Material data sheet HOVADUR® K 250

Material designation SCHMELZMETALL **HOVADUR® K 250**

Description of material

HOVADUR® K 250 is a thermally precipitation hardenable copper alloy. In heat treated condition, the alloy combines great hardness and high resistance to heat with good thermal conductivity.
We also produce the alloy HOVADUR® K 265, which is based on the same chemical composition as HOVADUR® K 250. Its even higher quality is due to vacuum technology and special processes.

Safety data sheet

SCHMELZMETALL No. 07.02E (Issue 30.07.2002)
Advice
SCHMELZMETALL alloy HOVADUR® K 250 is a modification of the alloy HOVADUR® CCNB which is produced according to special processes and heat treatments. Concerning safety aspects, the same information as for HOVADUR® CCNB is valid.

Material properties

Chemical composition in % of weight (nominal values)

Co	Ni	Be	Fe	Si	Cu
1.0	1.0	0.5	< 0.2	< 0.2	Remainder

Agreed properties at 20 °C (Condition: hardened)

Hardness Brinell HB		**220–270 *)**
Electrical conductivity	**MS/m**	**min. 25**

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

Associated properties at 20 °C (Condition: hardened)

Tensile strength	1)	N/mm^2 (MPa)	680–850
0.2% yield strength	1)	N/mm^2 (MPa)	550–750
Elongation (A5)	1)	%	8– 15

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

Material information (nominal values)

Elastic modulus	N/mm^2 (MPa)	135,000	
Softening temperature	°C	480	
Specific weight	g/cm^3	8.85	
Thermal conductivity	W/mK	240–275	**(Average 20 °C–300 °C)**
Thermal expansion coefficient	x 10^{-6}/°K	17.2	**(Average 20 °C–300 °C)**
Melting interval	°C	1000–1030	

Processing instructions

Hot forming
HOVADUR® K 250 is not intended for hot forming.
Advice: After a hot forming executed by the customer, the properties of HOVADUR® K 250 will normally no longer be achieved.

Cold forming
In hardened condition, HOVADUR® K 250 is not intended for cold forming.

Heat treatment
A heat treatment of HOVADUR® K 250 is not recommended. In general, it changes the agreed properties which will no longer be achieved afterwards.

Machining
HOVADUR® K 250 is well suited for machining. We recommend standard hard metal tools with positive cutting geometry.
For drilling, attention must be paid to good removal of chips. Cooling with emulsion is recommended.
In case of dry machining, this has to be done with strong suction. Outgoing air has to be cleaned by a particle filter.
Eroding of HOVADUR® K 250 is possible, but difficult due to its high electrical and thermal conductivity.
Thread moulding is possible to a limited extent. Bigger inside threads should be executed by circular thread milling.
HOVADUR® K 250 is well suited for polishing.

Joining
HOVADUR® K 250 is suitable for soft as well as hard soldering. Concerning hard soldering (even at limited time of effect of the temperature), a loss in hardness in the area of heating is to be expected. A very low melting silver brazing should be used. HOVADUR® K 250 is suited for welding. **Attention must be paid to sufficient extraction and filtering of welding fume.** Surfaces may be coated according to all usual procedures without problems.

Application examples

Inserts in moulds for plastic injection which require good thermal conductivity as well as good strength values.
Thermally high strained parts which are susceptible to fire cracks.
Moulds for non-ferrous metal casting, inserts in steel moulds at spots requiring a faster cooling speed.

Approvals
Our alloy HOVADUR® K 250 is tested and certified as being safe concerning contact with food.