

COPPER PRODUCTS
FOR THE POWER INDUSTRY



bolton
POWER

THE SOLUTION BEHIND POWER



bolton

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Bolton Power is forging a niche in its supply of high quality copper and copper alloy product for its selected industries worldwide. Rather than simply move with the times we are breaking out and taking an innovative approach to meeting and exceeding the needs of the companies and people that we deal with. With a long established manufacturing pedigree our company is investing in new production, product development and supply capabilities. Bolton Power manufactures and globally exports an extensive component and material range. Our customer focus and market leading product offering places the company in a unique position to service power industries with demands for its products. Complementary products (such as endring and rotor bars, aluminium bronze retaining rings, commutator for motors) allow Bolton Power to offer one point of supply direct to line for the OEM for each individual motor set. This is one such example where Bolton Power is focussed on meeting the needs of the power industry. In fact, every component that we supply is used in some aspect of power generation, power distribution or following through to electrical equipment end-users. We really are the solution behind power.

STRATEGY

Strong technical support and constant awareness of advancing technology keep Bolton Power strong in customer support and direct help on considerations of metal specification and product development. Our close understanding of the electrical industries from long established worldwide connections and our commitment to customer satisfaction are evident in the market led character of the company. Whilst continuing this ethos, we persistently strive to ensure we maintain a complete focus on the needs of our customers. This is achieved through the close consideration of customer requirements and by developing relationships at all levels with all of our customers.

WHY US?

Unlike other copper suppliers our business is solely focussed on your business, its demands and needs. Through metallurgy, quality, physical attributes and logistics our focus is to satisfy your specific demands. Through this we are able to add value to your business.

- METALLURGY - Improved properties above international specifications leading to longer service life of components.
- QUALITY - Constant improvement, 6 sigma capabilities ensure components are in optimal form for simplicity of use.
- PHYSICAL ATTRIBUTES - Understanding the end use enables Bolton Power to ensure that product is supplied in a manner best suited to the application and as such able to reduce build times.
- LOGISTICS - A full range of rings and bars allows product for particular motors to be delivered together reducing packaging costs and logistics effort.

In addition to this we also provide flexibility of supply for both batch size and delivery alongside proficient logistics management. This service is provided in respect to breakdown projects from one motor to full generator rewinds.

We also welcome the challenge of supplying copper products to niche markets and in doing so; we aspire to offer high quality solutions to manufacturers requiring difficult to source components. This is supported by our flexible approach and extensive alloy range.

QUALITY MANAGEMENT SYSTEMS INCLUDE:

Our company is constantly improving its production control techniques to maximise the performance of its plant and machinery.

Approved to BS EN ISO 9001:2000. (Awarded in December 2003).

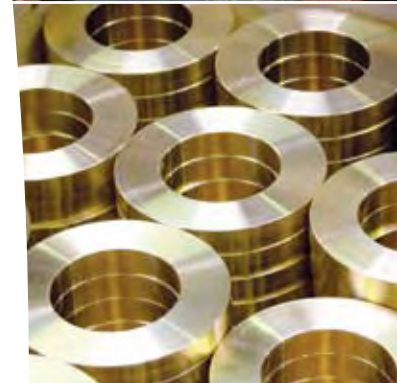
Products made to international and customers' own standards.

Product certification to EN10204.

DON'T JUST TAKE OUR WORD FOR IT

We urge you to visit our website and read more about some of the ventures in which we've been involved previously. On there you will find testimonials written by our affiliates and customers that demonstrate the scale of the projects that we are regularly involved with. We always endeavour to take on projects that are of mutual benefit to all of the companies involved in the hope that long term professional relationships can be developed.

This is an area of our business that is continually growing in both volume and reputation. We have invested in our company to enable us to add value to yours.





ENVIRONMENT

Sustainability is an issue that requires ongoing consideration and an area in which we are continually striving to improve. Every year we process a considerable tonnage of product with significant energy usage and resources. Global transportation of goods only adds to our carbon footprint. Our management team are closely involved in projects to ensure reductions in carbon targets are not only met but surpassed. Additionally, we are continually seeking out new ideas and technologies to assist our efforts and reduce our carbon footprint.

