Reversible planetary gearhead for generation applications.

Maxon brushed and brushless DC motors are increasingly sought after for use as generators because of their high power density and zero cogging motor characteristics. A new gearbox now allows motor speeds to be more closely matched to the desired output voltage.

Inrunner and outrunner, 2 pole and 4 pole brushless DC motors in a vast selection of winding voltages and sizes make selection of a DC motor for use as a generator or alternator easier than ever before. Even with maxon motors ability to custom wind a motor with a specific rpm/V constant, there are always new and more difficult experiments and applications where a solution cannot be found. Size and input speed tend to be two criteria that engineers have particular requirements for when selecting a motor as a generator. For a given size motor, as the speed constant across different motor windings gets lower to achieve the desired rpm/V level, the winding resistance goes up. Sometimes the motor just gets to the constant levels you require for the input speed and output power levels, only to find that the motors internal resistance has increased proportionally and too much of the generated power is dissipated internally. This is because of the space constraints within the motor and the limited room for the required copper gauge and number of turns. The only option is to then select the next motor diameter up and this is often not acceptable in the application. It is also true in the other direction where the application may have very high motor input speeds. For example, generating battery charging power levels from a turbine without the requirement for voltage conversion circuits. Whilst it is true that many of the maxon brushless DC motors are balanced at very high speeds, this capability is typically proportional to the motor diameter also. The power levels required may simply require a larger motor, that can’t then handle the input speed. This is where the reversed planetary gearhead can help. The planetary gearhead is normally fitted to the motor to step the speed down and increase the motor torque proportionally with the ratio. But now we need to drive the motor as a generator and step the speed down in the other direction. The solution is simple.. turn the gearhead around. By fitting an additional end flange of a gearbox to the input and inserting an input shaft and pinion that would normally be fitted to the motor, we are now able to select any ratio from the gearhead range and apply it as a speed reducer. Maxon motor Australia also stock a wide range of flexile couplings in Sydney with bore sizes to suit maxon gearhead shaft sizes making connection easy.

Please do not hesitate to contact maxon motor Australia for assistance with your application.

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