IDC Industrial Review

TAMING THE MRO BEAST

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FALL | WINTER 2011

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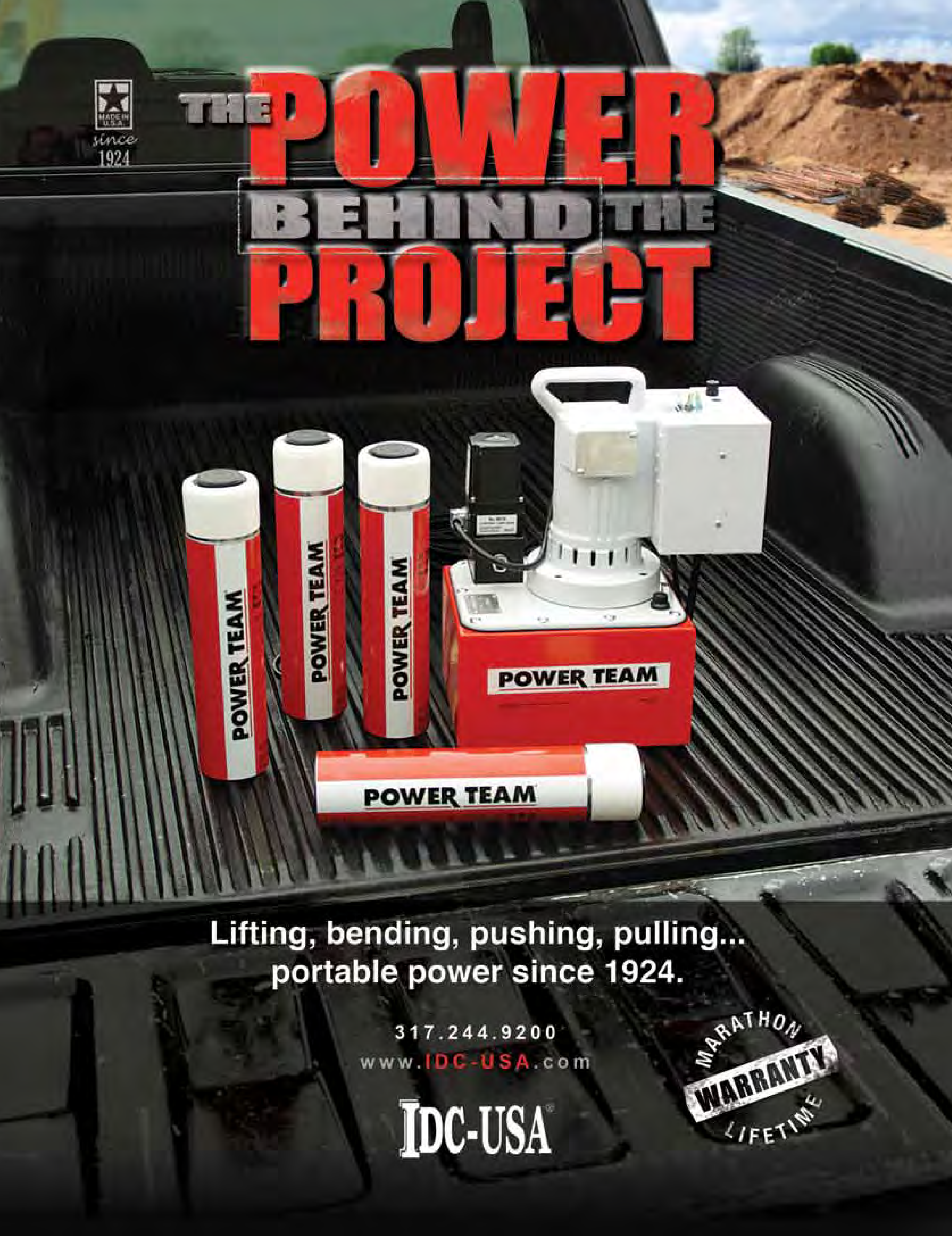
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CONTENTS

FALL | WINTER 2011 | VOLUME 5 NO. 2

FEATURES

DEPARTMENTS

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The difference between business and government

JACK L. BAILEY

Unless you're living under a rock, hardly a day goes by that you won't come across some article, newscast, or commentary on the U.S. economy. At the center of the controversy has been the issue regarding whether to raise the debt ceiling. The lack of leadership in Washington, D.C., had created a deadlock on resolution of the issue which resulted in a great deal of panic in some sectors. Both sides of the aisle reached a "compromise" to avoid the real or imagined disaster that was to occur. I was amused during one of the president's addresses to the public that he felt the need to explain "debt ceiling" as a term that "most people outside the beltway have never heard."

My amusement wasn't politically based, but rather that politicians holding the purse strings of government live in a different world from those of us working, running businesses and creating jobs. I would make no reservation in telling all of our elected officials that the business people I deal with on a daily basis have a far better understanding of finances, revenue, expenses and balanced budgets than the vast majority of those individuals sitting in Washington's seats of power. Trust me, the manufacturing plants, distributors, and suppliers of our industry don't need an explanation of debt ceiling.

As complicated as it may seem for those in D.C., manufacturers and distributors in the business world have a pretty good grasp on concepts like "not spending more than you have," or "if you want it, but don't have the money for it, you can't have it." These are not complicated concepts for "most people outside the beltway."

I've been around the globe a few times and I can tell you that the United States, all of our problems notwithstanding, is still the leader in business and looked upon as the "crown jewel" market by most countries. (My suspicion is that this success is the result of not allowing politicians to manage our finances or our businesses.)

This issue of *IDC Industrial Review* provides a great sampling of why business in the U.S. leads the world. You'll see how Kimball Midwest has used innovation and efficiency to improve the productivity on the plant floor. Obviously, the environment is an extremely important issue in our "go green" attempts. Our Product Profile section shows why SpillTech and MolecuLoc are leaders in the spill containment world, whether dealing with that old "leaker" on the plant floor or fighting an oil spill in the gulf. Lastly, our Manufacturer Profile shows why Veyance Technologies/Goodyear is still a leader in the industry.

As we head into the fall and winter seasons, our IDC Distributor-Owners wish you the very best in success and stand ready to offer their local expertise for your industrial needs.

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AD INDEX

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IDC-USA

Energizer provides IDC-USA Distributors with one-stop shop for batteries and lighting

Energizer recently joined IDC-USA as an IDC Preferred Supplier, providing IDC Distributors and their end customers with a comprehensive line of batteries and lighting products.

With world headquarters in St. Louis, Energizer Holding Inc. serves 165 countries and is a well-known and respected brand. The company's extensive portfolio provides consumers with solutions to their portable power, household and specialty battery and lighting needs better than anyone. With a long and proud history of innovation, Energizer products are built with the needs of the user as their first priority.

"Energizer is a premium brand reflecting a dependable product consistent with IDC-USA's standards. We feel that our partnership with them will provide category expertise and best-in-class solutions and programs to help our distributors grow their businesses," said Todd Carroll, vice president of IDC-USA.

"Energizer is thrilled to be a preferred supply partner with IDC-USA! We believe our products will complement IDC-USA's core items and provide new and increased growth opportunities for IDC-USA Distributors as well as Energizer, while helping customers easily procure batteries and portable lighting products at fair prices – everyone wins," said Peter Nario-Redmond, key customer manager for Energizer.

Kimball Midwest's superior industrial maintenance expertise helps IDC Distributors' customers cut costs

Headquartered in Columbus, Ohio, Kimball Midwest has been serving customers with excellent service and products since 1923. The company, a major force in the industrial maintenance aftermarket with unlimited growth potential, recently joined the IDC-USA family as a preferred supply partner.

Kimball Midwest is the leading provider of MRO products and solutions throughout the United States, and serves customers from distribution centers in Columbus, Ohio; Grand Prairie (Dallas), Texas; and Reno, Nevada.

"Kimball Midwest is excited to partner with IDC-USA. Our partnership ultimately offers greater flexibility to customers seeking access to a much broader range of services. We believe our MRO vendor managed inventory program will advance the IDC Distributors' ability to provide unparalleled MRO solutions to the industry today," said Curt Campagna, director of strategic sales with Kimball Midwest.

Todd Carroll, vice president of IDC-USA, said, "Kimball Midwest's combined offering of a full line of American made, demonstrably superior quality products and a tenured, trained national sales force, enable our IDC Distributors' customers to improve the effectiveness of their maintenance departments and reduce their overall costs associated with MRO products. We look forward to a long and prosperous partnership with Kimball Midwest." To learn more, see our story on page 12.

P.T. International Corp. adds range of metric and American Standard industrial power transmission products

The most recent preferred supply partner to join IDC-USA is P.T. International Corp. (PTI). Based in Charlotte, N.C., since 1994, the company offers a wide range of high-quality European Metric and American Standard Industrial Power Transmission Products. Its European specialty products include Eich Spring Bush and WC/Split Bearings, Winkel Linear Bearings and Profiles, Köbo engineered conveyor chains and branded components.

PTI stocks a complete range of mounted bearing and drive related products for expedited shipping. Due to P.T. International's global reach, the company also provides manufacturing options that help control or reduce cost. Additionally, it produces custom parts and modifies existing designs.

"PTI looks forward to our new partnership with IDC Distributors. I believe they offer strong application support to customers and will be focused on growth markets for the future. Metric products will become a larger part of our domestic mix of products, and PTI's range will serve this addition well," said Tom Haffner, president of P.T. International Corp.

IDC University Online

IDC University Online (powered by BlueVolt) is an exciting new addition to IDC-USA's educational initiative that provides an online source for all of your industry training—with a comprehensive educational platform to foster professional and organizational development. Recognizing that budgets are limited and travel time is hard to schedule, IDC University Online allows students to learn from the ease of their own office or home and at their own pace.

To learn more about IDC University Online, visit www.IDCuniversity.com.

Silverthin thin section and slewing bearings

Silverthin Bearing Group, a leader in manufacturing thin section bearings and slewing ring turntable bearings, has announced an expansion of its distribution agreement with IDC-USA to offer slewing ring bearings in addition to thin section bearings for North American markets.

Silverthin and IDC-USA announced an initial distribution partnership in the summer of 2010.

Silverthin Thin Section Bearings are manufactured in the United States and designed for the aerospace, industrial, robotics and distributor markets. These thin section bearings are available in standard configurations, sealed and unsealed, and are engineered up to 40 inches in diameter. Silverthin slewing rings are domestically and internationally manufactured to offer a complete product selection for North American markets in sizes ranging from a few inches to 25 feet in diameter.

"One of IDC-USA's goals is to provide an ever-expanding array of new products and services for IDC Distributors. Silverthin offers a quality domestic product and delivers exceptional service and quality for its expanded slewing ring offer, which makes them a perfect fit for this goal," said Todd Carroll, vice president of IDC-USA.

