Did you know?

The brand name Tungsram is an abbreviation of the English tungsten and its Hungarian/German counterpart wolfram. Established in 1896, our company has 100+ years of experience developing and producing tungsten materials and products. Aladár Pácz invented and patented (in 1917) the “non-sag” tungsten, which laid the foundation for mass production and utilization of tungsten coils and cathodes in the lighting and other industries for the following 50+ years. From 1905, Sándor Just & Ferenc Harmann – both Tungsram employees – experimented with thoriated tungsten and developed the helix and double helix incandescent coils. Pál Túry, Tivadar Millner and Imre Tarján invented the sodium-silica-potassium-aluminium doped tungsten which had the purity of 99.5% after annealing. Nowadays called the “GK”-type Tungsten, it was patented in 1928. The properties of this material exceeded those of the original and made Hungarian tungsten wire and coil manufacturing world-class.

Tungram was the 3rd in the world to launch the development and manufacturing of electron tubes in 1917. In 1932, the company was the first to build a screen-grid Tetrode, the AS4104 and continued developing vacuum/electron tubes and magnetrons for the following decades.

Hence our slogan: Innovation is our heritage.
Advantages of $\text{Al}_2\text{O}_3$ Ceramics

- Capable of withstanding very high temperature: 1600°C + (3000°F+)
- Very good resistance against acids and alkalis
- High hardness: 82 (HR – 45N)
- Very low thermal expansion coefficient: 7,2 a ($\mu$m/m°K)
- Very low electric conductivity

Possible utilization of Ceramics

- Prostheses, dental implants, braces
- Laboratory instrument tubes and sample holders
- Thermometry sensors
- Furnace liner tubes
- High voltage insulators
- Sealing rings
Ceramic products in various shapes and sizes

Current capabilities

Tungsram has the capability to measure and control each production phase throughout the whole production process which guarantees high-quality components.

The company has world-class sintering capability in H₂ gas (and other gases) at high temperatures. This sintering technology is rare among manufacturers in the EU (in translucent ceramic production). Our doping capabilities and experience maximizes the potential of our products according to the customer’s request. We use high purity 99.99% aluminum oxide to produce our ceramic parts. Tungsram has molding tool and molding insert design and manufacturing capabilities that enable us to make a high diversity of products. To ensure surface quality, we use Zyglo Fluorescent Penetrant Inspection to filter out cracks and discontinuities.

Furthermore, Tungsram has electric conductor printing capability on its ceramic parts.
Advantages of Tungsten

- Tungsten has the highest melting temperature of all metals: 3370°C (6100°F)
- Tungsten has the highest tensile strength amongst any non-alloyed metals: 2965 MPa (430000 psi)*
- Tungsten has the lowest thermal expansion coefficient amongst every metal: 4.5 a (µm/m°K)
Coils, cathodes & wires for every purpose

Possible utilizations of Tungsten

- The material’s tensile properties & the general robustness are highly capable of providing high mechanical strength at very low diameter range, allowing practical utilization at miniature and microscopic levels.
- The density of Tungsten makes it visible, therefore traceable under X-ray and ultra-sound.
- The resistance to heat and relatively good conductivity allows the material and its alloys to be utilized as circuits for microelectronics.
- The thermionic emitting & heat resistance capabilities of Tungsten makes it fit to be utilized as an electron source for X-ray or CT machines.
Current capabilities

Tungsram has the **Tungsten wire production capability from powder metallurgy** to the **finest possible sizes**. We have the capacity to produce **80+ tons of Tungsten rods/year**. We have the experience of producing **Re-alloyed Tungsten wire** at various Re%. The company developed and built the fine-wire production machines and processes in-house. Wire cleaning capabilities meet the highest industry standards. Our currently produced lowest wire size is: **0.008 mm (0.000315 inch)**. We have **100% process control** from powder metallurgy to the packaging, which allows **full traceability throughout the production process**. Currently we are producing **650+ different coil SKUs** and **1000+ different wire SKUs** annually.

*Measured at 21°C (70°F) on a 0.7112 mm (0.028") drawn Tungsten wire.
Contacts

Tungsram Operations Kft.
77 Váci út
Budapest 1044
Hungary

General inquiry
advanced@tungsram.com

Website
www.advanced.tungsram.com

Social media
Facebook Tungsram Group
LinkedIn Tungsram Group
Instagram tungsram_official