IDC Industrial Review

Too big to innovate

Tough jobs, tougher tools

Common safety myths

Lean shutdowns

FALL | WINTER 2012

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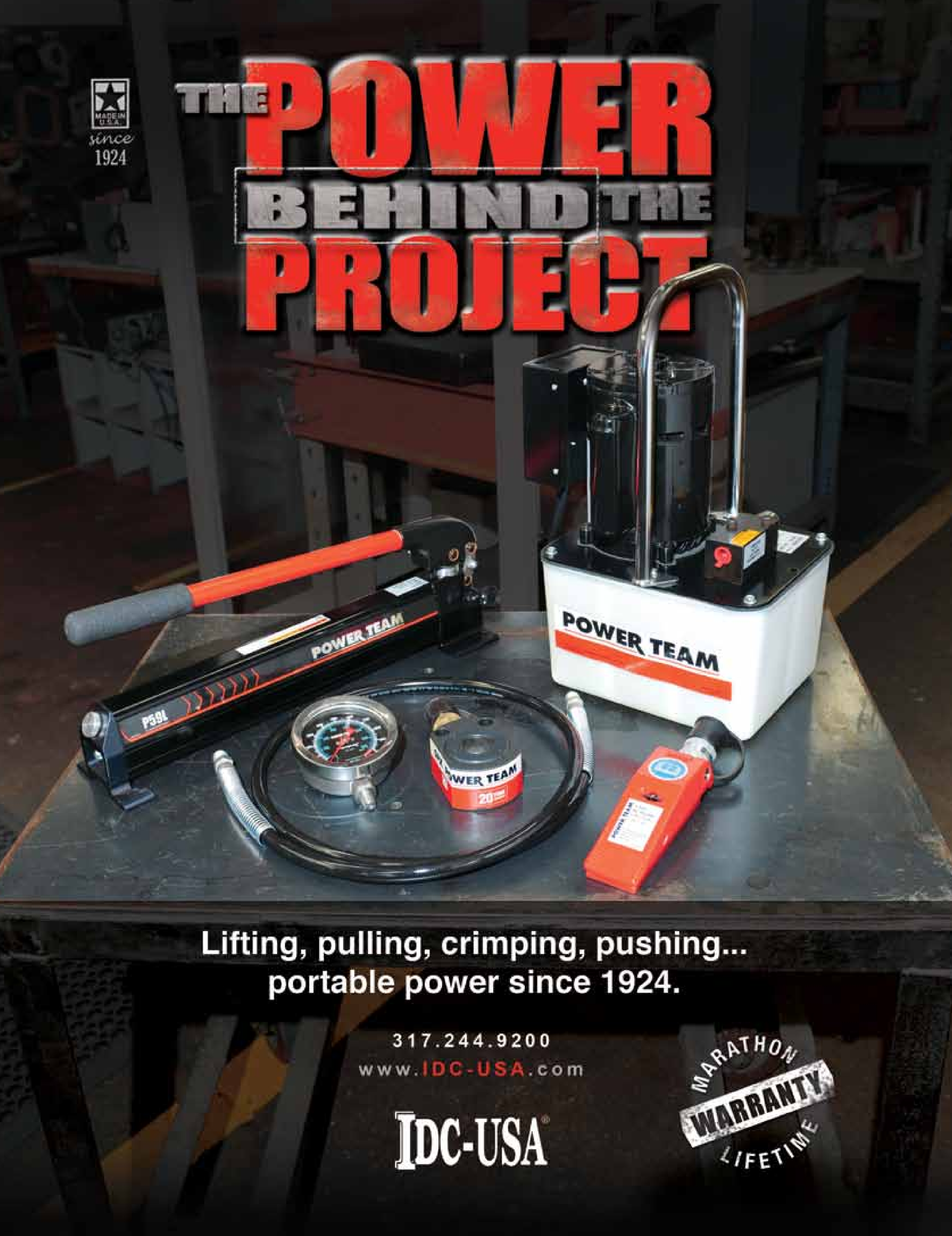
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The lowest price isn't always the best deal

JACK L. BAILEY

I think all of us naturally try to find the lowest price in our purchases. After all, it is the fiscally responsible thing to do, right? The truth is, the lowest price doesn't always mean the best deal. This goes a little bit further than the old adage, "You get what you pay for!"

As an example, non-core products most companies buy are office supplies. Like most, our company purchased our paper, folders, pens, paper clips, toilet paper and such from one of the big box office supply stores. After all, it seemed they had the lowest price. As one who advocates supporting the independent businesses in the community, I started to feel a bit guilty about our company purchases from the big box office supply stores. So I accepted the request of a local independent office supply store to do a "facility survey."

The survey revealed two things. The first, as expected, was that the independent store could offer me the same products at or below the same price we were purchasing from the big box. The second revelation I didn't see coming: the independent office supply owner requested the opportunity to review not the price of what I was purchasing, but whether my company was purchasing the right products.

I wasn't sure where the independent was going with this until he excused himself to use our restroom facilities. He came back in the conference room and informed me that in that short trip to the restroom he found a lot of opportunities to save our company money. He said that as he walked by the desks in our office, he noticed our staff using Post-It notes. He informed me that their adhesive patent had run out a long time ago and there were identical products with the same quality and design, but 40% cheaper. While washing his hands in the restroom, he noticed our Softsoap hand cleaner. He advised that this was the most expensive hand cleaner we could buy and that the foam hand cleaners were more effective and a lot less expensive. He then let me know we were wasting a ton of paper hand towels because we were using the wrong design; something about a "C-fold" and a "Z-fold."

My point is this: I was buying all of those products the independent found at the best price, but I obviously wasn't getting the best deal. It took the expertise of the independent to teach me real savings and value. When was the last time someone from one of the big box office supply houses said they wanted to do a "facility survey" at your company?

The same is true of your independent IDC Distributor. Unlike the big box MRO suppliers, they can not only offer you a good price, but they can also provide the advantage of their expertise to make sure you are getting the best deal. If you're looking at two bearings, one priced at $6.10 and the other priced at $6.50, it's not hard to determine the best price. But if the $6.50 bearing has twice the life, is the $6.10 bearing really the better deal? This is the advantage of having second- and third-generation expertise provided by the independent IDC Distributor in your community. He's not there just to take an order; he's there to be a partner in finding solutions and keeping your company up and running.

This issue of *IDC Industrial Review* provides some excellent technical material. More importantly, the issue is supported by some of the best manufacturers in the industry. As you might guess, any products advertised in the IDC Industrial Review can be supplied by your local IDC Distributor along with expertise that insures you're getting the best deal!

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Lubriplate

Every plant uses lubricant products of some type. Lubriplate is one of the most recognized and respected brands in the industry. Available in pails, kegs, drums, cans, bins, sprays, cartridges and tubes, Lubriplate has a solution for all your lubrication needs. Synthetic oil and grease, air compressor oil, hydraulic oil, multipurpose oil and grease, special application oil and grease, gear bearing and recirculation oil and grease, specialty oil and grease, food grade oil and grease, auto and marine oil and grease, motor oil, metalworking oil and machine oils are also available. Contact your local IDC Distributor to place your order.

