

## Production of a Spanner

The forging blank for the spanner is cut from specialised 31CrV3 chrome vanadium steel.



Under carefully controlled conditions, the blank is heated to the correct temperature. It is then forged between precision manufactured dies, which are mounted on a drop forging hammer.



Surplus material is removed by trimming presses.



The 'open ends' are precision broached to the specified sizes.

All sharp edges and burrs are removed from the spanner in various grinding processes. The surface finish is then further improved by a vibro polishing process.

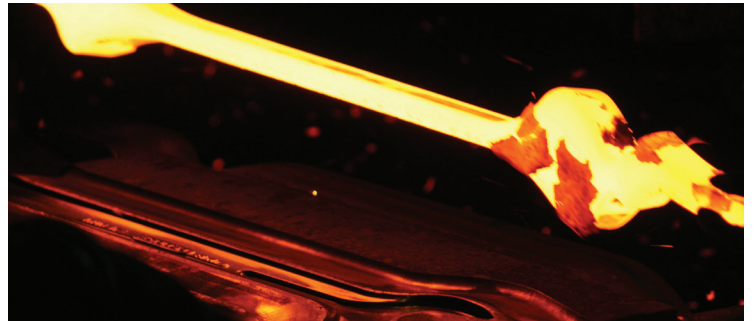


Hardening takes place in a protective gas environment, in which all oxygen has been removed from the atmosphere. This is done to avoid oxidation of the metal. After a carefully controlled water quenching process, the spanner is reheated and tempered to the correct hardness, which ensures optimum torque and durability.



The two-layered nickel/chrome electroplating process provides the spanner with an effective corrosion protective layer, as well as giving it the distinctive GEDORE satin finish.

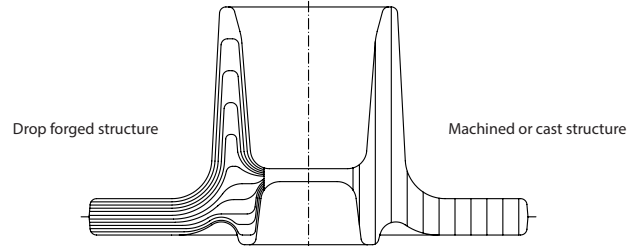
## Manufacture of hot forged hand tools



### Benefits of using a hot forged process of manufacture

A drop forging process is well suited to produce products such as spanners, pliers and puller yokes. Heated raw material is transformed at high speed in a drop forging die to a product closely resembling its final form. The process facilitates a pore-free product which has a dense and uniform metallurgical grain structure running parallel to the outer form of the product. This characteristic improves the strength, toughness and elasticity, thereby allowing the application of higher levels of stress.

A press forging process is well suited for manufacturing products like sockets. Through the use of forging punches, heated round raw material is transformed into a product with a closer tolerance of the final socket form.



## UD PROFILE protects bolt heads

