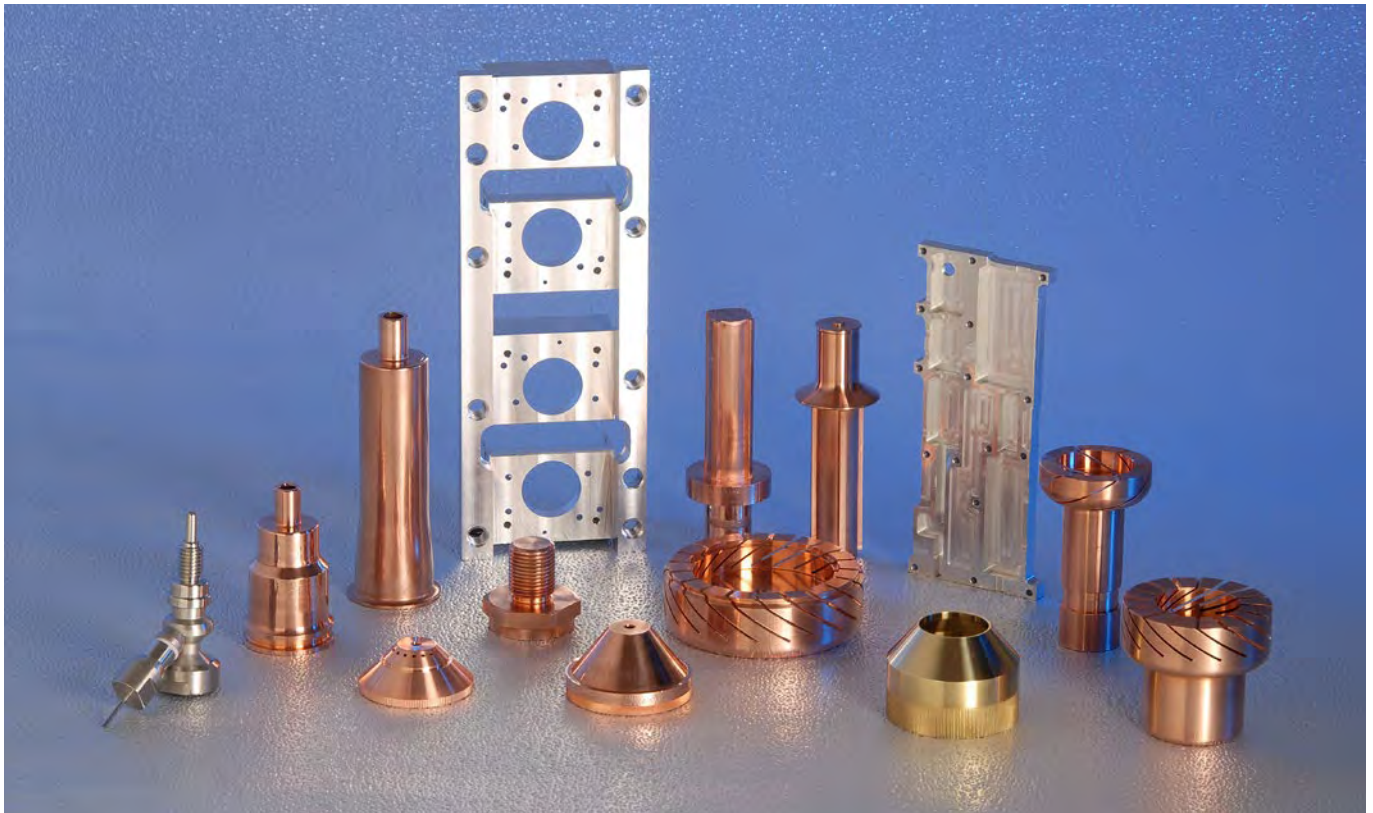


Making metal work harder

Technical article



Improving manufacturing processes can increase output, boost production quality and maximise plant profit. To meet the growing need to provide all these benefits, engineering companies that manufacture metal parts are taking new approaches.



seeking new opportunities to apply more cost save energy, carbon and, of course, money. Targeting energy consumption is always high on the agenda but such

components can sometimes be ignored because they seem to demand a longer

The truth, however, is that upgrading gearboxes, drives, couplings and motors can create huge savings.

