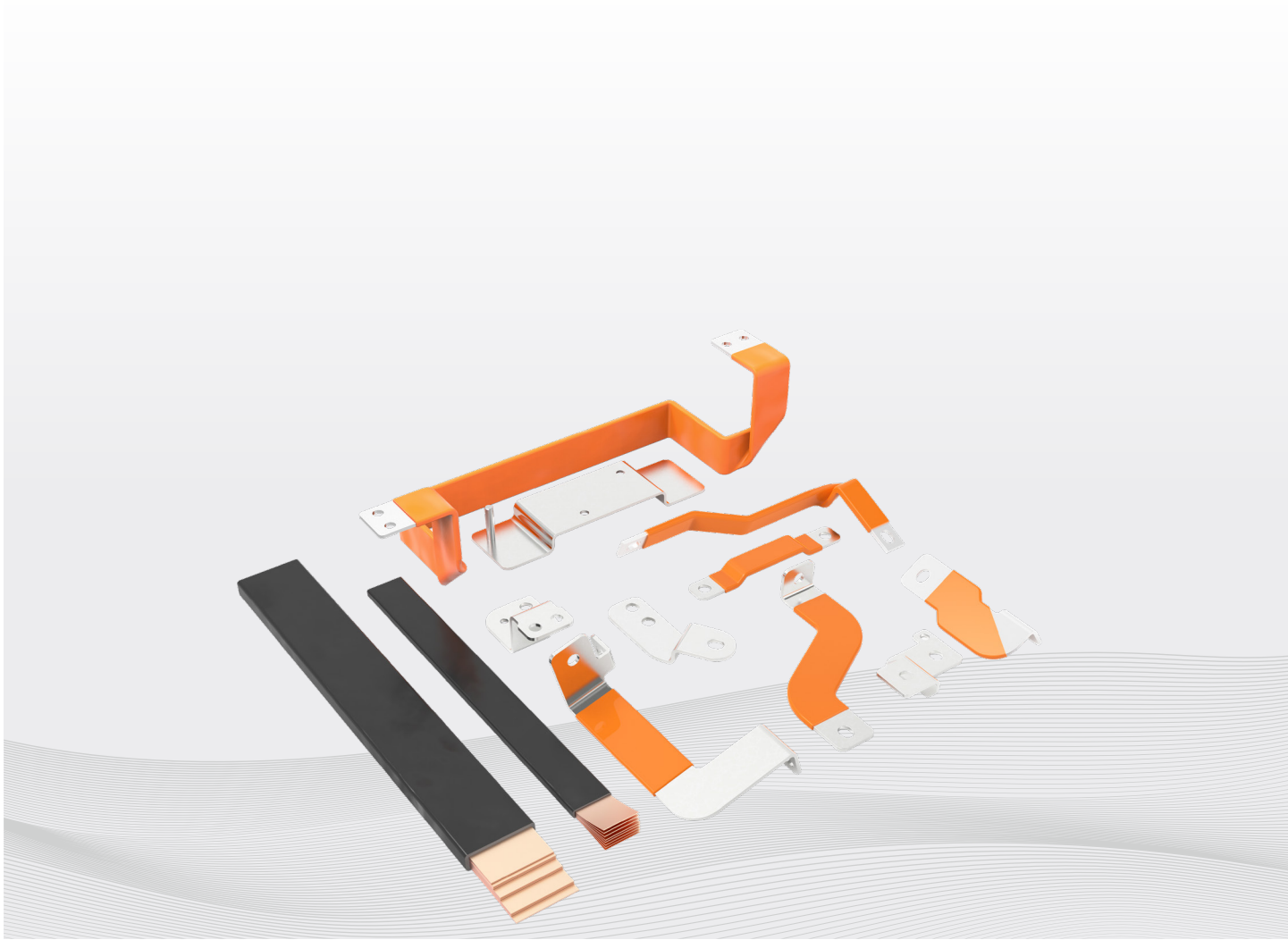
New Energy
Copper Connection

Product Catalogue



www.grlgroup.com

About GRL

Zhejiang Provincial Invisible Champion Enterprise

Zhejiang Provincial (Key) Enterprise Research Institute

National High-Tech Enterprise

Zhejiang Provincial Industrial Design Center

Wenzhou Green Factory

Zhejiang Provincial "Specialized, Sophisticated, Distinctive, and Innovative" Enterprise

