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The value of relationships

Recently, my wife told me I “really should change eye doctors.” Now, I’ve been going to the same optometrist for over 30 years, so this new spousal directive caught me by surprise. When I inquired as to the reason for this new mandate, she informed me that she had gone to a new eye clinic that was really modern, had the latest gadgets, and an absolutely beautiful waiting room.

After a little thought, I informed my wife that I was not going to follow her instructions. This is a gutsy move on my part that usually doesn’t have the most pleasant consequences. My reason was simple: I asked her if she remembered last January when I got a piece of metal in my eye, right next to my cornea?

I reminded her that this dreadful and extremely painful event occurred when Indianapolis was under a state of emergency for a very heavy snow storm with blizzard-like conditions. Everything, including IDC-USA, FedEx and UPS, was closed. I then reminded her that my optometrist who has been serving me quite well for all these years got in his four-wheel drive and met me at his office where he proceeded to “drill” the metal out of my eye. My question to my wife was, “Do you think the guy at that new national chain eye clinic would have gone out in that blizzard to meet me at his office?”

The reason for my story underscores an important consideration for the purchasers of bearings and power transmission products. Today, everybody is trying to get into the business for the fast money. Online retailers are now offering bearings, chain, belts — you name it. The tragedy is that the online retailer has no clue what they are selling or what it

does. To them, it is nothing more than a part number.

The question industrial customers have to ask themselves is would this online retailer do some of the things my independent distributor has done over the years? More importantly, is the online retailer even capable of doing some of those things? In short, there is something to be said for trusted relationships. Just as the optometrist with the national chain won’t meet me in a blizzard, the online retailer isn’t going to meet you at 3 a.m. when Line 4 goes down. In fact, the online retailer doesn’t have anybody that could meet you at 3 a.m.

When production and efficiency are paramount, the successful plant manager is going to understand the value of proven relationships. The IDC Independent Distributor that provided you with this publication is one such relationship. It is a relationship that brings expertise and reliability in an effort to make you look good. It’s a relationship that’s always been there . . . just like ol’ Doc Richards. ☺



JACK L. BAILEY

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These popular classes provide an excellent opportunity for you or someone from your company to participate in a hands-on learning experience.

IDC University provides an intense learning environment where students gain valuable industry knowledge that they can apply immediately to their daily jobs. A low student-instructor ratio insures that students receive one-on-one attention to help them succeed in the classroom. A collaborative learning environment sets the stage for hands-on training and case studies.

Past participants at IDC University always offer high praise

for the instructors and the overall learning environment.

“I have been to many other product schools and with the amount of information and hands-on learning plus the instructors, IDC University is by far the best I have attended,” said recent participant, Geoff Hoenle of Edwards Industrial Sales.

Students range from seasoned veterans to the newest in the industry, from sales to purchasing, and from warehouse to marketing. The information provided in these courses improves the performance level at any age and in any area of the business.

Refer to the schedule below left for upcoming IDC University courses and visit us online at www.IDCuniversity.com to register.

IDC University

Seats are filling up fast, so sign up soon for the following classes:

BULK MATERIAL HANDLING

Nov. 17-20, 2014

MOTORS & CONTROLS

Dec. 8-11, 2014

BEARING TRAINING A-ZZ

Jan. 26-29, 2015

BULK MATERIAL HANDLING

April 13-16, 2015

HYDRAULIC PRINCIPLES & APPLICATIONS

March 16-19, 2015

MOTORS & CONTROLS

Sept. 14-17, 2015

POWER TRANSMISSION PRINCIPLES

Feb. 16-19, 2015

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Mobile app formulations

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IDC-USA's footprint continues to grow

IDC-USA increased its national footprint by adding two new independent distributors; Brance-Krachy and Ag Chains Plus.

Houston-based Brance-Krachy has been providing power transmission and cathodic protection solutions to customers since 1932. The company joined IDC-USA to streamline its business (improve purchasing and data

management) and share in the expertise provided by other distributors and suppliers from all corners of the industry.

From the heart of Oregon's farming country, Ag Chains Plus joined IDC-USA to gain access to product lines its customers demand and combine their expertise with other independent distributors. Established in 2010 by a brother and sister team with over 40 years combined

experience in the PT and agricultural industry, Ag Chains Plus knows the importance of reducing breakdowns and strives to continually meet customers' needs.

IDC-USA is comprised of 85 service-focused independent distributors with a footprint of 300 locations nationwide. Find your independent distributor at <http://bit.ly/distsearch>.

The image is a promotional graphic for IDC-USA. It features a stylized map of the United States in shades of blue, with numerous red circular markers indicating the locations of independent distributors across the country. The text 'IDC-USA' is prominently displayed in the top left corner in a large, bold, black font, with a registered trademark symbol. Below it, the tagline 'National Coverage. Local Expertise.' is written in a smaller, red font. The central text, 'More than 300 IDC Independent Distributors Nationwide', is overlaid on the map in a white, bold font. At the bottom, a dark grey banner contains the text 'For more information visit www.IDC-USA.com' in a white font.



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Enter the following link in your Internet browser (www.surveymonkey.com/s/IDCIR) or scan in the QR code at right using your smart phone.



The survey closes on Nov. 15, 2014, so complete it today!

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THE LOOK OF THINGS TO COME

BY HAROLD L. SIRKIN, MICHAEL ZINSER AND JUSTIN ROSE

A worldview that neatly divided the globe into high-cost and low-cost manufacturing regions has served companies well for the past three or four decades. But a new report from The Boston Consulting Group sheds new light on that view.

Latin America, Eastern Europe and most of Asia have been viewed as low-cost regions. The U.S., Western Europe and Japan have been viewed as having high costs.

But this worldview now appears to be out of date. Years of steady change in wages, productivity, energy costs, currency values and other factors are quietly, but dramatically, redrawing the map of global manufacturing cost competitiveness. The new map increasingly resembles a quilt-work pattern of low-cost economies, high-cost economies, and many that fall in between, spanning all regions.

In some cases, the shifts in relative costs are startling. Who would have thought a decade ago that Brazil would now be one of the highest-cost countries for manufacturing—or that Mexico could be cheaper than China? While London remains one of the priciest places in the world to live and visit, the UK has become the lowest-cost manufacturer in Western Europe. Costs in Russia and much of Eastern Europe have risen to near parity with the U.S.

Four factors behind dramatic shift in manufacturing competitiveness

Four factors are most responsible for the dramatic shifts in manufacturing competitiveness from 2004 to 2014. The factors are now blurring the traditional boundaries between low-cost and high-cost regions.

Wages. The range of hourly pay differentials for manufacturing workers remains enormous. But rapidly rising

wages have significantly eroded the competitive advantage of a number of major exporters. Although manufacturing wages rose in all 25 countries from 2004 to 2014, nations such as China and Russia have experienced more than a decade of annual increases ranging from 10 to 20 percent. In other economies, wages have only risen by 2 to 3 percent per year.

Exchange Rates. Changing currency values can make an economy's exports either more expensive or cheaper in international markets. Currency shifts from 2004 to 2014 have ranged from a nearly 26 percent devaluation of the Indian rupee against



PHOTO: ORLANDO FLORIN ROSU



Dramatic global shifts in manufacturing costs are changing the competitive landscape

the U.S. dollar to a 35 percent increase in the Chinese yuan.

Labor Productivity. Gains in output per manufacturing worker—or productivity—have varied widely around the world from 2004 to 2014 and explain some of the biggest shifts in total manufacturing costs. Manufacturing productivity rose by more than 50 percent in countries such as Mexico, India and South Korea from 2004 to 2014 but shrank in others, such as in Italy and Japan. Some economies with low wage rates are not particularly competitive in terms of unit labor costs when wages are adjusted for productivity.

Energy Costs. Prices for natural gas have fallen by 25 to 35 percent since 2004 in North America because of large-scale production of shale gas resources. In contrast, they have risen by 100 to 200 percent in economies such as Poland, Russia, South Korea and Thailand. This has had a significant impact on the chemicals industry, which uses natural gas as a feedstock for production. Likewise, the industrial price of electricity has risen sharply in manufacturing economies such as Australia, Brazil and Spain. As a result, overall energy costs in many countries outside of North America are between 50 to 200

percent higher than they were in 2004. This has caused major changes in competitiveness in energy-dependent industries.

How companies can adapt

A decade ago, very few would have anticipated the dramatic and sustained shifts in wage and energy costs that have since taken place in the developed and developing worlds alike. However, in our rapidly changing global economy, there is reason to expect that volatility will continue and that relative cost competitiveness will remain dynamic. Neither companies nor policy makers can be complacent about their competitive position.

Economies that have already fallen behind in cost competitiveness need to take action now to keep their manufacturing bases from deteriorating further. Those that are well positioned cannot rest on their laurels.

There are profound implications for manufacturers with operations in all countries. They include the following:

Enhance productivity. As once-enormous gaps between wages in developed and developing economies continue to shrink, improving the value added by each worker is becoming an increasingly important factor in manufacturing competitiveness across the globe. Conduct a fresh assessment across your manufacturing footprint of the potential cost benefits of greater automation and other measures that can significantly improve productivity.

