Material data sheet HOVADUR® K 350

Material designation SCHMELZMETALL **HOVADUR® K 350**

Description of material

HOVADUR® K 350 is a thermally precipitation hardenable copper alloy. In heat treated condition, the alloy shows extraordinary high hardness and strength combined with good values for electrical and thermal conductivity. Good resistance to corrosion, high wear resistance, high resistance against seizing and good polishing properties complete the excellent range of properties of this alloy.

Safety data sheet

SCHMELZMETALL No. 07.02E (Issue 30.07.2002)

Advice

SCHMELZMETALL alloy HOVADUR® K 350 is a modification of the alloy HOVADUR® CB2 which is produced according to special processes and heat treatments. Concerning safety aspects, the same information as for HOVADUR® CB2 is valid.

Material properties

Chemical composition in % of weight (nominal values)

Be	Co + Ni	Fe	Si	others total	Cu
1.9	0.3	< 0.1	< 0.1	< 0.5	Remainder

Agreed properties at 20 °C (Condition: hardened)

Hardness Brinell HB		**350–410 *)**	
Electrical conductivity	**MS/m**	**min. 16**	**(min. 27.6% IACS)**

***) 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)	1150–1350
0.2% yield strength	1)	N/mm^2 (MPa)	1000–1250
Elongation (A5)	1)	%	3– 8

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	300	
Specific weight	g/cm^3	8.3	
Thermal conductivity	W/mK	160	**(Average 20 °C–300 °C)**
Thermal expansion coefficient	x 10^{-6}/°K	17.0	**(Average 20 °C–300 °C)**
Melting interval	°C	870–970	

Processing instructions

Hot forming
HOVADUR® K 350 is not intended for hot forming.
Advice: After a hot forming executed by the customer, the properties of HOVADUR® K 350 will normally no longer be achieved.

Cold forming
In hardened condition, HOVADUR® K 350 is not intended for cold forming.

Heat treatment
A heat treatment of HOVADUR® K 350 is not recommended. In general, it changes the agreed properties which will no longer be achieved afterwards.

Machining
HOVADUR® K 350 is suitable 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.
Bigger inside threads should be executed by circular thread milling.
In case of more important machining work, pre-machining in solution heat treated condition may be reasonable (Before planning, please ask SCHMELZMETALL for possibility to supply solution heat treated condition and to do heat treatment after machining).
HOVADUR® K 350 is suited for polishing.

Joining
HOVADUR® K 350 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 and the brazing process itself should be as short as possible. HOVADUR® K 350 is suited for welding. **Attention must be paid to sufficient extraction and filtering of welding fume.**

Application examples

Mechanically highly strained mould parts in mould making for plastic injection. Parts for precision measuring instruments.
Sparkling-free and non magnetic safety parts for on-/offshore drilling.

Approvals
Our alloy HOVADUR® K 350 is tested and certified as being safe concerning contact with food.