773	3200	160	160	20	470	14,56
15774	4000	160	160	25	470	18,26
15775	4800	160	160	30	470	21,84

Remark:

The minimum current capacity of expansion connectors is in accordance with the values of solid busbars (cf. DIN 43671 resp. DIN 46276 part 1 + 2).

Flexible expansion connectors
material: aluminium foils
contact areas: inert gas welded



The laminates of our standard aluminium expansion connectors consist out of pure aluminium foils with a thick-ness of 0,3 mm. As contact areas we use solid aluminium pieces. They are welded by an electrical arc and shielded with inert gas to prevent oxidation of the molten bath.

The width of the contact areas are so selected that it is possible to install several expansion connectors in a distance of 2 mm side by side (e.g. for generator connections etc.). With drilling on request, e.g. according to DIN 43673 page 1 + 2, DIN 46206 page 2 or according to your drawings/samples or wishes.

When placing an order, please specify:

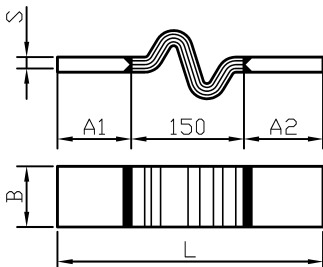
- Part-No.
- design B or C
- length of the contact areas A1/A2
- with or without drilling

Example:

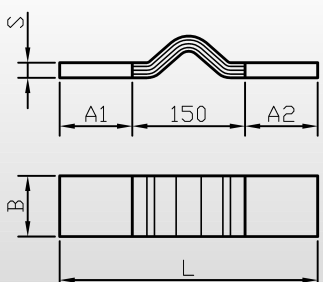
- Part-No. 15534 (B x S = 98 x 10 mm)
- design C
- contact areas A1/A2 100 mm = total length 350 mm (100 + 100 + 150 mm)
- without drilling

Part-No.	technical data				
	cross-section mm ²	dimensions mm			
		B	S	A ₁	A ₂
15530	380	38	10	—	—
15531	480	48	10	—	—
15532	580	58	10	—	—
15533	780	78	10	—	—
15534	980	98	10	—	—
15535	570	38	15	— according to customers' wishes	— according to customers' wishes
15536	720	48	15		
15537	870	58	15		
15538	1170	78	15		
15539	1470	98	15		
15540	760	38	20	— according to customers' wishes	— according to customers' wishes
15541	960	48	20		
15542	1160	58	20		
15543	1560	78	20		
15544	1960	98	20		

design B



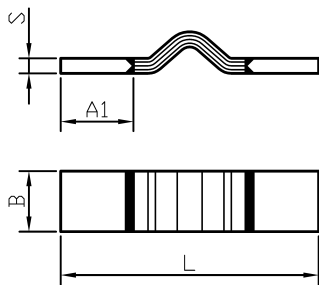
design C



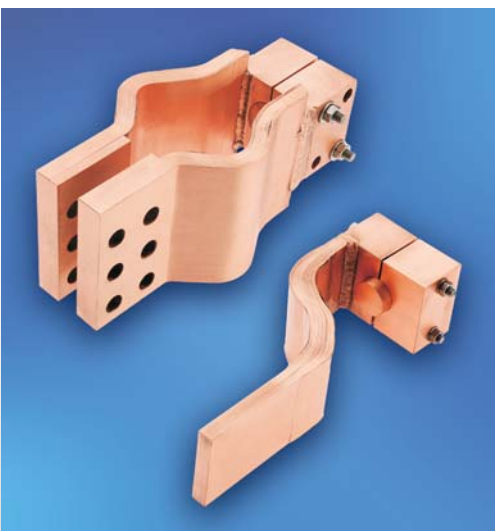
Remark:

The minimum current capacity of expansion connectors is in accordance with the values of solid busbars (cf. DIN 43670 resp. DIN 46276 part 1 + 2).

Flexible expansion connectors
material: aluminium foils
contact areas: inert gas welded



Flexible transformer connections
with expansion part



Expansion connectors in standard design. The width and the thickness of the contact areas are in coordination with the usual dimensions of the traditional busbar-systems. With drilling on request, e.g. according to DIN 43673 page 1 + 2, DIN 46206 page 2 or according to your drawings/samples or wishes. On request it is also possible to deliver expansion connectors with other dimensions or in bended design according to your drawings.

