# High Conductivity Copper Alloys

<table>
<thead>
<tr>
<th>Alloy Grade</th>
<th>Industry Specification</th>
<th>Composition (wt%)</th>
<th>Condition</th>
<th>Hardness</th>
<th>Tensile Strength (kgf/mm²)</th>
<th>Elongation</th>
<th>Electrical conductivity IACS(%)</th>
<th>Softening Begins at (°C)</th>
<th>Application</th>
<th>Available Shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMHC-1 (C11000) TPC</td>
<td>ASTM187</td>
<td>Cu99.9% Min.</td>
<td>Cast</td>
<td>HRF 30</td>
<td>17Min.</td>
<td>50</td>
<td>95Min.</td>
<td>200</td>
<td>- Widely used electrical conductor</td>
<td>- Round, Square, Rectangular &amp; Hexagonal bar, Plate &amp; Pipe, Sand &amp; Centrifugal coating</td>
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<tr>
<td></td>
<td></td>
<td>Extruded &amp; drawn</td>
<td>HRF 30~80 (Temper-Hard)</td>
<td>17~130</td>
<td>50</td>
<td>110Min.</td>
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<tr>
<td>CMHC-2 (C1500) CuZr</td>
<td>RWMA Class 1</td>
<td>CuZr 0.1~0.2</td>
<td>Forging (H.T.)</td>
<td>HRB 60Min.</td>
<td>40Min.</td>
<td>12</td>
<td>90Min.</td>
<td>500</td>
<td>- Transformation at softening temperature and high temperature improved by Zr addition</td>
<td>- Round, Square, Rectangular &amp; Hexagonal bar, Plate &amp; Pipe, Sand &amp; Centrifugal coating</td>
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<tr>
<td></td>
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<td>Extruded &amp; drawn (H.T.)</td>
<td>HRB 65Min.</td>
<td>45Min.</td>
<td>12</td>
<td>90Min.</td>
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<tr>
<td>CMHC-3 (C18200) CuCr</td>
<td>RWMA Class 2 Mil-C-19311B</td>
<td>CuCr 0.6~1.0</td>
<td>cast (H.T.)</td>
<td>HRB 65Min.</td>
<td>35Min.</td>
<td>20</td>
<td>75Min.</td>
<td>500</td>
<td>- Steel continuous casting mold / Seam welding wheel / Seam welding Welding wheel / shaft / Electrode tip for mild steel spot welding / contacts of switches / Electric discharge Machine electrode</td>
<td>- Round, Square, Rectangular &amp; Hexagonal bar, Plate &amp; Pipe, Sand &amp; Centrifugal coating</td>
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<tr>
<td></td>
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<td>Forging (H.T.)</td>
<td>HRB 75Min.</td>
<td>50Min.</td>
<td>15</td>
<td>80Min.</td>
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<td>Extruded &amp; drawn (H.T.)</td>
<td>HRB 80Min.</td>
<td>50Min.</td>
<td>15</td>
<td>82Min.</td>
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<td>Material Code</td>
<td>RWMA Class</td>
<td>Cu Components</td>
<td>Property</td>
<td>USES</td>
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</table>
| CMHC-4        | Class 2    | Cu Cr 0.6~1.0 Zr 0.06~0.2 | cast(H.T.) | 500 - Electrode tip for galvanized steel
|               |            |               | Forging (H.T.) | Co2 welding tip
|               |            |               | Extruded & drawn (H.T.) | Seam welding wheel
|               |            |               | HRB 65Min. | Continuous casting mold
|               |            |               | HRB 75Min. | - Round, Square, Rectangular & Hexagonal bar
|               |            |               | HRB 80Min. | - Plate
|               |            |               | HRB 85Min. | - Tube & Pipe
|               |            |               | HRB 93Min. | - Sand & Centrifugal coating
|               |            |               | HRB 95Min. | - Electrode tip for galvanized steel
|               |            |               | HRB 99Min. | Co2 welding tip
|               |            |               | HRB 100Min. | Seam Welding Wheel
|               |            |               | HRB 105Min. | Continuous casting mold
|               |            |               | HRB 110Min. | - Round, Square, Rectangular & Hexagonal bar
|               |            |               | HRB 115Min. | - Plate
|               |            |               | HRB 120Min. | - Tube & Pipe
|               |            |               | HRB 125Min. | - Sand & Centrifugal coating
| CMHC-5        | Class 3    | Cu Ni 1.2~1.8 Be 0.2~0.6 | cast(H.T.) | 455 - Shank & adaptor / electrode for stainless steel
|               |            |               | Forging (H.T.) | Ni-alloy welding jg / Projection die
|               |            |               | Extruded & drawn (H.T.) | Contacts of switches / Electric circuit breaker
|               |            |               | HRB 85Min. | Arm of welding gun / Body of welding gun (casting) / Die holder / Plastic injection mold / Wearless electrical condution shaft.