CONTINUED ON PAGE 16



It may be time to reassess your company's global production and sourcing networks and align them with the shifting economics of global manufacturing.

Account for the full costs.

While direct costs such as labor and energy will continue to have a strong influence on decisions about where to manufacture, it is important to take full account of other factors. Logistics, obstacles to efficiently conducting business, and the hidden costs and risks of managing extended global supply chains, for example, can offset much of the savings from labor or favorable exchange rates. It is also crucial to take into account hidden cost advantages of operating shorter supply chains, such as speed to market, greater flexibility and a better ability to customize products for specific markets.

Consider the implications for the broader supply chain.

Although direct costs may now be relatively cheaper in a given economy, companies must also consider their needs for components and materials. Reliable local suppliers may not yet be available to provide important inputs. In other cases, deconstructing the value chain could involve added logistics costs or unanticipated tariffs, duties or other penalties. Companies will need to understand the implications of their network decisions from an end-to-end, supply-chain perspective to avoid any surprises.

Promote better business environments.

Maintain a dialogue with relevant regulators and policy makers in countries in which you manufacture. Actively encourage them to reduce barriers to business and to adopt measures that will improve global competitiveness, such as developing infrastructure and reducing corruption.

Reevaluate your business model.

To take full advantage of production in an economy, a one-size-fits-all model that uses the same processes and materials is unlikely to be optimal. Many companies should consider adjustments in their products or business models to better meet the needs of that manufacturing environment. It may make sense to use different materials that are locally available, for example, or to take advantage of new manufacturing technologies such as robotics and 3D printing when capital is cheaper than labor. Identifying and making such changes will allow companies to better meet the needs of the local market—often at a better cost position than if they use the same materials or processes that they use elsewhere.

Realign the global footprint.

It may be time to reassess your company's global production and

sourcing networks and align them with the shifting economics of global manufacturing. Map current and future demand for products in each region of the world and evaluate the optimal sources for goods and services on a global basis.

For many companies, the shifting economics of global manufacturing requires approaching the world with a fresh mind-set. Rather than seeing the globe in terms of low cost versus high cost, manufacturing investment and sourcing decisions should increasingly be based on a more current and sophisticated understanding of competitiveness within regions. Companies that build production capacity based on outdated concepts of cost competitiveness—and that fail to factor in scenarios for long-term trends—risk placing themselves at a serious disadvantage for two to three decades. The winners are likely to be companies that align their operations with the shifting economics of global manufacturing—and that build in the flexibility to shift gears as those economics continue to evolve. 

This article was adapted from a report by The Boston Consulting Group (BCG). The report is titled The Shifting Economics of Global Manufacturing: How Cost Competitiveness Is Changing Worldwide. A full copy of the report can be downloaded from bcgperspectives.com.



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Only the **BEST**

Industrial customers have come to expect only the best from Bando USA and its employees

BY CLAIR DAVID URBAIN

To the untrained eye, power transmission belts used in industrial applications pretty much look the same. Like tires, they are round and usually black. But for the trained eye, a myriad of differences are apparent, and each of those differences have been developed to meet very specific performance characteristics, says Joe Laudadio, president of Bando USA, a subsidiary of Bando Chemical Industries.

The challenge in today's power transmission field is to develop a belt that performs reliably, to the exacting customer requirements and operates efficiently within the drive system, says Laudadio.



Bando Chemical Industries, a Kobe, Japan-based company, is the parent company of Bando USA and has 17 plants in 15 countries. It is a world-class supplier of belts to a very diverse customer base. It provides industrial belting for some of the heaviest duty applications such as mining and rock crushing, to precision applications such as electronic printers and medical devices. Bando USA is the No. 1 serpentine engine belt supplier to automotive OEMs here in North America from its plant in Bowling Green, Ky.

"Bando has been a pioneer in the power transmission belt industry since our founding in 1906. Through our continued pursuit

of providing the finest quality in both our belts and service support, we've built a worldwide reputation of trusted value.

"Being a Tier 1 supplier to the automotive industry, our engineers are tested to develop belts that can run longer as well as transfer required power in smaller, more narrow spaces, with less noise and work trouble-free in cold, hot, wet or dry conditions. It's this belt design and manufacturing know how that helps us provide belts with capabilities made for the just as challenging industrial applications," Laudadio says.

Secret to success

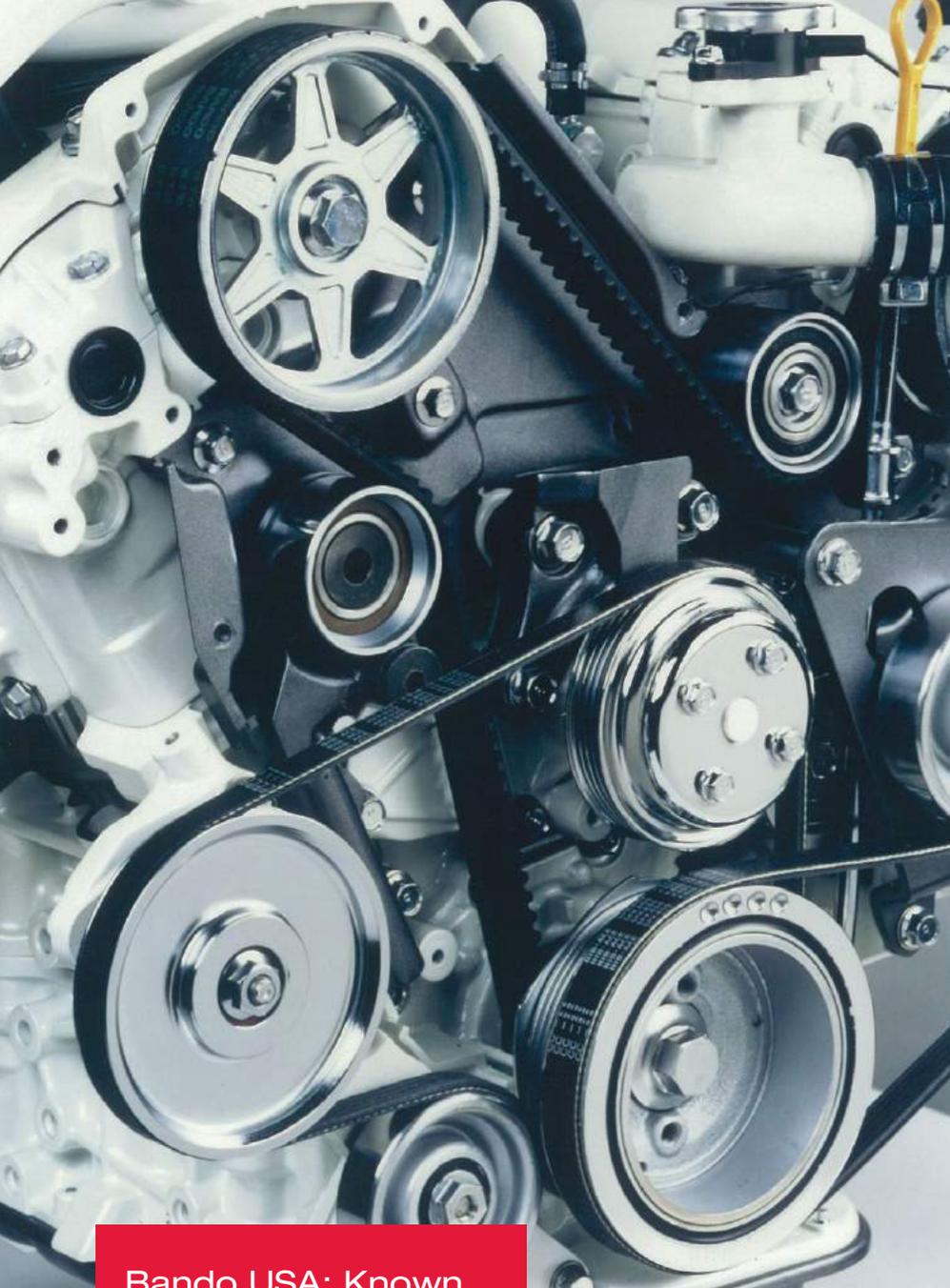
Bando USA continues to be a preferred supplier to a wide variety of customers because it sees its job as more than filling orders for a perceived commodity product. Instead, its culture is built upon quality products, with a customer service commitment before, during and after delivery, all at a price that makes sense to the end-user.

"At Bando USA, we consider every belt we manufacture, every

Bando offers a variety of timing belts for precise performance under specific driving conditions.



PHOTOS: BANDO USA



Bando USA: Known by its associations

Bando USA is a proud member of several associations that helps it attain its world-class manufacturing and supplier status:

- Association of Rubber Products Manufacturers (ARPM)
- Power Transmission Distributors Association (PTDA)
- The Belting Association (NIBA)
- Automotive Aftermarket Suppliers Association (AASA)
- Bluegrass Automotive Manufacturers Association (BAMA)

order or phone call we receive as a ‘custom’ requirement and give it the special attention it needs to meet our customer’s expectations,” Laudadio says. “We’ve taken advantage of the latest technology to design state-of-the-art, highly automated, programmable manufacturing systems. It makes a difference in the quality and value we’re able to offer our customers.”

