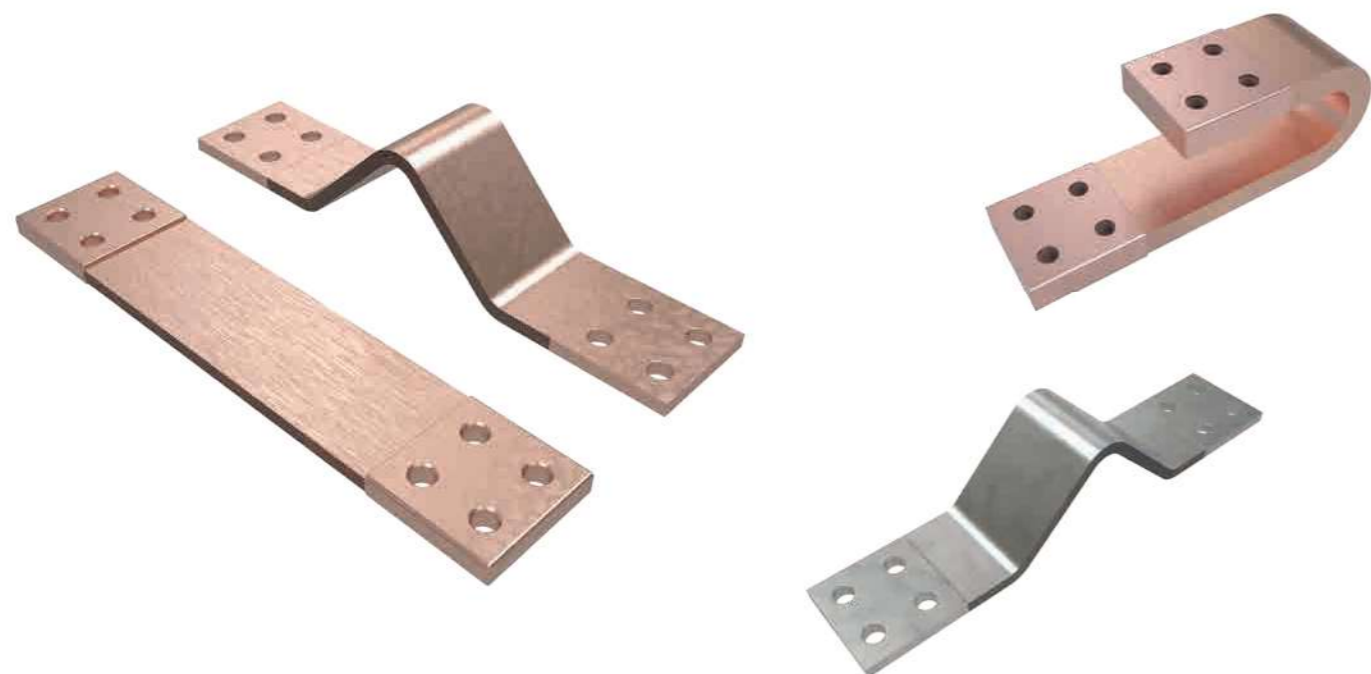


LAMINATED FLEXIBLE SHUNTS FOR DYNAMIC AND EXPANSION APPLICATIONS



Made by:

Cu-ETP (CW004A) EN 13599 R290 layers

For dynamic applications
with rivetted, press tinned or press welded terminals

Cu-HCP (CW021A) EN 13599 R220 layers

For expansion and compensation applications
with press welded and MIG welded terminals

Cu-ETP (CW004A) EN 13599 R220 layers

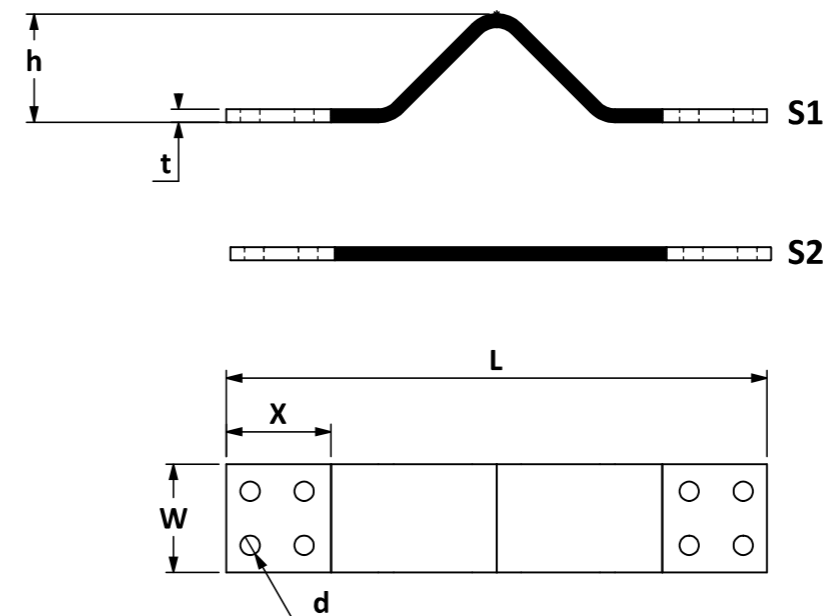
For expansion and compensation applications
with rivetted or press-tinned terminals

