

BRAIDED FLEXIBLE CONNECTIONS



CONCEPTION AND DESIGN:

FORISSIER'S braided flexible connections are designed from flat or round wire braids in fine (0.10mm) or standard diameters (0.20mm). The connecting pads are produced from bare copper tubing, with tin or silver plating.

The choice of flat or round braids and of fine or standard wire diameters offers the best technical compromise depending on the connection's operating conditions. This optimal technical solution ensures a maximum useful life and thus limits maintenance operations and costs.

Braid/tube contact resistance is improved thanks to braze welding (by request) which eliminates all risk of capillary absorption of water, thus preventing the spread of external corrosion to the connection.

THE RANGE:

Standardized sections: 60mm² to 2000 mm².

Wire diameters: 0.1 mm and 0.2 mm – 0.3 mm optional.

Primary braid sections: 60 mm², 75 mm², 100 mm², 150 mm², 200 mm² and 250 mm².

Tube thickness of 2 mm.

Standard pad lengths: 50 mm, 80 mm, 100 mm, 120 mm.

Options:

Surface treatment of connecting pads: tin, silver, nickel or gold plate.

Pad finish – machined, drilled or punched.

Forming of shunt (angular pad) according to customer specifications.

Mechanically reinforced extra-flexible shunt.

Braze welding of pads.

APPLICATIONS:

All types of power distribution applications: Power supply for industrial ovens – electrolysis tanks.

Medium voltage electrical equipment (cabinets, circuit-breakers, invertors).

Transformers (connections between a transformer and a bus-duct) - **Power distribution.**

BENEFITS:

TMF solution.

Braid types and pad forming determined according to customer needs – easy installation.

Dip braze welding process – Reduced tube/braid contact resistance resulting in reduced heating of the connection.

The connection's mechanical characteristics (i.e. flexibility) and electrical characteristics are guaranteed for increased service life.

Flaring of pads (tubes) on the braid side eliminating wire pinching and shearing phenomena related to electrodynamic effects.

TECHNICAL SPECIFICATIONS:

WIRES

Copper classification:	According to French Standard (NF) EN 13602 (NFC 31 111)
- Designation:	Cu-ETP
- Min. copper content:	99.9%
- Max. electrical resistivity at 20° (annealed temper):	1.7241 μ .cm (100% I ACS) or 0.017241 mm ² /m (100% I ACS)
Copper specifications:	- Mechanical resistance: 200 min. MPa

TUBES

Copper classification:	According to EN 1057 (NFC 31 111)
- Designation:	Cu-DHP
- Min. copper content:	99.9%
Copper specifications:	- Annealed temper before crimping.

SURFACE TREATMENT OF TUBES

Electrolytic tin plating:	- 5μm (normal operating conditions) - 15μm (harsh operating conditions)
Electrolytic silver plating:	- 5μm (normal operating conditions) - 10μm (harsh operating conditions)

DESIGNATION:

CS Flexible Connection	TP Flat Braid TR Round braid	1000MM mm ² section	CRE Tinned Copper CRN Red copper	LT500 Total Length
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BRAIDED FLEXIBLE CONNECTIONS

AMPACITY depending on shunt section for ambient temperatures of 25° C, 35° C and 45° C

Table values correspond to operation of a single connection in a stable temperature environment and for a maximum shunt temperature of:
 -85°C for bare copper or red copper connections.
 -105 °C for tinned copper connections.

Selection guidelines:

The attached direct reading table defines the maximum current-carrying capacity (I Max) for a fixed section connection in stabilized operation at an ambient temperature (T amb) of 25° C, 35° C and 45° C.

The maximum temperature attained by the conductor at (I Max) is limited to:
 - 85°C for red copper or bare copper.
 - 105°C for tinned copper.

The values given are for informational purposes only and TRESSE METALLIQUE J. FORISSIER cannot be held liable for circumstances beyond its control.

