

# Pushing Forward with Belts and Chains

The technology continues to evolve in chain- and belt-driven systems

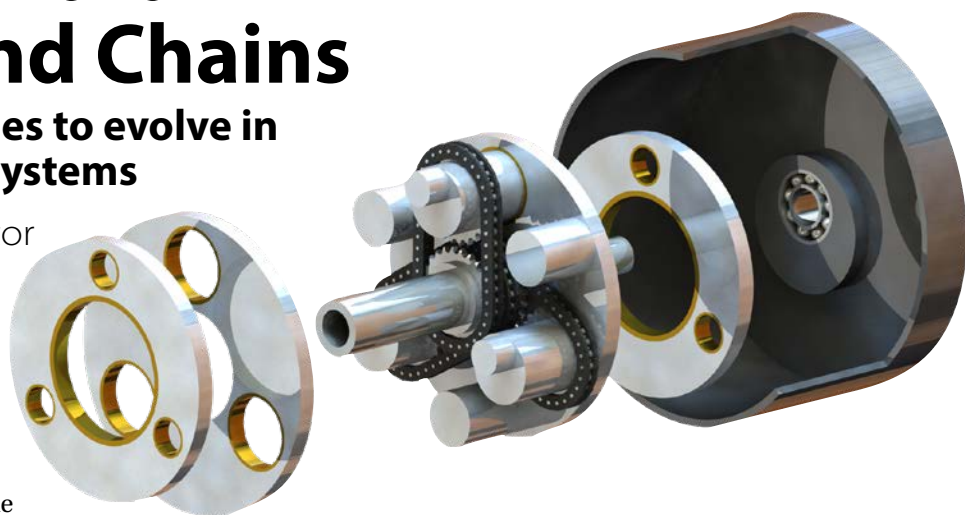
Alex Cannella, Associate Editor

## Orbitless Drives Epicyclic Chain/Belt Drive First Ever Epicyclic Chain- or Belt-Driven Solution

Orbitless Drives Inc. announced another innovation in the area of high performance gears with the introduction of the Orbitless Chain/Belt Drive, the first ever epicyclic chain or belt driven solution. Conventional planetary drives cannot use chains or belts because a sprocket or pulley cannot have internal teeth like a ring gear. The Orbitless Drive dispenses with the ring gear to marry the unique benefits of chains and belts with an epicyclic drive arrangement.

The Orbitless Chain/Belt Drive has co-axial drive shafts, high torque capacity due to load sharing, and very high, positive or negative speed ratios. The speed ratio can be as high as the number of teeth in the sprocket/pulley and as low as zero for an infinitely variable transmission if fitted with a progressive, variable pulley system. This drive easily supports ratios up to 50:1 or more in a single stage.

Multiple planets mean higher accuracy and less flexibility than a conventional zero-backlash timing belt system, with improved compactness due to co-axial drive shafts. It



promises great potential in the high-precision motion control industry where high ratios, zero backlash and low cost are essential.

This inline single stage design can be configured for small-scale precision gear trains with plastic pulleys and belts, right up to large-scale industrial applications with high torque loads.

Orbitless offers design support services and license programs to enable your application engineers to design and build the ultimate Orbitless solution for your unique applications.

### For more information:

Orbitless Drives  
(604) 724-3719  
[www.orbitless.com](http://www.orbitless.com)



## SKF Belts and Chains Portfolio Deliver Efficient and Reliable Power Transmission Solutions

SKF offers a comprehensive range of standard, high-performance belts ideally engineered to deliver efficient and reliable power transmission in drive-system applications across industries. All SKF belts benefit from innovative materials, designs and manufacturing to accommodate the most demanding working loads, provide extended service life and transmit power effectively from one component to another.

The extensive line of SKF belts joins a growing portfolio of power transmission products delivering optimized performance for equipment in the mining, automation, material handling, oil and gas processing, steel and food and beverage industries, among many others.

The standard SKF product line includes V-belts in a variety of constructions (wrapped classical, wrapped narrow wedge, cogged raw edge classical, narrow wedge and Xtra power wedge) and timing (or synchronous) belts with classical, HiTD or metric constructions. Timing belts uniquely integrate durable teeth enabling full engagement with pulley sprocket grooves to prevent potential slip and enhance accuracy and speed. All belts can be specified in various lengths and dimensions with speed ratios and power ratings



consistent with application requirements.

SKF belts install easily and are equipped to sustain proper tension, maximize rigidity and minimize potential stretch. Versions can be specified to handle especially high dynamic loads without compromising flexibility or generating excessive heat.