EN AW 1050A aluminium shunts on demand

Legenda

Type of application	Coating on layers	Coating on terminals	Insulation / Special Treatment
M Moving	R Bare Copper	R Bare Copper	HPE Heat Shrinkable Sleeve SIL Silicone Sleeve
P Expansion	T Tin Plating	T Tin Plating	GFI Glass Fiber Insulation HTD Hot Tin Dipped Terminals
S Special	S Silver Plating	S Silver Plating	W Press Welded Terminals T Press Tinned Terminals M MIG Welded Terminals
	N Nickel Plating	N Nickel Plating	
	A Aluminium		

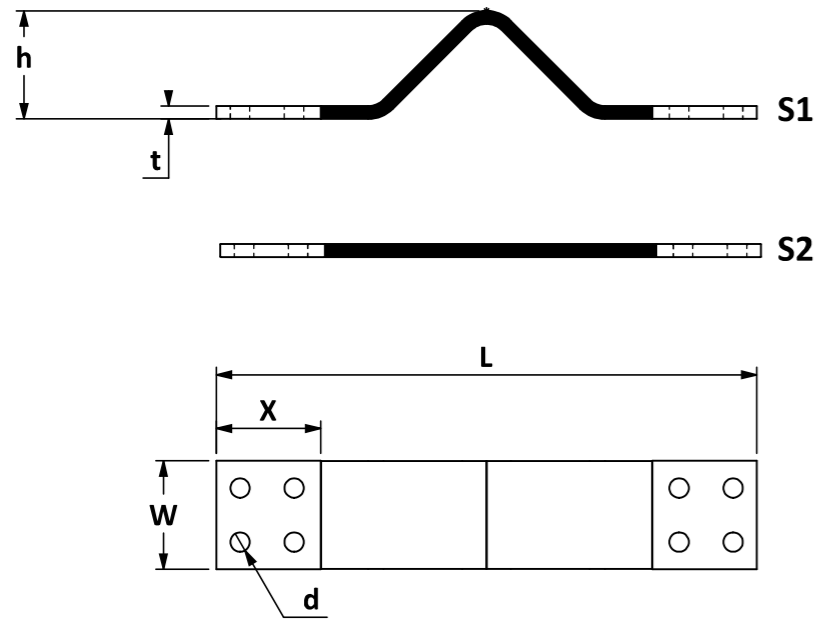
LAMINATED SHUNTS PRESS TINNED TERMINALS



Expansion and Compensation Shunts
Bare copper or tinned copper laminates - Press tinned terminals
Cu-ETP (CW004A) EN 13599 R220 strips, thickness 0,2 mm
Special dimensions and design on request
Insulation on demand
Galvanic coating on demand
Current loads following IEC 439
Standard drilling Patterns according to page 13