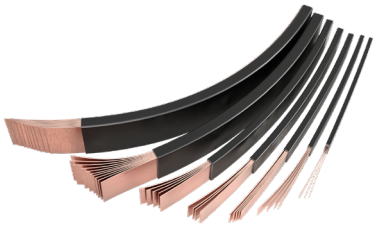
Zhejiang GRL Electric Co., Ltd.Established in 1992, GRL specializes in R&D, production, and sales of fuses, enclosed busway systems, and disconnectors. Our core products include high/low-voltage fuses, disconnectors, enclosed busbar systems, new energy copper connections, and surge protectors. These products are widely used in energy storage, charging stations, power grids, photovoltaic/wind power generation, automotive manufacturing, machinery, marine power distribution, and building infrastructure. GRL has provided thousands of electrical components and solutions for new energy, industrial control, power systems, and new infrastructure, establishing itself as a leading brand in electrical connection and protection.

The company operates modern factory facilities spanning over 43,000 square meters, equipped with more than 150 machining equipment units, over 30 specialized production lines, and more than 80 testing devices—including fuse comprehensive characteristic test benches, switch temperature rise test benches, mechanical life test benches, and salt spray test chambers. By implementing scientific production processes and a rigorous quality management system, the company's products have achieved performance standards comparable to international industry benchmarks. Building upon the full adoption of process-oriented and standardized management frameworks, the corporation is actively advancing the development of lean digitalization and a comprehensive employee performance management system.

GRL is committed to advancing electrical safety, reliability, and efficiency while adhering to green development principles and social responsibility. We continuously improve to become a globally respected electrical brand.

Catalogue

Flexible Insulated Copper Busbar



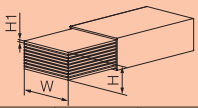
Structure and Application

The high-current flexible insulated busbar (referred to as: flexible busbar) is a flexible power transmission product with high-purity copper bars as the core conductor, integrating cable manufacturing technology and innovative material research and development.

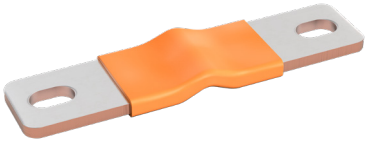
It is an innovative solution in the field of high-current power transmission and distribution. Its core structure includes copper bar conductors, wrapping layers, insulation layers, protective metal armor layers, and outer sheath layers. Each layer of material is selected based on actual conditions to meet diverse application requirements.

This product has a rated current range of 125-1600A, mainly serving seven core areas: new energy power generation, power transmission and distribution systems, commercial and industrial building facilities, IDC data centers, rail transit equipment, metallurgical and chemical equipment, and ship engineering. It meets the technical requirements for high-current flexible transmission in different scenarios.

- Choose based on the width of the connecting device's terminal
- H = Number of busbar layers, H1 = Thickness of each layer, W = Width of the busbar
- Default length: 2000mm.
- Customization available.

