

Copper Tin – CuSn

Innovative conductor material for low current and signal cables

Material

Low alloyed copper

Applicable material standard

DIN CN/TS 13388

Usage in automotive industry

Low current and signal cables

Usage in industry

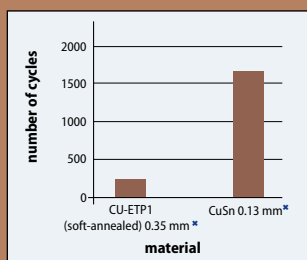
Telecommunication, overhead contact line and electronics

Characteristics of CuSn

	CuSn	Cu-ETP
density (at 20 °C)	8.92 g/cm ³	8.92 g/cm ³
electrical conductivity	72 %, IACS	100 %, IACS
tensile strength*	>620 N/mm ²	>220 N/mm ²
elongation at break*	>1 %	>16 %

* Values based on soft annealed ETP-copper and hard-drawn CuSn.

Bending Test



Benefits of copper tin

Compared to copper conductors

- ✓ higher mechanical strength
- ✓ reduction of cross-section of up to three gauge sizes due to higher tensile strength of CuSn i.e. 0.35 mm² → 0.13 mm²
- ✓ smaller package size
- ✓ similar crimping characteristics

Comparison table – cable types*

	FLCUSNRY	FLRY	Ratio
cross-section	0.13 mm ²	0.35 mm ²	63 % reduction
tensile force	>100 N	>75 N	33 % increase
max. electrical resistance at 20 °C	170 Ω/km**	54.4 Ω/km**	212 % increase**
outer diameter max.	1.05 mm	1.30 mm	20 % reduction
approx. cable weight	2.0 kg/km	4.5 kg/km	55 % reduction

* Due to the mechanical benefits over copper 0.35 mm² the adequate CuSn cross-section is 0.13 mm².

** Due to resistance increase CuSn can only be used in low current or signal applications.

LEONI