IDC Select Hose

You can now purchase custom hose assemblies and preconfigured hose from your local IDC Distributor. Currently, available products are **DOMESTICALLY MANUFACTURED** and include industrial, air, metal and hydraulic hose assemblies constructed of Veyance/Goodyear Hydraulic Hose.

You now have access to over 75,000 feet of air, multipurpose and hydraulic hose inventory through your local IDC Distributor. Our customization capabilities include crimping up to 10" inside diameter, a variety of testing options (hydrostatic and electrical conductivity), lot/serial tracking to audit hoses back to original batch for failure analysis, and branding, tagging and custom labeling.

All hoses are manufactured and assembled in the U.S.A by National Association Hose and Accessories Distributor (NAHAD) trained assemblers.

IDC-USA is very excited to offer this product and service through our IDC Distributors nationwide.

Berliss

New to the IDC Preferred Supplier list this year, Berliss is the most well-known manufacturer of journal roller bearings in the country with over 75 years of experience.

Berliss roller bearings are available in nearly 4,000 different sizes in both inch and metric dimensions. They are made in high carbon, low carbon, stainless steel and nylon materials with precision ground solid inner and outer races or split outer races. They are also available in varying configurations such as flanged, caged 2-piece, 3-piece and roller assemblies only.

The addition of Berliss bearings to the IDC-USA product offering provides IDC Distributors with another option for journal roller bearings that can be used in a variety of applications:

- The oilfield industry
- Steel mills
- Heavy duty packaging machines
- Kiln carts
- Custom and specialized applications
- Conveyor systems
- Forklifts
- Overhead hoists and cranes
- Heavy-duty chain
- And more!

Learn how Koyo is standardizing its packaging

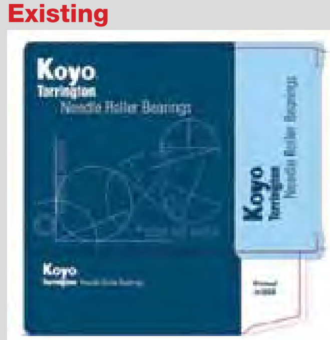
As Koyo continues the integration process of the Koyo Torrington Needle Roller Bearing product line into JTEKT and its bearing division Koyo, the company would like to inform you about two important changes:

1) Packaging will be standardized moving from "Koyo Torrington Needle Roller Bearings" to "Koyo Bearings" by the end of 2012.

2) Markings on their bearings will be changed to "Koyo" for products which are currently marked "Torrington" or "Torr."

Please be assured that the only thing changing is the name on the box and the marking on the bearing. You will continue to receive exactly the same quality product, made in the same factories, from the same organization that invented the Drawn Cup Needle Roller Bearing.

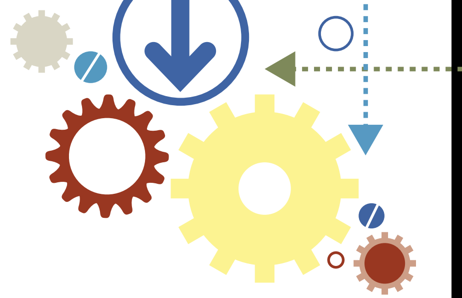
Existing



New

Koyo will begin shipping products in the new cartons or single boxes, with their modified marking in the coming weeks. These two changes cannot be perfectly synchronized due to production and logistic constraints, but the new packaging will be 100% in place by Jan. 1, 2013.

Thank you in advance for your understanding and support during this transition period. If you have any questions or concerns, please contact your local IDC Distributor.



Too big to innova

How scale and efficiency are trumping innovation at U.S. companies

Innovation is a popular buzzword in the business world today. Every company strives to be innovative. Everyone wants to be the next Apple or Facebook. They want to revolutionize their products and services by creating the next iPad or Zappos-style service model. But they don't. They can't. Most companies pump out the same old gadgets and services, placing more of a focus on cost and efficiency than creativity. They are so tied to Wall Street's demands to "grow or die" that they are rarely able to get a fresh idea into the starter phase.

Many companies today, says Professor Ed Hess, are anti-innovative without even realizing it. And without a renewed focus on innovation, he says, U.S. companies will continue to see a decline in international competitiveness.

"Today's companies are structured based on scale, efficiency and execution," says Hess, coauthor along with Jeanne Liedtka of *The Physics of Business Growth: Mindsets, System, and Processes*. "With such rigid structures in place, it can be difficult to move any growth initiative through an organization, let alone create groundbreaking innovation.

"Growth exploration and innovation are inherently messy and seemingly inefficient – the complete opposite of how big corporations want to run – and they don't and won't happen overnight. That is a very hard pill to swallow in today's 'do more with less' environment."

In their new book, Hess and Liedtka present more than 15 years' worth of research on how successful new growth actually happens in organizations. *The Physics of Business Growth* helps readers understand how to create growth in today's business environment, providing them a roadmap and a set of practical tools to navigate its challenges. The book helps readers create the right mindsets and an enabling internal system that aligns culture, structure, leadership behaviors, measurements and rewards to drive the right growth behaviors. Just as importantly, they set forth proven growth opportunity identification, experimentation and portfolio design processes.

It's a quick and easy read by design, created for busy C-level executives to use as a how-to guide as they seek to infuse their organizations with an entrepreneurial spirit – "a small company soul in a large

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PHOTO: © VOLODYMYR GRINKO

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company body" – with a focus on organic growth.

Understanding just how companies came to take on an anti-innovative nature demands a close look, notes Hess. Most companies think their primary purpose is to produce linear, reliable, predictable and standardized low-variance results. And the bigger the companies, the more powerful are the forces of conformity and low variance. In these organizations, the culture, processes, measurements and rewards are designed and aligned to produce what Hess and Liedtka call the "physics of stability."

Why this focus? Hess says it begins and ends on Wall Street.

"Wall Street's maniacal view is that companies should grow in an ever-increasing, linear manner evidenced by increasing quarterly earnings," explains Hess. "Institutional shareholders, by and large, own the vast majority of public company stocks for 12 months or less. They're more like stock 'renters' than owners.

"Add to this the short average tenure of public company CEOs who are paid significantly through short-term stock options, and you end up with a capital markets system that inhibits growth and innovation. Why? Because growth exploration and innovation are not short-term phenomena – they take time; they are not predictable or linear; and they are high-variance."

The "physics of growth" is inherently different from the "physics of stability." Uncertainty and ambiguity dominate growth exploration and innovation. They require different mindsets, internal enablers and processes than operational excellence.

Companies should start, Hess recommends, by changing the following entrenched ways of thinking:

Efficiency and scale rule the day

The organizational design and management theories that gave rise to the dominance of industrial scale and efficiency in production assembly lines still dominate management practices today. And, generally, the bigger the company the more the focus is on efficiency, scale and low-variance operational excellence.

"The culture, behaviors, processes, measurements, rewards and tolerance for failure needed to drive operational excellence are fundamentally different from those needed to create innovation, which requires an emphasis on exploration and invention," explains Hess.

All things must be certain

Most companies have difficulty accepting the most fundamental natural law of innovation: The only certainty is uncertainty. With innovation, the dominating forces are ambiguity and change; and the processes at work involve exploration, invention, and experimentation. The pursuit of growth and innovation is inherently messy and inefficient.

