

METRIC

Brass Alloy SM 1085

Comparable Standards: ISO CuZn15
 ASTM / UNS C23000
 EN CW502L
 JIS C2300

Chemical Composition

| Element | Unit | Range |
|---------|------|-----------|
| Copper | % | 84 - 86 |
| Iron | % | < 0.05 |
| Lead | % | < 0.05 |
| Zinc | | remainder |

Mechanical Properties - Standardized Temper

| Alloy | Temper | Yield Rp0,2 MPa | Tensile Rm MPa | Elongation A50 % | Hardness HV |
|----------------|-------------|-----------------------|----------------------|------------------------|----------------|
| SM 1085 | -851 | | 300-370 | | 80-100 |

Mechanical Properties - Non Standardized Tempers

| Alloy | Temper | Yield Rp0,2 MPa | Tensile Rm MPa | Elongation A50 % | Hardness HV |
|---------|----------|-----------------------|----------------------|------------------------|----------------|
| SM 1085 | annealed | (-170) | 260-310 | 36- | 55-85 |
| | hard | (150-) | 300-370 | 16- | 85-115 |
| | | (260-) | 350-420 | 4- | 105-135 |
| | | (430-) | 410- | - | 125- |

NOTES!

- Annealed tempers: Grain size requirements may differ dependent on product spec.
- There are typical values not always possible to combine as requirements
- There are also other tempers with somewhat different properties available both for the annealed to temper and rolled to temper materials

!! Mechanical Properties for tank & header: Please refer to alloy SM 1067!!

Brass Alloy SM 1085

Dimensions

| Nominal width | Tolerance |
|---------------|-----------|
| -50 | ±0.05 |
| 50 - 100 | ±0.075 |
| 100 - 200 | ±0.10 |
| 200 - 400 | ±0.15 |
| 400 - 600 | ±0.20 |

| Nominal thickness | In steps of |
|-------------------|-------------|
| 0.080 - 0.250 | 0.005 |
| 0.250 - 0.400 | 0.010 |
| 0.400 - 1.000 | 0.050 |
| 1.000 - 2.000 | 0.100 |

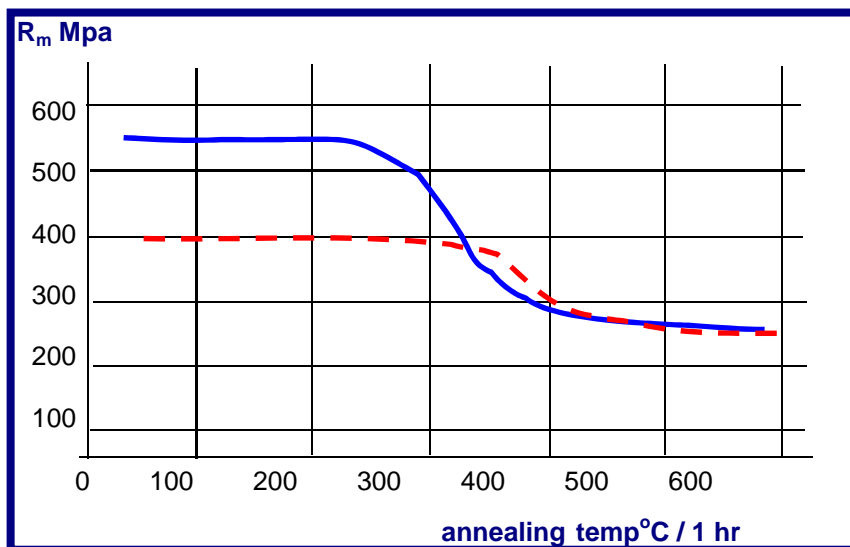
- Unslitted width (full master coil width) possible (appr. 640 mm wide)
- Thickness tolerance up to 0.150 mm nominal :± 0.003 mm
- Thickness tolerance over 0.150 mm nominal : ± 2% (rounded upwords to nearest micron)

Physical Properties

| | | |
|----------------------------|-----------------------------------|-----------|
| Density | kg/m ³ | 8750 |
| Melting temperature | °C | 1000-1025 |
| Specific heat | kJ/(kg °C) | 0.38 |
| Electrical conductivity | MS/m | 21 |
| Electrical conductivity | IACS % | 37 |
| Electrical resistivity | nΩ meter | 47 |
| Thermal conductivity | W/(m °C) | 160 |
| Thermal expansion 20-300°C | 10 ⁻⁶ °C ⁻¹ | 19x |
| Young's modulus E | MPa | 124 000 |

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Heat Resistance and Softening Characteristics



— after 50% deformation
- - - after 25%

Heat Treatment

Soft annealing

400 - 550 °C

Time dep. on size and volume: propose

2 hours

Stress relief annealing

250 - 300 °C

Welding

Due to the zinc content, some counter-measures to stop vaporization of zinc are necessary. Otherwise the alloy is suitable for soldering, brazing and welding.

Surface Treatment.

Colours are reddish- to brownish but could easily be influenced by many types of surface treatments.

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Formability

Valid for all tempers:
Both at elevated as well as room temperature
easy to form, however decreasing with increased hardness.

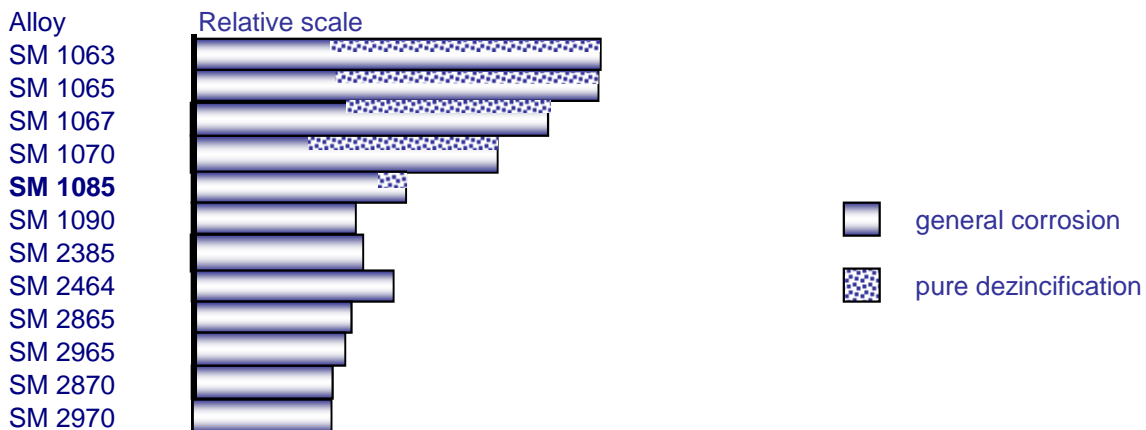
Below: minimum bending radius. t = gauge

| Temper | Hardness | t = < 0.25 mm | | t = > 0.25 mm | |
|--------|------------|---------------|---------|---------------|---------|
| | | good way | bad way | good way | bad way |
| Soft | HV 65-125 | 0 x t | 0 x t | 0 x t | 0 x t |
| Hard | HV 120-155 | 0 x t | 0 x t | 0 x t | 1 x t |
| | HV 150-180 | 0 x t | 1 x t | 0 x t | 2 x t |
| | HV 170-200 | 0 x t | 2 x t | 1 x t | 3 x t |

Corrosion Properties

Durable to water and organic compounds, as well as land-, sea- and industrial atmospheres.

Dezincification comparison:



Due to the high copper content the risk for **stress corrosion cracking** is negligible.

