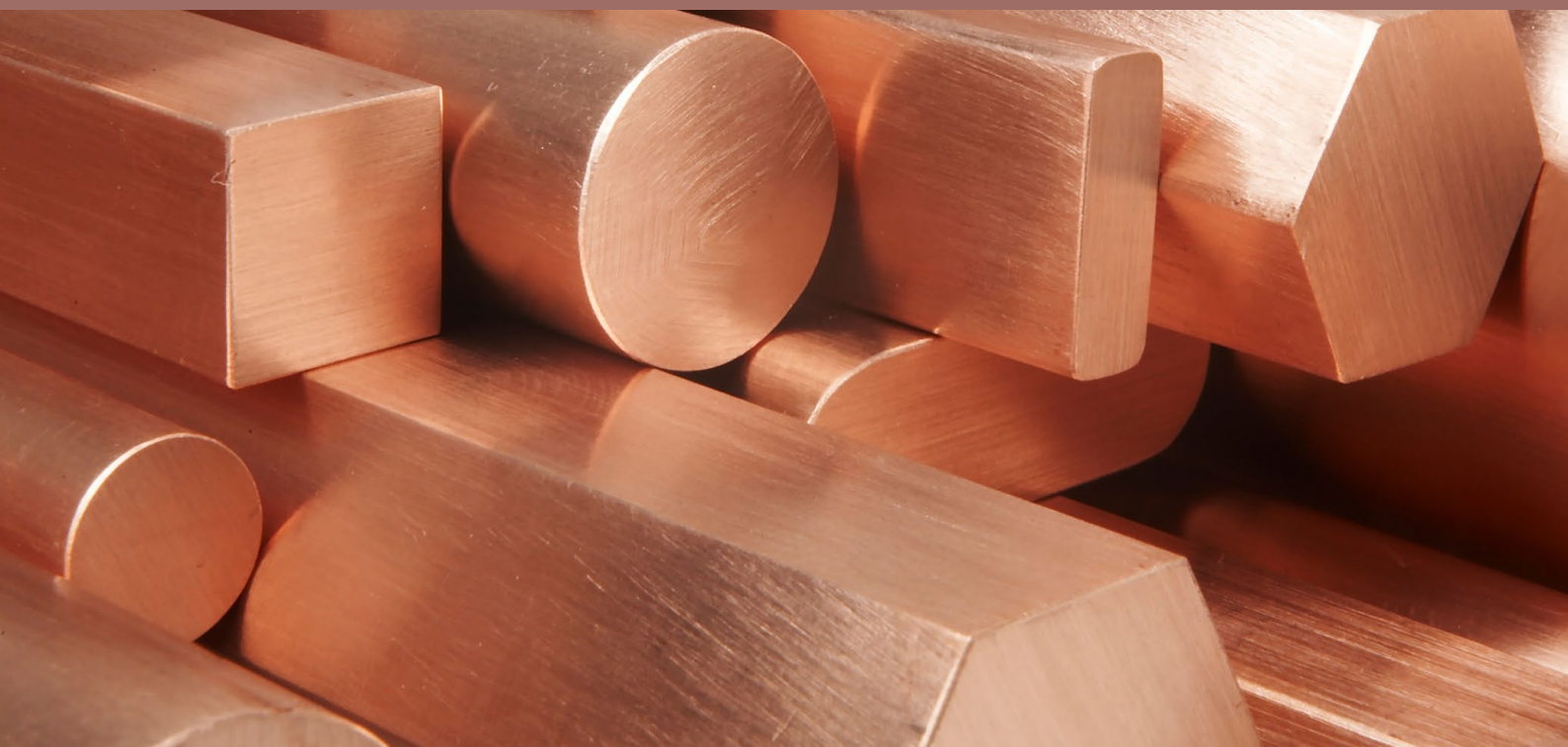
KME

ENGINEERING
COPPER
SOLUTIONS

BARS AND PROFILES

KME Mansfeld GmbH
COPPER PRODUCTS
[EN]



BARS AND PROFILES

OUR ASPIRATION. Energy in the 21st century is demanding. It has to be ecologically viable, available at all times, efficient and cheap – which is what makes its generation, handling and distribution so complex. Power distribution systems (such as busbars), transformers and other electrical components used in the wind power and off-shore industries, can no longer function without copper. The red metal is also crucial to the building of electrical machinery and to the automotive industry. Copper can withstand the harshest environments without corroding, and has the best possible thermal conductivity. Because of its outstanding properties, the use of copper has been on the rise for years.