"Operational excellence strives for 99 percent defect-free performance," says Hess. "Contrast this to growth experimentation that can result in failure rates of 90 percent. In operational excellence environments, managers are rewarded for stamping out variance. Yet, in growth environments, variance is the norm. In fact, innovation is a high-variance activity. The mindset, culture and processes that drive successful execution in an existing business can, if unexamined, drive innovation into the ground, exhausting and discouraging the very people who are trying hardest to accomplish it and killing inventive ideas before they see the light of day. All because many big companies have devoted themselves wholeheartedly to the mantra that 'variation is the mother of waste.' Bottom line, to be innovative, you must be willing to accept failure."

Innovation always has to be revolutionary to be effective

Most scientific discoveries are built upon extensive learning from prior experiments. The same is true in innovation.

Innovation is an iterative experimentation learning process.

"In reality, most innovations are not industry-changing disruptions," explains Hess. "Most innovation is close-to-the-core improvements or add-ons or extensions to adjacent markets. The kind of ideas we want to generate – the kind we'll call creative – are all about creating new value for customers. We don't care if it's already been tried or looks like 'old wine in new bottles' or has been borrowed from another industry. Does it create value for your customers that no one else has yet offered them? If the answer is yes, congratulations! You've got a winner. Chances are, most of the components of the valuable ideas generated will have been floating around in some form or another—perhaps for decades. Good innovators learn how to combine existing things differently or transfer concepts from different industries or domains."

Innovation and execution can't exist together

Famed physicist Geoffrey West of the Santa Fe Institute hypothesized that corporations begin to die when they reach the level of 50 to 100 employees because they become dominated by bureaucracy that kills creativity and innovation. In effect, he is skeptical that big companies can prevent the "physics of stability" from killing innovation.

"Most management theorists have thrown up their hands and concluded that an organization either has to segregate its innovation activities from its execution activities," says Hess. "Or in the alternative, change organizational design from execution dominance to innovation dominance when innovation is needed.

"The management challenge facing U.S. companies is to deal with these realities and better manage the inherent inconsistencies, conflicts and tensions between operational excellence and innovation. Yes, the bigger you get the slower you get – the less agile you are and the more likely you have to buy your innovation. But there are many companies that fight this reality by first recognizing that the 'physics of stability' is different from the 'physics of growth.'"

"Can an execution culture and an innovation culture exist simultaneously in a company?" asks Hess. "We think so. Learning is the bridge that connects operational excellence and innovation. A learning culture with different learning processes and tolerances for failure, for innovation, and for operational excellence is the answer.

"If you want more innovation and more growth experimentation as well as operational excellence, there are many ways to achieve it," he adds. "Empower and create small innovation teams. Protect those teams from the dominance of the 'no-variance' operational excellence mindset. Create a safe zone where experimentation failures are learning opportunities.

"Do not punish failures; instead, celebrate the learning that comes from trying. And finally, understand that growth experimentation is a probability game, and the sooner you get customers actively engaged in your experimentation game, the more likely you will win.

"Operational excellence or innovation is a false choice," concludes Hess. "Both are possible in big companies if leaders confront and mitigate the natural proclivities of big organizations to inhibit innovation and new growth."

Edward D. Hess is coauthor of The Physics of Business Growth: Mindsets, System, and Processes *(Stanford University Press, 2012, ISBN: 978-0-8047847-7-1, $12.99, www.EDHLTD.com). He is professor of business administration and Batten Executive-in-Residence at the Darden Graduate School of Business, University of Virginia.*

Jeanne Liedtka is the United Technologies Corporation Professor of Business Administration at the Darden Graduate School of Business and former strategy consultant at Boston Consulting Group and chief learning officer at UTC. She is the lead author of two recent books The Catalyst: How You Can Become an Extraordinary Growth Leader *(Racom Communications) and* Designing for Growth: A Design Thinking Tool Kit for Managers *(Columbia University Press), and a leading expert on the use of design thinking tools to create growth strategies and opportunities.*

COMMON SAFETY MYTHS

Adhering to these misconceptions can jeopardize employee safety

BY SAFETY MANAGEMENT GROUP

A popular TV program called “Mythbusters” puts commonly held myths to the test by subjecting them to rigorous scientific testing. The show attempts to provide definitive answers to myths that are generally assumed to be true despite the lack of evidence. For example, one show focused on whether a penny dropped from the top of a tall building could deliver enough force to kill someone walking below. The answer disappointed 10-year-olds everywhere.

Workplaces have many commonly held myths about safety. Although they’re not the type of myths that would be likely to attract the attention of the “Mythbusters” crew, debunking them is important for the safety of workers, because such misinformation can get in the way of truthful, practical efforts that make workplaces safer. In this article, we’ll touch on a dozen of the most common myths, so you can put your own beliefs to the test.

MYTH NO. 1:

You can completely eliminate risks

Complete and total safety is an impossible objective. Much as we wish that risks and hazards could be completely eliminated, they can’t. However, what can be done is to mitigate and

PHOTO: NIKLZ, MELISSA MADIA

compensate for those risks and hazards through awareness and practices. That's how companies in even the most hazard-prone industries are able to achieve accident- or injury-free workplaces over long periods of time. But if you believe that you've completely eliminated the risk from your workplaces, you're setting yourself up for disappointment and you're setting your workers up for injury.

MYTH NO. 2:

Safety is something you do

Safety in itself is not an activity that you can perform. Instead, it's what happens when you take the right actions during the normal course of business. If you follow all of the prescribed steps and precautions when performing a task, the likelihood of being injured drops significantly. Of course, it's impossible to anticipate everything. A catastrophic failure of a machine you're using or an unseen structural flaw in a building component can injure even the most safety-oriented worker, but using safe practices minimizes the possibility.

MYTH NO. 3:

Safety is a separate function

Thinking of safety as something separate from everything else you do removes the responsibility for behaving safely from everyone else associated with your worksite. If workers believe that safety is somebody else's responsibility, they'll be more likely to act carelessly. A company with a strong safety culture truly believes that everyone from the owner or top manager to the lowest-paid employee shares a responsibility for safety, and that safe practices are just as much a part of every task as having the right tools.

MYTH NO. 4:

Simply meeting OSHA compliance is sufficient

There's no question that OSHA's regulations have done a lot to create and foster safe workplaces, but those standards provide the absolute minimum. A company that is truly committed to safety will use OSHA's rules as a starting point, adding its own training and practices to further enhance the safety of its sites. If you don't agree with that, consider that OSHA's "general duty" clause can hold you responsible for not preventing hazards you recognize but that aren't specifically addressed by the law.

MYTH NO. 5:

Safety increases the cost of doing business

Some companies sidestep strong safety programs out of a mistaken belief that they'll drive their costs up and make them less competitive. Actually, study after study proves that the reverse is true. Companies with strong safety cultures have higher productivity, lower worker turnover and less waste. They also tend to have lower overhead costs, insurance costs, labor costs, and also superior management methods and work practices. By contrast, companies with poor safety programs develop poor reputations and face the higher costs (and losses) associated with higher employee turnover.

MYTH NO. 6:

Safety programs solve everything

Developing a safety program is only half of a solution. You also need to implement and monitor it. Yes, you need to have a written program to satisfy OSHA, but if you don't ingrain that program into all your work practices, you'll never create a truly safe workplace.

