



Description

Rhenium has one of the highest densities and melting points of any element. It does not have a ductile to brittle transition temperature and does not form carbides. High resistivity combined with low vapour pressure make it ideal for filament applications, while its resistance to corrosion means it can resist acid attack and the mechanical effects of electrical erosion. Rhenium is beneficial as an alloying addition to other refractory metals as it greatly enhances the ductility and tensile strength of these alloys.

Applications

Mass spectrometer filaments, grid heaters, cathode cups, thermocouples, nuclear reactors, semiconductors.

PHYSICAL PROPERTIES

Density	21.2g/cm ³
Melting point	3180°C
Electrical resistivity	13.5 microhm-cm
Thermal conductivity	39.6 W/mK
Specific heat	0.138 J/g°C
Coefficient of linear thermal expansion	6.63 x 10 ⁻⁶ m/°C

MECHANICAL PROPERTIES

Tensile strength	
RT	1070 MPa
800°C	620 MPa
1200°C	410 MPa
Elongation at break	15-25%
Modulus of elasticity	469 GPa

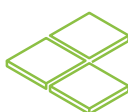
FORMS AVAILABLE:



Coil



Sheet



Plate



Rod



Bar

CHEMISTRY



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99.97%

28 Nickel Ni 58.6934	27 Cobalt Co 58.933	26 Iron Fe 55.847
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More than just metal

We're one of Europe's leading suppliers of premium quality refractory metals and alloys, soft magnetic alloys, and controlled expansion alloys. We hold a large stock of UK-certified, materials, all with full chain custody. With a deep technical understanding, comprehensive workshop facilities, and top accreditations, we help our customers get more from their materials.

Knowledge and advice

Our team understands exactly how our products are made, how they will behave in different situations, and how they should perform. Their knowledge and expertise helps save time, effort and cost by ensuring that all materials are sourced, processed and tested to perform in the most effective way.

We partner with leading academic institutions and scientific organisations that add value to our service and help develop solutions to the challenges impacting our customers. We're keen to share these unique insights in order to deliver practical operational improvements.

Workshop and machining

Our purpose-built facilities are centred around a fully equipped workshop designed to address almost any customer request:

- CNC Proturn RLX 1630 lathe for high precision rod and bar processing
- Saws to cut bars, plate and billets from Ø 2mm to Ø 270mm
- Guillotines for sheet and coil
- Grinding machinery
- De-coiler to check for imperfections before shipping
- Coil handling equipment to inspect product before dispatch
- Water jet and laser cutting
- Heat treatments

Quality control

All orders are fully tested before shipping.

Our state-of-the-art metrology lab features:

- Micrometers, verniers and gauges for all applications
- Surface roughness tester
- Straightness and roundness testing apparatus
- Magnetometers for measuring inductance, coercive and saturation
- Capabilities for evaluating properties such as CTE, tensile and elongation.

Best practice

We are committed to continuous improvement, reflected in our achievement of internationally-recognised industry accreditations. These are the foundation of best practice and provide you with solid assurances of competence and integrity:

- **AS9120** certified – a top aerospace industry award.
- **Green Mark level 1** accreditation – an environmental certification that supports greater sustainability.
- **JOSCAR** (the Joint Supply Chain Accreditation Register) accredited – an award that helps to streamline procurement processes.
- **Cyber Essentials** certified – a government-backed programme that provides security assurance of a supplier's digital infrastructure.



Discover how we can **optimise** operational performance

Contact chris@nicofe.com



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