

IDC *Industrial Review*

MANUFACTURING TRENDS TO WATCH

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spare parts storage

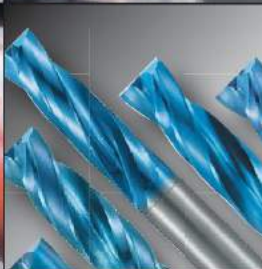
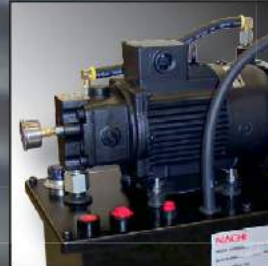
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Change is the only constant in life

The famous Greek philosopher, Heraclitus of Ephesus, taught that “change was the only constant in life.” Most people would agree that our industry is certainly a testament to that. Part of the reason that our industry is subject to such drastic and continuous change is because there are so many factors that have an impact on it.

Certainly the substantial merger and acquisition activity in our industry has created an evolving and unpredictable landscape. Few people would have guessed that Baldor Electric would have bought Reliance Electric and Dodge, or that Regal-Beloit would buy Emerson Power Transmission Solutions. And as shocked as some were by these acquisitions, most of the industry has accepted it and moved on.

Technology is another factor that is driving change at a warp-speed pace. Most of us can't remember the last time we received a fax from someone. A lot of people, including me, no longer have a “land line” coming into their home; that need is now filled by mobile phones. And the term “B2B” is no longer some techie buzzword, but now a routine way of doing business.

It is important to understand that the issue isn't the change; it's the way we deal with the change. Do we resist it? Do we ignore it and hope it will go away, or do we complain about it thinking that things will go back to “normal?”

This year, the NCAA Men's Basketball Tournament taught a valuable lesson. College basketball coaches are having a difficult time building good programs because the outstanding freshman players they are recruiting are doing a “one-and-done,” leaving after their freshman year to play professionally in the NBA. College coaches

and administrators are frustrated by this and are trying to figure out what to do to stop this hindrance to outstanding basketball programs.

However, one college coach, Mike Krzyzewski of Duke University, has taken a different approach. Rather than try to fight or regulate this new trend (read: change) in college basketball, he has elected to not only accept it, but to embrace it. His basketball program put all of its focus on the freshmen players. Krzyzewski played his superstar freshmen and used the upper classmen to support them. Duke won the national championship. So what is the lesson? Those who embrace change will be far more successful than those who resist it, ignore it or hope it will go away.

IDC-USA is also going through significant change. A lot of it has been planned, but some of it wasn't. Some of the change is exciting, some of it frustrating. Our strategy is not to resist, ignore or hope. Our strategy is to embrace the change, adjust accordingly and grow bigger and better than before. We have some exciting initiatives that we are working on to make our IDC Distributors better at what they do and more successful, so they can make you, their customers, better at what you do and more successful.



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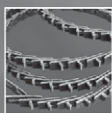
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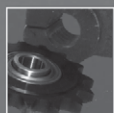
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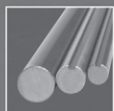
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BK Industrial becomes part of IDC-USA's network

Headquartered in Beaumont, Texas, BK Industrial Solutions is a distributor of industrial motors, bearings and other power transmission equipment. Organized in the winter of 2014 to acquire the Beaumont assets from Brance-Krachy Co. Inc., BK Industrial Solutions expects to continue delivering quality products and superior service in the maintenance, repair and operation segments. Operating from its current facility since 1965, the Beaumont operation has been supported by an on-site hose assembly shop while supplying mechanical power transmission equipment and solutions to industrial users throughout Southeast Texas and Southwest Louisiana.

Upon BK Industrial Solutions' inception, founder and co-owner, Jon Andrews, understood the need to immediately partner with IDC-USA as it supported their strategic pricing

and branding objectives which is key in today's marketplace. "We feel that the partnership gives us unique access to a combination of resources which will improve our platform by streamlining purchasing, increase gross margin through promoting the IDC Select private label brand and offer amazing networking opportunities with other IDC Distributors throughout the country," said Jon Andrews.

"BK Industrial Solutions recognizes that partnering with other independent distributors will help them be even more successful in coming years. Although BK Industrial was organized in 2014, they have 50 years of experience to draw from and that makes them a strong addition to the IDC Network," added Jack Bailey, IDC president and CEO.

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IDEAL® is a leading global engineering solutions designer and manufacturer of stainless steel worm gear and specialty clamps for auto, heavy-duty, industrial, plumbing, marine and specialty hose clamps used in a broad range of fastening and sealing applications.

Its latest product, ProLok clamping system, is perfect for sturdy, all-weather binding and clamping. Made in the USA, the band and buckles are 201 stainless steel. With the easy-to-use band tensioning tool, the band easily forms to suit any diameter. Applications include insulation banding, sign mounting and cable bundling. Learn more at www.idealtridon.com

Anderson-Crane brings 71 years of expertise to IDC-USA

IDC-USA welcomes its newest distributor, Anderson-Crane Rubber Company Inc. Co-founded in 1944 by RW Crane I and Guy Anderson, Anderson-Crane is a third and fourth generation family owned and operated business. Headquartered in Minneapolis with branch stocking centers in Minnesota, North Dakota and South Dakota, Anderson-Crane supplies industrial solutions utilizing bearings, mechanical power transmission equipment, electric motors and controls, conveyor systems and components, belting, hose, rubber goods, pneumatic equipment and plant maintenance supplies.

"Anderson-Crane initially sought out a relationship with IDC-USA a couple of years ago to align our company with complementary suppliers. Since then, we have learned much more about the benefits of IDC-USA as a strategic sourcing partner, and as a resource for personnel development and

distributor networking," stated Bob Crane, Anderson-Crane president. "We look forward to building working relationships with IDC partners and are delighted to join IDC-USA at this time."

Anderson-Crane serves local and regional industrial customers with a national to global reach across numerous industries. Anderson-Crane adds value for customers with rubber fabrication, repair facilities, field installation service and engineering capabilities.

"As a multi-generational distributor who has successfully been in business for 71 years, Anderson-Crane embodies the independent spirit for which IDC Owner-Distributors are known," said Jack Bailey, IDC president and CEO. "Their fellow IDC Distributors will benefit from their additional expertise and buying power."

Learn more about Anderson-Crane Rubber Company at www.anderson-crane.com.

Get your IDC Charitable Trust bracelets and donate to a good cause

Are you passionate about the Semper Fi Fund, St. Jude Children's Research Hospital, or just looking for a way to make a difference? IDC Charitable Trust is making it easy for you to make a small donation that will add up to make a big impact. The Semper Fi Fund provides immediate financial assistance and lifetime support to post 9/11 wounded, critically ill and injured members of the U.S. Armed Forces. St. Jude Children's Research Hospital's mission is to advance cures, and means of prevention, for pediatric catastrophic diseases through research and treatment.

When you purchase a \$5 bracelet for either or both causes, the money will be collected by IDC Charitable Trust and given to the respective charity. Our goal is to raise \$5,000 in bracelet sales. It's

time we pull together and make a collective difference.

Order your bracelets now at info@idc-usa.com! (Be sure to specify if you'd like a size M or L bracelet.)

About IDC Charitable Trust

The IDC Charitable Trust Corporation is a 501(c)3 organization founded and supported by IDC-USA. The mission of the IDC Charitable Trust Corporation is to provide support and contributions for education and charitable causes. As part of its educational mission, the Charitable Trust Corporation funds multiple annual scholarships and provides support to the PTDA Foundation. Charitable financial support has been provided to tsunami, earthquake and hurricane victims throughout the world.

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When you are moving or stocking a 25-pound quality bearing, you need a box designed to handle the weight or it will end up on the floor.

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Scheerer Bearing and Telco Sensors add great value to IDC family

Based out of Eastern Pennsylvania, Scheerer Bearing Corporation has been a global supplier of bearings and related products since 1963. The company has had great success by consistently meeting the specific needs of customers with both standard series and specialty bearings. By manufacturing products for a wide variety of industries, Scheerer understands how to adapt and find creative solutions. With over 30,000 active part numbers, Scheerer Bearing helps customers find exactly what they need.

George Rymar, Scheerer Bearing CEO, saw this as an opportunity for a great partnership. "Scheerer Bearing is looking forward to providing IDC-USA Distributors with high-quality, large size bearings. We have over 50 years of bearing manufacturing experience successfully producing big bearings for big industry," he said. "We're proud to be a part of the IDC-USA family and a supplier to 'the largest cooperative in the power transmission industry.'"

Similar to Scheerer Bearing, Telco Sensors also values customer service. For 40 years, Telco Sensors has created state-of-the-art sensors that are both simple and versatile. Because of the company's core values, each of its products is reliable with impressive performance. Telco recognizes that customers need the highest quality products, which has driven Telco's worldwide success.

Richard Livengood, president of Telco Sensors, appreciated IDC-USA's reputation. "We look forward to working closely with IDC Distributors and bringing creative solutions to their customers," he said.

"We want to give IDC Distributors every opportunity possible to succeed," said Jack Bailey, IDC president and CEO. "Both of these suppliers offer distinct services and expertise that will continue to push this cooperative in a positive direction."

Manufacturing to watch

BY JOHN PAPAGEORGE

The manufacturing sector is changing at a meteoric pace. Much of this change is due to innovation in technology. The entire supply chain ecosystem — encompassing manufacturers, distributors and suppliers — is undergoing a business transformation.

This is in response to swiftly changing dynamics involving shifting consumer expectations, time to market and intense global competition that is driven by the rising Internet and mobile economies.

It's time to look ahead at emerging trends that will impact 21st century manufacturing around the globe. Here's our examination of top trends that will impact innovative product companies.

1) U.S. to match China in manufacturing attractiveness by 2015

New research shows that the U.S. has now matched Mexico as an attractive location for manufacturing in terms of labor arbitrage and operational costs, and will match China in

Here's a look at just a few of the top trends that will impact innovation in the coming years

desirability by 2015, which will vastly accelerate re-shoring.

According to a recent survey from AlixPartners, the United States and Mexico are now considered equally attractive options for U.S.-based companies to situate production meant for the North American market. Thirty-seven percent of the 137 respondents would choose the U.S. as their preferred near-shoring location. An equal percentage would choose Mexico.

The rise of a more technical labor force to manage supply chain operations has led to more companies shifting their manufacturing strategies from outsourcing overseas to making products closer to where they will be sold. "Next-shoring" allows manufacturers to increase the swiftness to replenish products on store shelves. The

faster inventory can be moved to the consumer, the sooner the costs to warehouse, ship and dock goods can be freed up.

The fact that manufacturing jobs are coming back to the United States does not mean that they are not continuing to develop in Asia. In a recent report for the *San Jose Mercury News*, Mike Cassidy describes a move by a number of U.S.-based manufacturers to expand operations in both the United States and offshore: "In a global economy there really is no one-size-fits-all strategy. There is offshoring, onshoring, nearshoring and what you might call both-shoring."

TAKE AWAY ➞ Manufacturing strategies are more dynamic and complex than ever, which means there is no one-size-fits-all, suggesting that supply

trends



chain operations and supporting technologies need to be equally nimble. A cloud-based product lifecycle management (PLM) solution offers flexibility and scalability, enabling companies to manage their product mixes, customer markets and partners. As Jack Welch once said, you need technology that can go where you go and support

processes and practices as you need them to.

2) 'SMAC Stack' – not just for WWE wrestling

A manufacturing comeback is being driven by SMAC — social, mobile, analytics and cloud. The SMAC stack is essentially the next wave in IT to manage massive amounts of data.

SMAC Stack is also becoming an essential technology tool kit for enterprises and represents the next wave for driving greater team connectivity across platforms, higher customer engagement and growth opportunities. The need to innovate is forcing cultural change within an historically

CONTINUED ON PAGE 14

conservative “if it’s not broke don’t fix it” industry, and SMAC is helping early adopters in the manufacturing market increase efficiencies and change.

TAKE AWAY ➡ Organizations that conceptualize these four technologies together as a “stack” will have access to exponential growth opportunities not unlike those seen by early adopters in the PC and Internet revolutions. Recently, Arena Solutions has created a collaboration platform for all stakeholders across the supply chain, including suppliers and partners, to take part in documented problem solving and discussion in context of the product record.

Global shipments of 3D printers are expected to grow by 98 percent in 2015

3) 3D printing

Worldwide shipments of 3D printers are expected to grow 98 percent in 2015, followed by a doubling of unit shipments in 2016. 3D printing will reach a tipping point over the next three years as the market for relatively low-cost 3D printing devices continues to grow rapidly and industrial use expands significantly. New industrial, biomedical and consumer applications will continue to

demonstrate that 3D printing is a real, viable and cost-effective means to reduce costs through improved designs, streamlined prototyping and short-run manufacturing.

According to a recent McKinsey report, reducing time in product development was a key benefit of the first 3D printing machines, which were designed to speed the creation of product prototypes (and helped reduce



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turnaround times to a matter of hours, from days or weeks). Now many industries are poised for a second wave of acceleration as the line between additive and conventional manufacturing blurs.

TAKE AWAY ➡ The ability to make new product introduction (NPI) prototypes without tooling lets companies quickly test iteratively multiple

configurations to determine customer preferences. Companies could even go into production using 3D printed parts and start selling products while the traditional production tools were still being manufactured or before the decision to produce them had been made.

Companies are learning to leverage information to identify what the market wants and quickly adjust their output to maximize profits and keep the customers coming. As we move forward, supply chains and production processes will need to be designed anticipating multiple quick changes as a key

priority, so they can adapt as fast as possible. 🌐

John Papageorge has worked at some of the biggest names in the high tech industry, launching products and programs for companies, such as Oracle, HP, Cisco and Microsoft. John's passion for aesthetics and innovation has propelled him down various entrepreneurial paths. He was once co-founder of Standard Alliance, the San Francisco-based iTV application and production company, which created the first — and only — convergent initiative on behalf of the AOL-TIME WARNER merger. He also created Buzzphone, a mobile application company that allowed fans to receive voice messages from their favorite artists and athletes.



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Scheerer Bearing

Manufacturing quality for over five decades

Scheerer Bearing makes big bearings for big industry. It specializes in medium to large size standard bearings and excels in specials: custom assemblies, long lead time items, as well as hard-to-find, and obsolete bearings. Scheerer is also a welcome premium alternative to other large bearing manufacturers.

Everything Scheerer does is customer driven. Its structure and nimble response capabilities provide an accessible and viable

alternative to the restrictions that mega-manufacturers can exert on independent distributors. Scheerer is well-known throughout the industry for flexibility, service and value.

Shorter Lead Times and QDP

Often, bearing manufacturers have very long lead times. Depending on bearing size and materials, Scheerer Bearing offers lead times substantially shorter than its major competitors. This is accomplished by using state-of-the-art equipment and technologies strategically designed to be flexible with

speedy set-up and processing times.

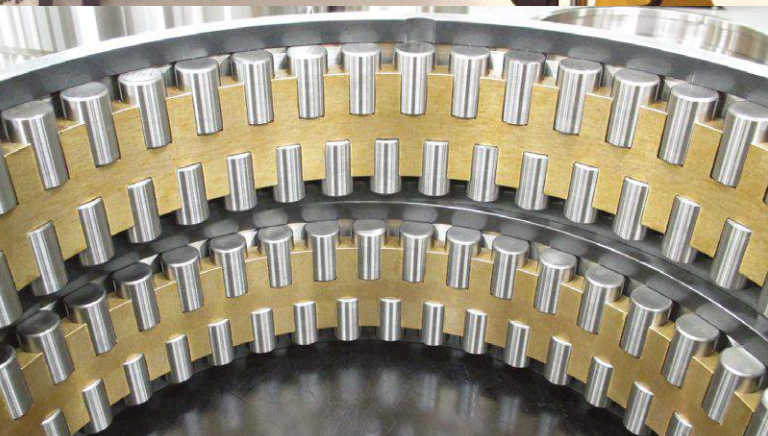
In addition, for eligible bearings, the lead time can be significantly reduced through Scheerer's Quick Delivery Program (QDP).

Commonly Stocked Bearings

A wide range of the company's product offering is available right off the shelf with these commonly stocked bearings:

- Large Size Radial Ball Bearings: 618, 619, 6200, 6300, 6400
- Large Size Angular Contact Ball Bearings: 718, 719, 7100, 7200, 7300
- Self-Aligning Roller Thrust Bearings: AT600, AT700
- Cylindrical Roller Bearings: NU, AD, 51, 52, 53, 200, 300, 400
- Inch Dimension Bearings: XLS, XLJ, LJ, MJ, LS, RXLS, XW and W
- Full Complement Bearings: NCF, NNCF, NNC
- Roller Thrust Bearings (Inch): TP (T600, T700)





From manufacturing facilities in Willow Grove, Pa., and Horsham, Pa., Scheerer Bearing produces an extensive range of bearings, specializing in big bearings for big industry.

Engineered Solutions

Whether a problem application or a new project, Scheerer Engineering has the expertise to partner with customers to provide the best possible solution. Capabilities range from simple improvements on existing designs to assisting in bearing selection and recommendation, to designing and providing assembly solutions where bearings may be only one component. Scheerer's flexibility shines with the ability to provide unique solutions to any problem.

Whether a bearing is hard to find, low volume or obsolete, Scheerer is uniquely positioned to help. Scheerer excels in providing bearings that many other manufacturers will not even consider producing. The company employs seasoned experts in making special

CONTINUED ON PAGE 18

■ Roller Thrust Bearings (Metric): 811, 812, 813, 814

■ Ball Thrust Bearings (Inch): 4400, G-

■ Ball Thrust Bearings: 511, 512, 513, 514

■ Double Row Roller Bearings: NNU 4100, NNU 4800, NNU 4900

Emergency Orders

When you have an after-hours breakdown situation, Scheerer Bearing offers emergency service. Personnel are always on call after-hours and weekends.

Product Line

From day one, Scheerer Bearing has specialized in big bearings for big industry.

In the very early days, many orders were for specials and

hard-to-find bearings. Then, as the Scheerer catalog grew, so did the range of bearings. So much so that the catalog has over 30,000 part numbers today.

Scheerer Bearing offers an extensive range of products including radial and thrust bearings of the following types:

- Deep Groove Ball
- Angular Contact Ball
- Slewing Ring
- Tapered Roller
- Spherical Plain
- Spherical Roller
- Cylindrical Roller

Scheerer manufactures most any bearing from approximately 2" I.D. and up. O.D. size is up to 100".



SCHEERER
BEARING CORPORATION

TODAY'S TECHNOLOGY

bearings of all types and can reverse engineer a bearing from an existing one or sometimes even from just its parts.

The Scheerer Engineering team can promptly and precisely deliver solutions for application problems – working to develop the best bearing when off the shelf just won't do.

Scheerer also modifies standard bearings for a variety of needs in quantities that range from single bearings to fully inventoried lots.

A simple way Scheerer helps customers achieve their bearing needs cost-efficiently is through bearing modification. Changing clearances is perhaps the most common modification, but Scheerer regularly incorporates custom materials, upgrades components for extreme environments, and adds maintenance access features to minimize equipment downtime while improving bearing lifetime.

Some of the modifications Scheerer offers are:

- Clearance Changes
- Bore Tapering
- Flush Grinding

- Preloading
- Oil Groove and Lubrication Hole Additions (W/22, W/33)
- Notching and Keyways
- Snap and Sealing Ring Grooves
- Cage Material Changes
- Ball Material Changes
- Spacers and Endplay Set-up

Bearing Repair and Reconditioning

Large bearings are usually a substantial investment. When a customer has a bearing that requires maintenance or repair, Scheerer can add new life to that bearing. The scope of Scheerer's reconditioning service

encompasses everything from a basic cleaning and polishing to a complete rework, including regrinding or replacing raceways and providing new, sometimes oversized, balls or rollers to achieve the original internal clearance.

When a bearing is sent in for evaluation it is assessed to see if reconditioning is an option. Bearing repairs can include:

- New balls or rollers
- New inner race
- New outer race
- New inner and outer race
- New retainer
- Polishing and cleaning
- New side or snap ring

Scheerer works with customers to schedule planned reconditioning of critical bearing components limiting operations downtime for maximum output.

Also available is an emergency repair service that can repair a bearing sometimes within a 24-hour period.

Quality is in Control

Every bearing manufactured is held to the highest industry



Located in eastern Pennsylvania, Scheerer Bearing maintains a corporate office, warehouse and assembly operation in Willow Grove, Pa.

ABMA and ISO standards through stringent, documented inspection using the latest industry technology. All large size bearings are 100% inspected and hardness tested with complete traceability for the bearings and the materials. Scheerer also uses independent quality laboratories for special applied, technical and industrial metrology.

The moment a bearing order is placed it is identified by a seven-digit tracking number. Should a question arise about any specific feature, Scheerer knows each bearing's personal history, allowing Scheerer to reference specific dimensions long after it has been put into operation by

the customer.

Scheerer uses 3D measurement technology to create automated excel-based reports, streamline quality control and maintain the highest level of inspection to obtain precise measurements, surface finishes, roundness, chemical analysis and hardness.

Serving Industry Worldwide

Scheerer representatives cover the United States from coast to coast. They're doing business in all 50 U.S. states, and globally including Canada, Mexico, Central America, South America, Europe and Africa. Scheerer's sales team boasts professionals with a knack for successful problem solving.

Decades of application experience makes Scheerer an industry partner in many industries including:

- Mining, aggregate, crushers
- Oil and gas
- Wind energy
- Steel and primary metals
- Cranes and material handling
- Pulp and paper
- Rail
- Machine tool
- General industry

Catalog: Searchable 3D CAD

Scheerer Bearing uses an interactive online bearing product catalog to assist customers in finding the correct information

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P. T. INTERNATIONAL CORP.

METRIC & AMERICAN INDUSTRIAL POWER TRANSMISSION PRODUCTS

Stock Taper Bushed drive products include Metric Sheaves, HTD, T & AT Series Timing Pulleys, Synchronous Pulleys, standard and stainless Metric Sprockets, Metric & ANSI Roller Chain and HRC Shaft Couplings. Metric Spur Gears & Racks, as well as Metric Rod Ends, are all stock products.



Winkel Combined Bearings and Profiles (Germany) provide simple solutions to Linear Motion...while offering fewer parts to assemble and align with simple installation. Adjustable, precision and heavy duty units are available. Vulkollan coated bearings and stainless profiles allow even more options for the tough applications. All offer quiet, efficient and cost effective options for the customer.



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and technical specifications.

Scheerer Bearing customers have easy access to 3D CAD models of the bearings they need through faceted search technology. Upon its launch, the online catalog offered 7,000 part numbers; that number is growing and will soon increase to 30,000.

Catalog users can find the part they need with ease by navigating by bearing product categories or by entering part numbers in the "Search Part Number" field.

Each part number is represented by a specific drawing and a CAD model giving users a visual interpretation of the bearings they need. Dimensions for part numbers that are similar can be reviewed side-by-side with a compare tool.

In It for the Long Haul

Scheerer's commitment to quality is evident through employee career longevity. For example, longtime employee Jim Karp, now semi-retired, is employee "No. 4" and has been an employee since Scheerer's founding in 1963; that's a lifetime of consistent quality craftsmanship. He is



Above: Rotary table bearing used in the oil industry.

Right: Jim Karp, employee No. 4, operating a lathe in 1964. Jim is still a Scheerer Bearing employee, now semi-retired.



Left: Pedro Rymar, left, one of Scheerer Bearing's co-founders is pictured with employee Michael Popowicz. Now retired, Pedro often stops in to observe the changes and new technology.

also an instructor in Scheerer's apprenticeship program.

The family atmosphere fosters commitment to quality products that is palpable. Scheerer's owners are onsite every day, overseeing and improving

operations on a daily basis – ensuring a consistent growth pattern for many years to come.

Always Moving Forward

In 2012, Scheerer Bearing Corporation became engaged in a pattern of extensive growth that began with an additional manufacturing plant, incorporating a new headquarters, warehouse and employees.

The expansion was a response to the increased demand for Scheerer products straining previous production and office capacity.



Today, Scheerer Bearing's corporate office, warehouse and assembly operations, as well as the manufacturing of bearing products over 25 inches in diameter, are located in Willow Grove, Pa. Bearings less than 25 inches in diameter are still produced at Scheerer's Horsham, Pa. location.


Scheerer is committed to establishing a positive environmental impact and encouraging environmental responsibilities among employees and business partners.

While fostering a culture of continuous improvement, all progress is streamlined and constantly reevaluated for Scheerer to excel in its specialty: large-size standard and custom bearings and assemblies.

Scheerer Bearing's history began as Zubler Bearing in 1928. The Scheerer brothers bought Zubler, located in Philadelphia, in the 1950s and hired Pedro Rymar as plant manager in 1960. When a fire destroyed Zubler Bearing in 1963, Erich Scheerer and Pedro Rymar reopened in Willow Grove, Pa., and Scheerer Bearing Corporation was formed.

The company remains a privately held, family-owned company.

Each Scheerer department works collaboratively from initial quote to final production and ultimately to product shipment with complete transparency and a unanimous mandate to improve the lead time and

quality of each bearing produced. The entire Scheerer team is committed to getting customer's orders shipped correctly and on time. It's been a way of life for over 50 years. 

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YOUR VALUE LEADER

QUALITY, PRICE, SERVICE

That's how Accurate Bushing Co.'s Smith Bearing Division approaches customer relationships

BY CLAIR DAVID URBAIN

Accurate Bushing Company was founded in 1983 in a small warehouse in Garwood, N.J., with the goal of becoming a leader in the replacement bearing industry.

For more than four decades, the company has developed a talented and dedicated staff that has allowed Accurate Bushing Company to become a leader in the bearing and power transmission industry throughout the United States. Today, it has a proven record of supplying the highest quality

products at the lowest possible prices with an eye on value to its diverse customer base.

Structured for responsiveness

Accurate Bushing Company's Smith Bearing Division has developed a network of industrial and aerospace distributors, manufacturing plants and sales offices throughout the world. This responsive network includes IDC members.

"The structure of our operation affords us the ability to give

highly personalized attention to every customer. Most importantly, this structure gives us the ability to respond immediately to our customers' requests as well as providing highly cost-effective products," says Peter Dubinsky, Accurate Bushing Co. CEO and president.

The company structure affords the ability to give highly personalized attention to every customer, says Dubinsky.

With its award-winning sales team and "do what it takes attitude" of everyone in

“Over the years, our priorities and focus have not changed: Quality-Price-Service. That is what we stand for at Accurate Bushing Co. We are proud to say we are your value leader in the bearing industry.”



— PETER DUBINSKY, PRESIDENT

the organization, the Smith Bearing division offers the highest quality customer service possible. “We know time is money, so we strive for error-free, same-day service from our Garwood, N.J. warehouse,” says Dubinsky. “We also have made our online interchange catalog available 24/7, which supplies valuable information whenever customers – our No. 1 priority – need it.”

From electric motor-grade bearings to bearings that meet demanding aeronautic and military requirements, Accurate Bushing’s Smith Bearing line can meet even the most demanding specification. Smith Bearings are available in:

- Cam follower needle roller bearings in inch and metric sizes

- Spherical plain bearings
- Drill jig bushings
- Specialty aerospace products and assemblies

ISO registered

Accurate Bushing’s Smith Bearing division has received ISO 9001 and AS 9100 quality registrations in recognition of its continued commitment to world-class quality control systems.

“Our quality system is recognized by General Electric, Lockheed, Boeing Aircraft

CONTINUED ON PAGE 24



Bearings and so much more

Power transmission professionals at industrial facilities almost always need more than just bearings while working on an MRO or production project.

Accurate Bushing Co.'s specialty is bearings of all kinds, but it also supplies a wide variety of industrial-related products. Items such as sprockets, gears, belts, chains, oil seals, pump seals, lock nuts and lock washers, cam followers, linear systems, O-rings, retaining rings and more can be found in its warehouse location. Accurate Bushing Co. offers a wide assortment of products for your needs, including the Smith Bearing Interchanged version of the following brands of specific products:

Ball/Needle and Roller Bearings

- | | |
|--------------|----------|
| ■ NTN | ■ MCGILL |
| ■ KOYO | ■ OSBORN |
| ■ RBI | ■ PCI |
| ■ IKO | ■ RBC |
| ■ INA | ■ CARTER |
| ■ TORRINGTON | |

Linear Products

- | | |
|-------|-------|
| ■ IKO | ■ THK |
|-------|-------|

Other Power Transmission Products

- | |
|------------------|
| ■ L & S LOCKNUTS |
| ■ L & S WASHERS |



Corporation, British Aerospace, as well as many other military and aerospace companies. Our military bearings meet the requirements of Mil-B-3990 (SAE AS 39901). This level of quality certifications and approvals assures our customers unequaled dependability of our products," Dubinsky says.

Custom capabilities

Even with the wide variety of bearings and other power transmission products in stock, customers have also come to expect that Accurate Bushing can deliver custom-made components and assemblies.

Highly experienced Accurate Bushing Co. engineers can work closely with end-users and original equipment manufacturers (OEMs) to develop and offer the best solution for their bearing requirements. These engineers have extensive knowledge of available metallurgies so they can offer customers the best suitable material for special designs and applications. The company regularly custom-manufactures bearings in

a wide range of materials including high-carbon alloy steels, stainless steels, tool steels and exotic alloys.

"Our advanced metallurgical department routinely verifies and tests all raw materials, plating and heat-treating processes used in the manufacturing process of our products," Dubinsky adds. This careful analysis and scrutiny in each phase of the manufacturing process assures proper conformance to all aerospace requirements and guarantees that only materials meeting Accurate Bushing Co.'s rigid standards are used in Smith Bearing products.

Accurate Bushing's Smith Bearing division also has the ability to manufacture a variety of custom bearing assemblies. "Typically, this entails the precision machining of a bearing housing and the assembly of needle or ball bearings into the housing. By controlling the entire design and manufacturing process of a custom order, Smith Bearing can guarantee the quality, performance and delivery of an

There's a Smith Bearing for your application. Accurate Bushing's responsive customer service team can help you whether your power transmission need is off-the-shelf or a custom build with exceedingly tight tolerances.



assembly. We can perform all aspects of such projects from design to finish, including the machining process, applications of special coatings and plating, assembling and testing of the final product," Dubinsky says.

Smith Bearing has a fully integrated manufacturing facility capable of producing high-precision needle roller

bearings that meet aerospace and industrial requirements. "Our computerized CNC grinding and precision machining centers are considered to be the most advanced in the industry," Dubinsky says. Its facilities are capable of manufacturing a wide range of products to exacting tolerances required by customers around the world. 

SMITH Bearing®

Manufactured by **ABC** accurate bushing company

Accurate Bushing's Smith Bearing division has received ISO 9001 and AS 9100 quality registrations in recognition of its continued commitment to world-class quality control systems. It has also achieved the requirements of Mil-B-3990 (SAE AS 39901).



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Precision-manufactured Smith-Rail hardened steel rails drastically reduce system design time and sourcing costs of guidance systems for material handling equipment. Engineered to be used with heavy-duty Smith-Trax track rollers, the steel rails are fabricated from 180,000 psi tensile strength steel in three profiles to maximum lengths of 12 ft. The exclusive Rail-Bearing contact surfaces are hardened to 60-65 Rc to match the strength of Smith-Trax V-groove, plain and flanged bearings and can take up to 71,500 lbs. loads per roller. Available with drilled, counter bored and tapped mounting holes if desired.

Learn more at http://www.accuratebushing.com/pdf/ABC_Smith-Rail.pdf



Before your MRO storeroom can be efficient, it must first be effective

Take STOCK of your spare parts STORAGE

BY JOHN ROSS

The new currency in the 21st century is delivery time. U.S. manufacturing developed a taste for this in the 1990s with Just-In-Time and Lean Manufacturing. The intent of these methodologies was directly in line with the fiscal imperative to cut inventory costs. Inventory, as a whole, was generally considered “non-value added.” Raw materials, finished goods, WIP and MRO inventory were thought to be less-than-ideal uses of the company’s capital.

Recognizing a need to move into the new century’s way of thinking, companies began to look at sharpening their processes with a presumption of increased efficiencies in order to survive in a world with little or no allowable inventories. The trouble is, their processes were never really effective to begin with. Increasing the efficiency of an ineffective process just gets you a really efficient, ineffective process.

Classic evidence of this “cart before the horse” approach is

seen throughout maintenance storerooms that have adopted, as a silver bullet solution, the process of bar-coding everything, and are now looking at RFID to improve efficiencies. Quite honestly, if you haven’t mastered pen and paper, this technology is likely to be over your head.

Turns out we were wrong about inventory and believing it to be non-value added. The chief error was in not recognizing that the “right” inventory is in fact an asset, and can lead to

the inventory process becoming a strategic value driver for an organization. But, as stated earlier, a storeroom has to be truly effective to be seen as having any level of value.

An effective storeroom must first set a solid foundation which will then allow for greater efficiencies in the future. This foundation consists of three organizational elements, and four primary (yet extremely critical) processes:

- FOUNDATION**
- Defined Space (Organizational)
 - Physical Organization (Organizational)
 - Security (Organizational)
 - New Item Set-Up (Process)
 - Ordering Parts (Process)
 - Receiving (Process)
 - Issuing (Process)

Defined Space. This is a location clearly defined by walls, fences or other permanent structures unambiguously denoting the area as part of the storeroom. Satellite locations are fine, as long as their jurisdiction is clearly under the purview of the storeroom. Any unauthorized scrounge or stash is not part of the storeroom and is to be used at the total discretion and to the total discredit of the owner.

Physical Organization. There has to be someone identified as being in charge. I always recommend, at minimum, a storeroom supervisor and a storeroom clerk. I encourage 24/7 coverage, but I understand the financial realities of operating a for-profit facility.

The main point to consider is that one can't expect full-time results with part-time help. The storeroom is a serious place, with serious fiscal responsibility, doing serious business. It requires serious people.

In regards to security, there is a very simple proverb that governs this tenet of creating an effective storeroom. If we consider that an effective storeroom is one that has what we need when we need it, we have to remember that, "A

CONTINUED ON PAGE 28

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storeroom's inventory accuracy will never (and I mean NEVER) be greater than its ability to protect what it already stocks." Securing the storeroom and its million dollar inventory is paramount to having solid inventory accuracy.

Stocked inventory is a living collection of materials that we have justified as being necessary to have on hand in support of the production effort and the good of the facility. The maintenance organization has the primary responsibility of telling the storeroom what items to stock and in what quantity. It is up to the storeroom to use their tools and formulas to maintain that stock.

In order for items to be installed as stocked items, the request and the part specifications need to be formally submitted in writing. A world-class storeroom does not respond to a verbal, "We need to start stocking some of these."

A new item set-up form will be submitted by the requestor and will include, as a minimum, the following information:

NEW ITEM SET-UP

- Nomenclature
- Where used
- Manufacturer part number
- Supplier part number
- Suggested supplier information
- Unit of issue
- Physical size
- Suggested quantity to stock (Min/Max or otherwise)
- Cost
- Suggested reorder point
- Suggested reorder quantity



For the nomenclature, I suggest you consider this format or something similar to it:

Noun, Attribute, Specifications, Further Detail

Example: Bushing: Taper-Locking, 2517, 2 3/16

The information ultimately gathered on the new item will be used to complete the *Item Master data* in the CMMS. Clearly, it makes sense for the requestor to provide as much of that information as possible.

Most industries utilize some sort of *Materials Requirement Planning (MRP)* for the automatic process of ordering parts. Commonly, when the inventory is established for a certain item, the reorder point and the reorder quantity are determined.

When stock levels match or go below the reorder point, then a purchase requisition is automatically generated for the reorder quantity. This is ideal. I still believe in some human interaction, and recommend that the stores supervisor review the listing of computer generated orders to confirm what is being ordered.

There are other instances where a part is not stocked and needs to be ordered, or where

an item is stocked, but at 0/0 levels, and has to be ordered when required. Ordering items that are not stocked items must be done with attention to the specifications of the part to facilitate the receipt of the correct item.

Once parts are received from the various suppliers and vendors, it is critical to confirm that there are no obvious signs of damage, that the delivery is accompanied by a bill of lading or other shipping document, and that the contents of the package match the information on the shipping documents. Next, the shipment must be reconciled with the purchase order. Proper reconciliation will ensure that what was ordered was what was received and paid for.

Reconciling the delivery with the order gives the purchasing department the clearance to honor the terms of the agreement and start the bill paying clock.

Receipts of stocked items should be accounted for promptly and restocked expeditiously. Receipts of items for job kits should be relocated immediately as well and the notification should be given to the appropriate planner/scheduler.

I subscribe to a growing philosophy that no MRO spare parts are to be purchased through stores that aren't meant as restock items or for corrective maintenance or preventive maintenance job kits. It is very common to have maintenance supervisors order items direct and then have them placed on a shelf in the storeroom until the supervisor comes and retrieves them. Time and time again, I've seen these items sitting on shelves, in factories, around this country. We need to stop doing that! To guard against such abuse and error, never order MRO spare parts unless they are ordered against an active and valid work order.

And finally, issuing parts is the process that rounds out our initial efforts to develop the foundation of our storeroom, and to ensure that it is effective.

There is one guiding principle when issuing parts from the storeroom. Stocked parts will only be issued against a valid work order. Under no circumstances will a part be issued that is not being done so against a work order. Most will say, perhaps even some of my colleagues, that for emergency work, we should do the work first and the paperwork later. There are no emergencies that cannot allow an extra two minutes to create a work order to track

labor, material, processes and other circumstances. A highly performing storeroom should and will have the ability to generate a work order in the time of great need. ☺

Dr. John Ross of the Marshall Institute has been a maintenance manager and plant engineer in the manufacturing, steel and food industries. He has consulted in about every other industry on the principles of World Class Maintenance. He holds an Associate and Bachelor's Degree in Electronic Engineering Technology, a Master's in Aeronautical Science, and a Ph.D. in Engineering Management. Learn more at www.marshallinstitute.com.



The advertisement features a collection of tools including a red air tool rack, a set of pliers, a large metal flange, a package of 'BUST A BOLT' tools, a set of sockets, and a blue tool chest. The King Tony America logo is prominently displayed at the top center, with the website address WWW.KINGTONYAMERICA.COM below it.

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Conveyor pulley case study

IDC Distributor Drives & Conveyors helps a coal producer solve a conveyor line problem

BY RICH VURVA

A major coal producer in southeast Kentucky was experiencing a problem with frequent breakdowns on a coal conveyor line. The company was utilizing QD style bushings on conveyors throughout the coal mine. Over time, the bushings – and sometimes the hubs themselves – would “back out” of the assembly. The problem caused disruptions in production while the lines were repaired.

The coal company contacted long-time supplier Drives & Conveyors, an IDC Distributor in Corbin, Kentucky, for advice.

Drives & Conveyors recommended a switch to the XT style hub and bushing system.

The XT series hub is the industry preferred offering for conveyor pulley applications. It was designed specifically for

rigid end disc drum and wing pulleys to reduce the occurrence of end disc failure as a result of shaft bending being transmitted to the hub and end disc.

The XT style bushing has a 2-inch taper per foot, which is steeper than the ¾-inch taper per foot on QD bushings. The steeper taper requires less axial movement in order to compensate for hub expansion

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FROM THE PLANT FLOOR

higher horsepower applications, and that's why these taper locks would not work," Apple added.

The new system that Drives & Conveyors put into place cost about 20 percent more, but typically last three times as long.

"We do a cost savings sheet for the customer. On this particular plant, we surveyed their conveyor pulleys and we highlighted the critical-need pulleys at one plant for a year. On all of the pulleys where we had to change the hub and bushing out, we changed to the new style. The first year they had to change the hub and bushing two times. With the XT in place, there was no change out," Apple said. 

as the bolts are tensioned. This results in less end disc pre-stress as compared to the QD style.

After the proper installation of the new hubs/bushings, the problem was solved.

"By going to the XT style, there was two inches of taper per foot. The QD style bushing they were

using was only rated for 3/4-inch for taper per foot. So you're getting more taper on your hub and on your bushing system for greater gripping power onto your shaft," explained Alfred Apple, president of Drives & Conveyors.

"Most of the failure comes from poor gripping power. Generally, the coal industry has

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Inspect your facility for CONFINED SPACES

BY MARK STROMME

It's not uncommon to hear the following, "Confined spaces? We don't have anything like that here." In the eyes of the Occupational Safety and Health Administration (OSHA) confined spaces can be dangerous places, especially if they fall into the category of permit-required confined spaces.

Employers are required to evaluate their workplaces and determine if there are any permit spaces. If you do find your facility has permit spaces, employees must be informed of them through the use of signs or other equally effective means and unauthorized entry must be prevented.

The consequences for failing to identify and assess confined spaces can be fatal. The death of a 52-year-old man, killed when a scrap metal baler started while he worked inside, could have been averted if his employer had made sure the machine was shut down properly, according to OSHA.

After a September 2014 inspection that followed the incident, OSHA investigators found numerous safety violations at the Denver-based scrap metal processing facility.

OSHA recognizes two types of confined spaces: non-permit and permit-required spaces

Definition of a confined space

OSHA defines a confined space at 29 CFR 1910.146(b) as a space that:

- Has adequate size and configuration for employee entry
- Has limited means of access or egress, and
- Is not designed for continuous employee occupancy

There are two categories of confined spaces. OSHA uses the term "non-permit" confined space to mean a confined space that does not contain or, with respect to atmospheric hazards, have the potential to contain any hazard capable of causing death or serious physical harm.

The idea is to identify these confined spaces, and to then focus on those with immediate health or safety risks, categorizing these as "permit-required" confined spaces.

Even more dangerous

This second category, a permit-required confined space, is a

confined space that presents, or has the potential for hazards related to:

- Atmospheric conditions (toxic, flammable, asphyxiating)
- Engulfment
- Configuration, or
- Any other recognized serious hazard

Once you have identified all permit-required spaces, the next step is to prevent unauthorized entry into them, and protect authorized workers that enter these spaces from hazards.

Exception

If there is no hazardous atmosphere and all other hazards are eliminated in the space prior to entry then you can reclassify the permit space as a non-permit confined space and no entry permit is needed.

Permit space program

OSHA requires you to protect authorized workers through a permit space entry program.

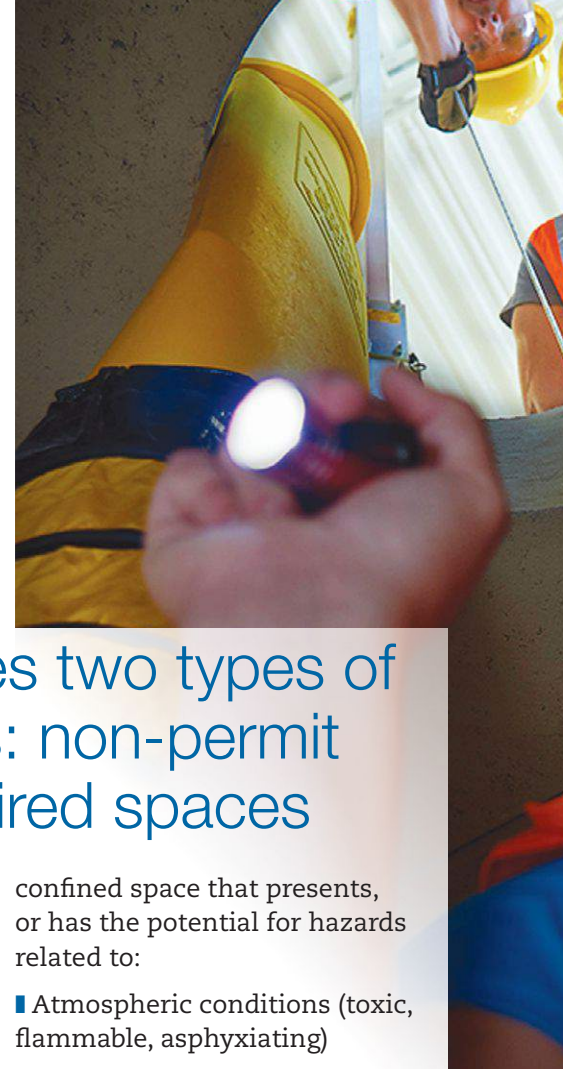
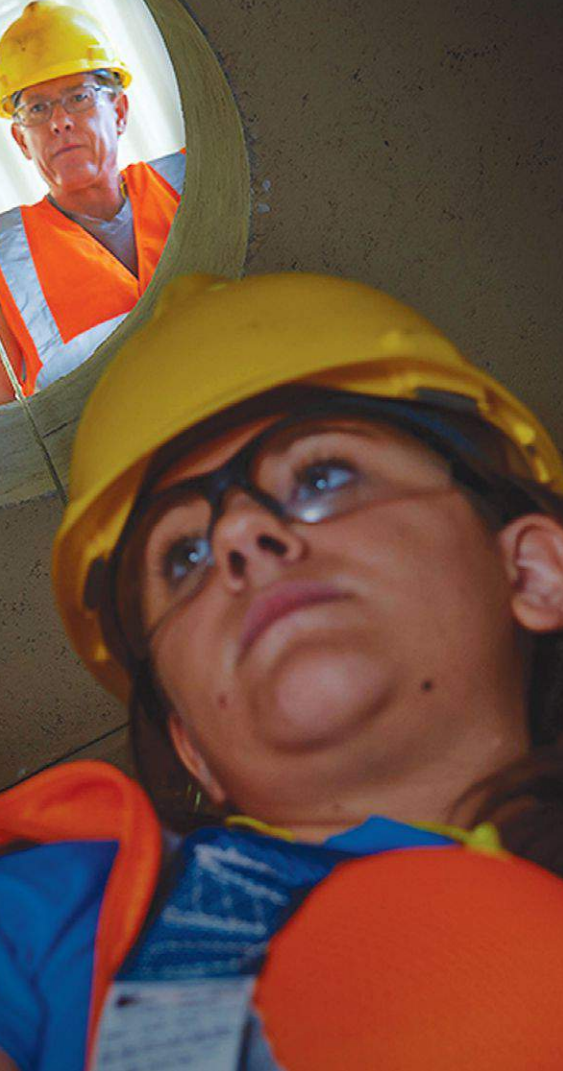


PHOTO: J.J. KELLER



A written program must be developed to prevent unauthorized entry, to identify and evaluate confined space hazards, and to establish procedures and practices for safe entry, including testing and monitoring.

Under the program, employers must also:

- Provide specified equipment to employees involved in confined space entry
- Have an attendant stationed outside permit spaces during entry
- Establish procedures to summon rescuers and prevent unauthorized personnel from attempting rescue, and
- Develop a system for preparing, issuing, using and canceling entry permits

In addition, procedures must be in place for coordinated entry when employees of more than one employer are involved. A review of the permit program must take place at least annually.

Citations

In the example of the fatality related to the scrap metal bailer accident, the employer was cited for failing to properly assess the permit-required confined space and to lock out the energized baling machine. OSHA determined these were two of the violations that led to the fatality.

Assessing the permit-required confined space is a specific requirement of the permit space program. As mentioned in the exception above, an employer may be able to reclassify the permit space as a non-permit confined space and then no entry permit is needed.

If that is not the case, then the identification of the hazards in the space is needed. In the example cited, an evaluation would have indicated that there were hazardous moving parts that needed to be isolated.

Checklist

There are many details and conditions to think about when developing a permit space program and before allowing entry by employees. Here's a list of questions to ask when putting the program together.

- 1) Have all confined spaces and permit-required confined spaces been identified?
- 2) Are danger signs posted (or other equally effective

means of communication) to inform employees about the existence, location and dangers of permit-required confined spaces?

- 3) Is the written permit-required confined space entry program available to employees?
- 4) Is the permit-required confined space sufficiently isolated? Have pedestrian, vehicle or other necessary barriers been provided to protect entrants from external hazards?
- 5) When working in permit-required confined spaces, are environmental monitoring tests taken and means provided for quick removal of welders in case of an emergency?
- 6) Are authorized entrants or their representatives provided an opportunity to observe any monitoring or testing of permit spaces?
- 7) Has the permit space been tested to determine if acceptable entry conditions exist prior to entry?
- 8) When testing for atmospheric hazards, has oxygen been tested for first, then combustible gases and vapors, and then toxic gases and vapors?
- 9) Is ventilating equipment available to obtain acceptable entry conditions?
- 10) Has the permit space been flushed, ventilated, purged and rendered inert to eliminate or control atmospheric hazards prior to entry?
- 11) Is the permit space being

CONTINUED ON PAGE 34

tested or monitored as necessary to determine if acceptable entry conditions are being maintained during the course of entry operations?

- 12) Is approved respiratory equipment required if the atmosphere inside the confined space cannot be made acceptable?
- 13) Before gas welding or burning is started, are hoses checked for leaks, compressed gas bottles forbidden inside of the confined space, torches lighted only outside of the confined area and the confined area tested for an explosive atmosphere?
- 14) If employees will be using oxygen-consuming equipment such as salamanders, torches, furnaces, etc., in a confined space, is sufficient air provided to assure combustion without reducing the oxygen concentration below 19.5 percent by volume?
- 15) Whenever combustion-type equipment is used in a confined space, are provisions made to ensure the exhaust gases are vented outside of the enclosure?
- 16) If the confined space is below the ground and near areas where motor vehicles will be operating, is vehicle exhaust or carbon monoxide prevented from entering the space?
- 17) Are confined spaces thoroughly emptied of any corrosive or hazardous substances, such as acids or caustics, before entry?
- 18) Are all lines to a confined

space containing inert, toxic, flammable or corrosive materials valved off and blanked or disconnected and separated before entry?

- 19) Is each confined space checked for decaying vegetation or animal matter which may produce methane?
- 20) Is the confined space checked for possible industrial waste which could contain toxic properties?
- 21) Is necessary personal protective equipment available?
- 22) Has necessary lighting equipment been provided?
- 23) Is required personal protective equipment provided by the employer at no cost to employees?
- 24) Does the employer pay for replacement PPE, except when the employee has lost or intentionally damaged the PPE?
- 25) Has equipment, such as ladders, needed for safe ingress and egress by authorized entrants been provided?
- 26) Is rescue and emergency services equipment available?
- 27) Is it required that all impellers, agitators or other moving equipment inside confined spaces be locked-out if they present a hazard?
- 28) Is all portable electrical equipment used inside confined spaces either grounded and insulated, or equipped with ground fault protection?
- 29) Before permit space entry



operations begin, has the entry supervisor identified on the permit, signed the entry permit, to authorize entry?

- 30) Has the permit been made available at the time of entry to all authorized entrants or representatives by being posted at the entry portal, or by other equally effective means, so that entrants can confirm that pre-entry preparations have been completed?
- 31) Is at least one attendant stationed outside the confined space for the duration of the entry operation?
- 32) Is there at least one attendant whose sole responsibility is to watch the work in progress, sound an alarm if necessary, and render assistance?
- 33) Is the attendant trained and equipped to handle an emergency?
- 34) Is the attendant or other employees prohibited from entering the confined space without lifelines and

respiratory equipment if there is any question as to the cause of an emergency?

- 35) Is communications equipment provided to allow the attendant to communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the permit space?
- 36) Are those having active roles in entry operations appropriately designated (for example, authorized entrants, attendants, entry supervisors and persons who test or monitor the atmosphere in a confined space)?
- 37) Have all prospective rescuers been selected and evaluated?
- 38) If employees are designated to provide permit space rescue are they provided needed personal protective equipment?
- 39) Are employee rescuers trained properly?

The bottom line

The accident at the scrap metal processing facility prompted this comment from OSHA's Denver area director, "Enclosed machinery and unprotected moving parts can be fatal. If [the employer] had followed simple, well-known safety practices for turning off machinery before allowing employees to work inside, this tragic incident could have been prevented."

This is the kind of publicity your company does not need. Follow the safety practices mentioned here to protect your employees and allow them to go home at the end of their shift. ☺

Mark Stromme joined J. J. Keller & Associates Inc. in 1994. With a background in monitoring Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA) and Department of Transportation (DOT) regulations, he currently specializes in the OSHA 1926

construction and 1910 general industry regulations. His focus is on oil and gas safety, construction safety, electrical safety, mobile cranes, scaffolding, excavations and fall protection. As the lead construction safety editor, he is the subject matter expert for California OSHA (Cal/OSHA) issues and questions.

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For tough jobs, count on **SPX Power Team** hydraulic tools

Recognized around the world for performance, reliability and durability

BY CLAIR DAVID URBAIN

When it comes to heavy lifting, pushing, pulling, spreading and torquing or tensioning applications, industry professionals around the world look to the SPX Power Team, reports Rick Swansbro, director of channel development at SPX Hydraulic Technologies.

Power Team pumps, cylinders, jacks, tools, torque tools and accessories provide a broad line of high-force hydraulic tools needed in industry today. Power Team brand products are built to withstand the rigors of the most demanding applications related to non-residential construction, industrial in-plant, mining, oil and gas, power generation, rail car repair, shipyards and many more industries.

Power Team pumps: The heart of the line

When customers see the Power Team logo, they think of Power Team pumps. Recognized throughout the world, Power Team pumps are known for

quality, reliability and durability on the job site.

“SPX Hydraulic Technologies offers a broad range of Power Team pump options designed to meet industry need for a wide range of work applications. Power Team offers a range of hydraulic pumps powered by hand, electric, air, gas or battery. Whether the work is performed under roof or in extremely remote locations, Power Team products offer a working solution to meet the most demanding job requirements,” Swansbro says.

Recognized by their conspicuous orange color, Power Team pumps match with a broad portfolio of single-acting, double-acting, low-profile and center-hole lifting cylinders capable of lifting and, in some cases, pulling applications.

These same pumps are covered by the Power Team Powerthon lifetime warranty, which protects against defects in workmanship and material. “If a Power Team pump or other tool is repaired



by an authorized service center, it is returned to factory specifications,” Swansbro says.

Applications where hydraulic pumps must work are generally somewhat difficult environments. “Products are typically applied in every type of environment ranging from dust and dirt to temperature extremes. In addition to these challenging environments, tools often get dropped or bumped

during transport and/or use. Users frequently report that Power Team pumps continue to perform reliably many years, if not decades, after being placed in service. As with most products, we recommend proper care and maintenance of Power Team products to insure a long and productive life. After all, performance and reliability are critically important on remote job sites," he says.

> Pump Technology: continuous improvement

SPX Hydraulic Technologies continues to design and manufacture new and improved pump technologies. The most recent addition to the family of hydraulic pumps is the new PE45 Infinity Series pump, marketed under the SPX Bolting Systems brand. Unlike typical hydraulic pumps, the PE45 Infinity Series pump offers more than twice the flow of a standard two-stage, hi-low pump. Flow is continuously variable up to 10,000 psi (700 bar). This additional flow enables torque wrench tools to operate faster and get the work done faster and more efficiently.

When matched with SPX Bolting Systems torque tools, users report a significant gain in productivity. The added flow from the PE45 pump, combined with the faster operation of SPX Bolting Systems TWHC series square drive torque wrenches, yields up to a 40 percent percent gain in productivity. "This gain in productivity offers end-users a shorter payback period as well as a greater return on investment to the benefit of the end-user," he says.



> Torque Tools: A tool to fit the job

Adjacent products to the PE45 Infinity series torque wrench pump include a broad range of torque tools designed to meet the demanding requirements of proper joint integrity. SPX Bolting Systems offers a comprehensive family of square-drive and low-clearance torque wrenches to fit the needs of today's industry. Labor-intensive jobs such as erecting wind towers, assembling and maintaining oil and gas platforms or constructing pipelines are performed safely, accurately and productively with SPX Bolting products.

TWHC Series square-drive torque wrenches work with various size impact sockets and are rated to a maximum torque value of up to 53,000 ft.-lbs. (71,816 Nm). The steel body construction is two-thirds the

envelope size of a comparable aluminum wrench, yet has the same weight as a similar-sized aluminum wrench. Unlike aluminum torque wrenches, the TWHC square-drive torque wrench is constructed of steel, which resists twisting under load. This design requires fewer individual parts while offering ease of operation and greater accuracy and productivity on the job site.

For less accessible areas, SPX Bolting Systems offers a TWLC Series of low-clearance torque wrenches. With a shorter height and small radius, this family of torque tools has a rated torque value of up to 28,800 ft.-lbs. (39,024 Nm). Each low-clearance torque wrench offers a wide range of fitted links respective of the "across the flats" dimension of bolts to be tightened or loosened. These links are designed to be quickly changed at the job site, depending on bolt size.

CONTINUED ON PAGE 38



SPX[®]



For difficult bolting applications that have corroded to the point that a hydraulic torque wrench is not an option, SPX Bolting Systems offers a hydraulic nut splitter. The ENS hydraulic nut splitter offers a safe and reliable solution to removing seized and/or corroded fasteners.

Adjacent products: Beyond the pump

End-user job solutions depend on a system typically comprised of a pump as well as a cylinder or tool joined by accessory products. In addition to a broad portfolio of pump options, Power Team products also offer a comprehensive line of cylinders, jacks, tools and accessories.

Power Team cylinders are offered in a number of lifting configurations such as single-acting power-extend with spring-force retract, double-acting power-extend and power-retract, low-profile, center-hole and mechanical-locking cylinders. Also available are a family of aluminum cylinders that are half the weight of comparable steel cylinders.

Another option for lifting includes the Power Team IJ series inflatable air jacks. Available in rated tonnage

of one to 74 tons of initial lifting force, Power Team inflatable jacks work with 116 psi (8 bar) of pneumatic pressure to achieve their rated lifting capacity. With a collapsed thickness of 1" (25 mm), each inflatable jack can be applied in small areas. With a non-conducting surface area, each inflatable jack features a skid resistant, interlocking pattern to assist in aligning two inflatable jacks. Power Team does not recommend stacking more than two inflatable jacks. A Power Team air controller may be used to control one inflatable jack. This control valve features a pressure regulator, pressure gauge and push-button control of inflation and deflation of the inflatable jack.


Power Team systems are used throughout the world to construct and/or maintain a wide range of applications. From simple hydraulic cylinder jacks to sophisticated motion control and post-tensioning concrete

reinforcement systems, Power Team systems can be matched to specific job needs.

Service and aftermarket support

SPX Power Team products are available through IDC Distributors. "We expect our distributor partners to meet prescribed performance standards. To be considered as an authorized Power Team service center, current and prospective service centers must successfully complete a physical shop inspection and survey, successfully complete a 3.5-day service training school at SPX Hydraulic Technologies in Rockford, Illinois, and carry a recommended portfolio of service parts inventory," Swansbro says.

Another element of aftermarket service and support includes Power Team safety seminars. SPX Hydraulic Technologies district managers conduct Power Team safety seminars at the customers' work site. With individual focus on basic pulling applications and/or hydraulic applications, customers learn the proper application and use of Power Team pumps, cylinders, tools and accessories.

"We strive to develop a close relationship among our distributors and end-users. That relationship helps us meet their needs for a reliable and dependable solution to their work needs," Swansbro concludes. 



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To learn more about how doing business with an IDC Distributor can benefit you, contact your local IDC Distributor today.



IDC-USA®

RACE FINISH TO THE START

IDC Distributor helps college team compete in 2015 Baja SAE Collegiate Design Series

BY RICH VURVA

Thanks in part to a donation of IDC Select bearings from a Minneapolis area IDC Distributor, a team of engineering students competed in a design competition with college students from around the world.

The Blue Devil Racing Team from the University of

Wisconsin-Stout was one of about 100 teams competing in the 2015 Baja SAE Series event at Auburn University in Alabama in April. The three-day event is an intercollegiate design competition run by the Society of Automotive Engineers. It gives students an opportunity to design and build an off-road vehicle that can endure

punishing hill climbs, chain pulls, rock crawls and other tests of maneuverability and endurance.

The competition requires students to learn how to work together not only to design and build the vehicle, but to raise financial support in order to compete. Each team is required to use the same Briggs & Stratton 10 Hp engine model, which costs \$250, and the entry fee for the competition is \$1,150. Including travel expenses, the team raised more than \$3,000 through fundraising efforts.

Teams are judged on a variety of factors, not just on the performance of the vehicle. Vehicles must pass a rigorous safety inspection and the teams must show how much it cost to design and build their car. The premise behind the Baja SAE competition is to compete for a fictitious contract to manufacture their vehicle.

The design coordinator on the

A team of engineering students from the University of Wisconsin-Stout competed at the 2015 Baja SAE Collegiate Design Series at Auburn University in Alabama.





The Blue Devil Racing Team from UW Stout used gears donated by IDC Distributor ISC Companies for a redesigned gear box (below).

UW-Stout team, Jake Heitzinger, is majoring in Engineering Technology and has worked part time for IDC Distributor ISC Companies in Plymouth, Minn. His father, Joe Heitzinger, is a designer in ISC's machine shop. The team asked ISC Companies to donate bearings for a redesigned gearbox that would be used in the car they were building for this year's competition.

The team decided to undergo a major redesign of its custom gearbox for this year's event after the gearbox built in 2014 failed to perform up to expectations. The transmission failed on a hill

climb test, which prevented the Blue Devils from competing in the four-hour endurance event.

"We found out at competition, contrary to tests that we performed, the gears were not strong enough. This caused stripping of almost all of the teeth in the last three gears," explained team member Patrick Rohlfing in an article he wrote for an SAE International student publication.


The new gearbox uses a 11:1 reduction rather than the 13:1 reduction used in last year's gearbox. The goal was to get a slightly higher top speed and reduce stress on the gears. This year's gearbox design also incorporated heat-treated steel and a custom-built hex shaft.

"We decided to manufacture the hex shaft rather than purchase it because we can obtain a higher tolerance than with purchased hex stock. The gears will then be held in place by precision aluminum spacers



for the larger gaps and steel precision spacers for the smaller gaps, Rohlfing explained. The team asked the ISC Companies machine shop for help with some of the precision machining required to complete the gearbox.

"We wouldn't be anywhere without the bearings provided by ISC Companies. The whole project wouldn't have been possible without our sponsors," said Matthew Fox, president of the UW-Stout Baja team. ISC Companies was one of five companies that donated products or manufacturing support for the redesigned gearbox.

"It was cool how everyone worked together," Fox said. 



Think like an OWNER

Engaged and empowered employees make stronger companies

BY MICHAEL HOULIHAN & BONNIE HARVEY

We all know that today's companies need to be more nimble, innovative and entrepreneurial and that this shift begins with employees. The good news is there are some very specific steps you can take that will start to change your company's culture.

Read on for a selection of tips excerpted from our book, *The Entrepreneurial Culture: 23 Ways to Engage and Empower Your People*, on how to create an entrepreneurial culture at your organization.

Hire for hustle

A great way to separate the entrepreneurial thinkers from those who aren't is to place a special emphasis on hiring people with a sense of urgency; people who can and will move quickly; people who don't always have to be told what their next step should be. In other words, don't hire solely based on someone's technical skill set. You can always teach that. You can't teach the other stuff—and that other stuff is what will make the difference between an average company and a great company.

Don't skimp on training

Many companies approach

orientation like it's a formality. New employees are ushered in, given a quick tour of the workplace and a rundown of the benefits offered, and then they're expected to get right to work. Well, this minimalist approach to training can have some counterproductive consequences, especially where judgment, relationships and potential are involved.

Yes, being thorough with training will take more time, energy, and maybe even money on the front end, but the long-term benefits of making sure your people know not just the 'whats' but also the 'whys' of their jobs will be worth it.

Use performance-based compensation

When you have a compensation plan based on an hourly rate, you're paying for attendance, not production. Regardless of how much they do or don't accomplish, your employees will have an "I was there; pay me!" attitude, and can you blame them? Performance-based compensation is better for everyone: you, your employees, and your company as a whole.

Get out of their way

When your company isn't

able to meet its goals, your first inclination might be to blame your employees for being unable to execute. But you should take a look in the mirror before doling out blame. That's because often, leaders who want to blame their employees for not executing are actually using a leadership style that is keeping people from getting things done.

Do you find it difficult to delegate important projects? Do you refuse to let their work see the light of day until you've personally reviewed it, leaving them twiddling their thumbs until they've received your feedback? Do you insist on running every new idea through legal before letting an employee pursue it? Are you a micromanager?

If so, it's important to stop, step back, and show your people that you trust them to make important decisions and do important work. When you do, you'll give your team the freedom they need to help move the company forward—and you'll free up a lot of time and energy for yourself, too.

Delegate effectively

There's a misconception that many leaders simply refuse to relinquish control of any of their





everyone understands that great ideas are always welcome. Then, give your employees the freedom to move forward on projects, even when conditions aren't exactly sunny.

The truth is, conditions will never be perfect for any idea or initiative. Instead, you need to settle for 'mostly sunny with a chance of showers' or even 'light drizzle,' and plan to get a little wet. Keep in mind that if your employees don't ever feel comfortable enough to share these ideas or launch these projects, your company will definitely never benefit from them.

Never waste a good mistake

Most leaders look at mistakes as something to be avoided, and as a result, they pass that sentiment down to their employees. But the most innovative, agile companies embrace mistakes. When you move from a culture that punishes mistakes to one that embraces them, your employees will have the freedom to take risks, and that's where entrepreneurial thinking leads to great innovation.

When an employee makes a mistake, you want a culture that encourages him or her to learn from the mistake and change what led to it rather than a culture that encourages him to fear punishment and sweep that mistake under the rug.

Always ask yourself, "How would I like it?"

Relationships have never been more important. A great way to ensure everyone at your company

is committed to building strong relationships is to constantly ask, How would I like it?, otherwise known as the Golden Rule for business professionals. Regularly ask yourself the following questions and answer honestly—even if it's uncomfortable:

- *Would I want to work for an employer who treated my labor as a commodity? Or would I prefer an employer who sees people as assets, rewarding them for performance and acknowledging their achievements?*
- *Am I open and honest with employees about where the company stands, what challenges we're facing, and what I want?*
- *Would I buy from a company that treated me like a pain in the neck if I had a problem with their product, or would I prefer to buy from a company that thanked me for bringing my concerns to their attention?*

Say, "thank you"

Making gratitude part of your culture plays an essential role in creating employees who feel empowered and engaged. In truth, you should be saying thank you to everyone you come into contact with through your company. Everyone, from employees to colleagues to vendors, will respond positively when you say—or better yet, demonstrate—your thanks.

When your employees work hard on your company's behalf, they deserve your thanks and appreciation. Don't take them for granted. ☺

Michael Houlihan and Bonnie Harvey are coauthors of *The Entrepreneurial Culture: 23 Ways to Engage and Empower Your People* (Footnotes Press). They coauthor weekly business blogs at www.thebarefootspirit.com and www.thebrandauthority.net.

tasks or projects to one of their subordinates. But often, it isn't about control. Many leaders want to delegate, but they don't want it to look like they're just dumping unwanted tasks on their employees, or they don't feel they have the time needed to train an employee to do a task.

Start handing over those tasks and projects that your employees can do or can almost do without your input. Trust their expertise and trust that if they really hit a wall, they'll come to you. Everyone has a unique set of skills, abilities and talents. Often, your people will have firm—and sometimes surprising!—ideas about what they'd like to take on.

Don't wait for perfectly sunny conditions

To create a culture where entrepreneurial thinking can thrive, you must make sure



Tips for building a strong service team

BY RON KAUFMAN

Service in many industries and at many companies can be downright disappointing. But you can change that. Here are some tips to strengthen your company's service.

Give employees the leeway to make in-the-moment decisions. "Empowerment" is a buzzword in business, and in theory, we all understand that improved service is unlikely to happen inside or outside of an organization without it. Yet many leaders and employees seem to fear it. If a leader is not confident in his or her people, they won't be empowered with greater authority or a larger budget. And if an employee is

not confident in his abilities and decisions, he often does not want the responsibility of being empowered.

Don't overcomplicate service. Work with your employees to switch their focus from 'What should I do?' to 'Who am I serving and what do they value?' And then let them know you trust them to make the right decision so that they feel empowered to act.

Have mistake meet-ups. Another big part of empowerment is demystifying the fear that comes along with making a mistake. Have a meeting and say, "We want learning from mistakes to be part of our culture." Kick

off the meeting by saying, "I'll go first. Here's the biggest mistake I made last week. Here's what I learned from it. What can I learn from you?" When everyone shares in that way, it makes them feel safer. It gives them the freedom to try new ideas and to take new actions.

Acknowledge achievements. Compliments are highly motivating and inspire employees to keep coming up with newer and better service ideas. That's why you should a) actively solicit feedback from customers, and b) regularly share positive comments with employees. The great thing about acknowledging achievements is that you can get a big impact out of simple actions. For example,

simply saying, “Thank you!” to an employee who handled a customer well or tweeting a message about the employee of the week can go a long way.


Teach employees to solicit customer feedback at various points of contact. Asking, “Is there anything we can do better for you the next time?” accomplishes two important objectives. First, you gather valuable ideas. Second, you get the customer thinking about doing repeat business . . . the next time.

Even if a customer doesn’t have a recommendation, trust that they’ll be glad your employee cared enough to ask.


Train them to tell customers what they will do. When there is a mistake or mishap, explain what steps you will take and when you will get back in touch with the results. Thank them for giving you the opportunity to set things right.

The first step when a mistake has been made, or even just when a customer perceives that a mistake was made, is to apologize. Once you’ve apologized, provide any useful information you can about what will happen next. Ask them if they have any questions and answer them to the best of your ability. If you don’t have an answer, let them know what steps you’re going to take to find it.

Finally, show you are sincere about your commitment to do well in the areas the customer values. At the very least, you can say, “I’m going to make sure

everyone in the company hears your story. We don’t want this to happen again.” When you express the company’s desire to improve, you start on the path to rebuilding its credibility with the customer. 

Ron Kaufman is author of the book *Uplifting Service: The Proven Path to Delighting Your Customers, Colleagues, and Everyone Else You Meet*. Learn more at www.upliftingservice.com.



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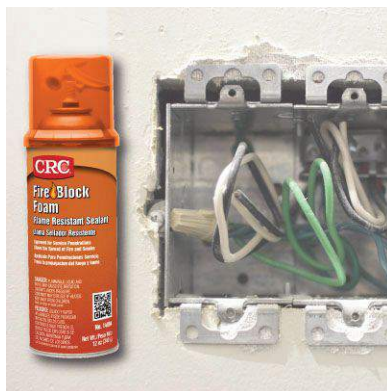
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IKO offers a unique maintenance free C-Lube unit to be mounted on the outside diameter of cam followers. Periodic lubrication is no longer necessary and the CL unit provides the necessary lubrication to the external track surface. The CL Unit provides a worry free long-term maintenance solution that will prevent the rust caused by too little lubrication, and the sticky residue that is left when there is too much lubrication. For more information or to order, contact your local IDC Distributor or visit www.ikont.com.

Koyo heavy stud track rollers expansion

Koyo is pleased to announce the addition of heavy stud track rollers to their product offering. The heavy stud series of cam followers offers a full complement of rollers for high radial capacity and are made with black oxide treated steel on external surfaces for corrosion resistance. They are ideal for applications experiencing heavy dynamic loads/high static loads. Contact your local IDC Distributor or visit www.koyousa.com.



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