MYTH NO. 7:

Site walk-throughs create safety

Walk-throughs are a valuable tool for gauging worker compliance with your safety program and identifying additional hazards that need to be addressed, but enforcement doesn't fix the underlying problems or identify the reason those problems are occurring in the first place. In addition, programs that are limited to enforcement tactics encourage workers to lie or hide unsafe practices when supervisors approach. On the other hand, if you have a strong safety culture, workers will take it upon themselves to perform in safer ways.

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Busting these safety myths will create a better, safer, workplace

MYTH NO. 8:

OSHA measures your safety

Actually, those incident logs you keep for OSHA's behalf focus on when your safety efforts fall short. Incidents and injuries are signs of potential underlying problems, and OSHA looks at them to see if there are any patterns that provide insight into what you're doing wrong. It's like measuring a driver's skill by counting the number of accidents he's had. He may be a lousy driver who happens to be very lucky.

MYTH NO. 9:

Incentive programs create lasting change

Incentive problems can provide a temporary benefit in safety by focusing attention on areas that need it. But over time, rewards can become counterproductive, because workers begin to focus on the measures that earn rewards, rather than on the practices that actually support safety. They'll begin to under-report injuries and look past violations if they're afraid that being honest will cost them some kind of prize.

MYTH NO. 10:

Discipline provides the right motivation

That's true only if your goal is to encourage resentment, turnover and bad practices. Yes, discipline can show that you're serious about having people observe the rules, and fear of being punished can make people act correctly, but in the long run, discipline creates negative motivations, such as encouraging workers to keep quiet about problems. If workers understand that safety practices are for their own benefit and that they have the power to improve safety for themselves and their co-workers, they'll be far better motivated.

MYTH NO. 11:

You'll find magic answers in technology

Technology can simplify some aspects of work, but it can't correct underlying problems or practices. In fact, technology can complicate and worsen a bad situation. The best fall-protection devices available aren't as effective as having workers perform tasks in ways that keep them from falling in the first place.

MYTH NO. 12:

Safety may work in other industries, but . . .

You've probably heard that your construction site or manufacturing process is too complex to allow any of those safety answers that work for other companies to be successful. It's true that no two companies and worksites are identical, and some are indeed inherently more complex than others. But it's also true that the basic elements of a healthy safety culture are the same across industry lines. That's because they're built upon knowledge of how humans act and behave rather than on the use of this tool or that process. Whether you're building a skyscraper, relining a furnace or running a dozen punch presses, a genuine commitment to safety will create a better workplace. And that's no myth.

The Safety Management Group is an Indianapolis-based professional service organization that provides nationwide workplace safety consulting, training, staffing, program planning and implementation. Visit www.safetymanagementgroup.com for more information or call (800) 435-8850.

Tough jobs, **tougher tools**

Industrial users look to economical King Tony tools for top quality, performance and durability

BY CLAIR DAVID URBAIN

Few applications put tools through their paces as severely as industrial assembly and MRO applications. Highly repetitive tasks, exacting specifications and unique assembly procedures and equipment designs mean tool users must have well-made and tough tools to complete their work safely and efficiently.

The King Tony Tool Group has a line of more than 8,000 tools that are built to meet these demanding needs, says Brett Thompson, vice president of sales at King Tony America (KTA).

“Our tools are built to exceed every world standard including ANSI and DIN standards. Germany’s DIN standard is the most stringent in the world, and our products meet or exceed them,” Thompson says, “Also, all of our factories are ISO certified, and even meet the new ISA 14001 standard for environmental safety.”

With world-class quality, one would expect these tools to also have premium pricing, but that’s where they really shine, says Thompson. “KTA tools meet and exceed the very best professional quality tools in the marketplace, but at a price as much as 40 percent below most competitors.”

Worldwide reputation

The King Tony Group has been selling high-quality tools to manufacturers and professional users in the United States and Canada since 2007, but for nearly three decades, it has been known around the world as a premier supplier of high-quality tools. “We presently sell tools in 113 countries,” adds Thompson.

IDC stocks the most popular tools and sets in its Indianapolis and Reno warehouses, but the complete product line is available through King Tony America’s warehouse in City of Industry, California. “IDC predominantly stocks sets of tools, some which contain 40 or more pieces. However, King Tony America has open stock on its tools, making it easy to quickly replace tools to keep a set complete,” he says.

Three brands serve different needs

IDC Distributors carry all three brands of King Tony tools. They are:

KT Pro

This complete line of high-quality hand tools meet or exceed ANSI and DIN industrial requirements. They are available in SAE or metric sizes (where applicable) as open-stock items or in a variety of tool kits to match your needs. They are covered by KTA's limited lifetime warranty, except for its torque wrenches, which are covered by KTA's one-year warranty. The tool line includes:

Hand tools

This complete line of sockets, ratchets and accessories are available in standard, deep, bit and spark plug styles with 1/4"-, 3/8"-, 1/2"-, 3/4"- and 1"-drive sizes. A wide variety of reliable and ergonomic ratchets and accessories help users reach most any fastener in any repair or assembly operation.

The sockets are made with high-quality chrome vanadium alloy steel that has been precision heat-treated for maximum strength. The sockets also have King Tony's innovative and patented Gripstrip design, a chemical-resistant rubber strip that improves grip for finger-turning sockets without interfering with socket operation. The colored Gripstrip band makes it easy to see if the socket is SAE (red) or metric (blue). Size markings stamped into the side of the socket are larger, which makes size identification easier.

Impact sockets and accessories

Made from high-quality chrome molybdenum alloy steel that has been precision heat-treated for maximum strength, the 6- or 12-point impact sockets are available in standard, deep, impact bit, thin wall, rear wheel and racing sockets in 3/8", 1/2", 3/4", 1" and 1 1/2" drives and in sizes ranging from 1/4" to 3 1/2" and 6mm to 90mm. They are also available in a variety of socket sets. They have larger markings for easier size identification.

Wrench and wrench sets

Starting with quality chrome vanadium alloy steel, these wrenches are precision heat-treated for maximum strength and life and finished with a

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highly polished chrome and satin finish for a good grip and feel. The SAE or metric wrenches are available in six- or 12-point styles and feature combination, open-end, box-end, offset box-end, flare-nut, star box-end, combination-speed, flexible-head speed, reversible-combination speed and box-end speed wrenches. Adjustable, pipe, special-purpose and torque wrenches are also available.

Screwdrivers and sets

The tools have a round shank made of quality chrome vanadium alloy steel that's been precision heat-treated. Then, a molded unitary construction process bonds the shank to an oversized handle that has a no-slip gripping surface. They are available in standard, insulated, precision and reversible styles with Philips, slotted, Torx or Pozidriv tips, as well as nut runners.

Pliers and snips

The pliers feature comfortable molded handles and precision cutting edges. The wide line includes combination, diagonal-cutting, long-nose, bent-nose, end-cutting, slip-joint, wire-stripping, circle, locking miniature adjustable long-nose and C-clamp adjustable pliers; plus a wide variety of tin snips, crimping tools and bolt cutters. The locking pliers have quality locking mechanisms for a tight grip.

Tool chests, carts and roll cabinets

Protect your tools with these high-end, yet economically priced portable tool chests, roll cabinets, tool carts and related accessories. The chests are powder-coated for excellent surface protection and have ball-bearing drawers for effortless tool access. The heavy-gauge steel frame and drawers protect tools and promise long life. They are available with a central locking system on several models. The drawers have full-width pulls and drawer liners or rubber mats to further protect tools. Larger chests have load casters with locks.

King Tony

This line of specialty socket bits and tools for the automotive market as well as other customers who demand top quality tools are available in SAE and metric sizes with 1/4", 3/8", 1/2", 3/4" and 1" drives. The line includes star, deep-star and bit sockets; bit holders, impact-bit sockets and sets, impact-star sockets, thin-wall impact sockets, punches and punch sets, second-cut files and sets, bits and sets, hex keys and wrenches and Star L wrenches.

M7

KTA's pneumatic tool line features unique engineering that combines small size and powerful design while minimizing noise levels. "Our slogan for the M7 air tools is, 'Mighty Small…Mighty Powerful…Mighty Quiet…Mighty 7,'" says Thompson.

The tools are available in SAE models in a variety of drive sizes. The pneumatic line includes impact wrench, ratchet wrench, die grinder, cut-off tool, belt sander, sander, nibbler, shear, saw, drill, screwdriver, hammer, hydraulic, riveter, surface-cleaning tool, caulking gun, blow gun and mini-impact socket models. All M7 tools are covered by KTA's one-year warranty.

"While many models are carried by IDC Distributor-Owners, an even greater selection is available and KTA will work with your distributor to find the best tool for your specific application," says Thompson.

From CONFRONTATION to calm

How to ask your way through 10 of the toughest conversations you'll ever have

BY ANDREW SOBEL

PHOTO: © SETIXELA

We've all experienced moments when we feel at a loss for words. Your boss criticizes your work. A customer demands a discount. Your presentation gets off on the wrong foot and tempers flare. You're left thinking, I wish I had been able to think of the right thing to say to that person!

You can transform tough conversations – and the relationships they affect – by asking a few power questions. Read on for 10 of the toughest, most awkward conversations you'll ever have, and powerful questions to help manage them.

1) A customer demands a discount

When a customer asks for a discount, that's a strong buying signal. You can shut the conversation down by simply saying "no." Or, you can open up the conversation and learn more.

You could start by saying, "I'll be able to respond to your request more effectively if I can understand what's behind it. Can you say something about why you need a discount or feel our price is too high?" Next, you might say, "I can reduce the price if the scope of the proposal is also cut back, or if we could agree to a long-term relationship with guaranteed volume levels. Would you like me to develop an option to do this for you?"

Power questions help you delve deeper into the customer's needs. You might find another way to show him the value he wants. In the long term, that will be viewed much more positively than a one-time discount and is a much better option than turning him down completely.

2) Your boss criticizes you

Your boss tells you, "You're not a team player. You need to collaborate better."

When this happens, ask two important questions. First, "Could you help me understand what I'm doing wrong by sharing a couple of examples where I have collaborated poorly with others?" And second, "Can you make some specific suggestions for how I could be a better team player?" Your openness to criticism and willingness to improve will make a good impression on your boss, and you'll leave with specific information you can act on.

3) Someone attacks your beliefs or values

Nothing chokes us up emotionally and angers us like an attack on our beliefs, values or practices, especially with regard to religion, politics and childrearing! Say you're having a discussion about healthcare and the other person says, stridently, "Oh come on, you're not going to tell me you think the government can do a better job running healthcare than efficient private companies! Please!" How do you respond? Your first reaction is to vigorously defend your position. This will most likely lead to an angry escalation.

Instead, try first asking a few questions. For example: "I'm curious, what things do you think the government should get involved with?" or, "That's a fair point. What kind of grade would you give the private healthcare companies for their performance?" When you're attacked, come back with questions that help you learn more about the other person and understand their anger, and that also helps put your ideas into the mix in a non-confrontational manner.

4) A potential customer is indifferent or hostile

Especially in this economy, buyers can afford to be standoffish. The right questions, however, can help you connect with even a defiant prospect. If a potential customer won't engage, consider asking, "What would be the best way for us to spend this time?" or, "I know you are busy; what interested you in taking this meeting? Do you have a particular challenge that we could discuss?"

It's possible your customer will say to you, "We have no need for your services now. I'll call you when we do." How should you respond? Try this: "You'd be surprised how many of my best customers said that to me when we first met! Do you mind if I ask you one or two questions? When things do pick up for you, in which areas will you make your first new investments?" If you can follow up with a few more questions, you may start building a relationship, and learn about a current need you can help with!

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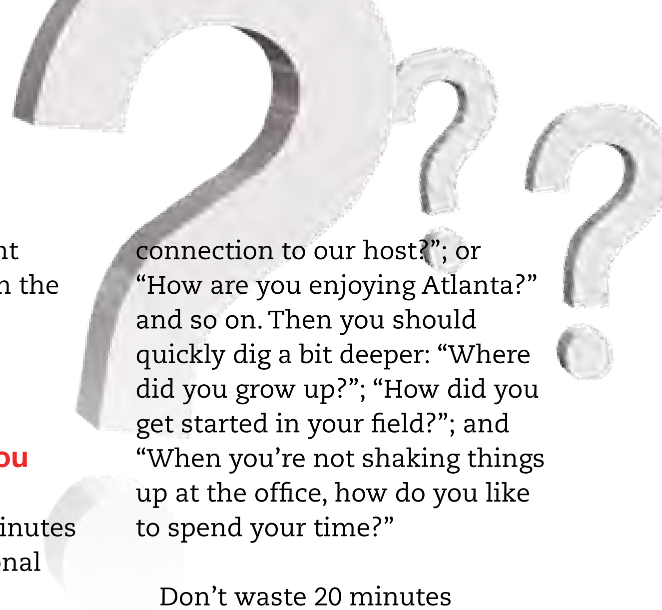


5) A conversation turns to anger or goes off the rails

You're just a few minutes into a presentation at work, and it all goes wrong. You are being angrily confronted or your information is being irrationally challenged. Tempers flare. What do you do? If you're like most people, you keep on talking – faster and faster – trying harder to persuade your audience.

A better option is to hit the reset button. Ask, "Do you mind if we start over?" Then, shift the focus to the other people in the room by saying, "We probably should have talked before I put this presentation together. Before I go on, can I ask, what's your perspective on the impact of these new regulations?" or, "You've alluded to some data I have not seen. Can you tell me more about that and where it came from?" Those magic words – "Can we start over?" – can salvage a tense situation. But you must use them early in the conversation.

6) You're turned down for a new job

In this job market, you are going to hear "No, thank you" far more often than "You're hired." If you've had only a single screening interview, it's unlikely you'll get any feedback out of the firm that rejected you. But if you went through a longer interviewing process, you ought to try and learn something. Here are two questions to ask interviewers if you are turned down for a job: "What are you looking for that you did not see in me as a candidate?" and "What advice can you give me about how to best represent my experience and skills in the interviewing process?"

7) Your job interview is almost over, and the interviewer asks, "Do you have any questions?"

If you have only a few minutes left, try to make an emotional rather than intellectual connection with the interviewer. Ask, "What do you love most about working here?" or, "As you look ahead to the future of your business, what are you most excited about?" You could also ask about culture; for example, "What types of people thrive here, and on the other hand, what are common reasons new hires don't work out?"

Thoughtful and personal questions will put a smile on the interviewer's face. End with a complicated question about business process reengineering, however, or a superficial one about vacation benefits, and they'll be grimacing as you leave. If you want to be noticed by recruiters, don't talk more, ask better questions!

8) You're introduced to someone you don't know

"Hi, I'm Andrew Sobel." Then what? If the other person is a gregarious extrovert, you may not have to do or say anything; they'll carry the ball. But chances are, there will be an awkward silence or a bland "How are you?"

When you first meet someone at an event, start with easy, non-threatening questions. For example: "Where have you come in from?"; "So what's your connection to our host?"; or "How are you enjoying Atlanta?" and so on. Then you should quickly dig a bit deeper: "Where did you grow up?"; "How did you get started in your field?"; and "When you're not shaking things up at the office, how do you like to spend your time?"

Don't waste 20 minutes engaging in purely superficial chitchat. On the other hand, don't dive in with inappropriate questions like "If you had only a month to live, what would you do?" Rapport starts with identifying commonalities and similarities, not shocking the other person!

9) A prospective customer says, "Tell me about your firm. What's different or special about you?"

Even the best salespeople choke up when they are asked this question. Usually, they spout a bunch of unconvincing statistics, talk about all their offices around the world and tout their unique, "collaborative" approach; the same stuff anyone else can and does say. A better response to engage your prospect is to first seek additional information. You might ask, "I'm curious, have you had any past experience with our company?" or, "What particular aspect of our business would you like me to talk about?"

Prospects may have something specific they want to know about you or a doubt they harbor, and this second question will help draw it out. This way, you'll focus on what's most important to that particular customer.

10) A customer is unhappy and calls you to complain

Just as surely as the sun rises each morning, you will receive calls from unhappy clients and customers, all of them saying in their own way, "You've let us down!" When people are upset, emotions are like facts. Don't start arguing with your customer about what really happened and whose fault it is! An unhappy customer who tells you they are unhappy is a gift, because most dissatisfied customers never express their anger, they just vote with their feet.

Here are some key questions to ask when this happens:

- "Thank you for raising this with me. Can you tell me any other facts or background information about what happened?"

- "Can you say more about that?" (This demonstrates your interest and helps explore the problem more deeply.)

- "How do you think things got to this point?" (This may uncover the origins of the problem, including things the customer may have done to exacerbate it.)

- "This is extraordinarily important to me. How soon can we meet to discuss the problem and how we can best respond to it?" (This shows the customer he is your No. 1 priority right now.)

Finally, don't forget to apologize!

Few things can make us feel more awkward than a tough conversation. When you find yourself in the midst of one, asking the right questions is a great way to salvage the moment and give yourself breathing room to think.

Andrew Sobel is the author of Power Questions: Build Relationships, Win New Business, and Influence Others *(Wiley, February 2012, ISBN: 978-11181196-3-1, $22.95).*

This is vacuum

A primer to provide a fundamental understanding of vacuum technologies

BY DANIEL PASCO

Approximately four hundred years ago, a young Italian man named Evangelista Torricelli walked up a mountainside with apparatus he had recently put together in his workshop. This apparatus consisted of a bowl of mercury with an open-ended glass tube inserted into it. This is shown in Figure 1. The young man was attempting to prove that the air in the atmosphere had a physical weight, and hoped that by walking up a mountainside this theory would be confirmed.

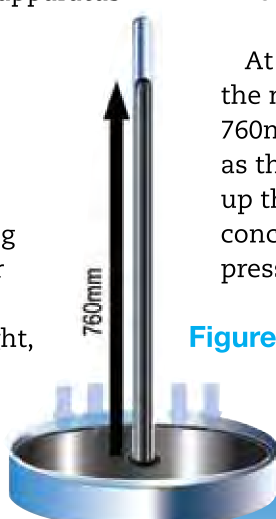


Figure 1

After a few thousand paces and much physical exertion, he diverted his gaze from the snowcapped mountains and focused on the contraption in his possession. His theory was proved correct. The column of mercury in the tube had moved downwards. The reason for this is that the atmospheric pressure pushing down on the mercury in the bowl was now less and therefore the mercury in the tube fell. Consequently, as Torricelli descended down the mountain, the pressure on the bowl of mercury became higher and the column increased in height. The "mercury barometer" was born.

At sea level, the height of the mercury in the tube was 760mm but this column receded as the barometer was taken up the mountainside. Torricelli concluded that full atmospheric pressure represented 760 millimeters of mercury (mmHg), as sea level was the furthest point away from the top of Earth's atmosphere and that this column of mercury moved up or down due to the amount of atmospheric pressure being exerted on the mercury in the bowl. This is the origin of the unit of pressure measurement known as Torr, named after its founder Evangelista Torricelli. 1Torr = 1mmHg.

Therefore, the higher the altitude, the lower the atmospheric pressure, because there are less air or gas

Figure 2

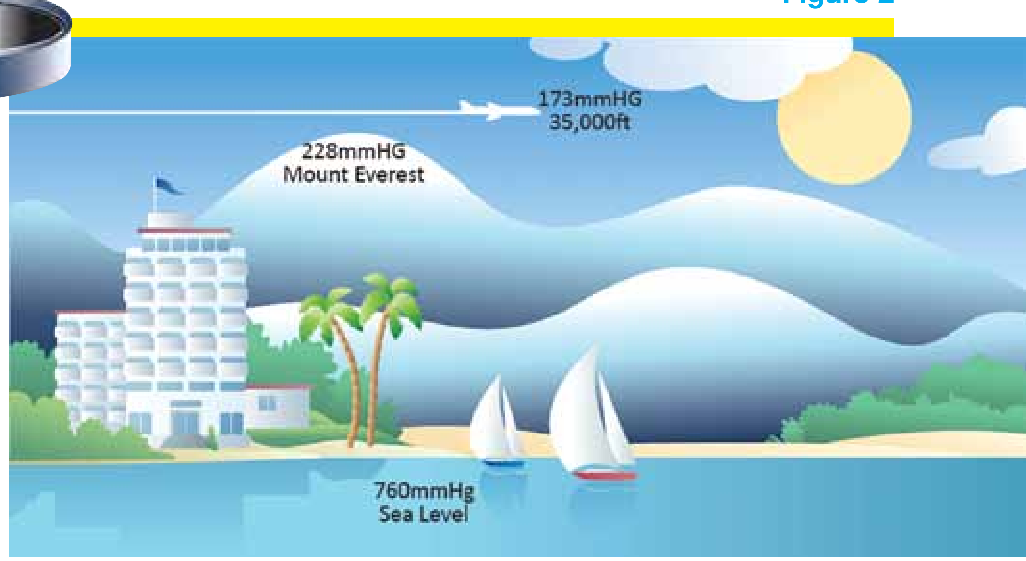
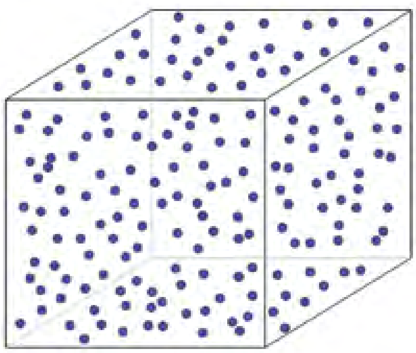
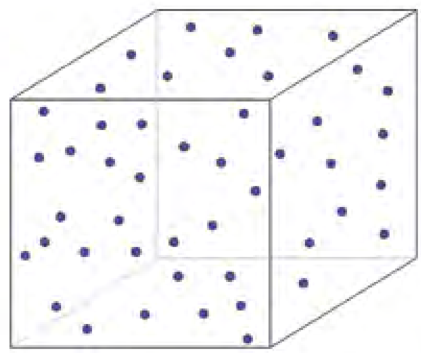


Figure 3



Condition One



Condition Two

molecules above, pressing down, creating atmospheric pressure. Figure 2 illustrates the different atmospheric pressures at varying altitudes.