Section mm ²	Terminal width mm	Number of braid X section	I max bare copper (A)			I max tinned copper (A)		
			Ambient temp= 25°C	Ambient temp= 35°C	Ambient temp= 45°C	Ambient temp= 25°C	Ambient temp= 35°C	Ambient temp= 45°C
60	30	1 X 60	351	317	280	389	359	326
	40		384	347	307	426	393	358
75	30	1 X 75	396	358	317	440	405	369
	40		432	391	346	480	442	403
100	40	1 X 100	505	456	403	560	516	470
	50		542	490	433	602	554	505
120	40	2 X 60	558	504	446	619	571	519
	50		597	539	477	663	611	556
150	40	1 X 150	632	570	505	701	646	588
	50		673	608	538	747	689	627
200	40	1 X 200	744	672	594	826	761	693
	50		788	712	630	875	806	734
250	50	1 X 250	893	807	714	991	913	832
	60		940	849	751	1043	961	875
300	50	2 X 150	991	895	792	1100	1014	923
	60		1039	938	830	1153	1063	967
400	60	2 X 200	1222	1103	976	1356	1250	1137
	80		1323	1195	1057	1468	1353	1232
500	60	2 X 250	1390	1255	1110	1542	1421	1294
	100		1600	1445	1278	1775	1636	1490
600	60	3 X 200	1548	1398	1237	1718	1583	1441
	80		1655	1495	1323	1837	1693	1541
800	80	4 X 200	1950	1761	1558	2164	1994	1815
	100		2066	1866	1651	2293	2113	1924
1000	80	4 X 250	2222	2007	1775	2465	2273	2069
	100		2341	2114	1870	2597	2394	2179
1200	100	6 X 200	2597	2345	2075	2882	2656	2418
	120		2723	2459	2176	3021	2785	2535
1600	120	8 X 200	3202	2891	2558	3553	3275	2981
	160		3468	3132	2771	3848	3547	3229
2000	160	8 X 250	3919	3539	3131	4349	4008	3649
	200		4193	3787	3350	4653	4289	3904

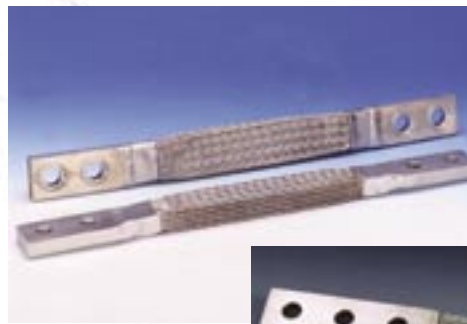
I max = Temp raising + Ambient temp = (85°C) bare copper

I max = Temp raising + Ambient temp = (105°C) tinned copper

IMPLEMENTATION:

1- Layout

Connections should preferably be positioned vertically in the installation.
When they are used in parallel, connections must be minimally spaced at a distance equal to the thickness of the connection.



2- Parallel connection

If several connections are to be combined in the same phase, the connection sections must be dimensioned according to the following weighting factors:

Number of connections	Factor
2	1.8
3	2.5
4	3.2
5	3.9
6	4.4
8	5.5
10	6.5

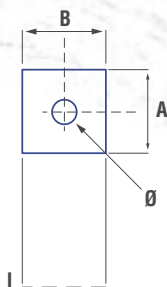
1. Determine the number of connections.

2. Calculate the dimensional current capacity of the connection section:

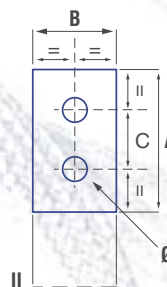
$$\text{Dimensional current capacity of the section} = \frac{\text{Total current capacity}}{\text{Weighting factor}}$$

3- Drilling of pads

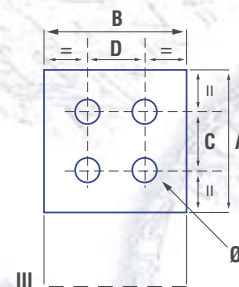
Three types of drilling (I, II, III):



SECTION mm ²	A mm	B mm
60 - 75	30	30
60 - 75	40	40
100 - 120	40	40
150 - 200	50	50
100 - 120	50	50
150 - 200	50	50
250	50	50



SECTION mm ²	A mm	B mm	C mm
100 - 120	80	40	40
150	80	50	40
200 - 250	100	50	40
300	100	60	40
250 - 300	100	60	40
400	100	60	50

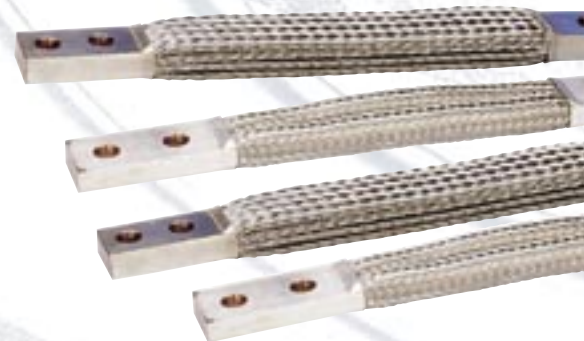


SECTION mm ²	A mm	B mm	C mm	D mm
400 - 800	80	80	40	40
1000	80	80	40	40
500 - 600	100	60	40	40
1200	100	60	50	50
500 - 600	100	100	40	40
800 - 1000	100	100	40	40
1200	100	100	50	50
1200	120	120	60	60
1600	120	120	60	60
1600	160	160	60	60
2000	160	160	60	60
2000	200	200	70	70

Requested information:

- Position of holes A, B, C, and D
- Diameter : Ø (standard 10 to 18 mm)

Other finish upon request.



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