“Every employee understands that customer service and satisfaction is what sets Bando apart from our competitors. It

is easy to get caught up in the many distractions that are a part of today’s way of doing business, but our employees realize that nothing happens until a customer submits an order or when we answer a question or concern they may have. Whether it’s a new application, a technical issue or a delivery challenge, we believe it’s our service that our customers appreciate the most,” Laudadio says.

The company’s commitment to safety and environmental sustainability runs deep throughout the company. “We strive to continuously develop and manufacture safe, environmentally friendly products. Bando is very conscientious about the importance of reducing our carbon footprint and waste generation in our business activities around the world.”

Certified methods focused on power transmission quality

Bando manufacturing facilities are ISO-9001:2000, TS16949:2002 and ISO-14001 certified. Its systems enhance and reinforce the foundation of Bando’s quality philosophy that focuses on self-inspection systems to reach zero defect output.

“We’ve developed innovative and automated production methods so that we can remain competitive with the quality that is demanded in our industry. Our R&D and Power Transmission Technical Centers continue to develop and test products

CONTINUED ON PAGE 21



Bando USA V-Belt brands such as the Duraflex GL, Power Ace Cog and Power King Cog, shown at left, are designed for specific applications.

Bando USA belting product line

Bando USA offers a wide variety of belts that can meet the needs of some of the most demanding or most precise applications. Bando USA engineers and IDC Distributor power transmission experts can work closely with manufacturers to find the best belt for their industrial and OEM applications. Here's a cross section of the types of Bando belts available:

V-Belts

- **Power Ace narrow-profile** (3V, 5V, 8V) that transmits power more efficiently and effectively, delivering higher horsepower ratings than classical cross-section belts
- **Power King classical cross-section** (A, B, C, D, E) for typical workhorse applications
- **Power Ace Combo/Power King Combo** that resist belt jumping and rollover. 8V available with aramid fiber cord
- **Power Ace and Power King Cogged** (3VX, 5VX, AX, BX, CX) high load energy-saving cog belts
- **Power Ace Cog Combo** extreme-load belts
- **Double V** (AA, BB, CC) for serpentine drives
- **Duraflex GL** (2L, 3L, 4L, 5L) for high-speed fractional horsepower drives such as HVAC equipment and appliances
- **Ultrapower AG KC** (A, B) for clutching applications
- **Metric V-belts** (X and SP type) that meet DIN 7753 and ISO4184 standard dimensions
- **BanFlex and Banflex Combo** (3M, 5M, 7M, 11M) small cross-section belts for small sheaves and high speed applications.

Timing Belts

- **Synchro-Link STS** (S2M, S3M, S4.5M, S5M, S8M, S14M) for driveN and driveR speed synchronization.
- **High Performance STS** (S5M, S8M, S14M) for energy savings and higher horsepower transmission applications
- **King Power (KPS II) Synchronous** (KPS8M, KPS14M) for applications requiring exceptional power transmission capabilities, particularly on low-speed/high-torque drives
- **Synchro-Link/High Torque** (3M, 5M, 8M, 14M) with a curvilinear tooth design for better stress distribution in high horsepower applications over a wide speed range and high torque transmission at low speeds
- **Synchro-Link Trapezoidal** (MXL, XL, L, H, XH, XXH) timing belts with a neoprene backing for excellent abrasion and wear resistance
- **Synchro-Link/Polyurethane** (XL, L, T2.5, T5, T10) timing belts that provide a lightweight drive system and can be used with aluminum or plastic pulleys for exceptionally quiet operation
- **Synchro-Link double-sided** (DXL, DL, DH) timing belts for smooth, precise performance under exacting drive conditions in serpentine drives used in printing, textile and packaging machinery
- **Synchro-Link double-sided polyurethane** (DMXL, DXL, DT5, DT10) belts for serpentine drives for extremely clean, quiet operation

For all types of available products and sizes see Bando's Industrial Power Transmission Products catalog.

built for tomorrow's drive requirements," Laudadio says.

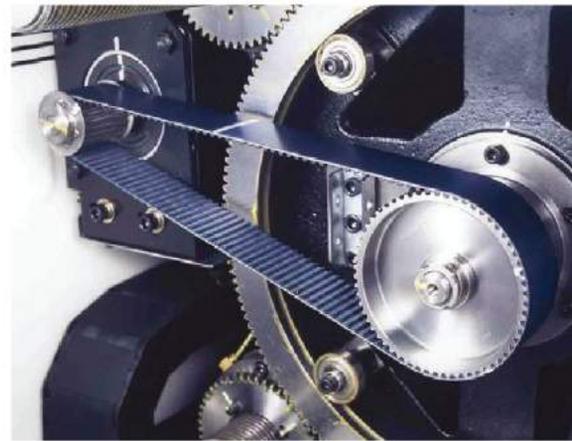
"It is each technician's personal responsibility to self-inspect the products they are producing to ensure they were made using the Bando Production System standards resulting in a consistently uniform, high-quality product," Laudadio adds.

Award-winning partners with distribution

Manufacturers and distributors often become at odds over customers that have high-volume production needs and technical industrial challenges. Bando USA understands the importance that distributors

play in the supply chain, and its management has the experience maintaining a win-win relationship with distributors. In the end, this positive collaboration benefits the customer.

"We take our relationships with distributors very seriously and try our best to be responsive to their needs," says Laudadio. That is probably the biggest reason we have been awarded IDC's Supplier of the Year for 16 consecutive years. It's been mutually beneficial as IDC Distributor owners and Bando USA have both seen continual growth in sales and market share," he says.



Further, Bando USA is also one of only seven Platinum suppliers recognized by IDC for its quality, service and support. "We don't take this for granted; we work hard every day to maintain this status," Laudadio says. 



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No more slippage

A revolutionary new tapered bore locking collar system provides extreme holding power

BY JAY FRASOR

One of the biggest issues for bearings in demanding applications is slipping of the shaft during times of startup under load or shock loads. Often, when bearings slip, they can score shafting or allow damage that makes removal difficult or impossible without cutting or torching off the shafting. The process of changing out bearings and shafting in this manner is time consuming, costly and can be quite dangerous. The same issues can plague the area where bearings that utilize a setscrew or eccentric locking collar design are locked down. Setscrews can

bite into shafting, creating burrs that don't allow for a bearing unit to be easily removed. Eccentric collars can only turn in one direction and the collars can be knocked loose by vibration or by impact, which can also damage the shafting.

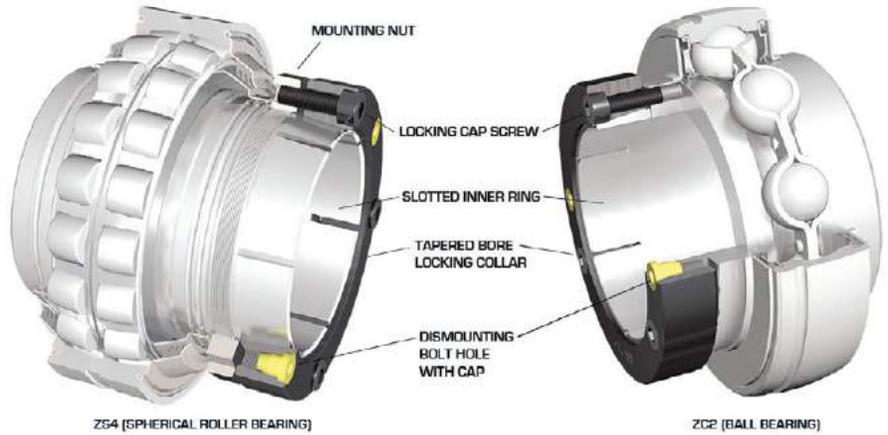
The industry has created two solutions that have been mostly effective in helping to avoid these issues, the first being the concentric locking collar design and the second being a tapered bore series that utilizes a sleeve, nut and washer for locking down shafting, otherwise known as an adaptor. The concentric locking collar design allows for

affixing of the unit to the shaft with a collar that is squeezed using a cap screw running through the collar. The squeezing action holds the shaft in place without the damage that can be caused by traditional setscrew or eccentric collar design. The concentric locking collar also creates a more rounded ball path due to its clamping design. The main drawback to this unit is that it does not provide a true 360 degrees of shaft contact. The unit squeezes more in some areas and less in others, which can still lead to slipping. The main solution to this is to utilize a tapered bore bearing.

Tapered bore bearings are very effective and provide the 360 degrees of shaft contact that is necessary to help prevent slipping in most applications and are excellent at resisting shock load. The tapered sleeve

is placed inside the tapered bore of the bearing and the shafting is run through the sleeve. The washer is put over the sleeve and the nut is put on and tightened down. A washer tang is bent over into a recess in the nut to keep it from slipping. The main disadvantage to an adaptor mounted design is that you have to move up one housing size and then taper down. This means that all your critical dimensions change so you do not have a drop in replacement and must spec these bearings in to new designs. The other issue that most often occurs is that you need to use multiple tools to assemble these units. The units can be over-tightened and the clearance between the balls and the inner and outer ring can be reduced, resulting in higher running temperatures or even seizure of the insert. The process of installing these units can be quite time consuming, and making sure the proper tightening specifications are adhered to can be difficult for inexperienced installers.