Rated current				Cross-sectional (mm²)	Temperature rise and recommended overcurrent(A)						Current Derating Factor		Order number
	H	W	H1		70K	60K	50K	40K	30K	20K	Double	Triple	
250A	4	15.5	0.8	49.6	380	350	320	286	248	202	1.72	2.25	DN61246
400A	6	15.5	0.8	74.4	476	440	402	360	318	254	1.72	2.25	DN61247
	4	20	1	80	476	440	402	360	312	254	1.72	2.25	
	5	20	1	100	498	460	420	376	326	266	1.72	2.25	DN61252
	6	20	1	120	546	506	462	413	358	292	1.72	2.25	DN61253
	4	24	1	96	550	510	465	416	360	294	1.72	2.25	DN61257
500A	5	24	1	120	608	563	514	460	398	325	1.72	2.25	DN61258
	4	32	1	128	648	600	548	490	425	347	1.72	2.25	DN61264
	6	24	1	144	670	620	566	506	438	358	1.72	2.25	DN61259
630A	5	32	1	160	758	702	640	573	496	405	1.72	2.25	DN61265
	10	20	1	200	762	706	645	576	500	408	1.72	2.25	
	8	24	1	192	802	743	678	606	525	429	1.72	2.25	DN61260
	6	32	1	192	846	783	715	640	555	452	1.72	2.25	DN61266
	5	40	1	200	900	832	760	680	590	481	1.72	2.25	
800A	10	24	1	240	948	877	800	716	592	506	1.72	2.25	DN61261
	5	50	1	250	1100	1016	930	830	718	588	1.72	2.25	DN61278
1000A	10	32	1	320	1230	1140	1040	930	805	658	1.72	2.25	
	6	50	1	300	1225	1135	1035	925	802	655	1.72	2.25	DN61279
	8	50	1	400	1393	1290	1175	1050	912	743	1.72	2.25	DN61280
	10	40	1	400	1400	1295	1181	1055	915	747	1.72	2.25	DN61275
1250A	10	50	1	500	1650	1525	1395	1245	1080	882	1.72	2.25	DN61281
	8	63	1	504	1650	1525	1395	1245	1080	882	1.65	2.12	
1600A	10	63	1	630	1895	1755	1600	1435	1240	1012	1.65	2.12	
2000A	13	63	1	819	2100	1945	1775	1585	1375	1123	1.65	2.12	

Copper foil soft busbar



Model and Meaning

DN TBR (X) - □ × □ × □ / □ / □

- Product shape and hole type
- aperture (d)
- Thickness (T)
- Width (W)
- Length (L)
- X: Tin Plating
  N: Nickel Plating
  Y: Silver Plating
- Copper foil soft busbar
- Enterprise code

Technical data

Material	C11000 copper foil, copper content ≥ 99.9%
Single layer thickness	0.50 mm 0.30 mm 0.20 mm 0.10 mm(Standard) 0.05 mm 0.03 mm
Surface treatment	No-plating, Tin-plated, Nickel-plated, Silver-plated, Nickel sheet attached, Silver sheet attached
Cross-sectional	10mm^2-5000mm^2

When placing the order, please specify the following figures:

Length (L) × Width (W) × Thickness (T)

Product shape and hole type

Aperture (d)

Single layer thickness (standard 0.10mm)

Structure and Application

The copper foil soft connection is composed of multiple layers of C11000 copper foil and is welded at both ends. It can be drilled according to customer requirements.

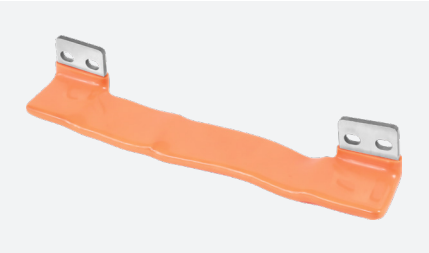
Molecular diffusion welding is a precise welding technology. Under high temperature and pressure conditions, it promotes the mutual diffusion and bonding of atoms between the workpieces. It forms a high-strength joint while maintaining the workpiece without visible deformation.

Therefore, the copper foil soft connection is an excellent electrical conductor and is commonly used in industries such as new energy vehicles, wind power generation, photovoltaic energy storage, electric locomotives, and complete power distribution systems.

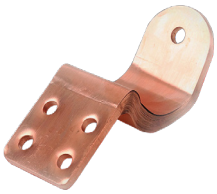
It can be customized according to customer drawings or samples, and provides systematic service support.

Copper foil soft busbar

Customized product display



Copper foil soft busbar



No-Plating copper foil soft busbar

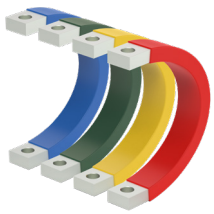
This copper foil soft connection has no coating. It is made by stacking multiple layers of copper foil and then welding the two ends together. The surface scratches and spots are removed using polishing equipment, and the surface is protected against oxidation with a water-based anti-corrosion agent.