Bare Copper	Tin-Plated Copper	Cross Section mm ²	W	X	t	L	h (S1)	d	Drilling	Current load		
										ΔT 30°C	ΔT 50°C	ΔT 70°C
PRT 100-200 S1	PTT 100-200 S1	100	50	50	2	200	30	13	P1	400 A	550 A	680 A
PRT 150-250 S1	PTT 150-250 S1	150	50	50	3	250	40	13	P1	490 A	680 A	840 A
PRT 200-300 S1	PTT 200-300 S1	200	50	50	4	300	50	13	P1	570 A	790 A	970 A
PRT 250-300 S1	PTT 250-300 S1	250	50	50	5	300	50	13	P1	650 A	890 A	1100 A
PRT 400-400 S1	PTT 400-400 S1	400	80	80	5	400	70	13	P4	950 A	1320 A	1620 A
PRT 500-400 S1	PTT 500-400 S1	500	80	80	6,3	400	70	13	P4	1070 A	1480 A	1820 A
PRT 600-400 S1	PTT 600-400 S1	600	80	80	7,5	400	70	13	P4	1180 A	1630 A	2000 A
PRT 800-400 S1	PTT 800-400 S1	800	80	80	10	400	70	13	P4	1380 A	1900 A	2330 A
PRT 1000-450 S1	PTT 1000-450 S1	1000	100	100	10	450	70	13	P5	1660 A	2280 A	2800 A
PRT 1200-450 S1	PTT 1200-450 S1	1200	100	100	12	450	70	13	P5	1830 A	2520 A	3090 A
PRT 1500-500 S1	PTT 1500-500 S1	1500	120	120	12,5	500	70	13	P7	2170 A	2990 A	3670 A
PRT 1800-500 S1	PTT 1800-500 S1	1800	120	120	15	500	70	13	P7	2390 A	3300 A	4050 A
PRT 2000-500 S1	PTT 2000-500 S1	2000	120	120	16,7	500	70	13	P7	2530 A	3490 A	4290 A

LAMINATED SHUNTS PRESSWELDED TERMINALS



Expansion and Compensation Shunts
 Bare copper - Press welded terminals
 Cu-HCP (CW021A) EN 13599 R220 strips, thickness 0,2 mm
 Special dimensions and design on demand
 Insulation on demand
 Galvanic coating on demand
 Current loads following IEC 439
 Standard drilling Patterns according to page 13

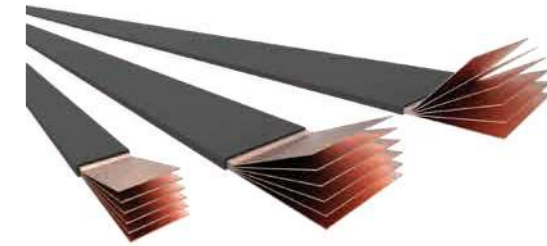
Bare Copper	Cross Section	W	X	t	L	h (S1)	d	Drilling	Current load		
	mm ²								dimensions in mm		
PRW 100-200 S1	100	50	50	2	200	30	13	P1	400 A	550 A	680 A
PRW 150-250 S1	150	50	50	3	250	40	13	P1	490 A	680 A	840 A
PRW 200-300 S1	200	50	50	4	300	50	13	P1	570 A	790 A	970 A
PRW 250-300 S1	250	50	50	5	300	50	13	P1	650 A	890 A	1100 A
PRW 400-400 S1	400	80	80	5	400	70	13	P4	950 A	1320 A	1620 A
PRW 500-400 S1	500	80	80	6,3	400	70	13	P4	1070 A	1480 A	1820 A
PRW 600-400 S1	600	80	80	7,5	400	70	13	P4	1180 A	1630 A	2000 A
PRW 800-400 S1	800	80	80	10	400	70	13	P4	1380 A	1900 A	2330 A
PRW 1000-450 S1	1000	100	100	10	450	70	13	P5	1660 A	2280 A	2800 A
PRW 1200-450 S1	1200	100	100	12	450	70	13	P5	1830 A	2520 A	3090 A
PRW 1500-500 S1	1500	120	120	12,5	500	70	13	P7	2170 A	2990 A	3670 A
PRW 1800-500 S1	1800	120	120	15	500	70	13	P7	2390 A	3300 A	4050 A
PRW 2000-500 S1	2000	120	120	16,7	500	70	13	P7	2530 A	3490 A	4290 A

INSULATED FLEXIBLE BARS

Bare copper – standard length 2 mt.

Single strip
 Self extinguishing
 Operating voltage
 Operating temperature
 Dielectric strenght
 Insulation thickness
 Halogen free / Silicon Insulation
 Special bar length
 Tin-plated Copper

Cu-ETP UNI EN 1652
 UL 94 V0 black PVC insulation
 1000 V AC – 1500 V DC
 -40/+105 °C
 20 kV/mm
 1,6 - 2 mm
 on demand
 on demand
 on demand



Referred to ambient temperature of 35°C following DIN 43671 norm

Current load is referred to: conductor temperature = > temperature rise ΔT + ambient temperature of 35°C

Using bars in parallel please apply a derating coefficient K*

Example: 40x1x5 In at ΔT 50°C = 736 A
 for n° 2 bars 40x1x5 in parallel In = 736 A x 1,72 = 1265 A
 for n° 3 bars 40x1x5 in parallel In = 736 A x 2,25 = 1656 A

