

New Product: EC 22 HD "Heavy Duty", Ø22 mm, brushless

Ladies and Gentlemen

As the first manufacturer worldwide, maxon launches with its EC 22 HD (Heavy Duty) a standard motor for extremely harsh operating conditions. The EC 22 HD was developed to meet the high demands in the deep drilling technology field.

Thinking of other applications that call for equally high requirements is a matter of free play. Conceivable is the utilization in power plants, in vehicle manufacturing and aircraft industry, in mining or in highly dynamic movements.

Deep Drilling Technology¹

The technology permits exploration of oil and gas resources from depths beyond 2'500 meters (8'200 feet). In conjunction with directional drilling (the dynamic orientation of a borehole) it allows exploration of deposits in drilling depths of currently about 5'000 meters (16'500 feet) and bore lengths of up to 11'000 meters (36'000 feet).

Temperatures and pressure conditions present in this depth range, in conjunction with high vibration emitted by the drilling process, make the employment of electronic components a real challenge.

Today, electronics and respective drives permit more sophisticated monitoring and control of a multitude on functions within the drilling process. For instance, the drilling head's position and orientation can be dynamically measured and adjusted. In a number of deep drilling tools, hydraulic valves and flaps are being operated by electro-mechanic drives.

¹ In the Oil and Gas Exploration Industry called "Downhole Drilling"

² As a parallel; a Formula 1 race car encounters about 2 G, a fighter jet about 13 G

Benchmark

Today, the EC 22 HD is virtually unrivaled. Some few suppliers are prepared to meet the requested characteristics with their customized products. However, maxon motor is the worldwide only manufacturer to offer this kind of motor in its standard product portfolio.

Prices

At first sight, prices of the EC 22 HD look enormously high but represent in-line market rates in the oil exploration industry. Considering arising expenses caused by unplanned replacement of equipment, the costs for a motor can be deemed negligible.

Availability

The motor is in its late development phase, some tests have not been concluded, yet. However, samples are available in small quantities. Based on the not yet integrated availability of individual components, delivery time will be up to 12 weeks.

By the end of 2010, the EC 22 HD is planned to be available for order with its 6 digit article number.

Positioning

Der EC 22 HD unlocks entirely new fields of applications. With its extraordinary characteristics, it is designed for accordingly high demands. It lends itself to employment with...

- high operational temperatures (+200°C)
- special atmospheric conditions, vacuum or submerged operation in oil
- high accelerations and vibrations (up to 25 g_{rms})

With the EC 32 HD, an additional "EC Heavy Duty Version" is under development to cover even higher power demands.

Respective matching gears GP 22 HD and GP 32 HD are in preparation.

maxon modular system

The new EC 22 HD motor is available in different types:

- For the operation...
 - in air (80 W assigned power rating) or
 - submerged in oil (240 W assigned power rating)
- With or without Hall Sensors

A matching gear GP 22 HD it under development.

Deep Drilling Technology Requirements

- Ambient temperatures up to 200°C (390°F)
- Atmospheric pressures up to 1'700 bar (25'000 psi)
- Submerged oil operation (flooded in hydraulic fluid)
- Vibrations up to 25 g_{rms}
- Impulses and impacts up to 100 G (100 times gravitational acceleration)²
- Operating cycles of approximately 100-1'000 hours

