Hannover Messe Focuses on the Industry of Tomorrow

Matthew Jaster, Senior Editor

Hannover Messe 2022 focused on industrial transformation, driven by the digitalization of industry and the reduction of CO_2 emissions. Topics at this year's event included data analytics, the Internet of Things, artificial intelligence and IT security. Companies like Voith, NORD, Beckhoff and others presented the latest products and technologies during the event.

Voith Highlights Speed Pump Drives

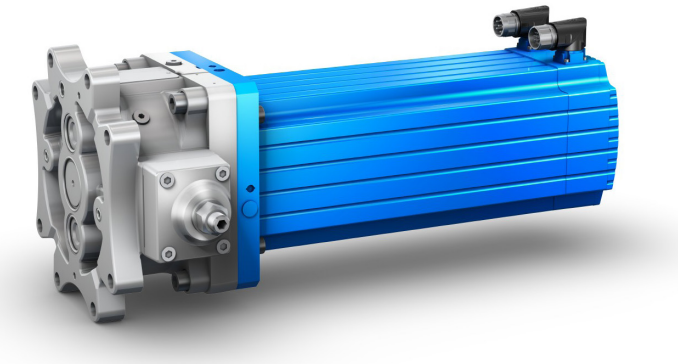
Voith Turbo offered its compact, variable speed pump drives DrivAx IQ4 and DrivAx RQ4 during Hannover Messe 2022. The new drives extend the broad portfolio of the DrivAx product family. Other highlights included the self-contained servo drive DrivAx CLDP, whose ten-year success story is set to continue in new sizes, and the DrivAx CLCP, which was specially developed for robotics applications and can be seen live in action at the Voith Turbo stand.

DrivAx IQ4 drives consist of a servomotor with a directly mounted internal gear pump that jointly control volumetric flow and pressure. The system allows for a maximum volumetric flow of 125 l/min and a maximum pressure of 270 bar. The speed-controlled pump drive DrivAx IQ4 combines energy efficiency with high power density and robustness. Unlike conventional, valve-controlled hydraulic systems, the DrivAx IQ4 offers power on demand. Thanks to this power-on-demand principle, the system can operate energy-efficiently at lower speeds in the part-load range and outside the machine cycle. The compact design and interface architecture allow easy integration into machine and control system.

The DrivAx RQ4 consists of a servomotor and directly mounted radial piston pump that together regulate a volumetric flow of maximum 450 l/min at a maximum pressure of 350 bar. The speed-controlled pump drive combines energy efficiency with high power density and robustness. In addition, unlike conventional valve-controlled hydraulic systems, the DrivAx RQ4 offers power on demand. This means that the system works efficiently at lower speeds in the part-load range and outside the machine cycle. This power-on-demand principle in combination with the load-dependent switchable pump allows special load profiles with reduced-size motor and peripherals to be realized. The compact design and interface architecture allow easy integration into machine and control system.

The main components of the CLDP linear servo drive are a servo motor, an internal gear pump and an actuator. Pressure and/or position sensors ensure the precise control of force and position, while the speed and directional control of movement are affected without valve technology. Thanks to this design principle, there is no need for a hydraulic unit or piping. The compact design and interface architecture allow easy integration into machine and control system.

The DrivAx CLDP also offers an alternative to electromechanical drives. The technology combines the robustness and power density of hydraulics with the controllability of servo technology. Other benefits are the almost wear-free operation, resistance to force peaks, lower energy requirement and the elimination of cooling and lubricating units.



The DrivAx CLCP servo drive is a self-contained linear drive with an outstanding power-to-weight ratio. This also makes the linear drive an ideal alternative for robot-assisted applications. The main components of the DrivAx CLCP are a servo motor, a 4Q internal gear pump and an actuator. Pressure and/or position sensors ensure the precise control of force and position, while the speed and directional control of movement are affected without valve technology. This design principle means that there is no need for a hydraulic unit or piping. The load-adaptive or electro-hydraulic gear shifting reduces the size of the components and thus lowers procurement and installation costs. The compact design and interface architectures allow easy integration into machine and control system.

Thanks to these characteristics, the self-contained DrivAx

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voith.com

CompActive GmbH Introduces Thermally Controlled Bending Actuator

Ever since the issue of air resistance began to play a serious role in automotive engineering, experts have been working on concepts to minimize air vortices at fast-moving wheels. After all, these vortices are responsible for a not inconsiderable increase in overall air resistance and thus for greater energy consumption.

The wheels of electric vehicles that are particularly trimmed for efficiency therefore often feature closed rim designs with at most smaller openings, as these help to reduce air resistance in the single-digit percentage range. More would be possible, but only closing the rim completely could more effectively stop the flow of air and the damaging rotor effect of the wheel. This, in turn, is in direct conflict with the necessary cooling of the brake chamber, especially in cases of higher loads, for example when descending a pass.

