Maxon Motors

AIMS FOR MEDICAL APPLICATIONS

Maxon, a manufacturer of small, high-quality DC brush and brushless motors, announced key product developments for medical technology applications including the EC 9.2 flat motor and the KD 32 planetary gearhead. The company has also released a high density 200 W power pack in the RE 50 and a compact speed controller for brushless DC motors with Hall sensors with its DEC Module 24/2.

The EC 9.2 flat motor offers a high nominal torque of 0.83 mNm and a stall torque of 1.29 mNm. Its outer diameter of 10 mm includes a cover that protects against contact and can be used as a mounting aid during installation. The EC 9.2 is equipped with an 8-pole neodymium permanent magnet and preloaded ball bearings. The motor can be utilized for medical technology applications where space limitations may be a concern. Other features include high nominal torque and lifespan-optimized bearings. It is available with or without Hall sensors.

The new Koaxdrive KD 32 combines worm and planetary gear technologies with a patent-protected design that has enabled Maxon to reduce the noise in the first gear stage where the greatest peripheral speeds occur. This planetary gearhead measures 32 mm in diameter and can be assembled with various Maxon motors. These low-noise combinations can be used for hand tools and instruments that are primarily used on or near patients in the medical technology sector.

The KD 32 planetary gearhead.

The RE 50 is an extremely dense power pack, which results in detent-free running and minimized mass inertia. The combination of a two-pole neodymium permanent magnet with the patented Maxon winding technology results in high torque and remarkable acceleration. The drive can be used in battery-powered applications such as electric vehicles, transport and logistics equipment, mobile systems and robotics. A dust and water protected RE 50 will soon be available with an optional brake.

The DEC Module 24/2 is a wireless, plug-in module that can be integrated into most applications. A wide voltage range of 8–24 VDC and a continuous output of 2A allows flexible multifunctional operation at a high efficiency factor.

For more information:
Maxon Precision Motors
101 Waldron Road
Fall River, MA 02720
Phone: (508) 677-0520
Fax: (508) 677-0530
www.maxonmotorusa.com

Renishaw's RLS Line

PROVIDES SENSOR SOLUTIONS

Renishaw recently released their new generation of position encoders for harsh environments. Traditional optical encoders are essential components in motion control systems, though it is necessary to protect them from harsh environments. This limits the diversity of applications where encoders can be deployed and can add substantial cost. According to the company's press release, RLS magnetic encoders provide many of the features of optical encoders but with increased robustness.

The RLS encoders are 100 percent solid-state devices with no moving parts, sensitive optics, or seals and bearings that can wear out or become contaminated. They offer a full range of output formats including AB quadrature, analog voltage, UVW commutation and linear voltage. They also provide absolute position output with resolution up to 13 bits. A wide range of package configurations makes the encoders practical for integration into OEM systems.

In addition, Renishaw upgraded its 13-bit magnetic encoder and presented

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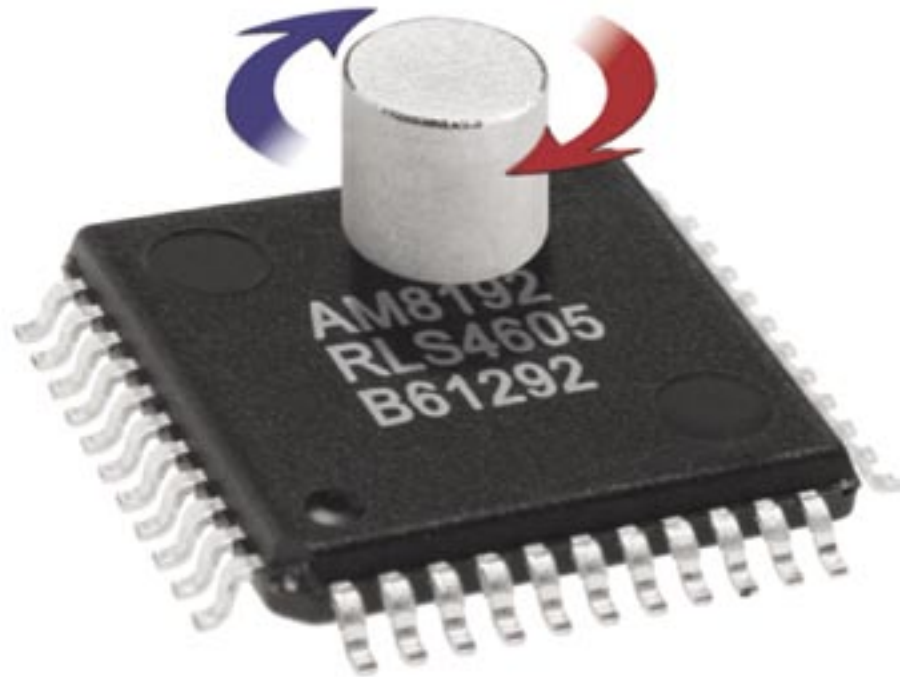


