DC servo gearmotor customised for underwater ROV use.

A dedicated DC motor design for the tight application requirements of an underwater ROV application.

The example servo motor and gearhead solution shown here has been optimised for very specific application requirements for an underwater robot. Low speed under pressure was required for the fine manipulation of devices external to the remote operating vehicle, resulting in a high planetary gearhead reduction ratio selection of 936:1. However for extremely low speed operation it is often the case that the reduction ratio does not slow down the motor speed enough. To overcome this next hurdle a 60V DC winding has been specified even though the system voltage is 24V. From here the speed controller further reduces the motor speed. End result; 0.001 revolutions per minute, (or 1.44 revolutions per day). Even though the entire case bearing shaft and keyway are made from stainless steel the shaft has also been customised with a 50mm length and a keyway isolated to the tip as much as possible to allow clear space for shaft labyrinth seals that provide additional protection. Laser etching of the custom parameters and the customers details on the body of the motor assists with identification long into the future. The complete DC servomotor and planetary gearhead incorporating the customisations was produced in under two weeks.

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Length of this press release: 237 words

The media release is available on the internet at: www.maxonmotor.com.au