

Elmedur B2

Technical Datasheet

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|-------------------|--------|--|-----|-------|---------|
| Short-Name | CW101C | Chemical Composition (Reference values in %) | Be | Ni+Co | Cu |
| Code | CuBe2 | | 2,0 | 0,4 | balance |
| Material-No.(old) | 2.1247 | | | | |

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| Material-Properties | Precipitation hardened alloy with good thermal conductivity and high hardness. Not suitable for case hardening or nitriding. |
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| Applications | <ul style="list-style-type: none"> – Plastic blow and injection moulds – Inserts in steel tools on spots requiring higher cooling rates. Due to a high tensile strength also suitable for inserts with a high ratio of length/cross section – Nozzles and needles for hot runner systems – Cooling inserts in moulds and ingot moulds |
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| HOT-Forming | | 800–650 °C (1.073–923 K) | Cooling | water or air |
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| Heat-Treatment | | | Time | Cooling | Hardness HV |
| | Solution annealing | 750–800 °C (1.023–1.073 K) | ½ h | water | max. 210 |
| | Precipitation hardening | 325 °C (598 K) | min. 2 h | water or air | c. 400 |

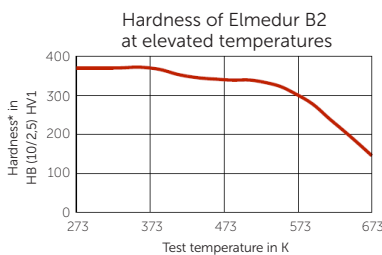
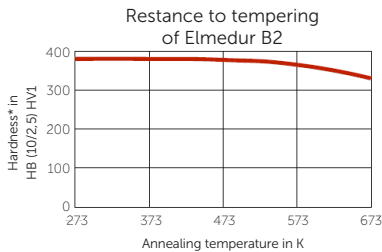
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|---|-----------------------|--------------------|-----------------------------|--|---------------------------|
| Mechanical Properties (precipitation hardened) | Conditions | | Solution annealed and aged | solution annealed, cold drawn and aged | |
| | Cross-section | | below 3.000 mm ² | below 500 mm ² | 500–1.000 mm ² |
| | Hardness | HV 30 | 360–390 | 390–430 | 380–420 |
| | Tensile strength | N/mm ² | 1.150–1.350 | 1.350–1.500 | 1.200–1.450 |
| | Yield strength | N/mm ² | 1.000–1.250 | 1.150–1.400 | 1.050–1.350 |
| | Elongation L = 5 D | % | min. 3 | min. 1 | min. 1 |
| | Modulus of elasticity | kN/mm ² | 135 | 135 | 135 |
| | Modulus of torsion | kN/mm ² | 47 | 47 | 47 |

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|---|---|-----------------------|---|
| Physical Properties (precipitation hardened) | Coefficient of thermal expansion 0–300 °C (273–573 K) | $\frac{1}{K}$ | 17,0•10 ⁻⁶ |
| | Specific heat | $\frac{J}{g \cdot K}$ | 0,42 |
| | Thermal conductivity 20 °C (293 K) 200 °C (473 K) 300 °C (573 K) | $\frac{W}{m \cdot K}$ | approx. 120 approx. 190 approx. 230 |
| | Density | g/cm ³ | 8.3 |

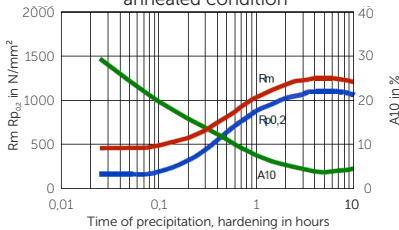
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| Products | Round-, square- and flat -bars, discs, rings and forged pieces (available sizes can be found in our current stock list) |
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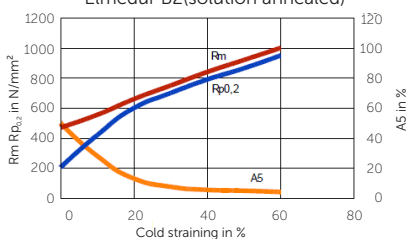
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Precipitation hardening behaviour at 598 K (325 °C) of Elmedur B2 from the solution annealed condition



Strain hardening behaviour of Elmedur B2 (solution annealed)



*) Brinell hardness at R.T. after 5 hrs. annealing; cooling in air

Machining (Reference values) Conditions: solution annealed

| Turning | Tungsten Carbide K 20 | HSS THYRAPID 1.3207 |
|-----------------------|-------------------------------|-------------------------------|
| Cutting speed m/min. | up to 250 | up to 80 |
| Rake angle | 6–18 | 15–25 |
| Feed and depth of cut | as to required surface finish | as to required surface finish |
| Chips breaker | recommended | recommended |

| Milling | Tungsten carbide K20 | HSS THYRAPID 1.3207 |
|----------------------|----------------------|---------------------|
| Cutting speed m/min. | up to 250 | up to 80 |
| Rake angle | positive | positive |
| Feed (mm/min) | 200–300 | 80–150 |

| Drilling | Twist drills acc. to DIN 338 |
|-----------------------|------------------------------|
| Cutting speed (m/min) | max. 15 |

For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufactures.

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| Spark eroding | EDM and wire cutting is possible |
| Polishability | good |

| Standards / Tolerances | |
|------------------------|--|
| DIN EN 12 163 | Round bars for general purpose |
| DIN EN 12 165 | Ingots for forgings |
| DIN EN 12 167 | Profiles and rectangular bars for general purpose. |

Health note

The material contains small amounts of beryllium, cobalt and nickel. Inhalation of fine dust and steam is to be avoided. During machining, the H-phrases (H301; H302; H332i; H350i; H334; H372) and the P-phrases (P201; P202; P260; P308; P313) must be observed.

All statements as to the properties or utilization of the material and products mentioned in this datasheet are only for the purpose of description. Guarantees in respect of the existence of certain properties or utilization at the material mentioned are only valid if agreed upon in writing.