

Material data sheet

Issue No. 03EN

2007-03-01

HOVADUR® K 150

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Material designation SCHMELZMETALL **HOVADUR® K 150**

Description of material

HOVADUR® K 150 is a precipitation hardenable copper alloy. In hardened condition, the alloy shows especially high electrical and thermal conductivity.

Furthermore, the alloy is characterized by high resistance to heat.

Material properties

Chemical composition in % of weight (nominal values)

| Cr | Zr | Fe | Si | others total | Cu |
|-----|------|--------|-------|--------------|-----------|
| 0.8 | 0.08 | < 0.08 | < 0.1 | < 0.2 | Remainder |

Agreed properties at 20 °C

| Condition | | Hot formed and hardened | Cold formed and hardened |
|-------------------------|-------|-------------------------|--------------------------|
| Hardness Brinell HB | *) 1) | 115–150 | 135–175 |
| Electrical conductivity | MS/m | 44– 51 | 44– 51 |

*) In case of different opinions, hardness is calculated as the average of 3 randomly located measurings (section).

1) This property depends on the dimension.

Associated properties at 20 °C

| Condition | | Hot formed and hardened | Cold formed and hardened |
|---------------------|-------------------------------|-------------------------|--------------------------|
| Tensile strength | 1) 2) N/mm ² (MPa) | 350–470 | 420–550 |
| 0.2% yield strength | 1) 2) N/mm ² (MPa) | 250–350 | 310–450 |
| Elongation (A5) | 1) 2) % | 15– 25 | 8– 20 |

1) Strength values will only be proved if ordered by the customer.

2) This property depends on the dimension.

Material information (nominal values)

| | | | |
|-------------------------------|-------------------------|-----------|------------------------|
| Elastic modulus | N/mm ² (MPa) | 125,000 | |
| Softening temperature | °C | 500 | |
| Specific weight | g/cm ³ | 8.9 | |
| Thermal conductivity | W/mK | 310–340 | (Average 20 °C–300 °C) |
| Thermal expansion coefficient | x 10 ⁻⁶ /°K | 17.0 | (Average 20 °C–300 °C) |
| Melting interval | °C | 1075–1085 | |

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Processing instructions

Hot forming

HOVADUR® K 150 is not intended for hot forming.

Advice: After a hot forming executed by the customer, the properties of HOVADUR® K 150 will normally no longer be achieved.

Cold forming

Even in hardened condition, HOVADUR® K 150 is suited for a certain cold forming.

Heat treatment

A heat treatment of HOVADUR® K 150 is not recommended. In general, it changes the agreed properties which will no longer be achieved afterwards.

Machining

HOVADUR® K 150 is very well suited for machining. We recommend hard metal cutting tools with highly positive cutting geometry.

For drilling, attention must be paid to good removal of chips. Cooling with emulsion is recommended. Eroding is possible, but it is rather difficult due to the material's high electrical conductivity. Polishing is possible, too.

Joining

HOVADUR® K 150 is suitable for soft as well as hard soldering. Concerning hard soldering a (small) loss in hardness is to be expected. Very low melting silver brazing should be used. Welding of HOVADUR® K 150 is possible to a limited extent.

Surface may be coated according to all usual procedures.

Application examples

Cooling plates, heat conducting parts and moulds with low mechanical strain for tempering of moulds for plastic injection moulds.

Moulds and cooling inserts for metal casting. Covers for centrifugal casting moulds.

Approvals

Our alloy HOVADUR® K 150 is tested and certified as being safe concerning contact with food.

Details of the properties or application of materials are for descriptive purposes only. Confirmation of suitability with regard to specific properties or application require written agreement.