Motor of the week – Friday May 17th 2013.

This custom brushless DC servo motor supplied this week for a customer in New Zealand is a real powerhouse.

The featured DC motor supplied this week displays technology that delivers an outstanding power density. Power density is a measure that compares the output power of the motor with its volume. This DC motor weighs in at only 300 grams and delivers an amazing 15Nm of torque and 200rpm on a cyclic basis in its aviation application. The motor is a four pole brushless DC that has several distinguishing features. Traditionally the front and rear flange of a DC motor is swaged or bolted to the body. But in applications with extreme vibrations and high shock loading these methods are inadequate. On the 30mm brushless 4 pole from maxon motor the end flanges are double laser welded to the body. The laser welding is not a spot or pulse method but a continuous flow system with unrivalled penetration. The process for the weld is fully automated and uses advanced visual software to monitor the quality of every weld. The centrally shaft mounted rare earth magnet allows for proportionally large and robust bearings of the same size on both the front and rear of the motor. This means the DC motors rotor can withstand impacts that traditional designs cannot, it can be balanced for high speed operation up to 25,000rpm and can operate here with very low noise. The motor is coupled with a 32mm high power planetary gearhead This gearbox has large dual preloaded stainless steel bearings fitted with a seal to prevent any ingress form the harsh environments the motor is intended for. The standard gearbox is supplied with a 6mm hardened stainless steel shaft however the heavy duty gearhead is fitted with a large 10mm shaft and keyway. Interestingly, for this application maxon motor have tapped a threaded bore along the axle of the gearbox shaft to comply with unique mounting requirements by the customer. The servo gearmotor is fitted with a high resolution 4000 quad count three channel encoder and the motor is used in a positioning system also supplied by maxon. The overall gearmotor, encoder, controller package is of the highest power density available on the market today.

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The media release is available on the internet at: www.maxonmotor.com.au
4 pole Brushless DC motor 30mm 48V + 32mm planetary gearhead 79:1 with M4 axial end shaft thread + 225780 MR Encoder 1000 counts. © 2012 maxon motor Australia.

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