CompActive GmbH — based in Neustadt an der Weinstraße — addressed this challenge during Hannover Messe. With the

help of bending actuators developed in-house, a particular specialty of CompActive, the company has succeeded in integrating several ventilation flaps into a rim. These open automatically due to the waste heat from the braking system, thus introducing the necessary cooling through the wheel surface when required. Since this solution does not require an external energy source, it can also be easily applied to the rotating components. According to CompActive, the flat bending actuators not only offer sufficient travel, but they are also said to have the necessary robustness to withstand the rough and tumble of everyday road traffic.

compactive.de/language/en/

Beckhoff Automation Offers Electric Cylinders for Linear Applications

The AA3000 series electric cylinders are the ideal direct drive for linear applications with high process forces and speeds. The advantages in terms of power, dynamics and compactness meet the advantages of servo technology, such as controlled positioning, safe holding at a standstill and high efficiency. The integrated mechanics of precise rolling bearings, ball screw and guide ensure a backlash-free, purely translational movement.

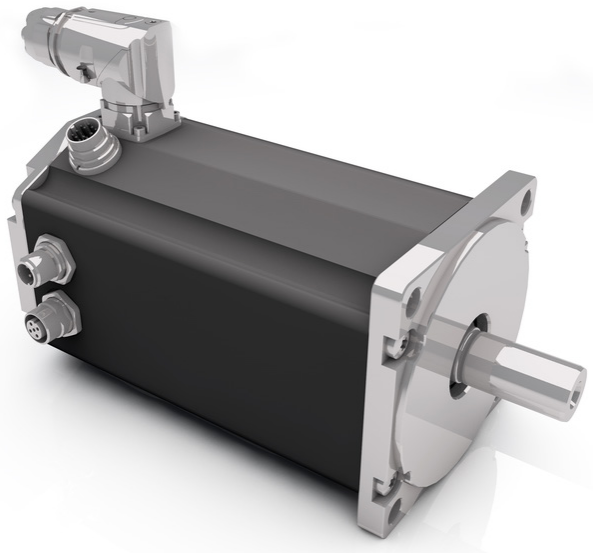
At the end of the shaft of the spindle is an external thread, on which commercially available adapters such as e.B. Ball heads or clamping hooks from the pneumatic/hydraulic range can be mounted. The flange dimension of the electric cylinder is based on ISO 15552 and has screw-on points on both sides if an application requires e.B a swivel eye connection. This compatibility makes the switch from pneumatics to electric drive technology particularly easy.

The built-in, safe 24-bit multiturn encoder offers, in addition to the high resolution, the advantages of OCT and electronic nameplate for quick and easy commissioning with the well-known Drive Manager. A different spindle pitch or a backlash-free holding brake are available as options.

beckhoff.com

Dunkermotoren Expands Product Portfolio and IIoT Options

Dunkermotoren highlighted the company's holistic solution portfolio covering all aspects of the use and connectivity of its smart motors. Holistic means, on the one hand, from the initial consultation and joint concept development to project implementation in partnership. On the other hand, holistic also means from the field level to the cloud from a single source, i.e., from the implementation of the control logic with MotionCode to condition monitoring and predictive maintenance using cloud services.



With nexofox, the drive technology manufacturer is breaking new ground and moving from a pure product supplier to a full-service provider. With nexofox, Dunkermotoren is launching its own brand, which fully addresses the topic of the Industrial Internet of Things and its unlimited possibilities as well as the connectivity and programmability of smart motors. In the field of integrated smart BLDC motors, Dunkermotoren has been considered a pioneer in the industry for years and is now once again taking on a pioneering role with nexofox.

With the new BG 95x120 dPro, Dunkermotoren expands the product portfolio in the BG 95 series by a new length and thus breaks its own records. The BG 95x120 dPro is currently the most powerful motor and achieves a peak power of 4.4 kW and a torque in the range of 14.5 Nm — with a battery voltage of just 48 VDC. These characteristics, combined with the space-saving slim design makes it the perfect drive for mobile applications including automated guided vehicles (AGVs) or autonomous mobile robots (AMRs) as an example. The transportation of heavy loads is no longer a problem.

As dPro version, the connection is very easy: No matter whether with CANopen or the Ethernet interfaces PROFINET, EtherCAT or Ethernet/IP. The BG 95x120 dPro can be integrated into the existing system and then be programmed and controlled via Drive Assistant 5 and/or MotionCode.

