

CU-FLEX - GENERAL TECHNICAL DATA

Rated current at 30 °C [In]					
FB25	FB50	FB100	2 x FB100	FB240 FB243	2 x FB240 2 x FB243
190 A	295 A	420 A	645 A	690 A	1040 A

Dimensioning of Cu-flex is done just like wires according to IEC 60364-5-52, where the basic rated current [In] is corrected according to the surrounding temperature [K1] and the installation method [K2].

CUBIC have on top of that decided to add a correction factor [K3] taking into account the high temperatures that might be on the joint between Cu-flex and e.g. a busbar or component.





Dimension of Cu-flex: $l_z \geq l_b$


I_z = The corrected current of a wire (Cu-flex) = $I_n \times K1 \times K2 \times K3$

I_n = Rated current at 30 °C

I_b = Design current of a circuit [A]

K1	Correction factor for surrounding temperature around the Cu-flex															
Surrounding temperature °C	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Correction factor	1,16	1,13	1,10	1,07	1,04	1,00	0,96	0,93	0,89	0,85	0,80	0,76	0,71	0,65	0,60	0,53

K2	Correction factor for installation method			
	Bonded	Bonded	Bonded	Not Bonded
				
Cu-flex dimension	FB25 / FB50	FB100	FB240 / FB243	All dimensions
Correction factor	0,80	0,85	0,90	1,0

K3	Correction factor for joints	
		
Both ends / joints of the Cu-flex is terminated at less than 100 °C	K3 = 1,0	
One of the ends / joints of the Cu-flex is terminated at more than 100 °C	K3 = 0,9	
Both ends / joints of the Cu-flex is terminated at more than 100 °C	K3 = 0,8	

The rated current values are verified by test at an ambient temperature around the Cu-flex of 30 °C.

The ratings are adjusted to 80% insulation temperature according to rules in IEC 61439-1,8.6.4 and table 4 about "Selection and installation of non-protected live conductors to reduce the possibility of short-circuits".

Cu-flex characteristics

Type	FB25	FB50	FB50	FB50	FB100	FB100	FB240 FB243	FB240 FB243
Number of busbars	One	One	Two	Three	One	Two	One	Two
Rated operational voltage, U_e (IEC)	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V	1000 V
Rated voltage (UL)	600 V	600 V	600 V	600 V	600 V	600 V	600 V	600 V
Rated frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Cut off current ^{1) 2)} Limited peak ^{1) 2)}, (IEC)	30 kA	65 kA	65 kA	65 kA	65 kA	65 kA	65 kA	105 kA
Cut off current ^{1) 2)} Limited peak ^{1) 2)}, (UL)	24 kA	64 kA	64 kA	64 kA	64 kA	64 kA	64 kA	64 kA
Joule integrale, I²t [A²s] (IEC)	2.1x10 ⁷	6.0x10 ⁷	2.4x10 ⁸	5.4x10 ⁸	2.4x10 ⁸	9.6x10 ⁸	1.3x10 ⁹	5.5x10 ⁹
Joule integrale, I²t [A²s] (UL)	8.3x10 ⁶	3.3x10 ⁷	1.3x10 ⁸	3.0x10 ⁸	1.3x10 ⁸	5.3x10 ⁸	7.6x10 ⁸	3.0x10 ⁹

¹⁾ For the sake of dynamic short-circuit influences, the spacers are fitted as shown

²⁾ At a prospective short-circuit current, the short-circuit protection devices must limit the peak to 30 kA respectively 65/105

Insulation, characteristics

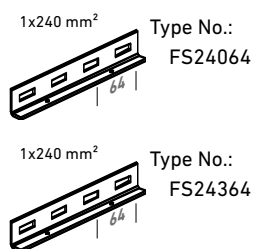
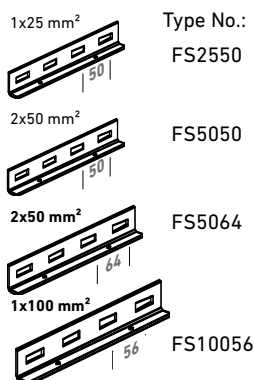
Rated voltage, (IEC)	1000 V
Rated voltage, (UL)	600 V
Test voltage, (IEC)	3500 V
Test voltage, (UL)	2200 V

Operating

temperature max.	105°C
Flammability	UL 94 V0, (flame retardent)
Colour	Dark grey or Green / yellow
Dioxine	None
Insulation class	Reinforced insulation for busbar to electrical component and between electrical components

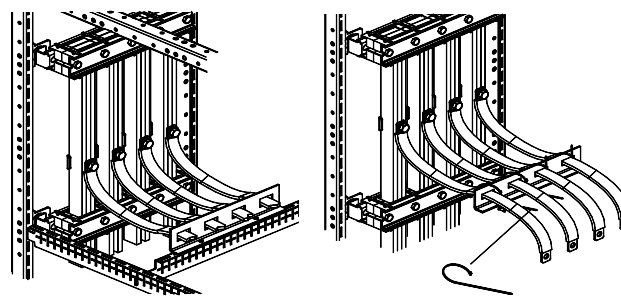
Cu-flex type + length = type No.:	Power loss [W] Rated current at 30 °C													
	Length in mm	160	224	288	352	416	480	544	608	672	736	800	864	928
1 x FB25	5,0	7,0	9,1	11,1	13,1	15,1	17,1	19,1	21,1	23,1	25,2	27,2	29,2	35,2
1 x FB50	6,4	9,0	11,6	14,2	16,7	19,3	21,9	24,5	27,0	29,6	32,2	34,8	37,3	45,1
1 x FB100	6,5	9,1	11,7	14,4	17,0	19,6	22,2	24,8	27,4	30,0	32,6	35,2	37,8	45,7
2 x FB100	7,7	10,8	13,8	16,9	20,0	23,1	26,2	29,2	32,3	35,4	38,5	41,5	44,6	53,8
1 x FB240 / FB243	6,9	9,6	12,4	15,1	17,9	20,6	23,4	26,1	28,9	31,6	34,4	37,1	39,9	48,2
2 x FB240 / FB243	7,8	10,9	14,1	17,2	20,3	23,4	26,6	29,7	32,8	35,9	39,1	42,2	45,3	54,7

Spacer



Due to the dynamic short-circuit influences, spacers must be fitted as stated. The distance between the spacers is max. 300 mm.

Mounting examples



Cable tie ≥ 534Nm.