"We're very excited to expand our partnership with IDC-USA by offering our complete product line of domestic thin section bearings as well as a total slewing ring package. We are pleased this expansion provides greater product breadth for this elite group of independent distributors," added Scott Eiss, national sales manager of Silverthin.

U.S. Seal Manufacturing offers replacement seals for food, dairy and beverage processing

U.S. Seal Manufacturing has expanded its product line to include the Value Guard Food Service line of replacement mechanical seals and components. The products are used on centrifugal and positive displacement pumps and related equipment throughout the food, dairy and beverage industries.

These quality items can be used with confidence, as the VGFS line meets all applicable sanitary and quality standards. Seal elastomer components are manufactured to 3A standards, and all seal faces are GRAS. When installing these seals, U.S. Seal Manufacturing recommends using its U.S. Sealube, which is NSF-Registered as a H1 lubricant and also meets FDA regulation 21 CFR 178.3570.

Renold expands product line

Working to fill a gap in the market, Renold Inc. has expanded its product offering to include large sprag holdbacks. Gear box backstops and cage assemblies are among the products included in Renold's expansion, which are available now through your local IDC Distributor.

SPX now offers hydraulic workholding products

SPX has expanded its product offering to include Hytec hydraulic work holding products (www.hytec.com), now available through IDC Distributors.

Hytec's advantages include:

- precisely controlled clamping forces
- continuous pressure, stall-type systems increase safety
- reduced vibration of work piece and tooling for increased quality
- faster feeds and speeds . . . longer tool life
- reduced scrap and rework
- faster load/unload cycles
- fully automated systems capability
- fully adaptable to multi-station hydraulic clamping applications
- designed for simple installation in your present or planned fixtures
- improved ergonomics

Key markets for Hytec include aerospace, machine tool, fixture and tool and die.

Taming the MRO beast

A vendor managed inventory program from Kimball Midwest helps customers of IDC Distributors control their maintenance costs

BY DAVID MYERS AND RICH VURVA

PHOTO: © CLAUDIAD

Often it's the little things that add up to make a big difference.

Take maintenance and repair products, for example. Despite their relatively low cost, items such as fasteners, cutting tools, abrasives and chemicals are a major concern for many companies. These products are essential to keeping factories and other facilities running efficiently and effectively.

If not managed properly, the cost to obtain and store these low-dollar items that are consumed in large amounts by industries of all types can quickly spiral out of control. Left untamed, the MRO beast can consume large amounts of time and money.

A new partnership between IDC-USA and Kimball Midwest aims to help customers of IDC Distributor-Owners reduce their overall MRO costs. The company has partnered with IDC-USA to provide a vendor managed inventory program focusing on MRO supplies.

"Our partnership ultimately offers greater flexibility to customers seeking access to a much broader range of services," says Curt Campagna, director of strategic sales for Kimball Midwest. "We believe our MRO vendor managed inventory program will advance the IDC Distributors' ability to provide unparalleled MRO solutions to the industry."

Headquartered in Columbus, Ohio, Kimball Midwest is one of the largest distributors in the industrial maintenance aftermarket in the United States.

The family-owned business has provided service and product-based solutions to MRO professionals across the country since 1923. With a stock catalog featuring more than 45,000 in-stock products including fasteners, drill bits, abrasives products, electrical terminals, chemicals, paints, hydraulics and many more items, Kimball Midwest ships approximately 99% of all orders the same day they are received.

The company has three distribution centers strategically located to ensure fast delivery. Regardless of whether an order ships from a warehouse in Columbus, Ohio; Dallas, Texas; or Reno, Nevada, it typically arrives at the customer's location within 48 hours.

The company's employees pride themselves on being problem-solvers for their end-use customers. More than 600 representatives across the country work hand-in-hand with each customer. The result is a partnership with businesses to assure their needs are met on a daily basis.

Kimball Midwest's strength lies in the exceptional personal service and high-quality, problem-solving products it provides customers. These two facets combine to produce what Kimball Midwest calls a partnership in performance.

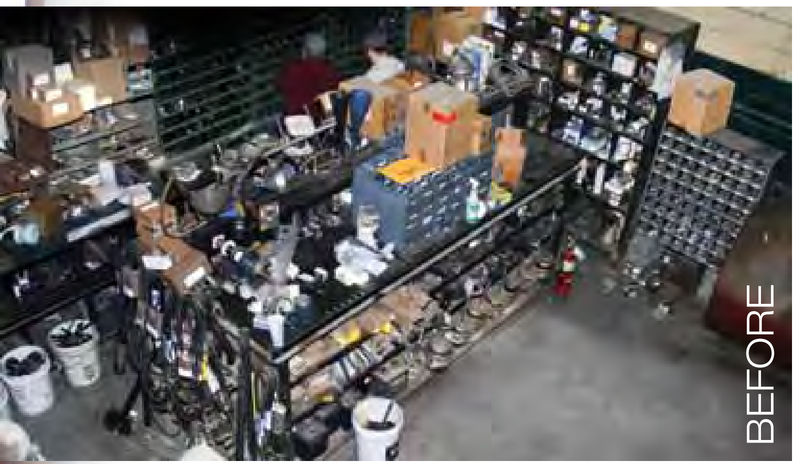
What differentiates the company from most MRO suppliers is the cost-savings programs offered to help customers better control how they manage maintenance hardware and other small consumable items. By identifying the unique needs of an organization, Kimball Midwest can offer customized materials management systems and on-site support. These systems are designed to lower overall MRO costs for an organization by eliminating obsolete inventory, standardizing product, setting appropriate inventory levels, ensuring proper organization of MRO storage areas for quick and easy access, and providing service at the appropriate interval for each location.

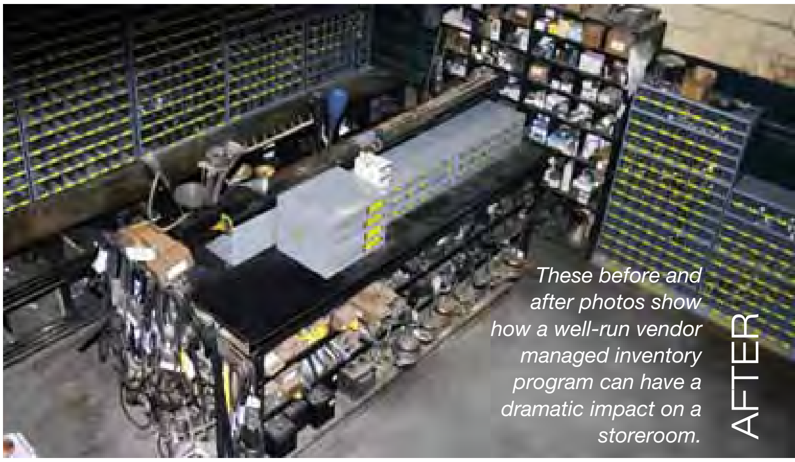
Superior service

Companies interested in learning how the IDC-USA/Kimball Midwest vendor managed inventory program can benefit their organization can ask an IDC Distributor-Owner to set up an introductory meeting.

"We will come to their facility along with the local IDC Distributor-Owner to provide an overview of our product and service offering," explains Kirk Hopkins, the IDC-USA VMI/MRO Consultant from Kimball Midwest. "If they are interested in proceeding, the next step would be for us to do a formal evaluation of that customer's MRO buying process."

In some cases, the evaluation might result in a recommendation to install new bins, storage shelves or other equipment to better manage MRO supplies. Or, the evaluator may suggest installing a bar code labeling system to help speed replenishment of needed supplies. The goal would be to take the responsibility of managing MRO inventory out of the hands of overworked maintenance personnel and into the hands of a specialist with experience managing literally thousands of expendable items.





These before and after photos show how a well-run vendor managed inventory program can have a dramatic impact on a storeroom.

CONTINUED ON PAGE 14

Kimball Midwest's highly trained sales force is dedicated to partnering with the customer to achieve their goals. The IDC-USA/Kimball Midwest vendor managed inventory services can make a significant impact on a customer's bottom line by eliminating obsolete inventory, standardizing product, setting appropriate minimum and maximum inventory levels, organizing storage areas for quick and easy access, and setting the service interval that best accomplishes each facility's goals.

Think your company doesn't order enough of these products to matter? Consider that while a typical purchase of maintenance repair products is under $100, multiple purchases of such items can quickly total thousands of dollars. In addition, acquisition costs, possession costs, and application costs often add up to more than the cost of the product itself. Plus, your company might make hundreds of such purchases each year. Remember, it's the little things that add up.

Superior products

Kimball Midwest's product line consists of high-quality products designed to last longer and perform better than those provided by the competition, ensuring more efficient results and longer life.

Each year, the company introduces new products to its portfolio. But first, the products undergo rigorous testing and analysis to ensure they meet the high standards of Kimball Midwest's customers. The selection process is so demanding that only a fraction of potential products make the cut. Kimball Midwest has a dedicated Product Development Team that works with many of the industry's leading vendors to expand the product offering with the most innovative and reliable items available.

American-made products are a staple of the product line. Nearly 90% of Kimball Midwest's stocked items are made in the United States, which is an extraordinary percentage in an industry where imported product now makes up a growing share of most distributors' offerings.

"Kimball Midwest's combined offering of a full line of American-made, demonstrably superior products and a tenured, trained national sales force, enable our IDC Distributors' customers to improve the effectiveness of their maintenance departments and reduce their overall costs associated with MRO products," says Todd Carroll, vice president of IDC-USA.

The depth and breadth of the Kimball Midwest line allows the company to be a single-source supplier to customers. In addition to an exceptional stock offering, the company has access to nearly a half-million other hard-to-find parts through special arrangements with vendors. So, if there's a product you need, odds are Kimball Midwest can get it for you.

Making a difference for you

Kimball Midwest provides value-added services that offer cost-savings solutions. Your personal representative is the key, working with you to ensure that your MRO parts remain organized, maintained and serviced on a regular basis.

"It's like having an unpaid employee on your team to manage the costs of these nickel and dime nuisance items," says Hopkins.

No other company in the industrial distribution industry brings the value-added service and problem-solving products to customers on a daily basis the way Kimball Midwest's sales force delivers them. The result is a value proposition that customers and potential customers not only identify with, but also benefit from.

By providing the personal service of a knowledgeable sales rep, problem-solving products, and custom-tailored solutions to any sized shop, the IDC-USA/Kimball Midwest vendor managed inventory service provides a unique solution in today's marketplace. The result for your organization is the kind of service and quality you expect but rarely receive. It's a custom-built partnership in the truest sense of the word, created to positively impact your effectiveness.