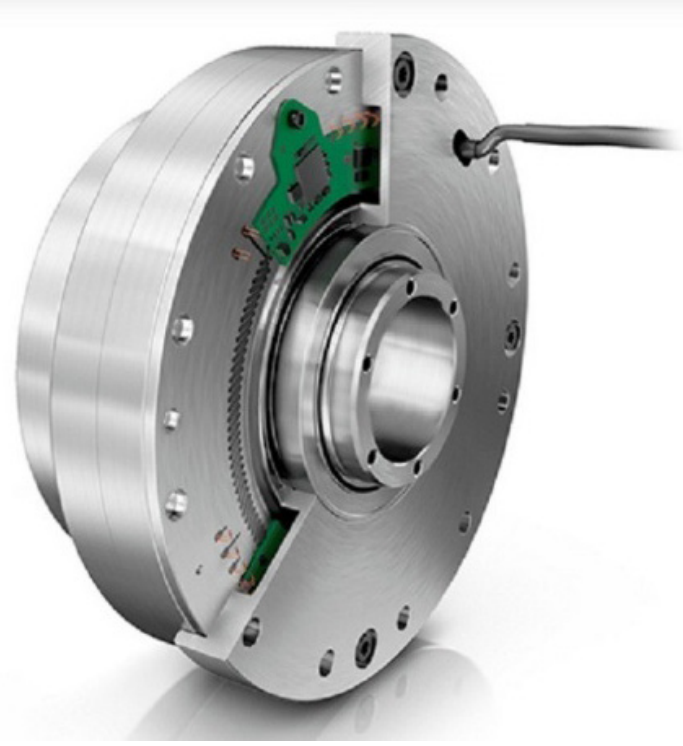
For more safety, the certified safe torque off (STO) function is available as standard for all BG 95x120 dPro. STO allows the motor to be switched off reliably and without torque. A sudden obstacle in the path of an AGV/ AMR is no danger anymore. Additionally, the logic voltage is not interrupted in such cases. This saves time-consuming re-referencing after restarting.

The BG 95x120 dPro is the perfect friend for more flexibility in transport robotics.

dunkermotoren.com

Schaeffler Focuses on Torque Sensor System

Whether direct drives, precision planetary gearboxes, angular contact needle roller bearings or UPRS motors — Schaeffler's exhibits were all innovation turned metal. The company premiered a fully integrated torque sensor system during the show. This solution, which is unique on the market to date, provides highly accurate torque signals without requiring additional installation space and without any loss of rigidity in the overall mechanical system.

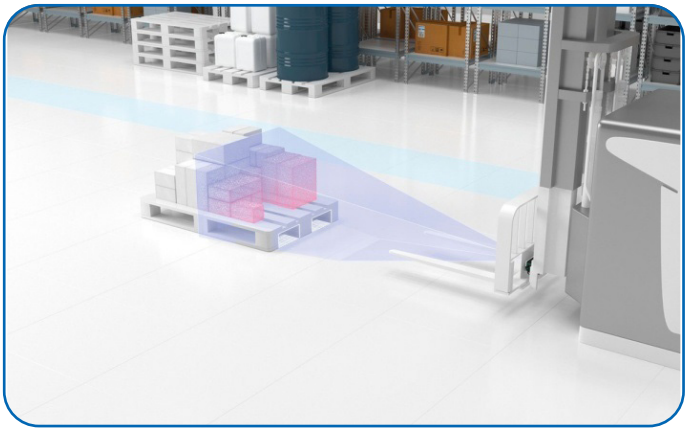


Today, production focuses on precision components and systems for powertrains and chassis as well as rolling and plain bearing solutions. With around 83,000 employees, one of the world's largest family-owned companies generated sales of around 13.9 billion euros in 2021. And with more than 1,800 patent applications, the Schaeffler Group ranked third among Germany's most innovative companies in 2021, according to the DPMA.

schaeffler.com

Pepperl+Fuchs Offers New Sensor Series

The new sensor series SmartRunner Explorer 3-D from Pepperl+Fuchs supplies the 3D vision data for controlling different applications.



It includes two device variants with their own measurement methods on one platform: Stereo Vision and Time-of-Flight. Housed in the same housing, with uniform user software and data output, the integration effort for 3D applications can be significantly reduced.

The stereo vision device has a range of one meter and a resolution of 1.4 megapixels. The size of the detection area is 400 x 350 mm at 600 mm and 550 x 500 mm at a distance of 900 mm. With these parameters, it is optimized for the high-precision detection of objects in this close range and is particularly suitable for inspection applications. For example, it can be used for checking and counting of defined objects or for volume acquisition. The additional depth information in the z-direction opens completely new application possibilities that remain closed with conventional sensors.

The device works with two cameras. Using the high-resolution 2D data, the sensor can be precisely aligned with the target object, which makes it easier to interpret the measurement results. In the first step, your 2D images are automatically superimposed to form a disparity image, which forms the basis of the 3D point cloud. It should also be mentioned that all devices are factory calibrated. **PTE**

pepperl-fuchs.com