Plates and sheets
Copper sheets
Plates and sheets made of copper possess qualities which have made them the metal of choice for industries such as apparatus engineering, power and electrical engineering, the building industry and distilling and brewing. They are corrosion-resistant, highly conductive, odourless, neutral in taste, easy to maintain, durable – and they look beautiful as well.

Copper enjoys unabated popularity in the building industry, not least on account of its well-known formability. Its typical oxidised patina protects it against weather and other harmful influences and is also the reason why it endures so extraordinarily long. Copper can go for centuries without maintenance – even in sea air – and very few other materials can match it. Nowadays copper makes its mark in countless contemporary architectural projects, both public and private alike. Spectacular cladding on the outside and inside of buildings is common all over the world, not only in advanced urban areas.

Copper, furthermore, is an essential carrier material in the IT, communication and energy age. Conductivity, resilience and recyclability show just one side of the coppery coin – the other constitutes its ideal formability and production properties.

Offering typical German tradition and quality for over a century, MKM is a partner in industrial applications involving copper materials. Our copper sheets and plates are manufactured from blocks cast in-house, using a rolling mill which is unique in the industry and offers an unparalleled size range.
Our copper sheets and plates are manufactured entirely in-house, from casting all the way to the finished semi-finished product. That way our material cycle is in our hands and our customers get everything from one source – and that of course means quick adjustments and quick decisions. Our own foundries guarantee perfect results, since a high-quality rolled product requires high-quality material. We also offer you a wide range of alloys so that we can fulfil even extremely challenging requests.

Plate shears, circular saws and water-jet machines enable us to provide standard as well as to order dimensions.

**Delivery options**

We can deliver one-off products as well as series production batches. We can also produce in compliance with your technical drawings; we will gladly advise you on that.

If required we can produce ready-to-install products with a high vertical range of manufacture. This saves you work processes as well as expenses. That's because at MKM you only pay for the material your job really requires, while the waste goes straight back into our recycling process.

**Our expertise – your gain**

As well a superb surface quality our sheets and plates also offer excellent formability. MKM products are characterised by their excellent technological processing. Our sheets and plates can be easily bent, welded and drawn according to our customers’ requirements.
Various sizes of copper plates, cold- and hot-rolled.
Built like any world champion: strongly.

Our world champion is simply the greatest. Jobs like the following are no problem at all for the global copper industry’s biggest hot-rolling mill: 32 mm thickness, 5500 mm length and 3900 mm width. All of that in CuAg 0.1 P alloy, which means copper alloyed with 0.1% silver, because it is destined to be used for cooling in a vacuum crucible. Oh and by the way, the final width of our reverse mill is 4.0 m, which means there’s even 5 cm to spare at either side.

Cold-rolled sheets

We can supply you with standard cold-rolled single sheets with a thicknesses between 3 and 35 mm and a maximum width of 1600 mm. As well as the usual dimensions we also offer sheets cut to your own specific dimensions.

Hot-rolled plates

MKM supplies hot-rolled sheets and plates measuring between 3 mm and 240 mm thickness for a wide range of applications. We can also supply widths of up to 4000 mm. As well as using Cu-HCP as a primary material, all of the other copper varieties can be supplied such as Cu-OF, OFE-Cu, Cu-ETP, Cu-DHP. We also offer plates made of low-alloyed copper that possess special properties. These include CuAg0.1P and CuCrZr. Coppers of this type are excellent for use in steelwork moulds and areas such as welding equipment. Plates are used in electrical engineering, in mould- and furnace-making, in heavy current engineering and in special applications such as sputtering targets, and explosion cladding. MKM copper plates offer outstanding technological processing properties combined with exceptional evenness. They are very easy to bend, to further process and to weld.
Precision work: after two rolling passes, the sheet extends over almost the entire roller width of 4,000 mm. Final width: 3,900 mm. Perfect coordination between the roller, first machinist and machine. Our wide reverse mill, made in 1910, lives up to its name.
At a glance.

Packaging

All of our products come in specially made, standard-compliant, secure packaging. Our packaging guarantees retention of shape, ensuring that a product’s properties are preserved to the utmost after leaving the factory. We also offer seaworthy packaging for our overseas clients. We can also design customer specific packaging when required.

Guarantee

By offering an ultrasonic test we can also guarantee an internally flawless product for critical applications. MKM copper plates can be supplied in a range of different tempers and formats. We produce our plates on a rolling mill which is unique and allows us to offer a huge range of sizes.

References

From historical to ultra-modern: MKM has manufactured copper applications of every conceivable type. From shading rings for wind turbines, to sputtering targets for the production of displays, to the construction of historical buildings.

By opting for MKM sheets/piece-sheets and plates you are choosing:

- a product tested and manufactured to your specifications
- a material that is corrosion-resistant, even in sea air
- comprehensive support and advice during the selection process
- decades of experience involving standard and specialised requirements
- 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 to sheet – 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
  - new material qualities and alloys
  - optimising the use of materials
  - new applications
  - improving business and technological processes
- product- and order-specific packaging
Almost finished: perfect flatness is achieved on a straightening machine.
## DIMENSIONS AND ALLOYS

### Facts and figures

#### Individual sheets made of copper – cold-rolled

<table>
<thead>
<tr>
<th>Width in mm</th>
<th>Thickness in mm</th>
<th>3 – 4,8</th>
<th>&gt; 4,8 – 6,5</th>
<th>&gt; 6,5 – 8</th>
<th>&gt; 8 – 10</th>
<th>&gt; 10 – 12</th>
<th>&gt; 12 – 35</th>
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<tbody>
<tr>
<td>30 – 670</td>
<td>max. 4000 mm</td>
<td>max. 4000 mm</td>
<td>max. 4000 mm</td>
<td>max. 3100 mm</td>
<td>max. 3100 mm</td>
<td>max. 2500 mm</td>
<td>max. 6200 mm long</td>
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<tr>
<td>&gt; 670 – 1000</td>
<td>max. 4000 mm long</td>
<td>max. 4000 mm long</td>
<td>max. 4000 mm long</td>
<td>max. 3100 mm long</td>
<td>max. 3100 mm long</td>
<td>max. 2500 mm long</td>
<td>max. 6200 mm long</td>
</tr>
<tr>
<td>&gt; 1000 – 1250</td>
<td>max. 4000 mm long</td>
<td>max. 3000 mm long</td>
<td>max. 3100 mm long</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>&gt; 1250 – 1600</td>
<td>max. 4000 mm long</td>
<td>max. 3000 mm long</td>
<td>max. 3100 mm long</td>
<td>*</td>
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* on request.

#### Plates made of copper – hot-rolled

<table>
<thead>
<tr>
<th>Width in mm</th>
<th>Thickness in mm</th>
<th>3 – 5</th>
<th>&gt; 5 – 12</th>
<th>&gt; 12 – 20</th>
<th>&gt; 20 – 60</th>
<th>&gt; 60 – 200</th>
<th>&gt; 200</th>
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</thead>
<tbody>
<tr>
<td>30 – 1000</td>
<td>max. 6000 mm long</td>
<td>max. 6000 mm long</td>
<td>max. 8000 mm long</td>
<td>max. 4000 mm long</td>
<td>max. 6200 mm long</td>
<td>max. 4000 mm long</td>
<td>*</td>
</tr>
<tr>
<td>&gt; 1000 – 2500</td>
<td>max. 6000 mm long</td>
<td>max. 8000 mm long</td>
<td>max. 4000 mm long</td>
<td>max. 6200 mm long</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&gt; 2500 – 3000</td>
<td>max. 6000 mm long</td>
<td>*</td>
<td>max. 4000 mm long</td>
<td>max. 4000 mm long</td>
<td>*</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>&gt; 3000 – 3200</td>
<td>max. 4000 mm long</td>
<td>*</td>
<td>max. 4000 mm long</td>
<td>max. 4000 mm long</td>
<td>*</td>
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<tr>
<td>&gt; 3200</td>
<td>max. 4000 mm long</td>
<td>*</td>
<td>max. 4000 mm long</td>
<td>max. 4000 mm long</td>
<td>*</td>
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* on request, DHP-Cu up to max. 50 mm thickness.
### Cu materials/alloys