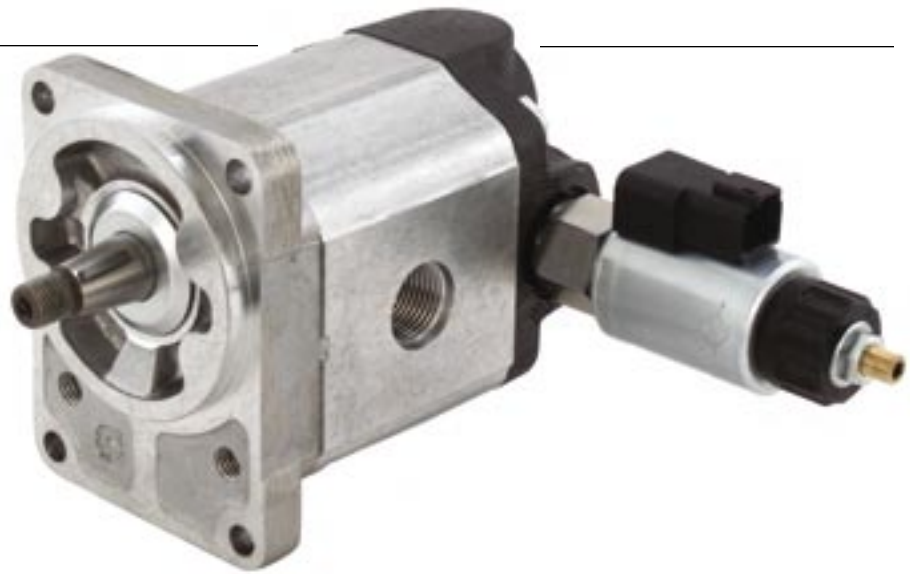
it at the show with improved time delay and accuracy, plus performance tailoring capabilities. The AM8192B increases operational speeds to 38,000 rpm at a 13-bit resolution. A software interface allows designers to choose optimum settings based on the application and provides a HEX setting file for easy upload.

The non-contact design of the encoder gives OEMs reliable solutions for difficult and extreme operating conditions. Sine and cosine voltage outputs vary with magnet position, which the encoder's interpolator converts to a range of binary and decimal resolutions. It's also able to cancel magnetic interference, permitting operation in areas of high external magnetic fields.

For more information:
Renishaw Inc.
5277 Trillium Blvd.
Hoffman Estates, IL 60192
Phone: (847) 286-9953
Fax: (847) 286-9974
howard.salt@renishaw.com
www.renishaw.com

Sauer-Danfoss Gearmotors

MEET INCREASED ENGINE COOLING REQUIREMENTS



The Group 2 and Group 3 Series fan drive gearmotors from Sauer-Danfoss are suitable for demanding off-highway applications' machine cooling needs. The SGM2Y and SGM3Y motors have several new features including a cast iron rear cover on the aluminum housing for high pressure and durability requirements; an electrohydraulic proportional relief valve that is part of the rear cover sustains performance over a machine's temperature range; and a variable speed proportional fan control allows for quick cooling on demand and improved fuel economy.