OUR APPLICATIONS AND MARKETS:

Bolton power supplies industry with a full range of extruded products, in a range of alloys, in many shapes and sizes. These include the following, available in both standard and non-standard alloys:

- Ring and rotor bar materials for AC induction motors.
- Commutator materials for DC induction motors.
- Generator rotor copper for hydro and turbine rotors.
- Stator collection ring copper and other low volume copper products required for generator production.
- Rod, bar and profiles for all types of power distribution industries.
- Rods and bars in alloy materials for welding and high speed machining.
- Strip material in coil and lengths for the manufacture of electrical connectors.

Major industries throughout the world rely on consistently high quality Bolton Power metals, predominately:

- Power generation.
- Rotating electrical machinery.
- Welding and high speed machining industries.



Unrivalled expertise and quality in high copper alloys.

Alloys:

Copper offers a higher conductivity and lower resistance than other comparable materials, such as aluminium, making it the material of choice for electrical power products. We produce a wide range of different alloys to British and European specifications in all forms.

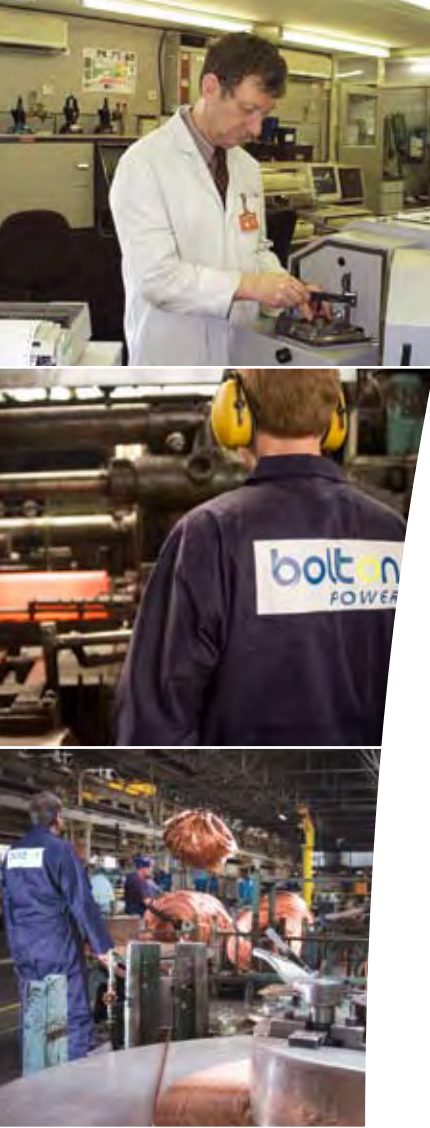
Quality:

Our company is constantly improving its production control techniques to maximise the use of its plant and machinery. Through the education and involvement of our employees we are taking a proactive company wide approach to constant improvement. Bolton Power is approved to ISO 9001:2000 number LRQA 0850778/B.

Mechanical performance is enhanced due to our capacity to supply to the highest and exacting standards requested by our customers. Our ability in understanding the product applications allows materials to be supplied that match your criteria for further fabrication work. Process control parameters ensure that product has optimal grain structure and attributes to ensure significant 6 sigma control capabilities.

Characteristics of Bolton Power Alloys are:

- High resistance to creep.
- High mechanical properties.
- Superior electrical conductivity.
- Superior structural integrity.
- Good machinability.



