CU-FLEX - GENERAL TECHNICAL DATA

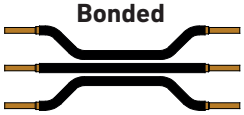
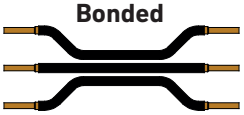
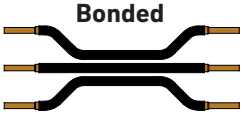
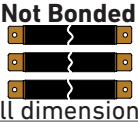
Rated current at 30 °C [In]					
FB25	**FB50**	**FB100**	**2 x FB100**	**FB243**	**2 x FB243**
190 A	295 A	420 A	645 A	690 A	1040 A

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: Iz ≥ Ib
Iz = The corrected current of a wire (Cu-flex) = In x K1 x K2 x K3
In = Rated current at 30 °C
Ib = Design current of a circuit [A]

K1	**Correction factor for surrounding temperature arround 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**  All dimensions
Cu-flex dimension	FB25 / FB50	FB100	FB240 / FB243	
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 ajusted 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".

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Cu-flex characteristics								
Type	**FB25**	**FB50**	**FB50**	**FB50**	**FB100**	**FB100**	**FB243**	**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 integral, I^2t [A^2s] (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 integral, I^2t [A^2s] (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 the values shown in the table above.

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 (in)	160 (6.3)	224 (8.82)	288 (11.34)	352 (13.86)	416 (16.38)	480 (18.9)	544 (21.42)	608 (23.94)	672 (26.46)	736 (28.98)	800 (31.5)	864 (34.02)	928 (36.54)	1120 (44.1)
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 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 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

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