"The introduction of Tier IV and Stage III B regulations requires emission reductions and the employment of technologies that will reduce net vehicle power output by about 5–10 percent, with heat rejected into the environment up by 10–30 percent," says Jeff Brenner, product portfolio manager for Sauer-Danfoss. "The outcome is engine and transmission oil temperatures will run at significantly higher levels. Adjustments

are essential to compensate for both loss of available horsepower and higher engine and transmission oil operating temperatures. SGM2Y and SGM3Y motors can handle increasing engine and transmission oil temperatures by adjusting to both the higher heat loads and a wide range of severe duty operating conditions."

The fan drive gearmotors come in two frame sizes, and rated pressure is up to 250 bar (3,625 psi) with peak pressure up to 270 bar (3,915 psi). Various flange and shaft options are available as part of a range of configurations.

"Our fan drive motors and complete systems must consistently perform in hot, dusty environments," Brenner says. "Engine emission requirements serve to magnify tough operating conditions for customer machines such as skid steer loaders, fork lift trucks, telehandlers, mini-excavators, wheel loaders, road rollers and pavers. Overall, the design features in these products speak to higher pressure capability, durability, design flexibility and efficiency."

Several features of the gearmotors are responsible for their durability. An integrated shaft seal protects the units from dust, and high temperature seals withstand intermittent temperatures up to 110 degrees Celsius (230 degrees Fahrenheit) and down to –20 degrees Celsius (4 degrees Fahrenheit). The cast iron rear cover handles high pressure, and the EH proportional relief valve is responsible for consistent performance. Gear teeth machining was improved to reduce the noise level.

"These motors are ready to tackle the emission challenges and perform in future generations of machines," Brenner says. "More power in a small package, along with greater cooling efficiency, lower noise and increased durability sum up the SGM2Y and SGM3Y fan drive motors. The PLUS+1 Compliance environment can integrate these products seamlessly with customized software solutions to maximize machine productivity in a highly responsive control system. Greater product and system compatibility leads to shorter lead times and shorter time to market for our customers."

For more information:
Sauer-Danfoss Inc
250 Parkway Drive, Suite 270
Lincolnshire, IL 60069
Phone: (847) 876 1700
Fax: (847) 876 1799
www.sauer-danfoss.com

Motion Programming Script

FUNCTIONS WITHOUT C-CODE EXPERTISE

Kollmorgen, a Danaher Motion Company, introduces the Motion Programming Script (MPS), a network-enabled implementation of a BASIC-like programming language with specific commands for motion control. Electrical and mechanical engineers with minimal programming knowledge can use the MPS to write quick, complex motion sequences and program equipment with short, intuitively named commands.

The MPS is useful with complex motion applications that require simple commands, such as in stage gantry and robotics applications. There is no need for a special code editor, and the MPS is accessed remotely through standard Telnet or a web browser. One-step installation combined with online distribution and an electronic license key make hard distribution requirements unnecessary.

"Frequently, OEMs have electrical or mechanical engineers who are responsible for implementing the control system on their machine," says Ross McMillan, director of engineering for Kollmorgen. "More often than not, these OEMs either underestimate the software staffing necessary, or those people who do the software are also responsible for many other aspects of the machine development. MPS allows those mechanical or electrical personnel

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to program the equipment themselves. BASIC programs, while simple, can be very powerful and are well-suited for motion control applications. But BASIC also has a straightforward line-by-line verbose structure that allows someone with very little exposure to the language to get an immediate intuition for what's happening."

For more information:
Kollmorgen
A Danaher Motion Company
203A West Rock Road
Redford, VA 24141
Phone: (540) 633-3400
www.danahermotion.com

Rupture Disc Assembly

PROTECTS TURBINE EQUIPMENT

Continental Disc Corporation introduces a rupture disc assembly specifically designed for wind turbine hydraulic braking systems. The rupture disc assembly protects wind equipment from damage and down time in the event of overpressure conditions.

