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|--------------------|-----------|---|-----|-----|-----|---------|
| Short Name | CW103C | Chemical Composition (Reference values in %) | Co | Ni | Be | Cu |
| Code | CuCoNi1Be | | 1,0 | 1.0 | 0,5 | balance |
| Material-N°. (old) | ~2.1285 | | | | | |

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| Classification | DIN ISO 5782 | Class A 3/1 |
| | R.W.M.A. | Class 3 |
| | DIN EN 12163 / 12167 | CW 103C |

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| Properties | Precipitation hardened copper alloy with very high hardness and good electrical and thermal conductivity. |
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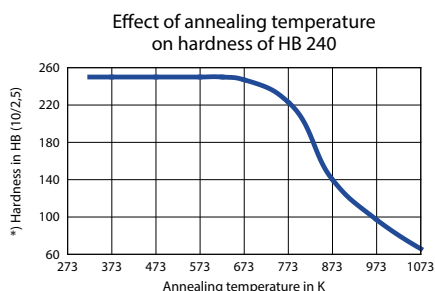
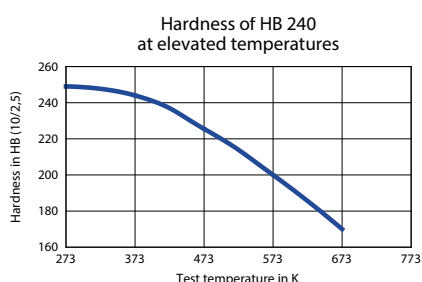
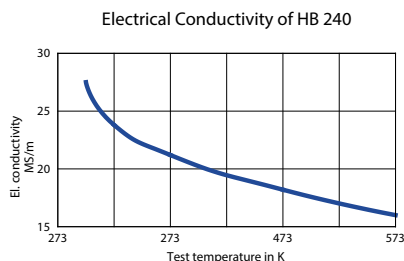
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| Applications | <ul style="list-style-type: none"> • Electrodes for spot welding, especially for stainless steel • Electrodes for projection welding • Butt welding jaws • Contact tips for submerged-arc-welding |
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|---|-------------------------|-------------------------|------------------------------|-----------|------------|---------------|
| Mechanical Properties (Reference values) | Conditions | solution annealed, aged | | | | |
| | Cross section | | <Ø25 mm | >Ø25-60mm | >Ø60-200mm | >40mm fla/sqr |
| | Hardness | HB 187,5/2,5 | > 260 | > 250 | > 240 | > 230 |
| | Tensile strength | N/mm ² | 750 – 900 | 720 – 880 | 700 – 850 | 680-800 |
| | Yield strength | N/mm ² | min. 700 | min. 680 | min. 600 | min. 570 |
| | Elongation L = 5 D | % | min. 5 | min. 5 | min. 6 | min.10 |
| | Modulus of elasticity | kN/mm ² | 135 | 135 | 135 | 135 |
| | Compressive yield point | % | 95 – 100 % of yield strength | | | |
| Softening temperature | °C (K) | 480 (753) | | | | |

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| Physical Properties (Reference values) | Electrical conductivity 293 K (20 °C) | MS/m | min. 25 (min. 43 % IACS) |
| | Electrical resistance 293 K (20 °C) | Ω.mm ² /m | 0,04 |
| | Coefficient of electrical resistance 273-373 K (0-100 °C) | 1/K | 0,0019 |
| | Coefficient of thermal expansion 273-593 K (0-320 °C) | 1/K | w17,0 ×10 ⁻⁶ |
| | Specific heat | J/g.K | 0,42 |
| | Thermal conductivity 293 K (20 °C) | W/m.K | approx. 210 |
| | Density | g/cm3 | 8,8 |

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| Products | Rods drawn or extruded in round, square and flat; discs and rings, forgings, electrodes for spot-, seam-, projection- and butt welding, castings on request (Available sizes can be found in our current stock list). |
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Machining (Reference values) Condition: precipitation hardened



*) Brinell hardness at R.T. after 5-hrs heating, cooling with air

| Turning | Tungsten Carbide K 20 | HSS* 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 |
| Chip breaker | recommended | recommended |

| Milling | Tungsten Carbide K20 | HSS* 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 in acc. with DIN 338 |
|-----------------------|--|
| Cutting speed (m/min) | max. 20 |
| Chip flow | For a better chip flow, drills with an enlarged twist angle should advantageously be used. We recommend contacting the respective manufacturers. |

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

All statements as to the properties or utilization of the materials 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.

*(HSS) High Speed Steel