Remark:

The minimum current capacity of expansion connectors is in accordance with the values of solid busbars (cf. DIN 43670 resp. DIN 46276 part 1 + 2).

Part-No.	technical data					weight kg/piece
	cross-section mm ²	dimensions mm				
		B	A ₁	S	L	
03030	200	40	40	5	250	0,16
03031	400	40	40	10	250	0,32
03032	600	40	40	15	250	0,48
03033	200	40	80	5	280	0,18
03034	400	40	80	10	280	0,36
03035	600	40	80	15	310	0,57
03036	250	50	50	5	270	0,22
03037	500	50	50	10	270	0,43
03038	250	50	80	5	300	0,25
03039	500	50	80	10	300	0,47
03040	750	50	80	15	310	0,71
03041	300	60	60	5	290	0,28
03042	600	60	60	10	290	0,55
03043	300	60	80	5	300	0,29
03044	600	60	80	10	300	0,56
03045	900	60	80	15	310	0,87
03046	800	80	80	10	330	0,82
03047	1200	80	80	15	330	1,30
03048	1000	100	100	10	370	1,20
03049	1500	100	100	15	370	1,70
03050	1200	120	120	10	410	1,50
03051	1800	120	120	15	410	2,20
03052	1600	160	160	10	490	2,30

Every time, when transformers have current connections shaped as tubing connectors instead of rectangular busbars, special contact elements are needed. For such applications we offer our flexible copper connectors consisting out of an expansion part and special clamps on one or both sides. They are deliverable for current capacities up to some thousand amps and are individual designed in coordination with the power and the dimensions of the transformer. Main applications are inside of steel industrial plants. Our connectors are deliverable with special clamps on one and rectangular contact area at the other side as well as with clamps on both sides. So it is possible to connect the tubing connectors of the transformer with power leading tube systems as well as with prefabricated busbar systems. In dependence of the current load the connectors are equipped with an expansion part on the top as well as on the top and on the bottom part of the clamp.

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 $> = 200 \text{ N/mm}^2$
- electrical conductivity 57 S x m/mm^2

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 $+105^\circ \text{ C}$

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**

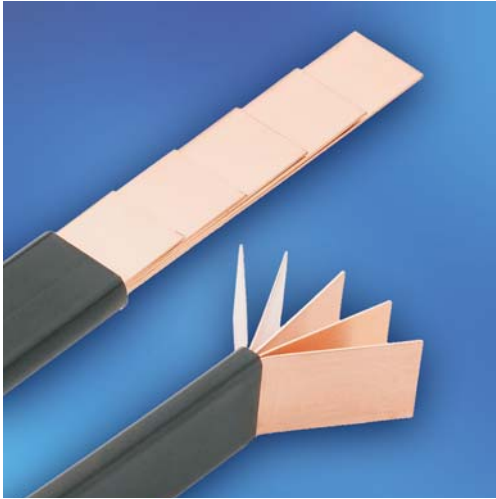
Part-No.		technical data							
uncoated	tinned	cross-section mm ²	copper-strips number x dimension mm	current load in dependence of the conductor heat in °C					copper weight kg/% m
				65°	75°	85°	95°	105°	
15650	15650 vz	14,4	2 x 9 x 0,8	95 A	114 A	130 A	144 A	157 A	13,80
15651	51700*	21,6	3 x 9 x 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 approximate 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.

Insulated supple bars, free of halogen made out of bare Cu-ETP strips insulated by a black thermoplastic, standard length 2 m



Construction and application

Construction according to the PVC-insulated design but insulated by an extruded high quality thermoplastic. The insulating material is free of halogen and suitable for all applications which requires a halogen free design of connectors. The material combined with the special injection moulding process realizes a manufacturing of flexible bars. The hardness of the material is a little bit stronger compared with the PVC-material but it offer although a good deformation of the bars.

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 processes.