Copper foil soft busbar with Electroplated Coating

According to the customer's requirements, the contact surfaces at both ends of the copper foil soft connection or the entire surface of the soft connection product is treated by electroplating. The electroplated copper foil soft connection has better antioxidant and corrosion resistance properties.

Copper foil soft busbar with Nickel Foil

According to the customer's requirements, nickel sheets (with a thickness of 0.1 to 0.5 mm) or silver sheets are welded on both the upper and lower surfaces of the copper foil soft connection. Besides having better anti-oxidation and anti-corrosion properties, it can also avoid the potential hazard of copper corrosion caused by the residue of electroplating solution.



Heat shrink tubing copper foil soft busbar

According to the customer's requirements, a heat shrinkable tube can be applied to the copper foil soft connection. The heat shrinkable tube can enhance the oxidation resistance and corrosion resistance of the copper foil soft connection, thus meeting the insulation requirements of the electrical components.

Heat-bonded plastic copper foil soft busbar

According to the customer's requirements, PVC material is used. After being heated and dissolved, it forms a liquid. The flexible connection is immersed in it to allow an insulating layer to be attached to its surface. PVC coating can ensure the insulation integrity of copper foil flexible connections with irregular shapes.

Rigid copper(aluminum) busbar

Technical data

Material	C11000 copper, with copper content of ≥ 99.9%
Thickness	0.50~40mm
Surface treatment	No-plating, Tin-plated, Nickel-plated, Silver-plated
Optional materials	Silver, aluminum, brass

When placing the order, please specify the following figures:
Cross-sectional area × Length (L)
Product shape and hole type
Aperture (d)

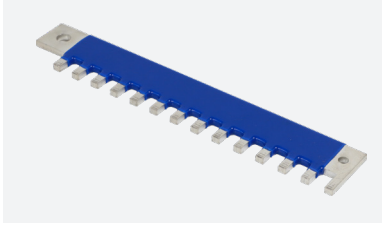
Structure and Application

Special-shaped and sized products can be customized according to customer requirements. These are made of Rigid copper(aluminum) busbar.

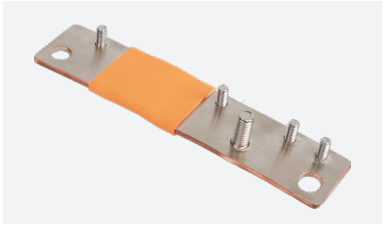
GRL's Rigid copper(aluminum) bausbar come in various insulation options, including sleeves, PVC coating, and epoxy resin spraying. They can also be customized according to customer requirements.




Customized special-shaped hard copper busbar






3D bend rigid busbar

Technical data

Material	C11000 copper/aluminum

Structure and Application

The rigid busbar is processed through specific manufacturing techniques to undergo three-dimensional bending according to the design requirements.

product advantages

Automation, with high precision, can meet various angle customization requirements.

T = Thickness	W = Width	Number of axles	Bending coefficient
1.0-5.0mm	10-25mm	6	0.8

Extruded rigid busbar

Technical data

Material	C11000 copper/aluminum

Structure and Application

The extruded rigid busbar is a copper/aluminum material product manufactured through the extrusion process.

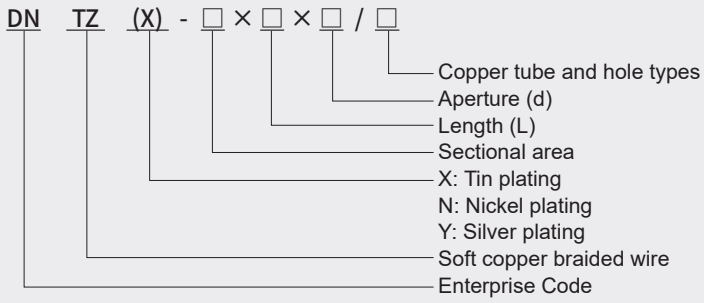
product advantages

Good insulation, high wear resistance, excellent shock and impact resistance, multi-dimensional molding, and space-saving.