For information on how your company can benefit from this new MRO vendor managed inventory program, contact your local IDC Distributor-Owner.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Today's improved worm gear reducers

BY ED MCTERNAN

Worm gears and worm gear reducers have been around for well over 100 years, so why write an article under the heading of Today's Technology? As GM's Oldsmobile division might have said, today's worm gear drives are not your father's worm gear drives.

Worm gears have been branded by many as old technology and particularly knocked as being inefficient. These sentiments are unfortunately expressed and taught in mechanical engineering classes and power transmission school training classes all over the country.

The problem with this branding of an entire segment of gearing is that it ignores the advances in worm gear technology on many fronts. Years ago, most manufacturers cutting worms used a 14 ½ degree pressure angle, and the standard recommended oil of the day was an AGMA 8 mineral oil. Typical efficiencies ranged from a high of 89% to 90% (5:1) to a low of 60% or worse. Of course, until recently, efficiencies were not a major concern.

Today, most manufacturers are cutting worms using a pressure angle of somewhere between 25 and 28 degrees, have designed optimum geometric tooth forms and are cutting much more precise gears on advanced machining centers. In addition, they are using newer and improved bronze alloys and are recommending synthetic oil lubricants. The result of all these factors is higher power transmission capability. This increase is similar to what was seen when spur gear manufacturers went to helical gears and from thru-hardened to case-hardened heat treatments. Power density of worm gears has increased by 30% to 35%, or even more, compared to ratings of the past.

Special input splined worms are driven off of a power take-off.

The success of these advances in worm gearing is closely tied to the success of the oils they run on. Designers have worked closely with oil lubricant manufacturers to develop new oils that support the advancement of worm gears. At a minimum, most worm gear manufacturers today

Reducers built with an integral torque-limiting clutch prevent damage should external forces cause an overload.

recommend first-generation polyalphaolefins (PAO) synthetic oils. Increasingly, many are going to second-generation polyalkylene glycol (PAG) synthetic oil, which further enhances the performance of worm gear drives and their resultant efficiencies.

So, while input ratings for worm gears have risen – very importantly – so also has the "thru-put." With the improvements in materials, manufacturing processes and lubricants noted above, worm gear efficiencies today start at 95% to 96% for low ratios (5:1 to 10:1). At a 20:1 ratio, the typical efficiency today will be around 92%. When you consider that a 10:1 or 20:1 inline helical reducer, which is necessarily a double reduction unit, will be around 96% efficient, the difference these days is fairly negligible.

As with anything, one must be careful in selecting the best alternative for the application under design. As counterintuitive as this appears, sometimes a double reduction worm gear reducer will have a higher efficiency than a helical worm reducer. One must look at the ratio combinations available when making an application selection. For example, if a 150:1 overall ratio is required, the helical worm combination will likely be 3 x 50, whereas in a double worm reducer, the combination will be 10 x 15.

As a side note, in a straight helical gear box, this ratio requirement would most likely be a four-stage gear unit. Of course, space considerations and orientation requirements may be the deciding factor in final gearbox selection.

Combining the above advances with all of the traditional positives of worm gear reducers, it turns out that in many applications this gearing type is still the best solution, both mechanically and economically. As a refresher, the advantages of worm gears are:

CONTINUED ON PAGE 18

- Higher shock load capability
- Can survive momentary high overloads
- Compact power dense design
- Customization
- Simple design – Up to 100:1 in single reduction – internally, 3 or 4 bearings, a worm and a worm gear
- Wide range of configurations – single reduction, double reduction worm-worm and double reduction worm-helical
- Wide range of ratios – 5:1 to 100:1 in single reduction; 7.5:1 to 10,000:1 in double reduction
- Wide array of options
- Input – solid shaft, NEMA quill, and NEMA coupling style are traditional options. In addition, they can be supplied with double extended inputs, splines, SAE hydraulic, IEC inputs and even servo inputs.
- Output – solid shaft (left or right single extended and double extended), hollow-bore, spline, taper bushed and shrink disc.
- Mounting accessories – horizontal and vertical base kits, torque arms and various output flange adaptors
- Ease of maintenance and repair
- Usually the lowest cost option up to 3 HP

Worm gears and worm gear reducers continue to play an important role as a gearing choice

Today, worm gear drives continue to be found in a wide variety of applications in just about every industry imaginable. Examples include:

- Packaging
- Unit Handling / Conveyors
- Rubber
- Primary Metals
- Power Generation
- Oil and Gas Exploration
- Pulp and Paper
- Food
- Medical
- Lumber and Wood Finishing
- Mixers
- Cranes, Hoists and Winches
- Printing
- Glass
- Mining
- Cement
- Wastewater Treatment
- Pumping

- Chemical
- Metering
- Construction
- Plastics
- Marine
- Escalator and Elevator Drives
- Lift Gates or Bridges
- Transportation

Designers continue using worm gears in heavy industry. In addition, there are industries and applications that are not typically associated with this gearing type in which worm gearing has been implemented very successfully. Examples include:

- Solar tracking systems
- Linear motion
- Positioning
- Coating systems

One area noted above under "advantages" is customization. Worm gear reducers by design allow for great customization to satisfy customer requirements. Although not all worm gear manufacturers are interested in this type of business, this is an area where Cleveland Gear excels and works with the customers' engineering personnel to develop drives that meet their unique needs.

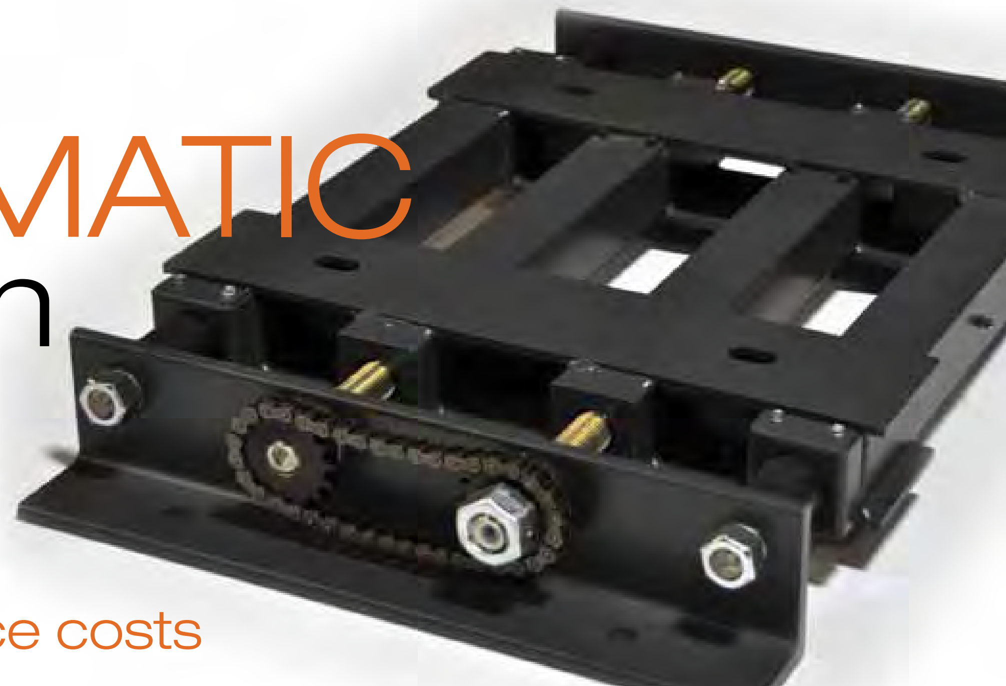
Cleveland is willing to work with small and large OEMs to design and manufacture modified standard gear units or complete custom drives when a standard catalog product will not suffice.

One example would be worm reducers built with an integral torque-limiting clutch to prevent damage should external forces cause an overload. Such a unit might be used on a lift gate drive for a parking garage or gated community (see page 17). Other examples of Cleveland Gear custom drives include custom housings, both cast iron and aluminum, and special input splined worms that are driven off of a power take-off (see page 16).

Summary

Worm gears are still a very viable solution to many gearing requirements. To simply dismiss them as antiquated and inefficient technology is a disservice to your craft. Worm gears and worm gear reducers still have and will continue to have an important role as a gearing choice.

Cleveland Gear has been in business for 100 years. Cleveland offers open worm gears from 1.3-inch to 54-inch centers, helical gears, helical shaft mount reducers, standard enclosed drives, custom enclosed drives and gear reducer refurbishment services. Ed McTernan is the product manager for Modular Enclosed Drives and has more than 25 years of experience in gear drives. He may be contacted at Emcternan@ClevelandGear.com.



AUTOMATIC problem solver

Automatic motor bases can lower maintenance costs

A major university decided it was time to decrease maintenance costs by increasing air conditioning efficiency. The school did this by removing the standard manually adjustable motor mounts from their HVAC units and replacing them with automatic motor bases. The automatic motor bases significantly reduced maintenance hours by decreasing the frequency of on-site belt adjustments. The automatic motor bases also extended the life of the belts and bearings on the HVAC units, reducing costs for future replacement parts.

Similarly, a rock crushing company approached Overly Hautz about reoccurring issues with broken belts and damaged bearings on rock crushing units. Overly Hautz recommended the automatic motor base for the application. Not only did the automatic motor base extend the life of the belts and bearings, it also resulted in significantly increased uptime for the customer.

The automatic motor base has been used successfully for more than 65 years. It features a built-in spring or series of springs to control belt tension, as opposed to a standard manual base that is not spring-loaded and does not adjust with changing workloads. The motor rides on cross members attached to tubes, creating a carriage that automatically moves toward or away from the driven unit as the load changes.

For example, as the workload increases, belt tension increases. The spring then compresses and the carriage moves toward the driven pulley. The result: tension is always maintained at a value sufficient to keep the system operating at peak energy efficiency, with neither slippage nor excessive tension.

Automatic motor bases are used in challenging applications, like rock crushers, critical premium applications such as precision cooling systems in the datacenter and pharmaceutical industries, as well as standard air conditioning installations.

Automatic motor bases can significantly reduce maintenance hours.

Both companies highlighted here, the university and rock crushing company, discovered that the automatic motor base is a cost-effective way to significantly reduce in-field maintenance expenses and increase facility uptime. Because the base automatically maintains proper belt tension, it requires less routine maintenance for tensioning and replacing belts and bearings, resulting in lower maintenance costs.

Contact your local IDC Distributor-Owner for more information on automatic motor bases from Overly Hautz.

Speedy spill response

Sorbents can make short work of controlling dribbles or dumps from overspray, leaks or spills

BY CLAIR DAVID URBAIN

Every production facility has them: the leaky transfer line, the over-spraying production tool or the leaky drum of liquid in the tool crib. Combine that with the chance of a broken line or tipped drum or vat that spills tens or hundreds of gallons onto the floor, and you have the potential for a messy situation with safety and environmental hazards.

Aside from diligent maintenance and safe transport practices within the plant, planning for leaks and spills and stocking ahead are the best approaches to speedy spill response, report spill control experts.

MolecuLoc's co-founder and national sales manager, Rob Larson, and SpillTech's national sales manager, Mike Soltis, share what they consider topnotch strategies to manage drips and spills and explain how their products are well-suited to help manage these risks.

Assess your spill risks

Both experts agree that a facility survey can help you identify most, if not all, spill risks.

Like injuries, spills fall into either ongoing and minor or larger scale events.

"Minor spills are those caused by chronic leaks, overspray or slow drips off of equipment or the product being produced and usually require ongoing cleanup," says Soltis. "Major spills are caused by line breaks, tub or drum spills or other events that must be cleaned up before it causes property damage or reaches a drain and enters the sanitary or storm sewer system."

The second step is to identify the hazards presented by the leaking liquids. "Are they hydrocarbon-based, or water-based compounds? Do they create health hazards, such as strong acids or bases or biohazards?" asks Larson.

Soltis categorizes spilled liquids as aggressive or non-aggressive. "Aggressive materials present a health, fire or other imminent hazard; a non-aggressive liquid doesn't. Categorize your liquids and spill response plans accordingly," he says.

Both spill control experts agree reviewing the Material Safety Data Sheets (MSDS) of the materials in question is the best place to start. With information from them, you can classify the liquid's properties and then select a sorbent product that can be quickly, economically and safely used to clean up spills.

Absorbents vs. adsorbents

Although entirely different materials, both MolecuLoc and SpillTech sorbents are ADsorbents, which means they trap the liquid in air pockets with chemical bonds. In contrast, traditional ABsorbents such as clay-based, kitty-litter types of products absorb the liquid like a sponge.

MolecuLoc is a naturally occurring amorphous alumina silicate that has its adsorptive qualities enhanced by MolecuLoc's manufacturing processes. It is unlike silica-based compounds that sop up liquids by means of surface tension that can release them immediately back onto the surface or into the environment.

"MolecuLoc is a silicate, which means it has certain glass-like properties, but no crystalline structure. It is non-carcinogenic and works by drawing liquid into its porous molecular structure where it sorts and separates the loosely held molecules primarily by size," Larson says. "Certain molecules are too big to pass through this molecular sieve and are trapped inside where an ionic bonding process causes them to become permanently bound within the material. Once absorbed, these liquids become sequestered and encapsulated and can never be released back to the environment," says Larson.

In contrast, SpillTech's products use a fibrous polypropylene material that may also be treated with a surfactant to make it work with water and oil-based materials. "These products don't puff up like a sponge when adsorbing materials. They pretty much stay the same size and configuration," Soltis says.

Packaged for performance

SpillTech and MolecuLoc products come in formulations and packages designed for specific uses (see page 24). MolecuLoc is a granular product that is typically spread on the spill; SpillTech's products are mainly used as pads, rolls or socks.

Soltis says the pads, rolls and socks are designed for everyday use to catch drips and overspray, which make up the majority of the spill containment market. "We offer products that can withstand high foot traffic, while others are lint-fee for use in painting lines. Your IDC Distributor can help you select the best sorbent for your specific application," he says.

As facilities work to meet spill containment regulations, companies like SpillTech and MolecuLoc are coming out with spill kits that are turnkey solutions to controlling spills. "Spill kits can be compared to fire extinguishers. They are required by building codes. Facilities must comply with a variety of EPA and OSHA regulations, and spill kits make it easy to meet these requirements," says Soltis. In fact, SpillTech lists which kit meets spill containment requirements in its catalog.

These products can also be used in outdoor applications. For example, MolecuLoc's SeaBloc and SeaScrub granules can be broadcast over oil spills, where it binds with the hydrocarbons and renders them harmless. "The process is so effective that the sorbent can be landfilled in most states with no special precautions," says Larson.

CONTINUED ON PAGE 24

MolecuLoc sorbents

Made with one of the most abundant materials on earth, the special production process enhances the amorphous aluminum silicate ability to act as a molecular sieve that traps and converts hydrocarbons for safe disposal. The company offers eight types of products.

MolecuLoc's amorphous aluminum silicate-based granule can adsorb up to 20 times its weight in hydrocarbon molecules. It can be re-used up to 10 times and can be reactivated by mixing a small amount of new MolecuLoc granules with it. It's available in several package sizes and economical for large or small spills.

SeaScrub sorbent

SeaScrub granules can float on the surface of water and can adsorb spills around docks, marinas or accident scenes where fuel or oil gets into water. It can also be blended with ShoreBloc or MolecuLoc formulations to best match the remediation efforts needed for waterborne spills.

BioLoc sorbents

BioLoc and BioLoc Sterilizing Solidifier are used on biohazard spills. This MolecuLoc formulation contains lime that kills any biological contaminants on contact. The gel-like solidifying formulation makes large spills easy and safe to clean up. The formulations are effective for treating raw sewage, septic wastes and disaster areas where outbreaks of cholera and other diseases are possible.

ShoreBloc sorbent

ShoreBloc has a larger granule formulation that effectively captures and neutralizes hydrocarbons as they wash up on shorelines. Because it is inert, it can be used directly on oil-contaminated animal fur and feathers safely and can be gathered and disposed of easily. It can be poured into special reusable sand bags for stacking or building dikes or be laid on shorelines with a floating air-driven hose or cannon.

Booms

Filled with MolecuLoc's SeaScrub granules, they can adsorb up to 20 times their weight in hydrocarbons. They are lightweight, inexpensive and highly absorbent, outperforming booms that use corn husks, cotton fibers and cellulose materials, MolecuLoc sources report.

Fur and Feather sorbent

This is a "softer" formulation of MolecuLoc that allows birds and other animals to instinctively dust themselves to remove oils. It aggressively pulls the oil contaminants from fur or feathers while they naturally preen themselves to remove contaminants. If the animal ingests it, it passes harmlessly through the digestive tract.

Spill kits

MolecuLoc has created a complete spill kit ideal for onsite mitigation of larger fuel spills or oil leaks. The kits come with safety glasses, mask, gloves and MolecuLoc sorbent in 5-, 10-, 25- and 40-lb. sizes.

SpillTech product profile

SpillTech has more than 350 high-tech sorbents that can meet the needs of almost every leak and spill application. Available in mats, pads, rolls, socks, pillows, pans, drum top pads, booms and spill kits, the polypropylene-based material adsorbs oil- or water-based spills effectively.

The products are color-coded to make selection easy and assures that workers know the right product to use for the job. White SpillTech sorbents are for use on oil only; gray SpillTech sorbents can be used for water or oil adsorption and yellow SpillTech sorbents are designed to handle hazardous materials.

Based on the application, the sorbents are made of one of the following sorbent materials.

SurvivorSeries sorbents

Made up of three layers, this ultrasonically bonded mat stands up to wear. The tough top Spunbond layer stays clean and dry as liquids are drawn into the inner MeltBlown layer. The bottom FineFiber layer is made of densely woven strands that grip the floor for safer walking, which is ideal for high-traffic areas.

FineFiber sorbents

This three-ply mat is made with densely woven, small-diameter strands of fiber to increase surface area for fast absorption and a firmer grip. It is virtually indestructible to foot traffic and provides a safe walking surface.

MultiLaminate sorbents

These super-strong, heavyweight mats are designed for rugged applications. The outer spun-bond layers are made of continuous strands of interwoven polypropylene fibers for toughness while the MeltBlown inner layer draws and traps contaminants inside. Resistant to tears and abrasions, this mat is perfect for lining tool cribs or for use under jagged parts and heavy equipment.

AirLaid sorbents

Features resilient, bounce-back polypropylene fibers with uniform pockets of air space that absorb and hold liquids. The AirLaid material is ultrasonically bonded between two layers of tough spunbond material for added strength. It's ideal for wrapping around pipes or fitting into tight spots to help maintain a cleaner, safer workplace.

SonicBonded sorbents

This high-loft mat offers faster, greater absorbency and can suck up to 57.5 gallons per roll and holds its shape and won't fall apart, even when fully saturated. It's a great mat material for overspray areas and indoor spills where clean, dry floors are important for safety.

MeltBlown sorbents

Because polypropylene fibers in their natural state are hydrophobic, they readily float on water, yet quickly adsorb oils and other hydrocarbons. The loose-stacked weave construction increases surface area and is ideal for quick, effective clean up of large oil spills on land or water.

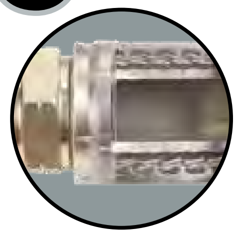
The sorbents are packaged in a variety of sizes to best match the specific spill. They are available in pads and rolls, booms, socks, pillows, pans and loose formulations.

Spill containment

SpillTech has also developed a wide variety of spill kits that meet various OSHA, DOT and EPA requirements.

SpillTech offers utility trays, drain covers, drain plugs, spill berms, pallets with built-in sumps, overpacks for transporting leaking containers, and a variety of specialty products that can effectively and economically manage spills. Learn more from your IDC Distributor, or go to www.spilltech.com.

Hydraulic hose assemblies



Goodyear Engineered Products' assemblies fit nearly every application

BY CLAIR DAVID URBAIN

Every hydraulic hose application could be considered a critical assembly because improper selection can quickly lead to early hose failure, unplanned downtime and, in worst cases, the possibility of worker injury or death.

"Whether you're sizing up a replacement hose or designing a new piece of equipment and specifying hose properties for the first time, it's a good idea to work closely with knowledgeable hose experts who can help you get the right – or perhaps even better – hose for the application," says Randy Kish, Veyance Technologies hydraulic market channel specialist for Goodyear Engineered Products.

"Goodyear Engineered Products provides distributors and end-users a 'one-stop shop' for power transmission, industrial hose, hydraulic hose and conveyor belting needs. While other manufacturers may also make that claim, we also provide exceptionally well-trained experts who can help you make the best, most cost-effective hose selection decision possible," he says.

Complete product line

The hydraulic hose assemblies available from Goodyear Engineered Products are more than just hoses and fittings. It has a complete line of equipment for hose assembly plus the test equipment that assures assemblies meet burst and proof standards.

"We offer a complete line of tools and supplies needed to assemble hydraulic hoses for nearly every need. Our crimper line ranges from small, portable units for mobile service up to 10-inch crimpers for large industrial and hydraulic hoses. We also offer the accessory equipment such as saws and equipment for burst and proof testing. From an assembly standpoint, we offer fittings that meet the needs of nearly 100 percent of the market," he says.

Goodyear Engineered Products' hydraulic hose meet a variety of standards, including SAE, EN and Military standards. That's followed by an extremely wide selection of fittings that will work with nearly every conceivable application, which also meet or exceed those standards.

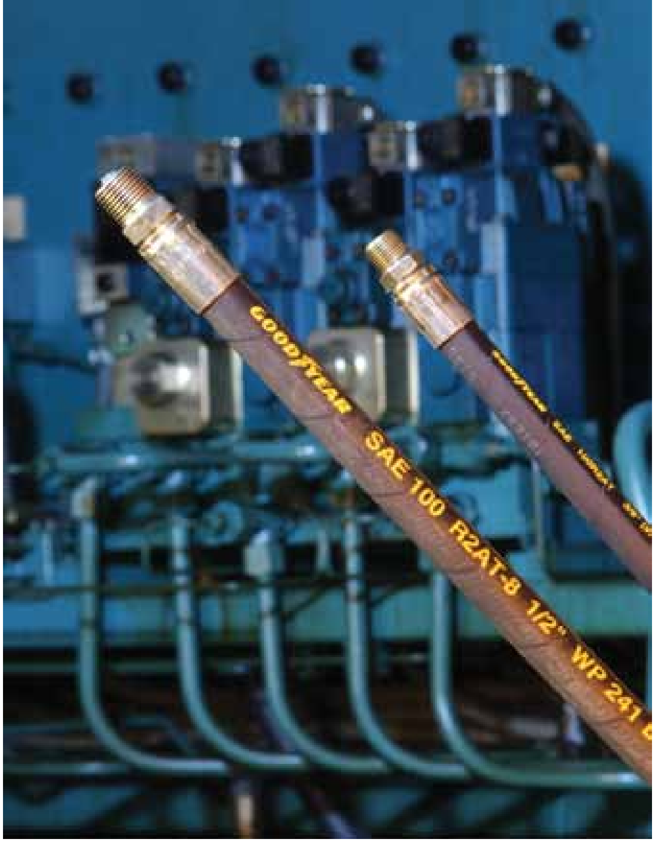
"We look at these standards as the minimum and many of our hose and fittings far exceed these standards. Many of our hose lines have much higher pressure ratings, are more resistant to abrasion and have tighter bend radii than competitive brands," he says.

The Goodyear Engineered Products hose line also includes extreme temperature hose ratings. "We produce arctic/low and desert/high temperature hoses that can survive in these harsh environments. Not every hose manufacturer offers that," he says.

OEM customers appreciate the wide variety of product available, especially hydraulic hose with a tighter bend radius that allows them to fit hydraulic power in tighter areas with fewer fittings. "Fewer fittings means lower cost and greater reliability," Kish explains.

Technical expertise

Hose and coupling specification can be a detailed, exacting process, and Veyance Technologies has in-the-field experts who work hand-in-hand



with distributors to help customers properly specify the best hose for the application.

"Veyance Technologies has more than 80 field sales people across North America who work closely with distributors. They work together doing on-site sales calls to sell to end-users or OEMs. They are detail-oriented technical experts who can help them best match the hose assembly to meet the customers' needs.

"These hydraulic sales service specialists are very helpful in specifying hose for critical applications and working with OEMs that are engineering new products. They also work closely with distributors who are considering to switch to supplying Goodyear Engineered Products. They are very experienced and understand all the details and technical aspects in hydraulic hose specifications. They are also versed in on-site training at the distributor and end-user levels to assure finished hose assemblies meet the requirements of the application," Kish says.

Market mining for business opportunities

In addition to having a broad product line, quality equipment to produce hose assemblies and an extremely well-versed technical field sales staff, Veyance brings another advantage to the world of hydraulic hose assemblies: continuous research for new applications. This leads to additional sales opportunities for its distributors and even better products for end-user customers.

"We conduct data-backed market research to identify new markets that have specific hose assembly requirements. That's how we developed our military certified hose.

"While military hose isn't a high-margin niche, it is a high-volume one that requires annual recertification to make sure the hoses meet the government's exacting standards for military vehicles. We've greatly expanded our military grade hose line based on the market research that we conducted. It's an example where we are actively looking for new areas where we can provide end-users with a product that better meets their needs," Kish says.

Total package produces customer satisfaction

Kish says the combination of an extremely broad product line that encompasses power transmission products, hydraulic hose assemblies and a wide variety of belting creates a complete product offering that can meet almost every customer need.

"Goodyear Engineered Products' precision-engineered hydraulic hose, fittings, adapters and crimp equipment take the worry out of inconsistencies or parts that don't fit. Our single-source solutions include all hydraulic hose, fittings and adapters – and it's all backed with a global distributor network to offer service and support on a local basis.

"Follow that with a field sales force that works closely with distributors and end-users plus our market-based data that helps identify new opportunities, the end result is a valuable resource that sells much more than hose assemblies. We sell solutions that help customers be more productive, reliable and, hopefully, profitable."

For a more complete specification, go to page 473 of the Goodyear Engineered Products catalog. Here, you'll find a form that covers every aspect of hose specification. Or, go to www.goodyearep.com to find replacement hose by competitive part number, STAMPED criteria or replacement hose based on a Goodyear hose number.

BY BOBBY RIVENBARK

SYMPTOMS of ineffective planning

Despite your best plans, do your maintenance efforts still fall short? HERE'S WHY.

Planning is one of the main processes of effective maintenance departments. By determining work details up front before actual work takes place, planning allows for the most efficient use of maintenance resources. It also reduces downtime by ensuring production equipment will only be out of service while the actual maintenance work is being performed.

Proper job plans contain all details needed to perform the work to maintain equipment reliability. Planning, along with scheduling, provides the glue for bringing all reliability processes together and maximizing the opportunity for "uptime" and more reliable production.

PHOTO: © BART COENDERS, © CHRISTOPHER NUZZACO

If this is true, then why do some maintenance departments fail to produce desired results? Many reasons could contribute to this situation – too many in fact to cover in this article – so let's look at just a few. Delays, mismanagement, ineffective supervision, poor performance and unavailable materials all can contribute to ineffective planning and cause unnecessary delays. If any of these situations are present, you may not recognize them unless you know what to look for. Let's review some easily recognizable symptoms:

Delays

When delays become the norm, start looking for scenarios like:

1) Crafts persons spending time trying to gain details of what is involved in the work, talking with operators, talking with production supervision, talking with maintenance supervision, talking with planners and even with other crafts persons. They may even spend time looking over prints and OEM manuals, if they can find them and they are up-to-date.

2) Next the crafts persons need to determine what materials may be needed to perform the job, where they are located and what is the availability. Once they make this determination, they then have to gather the materials and get them to the job site. This could add an additional 10% to 20% to the duration of the job, not to mention any cost that may be incurred if the material is "out of stock" and requires expediting.

Typically all of this is happening after the production equipment has been taken out of service; downtime equals loss of production and loss of production equals loss of revenue. You may want to start auditing the job plans that are being supplied to crafts persons in the field.

Mismanagement

When mismanagement is an issue, it looks something like this:

CONTINUED ON PAGE 30

If you observe symptoms of ineffective planning, consider creating a get-well plan that includes training

1) The maintenance supervisor assigns crafts persons to the job, who go to the job site as a group.

2) The supervisor leaves the crew at the site while he goes to find someone in operations to get more information about the job: expectations, time available for repair, operator availability for support as needed, etc.

3) When he gets back, often he finds he doesn't have the right number of people for the job or maybe even the right skills are scheduled in the wrong sequence.

4) Again, crafts persons determine minor details involved and what materials may be needed to complete the work.

5) The material may be out of stock and need to be procured from off site, and expediting fees may apply.

6) While all of this is happening, operations decides to use the additional time to have maintenance perform additional work or modify their original request resulting in more delays and more downtime. All of this adds to inefficient productivity of the maintenance crafts persons and, again, lost production.

Ineffective Supervision

When supervision is ineffective, you may observe symptoms like these:

1) Crafts persons stand around at the job site waiting for instructions about what to do and information on how to do it.

2) Most jobs get interrupted after work has begun, causing delays not only on this one but the new work as well.

3) Supervisors are unsure of how many persons are actually required to perform the tasks at hand so over-manning jobs becomes the norm and the number of job completions remains low.

4) Supervisors aren't able to spend time in the field with their reports due to clerical work or administrative duties keeping them "tied to the desk" and unavailable for support. This also keeps them from coordinating work with their partners, the equipment owners, so as to minimize any possible production delays.

Poor performance

In some situations, the maintenance department seems to be actually working on a "stand-by" basis – stand by until you are needed and then respond immediately and correct any problems with absolute minimal production downtime. They work continually until the situation is corrected and then they go back to the "stand-by" mode. Some of the symptoms are:

1) Crafts persons spend valuable time standing around waiting for equipment to be made ready so it can be serviced as required.

2) They are unable to complete one job before being pulled off to work on another one – they hop from job to job.

3) Crafts persons have to spend time figuring out what materials and/or special tools are needed to complete the job.

4) The maintenance department is unable to develop a productive work rhythm to ensure time spent on the job is realistic and the quality of work is what it should be. This also adds to the "poor morale" factor and multiplies other delays.

Unavailable materials

When needed materials are not available, it may cause:

1) Production delays due to having equipment down while you wait until parts or materials can be purchased and arrive.

2) In lieu of waiting, you may choose to fabricate your own, resulting in sub-standard replacements, or you may decide to use something that you can make work or just resort to a temporary fix, resulting in

reduced reliability and production quality loss.

All of these situations contribute to machine downtime and production loss that proper planning and scheduling are designed to reduce. The core product of planning and scheduling is reduced delays – in equipment downtime, in waiting for materials, in preparedness of starting jobs and in completing jobs. Reduce these delays and you increase equipment and machine uptime, resulting in improved availability of equipment and increased production.

Most companies are in business to produce a product and make a profit so the stakeholders can realize a decent return on their investment and support capital growth. Proper planning and scheduling supports this – it requires professionally trained planners and schedulers, a good EAM system, complete and correct BOMs, a work force that understands and supports the benefits realized from planning and scheduling, and a work flow process that everyone can interact with and easily follow. If you are observing symptoms of ineffective planning in your organization, consider creating a get-well plan that includes training for people responsible for planning and scheduling. Implementing planning and scheduling best practices could significantly improve operational and financial results.

Bobby Rivenbark, a Subject Matter Expert at Life Cycle Engineering (www.LCE.com), has more than 35 years experience in maintenance planning and scheduling. As a planning manager at three DuPont facilities, he was responsible for the planning and scheduling process that included the continuity and success of all proactive maintenance processes. He has also implemented the planning and scheduling process for the North American sites of Celanese Chemicals, a process now being implemented globally. Reach him at rrivenbark@LCE.com.


Rivenbark

Shutdowns & turnarounds

Temporary plant closings create unique safety challenges

BY SCOTT MONTGOMERY

From time to time, industrial facilities need to undergo major repairs or renovations. They can involve everything from retooling to accommodate a new product line, to replacing key components as part of a preventive maintenance effort, to installing new environmental controls, to a complete overhaul of the entire operation.

When faced with major changes, the managers of many of these facilities will often completely close down operations so they can accomplish as much work as possible in the shortest possible time. These projects have different names, depending upon the industry, but they are most often known as shutdowns, outages, or turnarounds.

Even on sites in which the safety culture is very healthy, shutdowns, outages and turnarounds create significant safety challenges for a number of reasons, primarily the sheer amount of work being completed at one time. That normally means that large numbers of outside contractors will appear on the site, performing tasks that are a huge departure from what takes place on a day-to-day basis.

Most of those contractors have probably not been on the site before, so they may not be familiar with the facility and the safety standards. Others will have differing levels of familiarity with safety practices for the work that will be performed.

Prequalification

The prequalification process will help to identify where gaps in knowledge may be present, but that's just a starting point in managing the safety aspects of the site. Prequalification isn't foolproof either.

Take a major turnaround project I worked on for an oil refinery. Aside from the tank farm area, the entire refinery was completely shut down for six to eight weeks. At any given time during that process, we had between 3,000 and 4,000 contractors on the site 24 hours a day. Beyond the normal hazards of an operation with many volatile atmospheres, much of the work took place inside confined spaces such as vessels, and in specialized situations such as nitrogen atmospheres.

The safety team had to verify that contractors working in those areas had the right training and certifications for the particular tasks they would handle. While the contracting firms had been prequalified, we didn't take those matters for granted. Instead, we pulled training records and other documentation to verify that everyone was up-to-date. Then we took it a step further by taking audits in the field.

For example, we would walk

PHOTO: © LINDA STEWARD

For a safety professional, a project of this scope can be a complex challenge

up to workers and ask them questions about their fire extinguishers. Did they check to see if they were still properly pressurized? We'd quiz them about issues related to confined space entry, and if they didn't seem to know what they were talking about, we investigated further. Our role was to ensure that no one got hurt on the site, and prevention is the most effective way to do that.

Hazard analysis

Another key role for the safety professionals was hazard analysis. The scope and schedule of the project meant that a new set of hazards was being created every day throughout the site, and we had to be able to document them and ensure that workers were prepared. Beyond the planned tasks, we had to react when unexpected situations arose, such as a piece of high-pressure equipment becoming stuck, or a contractor discovering a surprise inside a vessel or pipe.

Further complicating a project of this size is the fact that much of the work takes place outside, so weather is a significant factor related to safe working conditions, as well as what happens if there is an unintentional spill or release of chemicals.

Finally, in my experience, project engineers do a great job of anticipating and planning for a wide variety of contingencies on a shutdown or turnaround. Unfortunately, that planning doesn't always hold up on the worksite, and contractors frequently find themselves having to improvise. Each deviation from the original plans creates a need for the safety professional to rethink the situation and ensure that everyone is properly protected.

For a safety professional, a project of this scope can be the greatest, most complex challenge and success of a career. But every step and every aspect goes back to the most basic practices and philosophies of industrial safety. By taking time to ensure that each step is handled properly, and by making a thorough review of every aspect of safety, safety professionals can help to ensure that the project meets the desired goals, stays on budget and the timeline, and is completed without injuries to any of the workers. It's exhausting but very satisfying.

Scott Montgomery serves as a safety advisor for the Safety Management Group. SMG is an Indianapolis-based nationally recognized professional service organization that provides workplace safety consulting, training, staffing, program planning and implementation. He can be reached at scottmontgomery@safetymanagementgroup.com.

EMPLOYEE EMPOWERMENT

WORN OUT at work

BY JON GORDON

12 common workplace behaviors that drain everyone's energy

If you're like most people, you've been working hard. But sometimes, the work leaves you feeling tired and depleted.

Most people wrongly assume their tasks and responsibilities are what's grinding them down. While "work" is a convenient scapegoat, the real culprit is often the negativity of the people you work with and for, their constant complaining, and the pessimistic culture that is the norm in a lot of workplaces.

Many of us work in a world of drainers. The term can describe a boss, coworker, employee or client who sucks the life and energy right out of you.

No one sets out to be a drainer. Some people just regularly (and inadvertently) exhibit energy-draining behaviors. What's worse, many bosses allow them to continue, or are themselves guilty of practicing these behaviors. Over time, the culture becomes poisoned.

Don't fret, though. Here are the top 12 draining behaviors (presented in a what-not-to-do format), as well as tips for how you can make a change for the better in each of these situations.

1 The Energy Vampire Attack

DON'T: Let negativity become your go-to response. There's nothing more draining than a boss or coworker who is constantly negative. These "energy vampires" are never happy, rarely supportive, and constantly nay-say ideas that aren't their own. According to them, you might as well give up before you start.

DO: Respond constructively when someone offers an idea. Even if you know more about a particular project, have more experience than your team, or are positive that the suggestions others make are off the mark, hear them out. Let employees and coworkers know that when they come to you with their ideas, they'll be heard with an open mind and received with

PHOTO: © DMITRY MORDVINTSEV

respect. Insist that everyone else practice positivity as well. While negativity squelches creativity and initiative, an encouraging attitude keeps creative juices flowing and encourages constructive dialogue.

2 The Out-of-Control Complain Train

DON'T: Give in to the temptation to whine. It can have catastrophic consequences: One person's complaint resonates with someone else, who adds grievances to the pile, which prompts another individual to throw in his two (negative) cents. Before you know it, everyone is complaining, and any work that gets done thereafter is marred by a bad attitude.

DO: Push for solutions. The next time a breakroom conversation threatens to barrel out of control into Complaint Central, ask the complainees how they would make things better. Better yet, ban complaints altogether. It creates and sustains a positive culture.

When you boil things down, complaints are just noise and nothing more, but each one represents an opportunity to turn something negative into something positive.

3 The Vicious Voicemail (or E-mail)

DON'T: Leave critical or harsh messages on voicemail or send them via e-mail. Nine times out of 10, these critiques seem much more vehement and condemnatory than they actually are. Plus, any communication you send via electronic methods can potentially last forever. Not only could your words come back to haunt you, they'll also be a constant reminder to your coworker or employee of his or her supposed shortcomings.

DO: Suck it up and conduct the tough talks in person. You'll be able to ensure that your words and tone aren't misinterpreted, and you'll be able to immediately have a constructive dialogue with the other person. By talking about ways to improve, you can end the conversation on a positive and encouraging note.

4 The Loaded Monday Morning Inbox

DON'T: Overwhelm your team with a mountain of e-mails before the week is underway. If you're finishing your own to-do list late on a Friday night, or if you're trying to get a jumpstart on the week ahead, it can be tempting to dish out the details and to-dos as you think of them. After all, if you wait 'til Monday morning, you might forget to tell those who need to know! However, an inbox of 57 new messages is draining and makes folks feel like they're fighting an uphill battle from the start.

DO: Boil down and bundle your communication as considerately as possible. Inevitably, people will work late and send e-mails over the weekend; in today's business culture, it's unavoidable! But there are a few things you can do to make "You've Got Mail!" less stressful and more efficient for the recipient. Be sure to flag any urgent e-mails so that your teammates know which tasks to tackle first, and include as many details as possible so that 1) you won't forget them and 2) the recipient can get started as quickly as possible. If you can, combine as many of the tasks and questions as you can into one document.

> Most wrongly assume that their tasks and responsibilities are grinding them down

5 The Busy Bee Bamboozle

DON'T: Confuse activity with progress. You know the person. They're always soooo busy but don't ever seem to meet deadlines or get anything done. When teams are being formed, people secretly hope they aren't assigned to theirs. They're living proof of the fact that just because your day is full of things to do doesn't necessarily mean you're getting them done.

DO: Set goals and hold yourself and your employees accountable for results. These results should be visible and valuable to your team. It can be helpful to transition to a day-to-day plan that will help everyone stay on the right track. Most importantly,

CONTINUED ON PAGE 36

don't put your team in situations where the lines are blurred. If goals are crystal clear, they'll be easier to accomplish.

6 The Low Performer Look-Away

DON'T: Let sub-par work slide. Simply put, low performers drag the rest of the team down. They are like a cancer inside your organization, creating resentment and generating more work for everyone else. If you allow them to linger and thrive for too long, your best employees will move on to a more productive environment.

DO: Institute a zero-tolerance policy for low performers. Hold your team accountable for meeting their goals and adhering to the same performance standards. If one person consistently misses the bar, take swift action. Let your employees know you value hard work and will not allow others to get away with doing less.

Strive for transparency. When your team knows exactly what's expected, they'll know where they stand and you'll be able to make sure that their fears, uncertainties, and questions aren't holding them back.

7 The Unclear Communiqué

DON'T: Assume others have all the information they need, or that something you know isn't that important. Hastily drawn conclusions that result from chronic poor communication can lead to serious mistakes and major missed opportunities. Lack of clarity is incredibly frustrating to those who work with you. When employees, coworkers, or supervisors have to spend their time tracking you down for clarification, rather than getting the communication from you that they need, productivity falls and creativity is stifled.

DO: Make a concerted and proactive effort to make sure that the right people are in the know. Whether it's letting your boss know that a client's daughter is getting married (so he can call in congratulations) or telling a coworker that a vendor prefers to be contacted only via e-mail, be sure to tell the appropriate people. You'll set your entire team up for success and ensure that your clients get the service they deserve. Also, make sure you copy the right people on e-mails, promptly return voicemails, and are clear about directions and expectations. And if you say you are going to do something, mean it.

8 The Disorganization Drag-Down

DON'T: Allow disorganization to impede productivity. If you're managing or leading a company, heading up a big project, or traveling non-stop, it's likely you've lost an e-mail, important paper, phone number, or pie chart or two in your day. You're busy, and that's understandable. But constant disorganization can drain your employees and coworkers if they always have to cover your tracks. It may not always be possible, and accidents do happen, but not being able to find the quarterly report for the third meeting in a row sets a bad example and depletes others of the energy they could be putting toward more productive work.

DO: Keep up with your tasks and responsibilities. If you can't immediately put your hands on something you need, don't automatically ask others for help. Take a few minutes to try and find what you need on your own. Better yet, try to think of better systems and processes than the ones you're using (or not using) now. If you see that someone in your office has a particular knack for organization, ask that person for some tips to help you out.

9 The Hasty Plate Clear-Off

DON'T: Sacrifice quality on the altar of expediency. There's a lot of work to do, and you (understandably) want to get your own tasks done so you don't hold up others. However, moving through assignments quickly in order to get them off your plate can mean that you're piling the work on someone else. When you rush, you're more likely to make mistakes and be sloppy, which isn't fair to the person who gets the assignment after you.

DO: Take the time you need to do the job right. Rather than rushing through a report or clicking "send" just because it's 5:00 p.m., get focused and make sure you do your best work the first time. Pay attention to details, check over your work, and make sure you've followed the proper guidelines. Your coworkers and employees would rather have a project done right than ahead of schedule. (And if you have to turn in a project a day late on occasion, it's not the end of the world.)

10 The Chronic Deadline Dodge

DON'T: Allow unmet deadlines to throw everyone off track. With unexpected obstacles you face in a workday, it's not always easy to meet deadlines. And yes, sometimes it's impossible but those times should be few and far between. When people chronically miss deadlines, it's a sure sign of a cultural issue. Either people aren't giving it their all or they're truly overburdened. Either way, your company's productivity suffers.

DO: Set reasonable, clear deadlines (and hold people accountable). Once something gets off track, nobody is willing to own it. Make sure you set reasonable deadlines that you and your teammates can meet in order to avoid setting folks up for failure. Even if it takes extra elbow grease from time to time, make a conscious effort to meet every deadline every time.

11 The Unattainable Atta-Boy (or Atta-Girl)

DON'T: Get so caught up in what's coming down the pike that you forget to acknowledge what's happening now. Most managers feel a lot of pressure. It can be hard for them to constantly catch the heat from the higher-ups while the rest of the employees have only their own goals to meet and worry about. However, when responsibilities give you to-do tunnel vision and cause you to skimp on the "job well dones," employees can get discouraged in a hurry, especially if you immediately ask about another goal that's gone unmet or push more work at them to try and make up for losses in other areas.

DO: Express appreciation and admiration when appropriate. Employees don't need a pat on the back and a round of applause at every turn. They need to know that you can be satisfied. If an employee feels as though no amount of hard work or hours spent will ever garner the boss's approval or satisfaction, his or her energy and self-motivation will be zapped.

12 The Blame Game

DON'T: Point fingers at others in order to take the heat off yourself. If all eyes are on your team and you start pointing fingers, you could be making a huge mistake. If your employees or your coworkers don't think you shoulder your share of the blame or are unapproachable when it comes to constructive criticism, they'll start to shut down toward you.

DO: Accept responsibility for your actions gracefully and humbly. Nobody likes to be the one at fault. But owning up to your mistakes and learning from them are big parts of working together and being successful.

Jon Gordon is a consultant, keynote speaker, and the international bestselling author of Soup, The Energy Bus, The No Complaining Rule, and Training Camp, all from Wiley. For more information, please visit: www.JonGordon.com and www.Soup11.com.

Choosing the skill sets for training maintenance professionals

All aboard for TRAINING

BY MICHAEL V. BROWN

Effective management of people always involves training. This training can be as simple as one-on-one in the field or as formal as training in a classroom setting. The hardest part of this management responsibility is determining when to train and what is the best training method.

One proven approach requires the assessment of the core competencies of a maintenance operation. Core competencies are those sets of activities in which you are expert. Brooks Brothers doesn't make their own suits anymore, but rather contracts out this work to companies that specialize in fine tailoring. They realize their core competency is selling suits, not making them.

A maintenance department's core competency may have been quality millwright work or electrical troubleshooting prior to downsizing. If a reduction in the workforce has occurred, a manager should make sure the employees who remain can perform these core functions. This same maintenance department may have only been mediocre at HVAC or electronics repair, but had plenty of employees who adequately stumbled though this work. After downsizing, an HVAC contractor may have to be hired and failed electronic boards should be sent to the manufacturer for repair or just replaced with new ones.

Contractors can tide an organization over in technical areas and consultants can

PHOTO: © LISA F. YOUNG

provide training to get the remaining workforce up to speed on your original core competencies. Contract out those services that are furthest away from your core competencies.

Skills Checklist

A good skill checklist is one way of assessing the basic need for a skill. This list is best derived from a review of the equipment that has to be maintained at the site. Supervisors or advanced maintenance workers should look at a representative sample of the equipment at your site. A note should be made of the skills which might be required to repair or maintain that equipment. The lists of skills should then be combined to provide a master list of all skills required at the site.

Next, each item on the list should be assessed for relative need, frequency of usage, and the number of employees covered under this training. The course list is categorized into basic maintenance skills; electrical; instrument; and mechanical. The Relative Need should be rated from 1 (for low), to 5 (for high). The Frequency of Use should be rated from 1 (for seldom), to 5 (for often). In addition, some qualification of the number of persons covered should be made.

The results from the list can help rank your training needs by relative importance. All skills that have a Relative Need and a Frequency of Use of 4 or greater should be addressed immediately. Skills that rank at 2 or 3 in both categories should be put off or budgeted for a later date. No attempt should be made to train in skills lower than 2 in both categories.

Payback for Your Training Dollar

The cost of the training may be prohibitive if you train in all the areas of high need and usage. One way to determine whether or not to train employees in a specific skill is to draw a square box divided into four equal quadrants.

The chart compares the frequency a skill or activity is used by a single trainee to the training time required to instill that skill.

Lower Left Quadrant – Skills which require a long time to train but are not used very often. Activities or skills in this category provide the least return for the training dollar and should probably be farmed out to a contractor or to the service department of the equipment vendor.

CONTINUED ON PAGE 40

Upper Right Quadrant – Skills that are used more often and only require a quick training course. Money can be invested in acquiring these skills and a return on that investment can be expected.

Upper Left Quadrant – There may be some return for skills which take a short time to train but will only be used a few times a year. However, you should be concerned about skill retention for tasks which are not used very often (anywhere on the left side of the chart). Skills that require practice, such as welding, fall into this category. It may only take a week or so to teach basic welding but the work performed may be substandard if this skill is not practiced regularly.

Lower Right Quadrant – Skills that are used often but take a long time to acquire should probably be among the required skills for entry into the maintenance department. You may have to face the situation and provide the training if these skills are lacking in your current workforce.

Developing the Assessment

Why would you need to assess skills? A few reasons include:

- Identify skills deficiencies and train to correct them
- Restrict entry into the maintenance department
- Promote or compensate based on ability (not performance)
- Ascertain if government minimum standards are being met

The first item is the most common reason to assess current skills. Before you spend the money for training, it's probably a good idea to determine if it's really needed.

There are a number of generalized skills assessment methods available. Standardized tests – ones designed to eliminate bias – are available in mathematics, basic electricity, electronics, machining and mechanical aptitude.

Unfortunately, much of the skills assessment material will have to be developed in-house or by a consultant. Standardized tests with questions related to equipment not at your site are not only unfair, but also provide no insight as to how an employee will perform.

Hands-on assessments are also important, but provide the biggest challenge for the maintenance department. Specialized mock-ups and test stands may have to be built to assess skills. Much of this equipment is available from outside training firms and sometimes can be rented.

Cross-Craft Training

A cross-craft effort is the process of training maintenance employees in specific skills that go beyond the traditional trade or craft lines. The advantage of this approach is that particular jobs which historically require more than one craft are now performed by just one person, saving time and money.

A typical example is the change-out of a small motor. Traditionally, a change-out could require an electrician to disconnect the motor leads and a millwright or mechanic to disconnect the coupling, physically replace the motor, and perform the alignment. The electrician would then return to the job, reconnect the motor leads, check and possibly change the rotation. At this point, the mechanic or millwright would be able to connect the coupling halves to complete the job.

> Cross-craft training can ease scheduling conflicts and save time and money

In fact, no more than one individual should be required on this job at any time, but trade distinctions often require the close scheduling of appropriate crafts. If the loss of this motor created downtime, both individuals would remain at the job site, performing only their particular job functions as needed. In trade craft dominated work environments, this situation may be even further complicated. The requirement for an operating engineer to physically remove and replace the motor may also exist.

In a cross-craft effort, individuals would receive additional training beyond the normal skills required for their craft. A mechanic or millwright would be trained to electrically disconnect and reconnect motors. In turn, an electrician would be trained in coupling disassembly and reassembly, as well as alignment methods. After this training, both individuals would be qualified to perform the entire job alone.

The advantage to the company in a cross-craft effort comes with the ease of scheduling work. The advantage to the worker is usually an incremental increase in pay for the additional skills learned and used.

Although the cross-craft opportunities can vary greatly from location to location, the following areas are commonly considered:

- Jobs combining electrical and mechanical skills (motor change-outs, some instrument modifications)
- Jobs requiring electrical/mechanical and simple welding skills (installing conduit/pipe supports and running conduit/pipe)
- Pipefitting work (pipefitter and welder are separate craft skills)
- Minor machining operations (turning down, reaming, broaching)
- Oxyacetylene operations (cutting, trimming, heating)
- Machine lubrication (refilling after rework)

Conclusion

Skills assessment and training development are essential to the development of an effective maintenance program. An organized and structured approach can meet the current requirements of a facility and develop a strong foundation for the future.

Michael V. Brown is president of New Standard Institute, a training and consulting firm specializing in industrial maintenance, based in Milford, Connecticut. A catalog of computer based training programs, books written by Mr. Brown and his colleagues, and a schedule of upcoming seminars can be viewed at www.newstandardinstitute.com. Mr. Brown can be reached at (203) 783-1582; his email is mvbrown@newstandardinstitute.com.

Hoarders and squirrels

How to rid your facility of pesky problems that drive up spare parts storeroom costs

BY JEFF SHIVER, CMRP, CPMM

How many times have you opened a locked closet door or cabinet drawer inside your facility to find it overflowing with junk? You have just breached a hoarder's hidden treasure trove of spare parts and consumable materials.

Hoarding is often a behavioral practice or workaround driven by a failure of some or all of your materials management business processes. The process to effect change and eliminate these hidden stores begins by asking "why?" (maybe multiple times) to determine the real root cause.

One basic cause with maintenance people (operators aren't exempt either) is the thought process that says "If I'm ordering one, I'd better order two or three just in case one doesn't work. I'm sure we will need it again one day." The downside to this thinking is that you can't afford to stock a complete facility on the side. It also represents money spent on parts that won't be used for 10 years or more, or may never be used. Fortunately, this problem is easy to address.

When I ask maintenance groups how much time they spend looking for parts during a normal eight-hour day, they often say it takes 20% to 30% of the technician's day. The root causes of this failure may be a combination of storeroom layout and parts naming convention issues inside the CMMS system.

