EOS CopperAlloy CuCrZr
for AMCM M 290 1 kW
Copper alloy CuCrZr has a favorable combination of electrical and thermal conductivity accompanied with good mechanical properties. This alloy reaches its good properties during heat treatment.

**Main Characteristics**

- High productivity 15.4 mm³/s with 80 µm layer thickness
- Moderate to high conductivity in heat treated condition together with good mechanical properties
- Designed for an EOS M 290 with a 1 kW laser which is the AMCM M 290 1 kW sold by AMCM GmbH

**Typical Applications**

- Rocket engine parts
- Heat exchangers
- Induction coils

**Product Information**

- **DMLS System**: EOS M 290 with 1 kW laser
- **Recoater type**: HSS blade
- **Protective gas**: Argon
- **Material**: EOS CopperAlloy CuCrZr
- **Process**: CuCrZr_080_CoreM291_1kW_100

<table>
<thead>
<tr>
<th>Typical part properties</th>
<th>Yield strength Rp0.2 [MPa]</th>
<th>Tensile strength Rm [MPa]</th>
<th>Elongation at break A [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical properties as manufactured</td>
<td>160</td>
<td>210</td>
<td>40</td>
</tr>
<tr>
<td>Mechanical properties heat treated</td>
<td>210</td>
<td>340</td>
<td>25</td>
</tr>
<tr>
<td>Conductivity as manufactured</td>
<td>&gt; 20 % IACS (tested acc. ASTM E1004-17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conductivity heat treated</td>
<td>&gt; 80 % IACS (tested acc. ASTM E1004-17)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CuCrZr can be heat treated to reach different mechanical properties and conductivity values. Properties in the table have been achieved with following heat-treatment:
1. Hold 30 min at ~ 980 °C in argon atmosphere, water cooling to room temperature.
2. Hold 3 h at ~ 430 °C in argon atmosphere, slow cooling in argon by taking the samples out of the furnace and rest in air.

Please refer to the application notes for EOS Copper products for further information.

Status 12/2020
EOS is certified according to ISO 9001. EOS®, DMLS® and EOSPRINT® are registered trademarks of EOS GmbH in some countries.

The quoted values refer to the use of this material with above specified type of EOS DMLS system, EOSYSTEM and EOSPRINT software version, parameter set and operation in compliance with parameter sheet and operating instructions. Part properties are measured with specified measurement methods using defined test geometries and procedures. Further details of the test procedures used by EOS are available on request. Any deviation from these standard settings may affect the measured properties. The data correspond to EOS knowledge and experience at the time of publication and they are subject to change without notice as part of EOS’ continuous development and improvement processes. EOS does not warrant any properties or fitness for a specific purpose, unless explicitly agreed upon. This also applies regarding any rights of protection as well as laws and regulations.