Insulation layer thickness	Insulating material	Withstand voltage	Temperature resistance
0.4~0.8mm	PA12	2700V	150°C
0.5~2mm	PVC	3500V	-40~+125°C

Copper braided soft connection

Model and Meaning



Technical data

Material	C11000 copper wire, copper content ≥ 99.9%
Single filament diameter	0.20 mm (32AWG) 0.15 mm (Standard) 0.127 mm (36AWG) 0.10 mm (38AWG) 0.07 mm (41AWG) 0.05 mm (44AWG)
Surface treatment	No-plating, Tin-plated, Nickel-plated, Silver-plated
Cross-sectional	10mm²-6000mm²

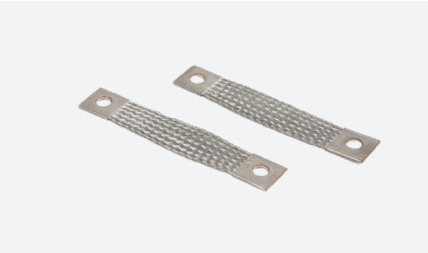
When placing the order, please specify the following figures:
sectional area
Length (L)
Copper tube and hole types
Aperture (d)
Single filament diameter (standard 0.15mm)

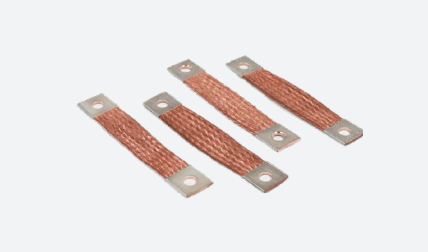
Structure and Application

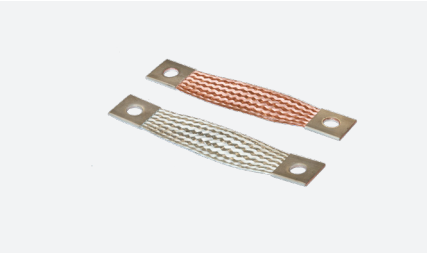
This copper braided wire soft connection is formed by pressing seamless copper tubes onto both ends of the flexible copper braided wire as the contact surfaces. The contact surfaces can be drilled according to customer requirements. The flexible copper braided wire is made of T2 copper wire and is woven in accordance with the industry standard JBT6313.2-2011 of the People's Republic of China.

Copper braided soft connection

Customized product display







Copper braided soft connection

sectional area: 1.5mm²-70mm²

Note: Customization is available.

Product model	Cross-sectional (mm²)	W (approx.mm)	T (approx.mm)	L (mm)	d (mm)
DNTZ(X)-1.5/L/d/Aa	1.5	4	1.6	Customized According to Customer Requirements	
DNTZ(X)-2/L/d/Aa	2	5	1.6		
DNTZ(X)-2.5/L/d/Aa	2.5	6	1.6		
DNTZ(X)-4/L/d/Aa	4	7	1.8		
DNTZ(X)-6/L/d/Aa	6	10	1.8		
DNTZ(X)-8/L/d/Aa	8	12	1.8		
DNTZ(X)-10/L/d/Aa	10	15	1.8		
DNTZ(X)-12/L/d/Aa	12	20	1.9		
DNTZ(X)-14/L/d/Aa	14	20	2.1		
DNTZ(X)-16/L/d/Aa	16	19	2.2		
DNTZ(X)-20/L/d/Aa	20	20	2.4		
		25	2.6		
DNTZ(X)-25/L/d/Aa	25	20	2.7		
		25	2.8		
DNTZ(X)-35/L/d/Aa	35	25	3.3		
DNTZ(X)-50/L/d/Aa	50	20	4.2		
		25	4.0		
		30	4.0		
		40	3.5		
		45	4.0		
DNTZ(X)-70/L/d/Aa	70	20	7.0		
		25	5.7		
		30	5.5		

sectional area: 95mm²-200mm²

Note: Customization is available.