FYH Bearings has engineered a solution known as Z-Lock that provides holding power greater than a tapered bore bearing unit, installs as fast as a setscrew unit and will not damage shafting like a concentric locking insert. The Z-lock is a revolutionary design unlike any other bearing unit in the market today. The Z-Lock is a patent-pending tapered collar system for locking down shafting. The Z-Lock has 360 degrees of shaft contact and has near perfect ball path roundness for quieter operation and less



heat buildup. All that is required to mount the Z-Lock unit to the shaft is the tightening of cap screws with the included Allen wrench. The tightening of the cap screws presses the tapered bore collar into place and locks it against the shafting. There are no set torque tightening specifications; tightening the cap screws does not take clearance out of the insert. This means that anyone can install the Z-lock series without the need to use torque wrenches or other cumbersome tools.

The Z-Lock spherical roller bearings are excellent in aggregate and grain handling applications where scorched shafting can create hours of labor for removal, but is just as suited for regular applications as well. The Z-lock ball bearing style is excellent for sorting applications or where they could be exposed to shock load. When

a unit needs to be changed, simply loosen all the cap screws and use two of the removed screws in the dismounting holes to remove the collar.

The units will be fully available by the first quarter of 2015, and will range in bore sizes from 1 1/2-inch through 4-inch bore in the spherical roller units, and from 1 1/2-inch through 3 1/2-inch in the ball bearing series.

The Z-lock spherical units have 2 degrees of misalignment while still keeping the patented triple lip seal in full contact with the inner ring. FYH uses ductile iron for the housings. FYH uses a calcium sulfonate complex grease that does well in a wide range of environments. FYH spherical roller bearings come both in a fixed or float style and can be changed in the field by moving the position of the snap rings.

The Z-Lock bearing series is designed to be the bearing of choice for all your bearing needs. Contact your IDC Distributor if you want to learn more. ☺

Jay Frasor is operations manager for FYH Bearing Units USA Inc. For more information, contact FYH at www.fyh-usa.com or sales@fyh-usa.com or by phone at (847) 487-9111.

The patent-pending Z-Lock is the first ever tapered bore locking collar system.





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Bearing selection simplified

FYH has designed a new app available now for Apple products that will also be available by the end of the year for systems running on Android devices. The application is designed to make specifying bearings for applications easier and allows you to view and send a PDF to an email address for printing.

The app will ask how you want to search for bearings. You can use the part search if you know the bearing you are looking for by part number. Or tap on the part list to show the part number with a description of the bearing such as locking device style, housing style and bore size. The selection guide is the most useful feature for someone who does not know exactly what they are looking for.

The selection guide asks a series of questions using simple icons to guide you to the bearing best suited for your application. It will start by asking whether you are looking for a ball bearing unit or spherical roller unit. When you have chosen the style you desire, it will show icons for the proper housing. The application will then ask if you are looking for an inch or metric type bore. Next, you will be asked to select the bore size you need. When you have chosen the bore size, an icon will appear asking what duty of unit you are looking for such as normal, medium or heavy. The application will then show you a list of special features you might need such as high or low temperature, wash down, air handling, or dust and dirt. Finally, the app will ask for the type of locking device you need, such as setscrew, eccentric or concentric.

The application will then show a list of bearings that meet the criteria you have entered. You can choose the bearing that best meets the needs for your environment. The application will show a PDF with dimensions as well as load ratings and the type of bolt recommended for bolting the unit down. You can tap the print icon at the top of the screen to send it to an email address or use the



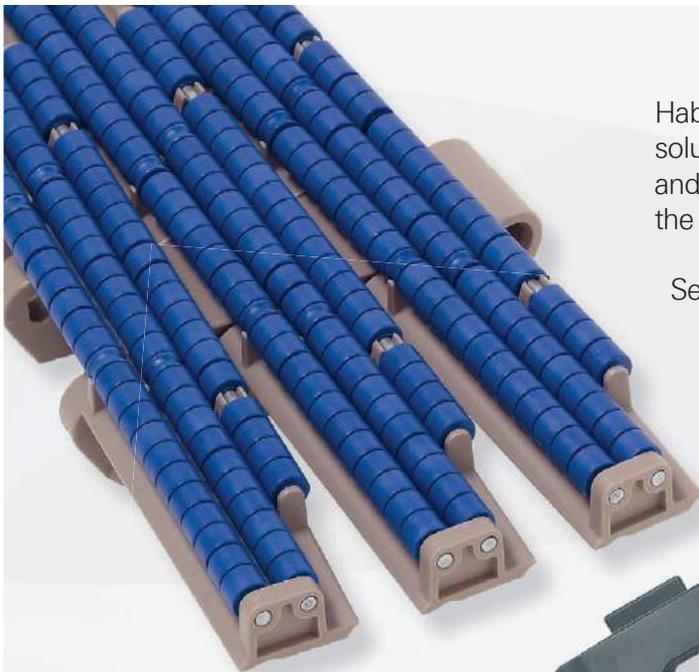
TODAY'S TECHNOLOGY

Choose whether you are looking for ball bearing units or spherical roller units. You will then be able to choose an installation guide for setscrew locking, eccentric locking, concentric locking or tapered bore locking. You can view the installation guide in either a video or picture format for your convenience. The installation section also allows you to look up shaft tolerances for the bearing units. You can also look up tightening specifications for setscrews and eccentric locking collars as well as the bolt tightening specifications for different units.

back button to choose a different unit that might also work for you.

FYH has also introduced new packaging that allows the use of your smart phone for installation instructions. All the new FYH boxes have a QR code on the bottom. You can scan this QR code using any free QR code reading application available on Apple or Google. When you scan the QR code, the installation instructions will appear.

FYH's goal with this technology is to allow customers in the field to quickly identify which bearings will best suit their application, and make sure they are installed correctly. If the wrong bearing is chosen or installed improperly, a reduction in bearing life will occur. The end goal is to create a satisfied customer who obtains the longest possible life from their bearing units. 



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7 ways to make sure accountability sticks in your organization

BY JULIE MILLER AND BRIAN BEDFORD

As a leader at your organization, you like to think that you run a pretty tight ship. But if you're being honest with yourself, you know that you sometimes let a few things slide. A missed deadline here and there. A few tiny white lies to clients. The fact that Mike in maintenance often over-commits and under-delivers. Your own tendency to talk over others in meetings. In other words, people (you included) haven't always done what they know they're supposed to do or behaved like they know they're supposed to behave—and they've gotten away with it.

Here are some ideas to help you build greater accountability in your organization.

PHOTO: MONKEYBUSINESSIMAGES

1
Conduct an accountability post-mortem

Despite your accountability failures, it's very possible that no one at your organization thinks they're doing anything wrong. Maybe they've never actually been told that they need to change how they do things. That's why you should kick off your accountability revolution with a meeting of the minds.

Call your team together for an open discussion of the company's core values and required behaviors and where you've dropped the ball. Explain that no one will get in trouble for acknowledging their own shortcomings or even pointing out those of others. Ask people to share the negative effects they believe these behaviors had on the business and explain that those negatives will only get worse with time.

Set the stage by taking responsibility for your own transgressions. This will encourage others to be honest in turn. Finally, explain that things are going to be done differently from now on. Use this meeting to get consensus on what the core values and behaviors need to be to support the company's strategies and goals, and emphasize that everyone, starting with the key leaders, will be held accountable for demonstrating them.

2
Hold an accountability boot camp

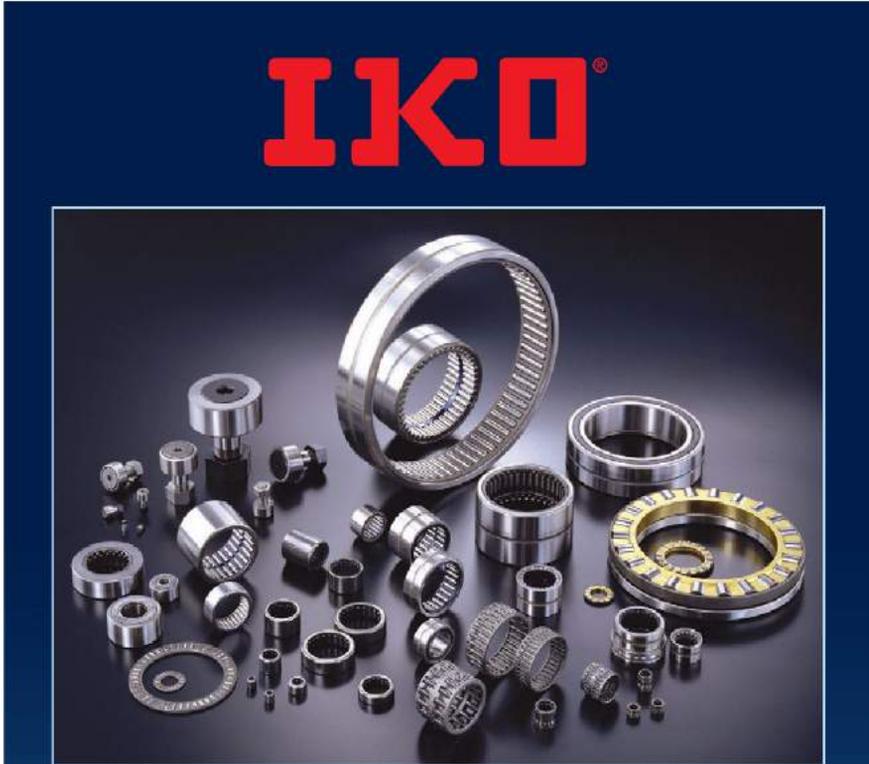
However you go about making accountability stick at your organization, one thing is for sure: You and the other

leaders at your company can't simply decree an accountability mandate and then expect everyone to fall in line. You'll need to implement a training and development plan to help employees understand why

accountability is important and what accountable behavior looks like.

