

HERCULES PROPELLERS

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Britain's newest propeller making company is going from strength to strength

By Neil Wilson



PROPELLERS



The current team at Hercules outside their new premises. They are, from the left, Dan Partridge, Tyler Banyard, Kate Butler, Rupert Wasey, and George Simoni.

Hercules Propellers has stormed onto the light aircraft propeller making scene in recent years, which is actually fortuitous as several of the traditional bespoke prop makers have retired from the business. Hercules Propellers is the brainchild of Rupert Wasey, who until he started the company had had a diverse and interesting life, although he has loved aeroplanes as long as he can remember. With his father running an engineering company, design and manufacture has also always been in his blood.

Having left school at age 16, Rupert began his flying career in gliders. After spending three years as an aircraft engineering apprentice at Staverton Airport, he went to work as an engineer on Vic Norman's Boeing Stearman wing-walking aircraft, travelling round Europe as part of the Aerosuperbatics team. He even did some wing-walking!

In the mid-1990s Rupert spent several years working in Texas maintaining crop-spraying aircraft, and whilst there got into skydiving in a big way. Later, in 2000, Rupert moved into powered flight, gaining his PPL at Staverton flying a Cessna 150 and then began to pursue his interest in historic aviation. He gained his tailwheel sign-off at Headcorn with Anna Walker, initially on a Piper Cub, before graduating to the Tiger Moth.

Being a skilled engineer and keen historic and tailwheel flyer, Rupert's next project was to build a Staaken Flitzer aircraft – a single seat biplane designed by Lynn Williams and styled on inter-war German sport-planes. Rupert spent two-and-a-half years building his Flitzer from a set of Lynn's plans for which he was awarded both the Best Plans Built and Concours d'Elegance trophies at the 2005 PFA Rally.

After flying the Flitzer for a little while and trying various different propellers with it, it became apparent to Rupert that he couldn't find exactly what he wanted to provide the aeroplane with the performance it deserved. This led him to decide to create his own.

He began working with Jan Carlsson, a highly skilled aerodynamicist friend, to design and then make the perfect propeller for the Flitzer.

Through learning to design his own propeller, and with his father, Ian, building his own custom CNC machine, the next step was obvious – to bring to market custom designed wooden propellers, tailored for any and all types of aeroplanes and performance requirements.

In 2009 the world met Hercules Propellers for the first time. His first customer flew with his propeller on a Fournier RF5 and since then Hercules has sold well over 450 propellers across the globe for more aircraft types than most can imagine.

Rupert's love for historic and unusual aircraft stands him in good stead when he takes orders for exact historic replica propellers for aircraft like the Bristol Scout, Sopwith Pup, Fokker Eindecker and even a Bristol Bulldog (amongst many, many others).

At the other end of the spectrum, the company also specialises in the extremes of the modern, creating incredibly high performance racing propellers for the Formula One class (including Des Hart's 'Hart Attack' Cassutt racer) as well as finely tuned aerobatic

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propellers for airshow performers like Lauren Richardson with her Pitts Special. Rupert has also created the unusual pair of contra-rotating propellers for the unique Bugatti 100P replica now flying in the USA.

LARGER PREMISES

In 2015 Rupert moved Hercules to a brand new workshop, still in the Stroud valleys but much larger than their original premises, and laid out to suit their unique method of working. The team is ever expanding, with George, Tyler, Simon and Kate now also joining Rupert, with Ian his father still helping out on special projects and Jan continuing to consult as the company's specialist aerodynamicist when new ideas come in.

Hercules has developed its own unique leading edge protection and paint systems, using its own 'Hercuthane' material to provide what is an incredibly tough (bullet-proof, quite literally – they've had a chunk of their material shot by a marksman to prove it) yet flexible leading edge to protect the propeller from rain

erosion or stone chipping. It's even buzzard strike-proof, although the wood behind isn't quite so strong as one of their customers found out with his Bowers Fly Baby.

Speaking of wood, Hercules mostly uses European Beech to build its propellers. It's a sustainably sourced material with excellent strength properties. The wood is used to build a laminate blank made up of four, five or six layers around 18mm thick which are bonded together using what was previously known as Aerodux glue (extremely well tried and tested), then compressed in a mechanical heated press. Lamination means the propeller will be stable, not able to warp or bend, and also adds an extra layer of safety in preventing crack propagation should the propeller sustain small damage.

Alternative wood types they sometimes use include American Black Walnut and Honduras Mahogany, both usually for historic replicas. The latter wood is a banned import species and has to be carefully sourced and upcycled – most often from old church pews!

On the historic and replica side, Hercules also has a rare specialism for hand-crafting traditional brass or copper leading edges for some of their propellers where absolute authenticity is required. Additionally, if requested, the company can source or create exact reproduction blade decals and period hand stamps for propeller hub marking as part of their replica projects. Complete attention to detail is all part of the service.

Repairs and refurbishments of all types of fixed-pitch wooden propellers are also something the team regularly carry out. They turn old, worn-out and tatty looking items into beautiful, gleaming propellers with a whole new lease of life.

Combining the cutting edge of modern technology with the skills, knowledge and craftsmanship of an age-old industry, Hercules is making its own unique mark on aviation. As a comparatively young company, run by a young workforce, let's hope Hercules Propellers will continue to service our propeller needs for many years to come. ■



(Above) It is possible to recreate a prop from a damaged original. This is for a WW1 SE5a.

(Left) An electric motor driven propeller test rig in Rupert's new test and research workshop.