Short circuit current (Icc) for Insulated flexible bars parameters :

One flexible element per phase

Initial temperature: 105 °C

Maximal operating temperature of the conductor

Final temperature: 160 °C

Temperature limit of the insulation material PVC in accordance with IEC 60724 if cross section < 300mm²

Final temperature: 140 °C

Temperature limit of the insulation material PVC in accordance with IEC 60724 if cross section > 300mm²

Icc: value of short circuit current in kA - t = 1 s (duration of short circuit in seconds)

Approval:



Bare Copper	Width	Thick.	Strips	Cross Section	Current Load			K *		Icc		
					mm	mm	n°	mm ²	ΔT 30°C		ΔT 50°C	ΔT 70°C
IFB 09-2	9	x	0,8	x	2	14,4	95 A	130 A	157 A	1,72	2,25	1,25
IFB 09-3	9	x	0,8	x	3	21,6	119 A	162 A	195 A	1,72	2,25	1,88
IFB 09-6	9	x	0,8	x	6	43,2	176 A	240 A	290 A	1,72	2,25	3,75
IFB 13-6	13	x	0,5	x	6	39	174 A	237 A	288 A	1,72	2,25	3,40
IFB 16-2	15,5	x	0,8	x	2	24,8	140 A	192 A	234 A	1,72	2,25	2,15
IFB 16-4	15,5	x	0,8	x	4	49,6	205 A	279 A	339 A	1,72	2,25	4,31
IFB 16-6	15,5	x	0,8	x	6	74,4	257 A	350 A	424 A	1,72	2,25	6,47
IFB 16-10	15,5	x	0,8	x	10	124	345 A	470 A	570 A	1,72	2,25	10,78
IFB 20-2	20	x	1	x	2	40	193 A	263 A	319 A	1,72	2,25	3,48
IFB 20-3	20	x	1	x	3	60	240 A	326 A	396 A	1,72	2,25	5,22
IFB 20-4	20	x	1	x	4	80	280 A	381 A	463 A	1,72	2,25	6,96
IFB 20-5	20	x	1	x	5	100	316 A	430 A	523 A	1,72	2,25	8,70

