



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.

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.

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.

Option

- 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.

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 μΩ.cm (100%I ACS) or 0.017241 Ω mm ² /m (100%I ACS)
Copper specifications	Mechanical resistance	200 mini 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	TP	1000MM	CRE	LT500
Flexible Connection	Flat Braid	mm ² section	Tinned Copper	Total Length
	TR Round braid		CRN Red copper	

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	
60	30	1 X 60	
	40		
75	30	1 X 75	
	40		
100	40	1 X 100	
	50		
120	40	2 X 60	
	50		
150	40	1 X 150	
	50		
200	40	1 X 200	
	50		
250	50	1 X 250	
	60		
300	50	2 X 150	
	60		
400	60	2 X 200	
	80		
500	60	2 X 250	
	100		
600	60	3 X 200	
	80		
800	80	4 X 200	
	100		
1000	80	4 X 250	
	100		
1200	100	6 X 200	
	120		
1600	120	8 X 200	
	160		
2000	160	8 X 250	
	200		

- Temp raising + Ambient temp = (85°C) bare copper
- Temp raising + Ambient temp = (105°C) tinned copper

of

	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
	351	317	280	389	359	326
	384	347	307	426	393	358
	396	358	317	440	405	369
	432	391	346	480	442	403
	505	456	403	560	516	470
	542	490	433	602	554	505
	558	504	446	619	571	519
	597	539	477	663	611	556
	632	570	505	701	646	588
	673	608	538	747	689	627
	744	672	594	826	761	693
	788	712	630	875	806	734
	893	807	714	991	913	832
	940	849	751	1043	961	875
	991	895	792	1100	1014	923
	1039	938	830	1153	1063	967
	1222	1103	976	1356	1250	1137
	1323	1195	1057	1468	1353	1232
	1390	1255	1110	1542	1421	1294
	1600	1445	1278	1775	1636	1490
	1548	1398	1237	1718	1583	1441
	1655	1495	1323	1837	1693	1541
	1950	1761	1558	2164	1994	1815
	2066	1866	1651	2293	2113	1924
	2222	2007	1775	2465	2273	2069
	2341	2114	1870	2597	2394	2179
	2597	2345	2075	2882	2656	2418
	2723	2459	2176	3021	2785	2535
	3202	2891	2558	3553	3275	2981
	3468	3132	2771	3848	3547	3229
	3919	3539	3131	4349	4008	3649
	4193	3787	3350	4653	4289	3904



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

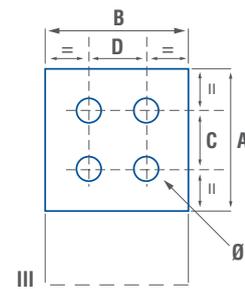
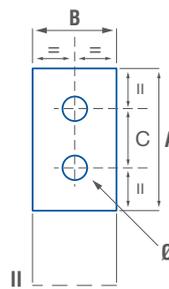
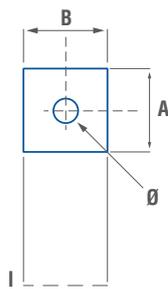


1. Determine the number of connections.
2. Calculate the dimensional current capacity of the connection section:

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

3 Drilling of pads

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



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

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

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



INTERNATIONAL WIRE Group



**TRESSE MÉTALLIQUE
J.FORISSIER
INTERNATIONAL WIRE Group**

Rue Ardaillon I B.P. 4 I
42401 I St-CHAMOND
cedex 01 I FRANCE
Tél. +33 (0)477 310 670 I
Fax. +33 (0)477 310 671