Boltonmet	Description	New BS / European symbol	New BS / European number	American number	NOMINAL COMPOSITION (%)										Typical electrical and mechanical properties		
					Copper + Silver min	Silver	Chromium	Oxygen	Phosphorus	Silicon	Tin	Sulphur	Conductivity % IACS	0.2% Proof Stress N/mm ²	UTS N/mm ²	Elongation %	Hardness HV
103	OXYGEN FREE COPPER (ELECTRONIC)	Cu-OFE	CW009A	C10100	99.99*								101	200-300	230-330	12-40.	65-110
104	OXYGEN FREE COPPER	Cu-PHC		C10200	99.95				0.003				100	200-300	230-330	12-40.	65-110
105	TOUGH PITCH HC COPPER	Cu-ETP	CW004A	C11000	99.90			0.015					100	200-300	230-330	12-40.	65-110
110	COPPER - 0.04% SILVER	CuAg 0.04	CW011A	C11300	Rem.*	0.04		0.015					100	200-300	230-330	12-40.	65-110
113	COPPER - 0.07% SILVER	CuAg 0.07	CW012A	C11500	Rem.*	0.07		0.015					100	200-300	230-330	12-40.	65-110
114	COPPER - 0.10% SILVER	CuAg 0.10	CW013A	C11600	Rem.*	0.10		0.015					100	200-300	230-330	12-40.	65-110
118	DEOX. COPPER-0.10% SILVER	CuAg0.10(P)	CW016A		Rem.*	0.10			0.003				99	200-300	230-330	12-40.	65-110
162	PHOSPHORUS DEOX. COPPER	Cu-DHP	-		99.90				0.05				75	200-300	230-330	12-40.	65-110
304	COPPER - 1% TIN				Rem				0.02		1.0		49	250-350	280-380	12-40.	90-130
307	COPPER - 1.25% TIN				Rem				0.03		1.3		42	270-370	300-400	12-40.	105-135
309	COPPER - 2.5% TIN				Rem				0.05		2.5		28	300-400	330-430	12-40.	115-145
814	COPPER - CHROMIUM	CuCr1	CW105C	C18200	Rem		0.7		0.005				92	280-400	340-460	20-30	105-145
819	COPPER - CHROMIUM - ZIRCONIUM	CuCr1Zr	CW106C	C18150	Rem		0.6		0.02	0.02			85	300-420	370-490	20-30	115-175
917	COPPER-SULPHUR	CuSP	CW020A	C14700	Rem				0.005			0.4	92	200-300	230-330	10-25.	65-110
965	COPPER-1.5% SILICON			C65100	Rem					1.5			12				40-65 HRB

*Excluding Silver.

The values above are for drawn product and dependant upon sizes ordered. Annealed product is also offered.

If the alloy that you require is not listed above please contact us and our technical department will endeavour to assist.

Part of the Bolton Metals Group incorporating Bolton Aerospace, Bolton Lego, Bolton Brass, and Bolton Technologies. For more information the group website may be viewed at www.boltonmetals.com



Rotating Electrical Machinery

For use in AC and DC motors, applications include traction, mining, pumping, high torque and slow start design and components available for OEM and service applications.

Products:

- Rotor bars.
- Commutator bar.
- Commutator segments.
- Endrings.
- Shrink rings.
- Rings for slip ring manufacture.

Benefits:

- Large and small batch sizes undertaken for traction and bespoke applications.
- Fully machined rotor bars supplied.
- Breakdown delivery service available.
- Circa 40,000 existing tools available.
- Innovative material compositions accommodated.
- Leading commutator segment/rotor bar manufacturer.
- AC and DC motor requirements from one site.

Typical Materials:

- Copper chrome alloys.
- Copper silver alloys and ETP grades.
- Resistance alloys to suit applications such as C200 series brass alloys.

We are almost certainly the only company in the world able to offer such a bespoke service to the large electric motor industry. Bolton Power prides itself on this ability as it enables us to supply to both small repair customers and large OEMs alike. Traction motor requirements sit alongside small rapid service requirements within the production facility, both attaining close attention to detail. Our ability to supply requirements together in one bespoke package sets us apart, reducing logistical problems and enabling specific motor requirements to be delivered direct to line. Our ability in DC motor matches that of AC with our high quality commutator bars and segment production complementing our AC part production.



Contact us for a quote:

Phone : +44 (0) 1538 757700

Fax : +44 (0) 1538 757701

Online : www.boltonpower.co.uk

Email : sales@boltonpower.co.uk

Bolton Power, PO Box 1, Froghall, Stoke-on-trent ST10 2HF. United Kingdom



Power Generation

Available for use in wind turbine, hydro and turbo rotor generators, Bolton Power offer a complete supply package from one source for all bare copper needs. Applications from small multi-pole, through turbo, to large hydro generators.

Products:

- Rotor copper.
- Punched rotor copper.
- Range of power contacts.
- 'D' leads.
- Stator collection ring copper.
- Forged pieces (and further machining).
- Rotor wedge materials.

Benefits:

- Fast service with standard alloys for repair work minimising down time.
- Highest quality standards enabling Nuclear Power plant supply ability.
- CNC Punching available for ventilation slots.
- Dedicated de-burring line ensures product is free from burr.
- All ventilation design requirements accommodated.
- Extrusion and forging processes only ensures highest product integrity.

Typical Materials:

- Tough pitch copper.
- Copper silver alloys to suit customers requirements.
- Oxygen free copper.
- Copper chrome alloys to suit applications.
- CuNi2Si alloys.

