

SKF's

ENERGY EFFICIENT BEARINGS ON A ROLL AT INDONESIAN TEXTILES PLANT

Along with the rest of Indonesian industry, the Leuwijaya Utama textile company, a Leuwitex company, was confronted with a government-mandated increase in electricity costs in July, 2010. For Leuwitex, it meant an increase of approximately 18 percent. For a company with 300 textile-weaving machines and 176 twisting machines consuming 2,120 megawatt-hours (MWh) per month, in their Bandung factory, this represented a major increase in operating costs; it required a speedy reaction in order to reduce the effect on the threat to bottom-line profitability.

Immediately after the increases were announced, plant management set about searching for ways to reduce energy consumption throughout the entire factory. Along with shutting down all unnecessary power feeds

(lighting, standby machinery, etc.), the team took a detailed look at production. The factory, one of three Leuwitex plants in Indonesia, produces some of the most sought-after fabrics in Indonesia and exports to the Middle East, Malaysia and Europe. Over the years, Leuwitex has developed a number of design and manufacturing techniques to create a wide range of fabrics—including a custom-made fabric that customers report has exceptional feel, design and wear properties—that have placed them among the top 10 producers in Indonesia.

A focus on twisting machines . To produce the daily volume of almost two tons of fabric, the Bandung factory has the usual range of textile machinery including electric motors, weaving machines, spinning machines, twisting machines, etc. Initial investigations showed that 30 percent of the factory's energy consumption was consumed by the twisting machines—an important piece of machinery that is critical to fabric quality. So along with taking measures to correct electric motor energy losses and optimizing frequency converters for the overall electricity supply, the energy consumption of the twisting machinery was addressed.

Mechanically, these machines are fairly straightforward: a series of lines of high-precision spindles are driven by two powerful motors. Frictional losses (energy losses) occur in the rotational motion, as these machines operate 24/7 by virtue of the quality of the bearings fitted at each end of each spindle. With 176 twisting machines, each having 256 spindles, this was clearly an opportunity for energy saving.

Evaluating the options. Zenzen, the Leuwitex plant manager, decided on a very practical and specific way to investigate a way to reduce energy consumption for the long term. He would select three of the most likely ways to optimize bearing cost and frictional losses and put them to the test in his spindles. The three potential solutions were:

- New bearings from the supplier of those in the original spindles (not SKF)
- Low-cost bearings of local Chinese manufacture
- SKF Energy Efficient bearings, claiming up to 30 percent friction savings

Zenzen fitted the bearings to three separate spindle lines and ran them for three months, monitoring specifically the energy consumption of the three lines. The result was an overwhelming victory for the SKF Energy Efficient bearing, with around 10 percent total energy savings. Extrapolating this result to the expected lifetime of the spindles would conclusively save the most energy and deliver the lowest total cost of operation.

"Having satisfied myself on the energy savings issue," said Zenzen, "I needed to also be sure that the overall SKF bearing performance was equally reliable in the spindles that are so critical to the final product quality. The twisting machines have two contra spinning spindles rotating in synchrony in opposite directions. To maintain product quality, it is of utmost importance that these two spindles are rotating exactly as expected through the entire and continuous spinning/twisting operation."

Extending tests to a production run. So Zenzen's next test was to fit SKF Energy Efficient bearings to 10 twisting machines and simulate a production run. "I was delighted to find that the product quality was exactly the same as before with constant, uniform delivery of the various designs, material thickness and feel. This was especially important because we were in the process of expanding and also replacing some machinery in readiness for a new fabric product, and needed to be sure we could rely on the machinery," he says.

This initial test was then extended by adding more lines of spindles while keeping the original 10 operating. Regular product quality checks among all the machines convinced Zenzen that he had indeed found his answer to the best bearings for his textile machin-



ery—from both an energy efficiency and a bearing performance point of view. “I was extremely happy at the outcome of this project,” said Zenzen. “We took the right amount of time to be sure we had done all that was needed to be certain that we had chosen the best solution for our original short-term energy cost problem. And, at the same time, we came to agree that it was the correct solution for our long-term plans as well.”

SKF Energy Efficient bearings

The SKF Energy Efficient (E2) deep-groove ball bearing is one of the SKF performance-class energy efficient bearings. SKF E2 deep-groove ball bearings reduce frictional losses in a bearing by 30 percent or more when compared to a comparably sized standard SKF bearing. The performance increase comes from an optimized internal geometry, low friction grease, and a special, low-friction polyamide cage. Designed for grease-lubricated, light- to-normal-load applications,



SKF E2 deep-groove ball bearings also consume less lubricant than comparable SKF Explorer bearings and enable longer bearing service.

Shielded SKF Energy Efficient deep-groove ball bearings can last twice as long as comparably sized shielded, standard SKF bearings. This means that the number of bearings needed to run an application over its lifetime can be halved. In instances where an application is run-to-failure, these E2

bearings can conceivably outlast other components in the application.

Typical examples of applications for SKF E2 deep-groove ball bearings include electric motors, pumps, conveyors, fans, textile spindles, etc.

For more information:

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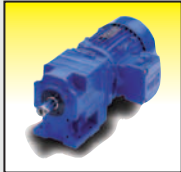
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Bishop-Wisecarver

OFFERS GUIDED MOTION SYSTEM

The Bishop-Wisecarver Corporation (BWC) recently announced the latest addition to their collection of rotary motion solutions: 1-Trak, a single piece track system that is completely seamless and free running with no possibility of misalignment during installation or in service, resulting in smoother, quieter motion.

While conventional track technology limits track paths to simple combinations of straights and curved track segments, 1-Trak allows any conceivable 2-D shape to be realized.

"This patent-pending guided motion system is an innovative addition to our HepcoMotion collection of rotary track options as it is now possible to specify any shape with no joints," said Ali Jabbari, vice president of engineering at BWC. "The design can also include an integral base to form the structural part of a machine."

The entire track element is manufactured from a single piece of steel, with or without a base plate, and features a three-bearing wheel plate. The design's natural strength and accuracy makes it suitable as a structural element of the machine. The product can be customized with holes, slots and other features, eliminating the time and cost involved in designing a separate mounting plate for the track system, and it

can be supplied mounted to an aluminum machine frame.

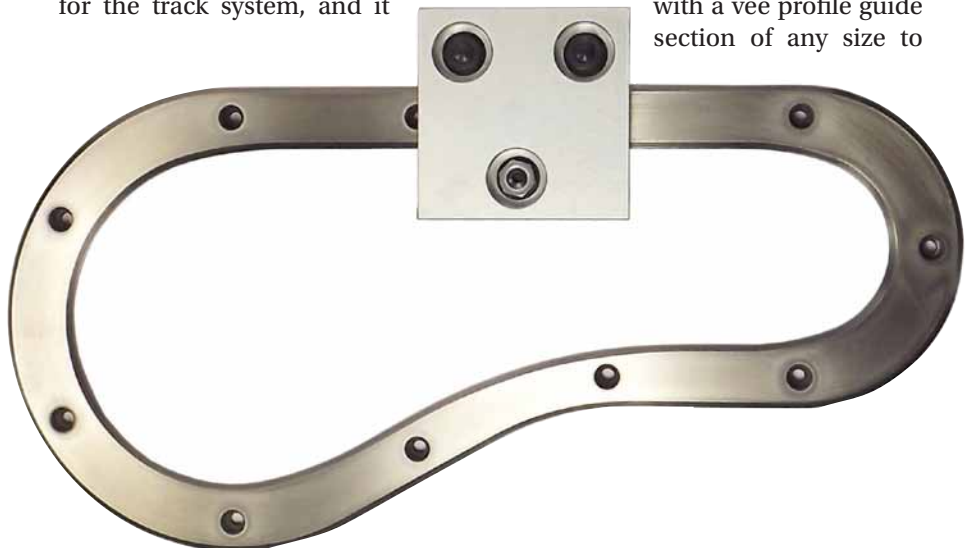
"This is a significant technical breakthrough for complex and jointless motion shapes," said Brian Burke, product manager at BWC. "Carriages maintain zero play on all areas of the track and can accommodate very tight curve radii due to variable track widths."

In addition to facilitating a high degree of flexibility in track configuration, the unique three-bearing geometry combined with the track shape ensures that the wheel plate exhibits zero play everywhere on the circuit. This is a key benefit compared to other tracks where there is "lift off" of the wheel plate from the track between straight and curved sections.

The 1-Trak circuits can also accommodate much tighter bends than is possible with other systems, saving space and costs while allowing the manufacturer to optimize production layout.

Where the application involves higher moment loads, the 1-Trak solution is also available in a wide track section. Wide slide sections with widely spaced bearings both across and along the wheel plate can also be supplied to create a very rigid platform and increased moment load capacity.

Track systems can be specified with a vee profile guide section of any size to



Weiss

INTRODUCES TORQUE ROTARY TABLE

suit bearings from the extensive HepcoMotion PRT2 or Heavy Duty HDS2 ranges from 13 mm to 150 mm in diameter. Wheel plates can carry loads from 67 to 51,000 N, and tracks can be made up to 5.5 x 1 m or 1.9 m square. Corrosion resistant versions as standard are also available.

A rack and pinion driven wheel plate is another standard option when choosing 1-Trak. Its unique design permits a correct and constant mesh between pinion and rack around the entire circuit. It eliminates the need for the pinion to be sprung against the rack to compensate for varying engagement. This substantially simplifies the wheel plate design, reduces cost and dramatically increases system driving forces.

The gear teeth on the track are precision machined and surface hardened to provide outstanding strength and durability. Gears are available from MOD 1.5 to MOD 10 and beyond, depending on application requirements. The system designer can specify pinions alone, a wheel plate complete with pinion and drive flange or with pinions mounted onto a gearbox geared motor.

Also within the new product range is the availability of rectangular flat track profiles and track roller wheel plates. This option is recommended for use when two track systems are mounted in parallel. It allows the roller bearings on one side to “float” axially whilst the other side is fixed and captivated by the vee bearings. This type of configuration compensates for parallelism tolerances, and completely eliminates the excessive loading and binding that can occur.

For more information:

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sales@bwc.com
www.bwc.com

Weiss North America, Inc. (Willoughby, OH) has recently introduced its largest torque rotary table to date—the TO1300. An extension of its established smaller direct-drive tables (TO150, 220 and 750), the TO1300 combines the advantages of direct drive with high



torque – allowing larger scale application scenarios that require high speed and high accuracy to be fully realized.

Boasting a 1,300mm footprint, the TO1300 suddenly makes larger scale applications possible that previously seemed out of reach – as current direct-drive tables are relatively small and limited to a diameter of 750 mm. Additionally the TO1300’s high-tech drive operates predominantly without mechanics or gearboxes.

With over ten years of expertise in the field of direct-drive torque motors, Weiss often designs and develops out of the logical response to changing market requirements and customer demand. This was the case with the TO1300, as a client’s concrete custom requirements stipulated a high mass inertia of 160 kgm² and a large index increment of 45° with fast cycles—namely an index time of 0.21 seconds with a dwell time of 0.29 seconds.

For challenging tasks of this nature, a mechanical heavy-duty table is typically the logical choice. Due to their gearing ratio, however, these tables don’t fare well in service life calculations for use at such high speeds, as the

needle bearings simply suffer from too much wear.

A suitable alternative is a direct drive, which inspired the development of the TO1300. With a direct drive, only one bearing is under load — virtually free of backlash. The table is low-wear and easily capable of delivering the desired dynamic performance requirements. Notably, it has the ability to cover a significantly more versatile range of

tasks—including repeat use through reprogramming, which allows customers to cultivate value added potential. Unique to the TO1300 is that customers can customize it to their individual requirements. For example, they can make a modular selection between bearings,

encoder and motor, and thereby alter the following table characteristics: Drive torque variable through different motor lengths; rated power variable through water cooling option; table speed variable through various combinations of motor/bearing/control technology (field weakening); precision variable through optical or magnetic measuring system; method of functioning variable through incremental or absolute encoder.

Configured in a uniquely robust design, the TO1300 offers new possibilities for high-speed automation applications such as lighting, automotive, cleanroom, small gear assembly, switches/sockets and electronic components.

A specialist in automation, Weiss also offers many sizes for the TO series direct-drive rotary indexing tables, ranging from small to very large. Optimal solutions for specific application challenges can be achieved from the series’ wide range of options. Each TO model is also available in a version with a cleanroom certificate.

For more information:

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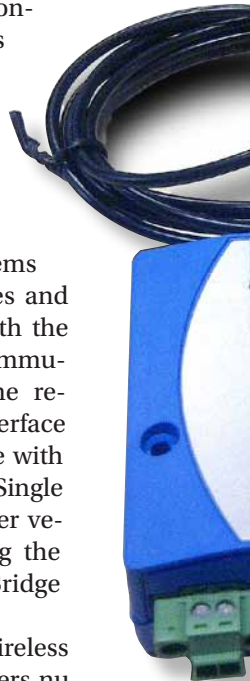
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Mico

INTRODUCES WIRELESS BRAKING SYSTEM

Mico, Incorporated introduces a new, wireless CAN interface for Mico Mobeus electrohydraulic braking systems. The Mico Electrohydraulic (EH) wireless CAN-bus interfaces with the Mobeus ABS/TC/ESC ECU (Electronic Control Unit) utilizing a CAN-Bluetooth connection to the Mobeus Service & Diagnostic Tool LINC. The Mico Mobeus EH Wireless CAN-bus interface is designed for use with Mico EH braking systems in off-highway vehicles and is fully compatible with the SAE J1939 CAN Communication standard. The result is a CAN-bus interface that can communicate with Mico Mobeus LINC (Single Mode), as well as other vehicle controls utilizing the vehicles CAN-bus (Bridge Mode).



Mico Mobeus EH Wireless CAN-bus interface offers numerous advantages for the end user, including:

- Wireless access to CAN systems using the standard Bluetooth interface provided within many notebooks (single mode)
- Up to 100 m transmission range (single mode) and up to 300 m in bridge mode
- CAN-bus data monitoring and data logging outside the vehicle during tuning and diagnostic
- Compliant to Bluetooth specification V2.1 EDR
- -40°C to +85°C Temperature range
- Powered through vehicle battery power (9-30 V DC) or independent 9 V battery

Mico Mobeus EH systems are designed to provide state-of-the-art vehicular braking control of off-highway vehicles. The EH Wireless CAN-bus interface provides an alternative to standard wired USB/CAN adaptors.



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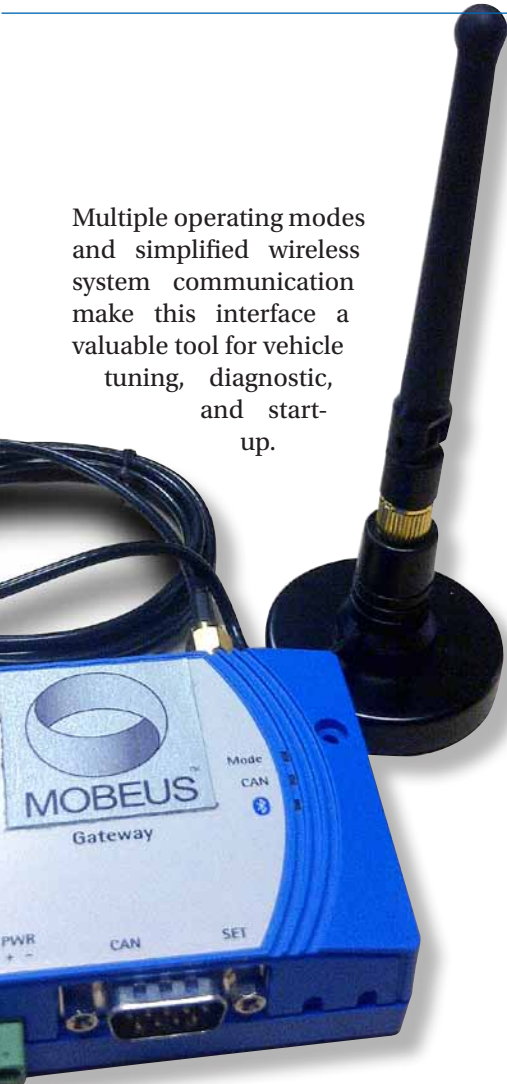
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