A boot camp-style training session is a great way to achieve

CONTINUED ON PAGE 28



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this. In these sessions, establish how accountability mindset and behaviors will affect employee pay and progression in the organization. Teach employees how to provide feedback to one another, since this is essential to developing a culture of accountability. For leaders, you'll need specialized training and development programs that explain what accountability looks like for them and what they can do to be effective accountability role models.

Start with a behavior statement

Everyone needs to understand that they will be held responsible not only for the results of their work, but also for how they go about their work, and their rewards will depend on both. If your most experienced salesperson has great sales numbers but bullies the shipping department every time he/she needs an order rushed, or if you have an employee who clients love but who often misses internal targets, those transgressions must have consequences despite these employees' successes in other areas.

One useful way to communicate this is to develop behavior statements that make it clear what you're looking for. The statements will answer the fundamental question of what, precisely, you're trying to fix, implement or eliminate. This is especially helpful in international companies, because accountability might mean different things in different countries, languages and cultures. So, for example, you

might establish accountability behavior statements, such as:

- Always do what you say you'll do.
- Always tell the truth.
- Bring issues up as you discover them.

And then make those even more clear through Do's and Don'ts. For example:

- DO be open, honest and truthful.
- DON'T make excuses.

Once you've established accountability behavior statements and provided Do's and Don'ts, you can revisit them during performance reviews. They'll help drive discussions with employees on how they are doing when it comes to meeting your company's accountability standards.

Regularly meet up and talk it out

Do you hold regular communications meetings with your team or organization? Meetings provide an opportunity for management to highlight people who have demonstrated good accountability, as well as to show where things went wrong and what could have been done better.

Do this in a way that instructs rather than punishes. Use every available communication tool to emphasize why accountability is important: electronic signs, business reviews, one-on-one meetings, e-mails, posters, and more. If, by way of regular communication, you reinforce the changes you want to see, you will drive the value deep into the organization.

Don't promote accountability shirkers

A sure way to express the importance of accountability at your organization is to connect it to advancement. Promotions and salary increases should be considered only for people who demonstrate accountability as defined by the organization.

When your employees do well, reward and promote them. If they don't do well, apply consequences and make sure they understand that their performance will limit their success and possible progression. Do not promote employees with problems with accountability, especially if they'll be moving into a leadership position. If you do, rest assured that employee's problems with accountability will become other employees' problems with accountability.

Hire accountable people

Spice up your interviews and weed out the unaccountable by asking key questions during the interview process. Instead of asking a job candidate about her strengths and weaknesses, ask, "If I asked your boss how you demonstrated accountability, what example would he or she give?" Or say, "Share with me a time where you made a big mistake and how you handled it." If you're interviewing a candidate for a leadership position, you might say, "Summarize a difficult conversation you had with an employee who had failed to meet a commitment." Or, "Describe a situation in which you very clearly held others accountable for their performance and it paid

off. How did you do it and what was the outcome?"

More and more companies are using skill assessment tools and personality tests to screen potential candidates, so why not add behavior-based questions to screen for accountability? Of course, hiring an employee and then training him to be accountable is possible. But hiring people who are already accountable is a better, less costly option.

Monitor your success and make adjustments as needed

Goals and metrics should be used to guide the business on an ongoing basis, not just at the beginning and end of the year. Use regular business meetings to establish an accountability drumbeat to keep goals and metrics on track so there is a better chance to achieve success. Reviewing goals at the end of the year and hoping for success will likely end in tears.

When left unattended, the negative results that come from a lack of accountability will spread. Will your organization be able to survive that kind of plague? Maybe. Certainly, not all companies meet the fate of the Enrons and Lehman Brothers of the world. But in the end, what will your company look like? Will it be a place where great people want to work? Will it be able to provide great services or products to customers? When you commit to making accountability stick, you improve your chances of becoming a great company. 🌀

Drawing on their respective years of experience in senior global leadership at Motorola, Julie Miller and Brian Bedford joined forces in 2001 to establish MillerBedford Executive Solutions. MillerBedford helps businesses and organizations improve strategy, culture and leadership, while addressing issues that limit success. They are also co-authors of the book "Culture Without Accountability - WTF? What's the Fix?" For more information, please visit www.millerbedford.com.



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Five rules for better maintenance success

Beginning a maintenance and operations partnership

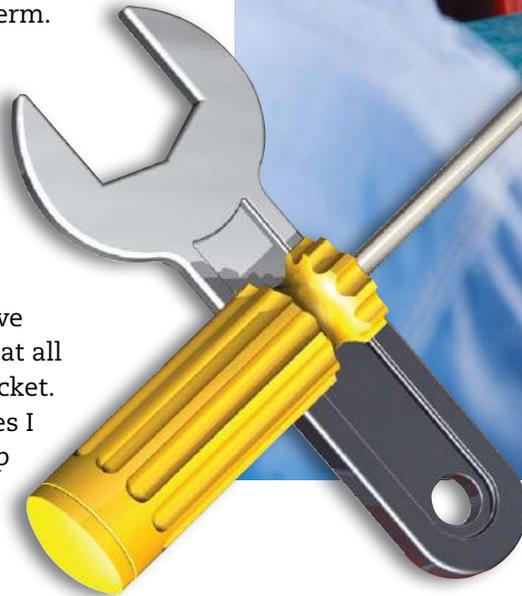
BY TOR IDHAMMAR, IDCON

Plant pros often talk about the importance of a maintenance, operations and engineering partnership. In my experience, the discussions commonly center on very general terms such as better communication and understanding. Those issues are important, but we need precise rules and actions to drive that partnership long term.

When IDCON works on reliability improvement projects, we often start by working with operations and maintenance leadership to lay down the law and agree upon the work process and the rules of the partnership. Once we agree, we create a “rulebook” that all employees can keep in their pocket. I want to share some of the rules I think help drive the partnership behavior in an organization.

EXAMPLE RULE 1:

“Operations, maintenance and engineering are joint partners and together form a production team. Maintenance is responsible for equipment reliability, operations for process reliability, and engineering helps both with technical expertise.”



This means that we shy away from having maintenance as a supplier to operations. A customer-supplier relationship is different from a joint partnership. The customer-supplier setup doesn't work well because if operations is the customer, operations will get what they request at all times, meaning they manage maintenance. I have seldom, if ever, seen long-term success when operations is in charge of maintenance.

CONTINUED ON PAGE 32

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The reason is that an operations manager just can't be an expert in maintenance management and the process. And if a person is just such an expert, his or her successor most likely will not be.

On the other hand, if there is a customer-supplier relationship and maintenance is in charge of its own budget, it's even more of a mess; operations can go to maintenance and ask for anything they want and not have to pay for it.

Agree that it should be an equal partnership with a joint goal of improved production, which can be measured by overall production efficiency on bottlenecks.

EXAMPLE RULE 2:

Agree on the criteria for each priority code. Let's assume there are prioritization codes in your CMMS system. Each code should have a set of criteria and a time limit. The criteria is very important because it guides and holds the requesters to a set of rules.

For example, an emergency (Priority 1) work order could be any work that is an immediate safety, environmental or quality issue, or when critical equipment is down. If the criteria aren't met, it's agreed that the maintenance schedule isn't broken for this issue.

A priority system with corresponding criteria and time limits makes maintenance more productive and builds a partnership due to better communication.

EXAMPLE RULE 3:

There are agreed-upon cut-off times for the following:

- The start day and time of a shutdown, outage or smaller area shutdown
- Adding jobs to the weekly and daily schedule
- Adding jobs to a shutdown/turnaround

It may not be possible to follow the rules 100 percent of the time, but there should be an



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quality to meet the high-performance demands of today's industrial applications. **IDC Select** products are exclusively available from IDC Suppliers who maintain inventory stock levels at their respective local facilities. A larger inventory is maintained at their IDC-USA distribution center in Indianapolis.



agreed-upon guideline with the intention to follow them. For example, it may be OK to add on a job to a shutdown seven days before the shutdown, but that job will be called a break-in job and must be approved by the plant manager; it can't be added just because we forgot to mention it three weeks ago.

This set of rules will force operations and maintenance to communicate better. Execution of work will improve due to fewer last-minute changes.

EXAMPLE RULE 4:

Have a formal, joint approval point for work requests. Requested work should have a formal evaluation point. Here, it's decided if the work needs to be done or not. Maintenance and operations should screen work before getting together. Divide work into two buckets, "routine" and "improvement." Maintenance jobs (routine) must be done; a valid maintenance job can never be avoided. Improvements can be questioned.

