

# Ductile Iron

[Ductile iron](#) is a durable, fatigue-resistant metal with its spherical graphite structure. [Ductile iron](#) was first patented in 1948 and is today's version of cast iron. Like cast iron, modern ductile iron contains small pieces of graphite that slightly alter the properties of the iron.

What is the difference between ductile iron and cast iron?

The difference between traditional cast iron and modern ductile iron is the shape of the graphite. Cast iron contains small flakes of graphite, while ductile iron contains spherical graphite nodules. Due to the spherical shape of graphite, ductile iron is often referred to as ductile iron or ductile iron. The spherical shape is the key to making ductile iron extremely tough, malleable (it can be twisted or otherwise manipulated without cracking), and durable, meaning it is a premium metal for machine parts.

How is ductile iron made?

Ductile iron is not cast from iron or scrap steel, but is primarily made from crude iron produced by smelting ore in blast furnaces, often referred to as "pig iron". Pig iron is iron with a high carbon content of about 90%, and its chemical properties are very stable. With a blast furnace, pig iron is melted and carbon is forced into the material beyond its normal capacity. As the metal cools in its casting, silicon, sulfur and manganese help the excess carbon form spherical graphite nodules. This process creates a durable, wear-resistant metal.

One of the main advantages of this production process is how easy ductile iron is to cast and how cheap it is compared to other similar metals such as steel.

What is ductile iron used for?

Due to its strength and ductility, ductile iron is widely used in many different industries. It is most commonly used by plumbing manufacturers for pipes and fittings. It is also popular in the automotive industry as it is used in engine connecting rods, cylinders, crankshafts, truck axles and gears, and other parts. Ductile iron is also frequently found in piano harps, machine frames, and cable

reels.

No matter the industry, if you are looking for a material that is strong, stable and able to withstand harsh conditions for a long time, ductile iron is a good choice.