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 thermoplastic
- black, free of halogen
- thickness 1,8-2 mm
- self-extinguishing
- shore hardness 85 A
- elasticity 185%
- 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

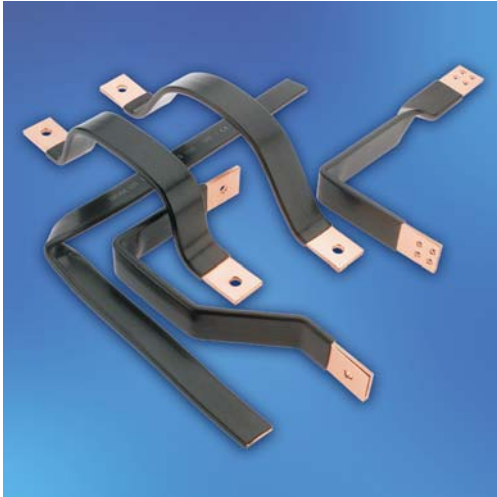
Part-No.	technical data							
	cross-section mm ²	copper-strips number x dimension mm	current load in dependence of the conductor heat in °C					copper weight kg/% m
uncoated			65°	75°	85°	95°	105°	
19000	14,4	2 x 9 x 0,8	95 A	114 A	130 A	144 A	157 A	13,80
19001	21,6	3 x 9 x 0,8	119 A	141 A	162 A	180 A	196 A	20,70
19002	28,8	4 x 9 x 0,8	139 A	166 A	190 A	211 A	230 A	27,60
19003	36	5 x 9 x 0,8	158 A	189 A	215 A	240 A	262 A	34,50
19004	43,2	6 x 9 x 0,8	176 A	210 A	240 A	266 A	291 A	41,40
19010	13	2 x 13 x 0,5	97 A	116 A	132 A	147 A	160 A	12,50
19011	19,5	3 x 13 x 0,5	120 A	143 A	163 A	181 A	198 A	18,70
19012	26	4 x 13 x 0,5	140 A	166 A	190 A	211 A	231 A	25,00
19014	39	6 x 13 x 0,5	174 A	207 A	237 A	263 A	288 A	37,50
19016	52	8 x 13 x 0,5	204 A	243 A	278 A	309 A	338 A	50,00
19018	65	10 x 13 x 0,5	232 A	276 A	316 A	351 A	383 A	67,40
19019	24,8	2 x 15,5 x 0,8	141 A	168 A	192 A	214 A	234 A	23,80
19021	49,6	4 x 15,5 x 0,8	205 A	244 A	279 A	310 A	339 A	47,60
19023	74,4	6 x 15,5 x 0,8	257 A	306 A	350 A	389 A	424 A	71,40
19025	99,2	8 x 15,5 x 0,8	303 A	361 A	412 A	458 A	501 A	95,20
19027	124	10 x 15,5 x 0,8	345 A	411 A	470 A	523 A	571 A	119,00
19028	40	2 x 20 x 1	193 A	230 A	263 A	292 A	319 A	38,30
19029	60	3 x 20 x 1	240 A	286 A	326 A	363 A	396 A	57,50
19030	80	4 x 20 x 1	280 A	334 A	381 A	424 A	463 A	76,60
19031	100	5 x 20 x 1	317 A	377 A	431 A	479 A	523 A	95,80
19032	120	6 x 20 x 1	351 A	418 A	477 A	531 A	580 A	115,00
19034	160	8 x 20 x 1	413 A	492 A	562 A	625 A	683 A	153,30
19036	200	10 x 20 x 1	497 A	592 A	676 A	752 A	821 A	191,60
19037	48	2 x 24 x 1	223 A	265 A	303 A	337 A	368 A	46,00
19038	72	3 x 24 x 1	276 A	329 A	375 A	417 A	456 A	69,00
19039	96	4 x 24 x 1	322 A	383 A	438 A	487 A	532 A	92,00
19040	120	5 x 24 x 1	363 A	433 A	494 A	550 A	600 A	115,00
19050	320	10 x 32 x 1	657 A	783 A	894 A	995 A	1086 A	306,60
19052	120	3 x 40 x 1	415 A	494 A	565 A	628 A	686 A	115,00
19053	160	4 x 40 x 1	481 A	574 A	655 A	729 A	796 A	153,30
19054	200	5 x 40 x 1	541 A	644 A	736 A	818 A	894 A	191,60
19055	240	6 x 40 x 1	594 A	708 A	809 A	900 A	982 A	229,90
19057	320	8 x 40 x 1	690 A	822 A	939 A	1044 A	1140 A	306,60
19059	400	10 x 40 x 1	774 A	922 A	1053 A	1171 A	1279 A	383,20
19061	200	4 x 50 x 1	577 A	688 A	786 A	874 A	954 A	191,60
19062	250	5 x 50 x 1	646 A	770 A	880 A	978 A	1068 A	239,50
19063	300	6 x 50 x 1	709 A	844 A	965 A	1073 A	1171 A	287,40
19065	400	8 x 50 x 1	818 A	975 A	1114 A	1238 A	1352 A	383,20
19067	500	10 x 50 x 1	914 A	1089 A	1244 A	1383 A	1510 A	479,00