INSULATED FLEXIBLE BARS

Bare Copper	Width	Thick.	Strips	Cross Section	Current Load			K *		Icc		
					ΔT 30°C	ΔT 50°C	ΔT 70°C	n° 2	n° 3		kA	
IFB 20-6	20	x	1	x	6	120	350 A	477 A	580 A	1,72	2,25	10,43
IFB 20-8	20	x	1	x	8	160	412 A	562 A	683 A	1,72	2,25	13,91
IFB 20-10	20	x	1	x	10	200	470 A	640 A	776 A	1,72	2,25	17,40
IFB 24-2	24	x	1	x	2	48	223 A	303 A	368 A	1,72	2,25	4,17
IFB 24-3	24	x	1	x	3	72	276 A	375 A	456 A	1,72	2,25	6,26
IFB 24-4	24	x	1	x	4	96	322 A	438 A	532 A	1,72	2,25	8,35
IFB 24-5	24	x	1	x	5	120	363 A	494 A	600 A	1,72	2,25	10,43
IFB 24-6	24	x	1	x	6	144	402 A	547 A	664 A	1,72	2,25	12,52
IFB 24-8	24	x	1	x	8	192	470 A	641 A	779 A	1,72	2,25	16,7
IFB 24-10	24	x	1	x	10	240	534 A	727 A	883 A	1,72	2,25	20,87
IFB 32-2	32	x	1	x	2	64	280 A	382 A	463 A	1,72	2,25	5,57
IFB 32-3	32	x	1	x	3	96	346 A	470 A	572 A	1,72	2,25	8,35
IFB 32-4	32	x	1	x	4	128	402 A	548 A	668 A	1,72	2,25	11,13
IFB 32-5	32	x	1	x	5	160	453 A	617 A	749 A	1,72	2,25	13,91
IFB 32-6	32	x	1	x	6	192	500 A	680 A	826 A	1,72	2,25	16,7
IFB 32-8	32	x	1	x	8	256	583 A	793 A	963 A	1,72	2,25	22,26
IFB 32-10	32	x	1	x	10	320	657 A	894 A	1085 A	1,72	2,25	22,5
IFB 40-2	40	x	1	x	2	80	337 A	458 A	556 A	1,72	2,25	6,96
IFB 40-3	40	x	1	x	3	120	415 A	565 A	686 A	1,72	2,25	10,44
IFB 40-4	40	x	1	x	4	160	480 A	655 A	796 A	1,72	2,25	13,91
IFB 40-5	40	x	1	x	5	200	540 A	736 A	894 A	1,72	2,25	17,39
IFB 40-6	40	x	1	x	6	240	594 A	809 A	982 A	1,72	2,25	20,87
IFB 40-8	40	x	1	x	8	320	690 A	939 A	1140 A	1,72	2,25	22,5
IFB 40-10	40	x	1	x	10	400	774 A	1053 A	1279 A	1,65	2,12	28,12
IFB 50-3	50	x	1	x	3	150	498 A	679 A	824 A	1,72	2,25	13,04
IFB 50-4	50	x	1	x	4	200	577 A	786 A	954 A	1,72	2,25	17,39
IFB 50-5	50	x	1	x	5	250	645 A	880 A	1058 A	1,72	2,25	21,1
IFB 50-6	50	x	1	x	6	300	709 A	965 A	1170 A	1,65	2,12	21,74
IFB 50-8	50	x	1	x	8	400	818 A	1114 A	1352 A	1,65	2,12	28,12
IFB 50-10	50	x	1	x	10	500	914 A	1244 A	1510 A	1,72	2,12	35,15
IFB 63-3	63	x	1	x	3	189	604 A	823 A	998 A	1,65	2,12	16,44
IFB 63-4	63	x	1	x	4	252	698 A	960 A	1153 A	1,65	2,12	21,92
IFB 63-5	63	x	1	x	5	315	779 A	1050 A	1288 A	1,65	2,12	22,14
IFB 63-6	63	x	1	x	6	378	852 A	1159 A	1408 A	1,65	2,12	26,57
IFB 63-8	63	x	1	x	8	504	978 A	1332 A	1617 A	1,65	2,12	35,43
IFB 63-10	63	x	1	x	10	630	1088 A	1480 A	1796 A	1,65	2,12	44,29
IFB 80-3	80	x	1	x	3	240	729 A	1005 A	1220 A	1,65	2,12	20,88
IFB 80-4	80	x	1	x	4	320	850 A	1158 A	1405 A	1,65	2,12	22,5
IFB 80-5	80	x	1	x	5	400	947 A	1289 A	1565 A	1,65	2,12	28,12

INSULATED FLEXIBLE BARS

Bare Copper	Width	Thick.	Strips	Cross Section	Current Load			K *		Icc		
					ΔT 30°C	ΔT 50°C	ΔT 70°C	n° 2	n° 3		kA	
IFB 80-6	80	x	1	x	6	480	1032 A	1404 A	1705 A	1,65	2,12	33,74
IFB 80-8	80	x	1	x	8	640	1179 A	1504 A	1948 A	1,65	2,12	44,99
IFB 80-10	80	x	1	x	10	800	1305 A	1776 A	2156 A	1,65	2,12	56,24
IFB 100-4	100	x	1	x	4	400	1089 A	1480 A	1799 A	1,6	2,02	29,55
IFB 100-5	100	x	1	x	5	500	1135 A	1545 A	1878 A	1,6	2,02	35,15
IFB 100-6	100	x	1	x	6	600	1235 A	1680 A	2040 A	1,6	2,02	42,18
IFB 100-8	100	x	1	x	8	800	1404 A	1912 A	2320 A	1,6	2,02	56,24
IFB 100-10	100	x	1	x	10	1000	1550 A	2110 A	2562 A	1,6	2,02	70,3
IFB 100-12	100	x	1	x	12	1200	1680 A	2267 A	2776 A	1,6	2,02	84,36
IFB 120-4	120	x	1	x	4	480	1135 A	1544 A	1875 A	1,6	2,02	33,98
IFB 120-5	120	x	1	x	5	600	1358 A	1848 A	2244 A	1,6	2,02	40,42
IFB 120-6	120	x	1	x	6	720	1420 A	1932 A	2345 A	1,6	2,02	48,5
IFB 120-8	120	x	1	x	8	960	1614 A	2198 A	2668 A	1,5	1,95	64,68
IFB 120-10	120	x	1	x	10	1200	1848 A	2490 A	3053 A	1,5	1,95	80,85

PREFORMED INSULATED FLEXIBLE BARS on demand