Product model	Cross-sectional (mm²)	W (approx.mm)	T (approx.mm)	L (mm)	d (mm)
DNTZ(X)-1.5/L/d/Aa	95	40	5.3	Customized According to Customer Requirements	
DNTZ(X)-100/L/d/Aa	100	20	8.5		
		25	7.0		
		30	6.0		
		40	5.4		
		45	5.5		
		50	5.4		
DNTZ(X)-120/L/d/Aa	120	25	8.5		
		30	7.3		
		45	6.3		
		50	5.9		
DNTZ(X)-150/L/d/Aa	150	30	8.6		
		40	6.9		
		45	7.1		
		50	6.6		
DNTZ(X)-185/L/d/Aa	185	30	10.0		
		40	8.0		
		50	7.5		
DNTZ(X)-200/L/d/Aa	200	30	10.6		
		40	8.4		
		50	7.8		
		60	7.0		
		75	6.7		
			6.0		

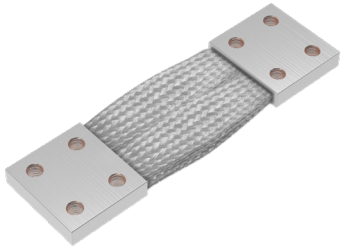
Copper braided soft connection

sectional area: 250mm²-600mm²

Note: Customization is available.

Product model	Cross-sectional (mm²)	W (approx.mm)	T (approx.mm)	L (mm)	d (mm)
DNTZ(X)-250/L/d/Aa	250	30	12.7	Customized According to Customer Requirements	
		40	10.0		
		45	9.8		
		60	8.0		
		50	9.0		
		75	8.0		
		100	7.0		
DNTZ(X)-300/L/d/Aa	300	30	14.7		
		40	11.5		
		45	11.1		
		50	10.2		
		60	9.0		
		75	8.0		
		80	8.0		
		100	7.8		
DNTZ(X)-400/L/d/Aa	400	40	16.5		
		45	16.0		
		50	13.0		
		75	10.6		
		80	9.5		
		100	10.0		
		120	9.0		
		150	9.0		
DNTZ(X)-500/L/d/Aa	500	40	18.9		
		45	17.0		
		50	15.5		
		60	14.0		
		75	14.0		
		80	13.5		
		100	11.2		
		120	10.2		
		150	11.0		
DNTZ(X)-600/L/d/Aa	600	40	22.0		
		45	19.8		
		50	18.0		
		60	16.5		
		75	15.0		
		80	13.0		
		100	12.0		
		120	11.5		
			9.5		

Copper braided soft connection



sectional area: 700mm²-1000mm²

Product model	Cross-sectional (mm²)	W (approx.mm)	T (approx.mm)	L (mm)	d (mm)
DNTZ(X)-700/ L/d/Aa	700	40	25.3	Customized According to Customer Requirements	
		45	22.6		
		50	20.5		
		75	17.5		
		100	13.5		
		120	13.2		
		150	11.7		
DNTZ(X)-800/ L/d/Aa	800	40	28.4		
		45	25.4		
		50	23.0		
		60	20.8		
		75	17.3		
		80	16.4		
		100	14.5		
		120	14.0		
		150	12.5		
DNTZ(X)-1000L/cAa	1000	60	25.0		
		75	20.5		
		80	20.0		
		100	16.0		
		120	14.5		
		150	13.7		
		200	11.0		

