



## BRODER METALS GROUP Forgings

Forging is the application of thermal and mechanical energy to steel billets or ingots to cause the material to change shape while in a solid state i.e., it is hit with a big hammer or squeezed into a different shape.

Forging offers uniformity of composition and structure and results in metallurgical recrystallisation and grain refinement as a result of the thermal cycle and deformation (hitting it with a hammer) process. This strengthens the resulting steel product particularly in terms of impact and shear strength.

Forged steel is generally stronger and more reliable than castings and plate steel due to the grain flows of the steel being altered, and usually altered to conform to the shape of the part, i.e. anisotropic. This means that the mechanical properties of a forging are better in the longitudinal direction (parallel to lines of flow) direction versus the transverse direction (perpendicular to lines of flow). Conversely a casting is homogeneous with the mechanical properties of a casting being the same, regardless of the orientation of test bar material.

The advantages of forging include:

- Generally tougher than alternatives
- Will handle impact better than castings
- The nature of forging excludes the occurrence of porosity, shrinkage, cavities and cold pour issues (if done right)
- The tight grain structure of forgings making it mechanically strong. There is less need for expensive alloys to attain high strength components.
- The tight grain structure offers great wear resistance without the need to make products “super hard”.

**Over the years we have supplied flanges, fittings, forged blocks, shafts, rings, bar and value-added shapes in a multitude of alloys:**

Copper	Low Alloy	Stainless Steels	Nickel Based Alloys	Titanium
We can supply black (as forged), as well as rough or finished machined., fully tested and complying with all modern standards or to customer's own specifications. and complying with all modern standards or to customer's own specifications.				
<i>Our bespoke service can handle the production of forgings from 1" diameter to 3 metres and up to a weight of 3 tonnes.</i>				

The forgings we supply are not those found on distributor's shelves – our forte is to find the right start material (no matter how obscure) and then use our knowledge and experience of the UK and European forge and machining industry to produce what you need.

**Need more information? Contact us**

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