



# ↳ PBFC – PANEL BOARD FLEXIBLE CONNECTIONS

## Concept and Design

The FORISSIER Panel Board Flexible Connections (PBFC) are manufactured with a flat copper braid, protected by a PVC extrusion which offers an electrical insulation as well the PBFC is twisted or used in different environments (humidity, high temperature or aggressive environment).

## UL FILE E230236 VOL1 SEC 2

## Scope of application

- All application linked to power transmission, to replace: Cables, Insulated Rigid bars, Flex bars
- Electrical appliances (Switchboard, Circuit breaker and converter).
- Transformer (connections between the transformer and the bus bars).



## The range

- Standard copper cross section: from 10mm<sup>2</sup> UP TO 240mm<sup>2</sup>
- Single wire diameter: 0.2mm
- Raw material: Tinned Copper
- Endplates: Tinned copper tubes

### Options

- Bare copper
- High temperature insulation – 125 °C
- Insulation TPU

## Advantages

The plug and play solution for panel board – ready to screw, no preparation, no scrap, no waste.

The flexibility of the PBFC makes the setting and the bending by hands without tool.

The right choice in length reduces the cost of the installation optimizing the copper usage and the scrap compare to the flex bars in standard length 2 or 3 meters.

## TECHNICAL CHARACTERISTICS

### WIRES

<b>Copper classification</b>	EN 13602	
	Description	Cu-ETP
	Minimum copper Content	99.9 %
	Max-electrical resistivity at 20°C (annealed)	1.7241 μΩ.cm ( 100%I ACS )
	Metallurgical state	Annealed
<b>Tinning thickness</b>	Grade C	

### TUBES

<b>Copper classification</b>	EN 1057	
	Description	Cu-DHP
	Minimum copper Content	99.85 %
<b>Copper characteristic</b>	Annealed before crimping	200 Mpa mini

### END PLATES SURFACE TREATMENTS

<b>Electrolytic tin-plating</b>	5 microns	
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### PVC - POLYVINYLCHLORIDE

<b>Density</b>	1.36	ISO 1183
<b>Hardness Shore</b>	86 A	ISO 868
<b>Operating temperature</b>	105°C Maximum	
<b>Calorimetric conductivity</b>	3 to 4 10 <sup>-4</sup> cal/s/cm <sup>2</sup> /°C	
<b>Dielectric strength</b>	20 KV/mm (à sec)	
<b>Fire request</b>	UL 94V0 thickness : 2mm	
<b>Recycling</b>	Yes	

## DESIGNATION

PBFC	50 mm <sup>2</sup>	CRE	LT 500
Connection type	Copper CSA mm <sup>2</sup>	Tinned copper	CRN : Red copper
		CRN : Red copper	

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PBFC – Allowable current in relation to the overheating for an ambient temperature of 35°C

## Selection

The bar chart enables the selection of the PBFC according to the different parameters:

- Operating cabinet temperature of 35°C.
- Current (amps) requested.
- Acceptable rise in temperature.

## Selection's example

Our example concerns a current flow capacity of 160 A, and a maximum temperature of 90°C:

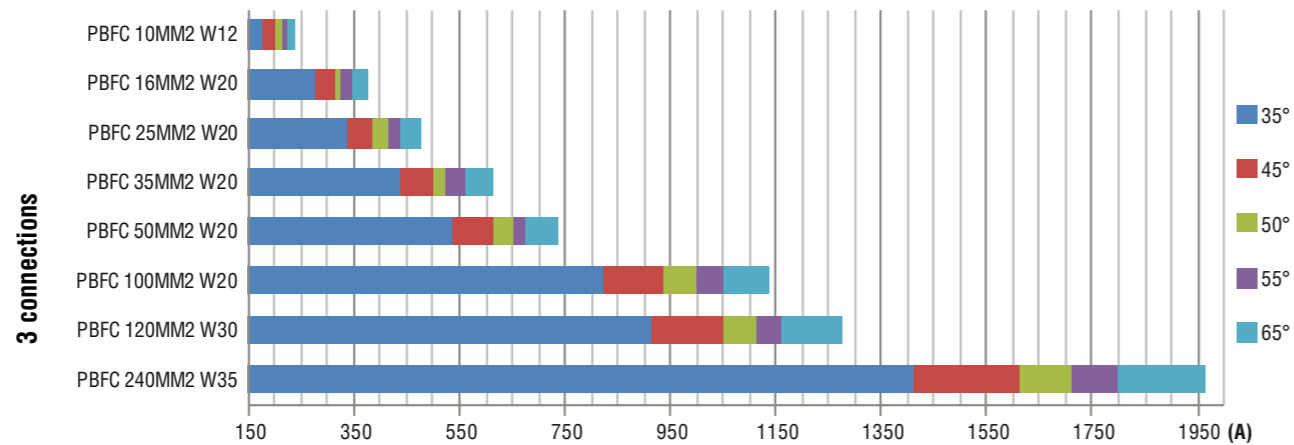
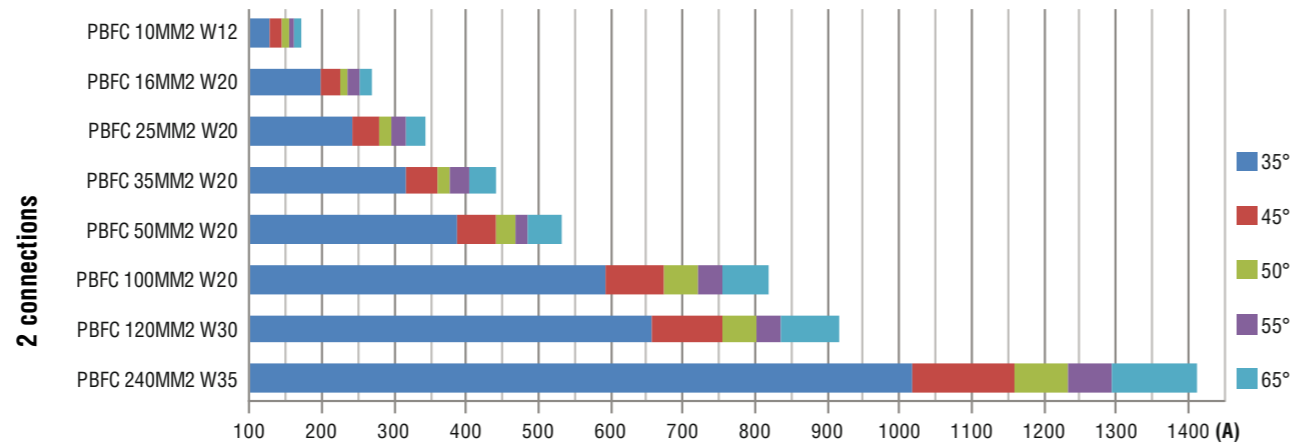
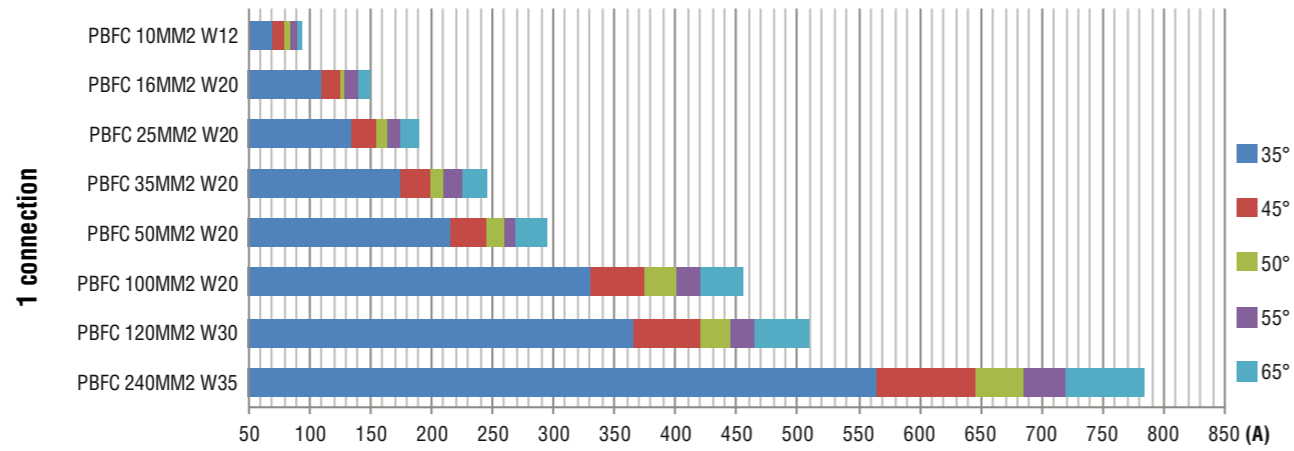
- Operating cabinet temperature is 35°C (fixed)
- The acceptable rise in temperature is (90°C – 35°C).