It's easy to forget that a budget can be controlled. It's not uncommon to see organizations free up 20 percent of craftspeople's time when each work request is evaluated. The practice builds the partnership because work we decide to do more likely gets done in a timely manner, and unnecessary work will less likely be requested. Trust develops.

EXAMPLE RULE 5:

Root cause problem elimination is done jointly. Equipment and process problems involve both maintenance and operations representatives to assist in the investigation and learn about each other's fields. A problem seldom has one solution pointing to only operations, maintenance or engineering; it's more commonly a combination. Recognizing that fact builds trust and communication. ☺

Torbjorn (Tor) Idhammar is president of IDCON Inc., a highly specialized management consultant firm in the field of reliability and maintenance management for the processing and manufacturing industries. Tor has written numerous articles on reliability and maintenance, authored and edited IDCON's Condition Monitoring Standards books and has developed IDCON's Root Cause Problem Elimination Training. You can contact Tor at t.idhammar@idcon.com



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Moline Bearing Co.

Specializing in impossible-to-find replacement components and customer-specific coatings

BY CLAIR DAVID URBAIN

A bearing is a bearing is a bearing, until you try to find a replacement for one that has been discontinued or the OEM has gone out of business.

That's a common occurrence in nearly every manufacturing facility. Custom-built equipment eventually wears out, presenting MRO crews and staff engineers with will-fit puzzles that sometimes can't be solved.

That's where Moline Bearing can be of valuable assistance, says David Fauntleroy, owner of

Moline Bearing Co. "We have the capability to produce specialty bearings in extremely low quantities. While we offer a wide variety of common bearings, with many of them made in the USA, we also have the capability to look at a bearing application and develop a bearing that

matches the original. It's our point of difference. Our competitors can't match this custom service with low volumes and economical pricing."

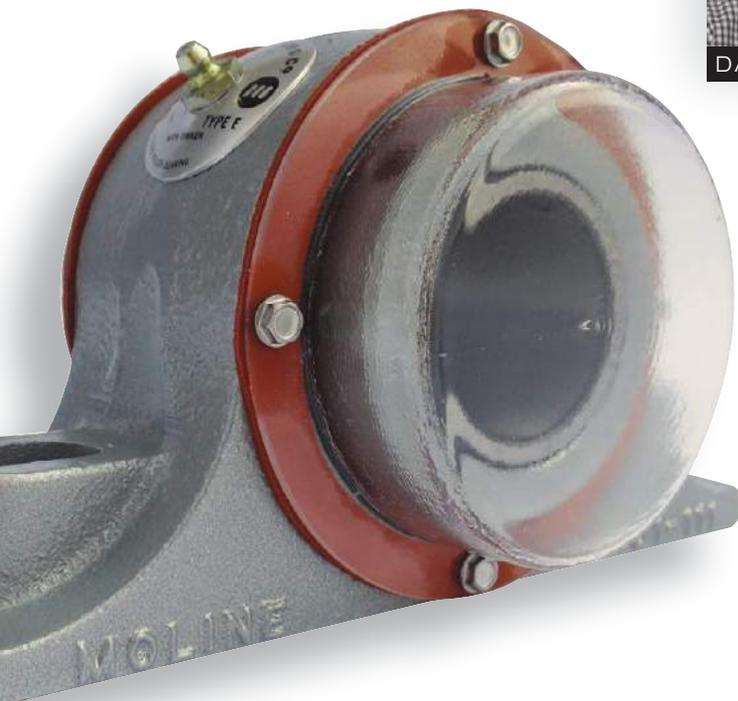
Monica Randall, Moline Bearing's chief application engineer, spearheads this effort for customers. "We can work from blueprints, or if that's not possible, we can design them from scratch and may even be able to suggest design changes that will help extend life or improve performance," she says.

"We often get calls from engineers working on a machine that has components the OEM has obsoleted and they can't find any replacements. We can usually figure out a way to reverse-engineer the component and build it for the client," she says.

Moline Bearing Co. also takes pride in its responsive turn-around times. "When a customer comes to us with a bearing need, we will tell them quickly – within a day or two – whether we can help them. If we can, we are finding that we can deliver a solution in a reasonable timeframe. It depends on the situation, but we typically go from inquiry to delivering the



DAVID FAUNTLEROY



Type E Pillow Block w/ Stainless Steel Coating and Food Grade PETG End Caps. Moline Type E Tapered Roller Bearings offer many advantages including high-speed suitability, positive locking to the shaft, ruggedness, and low price.

The housings are as compact as possible without sacrificing their brawny ruggedness. Made in the USA of high quality Class 30 cast iron, they are precision machined to close tolerances.

Machining and engineering services

The customer had welded threaded bolts to their machines that only matched the discontinued Sealmaster 3000 flange unit.

Moline machined a cast iron flange that matched the bolt pattern of the discontinued bearing. The customer was spared the high cost of reworking their existing machinery.



bearing on average in eight weeks,” she says.

Randall and others at Moline Bearing Co. have developed a process to leverage the company’s CAD capability with lean manufacturing processes to deliver what customers need, even in “onesy-twosy” quantities.

“It’s surprisingly affordable, too. It’s part of our Nordstrom approach to doing business,” says Fauntleroy. “Our customer service is what sets us apart from all the other bearing companies. Our customers tell us that all the time. We will work with distributors and their customers – end-users – to help them solve their most challenging bearing problems.”

CONTINUED ON PAGE 36

About Moline Bearing Co.

Moline Bearing Co. has a long and notable history. It played a major role in the Industrial Revolution in the United States and continues to play a key role in U.S. manufacturing today.

Today’s Moline Bearing Co. started as the Moline Malleable Iron Company, which was established in 1869. It originally consisted of a foundry that manufactured castings for thousands of manufacturers. Many were in various branches of ironwork and power transmission for elevating and conveying machines, elevator buckets and chains. Moline consumed 4,000 tons of pure pig iron annually, which translated into thousands of finished products that were shipped around the world.

For more than a century, Moline Corporation was a major supplier of chain and castings to the world’s leading industries with quality products. It carried the proud reputation of excellence in quality, delivery, performance and service to its customers.

Then, as today, innovation and quality were the hallmark of any Moline product. Moline Corporation constantly improved on its manufacturing process through ingenuity and modernization of operations, facilities, warehousing and distribution.

Moline Bearing Co. was formally established in 1992 when the bearing division was spun off as a separate entity. That was a new chapter in the company’s long history, but the company’s combined history and knowledge shows through to customers through the quality products and exemplary customer service it provides.



Look to Moline Bearing Co. for your power transmission component needs

Moline Bearing operates six fully stocked warehouses throughout the United States and has a 96 percent same-day fill rate for the following types of components:

- Type E Tapered Roller Bearings
- M2000 Spherical Roller Bearings
- M3000 Even-Lok™ Spherical Roller Bearings
- ME2000 Spherical Roller Bearing with Type E Dimensions
- ME3000 Even-Lok™ Spherical Roller Bearings with Type E Dimensions
- Mounted Ball Bearings Normal Duty Set Screw Locking
- Mounted Ball Bearings Normal Duty Eccentric Locking
- Mounted Ball Bearings Medium Duty Set Screw Locking
- Bearing End Caps and Bearing Covers
- Specialty Coatings
- Machining and Engineering Services
- Shaft Collars
- QD Bushings
- Tapered and D Bushings
- Weld-On Hubs



Moline Bearing Co. started offering this specialty bearing service in 2009; Fauntleroy says it's taken a while for it to gain traction, but in the last two years, it has grown from a sideline the company offers to an important part of the Moline Bearing Co. business. "This service opens doors for distributors because it can help them solve customer problems. We are not a plain vanilla bearing company. Although we offer a wide variety of bearings, this service sets us apart from our competitors that can't respond with this high level of service and customization."

Specialty coatings, too

As part of the bearing design service, Moline Bearing Co. has also developed a specialty coating business that's become appealing to many OEM customers.

"We've developed a way to produce bearing and other power transmission components with a stainless-steel, specialty or company-specific coatings. The stainless steel coating option is especially popular in food-grade applications. It provides additional corrosion protection, and makes them easier to clean," Randall says.

"In addition, we are able to produce power transmission components that are already coated to match the OEM equipment. We can produce them in the color specified by the customer at a very low quantity and at a very competitive price," she says.

Positioned to meet your needs

"It's all about solving problems. We've developed a new website at www.molinebearing.com that allows end-users or distributors to drill down our product line to find the bearing or other power transmission component they need with great ease. We have built a niche on providing service and support. It's what sets us apart from the rest,"



Type E Pillow Block w/ Machined Stainless Steel Housing. Moline uses only genuine Timken® Tapered Roller Bearings. They are made from vacuum degassed steel which gives rollers and races added life, and provides superior load and speed characteristics. A long inner race insures load distribution over a considerable length of shaft. In addition, the arrangements of Timken rollers and races is such that Moline Type E Mounted Bearings will handle slight angular shaft misalignment. These bearings also have high radial and thrust load capacities, and are capable of handling most combinations of loads found in all normal applications.

Fauntleroy says.

