

Luma Tungsten Wire alloyed with 3% Rhenium

Advantages compared to pure tungsten

- Higher recrystallization temperature
- No brittleness in recrystallized condition
- Superior hot strength and vibration strength
- Greater specific resistance
- Higher thermal stability
- Greater tensile strength



Example of applications



Antennas



Medical



Lighting



Integrated Circuit testing



Printing



Technical research



Mesh

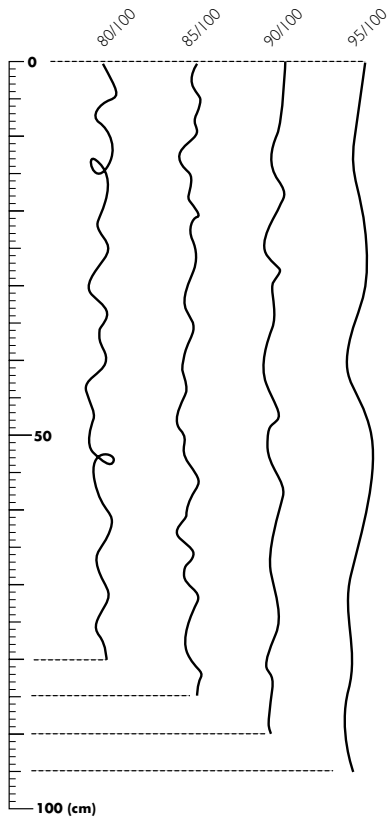
Properties of bare tungsten wire alloyed with 3% Rhenium

| | |
|--|--------------------------------|
| Purity of tungsten before rhenium addition | 99.95% W |
| Melting point | 3380 °C |
| Density | 19.22 g/cm ³ |
| Specific electrical resistance at 20 °C | 0.092 Ohm x mm ² /m |
| Modulus of elasticity at 20 °C | 430 kN/mm ² |

| Wire qualities | Description |
|----------------|--|
| 860 | An alloy of tungsten and 3% Rhenium |
| 861 | A wire of 860 standard quality which has passed the requisite tests to meet the demands for wire of a higher standard. |

| 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 |
| 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%

Dimensional tolerances

| 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 |
|--------------------|----------------|-----------------|----------------|
| 4 (80/100) | standard | - | - |
| 3 (85/100) | on request | standard | - |
| 2 (90/100) | on request | on request | standard |
| 1 (95/100) | not available | on request | on request |

Standard tensile strength of Tungsten alloyed with 3% Rhenium

