

| <b>ALBROMET-W 164</b>                        | <b>Data sheet high-conductivity copper</b>   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
|--|--|------------------------|-------|--------------------------|---------|---------------------|-----------------------|-----------------------|-----------------------|------------------------|-----|---------|-----------------------|----------|---------|-----------------|--------------------------|----------------------|--------------------------|--|--------------|------------------------------|----------------------------|-------------------------|--|
| <b>Material properties:</b>                  | ALBROMET-W 164 is a innovativ, beryllium free, high-tensile copper alloy, which was especially developed for the use in plastics mould making. Beryllium free alternative to CuBe2.  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Application examples:</b>                 | ALBROMET-W 164 affords a unbeatable combination of high thermal conductivity, hardness and abrasion resistance at beryllium free materials. It is the ideal material for casting tools, blow moulds, hot runner systems and other applications in plastics mould making.   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Machining tips:</b>                       | The material is generally delivered in coated state and can be machined with standard HM-equipped tools. EDM restricted possible: The outcome of the high conductivity is a higher electrode consumption respectively a longer running time as steel.  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Typical analysis:</b>                     | CuNiCrSi<br>The exact analysis will not be notified.   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Standards/Specifications:</b>             | Not standardized   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Delivery formats:</b>                     | Forged parts, pre-cut parts, Finished parts based on drawings  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| <b>Mechanical and physical properties:</b>   | <table border="0"> <tr> <td>Brinell hardness (HRC)</td> <td>26-30</td> </tr> <tr> <td>Brinell hardness (HB 30)</td> <td>260-285</td> </tr> <tr> <td>Tensile strength Rm</td> <td>860 N/mm<sup>2</sup></td> </tr> <tr> <td>Yield strength Rp 0,2</td> <td>720 N/mm<sup>2</sup></td> </tr> <tr> <td>Elongation at break A5</td> <td>8 %</td> </tr> <tr> <td>Density</td> <td>8,8 g/cm<sup>3</sup></td> </tr> <tr> <td>Liquidus</td> <td>~450 °C</td> </tr> <tr> <td>Softening point</td> <td>144,8 KN/mm<sup>2</sup></td> </tr> <tr> <td>Elasticity modulus E</td> <td>15,7 10<sup>-6</sup>/K</td> </tr> <tr> <td>Mean linear coefficient of thermal expansion</td> <td>~164 W/m x k</td> </tr> <tr> <td>Thermal conductivity at 20°C</td> <td>20 m/Ohm x mm<sup>2</sup></td> </tr> <tr> <td>Electrical conductivity</td> <td></td> </tr> </table> | Brinell hardness (HRC) | 26-30 | Brinell hardness (HB 30) | 260-285 | Tensile strength Rm | 860 N/mm <sup>2</sup> | Yield strength Rp 0,2 | 720 N/mm <sup>2</sup> | Elongation at break A5 | 8 % | Density | 8,8 g/cm <sup>3</sup> | Liquidus | ~450 °C | Softening point | 144,8 KN/mm <sup>2</sup> | Elasticity modulus E | 15,7 10 <sup>-6</sup> /K | Mean linear coefficient of thermal expansion | ~164 W/m x k | Thermal conductivity at 20°C | 20 m/Ohm x mm <sup>2</sup> | Electrical conductivity |  |
| Brinell hardness (HRC)                       | 26-30  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Brinell hardness (HB 30)                     | 260-285  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Tensile strength Rm                          | 860 N/mm <sup>2</sup>  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Yield strength Rp 0,2                        | 720 N/mm <sup>2</sup>  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Elongation at break A5                       | 8 %  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Density                                      | 8,8 g/cm <sup>3</sup>  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Liquidus                                     | ~450 °C  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Softening point                              | 144,8 KN/mm <sup>2</sup>   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Elasticity modulus E                         | 15,7 10 <sup>-6</sup> /K   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Mean linear coefficient of thermal expansion | ~164 W/m x k   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Thermal conductivity at 20°C                 | 20 m/Ohm x mm <sup>2</sup>   |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |
| Electrical conductivity                      |  |                        |       |                          |         |                     |                       |                       |                       |                        |     |         |                       |          |         |                 |                          |                      |                          |  |              |                              |                            |                         |  |

This data is based on information provided by our supplying plants. All changes reserved. The mechanical strength values are typical standard values and depend on the measurement and the production method.

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