sectional area: 1200mm²-6000mm²

Product model	Cross-sectional (mm²)	W (approx.mm)	T (approx.mm)	L (mm)	d (mm)
DNTZ(X)-1200/ L/d/Aa	1200	75	24.2	Customized According to Customer Requirements	
		80	18.0		
		100	19.8		
		120	19.0		
		150	18.0		
		200	12.0		
DNTZ(X)-1300/ L/d/Aa	1300	100	21.1		
		120	19.4		
		150	19.0		
		200	13.0		
DNTZ(X)-1400/ L/d/Aa	1400	100	24.0		
		120	21.0		
		150	20.0		
		200	13.5		
DNTZ(X)-1500/ L/d/Aa	1500	100	24.5		
		120	22.2		
		150	21.0		
		200	14.0		
DNTZ(X)-1600/ L/d/Aa	1600	120	23.5		
		150	22.0		
		200	14.5		
DNTZ(X)-1800/ L/d/Aa	1800	120	27.2		
		150	24.0		
		200	16.0		
DNTZ(X)-2000/ L/d/Aa	2000	120	31.0		
		150	26.0		
		200	17.5		
DNTZ(X)-2500/ L/d/Aa	2500	120	38.5		
		150	35.0		
		200	23.0		
DNTZ(X)-3000/ L/d/Aa	2500	120	46.0		
		150	38.5		
		200	24.0		
DNTZ(X)-4000/ L/d/Aa	4000	120	60.0		
		150	49.0		
		200	30.0		
DNTZ(X)-4500/ L/d/Aa	4500	120	66.0		
		150	54.0		
		200	32.0		
DNTZ(X)-5000/ L/d/Aa	5000	120	74.0		
		150	59.0		
		200	35.0		
DNTZ(X)-6000/ L/d/Aa	6000	120	86.0		
		150	70.0		
		200	40.0		

Copper stranded wire soft connection

Model and Meaning

DN TJR (X) - □ □ / □ / □

- Copper tube and hole types
- Aperture (d)
- Length (L)
- Sectional area
- X: Tin plating
- Tinsel wire
- Enterprise Code

ordering instruction

When placing the order, please specify the following figures:

Cross-sectional area × Length (L)

Copper tube and hole types

Aperture (d)

Single filament diameter (standard 0.15mm)

Technical data

Conductor material	C11000 copper, copper content ≥ 99.9%
Single Filament Diameter	0.254mm(30AWG) 0.250mm 0.200mm(32AWG) 0.150mm(Standard) 0.127mm(36AWG) 0.100mm(38AWG) 0.070mm(41AWG) 0.050mm(44AWG)
Surface treatment	No-plating, Tin-plated
Sectional area	1.5mm^2-500mm^2

Product standard

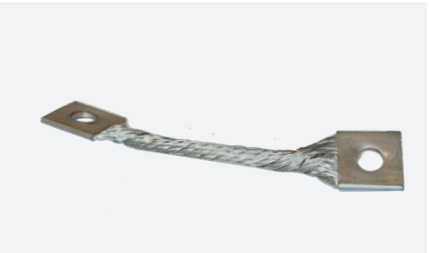
Product model	Cross-sectional (mm²)	W = Width (mm)	T = Thickness (mm)
DNTJR(X)-1.5/L/d/Aa	1.5	4	1.6
DNTJR(X)-2/L/d/Aa	2	5	1.6
DNTJR(X)-4/L/d/Aa	4	7	1.8
DNTJR(X)-6/L/d/Aa	6	10	1.8
DNTJR(X)-8/L/d/Aa	8	12	1.8
DNTJR(X)-10/L/d/Aa	10	15	1.8
DNTJR(X)-12/L/d/Aa	12	20	1.9
DNTJR(X)-16/L/d/Aa	16	19	2.2
DNTJR(X)-20/L/d/Aa	20	25	2.6
DNTJR(X)-25/L/d/Aa	25	25	2.8
DNTJR(X)-50/L/d/Aa	20	40	3.5
DNTJR(X)-100/L/d/Aa	100	40	5.4
DNTJR(X)-150/L/d/Aa	150	40	6.9
DNTJR(X)-200/L/d/Aa	200	40	8.4
DNTJR(X)-300/L/d/Aa	300	40	11.5
DNTJR(X)-400/L/d/Aa	400	40	16.5
DNTJR(X)-500/L/d/Aa	500	40	18.9

Structure and Application

The copper stranded wire flexible connection is formed by pressing seamless copper tubes onto both ends of the soft copper stranded wire to serve as the contact surfaces. The contact surfaces can be drilled according to customer requirements.

