

DC motor powered linear actuator.

For when you need a brushless DC motor with push – and lots of it.

This linear actuator with an integrated high force bearing system, planetary gearing and brushless DC motor was recently on display at the oil and gas exhibition in Perth as an example of high force motor driven actuators for extremely harsh environments.

This unit at first glance appears to me a motor, mounted to a gearhead with a threaded rod on the shaft. However when you look a little closer at the details this actuator has some surprising features. The threaded section is an unlubricated precision ground ball screw. The Ball screw is not merely fixed to a planetary gearbox shaft but it is the shaft. Continuing through the gearbox flange and all the way to the gearhead planet carrier. It is not just your typical planetary gearhead flange either; it contains a fully integrated thrust block unlubricated ball bearing assembly with both axial and radial bearing sections. Continuing through to the gearhead you can see that the construction is entirely of stainless steel that is laser welded at all assembly points. This means that there are no adhesives and no fasteners used in the planetary gearhead assembly. The planetary gearhead is also supplied to the customer without any lubrication. Next you see the brushless DC motor which also has a laser welded construction and is also even laser welded to the gearhead. The motor bearings are unlubricated and the motor components are all stainless steel or stainless steel encased. By now you are probably asking yourself “why no lubrication” (or you should be) and the reason for this is that the entire motor gearhead and linear actuator are designed to run flooded in oil (submerged). The implications and new application fields this opens up are enormous. The oil bath functions to remove heat much more efficiently as air. The power levels obtained by comparison to standard air cooled motors are much greater. For example, 1500w from a 42mm diameter motor.. Thinking further about the application areas of this motor design also reveals its capability of being flooded with oil and then sealed. This then means that the motor and gearhead can be operated completely submerged in seawater. With the addition of a plenum chamber this then means that the motor and gearhead can be operated in theory submerged at any depth. This new design is set to provide solutions for plethora of ROV and subsea application requirements. Contact maxon motor Australia in our Sydney office for application assistance. +64 2 9476 4777.

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



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