Whether you are adept at using online specifications systems for bearings or are much more comfortable with a more-familiar catalog, visitors to the www.molinebearings.com website will find access to downloadable catalogs and print media order forms, as well as videos and demonstrations.

Engineers and specifiers will find a helpful link where they can request CAD files from the Moline Bearing Co. Engineering Library. Here, engineers and designers can list the files they want and can work directly with Moline Bearing Co. engineering staff to identify the best bearing for the application or assist them with questions that may arise. 

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‘DOLLARIZING’ MAINTENANCE

Looking at maintenance from a dollars and cents standpoint can reap rewards with management

BY TERRY WIREMAN, VESTA PARTNERS

If you want to take maintenance to the next level at your facility, learn to express your operation’s impact in dollars. Why? Decision-making at the boardroom level always involves some degree of cost/benefit analysis.

Your ability to present senior managers with a crisp financial description of even mid-level departmental work – being able to talk their language, in other words – will do a lot to boost your persuasiveness in the budgetary process.

Learning to “dollarize” each maintenance cost center and function brings you another important benefit: an invaluable benchmarking tool for your own decision-making. You’ll gain a new means of predicting the impact of projects and of assessing the results. Conversely, the inability to construct and follow a sound business model will orphan many otherwise worthwhile initiatives for lack

of the needed rationale. Your operation will either miss out on valuable cost-saving opportunities or it will be lured into costly mistakes.

The choice is yours. Thinking in such a financial style may be alien to nuts-and-bolts minded maintenance managers, but that doesn’t mean that the task is beyond your grasp. Far from it! Here are a few basic how-to tips on effective “bean counting” for plant maintenance projects.

Looking at the numbers

There are three levels of plant maintenance activity that can be financially evaluated, with each level characterized by its relative importance. At the highest level, we find critical production equipment. Here, the value of efficiency – or lack thereof – is magnified. For these projects, the formula applied is called Overall Equipment Effectiveness or OEE (see more, at right). It’s probably the best developed and most-closely scrutinized index of maintenance reliability.

The next level involves the maintenance-specific functions. Less attention has been paid to monetary impact at this level because the scale is less dramatic. But you can measure return-on-investment that is derived from advanced maintenance efforts, for example, predictive maintenance (PdM) or total productive maintenance (TPM).

The same is true at the “bottom” or most basic level: The dollars you spend on routine preventive maintenance (PM) and other maintenance of non-production systems can also be expressed in terms of profit and loss.

It’s advised to start at the top level, calculating OEE separately for each production machine or system. Use the formula:

$$OEE = \text{Availability} \times PE \times QR$$

Availability is the percentage of the time that equipment actually runs, against the expected or scheduled run time. You should strive for at least 90 percent availability. To calculate





availability at your facility, take the scheduled uptime of, say, two shifts a week – or 80 hours – and divide it by the actual uptime (note: subtract from both figures any scheduled maintenance shutdowns).

Another key-point: Many production plants run less than a 24/7 schedule, of course, but it's advised to express the top of the Availability fraction with the maximum potential of weekly hours.

So, round-the-clock, 24/7 availability might equal 168 hours per week instead of only the scheduled time.

This approach – using a maximum potential figure – expresses the true availability of the plant's equipment, rather than hiding it behind spurious calculations. Although the resulting fraction is now smaller and perhaps less impressive looking, there is a benefit: It alerts the boardroom to the fact that underutilized plant capacity remains, perhaps preventing management from launching an unwarranted expansion.

Performance efficiency (PE) refers to the percentage of the rated or designed equipment spec for output that is actually being attained. For example, a

machine may be designed to produce 100 “widgets” an hour, but what does it actually yield? Your goal here should be at least 95 percent of the ideal.

The rated design specs may be inaccurate or long ago forgotten, especially with older equipment. If possible, try to recover the original rating in order to reach a truer benchmark. Another point to be wary of is the fact that sometimes an ingenious technician has re-engineered performance to make a system yield more widgets than it originally could. If so, you'll need to adjust the top of the fraction.

CONTINUED ON PAGE 40

If you don't, the resulting reliability rating will be inflated.

Quality rate (QR) refers to the fraction of the product output that meets the acceptable first-pass quality standard.

In percentage terms, put the "perfection" figure (i.e., zero rejects) on top and divide by "passed" or acceptable units.

The result should exceed 99%. When adding up the number of acceptable passed units, don't include any reworking, re-filtering, repackaging or reformatting that isn't first-pass quality.

Following a case in point

Now, for an OEE example. Let's say the figures for the facility are as follows: an availability rate of 85%, a performance efficiency level of 90%, and a quality rate of 95%. This yields the following computation:

$$.85 \times .90 \times .95 = 72.6\% \text{ OEE}$$

That number now serves as a baseline and benchmark. You can focus your maintenance efforts on improving each term. As a comparison point, world-class maintenance is now defined as achieving an OEE of 85% or better.

However, although you now have a starting index, your financial translation isn't done yet. You need to express that 72.6% in dollars. To do this you'll need to know the market value of each piece that the equipment puts out.



Being able to talk their language will do a lot to boost your persuasiveness in the budgetary process.

Determining this may be tricky in that accountants tend to use a variety of costing methods. Ask them for appropriate unit pricing. What's important isn't which way you do it, but you want to use one system consistently. This ensures that you're comparing apples with apples in your work-valuation measures.

Multiply the unit value that they give you by the actual output quantity during the period in question – whether a week, month or year. For example, suppose the equipment, when operating at 72.6% OEE, puts out 15,600 pieces per week, each worth \$12. Your world-class target is an OEE of 85%. Arithmetically, that's an additional 7,800 pieces per week. Achieving this will add annual revenues of $\$12 \times 7,800 \times 50$ week/year – or \$4.68 million.

Although simple, OEE will prove itself a powerful management tool for prioritizing and doing cost/benefit studies.

You can use the figures to support budget requests for additional staff, training or tools. Moreover, whenever financial people want to know the impact of your efforts on the bottom line, the answer will be clear and understandable for them.

Expanding your effort

Next, you'll want to apply similar analyses to other lower-level maintenance systems – the difference now being that instead of counting production output (which doesn't occur, of course), you must establish some other suitable valuation theory.

For many, this will take the form of the cumulative expense generated by the system's operation. Hence, you're applying a kind of "negative OEE" formula.

For example, a heat exchanger or cooler does not produce an asset, but it may rack up hefty overhead costs for the needed cleaning, periodic maintenance and eventual replacement. One way to quantify this

expense meaningfully is to figure the cost impact of outright zero maintenance (i.e., “run-to-failure”).

What will this “strategy of neglect” cost? Almost certainly it will . . .

1. Increase energy consumption due to decreased efficiency
2. Hasten a complete breakdown
3. Eventually necessitate either a costly repair or replacement

In addition, ignoring this system may also degrade air quality – with potentially expensive repercussions. For the greatest accuracy, strive to total the cumulative downside cost of this run-to-failure approach.

Now, against this expense total you can estimate the positive impact of performing work such as predictive tests, routine PM and even TPM. High-quality maintenance will greatly extend equipment lifespan – but by how much exactly? And what is the comparative worth? Calculate this dollar payback as a function of the ongoing maintenance investment.

In the same way, calculate cost/benefit data for other equipment and functions facility-wide – pumps, motors, HVAC systems, parts inventory levels, even relamping. What you end up doing is “dollarizing” the maintenance operation, which, theoretically, can lead to your determining almost the exact hour at which you should do maintenance on that cooler or chiller or furnace, or whatever.

Of course, by using this method, you may also discover that you’re doing excessive and needless maintenance on some items, as defined in pure dollar outlay. Your dollarizing approach should help you to detect and correct imbalances and wasted motion.

What’s crucial in this approach is that your determinations are not based on what’s convenient for the maintenance operation, but on what is best for the company bottom line. Thus, you’re better able to communicate the significance of your department in the terms that key financial people find most relevant – and your analysis will often be eye opening to them.

Very few financial people understand production constraints or production values. Few understand the impact of poor maintenance and resulting downtime. But many will be surprised to see this kind of analysis coming from a maintenance manager.

A case study

The following case illustrates how learning to talk the language of top management – return-on-investments, in this case – can pay off in a big way: A concrete company in Canada calculated the downtime cost of a tempering kiln at \$10,000 of lost output an hour. Any shutdown for repair, followed by restarting, required a minimum of four hours. In addition, the local power company surcharged the firm annually to the tune of about \$100,000 in penalties for the heavy demand caused by each startup.

The bottom line – in one year they had to shut down perhaps six times, with a minimum of four hours of downtime each time – a staggering loss. The magnitude was so great, in fact, that the company determined that the savings provided by a reduction of even a few hours of this downtime would easily pay for a fulltime electrician and a backup mechanic to do nothing but preventive and proactive maintenance. During the year following these reassignments, not a single unplanned shutdown occurred, and the modest investment paid for itself many times over.

We see this type of thing all the time. Companies often work long hours of overtime or suffer prolonged downtime to recover from unexpected repairs – all in an attempt to avoid adding another body to the payroll.

In reality, however, doing a cost study will often show that having another mechanic will save three or four times his or her added salary. When management sees those types of return ratios, suddenly the addition to your department’s head count doesn’t look so bad. But unless you can show them the total cost picture for the lost productivity, they’ll never add that body because all they do is look at the overhead cost. ☺

Terry Wireman is vice president of consulting services for maintenance process improvement at Vesta Partners.