Once we have supplied product to our customers they always come back as the benefits of our quality and service shine through. We endeavour to make our customers comfortable with the knowledge that the product will be there on time and exactly as required. If the material is in our alloy range we have the ability to supply the product, backed by the confidence of 200 years experience supplying the power generation industry.

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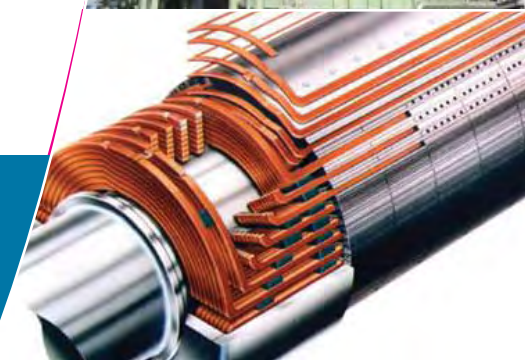
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A Multitude of Uses

For use in a diverse range of industries from electrical connectors, contact tips, fabricated busbars, electrical assemblies and architectural products.

Products:

- Rods.
- Bars.
- Sections - complex and standard shapes.
- Forgings and large profiles.

Benefits:

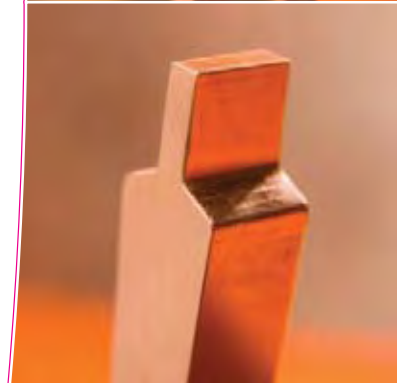
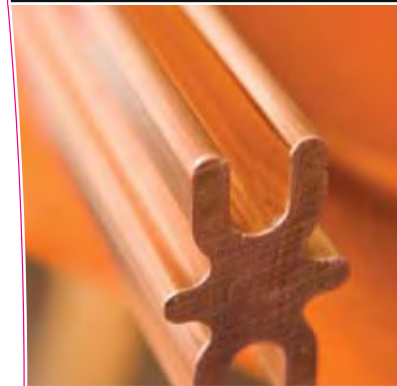
- Products produced to stringent quality standards and industry fit for purpose requirements.
- Flexible batch sizes accommodated.
- Short lead times from dedicated start materials.
- Over 40,000 profile tools available for your use.

Typical Materials:

- Cu ETP.
- Copper chrome alloys.
- Oxygen free copper.
- Copper Sulphur.

Specific heat treatment enables the alloys to achieve special properties such as annealed state, high thermal and electrical conductivity. The material is sold as semi-finished products or as finished parts according to sample / customer drawing.

Our ability and extensive technical backup allows us to offer a wide range of sizes and shapes in any alloy that we produce. From blocks, discs, forgings and a wide range of extruded and drawn shapes we can accommodate your requirements. If the alloy is not on our standard list please contact us as again we are able to process other high copper alloys with specific requirements upon request.



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Resistance Welding Markets

For use in resistance welding applications, high specification electrical contact environments and applications where high conductivity but resistance to softening is required.

Products:

- Rods.
- Bars (rectangle and square).
- Sections - complex and standard shapes.
- Forgings and large profiles of all sizes.

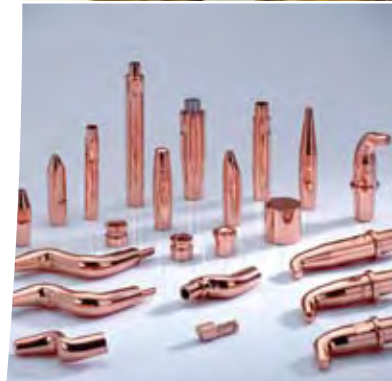
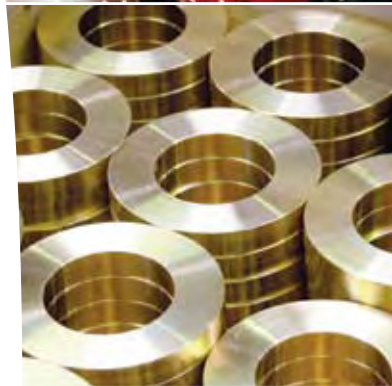
Benefits:

- Products produced to stringent quality standards and industry fit for purpose requirements.
- Flexible batch sizes accommodated.
- Short lead times from dedicated start materials.
- Materials can be produced that are both hard and bendable.