The rupture disc assembly allows for accurate and leak-free overpressure relief for the control valve/hydraulic accumulator system in hydraulic braking systems and yaw brake controls of wind turbines. The assembly is available in a range of sizes, materials and burst pressure ratings for wind turbine protection applications.

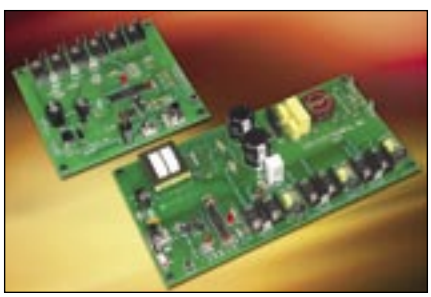
For more information:
Continental Disc Corporation
3160 West Heartland Drive
Liberty, MO 64068
Phone: (816) 792-1500
www.contdisc.com

Analog Brushless DC Motor Controls

FIT IN CONSTRAINED SPACES

Two analog brushless DC motor controls were released by LCR Electronics, for use in three-phase brushless DC motors typical of high-reliability environments. The simple user interfaces make the EC105 and low voltage EC107 suitable for portable or space-constrained applications like commercial tools, appliances and small traction systems.

The RoHS compliant boards use a potentiometer for speed command, a toggle switch to control direction, and a tact switch enables fault reset, which allows for accurate, variable motor speed control using Hall effect sensors for feedback. They feature a trapezoidal, two-quadrant control technique and soft start, resettable overload detection.



The EC105 and EC107 controls operate between 0 and 85 degrees Celsius, and optional coating is available for use in humid or wet environments. The EC105 has an input of 120/240 VAC and a 3A maximum load current, which LCR can upgrade to 20A with an output of 150/300 VDC. The EC107 has an input of 12/24 VDC and a maximum load current of 5A, also upgradeable to 20A. LCR intends to release a four-quadrant version late in 2009.

For more information:
LCR Electronics
9 South Forest Ave
Norristown, PA 19401
sales@lcr-inc.com
www.lcr-inc.com

Misumi

ADDS SEVERAL LINEAR GUIDES TO PORTFOLIO

The SSELBP, SSEBMO, SSEPWP and SSELBWP Miniature Linear Guides from Misumi feature dowel holes on rail and block for positioning that is quick and easy. These guides allow engineers to choose from several design options to suit specific application requirements and technical specifications.

The special options include advanced (preload) and standard (interchangeable and small clearance) versions; long or wide blocks, standard or wide rail in various dimensions; and varying guide rail with dowel hole lengths. The dowel holes make it easy for users to disassemble and reassemble a mechanism for routine maintenance without

realignment. The balls remain retained in all versions, even when the block is removed from the rail. They operate between –20 and 80 degrees Celsius.

For more information:
Misumi USA
1105 Remington Road, Suite B
Schaumburg, IL 60173
Phone: (847) 843-9105 or
(800) 681-7475
Fax: (847) 843-9107 or
(800) 681-7402
inquire@misumiusa.com
www.misumiusa.com

Check Valve Assembly

REDUCES COMPONENTS

Mico Incorporated released a Check Valve Assembly for full power brake systems that includes a check valve and inverted shuttle valve. The assembly supplies fluid for two accumulator circuits while reducing the system components necessary and limiting plumbing and hardware.

The Check Valve Assembly is suited for full power hydraulic brake systems that need to store energy in two accumulator circuits. It features high flow capacity up to 11 gallons per minute and a top operating pressure of 3.625 psi. Pressure is applied to the accumulators by the inlet port. While directing the lower pressure to the switch port, the inverted shuttle valve isolates the higher pressure of the accumulator circuits. Pressure leaking from the switch port to the inlet port is prevented by a check valve. The assembly limits check valve leakage to 0.25 cubic centimeters per minute at 3,500 psi.