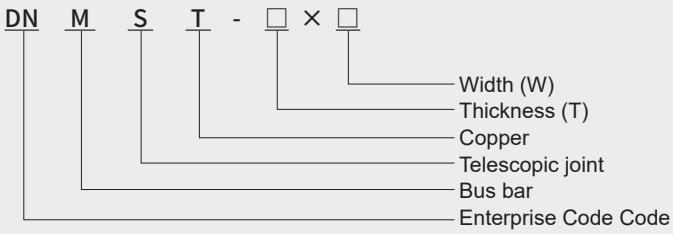
Copper stranded wire soft connection

Customized product display



Bus-bar expansion joint

Model and Meaning



Technical data

Material	C11000 copper, copper content ≥ 99.9%

Structure and Application

The DNMST type copper busbar expansion joint is an elastic connecting component used to compensate for the deformation and vibration deformation of the busbar caused by temperature changes. It is usually used in the distribution equipment of power plants and substations. The copper sheet sections are welded together by brazing, and the joint is formed by spot welding with silver-based brazing material and flat copper blocks. Standard: GB2343-1985.

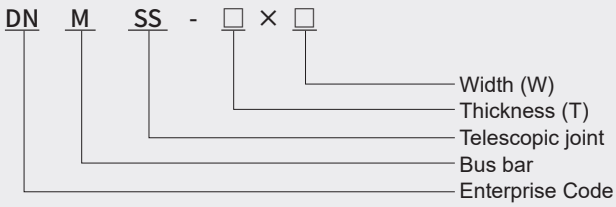
DNMST type copper busbar expansion joint

Product number	W (mm)	T (mm)	L1 (mm)	L2 (mm)	Total unfolded length (mm)
DNMST-4×40	4	40	60	170	290
DNMST-5×50	5	50	60	170	290
DNMST-6×60	6	60	75	190	340
DNMST-6.3×63	6.3	63	75	190	340
DNMST-6×80	6	80	95	190	380
DNMST-8×80	8	80	95	190	380
DNMST-8×100	8	100	115	220	450
DNMST-8×120	8	120	140	220	500
DNMST-8×125	8	125	140	220	500
DNMST-10×80	10	80	95	190	380
DNMST-10×100	10	100	115	220	450
DNMST-10×120	10	120	135	200	500
DNMST-10×125	10	125	140	220	500
DNMST-12×120	12	120	140	220	500
DNMST-12×125	12	125	140	220	500
DNMST-12.5×125	12.5	125	140	220	500

Note: Customization can be done according to customer requirements.

Copper-aluminum busbar expansion joint

Model and Meaning



Technical data

Material	C11000 copper, copper content ≥ 99.9%
	L3 aluminum sheet

Structure and Application

The DNMSS type copper-aluminum busbar expansion joint is an elastic connecting component used to compensate for the deformation and vibration deformation of the busbar caused by temperature changes. It is usually used for the connection between copper and aluminum busbars in power plants and substations. The copper-aluminum busbar expansion joint products are manufactured by flash welding technology.

Standard: GB2343-1985.

DNMSS type copper-aluminum busbar expansion joint

Product number	W (mm)	T (mm)	L1 (mm)	L2 (mm)	Total unfolded length (mm)
DNMSS-4×40	4	40	60	170	330
DNMSS-5×50	5	50	60	170	330
DNMSS-6×60	6	60	75	190	380
DNMSS-6.3×63	6.3	63	75	190	380
DNMSS-6×80	6	80	95	190	420
DNMSS-8×80	8	80	95	190	420
DNMSS-8×100	8	100	115	220	490
DNMSS-10×80	10	120	95	190	420
DNMSS-10×100	10	125	115	220	490
DNMSS-10×120	10	80	135	200	540
DNMSS-10×125	10	100	140	220	540
DNMSS-12×120	12	120	140	220	540
DNMSS-12×125	12	125	140	220	540

Note: Customization can be done according to customer requirements.

GRL

Empower the future

Website: **www.grlgroup.com**
E-mail: **tim@grlele.com**

Phone: **+86-13757783569**
WhatsApp: **+86 13757783569**

Zhejiang GRL Electric Co., Ltd.
No.66, Punan 5 Road, Wengyang Town,Yueqing City 325604, Zhejiang,China