07 factfile

TRI-FLOW™

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A cast iron case for TRI-FLOW™

use of Tri-Flow for cast iron cutting

In terms of cost per unit mass, cast iron is the cheapest metallurgical material available to the Engineer. It is in fact remelted pig iron, the composition of which has undergone some adjustment during the melting process.

Apart from its low cost other commendable properties of cast iron include good rigidity and compressive strength, excellent fluidity so that it makes good casting impressions and good machinability.

Whilst the ductility and tensile strength of ordinary irons are not very high, both of these properties can be improved by heat treatments which modify the microstructure of suitable irons.

The structure of ordinary grey iron consists of small flakes of graphite which appear as irregular strands with pointed ends. The very shape and parallel pattern of these flakes reduces the strength and toughness of the resulting casting.

However, by adding a small amount of magnesium, flake graphite is replaced by spherical particles of graphite. So spheroidal cast iron is formed which is much tougher and stronger than the grey irons due to the pattern of graphite being irregular.

Cast iron has good machining properties but with modern ceramic tooling is generally cut dry.

The free graphite which gives it this machinability quality can cause problems by creating a fine grey dust which can become a nuisance.

An Italian defence contractor experimented with Tri-Flow applied periodically at the tip of the tool and found that the dust was immediately eliminated. The machining time of a particular standard component has been reduced from 45 minutes to 30 minutes and the tool life extended from 40 hours to 60 hours. Component manufactured from SG cast iron includes:

Flanges, pipe fittings, valve parts. Close dimensional tolerance casting. Transmission gears. Plannet hubs. High strength rods. Crank shafts.

*Contains P.T.F.E. for enhanced lubrication

for further information contact: