ContiTech

OFFERS DRIVE BELT SOLUTIONS

Drive belts from the ContiTech Power Transmission Group are used all around the world in all kinds of applications relating to movement. Whether in small handheld mixers, in large-scale machinery in the textile industry, in agricultural machinery, elevators, or vehicles — the specialist for drive belts and complete drive belt systems ensures that things keep moving. "We have set the benchmark for the industry by introducing the highest quality standards for this technology," said Konrad Müller, business unit manager.

In the process, the company constantly drives new technological developments and pursues new growth markets. The field of electrically powered two-wheeled vehicles provides a good example. Two-wheelers already play a central role in the world of pri-

vate transport and are set to become even more important. Responding to this trend, the business unit has entered into a cooperative partnership with e-bike drive manufacturer Benchmark Drives in Hofheim, Germany. "Here we envision interesting potential for high-quality products in a very interesting consumer segment," said Müller.

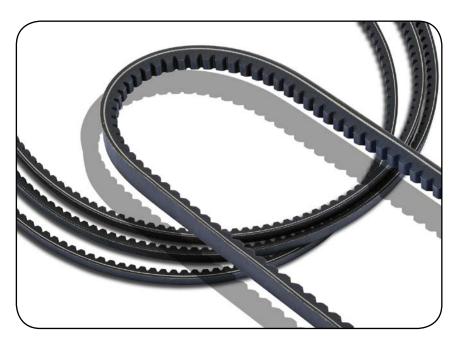
BlueConcept: Added Environmental Value without Additional Costs

The ContiTech Power Transmission Group is continuously expanding its range of BlueConcept-label products, with the aim of making eco-friendly drives available for all industrial applications. A key advantage of eco-belts is that they can replace conventional belts without major additional investment — and also without compromising performance in terms of strength, power transmission and service life.

High-Tech Belts for Special Demands

Special jobs call for ultra-heavy-duty belts. This is where the ContiTech Power Transmission Group is setting new technological standards. A case in point here is the Conti Polyflat PU belt. With lengths of up to 150 m, it keeps elevators moving in the world's tallest building, the Burj Khalifa in Dubai, and elsewhere. In Singapore, drive belts from Conti-Tech ensure that the glass lifts can even transport cars to the lofts in the 30-story Hamilton Scotts building. "What might seem like a luxury project today, could reap major benefits for disabled people in the near future. They will be able to ride up to their high-rise apartments in their vehicles and wheelchairs without having to deal with any barriers," explains Müller, drawing a link between high-tech solutions and social benefits.

Extreme loads are something that agricultural machines also have to cope with. A suitable alternative to chain drive systems, ContiTech has developed a heavy-duty polyurethane drive belt with carbon tensile members. It is marketed under the brand name Conti Synchrochain Carbon.



The belts can transmit maximum forces with a high level of reliability. Even under immense strain, they display barely any stretching. Made of rubber, this heavy-duty timing belt complements applications involving high temperatures.

Performance can be improved — and operations thus rendered more cost-effective — thanks to a new manufacturing technique for the Conti-V Fo-Advance heavy-duty V-belt. It delivers a performance improvement of up to 15 percent. The belt is suitable for many industrial applications in machine and plant engineering, but also in ventilation technology, as well as in pumps and compressors.

Focusing on the Growing Market for Bikes, Pedelecs, and

ContiTech is paying special attention to the two-wheeler market — including, in particular, bikes with electric motors. There is great potential for growth here. Particularly in those regions of the world with highest population density, consumers and companies are starting to recognize the advantages of e-bikes as an alternative mode of transport for short routes. Here they get one around faster than cars, do not cause parking problems, and are cheaper to run. The market for e-bikes and pedelecs is experiencing enormous growth. The worldwide demand is currently around 30 million units a year — and the trend is picking up steam. In China alone, there are more than 120 million electric bicycles on the road. And the German market is also booming: In 2012, Germans purchased around 400,000 pedelecs.

Since February 2013, the company has been working together with e-bike drive manufacturer Benchmark Drives. Müller emphasizes the importance of the cooperation with Benchmark Drives: "We want to work together to set new standards for modern drive technology."

For more information:

ContiTech AG Phone: (800) 654-0974 www.contitech-usa.com



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Force Control

CLUTCH BRAKE OFFERS OIL SHEAR TECHNOLOGY

Force Control Industries introduces the new Size 30 Posidyne Clutch Brake with "Oil Shear Technology" that can be operated as a clutch only for applications such as pumps or fans, or as a clutch brake for cycling or indexing applications. This Posidyne clutch brake dynamically accelerates or decelerates high-inertia loads without wear on friction discs, providing years of maintenance-free, no-downtime operation. That is in contrast to dry friction clutches or brakes which are designed to lock up, and tend to have significant wear if used dynamically. The Size 30 features smooth and quiet acceleration or deceleration due to the Oil Shear Technology. It is ideal for bulk materials-handling applications such as conveyors, load-out conveyors, as well as bulk loading applications like rail car dumpers, portside conveyors, and other critical "no downtime" applications.



Simple Design Yields Big Benefits

The Posidyne Size 30 consists of 7 basic components: (1) the input shaft which is connected to the motor or engine; (2) the output shaft which is connected to the load; (3) a clutch and brake stack consisting of multiple alternating friction discs and drive plates; and (4) a centrally located piston between the brake and clutch that will engage either the clutch or brake, but never overlap to engage both at the same time. Two other important components are (5) the piston seals (o-rings with Teflon liners with each o-ring) and (6) springs tending to push the piston to the brake side (there are many combinations of springs and pressure called "logic types"). The final component is (7) the transmission fluid that makes the whole unit possible.

Actuation media to move the piston creating pressure on the clutch or brake can be air (maximum 80 psi, only 97 in³ per engagement) or hydraulic pressure for applications outside or away from a compressed air supply.

Unique Features and Benefits

The Posidyne Size 30 provides quiet, smooth, maintenancefree operation with no adjustment or regular downtime required. It features a totally enclosed, heavy duty, foot mounted, cast-iron-sealed housing operation in dirty, dusty, wet environments. In the mine or outside, at loading facilities, or on barges or boats, the Size 30 functions with no regular maintenance intervention during its 40,000,00-cycle design life (annual fluid changes are suggested for maximum service life).

The multiple disc friction stacks provide high torque and thermal capacity in a low inertia (only 61 lb-ft²) compact package. Highly developed friction materials function optimally with the transmission fluid and resist wear. Teflon liners protecting every piston o-ring seal eliminate cracking and leaking of the o-ring seal, and provide smoother, quicker engagement. Because there is virtually no wear of the friction material, piston travel is reduced, utilizing less actuation air or hydraulic fluid, and providing a quicker response.

Oil Shear Technology

Oil Shear Technology is the heart of all Force Control clutches and brakes. Transmission fluid flowing through the friction stack is put in a shear condition during dynamic engagement. It transmits torque between the friction discs and drive plates, protecting the parts from mechanical contact, and absorbing the heat of engagement as it flows through the stack. Upon exiting the stack it flows down the housing walls, where it is cooled, and back into the bottom of the unit to recirculate back into the friction area. As the pressure continues to clamp the friction stack together, it reaches a point of static lock-up, unless continuous slip is a desired condition. The transmission fluid also serves to lubricate the bearings and splines for greatly improved operating life. Depending on the thermal loads, the additional cooling of the transmission fluid can be done with fan cooling, water cooling, external oil-to-air cooling, or oil-to-water cooling; and for continuous slip applications, forced lube units are available. This highly reliable clutch brake operates nearly maintenance free for the duration of its design cycle life of approximately 40,000,000 cycles. Repair kits are available, as is rebuild service by Force Control Industries, which is recommended.

For more information:

Force Control Industries Phone: (513) 868-0900 www.forcecontrol.com

Maxon Motors

OFFERS PWM SERVOMOTOR CONTROLLER

Maxon precision motor's newly released DC servomotor controller, the ESCON 50/5 OEM module, is a 4-quadrant Pulse Width Modulated (PWM) servomotor controller that can efficiently control permanent magnet brushed DC motors (PMDC motors) and brushless DC servo motors (BLDC motors) containing Hall effect sensors, with power levels up to 250 watts.

The OEM module features exceptional motor control properties and contains very fast digital current control bandwidth capabilities, enabling peak DC motor current (and therefore torque) control. Speed control of DC motors is devoid of drift while remaining dynamic. The DC motor speed can be controlled from 0 rpm up to 150,000 rpm. A completely configurable, broad range of functions can be set to operate from the onboard analogue and digital inputs. The DC motor speed can be set for open or closed loop with preset current/torque levels, or the motor torque and direction can be set with analogue inputs. The inputs can be scaled and midpoints independently set with the "easy-to-use servo controllers" PC graphical user interface (GUI), allowing fast integration into difficult motor control applications. Detailed design guides are supplied, allowing easy integration onto the main equipment PCB. There is also an evaluation board for easy initial test and measurement.

This DC servomotor controller can also be used with an external potentiometer or the integrated on-board potentiometer. For applications with existing PWM signals available, this can also be used as a set value input. Full 4-quadrant control can be achieved with brushless motors using only Hall sensors. A DC tacho or encoder can be optionally used with the DC motor for tighter feedback loops, and digital inputs can be switched for activation in a particular motor direction of rotation.

Protection features are inbuilt on the motor controller against overcurrent, over-temp, under-voltage and overvoltage. Transients and short-circuits on the motor are also covered. The maximum allowable motor currents can be configured easily on the USB connection with the PC GUI. The small-sized electronic motor controller has a 98 percent efficiency and can be used on common 12V, 24V and 48V DC systems, making it suitable for process control, robotic and manufacturing equipment applications.

For more information:

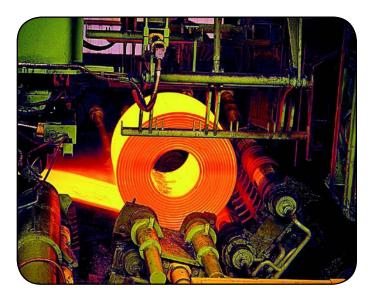
Maxon Motors Phone: (508) 677-0520 www.maxonmotorusa.com



WEG

EXTENDS MOTOR RANGE FOR STEEL INDUSTRY

WEG has extended its range of reliable and robust motors for the steel industry. The company now offers a complete roller table motor line, ranging from 132 to 400 IEC frame sizes, which was previously limited to IEC 200. The high-quality motors, with a torque of up to 2,972 N-m and four to twelve poles, have low maintenance requirements and costs, thus enabling steel plants to increase productivity and operating efficiencies.



Motors driving rollers are subjected to sudden torque variations, sometimes from zero to overload, immense acceleration requirements and frequent rotation reversals. WEG has designed its motors with high starting and breakdown torques so that they operate exceptionally in these conditions. Depending on the application, WEG can also customize the right solution to fit the individual need.

The roller table motors function with complete reliability in the harsh steel rolling environment where there is contact with corrosive agents, water, steam, dust and high temperatures. They include features such as WEG's innovative W3seal sealing system for added protection against water ingress (IP66), and WEG's WISE insulation system, which ensure a longer lifespan. Thanks to the special design of the fins, an accumulation of solid and liquid agents is avoided, thus providing balanced heat dissipation and easy cleaning procedures. The non-ventilated construction results in reduced maintenance efforts and a smaller size.

The motors offer complete design flexibility, being available in several different configurations. They can be coupled directly to the rollers or through gearboxes with dedicated flange and shaft end dimensions. They can also be controlled with variable speed drives. WEG's motors are available in a top or lateral terminal box mount, or with the terminal box attached to the non-drive and end-shield.

"Steel industries are known as one of the most aggressive industrial environments for electric motor operation, with extremely demanding applications requirements such as

high torque and heavy-duty cycles," says Marek Lukaszczyk, European marketing manager at WEG. "WEG roller table motors are designed especially to work reliably in these conditions. Our smaller size motors are already proven in the steel industry and now customers will be able to benefit from the high-quality larger sizes, which have a low cost of ownership.

For more information:

WFG

Phone: (687) 2459-2000 www.weg.net

Zero-Max

ETP Hydropress from Zero-Max provides quick and precise fastening of components in tight spaces on large shafts from 80 to 200 mm diameter. Hydropress shaft bushings are suitable for locking into position gears, sprockets, pulleys and similar components in a machine's power transmission system. Handling torque ranges from 21,000 to 200,000 ft.lbs., ETP Hydropress bushings utilize hydraulic pressure contained in a double-walled sleeve to lock components into position on a shaft. Utilizing a grease pump for mounting, both radial and axial connection to the shaft is easily made. Once mounted and pressurized, the conical angle of the outer sleeve locks the device into position forming a very tight, continuous connection between the shaft and mounted component. The bushing aligns precisely without axial movement as it is pressurized. The Hydropress can be reset at different positions on the shaft without losing concentricity. Transmittable torque can be varied by altering the mounting pressure. A flange on the Hydropress has two valves - one for the pump connection and a pressure release valve for dismantling. Available in custom sizes and stainless steel, these ETP Hydropress bushings are a cost-effective choice for new and retrofit applications including food processing and packaging applications.