Consider this example: A storeroom has more than 50,000 individual stock numbers or SKUs. The site has multiple business units in multiple plants across one physical location and each business unit is accountable for spare inventory. To prevent other business units from using their parts, this business unit disguises the part description in the catalog. A centrifugal pump might be listed with a short description of Item #45 on Dwg. D-345829. If you didn't add the item under this description, would you know to look here for the pump?

Here's another example: Consider a simple four-way, 120v solenoid-operated pneumatic valve with a spring return and 3/8-inch ports. In the short description in the parts catalog, the naming could begin with solenoid, valve, pneumatic valve, or four-way valve. Just about every way you could think to search, you might find a valve but not the one you were looking for. The sad thing is, the storeroom had a crew of roughly three people who were responsible, along with the plant engineers, to ensure consistent part naming when an item was added to stock. Ultimately, the organization performed a data scrubbing exercise to bring part naming in line with industry-recognized standards. This activity usually runs about $3 to $5 per SKU to clean up. So, in addition to paying salaries for others to maintain the database (which didn't happen), the organization shelled out nearly $200,000 to clean it up. With proper processes and auditing, that $200,000 could have been spent elsewhere.

Hunting for parts

You can complicate the search effort further by taking the approach of a typical retail or large distribution center warehouse, adding new parts to the first bin location where the item fits, rather than grouping

like parts together. What happens when production stops because technicians can't find the particular valve and resorts to searching row-by-row to find something that will work in the short term? Frustration mounts.

Odds are, technicians bitten by this event will squirrel away parts for next time. Unfortunately, those technicians are generally the only ones who know where the stashed parts are hidden and may not even work for the organization years later when that part requirement strikes again.

In this real example, the storeroom manager distributed similar parts across the storeroom to force technicians to use the parts catalog. This approach created inefficiencies and numerous SKU duplicates due to location and descriptions. It led to stocking multiple identical pumps under different SKU numbers, and 10 identical bearings under different SKUs. Could placing like parts such as bearings in side-by-side locations make it easier to identify duplicates?

Think it stops there?

Think again. The organization wanted to rotate inventory in a first-in, first-out method and show stock item turns. In addition, many parts have a shelf life. To help accomplish those goals, the planner scheduler reserved parts from the storeroom for future planned jobs. Since the planner scheduler or procurement department couldn't find the parts via the CMMS parts catalog, they resorted to buying the item externally. Most of the time, the externally purchased parts were not reflected against usage for that particular SKU, so there was no easy way to determine how many were purchased or used over a period of time. As a result, there was no way to validate min/max quantities in the storeroom. Secondly, the item was not listed on the asset's Bill of Materials (BOM), which is another reason it couldn't be found in the storeroom to begin with. Now, individual SKUs started showing up on the storeroom's slow-moving items or obsolete list. Attempting to stay below the maximum storeroom inventory value limit, someone made the decision to trash or scrap these slow-moving SKUs. Two days later, a technician went to the storeroom to get the part, which was not stocked. Wonder why the technicians are hoarding?

Thanks to all of this mistrust, it's no surprise that technicians are their own worst enemy from a storeroom perspective. For some SKUs, the storeroom never has the item due to erratic usage. In one transit authority, as soon as a new shipment of 500 brake shoes arrived, one of four rebuild shops would check all of them out of stock. It didn't matter that it took nearly 12 months to use 500 shoes. One rebuild shop would feast on shoes while the other three faced famine until the next batch arrived. Putting in just-in-time processes helped address this issue for the transit authority.

I'm sure you can come up with other causes that drive hoarding or hidden stores in your organization. Addressing the issue of hidden stores requires a partnership with all of the stakeholders – such as procurement, materials management, operations and maintenance – to implement effective materials management processes. Once these processes have been demonstrated as effective and having earned the trust of the users, you can then be successful in eliminating the hidden stores.

Jeff Shiver, CMRP, CPMM, is a managing principal for People and Processes Inc., where he has educated and assisted numerous organizations in implementing the best practices for maintenance and operations. He works with clients in educational, manufacturing, municipal and facilities environments to improve their practices. Reach him at jshiver@peopleandprocesses.com.

Value-added components minimize cost

BY JAMES K. ROGAN, NACHI AMERICA

In a time where people and companies are trying to minimize costs, they must identify real value to the products purchased. Many buy products with lower grade materials, manufactured to lower accuracies, hoping to reduce their costs. On the surface, this sounds like a good idea, but how does this affect you in the future? How does this affect the overall satisfaction of your investment?

If you are a company targeting low-cost, lower quality product, it may not affect you at all. On the other hand, if you manufacture a higher quality, more demanding product, customer satisfaction is a serious issue. It takes years to build a reputation based on quality, excellence and value, but a very short time to ruin one!

At Nachi, we take pride in our reputation of quality, excellence and value. Working with customers as a team, we not only help solve problems, but help our customers realize more value from their bearing purchases.

For example, we have helped customers with a long-standing reputation of excellence improve existing products. With the advancement of technology, materials and manufacturing techniques, we have found ways to replace costly custom bearings required in the past with products that are standard today.

In a recent gearbox redesign project, we worked with one OEM to replace traditional tapered roller bearings with Nachi spherical roller bearings to handle the radial and axial loads. Although the width

of the bearings and OD were different, the manufacturer realized a greater load capacity and life with less maintenance. A tapered bore allowed for optimizing internal clearance in the bearing during operation, thus minimizing vibrations and prolonging life. This is what we call value.

Another example involved taking a precision machine shaft that used special precision, custom bearings for decades and replacing it with nearly standard product. It involved the use of preloaded spherical roller bearings on a tapered shaft. The critical factor was to maintain no axial movement of the shaft during operation. The existing installation procedure entailed pressing the bearing up the tapered shaft until the drag torque reached a premeasured level.

It seems ironic that a bearing (an anti-friction component) is being installed pending drag-torque (friction) increasing to a given level. In changing to Nachi Bearings, we calculated the internal stress of the inner ring along with the reduction of internal clearance inside the bearing. An optimum target range was established to meet both criteria. We found that our bearings did not show the same type of increase in drag torque (friction) as our competitor and in testing we have realized an equivalent performance of the bearing with a reduction in operating temperature.

Due to our capabilities of utilizing near standard bearings, delivery is identical to our standard product. The load capacity is greater than the original design, the life is longer, the operating temperature is lower and the availability is better. The bearing cost was reduced and, ultimately, we have a satisfied customer.

Goodyear hydraulic hoses

Veyance Technologies Inc., exclusive manufacturer of Goodyear Engineered Products, introduced two new hydraulic hose products. The GCX5 contains a rubber cover, is U.S. MSHA and U.S. Coast Guard approved, and available in 1/4-inch to 1 1/8-inch ID. The GCX5 is designed for medium pressure applications and utilizes the UC family of crimp fittings. Hydraulics also released the Insta-Grip HT 300 push-on hose. This new Insta-Grip hose is rated to 300 PSI and 300F. Ideal for industrial manufacturing applications and is available in 1/4-inch to 3/4-inch ID. For information please contact your IDC Distributor-Owner or visit www.goodyearep.com/hydraulics.

Koyo ball guided Angular Contact Ball Bearings

While Koyo's new ball guided Angular Contact Ball Bearings have the same envelope dimensions and load ratings as their land guided counterparts, the ball guided design offers a range of benefits including: better lubrication flow, reduced vibration levels and improved energy efficiency. To learn more about Koyo's complete product offering, contact the authorized IDC Distributor-Owner in your area or visit www.koyousa.com.

CRC TAC 2 Adhesive Chain Lubricant

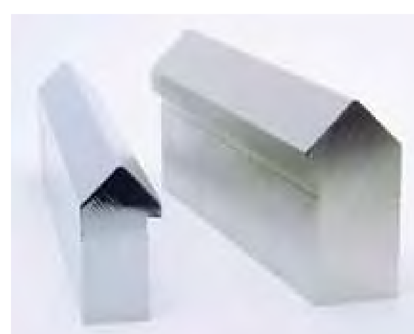
CRC introduces TAC 2 Adhesive Chain Lubricant. This exceptional lubricant will bond to chain/wear surfaces to keep them in peak operating condition by reducing friction and wear that causes metal fatigue. It contains a tackifier that enables the lubricant to cling tenaciously to metal surfaces without increasing the viscosity. Regular use of CRC TAC 2 will help inhibit corrosion, reduce load stress and help increase chain life. CRC TAC 2 operates effectively in temperatures up to 350 F continuously, equivalent to many grease products, so it covers a wide range of applications. For more information, ask your IDC Distributor-Owner or visit www.crcindustries.com.

Automated weigh systems

Renold's docking head allows the operator to fit and seal bags without walking onto the vibrating deck. The bottom head un-docks and moves to the operator within three seconds, saving valuable packaging time. Plus, RE Vibrators increase density, filling more material (15-50%) per container, requiring less warehouse space, with fewer containers to ship. All systems are custom-built.

Threadlockers and more

Vibra-TITE is one of the world's market leaders in anaerobics, cyanoacrylates, epoxies and ultra-violet technologies. A full line of threadlockers, thread sealants, retaining compounds, liquid gasketing, anti-seize compounds, superglues and more, are available. Vibra-TITE products offer the same high quality and performance as the leading name brand, but at a cost saving of up to 40%. Contact your local IDC representative, or visit www.vibra-tite.com.



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Use with SMITH-TRAX Bearings to quickly design and fabricate precision material handling systems. Precision manufactured SMITH-RAILS drastically reduce system design time and the cost to source guidance systems for material handling equipment supported by heavy-duty SMITH-TRAX track rollers.

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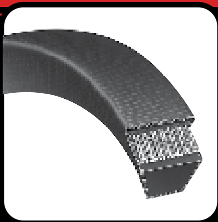

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Power King® Power Ace® Combo

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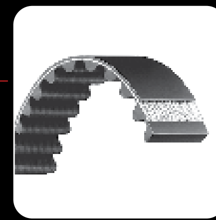

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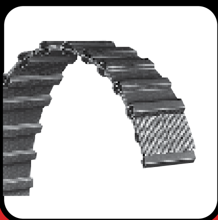
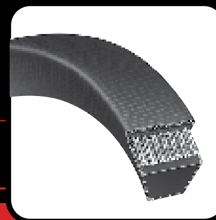
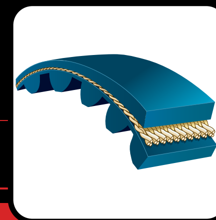


Synchro-Link® Double Sided Rubber

Synchro-Link® Double Sided Polyurethane



Metric V-Belts



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