Remark:

Standard design bare. 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 approximate values in consideration of the cables heat for single laying of air cooled cables and ambient temperature +35° C.

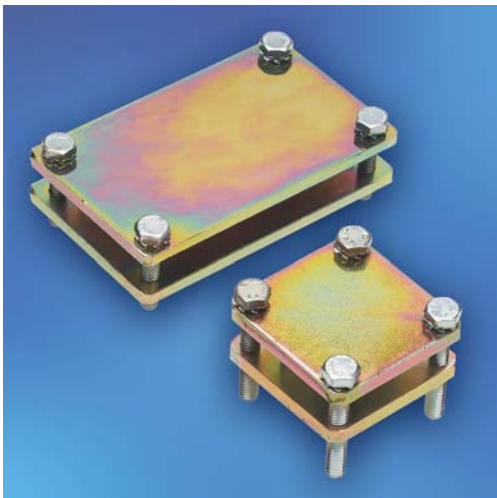
The temperature of the conductor is in dependent on the installation, the application, the cooling, the ambient temperature etc., so that if necessary reducing factors are to be considered. With pleasure our employees assist your company in finding optimal solutions.

Bended, twisted and drilled supple bars acc. to your wishes or drawings



Additionally to the delivery of supple bars in standard length of 2 m we deliver bended, twisted and drilled designs acc. to customers' wishes or drawings in large as well as small quantities. If you need more information don't hesitate to contact us. With pleasure our employees assist your company in finding optimal solutions.

Bus- and supple bar connectors



Part-No.	technical data					weight kg/%piece
	dimensions mm				torque	
	compart- ment L x B	outer dimension L x B	screws			
02220	18 x 18	35 x 39	M 6 x 25	6 Nm	11,00	
02221	33 x 33	50 x 50	M 6 x 40	6 Nm	22,00	
02222	35 x 51	57 x 75	M 6 x 30	6 Nm	29,00	
02223	41 x 41	60 x 60	M 6 x 50	6 Nm	32,00	
02224	42 x 64	63 x 63	M 6 x 30	6 Nm	36,00	
02225	53 x 53	75 x 75	M 6 x 50	6 Nm	50,00	
02226	42 x 82	63 x 103	M 6 x 30	6 Nm	45,00	
02227	64 x 64	80 x 80	M 6 x 50	6 Nm	54,00	
02228	82 x 82	120 x 120	M10 x 50	20 Nm	139,00	
02229	102 x 102	140 x 140	M12 x 80	25 Nm	320,00	

Remark:

Material zinc coated and chrome plated steel. Suitable to connect busbars between each other as well as busbars with our insulated supple bars. Busbar connectors with other dimensions as in our table are available on request.

Brace terminals



Part-No.	technical data				
	current-load	dimensions mm			torque
		com- partment B x H	busbar B x H	supple bar B x H	
10568	750 A	30 x 25	20 x 5 30 x 10	3 x 20 x 1 bis 10 x 24 x 1	30 Nm
10569	800 A	32 x 25	20 x 5 30 x 10	3 x 20 x 1 bis 10 x 32 x 1	30 Nm
10573	1250 A	41 x 25	30 x 10	5 x 32 x 1 bis	40 Nm
10574			40 x 10	10 x 40 x 1	
10575			50 x 10		
10576			60 x 10		

Remark:

Suitable to connect busbars with our insulated supple bars. The jaw type terminals enable the busbar to be gripped completely and connectors to be connected without drilling. The information about current load is a approximate value under optimized conditions. The relation between conductor cross-section and current load fixed in national or international regulations are not cancelled through our information. Additionally it is necessary to take the values of the current rates of your insulated supple bars into consideration.