The Torricelli experiment proved that atmospheric weight or pressure did exist and explains what a vacuum is. Put simply, "a vacuum is a known volume with a pressure that is less than the atmospheric pressure surrounding it." Figure 3 represents a comparable condition of atmospheric pressure and a vacuum. Condition 1 has a complete atmosphere and Condition 2 has had the atmospheric pressure reduced, which means this cube is in a vacuum condition. The atmosphere is made up of trillions and trillions of gas or air molecules. These molecules move around bumping into one another, creating pressure. As you reduce the amount of molecules, they bump into each other less often and therefore the pressure is decreased. It's simple enough to visualize.

How is a vacuum created? Basically, the atmospheric pressure is reduced by "sucking" out the gas molecules by means of a pump or venturi and the end result is Condition 2, as Figure 3 shows. The less gas molecules, the less pressure. To increase pressure, pump more air molecules into a known volume such as a car tire. When a car tire is not inflated, this means the same atmospheric pressure exists on the outside as it does inside the tire. Pump more gas molecules into the tire and the tire pressure increases. Vacuum is simply the opposite of this. Figure 3 shows flow direction arrows representing compression and vacuum.

Flow in a vacuum system

What is sometimes confusing to engineers is understanding flow within a vacuum system. Vacuum flow is simply referring to the rate at which the gas molecules are evacuated or "sucked" out (the rate at which the atmospheric pressure is reduced). Most vacuum apparatus data or even model numbers of vacuum pumps refer to flow at the atmospheric pressure or SCFM (standard cubic feet per minute).

> **Vacuum** flow is simply referring to the rate at which gas molecules are evacuated.

For example, a vacuum filter is sized to operate at 50SCFM. SCFM is referring to how many standard cubic feet of atmospheric pressure will flow per minute. Therefore, if your vacuum system is running at 380Torr, which is a 50% vacuum (remember Torricelli's barometer), the filter can handle 100ACFM, which is Actual Cubic Feet per Minute with actual being the pressure of the system (380Torr). Confused? Refer to Figure 3. Two conditions. Let's assume that Condition 2 is at 380Torr or 50% vacuum. That means it has ½ the amount of gas molecules as Condition 1. So, therefore, two cubes of Condition 2 has the same amount of air molecules as one cube of Condition 1. Consequently, 50SCFM is the same as 100ACFM @ 380Torr. 50SCFM is also the same as 500ACFM @ 76Torr.

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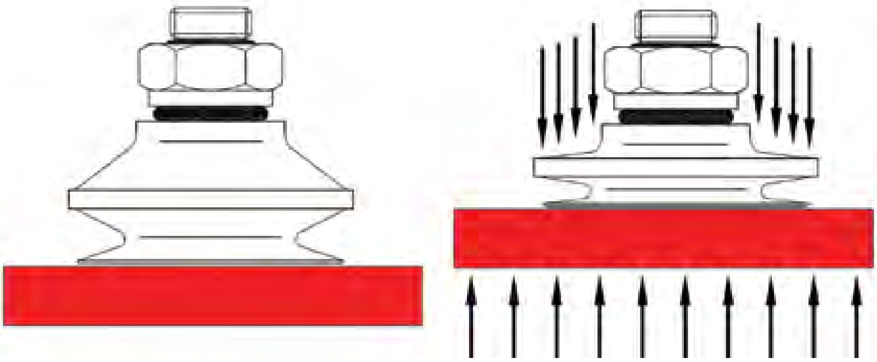
Figure 4



Condition One

Condition Two

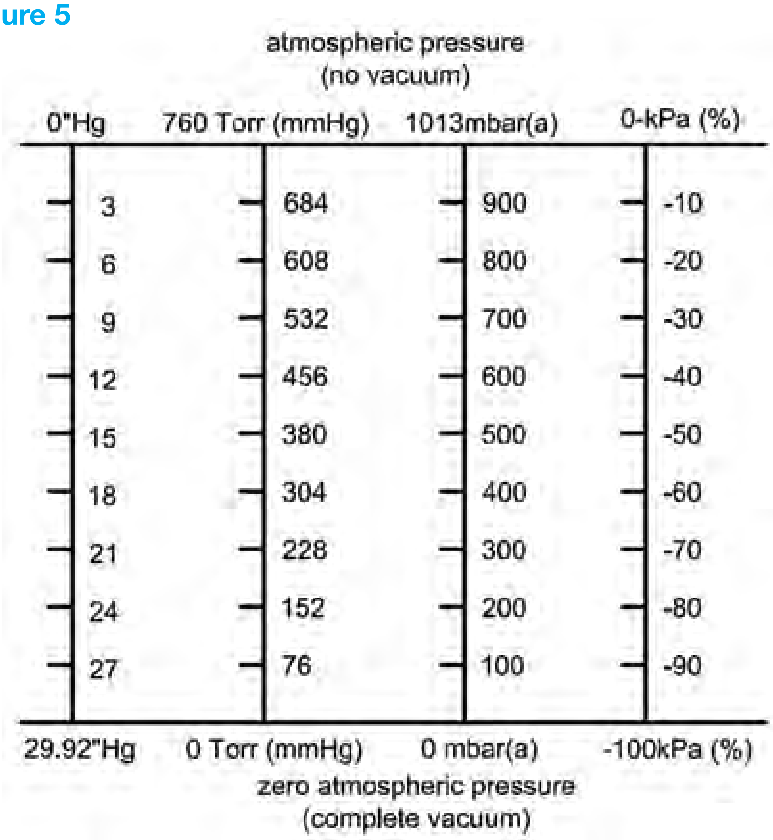
There is no global definition of a standard cubic foot which would include such conditions as temperature, atmospheric pressure, humidity, etc. However, a popular SCFM is 760Torr and 60 F (temperature has a big effect on pressure). One final note about this is that ACFM should always be followed by the pressure condition (100ACFM @ 100Torr for example).

The normal reason for wanting to size apparatus such as a vacuum pump in a vacuum system is to determine how quick the user needs to reach a specific vacuum level. There are many different sizes of vacuum pumps. If you have 10 different models of vacuum pumps and they can all achieve a final vacuum of 20Torr, the only other defining characteristic is how quick they can reach it, and that is based on the flow capacity/size of the vacuum pump.