For more information:

Zero-Max Phone: (800) 533-1731 www.zero-max.com



Boston Gear

EXPANDS 700 SERIES SPEED REDUCERS

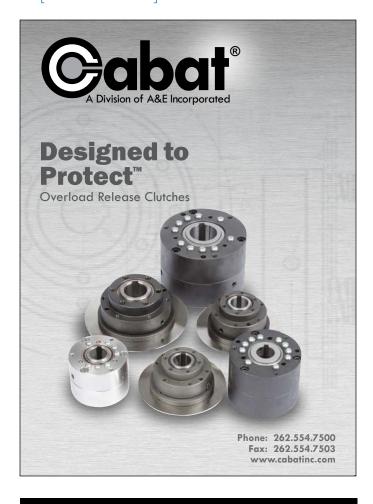
New 80:1 and 100:1 ratios are now available in single-reduction 700series worm gear speed reducers. The new models provide the compact size of a single-reduction reducer with a lower purchase price than traditional double-reduction units. Units are backwards-compatible with all 700 series industry-standard mounting dimensions. These economical reducers are ideal for low-torque, light-duty material handling, food processing, and packaging applications. The new ratio reducers are available with projecting, quill or coupling input options. Hollow and solid (projecting) output options are also offered. Models are available with standard paint, BK/SBK coatings or stainless steel housings. Boston Gear's 700 series, the standard for modular worm gear construction, is known throughout the industry for its durable, efficient, and trouble-free performance. The internal worm is specially-ground for enhanced efficiency and lower heat generation leading to prolonged product life. 700 series reducers feature rugged cast iron or stainless steel housings with highstrength bronze worm gears mounted between heavy-duty tapered roller bearings. Quality materials and proper heat treating of the 700 series components provide strength and durability. Large oil reservoirs also provide efficient heat dissipation and lubrication for longer operating life.



For more information:

Boston Gear Phone: (800) 825-6544 www.bostongear.com







Voith

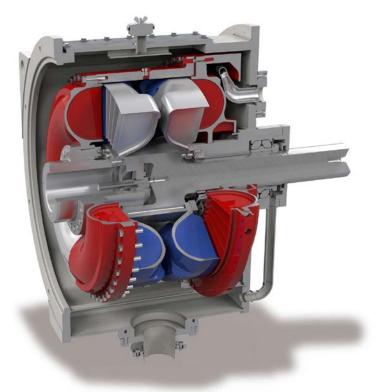
FLUID COUPLINGS ASSIST BELT CONVEYORS

New fluid coupling TurboBelt 780 TPXL from Voith raises the productivity of high-powered belt conveyors. Developed especially for the drives on open-pit mining belt conveyors, the latest fluid coupling technology from Voith provides a lot of benefits. Thanks to the innovative XL blade wheel profile, the TurboBelt 780 TPXL coupling transmits power upgrades. It is designed for 6- and 8-pole induction motors operating at speeds of 900 to 1,200 rpm. The start-up with precisely-controlled introduction of torque not only protects the belt, but also the entire driveline. Even overloaded belt conveyors are started reliably. Start-up times of up to several minutes can be individually set in the control system.

In May 2012, the initial start-up of this new fluid coupling was in one of the biggest sea terminals in northern Brazil, where iron ore is shipped worldwide. In order to handle the increasing amount of iron ore, the operating mining company decided to install three TurboBelt 780 TPXL couplings in the drives of a 1,451-m (4,760 feet)-long conveyor. The couplings assure smooth operation and avoid unscheduled downtimes of the belt conveyor. As the conveyor transports around 10,000 tons of iron ore every hour, its reliability has high priority for the mining company.

The maintenance efforts can be reduced to a minimum as the hydrodynamic power transmission is completely wear-free. Compared with traditional couplings, the TurboBelt 780 TPXL requires only half as much installation space and is also significantly lighter. This has enabled a simple and quick installation and alignment in the Brazilian sea terminal in May 2012.

Altogether, the new TurboBelt 780 TPXL couplings raise the productivity and profitability of the belt conveyor. Be-



sides the couplings, the mining company benefits from a customized package also delivered by Voith.

Solutions for drive units

In order to operate the conveyors in the most efficient way, Voith offers not only couplings but also optimal drive solutions based on the customer's needs. The drive package solutions include the drive hardware, PLC controller and supervision of installation as well as commissioning.