|               |            |               | HRB 90Min. | Wearless welding gun part / Anti-explosion part
|               |            |               | HRB 95Min. | Wearless electrical shaft & bushing / Ship gear / Plastic injection mold.
|               |            |               | HRB 95Min. | - Round, square, rectangular & Hexagonal bar
|               |            |               | HRB 99Min. | - Plate
|               |            |               | HRB 100Min. | - Sand & Centrifugal coating
|               |            |               | HRB 105Min. | - Electrode tip for galvanized steel
|               |            |               | HRB 110Min. | Co2 welding tip
|               |            |               | HRB 115Min. | Seam Welding Wheel
|               |            |               | HRB 120Min. | Continuous casting mold
|               |            |               | HRB 125Min. | - Round, Square, Rectangular & Hexagonal bar
|               |            |               | HRB 130Min. | - Plate
|               |            |               | HRB 135Min. | - Tube & Pipe
|               |            |               | HRB 140Min. | - Sand & Centrifugal coating
| CNHC-6        | Class 3    | Cu Ni 2.0~2.4 Si 0.4~0.6 Cr 0.3~0.5 | cast(H.T.) | 455 - Shank & adaptor / electrode for stainless steel
|               |            |               | Forging (H.T.) | Ni-alloy welding jg / Projection die
|               |            |               | Extruded & drawn (H.T.) | Contacts of switches / Electric circuit breaker
|               |            |               | HRB 85Min. | Arm of welding gun / Body of welding gun (casting) / Die holder / Plastic injection mold / Wearless electrical condution shaft.
|               |            |               | HRB 90Min. | Wearless welding gun part / Anti-explosion part
|               |            |               | HRB 95Min. | Wearless electrical shaft & bushing / Ship gear / Plastic injection mold.
|               |            |               | HRB 95Min. | - Round, square, rectangular & Hexagonal bar
|               |            |               | HRB 99Min. | - Plate
|               |            |               | HRB 100Min. | - Sand & Centrifugal coating
|               |            |               | HRB 105Min. | - Electrode tip for galvanized steel
|               |            |               | HRB 110Min. | Co2 welding tip
|               |            |               | HRB 115Min. | Seam Welding Wheel
|               |            |               | HRB 120Min. | Continuous casting mold
|               |            |               | HRB 125Min. | - Round, Square, Rectangular & Hexagonal bar
|               |            |               | HRB 130Min. | - Plate
|               |            |               | HRB 135Min. | - Tube & Pipe
|               |            |               | HRB 140Min. | - Sand & Centrifugal coating
| CMHC-7        | Class 4    | Cu Co 0.35~0.5 Be 1.6~2.0 | cast(H.T.) | 375 - Shank & adaptor / electrode for stainless steel
|               |            |               | Forging (H.T.) | Ni-alloy welding jg / Projection die
|               |            |               | Extruded & drawn (H.T.) | Contacts of switches / Electric circuit breaker
|               |            |               | HRB 30Min. | Arm of welding gun / Body of welding gun (casting) / Die holder / Plastic injection mold / Wearless electrical condution shaft.
|               |            |               | HRB 33Min. | Wearless welding gun part / Anti-explosion part
|               |            |               | HRB 35Min. | Wearless electrical shaft & bushing / Ship gear / Plastic injection mold.
|               |            |               | HRB 35Min. | - Round, square, rectangular & Hexagonal bar
|               |            |               | HRB 37Min. | - Plate
|               |            |               | HRB 39Min. | - Sand & Centrifugal coating
|               |            |               | HRB 40Min. | - Electrode tip for galvanized steel
|               |            |               | HRB 45Min. | Co2 welding tip
|               |            |               | HRB 50Min. | Seam Welding Wheel
|               |            |               | HRB 55Min. | Continuous casting mold
|               |            |               | HRB 55Min. | - Round, Square, Rectangular & Hexagonal bar
|               |            |               | HRB 60Min. | - Plate
|               |            |               | HRB 65Min. | - Tube & Pipe
|               |            |               | HRB 65Min. | - Sand & Centrifugal coating
| CMHC-8        |            | Cu Ni 2.5~3.5 Si 0.8~1 Al 4~4.8 | cast(H.T.) | 450 - Shank & adaptor / electrode for stainless steel
|               |            |               | Forging (H.T.) | Ni-alloy welding jg / Projection die
|               |            |               | Extruded & drawn (H.T.) | Contacts of switches / Electric circuit breaker
|               |            |               | HRB 85Min. | Arm of welding gun / Body of welding gun (casting) / Die holder / Plastic injection mold / Wearless electrical condution shaft.
|               |            |               | HRB 90Min. | Wearless welding gun part / Anti-explosion part
|               |            |               | HRB 95Min. | Wearless electrical shaft & bushing / Ship gear / Plastic injection mold.
|               |            |               | HRB 100Min. | - Round, square, rectangular & Hexagonal bar
|               |            |               | HRB 105Min. | - Plate
|               |            |               | HRB 110Min. | - Tube & Pipe
|               |            |               | HRB 115Min. | - Sand & Centrifugal coating

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