

AISI 1% The Aluminum Fine Wire Solution



A homogeneous distribution of finely dispersed silicon precipitates achieves a high strength for aluminum wires with diameters < 100 μm . Moreover, the homogeneity of the silicon distribution permits the best processing conditions. The AISI 1% alloy is also available in the CR variant, which displays particularly corrosion resistant properties.

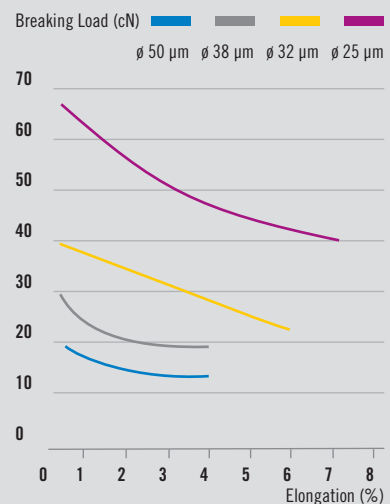
Areas of application

- Automotive components
- IC cards
- Hybrid components
- Hermetically encapsulated components

AISI 1% Benefits

- Best mechanical properties
- Constant wedge broadening
- Good processability
- Corrosion Resistance (CR)
- Exact loop guiding

Breaking Load vs. Elongation

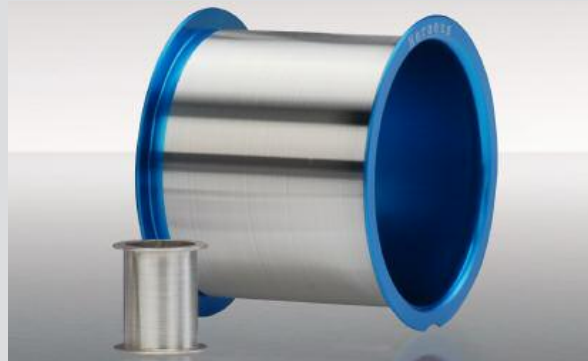


Recommended Technical Data of AISI 1%

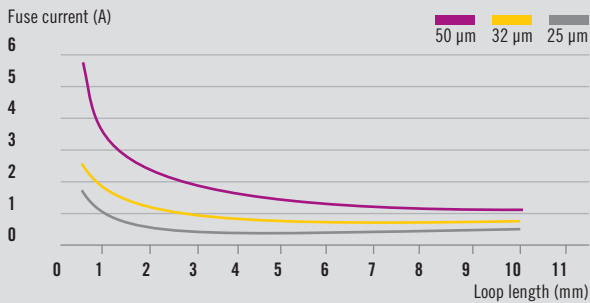
Diameter	Microns (μm)	25	30	32	33	38	50	75	100
	Mils	1.0	1.2	1.25	1.3	1.5	2.0	3.0	4.0
Elongation	%	> 1	> 1	> 1	> 1	> 1	> 2	> 2	> 2
Breaking Load cN	hard	14 – 16	21 – 24	21 – 25	22 – 26	30 – 38	52 – 65	90 – 120	180 – 250
	soft	11 – 14	16 – 21	16 – 21	17 – 22	21 – 30	40 – 52	70 – 90	120 – 180

Characteristics of AISi 1%

Melting Point	°C	600 – 655
Modulus of rigidity	kN / mm ²	27
Thermal conductivity at 20°C	W / m-K	195
Linear expansion coefficient (20 – 30°C)	10 ⁻⁶ -K ⁻¹	25
Electrical Resistivity at 20°C	μOhm-cm	3.0
Temperature coefficient of electrical resistance (0 – 100°C)	10 ⁻³ -K ⁻¹	3.95
Relative electrical conductivity (IACS) at 20°C	%	57.5
Meter resistance at ø 25 μm (20°C)	Ω / m	61.1
Thermal emf against Cu (0°/100°C)	mV	-0.36

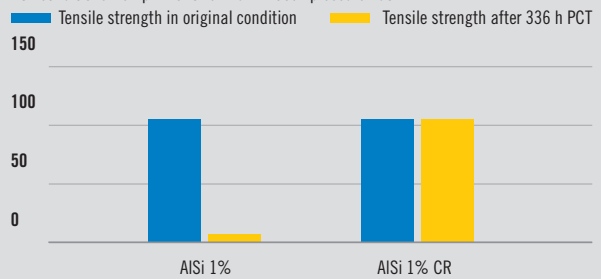


Fuse Currents of AISi 1%



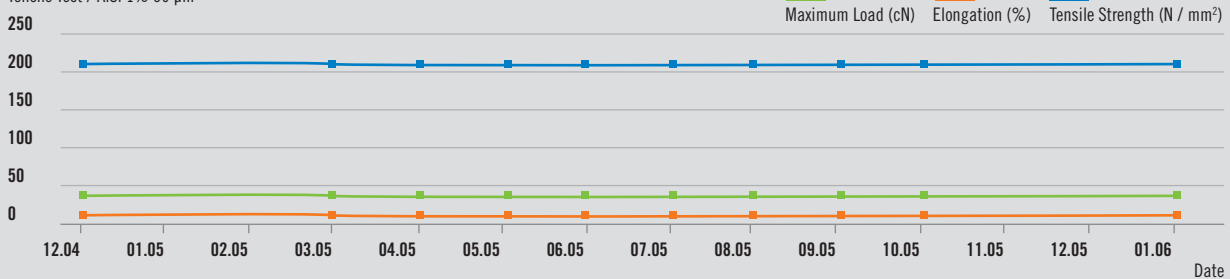
Pressure Cooker Test of AISi 1%

PCT conditions: Temp. 120°C rel. hum. 100% pressure 2atm.



Aluminum Bonding Wire Long-time Behavior

Tensile Test / AISi 1% 50 μm



W. C. Heraeus GmbH

Contact Materials Division
 Business Unit Bonding Wires
 Heraeusstr.12 – 14
 63450 Hanau, Germany
 Telefon +49 6181.35 - 5591
 Fax +49 6181.35 - 5179
 bonding.wires@heraeus.com
 www.heraeus-contactmaterials.com