<table>
<thead>
<tr>
<th>European standard</th>
<th>DIN standard (former)</th>
<th>ASTM</th>
<th>Typical properties/application</th>
<th>Manufacturing standard</th>
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</thead>
<tbody>
<tr>
<td>Cu-ETP</td>
<td>CW004A</td>
<td>E-Cu 58</td>
<td>standard alloy for electrical components, main application in switchgear construction</td>
<td>DIN EN 13599</td>
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<tr>
<td></td>
<td>E-Cu 57</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>2.0065</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>C1000</td>
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</tr>
<tr>
<td>Cu-HCP Cu-PHC</td>
<td>CW021A</td>
<td>SE-Cu</td>
<td>hydrogen-resistant, very high conductivity, easy to weld</td>
<td>DIN EN 13599</td>
</tr>
<tr>
<td></td>
<td>CW020A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cu-OF</td>
<td>CW008A</td>
<td>OF-Cu</td>
<td>hydrogen-resistant, very high conductivity, very easy to weld</td>
<td>DIN EN 13599</td>
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<tr>
<td>Cu-OFE</td>
<td>CW009A</td>
<td></td>
<td>high purity, Cu 99.99% for vacuum switching systems, targets</td>
<td>DIN EN 13604</td>
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<tr>
<td>Cu-DHP</td>
<td>CW024A</td>
<td>SF-Cu</td>
<td>very easy to weld, without particular conductivity requirements</td>
<td>Din EN 1652</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.0090</td>
<td></td>
<td>Din EN 1653</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C12200</td>
<td></td>
<td>AD-2000W6/2</td>
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<tr>
<td>CuAg0,10P</td>
<td>CW016A</td>
<td>CuAg0,1P</td>
<td>mould plates, commutator rings, electrodes</td>
<td>DIN EN 13599</td>
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<tr>
<td>CuCrZr</td>
<td>CW106</td>
<td>CuCrZr</td>
<td>mould plates, welding equipment, furnace and mould engineering, heavy current engineering</td>
<td>DIN 17670</td>
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<tr>
<td>CuNi2Si</td>
<td>CW111C</td>
<td>CuNi2Si</td>
<td>mould engineering, machine parts, die casting equipment</td>
<td>by arrangement</td>
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<tr>
<td></td>
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<td>2.0855</td>
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<td></td>
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<td>C18000</td>
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</table>

Products can be supplied by arrangement in compliance with other international standards such as BS, JIS and GOST.

From foundry to finished product: fully integrated production and a vast product range.
Product areas

STRIP
MKM supplies preliminary strip, industrial strip, transformer strip, cable and HF cable strip and roofing strip. We manufacture all of our strip products using our Conti-M® technology which we developed inhouse, using continuous casting technology to achieve a uninterrupted 24/7 process.

SHEETS, PLATES AND DISCS
MKM offers sheets, plates and discs in a wide range of dimensions. Our rolling mill is supplied by our own foundries. Our strengths lie in a rich range of more than fifty alloys. We can also produce plates and discs to customer specific drawings on request.

WIRE
MKM supplies the entire spectrum of wire rod, from thick, medium and fine wire to stranded wire and wire rope. Our fully integrated Contirod® technology allows us to offer copper wire products and alloy wire products (plain and tinned) with a wide range of finishes.

TUBES
MKM supplies tubes of different lengths, diameters and thicknesses. Our HETCU® (installation tubing) and HETCOOL® (refrigeration, air conditioning and medical technology) product families are extremely well established in the market. Consistent quality management from our own continuous casting plant, right through to the tube drawing process guarantees seamless tubing with outstanding quality.

BARS
MKM is one of Europe’s leading producers of copper bars and profiles. Our production range encompasses a wide range of sizes in various grades of copper. We also produce customised profiles based on technical drawings.

CUSTOM SOLUTIONS
MKM develops solutions tailored entirely to its customers’ requirements. With the technical means and many years of experience, we regularly find unconventional solutions.

We can manufacture any of our products in compliance with the relevant DIN standards, internationally established standards and custom requirements.

All of our packaging is appropriate to the products it contains.

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