KME Mansfeld GmbH has been one of the leading suppliers of bars and profiles since 1909. We offer a wide range of flat bars, round bars, square bars and drawing-based profiles made from copper and low-alloyed copper alloys. As an experienced and reliable partner, KME has long been keeping pace with changes in the market and supplying pioneering products. The latest trends involve additional alloying and oxygen-free copper (Cu-OF/Cu-OFE) – and we're involved in those things too. We manufacture in compliance with all of the major standards such as EN, ASTM, GOST and JIS as well as fulfilling specialised requirements.

SWITCH QUICKER. WITH KME COPPER.

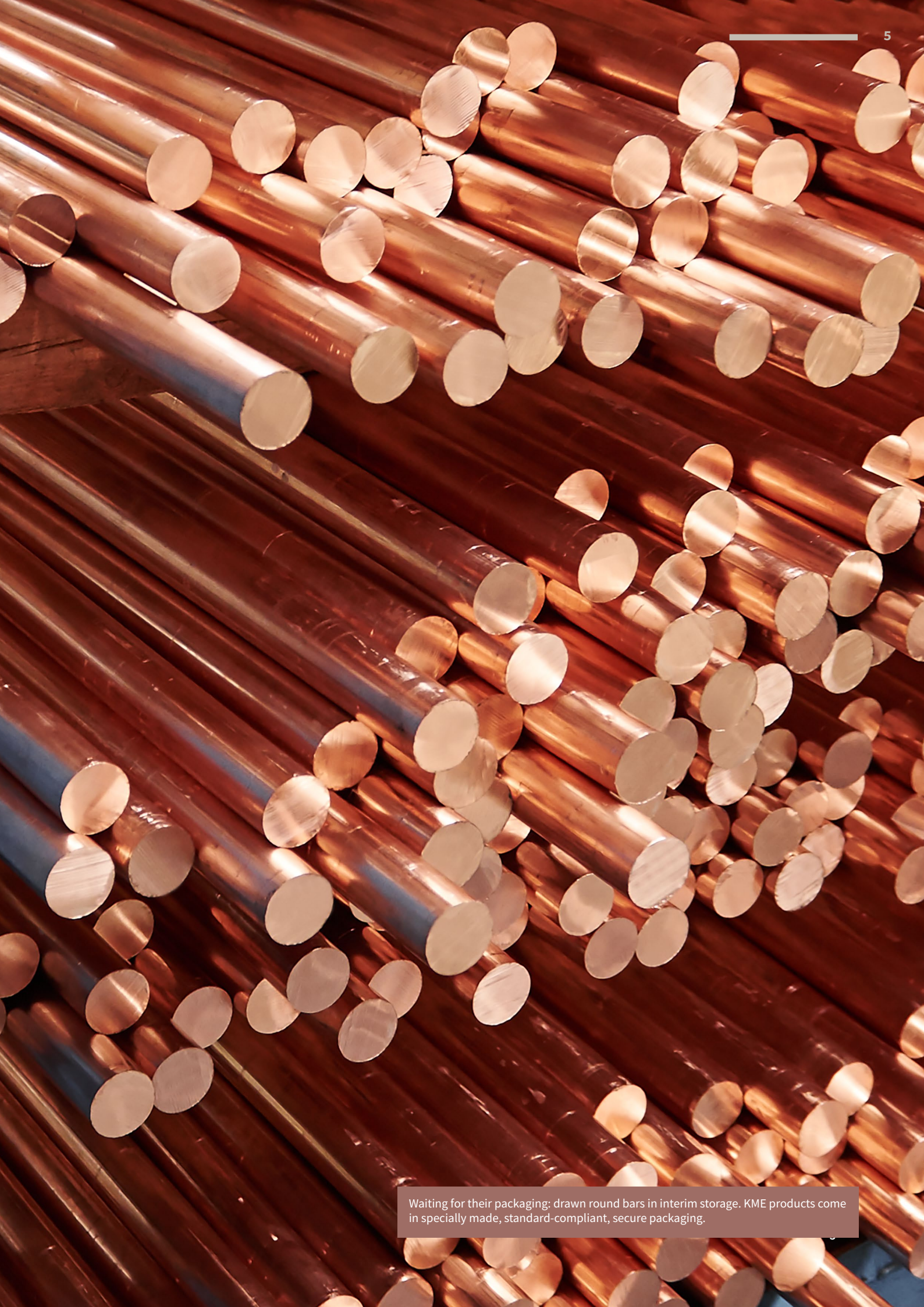
NOT ALL COPPERS ARE CREATED EQUAL. SPECIALISED TYPES OF COPPER AND ALLOYS ARE USED FOR DIFFERENT APPLICATIONS. CU-ETP IS USED FOR SWITCHGEAR AND CONSTRUCTION JOBS, WHEREAS HIGH QUALITY APPLICATIONS – SUCH AS THOSE INVOLVING VACUUMS – REQUIRE CU-OF/CU-OFE QUALITIES.