Typical Materials:

- Copper chrome alloys.
- Oxygen free copper.
- Copper Sulphur.
- CuNi2Si.

Bolton Power has the capacity to manufacture almost any product, be it shafts, rings, sleeves, bushings, hubs, wheels blocks and plates in the above alloys. This coupled with our standard extruded rod and section gives a significant product range. Specific heat treatment enables the alloys to achieve special properties such as great hardness, high thermal and electrical conductivity. The material can be made available as semi-finished products or as finished parts according to sample / customer drawing.



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DIRECTIONS

Our Froghall facility lies in the Staffordshire Moorlands in the heart of England, with easy access from Manchester and Birmingham International airports coupled with links to the M1 and M6.

PLEASE USE THE FOLLOWING ADDRESS FOR GPS - Bolton Power Ltd, Froghall, Staffordshire ST10 2HA.

BY ROAD - OPTION 1

Leave M6 at Junction 15 and take A500 signposted Stoke-on-Trent. After approximately 1 - 2 miles leave the A500 and take A50, signposted Uttoxeter (you go past the Britannia Stadium). After approximately 2 miles leave the A50 immediately before the Meir Tunnel, signposted A520 Leek / Cellarhead, non-tunnel traffic. Continue on the A520 for approximately 4 miles until you reach the traffic lights at Cellarhead. Turn right at these lights onto the A52 to Ashbourne. After 2 - 3 miles you will see a Petrol Station on your right. Immediately after this station take the left fork into the road to Kingsley. Stay on the A52 through Kingsley Village for another 1 - 2 miles. After the Railway Hotel on the right proceed over the bridge and take the first left signposted Ipstones and first left again into the factory. The Reception area is on the right.

OPTION 2

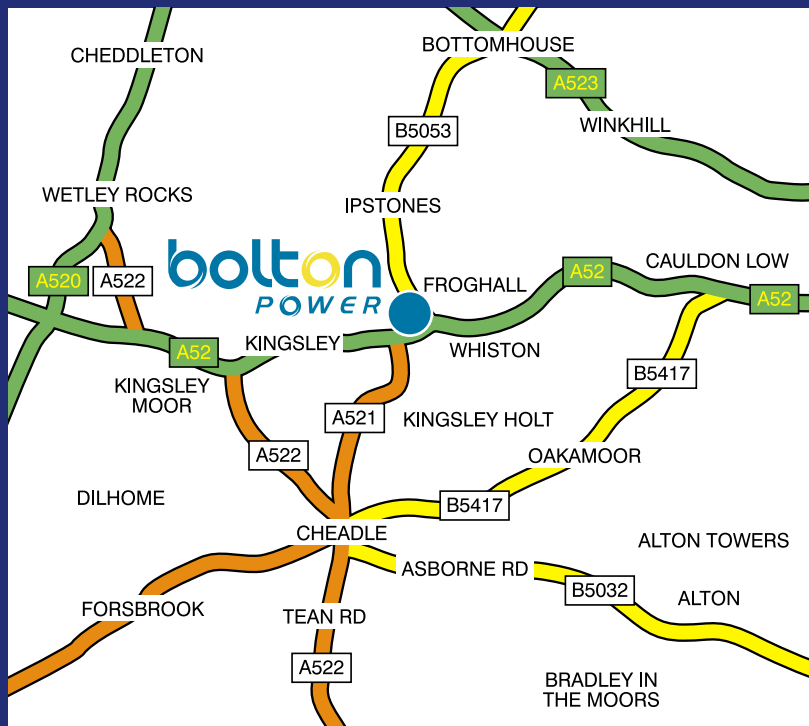
Leave M1 at Junction 24 and take the A50 signposted Stoke-on-Trent. Continue on A50 for approximately 30 miles and leave the A50 immediately before the Meir Tunnel, signposted A520 Leek / Cellarhead, non-tunnel traffic. Continue as Option 1.

BY AIR

Nearest International Airport: Nottingham East Midlands (40 minutes by road). Birmingham (90 minutes by road). Manchester (90 minutes by road).

BY TRAIN

Nearest station: Stoke-on-Trent (30 minutes by road). Stafford (40 minutes by road).



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