

ASTM A753

Type 1 – Radiometal 4550

Soft Magnetic Alloys



Description

Radiometal 4550 has a nominal 45% nickel content and combines excellent permeability with high saturation flux density. The alloy is used to great advantage in sensitive relays which need to respond to very weak currents. It is also widely employed in transformers, chokes and special motors where the properties of silicon-iron do not provide the required magnetic performance.

Applications

Sensitive electronic relays that must respond to weak currents, transformers and chokes, specialist motors, servo valves and actuators, telecommunications, missile systems and gas valves, watch movements.

PHYSICAL PROPERTIES		MECHANICAL PROPERTIES	
Density	8.25g/cm ³	Tensile strength	470 MPa
Curie temperature	450°C	Hardness	130 HV
Electrical resistivity	55 microhm-cm		
Saturation induction	1.6 Tesla		
Coefficient of thermal expansion			
20-100°C	7.1 ppm/°C		
20-500°C	8.2 ppm /°C		

FORMS AVAILABLE:



Coil



Sheet



Plate



Rod



Bar



Wire

CHEMISTRY

Ni 43.5-46.5%

Co 0.5%

Fe Balance

Mn 0.8%

C 0.05%

Si 0.5%

P 0.03%

Cr 0.3%

S 0.01%

Cu 0.3%

Mo 0.3%

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

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