Tetra Motion - Tetrium

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Tetrium – Its history

Tetra Motion set out to design a BT-30 benchtop mill and it was to be made from plate aluminium. A common concern with metals and machines is structural damping. Metals are not damp and unwanted vibrations can make accuracy or fine finishing difficult. So Tetra-Motion looked at alternatives: epoxy granite, Alumina, carbon-fibre and glass-fibre to name a few. All of these had good points and bad. Epoxy granite seemed to be the answer but it could not be post machined easily. This machining requirement drove the material development of Tetrium. A material that can be cast to shape and post machined or cast as billets and then billet machined as required.

Tetrium – The Process

Tetrium starts as a mixture of fibres or particules. This mixture is cleaned then stacked into a mould. The mould is vibrated to settle the mix, then a vacuum bag or mould cover is applied and a deep vacuum is created in the stack. This vacuum is used to draw the resin into the part minimising porosity and maximising part integrity.

Tetrium can be made to order in the size you need. A billet, a near nett shape or a nett part shape, its up to you. Tetra Motion can machine the mould for a one off or 1000's off just work with us on what you need.

A small billet of Tetrium. Tetrium can be made to any size required for your machine part.

The Tetrium Family

Comes in std billets, bespoke billets or cast to near nett shape

Tetrium-S : Epoxy metal fibre composite. Machinable 2200kg/m3, 25GPa stiffness comes in billet or bespoke castings. Easily machined on most routers. Economical solution for general purpose parts.

Tetrium-C : Epoxy carbon fibre composite. Machinable 1400kg/m3, stiffness 70GPa. Easily machined on most routers. High performance material.

Tetrium-A : Epoxy alumina composite. Machinable with masonry tooling not metal tooling. Density 2500kg/m3 stiffness 70GPa. Ideal for serial production moulded parts.

Talk to Peter Schwarzel at Tetra Motion about your parts or application soonest.