



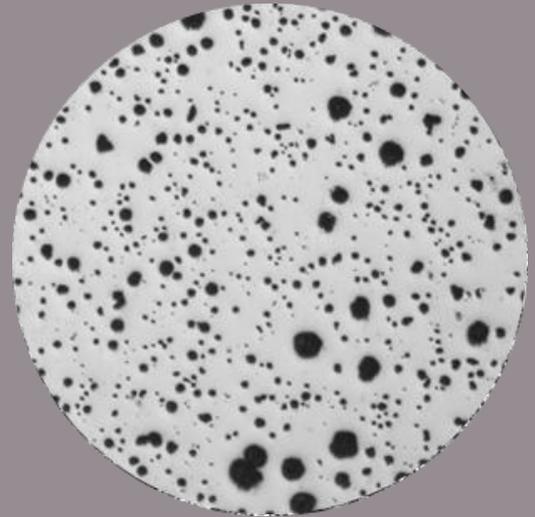
Ductile Cast Iron

What is Ductile Cast Iron?

Ductile iron is an alloy of iron, carbon and silicon that has been melted and poured into a mould to form a shape. The ductility is a result of the carbon forming spheres of graphite in the ferrite/pearlite matrix, rather than the flakes found in grey cast iron. This transformation from a flake to a sphere is achieved by treating the molten iron with magnesium prior to pouring.

History

- Developed at the Nickel Company Research Laboratory in 1943.
- Extensive use after that as an alternative material to cast and forged steel.
- Further research led to austenitic and austempered ductile irons and compacted graphite irons.
- Modern material standards give a wide range of possible uses.



Terminology

- Ductile cast iron, ductile iron, spheroidal cast iron, spheroidal iron, spheroidal graphite cast iron, spheroidal graphite iron, nodular cast iron, nodular iron, SNG iron and SG iron all refer to the same material.

Properties

- Good under compression, tension, bending and shock loading.
- A range of tensile strength, elongation and hardness to suit different applications.
- The free graphite expands on solidifying, giving sharp, well defined castings.
- Good corrosion resistance when compared to mild steel.
- The graphite acts as a lubricant, improving wear resistance.
- Can work well under continual heating and cooling cycles.
- Good machineability.
- Easy to weld.
- Certain grades can be flame and induction hardened.

Uses

- Engineering Castings.
- Petrochemical & Oil.
- Aerospace.
- Shipping.
- Transportation Infrastructure & Railway Stock
- Mining, Quarrying & Minerals
- Energy, Power and Hydro.
- Pump & Valve Manufacturers
- Rolling Mills & Steel Production
- Architectural and Decorative Castings.

Material Standards

- BS 2789, BS EN 1563 and ISO 1083
- Equivalent DIN, ASTM, SAE and other national standards.
- Various trade names, including grades within the Meehanite range.

If you need to order a casting in ductile iron and are confused by its description or it has a specification you don't recognise on a drawing, please contact us as there is a good chance we will recognise it. If we don't, we have access to a world wide data base that should enable us to identify the material and offer the equivalent grade within ISO 16112.