Hydraulic leaks are bad news

This case study shows how an IDC-USA Distributor stopped a chronic hydraulic leak for good

Hydraulic leaks in production equipment are frustrating and costly to deal with. The unwanted drips take time to clean up and may pose a safety hazard if left unattended. In some cases, the leaking fluid can ruin the finish on the part being manufactured – which raises production costs – and the ongoing repairs cause maintenance costs to skyrocket.

Here's a brief look at how Troy Industrial Solutions, an IDC-USA Distributor headquartered in

Watervliet, N.Y., helped solve a nagging hydraulic leak for a customer.

The problem

A national block manufacturer was having a chronic problem with leaky trunion cylinders in its production facility. During operation, the packing gland would vibrate loose and hydraulic fluid would seep past the seals and drip onto the finished product. Every few weeks, a maintenance technician crawled into very tight quarters to retighten the gland with a hammer and punch. Often during the retightening process, the technicians nicked the rod, created a leak and ultimately shortened the life of the cylinder. The cylinder would last for an average of two to three months before it was removed and repacked on-site by maintenance technicians.

“Hydraulic leaks are a huge

safety issue,” says Dave Barcomb, general manager for Troy Industrial Solutions.

Plus, they impact production and maintenance costs.

“If there's a leak and fluid is getting out, it may also mean that you're letting contamination into the system. With hydraulics, the two things you need to be concerned about are keeping the fluid cool and keeping it clean,” Barcomb says.

The analysis

After closely evaluating the cylinder design, Troy Industrial Solutions determined the traditional stacked “vee” style seals were not handling





the vibration caused by the inverted mounting position of the trunion cylinder. The rod was extending down from the trunion, creating a tremendous amount of stress in the application.

The solution

Troy retrofitted the cylinder with a Dichtomatik NuPac – Loaded U-Cup seal design. The NuPac is a combination seal consisting of a U-Cup and O-Ring. As the system pressure increases, the O-Ring forces the lips of the U-Cup outward and maintains contact with the cylinder tube. Troy also modified the packing gland with a set screw to prevent it from vibrating loose.

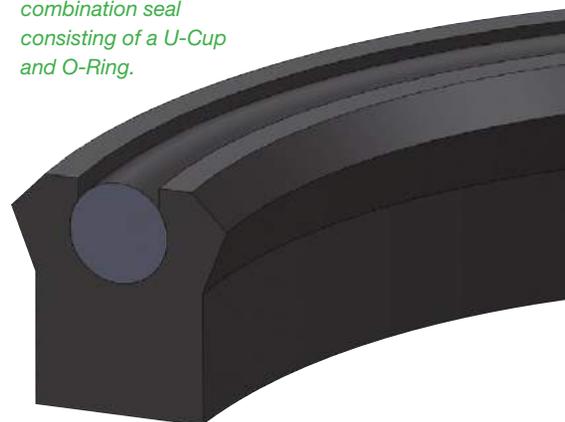
The redesigned solution with the NuPac seal is still in service after 10 months of operation with no leaks. The customer was so pleased with the results they are now sending all of their cylinders to Troy for repair. The customer is also planning to bring cylinders from other locations to have the seals retrofitted at Troy's hydraulic repair shop.

The NuPac from Dichtomatik has several advantages over the traditional “vee” seal packing designs;

- 6,000 PSI maximum operating pressure
- Works well in low-pressure applications

- Several materials; polyurethane, FKM, XNBR, HNBR and more
- Interchangeable with other types of seal configurations
- Works well as a piston or rod seal 

The NuPac is a combination seal consisting of a U-Cup and O-Ring.



Set the tone for **SAFE**

Seven strategies to improve job site safety in your workplace

BY ROB SHONE

The craftspeople arrive at the new job site, prepared to start work on their phase of a major project. They're ready to tackle the challenges of this particular job, but they're first herded into a room that reminds them of a high school classroom. Here it comes. That dreaded safety orientation they're forced to endure at the beginning of each project. The presenter will drone on about safety, telling them things they believe they already know. Then he'll ask if there are any questions (of course, there won't be) before sending them on their way to work.

It happens that way at far too many projects, and it shouldn't. The safety orientation session can be an excellent opportunity to set the tone for a project, and to help workers understand both the importance of safety and the role they play in achieving a safe workplace.

It doesn't happen automatically or by accident. Over the years, we have

discovered that a well-organized orientation based on proven strategies is the most effective way to deliver messages to workers who are new to a site. We've provided that orientation to workers at sites for a major pharmaceutical company – an owner whose business provides unique safety challenges and strict regulatory requirements. However, the strategies we've identified can easily be applied to orientations at any construction or industrial site.

1) Their contributions matter. We begin by helping workers understand the project owner and its mission. Our client is focused on developing and manufacturing medicines that save lives and improve the quality of life for people all over the world. Every project on every one of their sites is part of pursuing that mission. Whether the workers will be building laboratories or remodeling offices, they are contributing to that mission. As safety



PHOTO: KADMY; MELISSA MADIA

professionals, we're also contributing to that mission by ensuring that everyone has a safe workplace and can return home to their families at the end of every shift.

2) Treat them like people.

Every individual in the room wants to know that he or she is important, and that his or her opinions and experiences are valuable. The easiest way to do that? Use their names. When someone asks a question during your presentation, ask them to preface it with their names, and then work their names into your response. "Jim, I'm glad you asked that, because it reminded me that eye protection is important on this site." By doing that, you've treated the questioner as a respected peer, rather than as a student.

3) Encourage their input.

The traditional lecture – with the presenter doing all the talking – makes it far too easy for the audience to lose interest and attention. Asking for their input and involvement through the orientation will keep them attentive and provide a subtle reminder that they play an active role in workplace safety. While safety professionals know a lot about safe practices, we're less knowledgeable about the day-to-day aspects of their crafts.

We often begin orientations by finding out who is in the audience, and then tailoring our questions to their area of concern. For example, if we're talking to a group of electricians and the subject of fall protection is part of the discussion, we may

ask them for examples of when they would have felt safer on a job had proper fall protection been used. Specific issues that involve their work practices will hold their interest better than vague rules. Conducting a give-and-take also validates their own expertise, showing them that we regard them as professionals. (We learn from them, too.)

4) Tell stories. Rules tend to be boring. Stories are far more interesting. So if you can convey information about a rule through a story, you'll improve attention and retention. Tell them about something that went wrong on a site, and how the safety procedures helped, or how failing to do the right thing led to injuries or other problems. Stories make things real and memorable.

5) Share the reasons. It's one thing to tell a craftsperson that it's mandatory to use certain type of safety equipment on the site. That's a rule, and nobody likes rules, even when they're for our own benefit. Take it to the next step by explaining the reasons behind the rules. "I know that masks aren't always comfortable, but in this facility, you may encounter fine particulates that can irritate your lungs and throat."

Remember that most craftspeople have been through many safety orientations, and they may believe they know everything about safety. Explain why your site is different. At our client's sites, workers encounter Food & Drug Administration regulations that go beyond the

familiar OSHA and EPA rules. They may not understand why they need to wear hair and shoe covers, so it's our responsibility to explain. When someone complains that "I never had to do this before," help them understand why it's a priority on this site.

6. Encourage questions.

We always urge people in audiences to ask questions, because everyone (including the presenters) learns from those questions. We remind them it's always a good idea to ask about things, whether they ask their supervisors, the safety professional on the site, or the owner's rep. They shouldn't assume that something is appropriate because they've always done it a certain way. On this site, the rules may be different, and asking before acting may save them a lot of grief.

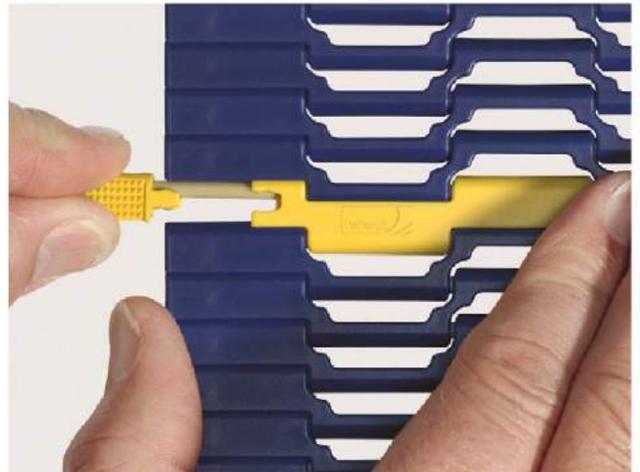
7. Keep it light. Safety is a serious subject, but that doesn't mean you need to present it in a stern manner. Warm, friendly comments and gentle humor will put even a wary audience at ease and improve retention of the message you're presenting. It breaks up the monotony for them – and for the presenter, too. ☺

Rob Shone is a safety consultant with Indianapolis-based Safety Management Group. He earned his bachelor's degree in Industrial Technology from Purdue University and his masters in education from Ball State University. Contact SMG at (800) 435-8850 or at www.safetymanagementgroup.com.

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