

eco SZ2[®]

CuZn36Si1P | lead-free special brass

Material designation

| | |
|-----|------------|
| EN | CW726R |
| | CuZn36Si1P |
| UNS | C68370 |

Chemical composition*

| | |
|----|--------------|
| Cu | 63 % |
| Pb | max. 0.100 % |
| Si | 1 % |
| P | max. 0.10 % |
| Zn | balance |

*Reference values in % by weight

Physical properties*

| | | |
|--|---------------------|------|
| Electrical conductivity | MS/m | 9.8 |
| | %IACS | 16 |
| Thermal conductivity | W/(m·K) | 73 |
| Thermal expansion coefficient (0–300 °C) | 10 ⁻⁶ /K | 19 |
| Density | g/cm ³ | 8.24 |
| Modulus of elasticity | GPa | – |

*Reference values at room temperature

Corrosion resistance

Special brass generally exhibits excellent corrosion resistance due to alloying elements.

The addition of silicon increases the tarnish resistance and reduces the sensitivity to stress corrosion cracking.

Product standards

| | |
|------------|---------------------|
| Rod | EN 12164 Draft 2022 |
| | EN 12165 Draft 2022 |
| Wire | EN 12166 Draft 2022 |
| Section | EN 12167 Draft 2022 |
| Hollow rod | EN 12168 Draft 2022 |

Material properties and typical applications

eco SZ2[®] is a special brass that can be used as a replacement for leaded brasses. The addition of silicon makes the material very easy to machine. Its corrosion resistance and usability are comparable to those of CuZn40Pb2. The mechanical strength values are slightly higher.

The material is lead-free in accordance with RoHS and ELV.

Hygienic approval for drinking water applications is being sought.

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempsers.

Fabrication properties

Forming

| | |
|-----------------------------------|-----------|
| Machinability (CuZn39Pb3 = 100 %) | 85 % |
| Capacity for being cold worked | fair |
| Capacity for being hot worked | excellent |

Surface treatment

| | | |
|----------------|--------------|-----------|
| Polishing | mechanical | good |
| | electrolytic | poor |
| Electroplating | | excellent |

Joining

| | |
|--------------------------------|------|
| Resistance welding (butt weld) | fair |
| Inert gas shielded arc welding | fair |
| Gas welding | poor |
| Hard soldering | good |
| Soft soldering | good |

Heat treatment

| | |
|--------------------------|-----------------------|
| Melting range | 865 - 880 °C |
| Hot working | 550 - 650 °C |
| Soft annealing | 450 - 500 °C, 2 - 3 h |
| Thermal stress-relieving | 200 - 300 °C, 1 - 3 h |

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Dimensions and mechanical properties according to standards

Round rods / polygonal rods

acc. to EN 12164 Draft 2022

| Temper | Diameter | | Width across flat | | Tensile strength | Yield strength | | Elongation | | | Hardness | | |
|--------|----------|----|-------------------|----|------------------|-------------------|------|------------|-------|------|----------|------|--|
| | | | | | R _m | R _{p0.2} | | A100 | A11.3 | A | HB | | |
| | mm | mm | mm | mm | MPa | MPa | | % | % | % | | | |
| | from | to | from | to | min. | min. | max. | min. | min. | min. | min. | max. | |
| M | all | | all | | as manufactured | | | | | | | | |
| R450 | 6 | 80 | 5 | 80 | 450 | - | 400 | - | - | 15 | - | - | |
| H090 | 6 | 80 | 5 | 80 | - | - | - | - | - | - | 90 | 180 | |
| R480 | 10 | 40 | 15 | 40 | 480 | 260 | - | - | - | 12 | - | - | |
| H120 | 10 | 40 | 15 | 40 | - | - | - | - | - | - | 120 | 210 | |
| R540 | 2 | 20 | 2 | 15 | 540 | 400 | - | - | 2 | 3 | - | - | |
| H150 | 2 | 20 | 2 | 15 | - | - | - | - | - | - | 150 | 220 | |