For more information:
Mico, Incorporated
1911 Lee Blvd.
North Mankato, MN 56003
Phone: (507) 625-6426
Fax: (507) 625-3212
micomail@mico.com
www.mico.com

Direct Drive Cooling Tower System

SAVES ENERGY

The Baldor VS1 Cooling Tower Drive combines the laminated finned frame RPM AC motor with a permanent magnet salient pole rotor design. The drive replaces the right angle gearbox and jack shaft installation in conventional cooling towers. The fan attaches to the motor shaft and is controlled by the VS1 drive, which runs

quieter, requires less maintenance and consumes less energy.

The cooling tower motor is ideal for the hot, humid environment indicative of a cooling tower. A labyrinth bearing isolator and flinger prevents water ingress along the shaft. Condensation drains take care of any moisture that might build up in the motor. The system uses a vacuum pressure impregnation process to prolong motor life through extreme conditions.

The tower drive uses sensorless algorithms for smooth, low speed operation. It supports several protocols to communicate with most building automation systems.

For more information:
Baldor Electric Company
5711 R.S. Boreham, Jr. Street
Fort Smith, AR 72901
www.baldor.com

Linear Motors

IMPROVE GAS HEATER EFFICIENCY

Crouzet North America, a Custom Sensors and Technologies company, recently introduced its Linear Motor Series to the North American market. The motors are designed to provide a more efficient method of gas heating control by using proportional control of gas flow instead of straight on/off control.

Highly accurate modulation of gas dispensed results from using these motors, and this means fuel can be burned as quickly or slowly as needed, so burning efficiency improves. Typical applications include gas heaters, as fireplaces and other equipment using gas valve control.

The motors are packaged as an integrated device assembly including valve and safety function on stepper models. Regulation of the linear stepper motor allows for two electromagnets per channel to be replaced, but only one channel is required to control the global range of flow. The stepper configuration also features a dual safety system that merges the regulation and fail-safe function into one, so the motor can turn off the valve and stop gas flow in under 10 ms. The valve springs back to close if power is ever as part of the safety function.

Three digital linear models in a range of speeds, step angles and output

forces are available in the series. They each have a standard linear travel of 10 mm, and versions with an anti-rotation device built in can travel up to 35 mm. The first model in the series features synchronous motor technology and offers low- and high-speed connections. It provides 10 mm displacement at 115 volts, a linear step speed of 0.833 or 1.67 mm per second and output force between 27 and 45 N.

The other two models are stepper versions and provide 10 mm displacement with two or four phase configurations. One of the stepper models has a –7.5-degree step angle, a 0.0167 mm per step linear step displacement and output force of 38 or 58 N. The other stepper includes a –15-degree step angle, 0.033 mm per step linear step displacement and output force of 38 or 43 N.

"Crouzet's Linear Motor Series has proved extremely successful in the European market where conservation has been a priority," says Todd Ervin, Crouzet regional sales manager. "With the North American market's growing commitment to a greener earth, we believe this product will be an excellent solution for OEMs and manufacturers seeking better solutions for gas heating."

For more information:
Crouzet North America
2470 Coral Street, Bldg. D
Vista, CA 92081
Phone: (760) 597-6322
Fax: (760) 597-6320
mcnamaj@us.crouzet.com
www.crouzet-usa.com

Electric Actuator

TAILORED TO MARINE VALVE APPLICATIONS

Rotork's ROMpak range of electric actuators offers the marine industry a

lightweight, economical and compact solution for operating quarter-turn valves and dampers with various choices in control, instrumentation and diagnostic options.

The actuators feature self-locking gears, manual override, externally adjustable mechanical stops, a range of mains power options and an IP67 watertight enclosure. The ROMpak actuator also features a self-contained control package with local controls and status indication relays. Optional features include the Rotork Folomatic positional control, current position transmitter, integral data logger, non-intrusive configuration with Bluetooth and digital bus network connectivity. Bluetooth configures the network connectivity and the recovery of historical operating data from the data logger for valve diagnostics and maintenance planning.