The possibilities are:

- PBFC 25MM2 W20
- PBFC 35MM2 W20



I max (A) for an ambient temperature of 35°C



Ampacity (I) is calculated for an ambient temperature of 35°C

Type PBFC	CSA mm <sup>2</sup>	35°	45°	50°	55°	65°
PBFC 10 MM2 W12	10	70	80	85	90	95
PBFC 16 MM2 W20	16	110	125	130	140	150
PBFC 25 MM2 W20	25	135	155	165	175	190
PBFC 35 MM2 W20	35	175	200	210	225	245
PBFC 50 MM2 W20	50	215	245	260	270	295
PBFC 100 MM2 W20	100	330	375	400	420	455
PBFC 120 MM2 W30	120	365	420	445	465	510
PBFC 240 MM2 W35	240	565	645	685	720	785

1 connection



PBFC 10 MM2 W12	10	126	144	153	162	171
PBFC 16 MM2 W20	16	198	225	234	252	270
PBFC 25 MM2 W20	25	243	279	297	315	342
PBFC 35 MM2 W20	35	315	360	378	405	441
PBFC 50 MM2 W20	50	387	441	468	486	531
PBFC 100 MM2 W20	100	594	675	720	756	819
PBFC 120 MM2 W30	120	657	756	801	837	918
PBFC 240 MM2 W35	240	1017	1161	1233	1296	1413

2 connections



PBFC 10 MM2 W12	10	175	200	213	225	238
PBFC 16 MM2 W20	16	275	313	325	350	375
PBFC 25 MM2 W20	25	338	388	413	438	475
PBFC 35 MM2 W20	35	438	500	525	563	613
PBFC 50 MM2 W20	50	538	613	650	675	738
PBFC 100 MM2 W20	100	825	938	1000	1050	1138
PBFC 120 MM2 W30	120	913	1050	1113	1163	1275
PBFC 240 MM2 W35	240	1413	1613	1713	1800	1963

3 connections



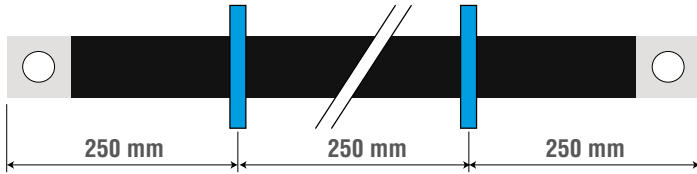
## Setting

When the short circuit current flows through the conductor it induces a dynamic mechanical load.

Due to the dynamic load, the flexible connection will move and will come back to its initial position without any damage thanks to its flexibility.

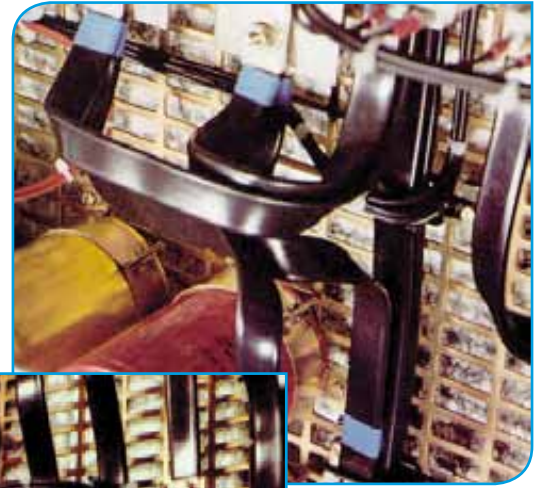
In order to limit the motion of the flexible connection, we advise to install spacers.

The distance between two spacers must be lower than 250 mm.



### Fixing on the clamp :

The flexible connections designed by FORISSIER are made with terminal tubes, and it is preferable to use a washer.



## Dimensions



Type PBFC	L mm	W mm	A mm	Diameter D mm					e mm	
PBFC 10 MM <sup>2</sup> W12	ON REQUEST	12	12	5.5	6.5	8.5				3
PBFC 16 MM <sup>2</sup> W20	ON REQUEST	20	20		6.5	8.5	10.5	12.5		3.5
PBFC 25 MM <sup>2</sup> W20	ON REQUEST	20	20		6.5	8.5	10.5	12.5		4
PBFC 35 MM <sup>2</sup> W20	ON REQUEST	20	20		6.5	8.5	10.5	12.5		4.5
PBFC 50 MM <sup>2</sup> W20	ON REQUEST	20	20		6.5	8.5	10.5	12.5		5.5
PBFC 100 MM <sup>2</sup> W20	ON REQUEST	20	20		6.5	8.5	10.5	12.5		8
PBFC 120 MM <sup>2</sup> W30	ON REQUEST	30	30			8.5	10.5	12.5	14.5	8
PBFC 240 MM <sup>2</sup> W35	ON REQUEST	35	35				10.5	12.5	14.5	11.5

Conception et réalisation AXESS TECHNOLOGY



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