

Luma Tungsten Wire

Some characteristics of tungsten

- Tungsten has the highest melting point and the highest tensile strength of all metals
- High strength at high temperatures
- Good conductivity for heat and electricity
- High absorption capacity for radioactive radiation and X-rays
- Tungsten has the lowest vapour pressure and the lowest coefficient of thermal expansion of all metals in pure form



Example of applications

- | | | | |
|----------|-----------------|------------|----------------------------|
| Antennas | Musical strings | Lighting | Integrated circuit testing |
| Printing | Connectors | Mesh | Technical research |
| Fuses | Medical | Automotive | |

Properties of bare Tungsten wire

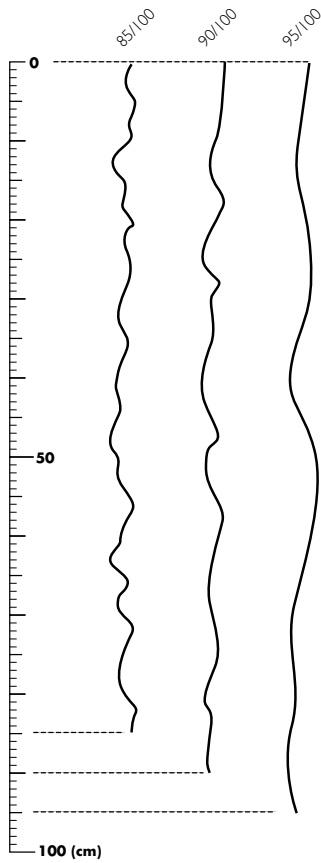
Purity	99.95% W
Melting point	3410 °C
Density	19.17 g/cm ³
Specific electrical resistance at 20 °C	0.055 Ohm x mm ² /m
Modulus of elasticity at 20 °C	410 kN/mm ²

Wire qualities

820	Standard, non-sag quality wire containing minimum 99.95 % W, doped with potassium, silicon and aluminium.
821	A wire of 820 standard quality, which has passed the requisite tests to meet the demands for wire of a higher standard below Ø 50 microns i.e. virtually free from traces of cracks or splits.
823	Has a low concentration of unfavourable impurities. Has a long grain structure, high recrystallization temperature and increased ductility.

Surface finishes	Diameter range (microns)	(mils)
20 Black drawn wire for further redrawing	50 - 500	1.96 - 19.6
21 Black drawn wire	10 - 500	0.39 - 19.6
22 Black drawn wire, straightened	10 - 500	0.39 - 19.6
25 Black drawn wire, used as heating element	10 - 500	0.39 - 19.6
31 "21" wire, electrolytically cleaned	10 - 500	0.39 - 19.6
32 "21" wire, straightened and electrolytically cleaned	10 - 500	0.39 - 19.6
34 "32" wire with a highly polished surface	10 - 500	0.39 - 19.6
36 "32" wire with an ultra polished surface	10 - 500	0.39 - 19.6
37 oxidized surface	10 - 500	0.39 - 19.6
41 "21" wire, electrolytically etched to the final dimension	4 - 30	0.16 - 1.18
42 "21" wire, straightened and electrolytically etched to the final dimension	4 - 30	0.16 - 1.18

Straightness



Ovality (out of roundness)

Ø Microns	Standard	Available on request
< 15	Max 6%	Max 3%
≥ 15	Max 5%	Max 2%

Elongation 1 – 3%

Wire size micron	Diameter tolerance		Weight tolerance	
	Standard	On request	Standard	On request
≥4<5	+/- 3.5%	+/- 2%	+/- 7%	+/- 4%
≥5<10	+/- 2%	+/- 0.5%	+/- 4%	+/- 1%
≥10<18	+/- 1.5%	+/- 0.25%	+/- 3%	+/- 0.5%
≥18	+/- 1%	+/- 0.25%	+/- 2%	+/- 0.5%

Straightness Wire with a finish of 32 and 42 is available in the following grades of straightness.

Straightness grade	Ø Microns < 15	Ø Microns 15-30	Ø Microns > 30
3 (85/100)	standard	-	-
2 (90/100)	on request	standard	-
1 (95/100)	not available	on request	on request

Standard tensile strength of Tungsten

