Special applications
Schmelzmetall
Products and Solutions for gravity casting and low pressure die casting

Jürgen Barz
Schmelzmetall Deutschland GmbH
Raiffeisenstraße 8, 97854 Steinfeld-Hausen
www.schmelzmetall.com
Hovadur® application areas

Gunmetal casting: bronze, brass

- Kitchen armatures
- Bath armatures
- Water meters
- Valves

(first step into aluminum - gravity casting)
Die casting
Mould
Main requirements for mould materials:

- long life span
- high quality castings
- short hardening times
- best cost/benefit ratio
The life span of a mould depends on the thermal shock behaviour and the ability to resist heat cracking of the mould material.

Evaluation of suitable materials

\[
Ws = \Delta T \times TEC \times E
\]

\[
TSR = TC \times SS \div TEC \times E
\]

TC = thermal conductivity (W/mK)
SS = 0.2 % yield strength (N/mm²)
TEC = coefficient of thermal expansion (10⁻⁶/K)
E = E-modulus of elasticity
Stress comparison of the different materials

- Stress in N/mm²
- Yield point
- Tensile strength
- Thermal stress

Materials:
- Steel
- CuCrZr
- CuCoNiBe
- CuNiBe-Sp
LP - DC

relative cost factor of the die per cast

cost factor in %

cost factor in %

number of cast’s (x 1.000)

CNCS

CCNB
LP - DC

Cost / Lifespan

factor in %

Cost´s

Lifespan

CNCS

CCNB

CNBspez.
Gravity casting

relative cost factor of the die per cast

cost factor in %

number of cast’s (x 1.000)
Gravity casting

Cost / Lifespan

<table>
<thead>
<tr>
<th>Factor in %</th>
<th>CNCS</th>
<th>CCNB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost´s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifespan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Our recommendations regarding the use of **Hovadur®** as mould material

<table>
<thead>
<tr>
<th>Hovadur®</th>
<th>Gravity</th>
<th>Low pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNCS</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>CCNB</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>CNBspez</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Aluminium - gravity casting

Proof of eligibility of Hovadur® CCNBeh and CNBspez. for the use in aluminium – gravity casting

Sample: gear box, stair lift
Aluminium - gravity casting