Designs can be optimized with the SKF belt drive calculation program to develop the most efficient and economical solution for a particular application.

SKF has also introduced an extensive range of roller and engineered chain solutions ideally suited to meet the demanding requirements of power transmission and conveyor applications in the food and beverage, mining and cement, and steel industries, among many others. The chains join a growing portfolio of SKF power transmission products offering optimized performance and long service life.

Standard SKF transmission, or roller, chains (pitch sizes .25 in. to 3 in.) feature through-hardened, shot-peened and ball-burnished inner and outer link plates with wide waist; case-hardened precision-ground pins; precision cold-rolled bushings; and through-hardened, shot-peened solid rollers. These features ultimately provide increased fatigue strength, higher resistance to damage from shock loads, maximum wear resistance and extended service life.

SKF chains can perform reliably in temperatures from  $-4^{\circ}\text{F}$  to  $300^{\circ}\text{F}$  (stainless steel versions in temperatures from  $-4^{\circ}\text{F}$  to  $750^{\circ}\text{F}$ ) and can be supplied with rivet or cottered design. All comply with the appropriate ANSI, ISO, or DIN standard and are pre-stressed, run-in, and manufactured according to strict quality control. Non-stainless types are pre-lubricated.

Among other options, stainless steel chains offer corrosion-resistant solutions for food-grade applications, nickel or zinc coatings can add protection to carbon steel variants and a wide variety of attachment chains are available.

Custom-designed solutions, supported by more than 100 years of SKF power transmission industry knowledge, can be developed to satisfy particular demands.

#### For more information:

SKF USA Inc.  
(267) 436-6000  
[www.skf.com](http://www.skf.com)

## Dorris Gear Drives TR Product Line Tapered Bushing Easy to Install and Remove

The TR Product Line offers eight standard ratios from 5:1 to 40:1. The quick release tapered bushing is easier to install and remove than any comparable bushing system. Dorris offers a total quality management system that assures excellence from customer contact to delivery. They offer a two-year warranty and everything is American made.

The Dorris TR Design has a narrow “thru-the-bore” dimension, a bushing design that mounts from the open (motor) side, and requires a drive shaft that only needs to extend partially through the gear drive. With these features, the TR Design only requires approximately half the driven shaft length of its leading competitors.

The quick release tapered bushing is easier to install and remove than any comparable bushing system. This is because the flexible sleeve and threaded collar conforms to the driven shaft with greater gripping power. It is designed to avoid crevice or fretting corrosion, localized welding, binding and many of the problems that exist in other bushing designs.

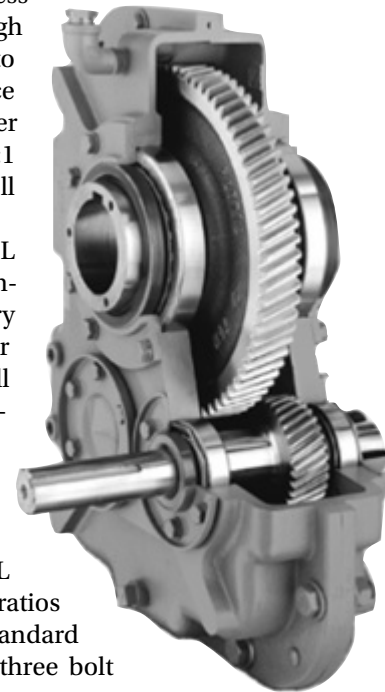
Dorris’s 30:1, 35:1 and 40:1 ratios allow for many new options in selecting a drive system. Among these are lower output speeds; higher speed, lower cost motors; smaller, less expensive sheaves and enough ratios within the gear drive to directly couple to a C-Face Motor. The 415 and 507 offer triple reduction ratios to 250:1 and 200:1 respectively, as well as double reduction gearing.

Dorris also offers the TL Product Line, which conform to the highest industry standard for screw conveyor drives and components. All drives and components conform to CEMA standards. The TL Series consists of a component gear drive, drive shaft kit and trough end adaptor. The 107- 407 TL series offers eight standard ratios from 5:1-40:1. CEMA Standard Drive Shafts have two and three bolt configurations.

The TL Gear Drive is equal to the TR Gear Drive, adding a gear drive adaptor and removing the torque arm assembly.

The trough end adapter kit contains a removable shaft, locknut, lock washer and key. TL drive shafts have a tapered output end to avoid binding. The kit also contains the trough end adapter and packing gland assembly. Dorris trough ends are available. A TR/TL Conversion Kit, along with a drive shaft kit and trough end adaptor kit is required to convert a TR to a TL.

The TL Drive Shaft kit contains a removable shaft, locknut,



lock washer and key. TL drive shafts have a tapered output end to avoid binding.

Both products include motor mount, high performance packing gland, grease air purge packing gland, 303 stainless steel output shaft and three-hole drilled output shaft. All products are versatile, efficient and cost-effective American-made products.

Dorris offers the same gear drive and hydraulic motor combinations as Dodge. Hydraulic motor mounting is available through Dorris, please consult factory for the adaptation.

Backstop extensions are standard on double reduction drives and can be supplied on Single Reduction Drives if specified when order is placed. The gear drive can be ordered from the factory to adapt a C-face motor. The required flexible coupling is available from Dorris. The maximum motor frame size is 256TC up to size 315, and from 326TC up to size 507.

Face mounting holes are not drilled on standard units. Please contact factory if face mounting is desired. The dimensions are typical for either face.

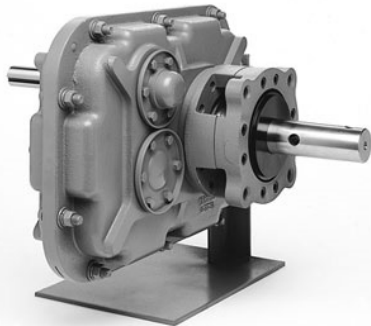
#### For more information:

Dorris Gear Drives  
(586) 293-5260  
[www.dorrisco.com](http://www.dorrisco.com)

### Motion Industries: The Exclusive Distributor of Timken Belts

Timken Belts offers a comprehensive line of belts that are made in ISO registered manufacturing facilities in the USA in sizes ranging from 3" to 900" for anything and everything — fans, mixers, pumps, conveyors, machine tools, centrifuges, robotics, and all types of industrial machines.

The depth and breadth of Motion Industries' product line allows us to handle virtually any application in the key industrial markets of agriculture and mining, energy (oil



and gas), forest products machinery, HVAC/R and industrial equipment.

The Gold-Ribbon Cog Belt combines the superior flexing of precision-molded cogs with the gripping power of raw edge sidewalls to provide high energy efficiency, increased power ratings and longer belt life. In addition, the Gold-Ribbon Cog-Belt is now made of EPDM (Ethylene Propylene Diene Monomer), a synthetic rubber with outstanding properties. EPDM is durable, oil- and heat-resistant, static conductive and resistant to hardening and glazing. Most importantly, EPDM withstands a broader operating temperature range of -50°F to +250°F — key to extended belt life. The Gold-Ribbon Cog-Belt transmits up to 30 percent more horsepower than conventional belts, utilizing the same drive space. Even under adverse operating conditions such as reverse bends, backside idlers and constant starts and stops, the Gold-Ribbon Cog-Belt resists excessive heat build-up and related wear problems. Lengths: 23-332 in. and choice of four cross-sections.

The Super Blue Ribbon v-belt is a superior wrapped belt and workhorse of classical v-belts. It is the ideal choice for dependable and economical performance. Super Blue Ribbon v-belts assure dependable length stability and require less re-tensioning and take-up. The cord is coated with a special compound that produces a secure, long-lasting bond with the surrounding rubber. Impregnated with oil- and heat-resistant rubber, the heavy-duty fabric cover protects the core. Its extra flexibility permits the belt to bend more easily around the smallest pulleys with less strain on the fabric. Longer belt life results in less frequent replacement, less downtime and lower maintenance costs. Lengths: 22-664 in. and choice of five cross-sections.

#### For more information:

Motion Industries  
(800) 526-9328  
[www.motionindustries.com](http://www.motionindustries.com)

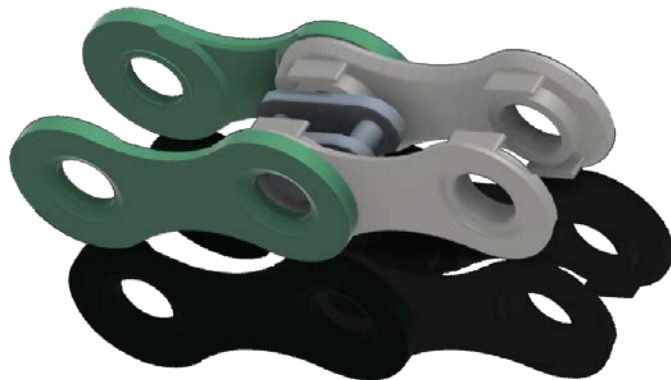
### InfiGear Power Transmission Chain Reduces Peak Stress on Sprockets

InfiGear is developing a new type of power transmission chain set to reduce peak stresses on the sprocket by up to 80 percent. In turn, this will increase both sprocket and chain lifetimes by up to 10 times, compared with conventional roller chain technology.

By using this new technology, manufacturers will benefit from significantly reduced downtime, maintenance and



Shown are the Gold-Ribbon Cog Belt and the Super Blue Ribbon V-Belt.



workload—in turn, allowing them more time to focus on growing their business.

Additionally, as mechanical wear will no longer be a primary consideration, different materials such as plastics and carbon fiber (with the added benefits of improved hygiene, cost and weight reduction) will now be viable options in chains and transmissions.

This summer, InfiGear is launching a limited number of pilots with selected partners. If you would like to learn more about joining InfiGear's pilot phase, please get in touch before July 31.

#### For more information:

InfiGear  
+44 78 1441 9510  
[www.infigear.com](http://www.infigear.com)

### Iwis Transfer Chains Designed for Gentle, Clean Conveying

Transfer chains are used in many different industrial applications where goods need to be conveyed to the next stage of the production process—including situations that require particular cleanliness or especially gentle conveying of sensitive or fragile goods.



Iwis has developed a comprehensive range of transfer chains with durable plastic attachments to meet these requirements. The functional sections of the chain are completely enclosed, which offers a number of advantages: the product stays clean and undamaged, no dust or dirt can build up on the chain, goods are conveyed on a flat surface and there is no lifting of the load when the chain passes over the sprockets.

Iwis transfer chains are also extremely durable, thanks to the outstanding adhesive properties of the initial lubricant applied to the base chain before it leaves the factory. The three attachment versions—for standard, high-temperature and antistatic applications—are all made from extremely hard-wearing materials. Depending on the attachment and lubricant selected, Iwis transfer chains can be used in temperatures ranging from -50°C to 150°C. After prior consultation with Iwis, these chains can also fulfill food-grade (H1) or silicone-free (PWIS) requirements.

Besides the standard base chain, special chain versions such as nickel-plated or maintenance-free chains from the Megalife brand range are also available.

With this ideal combination of positive features, Iwis transfer chains are suitable for all conveying, transport and metering applications that require the gentle handling of sensitive goods, containers or workpiece carriers. Typical examples are foodstuff processing, the electronics and PCB manufacturing industries, medical technology and pharmaceutical production and glass and ceramics processing.

In addition to transfer chains, Iwis provides a full product range for all drive and conveying applications. This also includes precision and high-performance roller chains, conveyor chains, maintenance-free and corrosion-resistant chains, power and free conveyor chains, special-purpose conveyor chains, flyer chains, flat-top chains, modular belts, chains and accessories for agricultural machinery and timing drives for the automotive industry.

#### For more information:

Iwis Drive Systems, LLC  
Phone: (317) 821-3539  
[www.iwisusa.com](http://www.iwisusa.com)

### Tsubaki RS Roller Chain and Heavy Duty Drive Chain Improve Service Life over Previous Models

The RS Roller Chain is Tsubaki's standard chain, designed to meet the needs of most applications. The Heavy Duty Drive Chain is an endurance chain with a high maximum allowable tension for particularly demanding situations.

The G8 RS Roller Chain offers a 20 percent improvement in service life over previous designs. A special corrosion suppressing oil is also applied to the chain in the final stage of manufacture to inhibit rust and improve durability. Developed in-house, this oil does not leave a sticky residue on the chain surface, making handling cleaner and more pleasant. The new G8 chain is available in 11 sizes from RS40 to RS240.

The new G8 Heavy Duty Drive Chain offers greatly improved performance and is aimed at applications requiring the movement of large loads at low speeds. This chain provides increased strength as a result of a new heat-treatment process, thicker material, and innovative geometry while remaining the same size as the standard type of chain.

It is available in three variants. The RS-HT Roller Chain, whose highly precise seamless bushes have doubled the service life. This innovation greatly reduces maintenance needs. The Super Roller Chain features a new link plate design which increases the load capacity by 5–10 percent. Super-H Roller Chain has a 20 percent increase in maximum load by providing a ring coin on the inner plate. It offers users the possibility of using smaller chains, which will reduce costs and save space.

The generational improvements to Tsubaki chains form part of the company's constant pursuit of ever-increasing quality. They have come at approximately 10 yearly intervals since the products were originally launched in 1953. In fact, the new G8 chains are being launched in Tsubaki's centenary year, the company being founded in Japan in 1917.

#### For more information:

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