OUR EXPERTISE – YOUR GAIN. The secret to producing the best copper lies in the manufacturing process. When we at KME Mansfeld GmbH talk of years of experience, we mean over a hundred. Since our foundation in 1909 we have been casting, extruding and drawing bars and profiles in a variety of materials and finishes, product forms, lengths and diameters.

KME's production process is fully integrated. That way we keep our production cycle closed. After all, only good primary material can be turned into the best semi-finished products. Our technology guarantees that every application receives exactly the right material. It sets standards in the market.

BY OPTING FOR KME MANSFELD BMBH BARS AND PROFILES YOU ARE CHOOSING:

- clean, bare surfaces
- a product manufactured and tested using tolerances based on general industrial standards or customer standards
- comprehensive assistance and advice during the selection process
- a durable, vibrant, versatile and maintenance-free material
- a material that is light and flexible to process
- a recyclable, ecologically and economically competitive material
- maximum variety of product forms and thicknesses
- integrated production – from casting the bolt to the finished bar or production according to ASCON technology – all from a single source
- more than a century of experience across the entire spectrum of copper production and processing
- a highly qualified workforce
- comprehensive advice and support for:
    - product development
    - surface qualities
    - optimising the use of materials
    - new applications
    - improving business and technological processes
- product- and order-specific packaging



Waiting for their packaging: drawn round bars in interim storage. KME products come in specially made, standard-compliant, secure packaging.

OUR PRODUCTION.

PRODUCTION PROCESS FOR BARS AND PROFILES

Casting
We use our vertical continuous billet casting system to cast a wide range of copper types including low alloyed copper into formats for the production of semi-finished goods. Each casting batch is only released for further processing once it has been analysed. The figures from this analysis are stored in a database to assure traceability.

Pressing
Once it has been sawn into convenient sections, we heat the billets up to pressing temperature. It is then pressed into bars and profiles in a 30.9 MN extrusion press.

Conform process
KME also offers the production of bars using the Conform process.

Drawing
Cold forming by means of drawing equipment is used to achieve certain mechanical properties, dimensional tolerances and finishes. Furthermore, some of the bars are supplied pressed for forging applications.

Billet store

Press

Drawing System

FLAT BARS

These are excellent for bending and can be used in many different areas.

Use:
- Switchgear construction (low and medium voltage)
- Power distribution systems (busbars)
- Transformers/electrical components
- Electrical machine construction
- Wind power
- Automotives

KME Mansfeld GmbH supplies flat bars from 15 x 3 mm to a maximum width of 210 mm and 20 mm thickness, thereby covering every requirement in the field. We offer numerous intermediate dimensions as well as all the standard sizes. Our flat bars can be made with rounded or sharp edges, and with semi-circular sides as well.

If required we can supply bars with limited tolerances and hardness/strength ratings. We can offer short and fixed lengths with a length tolerance of 1 mm.

WIDTH IN MM	THICKNESS IN MM												
	3	4	5	6	8	10	12	15	20	25	30	40	50
10				■	■								
15	■	■	■	■	■	■	■						
20	■	■	■	■	■	■	■	■					
30	■	■	■	■	■	■	■	■	■	■			
40	■	■	■	■	■	■	■	■	■	■	■		
50	■	■	■	■	■	■	■	■	■	■	■	■	
60	■	■	■	■	■	■	■	■	■	■	■	■	■
70	■	■	■	■	■	■	■	■	■	■	■	■	■
80	■	■	■	■	■	■	■	■	■	■	■	■	■
90	■	■	■	■	■	■	■	■	■	■	■	■	■
100	■	■	■	■	■	■	■	■	■	■	■	■	■
110			■	■	■	■	■	■	■	■	■	■	■
120			■	■	■	■	■	■	■	■	■	■	■
130			■	■	■	■	■	■	■	■	■	■	■
140			■	■	■	■	■	■	■	■	■	■	■
150			■	■	■	■	■	■	■	■	■	■	■
160			■	■	■	■	■	■	■	■	■		
200				■	■	■	■	■	■				
210				■	■	■	■	■	■				

■ Flat bars rounded (RD) and sharp-edged (SH) as well as semi-circular (CE). Other dimensions on request.