The ROMpak range comes in three actuator sizes with operating torques from 35 to 650 Nm, and they are appropriate for ambient temperatures between –5 and 60 degrees Celsius. Orders for the ROMpak actuators have included applications on new naval vessels being built for an Eastern European country.

For more information:
Rotork Controls Ltd.
Brassmill Lane
Bath BA1 3JQ
United Kingdom
Phone: +(44) 1225-733200
Fax: +(44) 1225-333467
mail@rotork.co.uk
www.rotork.com

Small Diameter Ball Screws

FIT SMALL FOOTPRINT

Nook Industries' Small Diameter Ball Screw Assemblies (SD Ball Screws) are designed for smaller footprint applications like robots, medical equipment, guided missiles, unmanned vehicles and aerospace applications. The ball screw line was developed as an extension to Nook's Power-Trac product as a globally accepted metric product for compact, portable and lightweight applications that require high accuracy, repeatability and durability.

The SD Ball Screws feature ±100 µm/300 mm, diameters from 6 to 12 mm and standard leads from 1 to 3 mm. The basic configuration assembly is usually powered by a motor that generates torque as the rotating screw pushes the nut along the screw shaft, resulting in linear thrust. They are typically used along linear slides as part of a linear actuator. The ball screws come in a variety of materials including alloy, stainless, aluminum, titanium and other exotic metals. They come in standard sizes, but Nook can customize them for specific applications.

For more information:
Nook Industries, Inc.
4950 East 49th Street
Cleveland, OH 44125
Phone: (216) 271-7900 or
(800) 321-7800
Fax: (216) 271-7020
www.nookindustries.com

SI Couplings

DON'T WEAR, EXPERIENCE BACKLASH

Magnetic disk couplings from Sterling Instrument feature no friction or wearing parts, use no electricity and no magnetic particles to leak. These units, identified as the S50DCM (inch) and S50DCMM (metric) Series, are stocked in eight bore sizes ranging from .1875" to 1.000" (5 mm to 19 mm). The couplings consist of two opposing disk halves with rare earth magnets. The torque applied to one disk is transferred through an air gap to the other disk. Because of its flat design, angular misalignment of up to 3 degrees or parallel misalignment of up to 1/4" can exist and the couplings continue to transmit nearly full rotational torque.

These 416 stainless steel couplings incorporate an NdFeB, nickel plated magnet. The hub sections are offered singularly and with or without a keyway. They are fastened to shafts with an included set screw. The coupling O.D. ranges from 1.72" to 2.86" (43.7 mm to 73 mm). Repeatable torque control is another feature, and no friction exists because there is no physical contact between driving and driven parts.

Applications include material handling such as for conveyor belts, film transport, capping of syringes or bottles, shrink wrapping, constant wire tension coil winding and film tensioning. Quotes, online orders and 3-D CAD Models are available at *www.sdp-si.com/eStore*. Detailed specifications are contained in Catalog D795, available free upon request from Sterling Instrument.

Sterling Instrument now offers a series of slit type plastic couplings that are inexpensive, UV resistant with voltage and RF isolation. The S50TLS inch and metric series are stocked in sizes 13, 19 and 25. The plastic couplings replace stainless or aluminum slit type couplings for improved operation. Windup or backlash and derating for reversing applications are not an issue for the S50TLS. A metal screw-to-metal nut design that doesn't use threads cut into a molded piece to ensure a snug fit between the shaft and coupling.

The slit type plastic couplings feature stainless steel fasteners. The bore sizes range from 0.125 to 0.500 inches (3 to 12 mm) while length starts at 0.710 to 1.400 inches (18 to 36 mm), and temperature ranges from –4 to +284 degrees Fahrenheit (–20 to 140 degrees Celsius). They accommodate applications with tight or skewed connections.

For more information:

Sterling Instrument
2101 Jericho Turnpike
P.O. Box 5416
New Hyde Park, NY 11042-5416
Phone: (516) 328-3300
Fax: (516) 326-8827
www.sdp-si.com