Similarly, material costs for manufacturers of metal components are sometimes judged to be a fact of life to be endured but the truth is that there are now an increasing number of options available with which to cut costs and achieve sustainable manufacturing programme.

You can't control the market cost of the metal you use, but how about considering production methods that

could allow you to use less of the same? Italy Precision has pioneered a metal manufacturing process that can cut production costs components. Indeed, this process

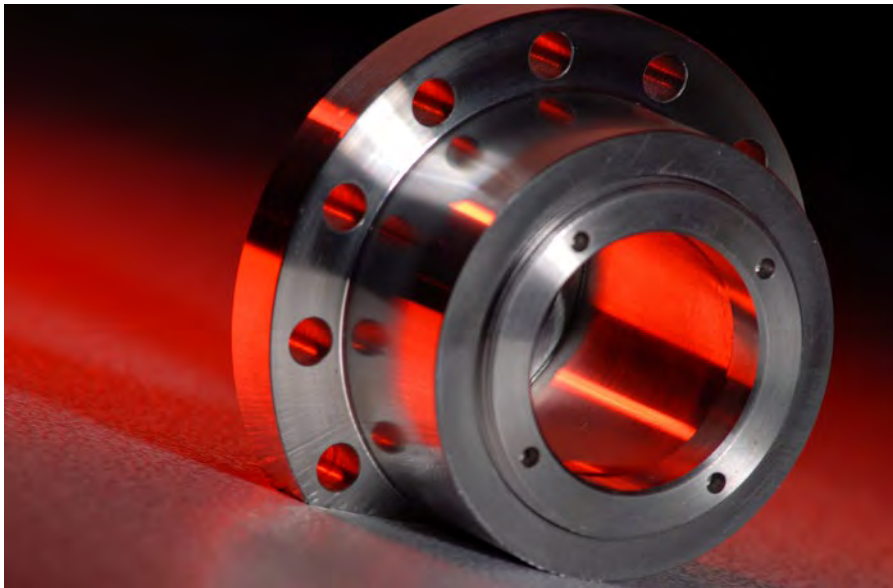
improved mechanical characteristics. And because it retains the integrity of the metal, while also producing parts with highly polished surfaces, the performance of a component can be improved dramatically.

The process is called cold forming and that, along with producing simple, high volume components, cold forming is now increasingly used to produce precision components in, for example, laser applications, where cold-formed nozzles can increase cutting precision

Cold forming is a manufacturing process by which metal is shaped

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Looking beyond cold forming, there are other relatively new methods of saving on costs that have recently gained attention. New systems that use vacuum pumps to automatically collect swarf from the machining

potential, and the bigger the company, the greater the possible saving.

Honda UK Manufacturing (HUM) is using a swarf collection system to process a massive 1,000 tonnes of swarf waste every year. Manufacturers can land themselves with tonnes of valuable metal using this method and if they can conduct recycling operations in-house without contracting out, the

without removing material. A simple blank (either sawn or cropped from a round bar or wire or as a cold headed pre-form) is placed within a die and a punch is pressed into the blank at ambient temperature. The blank then takes on the form of the punch and the die. Put more simply, cold-forming is making a shape from material at room temperature, just like Plasticine when it is pushed into a mould. With appropriate force, hard material such as copper, aluminium, brass and now even stainless steel can be formed to the required shape. Other precious materials, such as gold and silver can also be cold formed.

Thanks to cold forming, up to 80% material savings can be achieved, as well as time and costs saved that would otherwise have been incurred by machining. As mentioned above, component performance is also improved through the enhanced qualities cold forming brings to the structure of the metal.

, less , resulting in the improved cut quality and speed. Nozzle damage by misalignment and clipping of the laser beam is also reduced. YAG (yttrium aluminium garnet) laser

expensive to manufacture due to the length of the tapered bore, can also be manufactured using Dawson Shanahan's technology.

So, those who have not seriously considered methods such as swarf collection and cold forming can make a major reduction in costs by avoiding the waste of the precious metal they buy.

