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Mugi is a name synonymous with a radio-controlled high performance model aircraft.

The copyright Mugi name originates from the Japanese pronunciation of 'Morgan' J Wood, the original aircraft designer. During 1997 he worked in the large city of Nagoya, in the Gifu prefecture of Japan, as an intern with Mitsubishi. His BSc (hons) degree being completed on his return to the United Kingdom. Mitsubishi used thin twinwall polypropylene sheeting as protection for their finely finished elevator and escalator products. This material triggered the idea of making lightweight yet tough model aeroplanes. Morgan then developed the use later, back in England.

The name Mugi is normally associated with a very tough radio-controlled model glider of 820mm wingspan. The original (slightly larger delta) design dated from mid 1999 using the only obtainable fluted thick polypropylene packing material. This was selectively covered in coloured thin polypropylene and vinyl tape for decorative purposes. Redesign led to the shape altering and a smaller planform using thinner materials. This design was introduced to the internet for all to enjoy and the current website can still be found at <http://www.mugi.co.uk>

As the glider design evolved, the material used thinned again to a 2mm thick twinwall allowing planned deformation of the polypropylene to a definite monocoque structure - the 'Mugi Evo' now instantly recognizable. The twinwall material was especially commissioned and manufactured in Italy during 2003 with a 330gsm density. Two types are used, one a natural translucent and the other containing an evenly distributed white pigment. Models are built from conveniently managed half sheets cut from the production full size one metre squares. Smaller rectangles are in turn produced (International Posting Regulations compliant) allowing the Mugi to be kitted and distributed worldwide.

The glider design started with twin top fins, flat brace linked, but evolved into separate fins, sloping inwards initially. Later, as flying speeds increased, the fins changed to an outward cant for control of the wing vortices, the elevon internal pushrods moving to mid-span to eliminate flutter. In the beginning the delta planform quickly housed a small electric motor (for slope recovery purposes) using a plastic three-bladed model boat screw. Power considerations led to adoption of stock 400 type brushed can electric motors, rear mounted for balance. Conventional airscrews of fine pitch and diameter were fitted, operating in pusher mode. Efficiency considerations soon brought in brushless technology using compact motors operating at high rpm. Fitted with a typical small electric 4.7x4.2 propeller, then the 20,000rpm plus capability ensures searing performance. Outrunner motors with larger propellers are popular, allowing relaxed and quieter cruising whilst still being aerobatic. The smaller props audio footprint is considerably reduced by a copyright 'vee' cutout on the trailing edge ensuring noise attenuation.

Motor powers range from at least 40 watts though often are now well above 500 watts. At this latter end of the performance scale, level speeds in excess of a clocked 109mph have been exceeded. Unlimited vertical climb and high manoeuvrability are normal; the roll rate is especially fast due to the centralised mass distribution and wing low aspect ratio.

The Mugi Evo can be flown off the slope as a glider of about 240g (AUW) all-up-weight; slightly more than an Association Football. It can be hand launched over flat terrain or pulled into the air from ground level using elastic launch assistance. It can fly under its own power, either internal combustion engine or more usually with an electric motor. Weights are increased and a typical brushless set-up uses LiPo batteries transversely mounted inside the nose, the AUW then being in the 530g region. Some Mugi enthusiasts sport versions with rear mounted electric ducted fans (EDF) which lend a futuristic appearance. However overall performance is reduced compared with a conventional, unshrouded airscrew.

The Mugi stable comprises many designs based on the monocoque building principles. These are mainly prototypes: Mustang, Me109, Hurricane, Stuka, Super Sabre, Pilatus Porter, smaller Spitfire, Vulcan, larger F14, airliner and Park fly experiments. A range of military jets have been tried and biplanes. Considerable development work has been carried out by Peter Opdam, Morgan's Dutch colleague. Valuable assistance has been given by Mugi adherents all over the globe, now known universally as Mugiites.

Details are on the website but also can be gleaned in the on-going free-to-join forum at Mugi. This has replaced the older support site group at Yahoo.

Producing designs that are easily reproduced by the modelling fraternity is difficult, Nevertheless Morgan, after a year of development work, introduced the 'Tea Racer' design in 2007. It is a thirties style low wing racer of 820mm wingspan. Supplied as a complete airframe kit with all essential building components, all in flat-pack to allow International Posting. Just the radio and motor required. This model already has an alternative dihedral (sports) wing and fixed undercarriage (U/C) option; the retract U/C is still under development. A new model the Mugi Scramjet is to be introduced shortly and has the advantage of a comprehensive value-for-money all-in boxed package just needing the radio and flight battery. Laser cutting is used for a precision build.

The Mugi website has expanded with an on-line shop, photo gallery, links etc. The emphasis is still on the enjoyment of using twinwall material for model aircraft purposes. It includes the comprehensive tutorial section that can be viewed for those starting in this new building experience.

Following a career change from the software and website world, Morgan is now pursuing his dream. Having attained his ATPL he now flies as a professional pilot for a commercial airline, type rated for Bombardier Embraer jets and the Dash 8 Q400 turboprop. He operates out of EGCC Manchester flying around Europe.