ROUND BARS / SQUARE BARS

KME copper bars are highly suitable for special technological procedures such as cold impact extrusion.

Use:

- Electrical engineering
- Machine-building
- Contact materials for current-carrying contact components

KME supplies round bars of between 6mm and 230mm for a wide range of electrotechnical applications. As well as our main material Cu-ETP, we supply an increasing number of our customers with Cu-OF and Cu-OFE bars which are used for demanding applications such as those in vacuum engineering. Copper bars can be made with diameters of up to 152 mm, drawn, with very good surface finishes and restricted tolerances as well as strength and hardness ratings compliant with customer specifications.

Because of the high quality of KME copper and because we can offer a straightness of 1 mm/m, our round bars, made from a special alloy called V-copper, can be processed on modern, high-performance automatic lathes. If required, our round bars can be supplied with chamfered ends for turning plants.

Separate eddy-current testing is used to guarantee blemish-free finishes for special requirements. We also offer CuSP (sulphur copper) bars which are especially good for machining.

As well as drawn bars, KME offers a considerable range of pressed bars for hot pressing (forging) copper parts. Square bars, which can be supplied drawn up to SW 110, as well as hexagonal bars, complete our range

DIAMETER/EDGE LENGTHS IN MM

	6	8	10	15	20	25	30	35	40	45	50	60	70	80	90	100	110	120	130	140	150	152	200	230
Square, pressed									■	■	■	■	■	■	■	■	■							
Square, drawn			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
Round, pressed									■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Round, drawn	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		

Strength and hardness rating compliant with DIN EN 13601 and KME factory standards

PROFILES

KME supplies an increasing amount of profiles, especially complex drawing-based profiles. These profiles can be supplied pressed or drawn, up to a maximum cross-sectional area of 10.000 mm^2.

Our specialised profiles provide our customers with efficient, custom solutions to their products and enable them to save on materials as well.

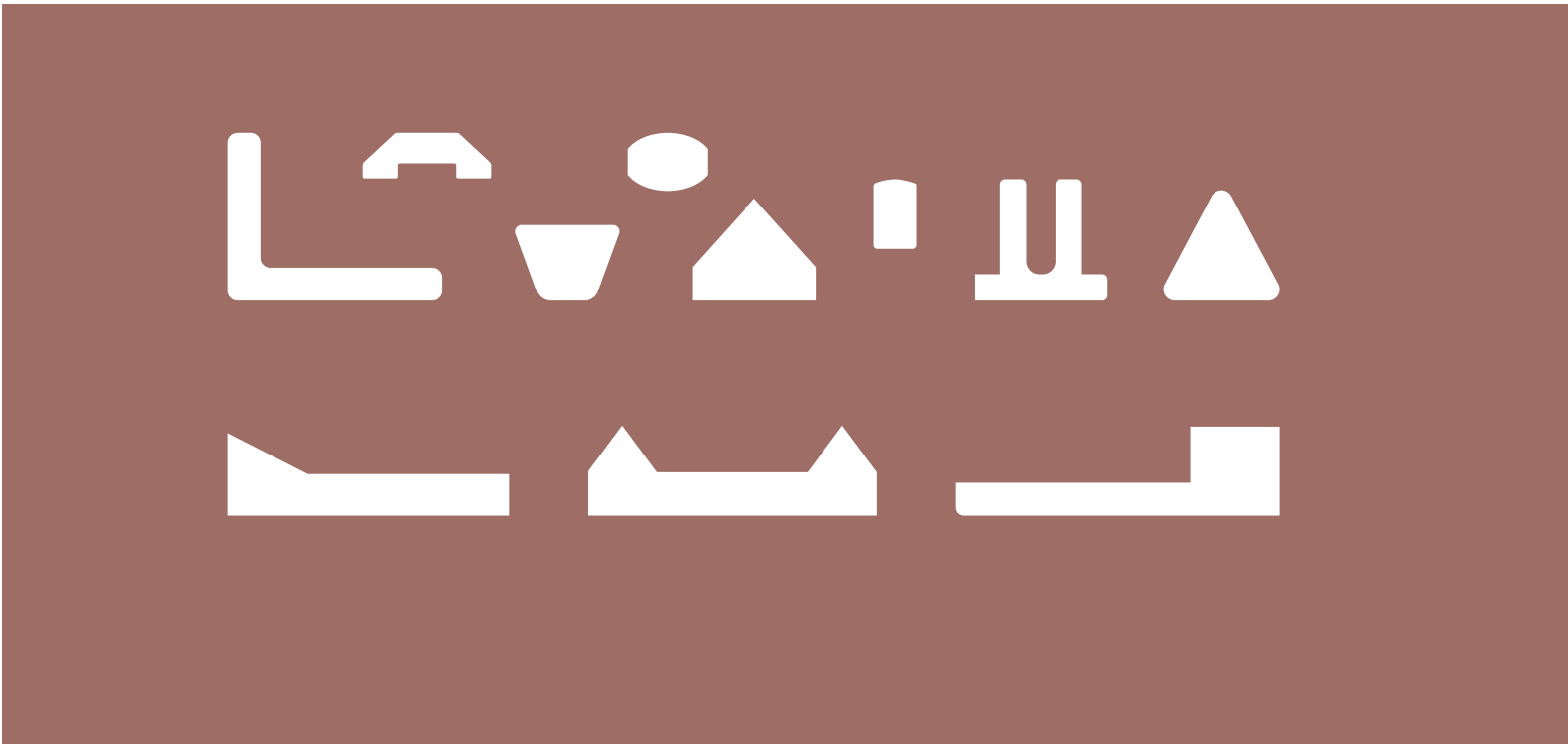
When we manufacture complex drawing-based profiles we rely on our years of experience and our own tool-making facilities featuring a machining centre and the latest EDM technology. Our technicians can gladly advise you in person on how to draw up appropriate delivery specifications.

Use:

- Electrical engineering
- Machine-building
- Contact materials for current-carrying contact components

DRAWING-BASED PROFILES MADE TO CUSTOMER REQUIREMENTS

The illustration shows drawing-based profiles that we have made for some of our customers. Other profiles based on drawings are available at any time on request.



FACTS AND FIGURES

DIMENSIONS AND ALLOYS CU-MATERIALS/ALLOYS

EUROPEAN STANDARD		DIN-STANDARD (FORMER)		ASTM	MANUFACTURING STANDARD	TYPICAL PROPERTIES / APPLICATION
Cu-ETP	CW004A	E-Cu 58 E-Cu 57	2.0065 2.0060	C11000	DIN EN 13601	Standard alloy for electrical components, main application in switchgear construction
Cu-HCP Cu-PHC	CW021A CW020A	SE-Cu	2.0070	C10300	DIN EN 13601	Hydrogen-resistant, very high conductivity, easy to weld
Cu-OF	CW008A	OF-Cu	2.0040	C10200	DIN EN 13601	Hydrogen-resistant, very high conductivity, easy to weld
Cu-OFE	CW009A			C10100	DIN EN 13601	High purity, Cu 99.99% for vacuum switching systems, semiconductors, electronic valves
CuAg0.10	CW013A	CuAg0,1	2.1203	C11600	DIN EN 13601	For electric motors/transport technology
CuAg0.10P	CW016A	CuAg0,1P	2.1191	C11700	DIN EN 13601	Main alloy for the construction of generators
Cu-DHP	CW024A	SF-Cu	2.0090	C12200	DIN EN 12163	Very easy to weld, without particular conductivity requirements
CuSP	CW114C	CuSP	2.1498	C14700	DIN EN 12164	Good machining properties, used for parts manufactured on automatic lathes, for contact components, welding nozzles

We can also supply other CuAg materials such as CuAg0.2, CuAg0.03, CuAg0.04.
Products can be supplied compliant with other international standards such as JIS and GOST, by arrangement.

Freshly pressed in rank and file: Press rings in interim storage. Each ring weighs up to 450 kg.

ENGINEERING
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