For more information:

Voith Turbo GmbH Phone: (717) 767-3200 www.usa.voithturbo.com

Pepperl+Fuchs

Pepperl+Fuchs introduces the R2 Series Ultra-Small Sensors - a complete family of ultra-miniature photoelectric sensors available in four sensing modes to suit varied application needs. These sensors feature a 24 mm × 7.5 mm × 11.2 mm housing, industry-standard mounting footprint, a flush- and wear-resistant antistatic glass lens and a 45 degree cable outlet to maximize mounting flexibility. Consequently, the R2 series can be mounted where other photoelectric sensors cannot - in extremely tight spaces and close to moving objects — to deliver high performance and reliable operation in a wide range of applications, regardless of the color, texture or shape of the object(s) being sensed.

"The R2 series is the only nano-sized photoelectric sensor available today with background evaluation (BGE) mode. Utilizing a fixed background such as a conveyor or machine part as a reference, R2 series BGE sensors are a unique alternative to retro-reflective sensors, reliably detecting objects without the need for a reflector," says Pepperl+Fuchs product manager, Michael Turner. "Advanced thru-beam mode R2 sensors are equipped with a secondary emitter LED that provides a laser-like spot size for high-precision applications and eliminates the hassle of applying external apertures. The R2 series is also available in polarized retro-reflective and background suppression modes."

Industry standard 15 mm mounting hole separation enables R2 series sensors to easily retrofit into existing applications. Threaded sensor mounting holes enable installation without mounting nuts to simplify installation and save time. This also negates the potential to lose or drop mounting nuts while installing a sensor in very small, tight spaces.

R2 series sensors feature a glass optical surface which is more resistant to environmental contaminants, chemicals and abrasion than is the fragile plastic optical surface of many conventional photoelectric sensors. Additionally, the tamper-proof housing of each R2 series sensor ensures that unauthorized personnel cannot make modifications or alterations after the sensor is set up. Enhanced and strategically placed LEDs clearly indicate the sensor's operating state. "The R2 series' powerful emitter LED literally outshines the competition, offering the brightest, most powerful, easiest to



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KRP+ RACK & PINION DRIVE



DRP+ RACK & PINION DRIVE Twin or DualDRIVE



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align and most uniform light spot. The result is greater signal strength to optically 'burn through' environmental contaminants, more consistent detection and better visibility on dark materials," explains Turner. "These extra-bright LEDs ensure that everyone, especially maintenance personnel, can easily see them at a distance and at various angles."

Their ultra-compact size, robust design and range of operating modes make the R2 series a suitable photoelectric sensing option in any number of material handling, printand-paper, packaging and general purpose applications that have very tight mounting space. The high optical burnthrough power and rugged housing are well suited for automotive applications, and semiconductor applications could benefit from R2's ultra-low-profile housing and high-precision through-beam sensors. Its size and features also make the R2 series a good solution in certain biomedical and pharmaceutical applications.

For more information:

Pepperl+Fuchs Phone: (330) 486-0001 www.pepperl-fuchs.us







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Lenze Americas

UPDATES DSD TOOL

Lenze Americas has launched an updated version of its Drive Solution Designer (DSD) drive dimensioning tool. Version 4.0 brings DSD users expanded application functionality and enhanced drive dimensioning for winding-unwinding motion control applications. "DSD 4.0 makes drive dimensioning simpler and even more convenient," states Craig Dahlquist, Lenze automation product leader. "In addition to numerous user enhancements, the precision drive dimensioning designer for winders offers our customers a powerful new engineering tool."

Lenze DSD 4.0 now comes standard with dimensioning tools for optimizing drives in typical center winding and unwinding machines. The winding-specific motion designer takes into account special features unique to the motion control of winders, with expert support in selecting winding technologies, a diameter-based representation of the load variables, and examination of the winding process in the torquespeed diagram of the motor-inverter combination. The field-tested energy performance certificate, available on earlier DSD versions, completes the

winder solution for both single- and multi-axis systems.

Other new features of the Windows-8-compatible DSD 4.0 release include a series of solutions designed for mains voltages in U.S. markets. A new application tuner provides DSD 4.0 users greater detail in precision drive dimensioning and enables varying types of process data to be leveraged in drive optimization. This extended functionality makes it possible to integrate more potential operating states and material recipes into the dimensioning process. Additionally, Version 4.0 includes enhancements to usability and improved support for generating CAD data.

"DSD 4.0 incorporates a wealth of process data, motion and speed profiles, and in-depth knowledge about drive physics, variants and energy efficiency applications—automatically calculated and readily available at the user's fingertips—to create a complete, optimized drive structure for all of a machine's motion control requirements," adds Dahlquist.

For more information:

Lenze Americas Phone: (800) 217-9100\ www.lenzeamericas.com

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Power Transmission Engineering is always looking for information about the latest technology related to mechanical power transmission components.

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