Uses of vacuum in manufacturing

Vacuum is used throughout industry in manufacturing processes. One of the most common applications is material handling where vacuum cups are used to pick up and move material from point A to point B. Figure 4 shows how a vacuum cup actually works. When the cup is sealed against the load to be lifted, such as a piece of glass, the volume of air beneath the vacuum cup is trapped. This is a known volume. Condition 1 shows the vacuum cup with the vacuum generation device (pump) turned off and the cup remains in its original shape. When the vacuum device such as a pump or venturi is attached to the vacuum cup, the atmospheric pressure inside the vacuum cup is reduced. If, for example, the atmospheric pressure is reduced to 100Torr, this creates a pressure difference of 660Torr. This pressure difference (differential pressure) pushes down on the vacuum cup, squashing it against the glass. On the underside of the vacuum cup the same differential pressure pushes the glass up against the lower

Figure 5



Vacuum

is a pressure condition that is less than the surrounding atmospheric pressure.

pressure inside the vacuum cup. The glass is clamped between two areas of higher pressure. This is how a vacuum cup works.

How does atmospheric pressure determine how much weight a vacuum cup can lift? First of all, move this to a more familiar territory by using another unit of pressure measurement, psi. The psi unit indicates pounds of pressure per square inch and is the common pressure unit used in North America. As stated earlier, the average atmospheric pressure is 760mmHg at sea level. 760mmHg is equivalent to 14.7psi, or 14.7 pounds of pressure, over a single square inch of area. This is written as 14.7psi(a). The (a) indicates an absolute pressure where 0psi(a) is a full vacuum or zero atmospheric pressure. If you reduce the atmospheric pressure by 80% inside the vacuum cup, you have reduced the pressure to 2.94psi(a). If the atmospheric pressure is 14.7psi(a) you have an 11.76psi (14.7 – 2.94) differential pressure available. Consequently the following will apply.

1. If the vacuum cup is four inches in diameter, the area of this cup is 12.57in² (πr^2 = 3.142 x (2x2))

2. The differential pressure is 11.76psi (lbs per square inch)

3. Consequently, for every square inch there is a force of 11.76 lbs. over an area of 12.57 square inches (cup area) and, therefore, the vacuum cup's lifting force is 147.82 lbs. (11.76 x 12.57 = 147.82).

That is how you calculate the lifting force of a vacuum cup.

So far, Torr (mmHg) and psi have been used to describe atmospheric pressure. However, the most common unit of vacuum measurement used in North America is inches of mercury ("Hg). Inches of mercury is simply the same as mmHg (convert mm to inches….760 / 25.4 = 29.92"Hg) but unlike mmHg, "Hg is a differential measurement from the atmospheric pressure condition which as we know is a variable. mmHg is an absolute measurement with 0mmHg indicating zero atmospheric pressure. However 0"Hg is indicating zero vacuum or zero pressure differential at the current atmospheric pressure. This unit of measurement should not be used for HIGH vacuum applications as the datum point of 0"Hg is not a constant as the atmospheric pressure is always changing. That is why mmHg, an absolute unit, is used for applications where a known, higher vacuum is required, such as 3mmHg etc. Figure 5 explains this graphically and also compares other common vacuum measurement scales.

Summary

Remember the most important fact about vacuum. It is a volume of a lesser atmospheric pressure. Once this is realized everything else should fall into place. Furthermore it is NOT suction. Suction is purely an event, not an engineering condition. Suction is simply a higher atmospheric pressure rushing into a lower atmospheric area which is exactly how a vacuum cleaner works, with the higher atmospheric pressure pushing dirt into the cleaner. It does not suck the dirt up.

Vacuum is a pressure condition that is less than the surrounding atmospheric pressure.

The purpose of this article is to help explain what a vacuum is without bombarding the reader with scientific principles, laws and long exhaustive explanations which ultimately are not necessary in having a good fundamental understanding.

Daniel Pascoe is a regular contributor to the Fluid Power Journal and these articles can be found at the Vacuforce website at www.vacuforce.com. Vacuforce offers a full line of industrial vacuum components and solutions. The company specializes in generic component replacement such as vacuum cups and vacuum venturi as well as offering full turnkey vacuum solutions.

Lean shutdowns

10 ways to make your shutdowns more lean without cutting corners

BY JOEL LEVITT

For most companies that run continuously, shutdowns and outages consume a lion's share of both the maintenance and capital budgets. By its very nature, the shutdown is fat. The reason for this is the skewed balance between the cost of downtime and the costs of shutdown resources. In some cases the costs of having extra resources (such as extra cranes) are dwarfed by the avoided cost of downtime. Shutdowns are also fat because the attitude is "Get 'er done and we'll worry about the budget when it's over."

Times have changed. This old approach to shutdowns is taken too far and in itself becomes a fat. It is certainly a fat approach now when times are tough and prices and demand soften. The fact that the downtime is more expensive than resources under any economic condition doesn't justify the waste of resources.

There is a looming danger. The economy is in flux and many of our organizations are financially stressed. All parts of the company come under scrutiny for budget cuts. As a result we are running our shutdowns under tremendous pressure. The temptation to cut corners on safety or environmental issues is strong.

Usually the temptation to cut corners is not about present activities. I can't imagine skimping on fall protection harnesses or safety glasses. I can imagine and have seen companies apply temporary fixes rather than replacing pipes and design plants that are less expensive to build, but more expensive to operate.

Small improvements in managing shutdowns can yield significant weight loss for the maintenance department. The key is to cut the waste without compromising safety or environmental compliance.

Based on my experience with shutdowns in oil, utilities, mining and primary metal industries, here are 10 concrete ideas to implement that will

PHOTOS: GUSTAVO ANDRADE, KALI9

"lean up" the shutdown event without compromising safety or environmental security.

1) Discoverables are a key source of fat. Discoverables are jobs that are "discovered" after the shutdown starts (when you start opening things up.) Some ideas to reduce the surprises:

- Minor machining operations (turning down, reaming, broaching).
- Open everything on day one.
- Keep a history based on previous experience. Such a history will be important because it will show the deterioration in efficiency, if any.
- Diagnostic technology (including predictive maintenance techniques such as infrared, vibration analysis, etc.) might give an indication of what's going on. Schedule non-destructive texting (such as X-ray) right before you close the work list.
- One option for reducing discoverables is to conduct a "pre-shutdown." Maintenance workers on an oil platform out in the Gulf of Thailand do a mini-shutdown before they do their big shutdown. When they do the mini-shutdown they open everything up; inspect it, close it up and go back into service. That's not possible in a lot of places, but in this situation the crew said that their shutdowns were relatively controlled and didn't produce a lot of surprises. The amount of discoverables was dramatically lower, but the crew still had to convince management. Could you imagine this: "We want to do two shutdowns instead of one? You know, in order to manage the one, we're going to do another one."
- Another Asian group did a dry run. A pharmaceutical company hired a contractor to do a complete dry run before the main shutdown. They acted everything out before they touched the equipment. The company paid for it, but when that shutdown started, it was like a choreographed dance

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troupe rather than a keystone cops episode.

- The same company hired the shutdown contractor to draw up and start to plan the next shutdown while they were doing the dry run. With all the equipment opened up, the contractor could make measurements, do sampling and testing, and even count gear teeth to get a jump on the next shutdown.

2) Bad meetings are fat. Yet, good meetings are essential to the success of the entire shutdown effort and are lean. Wasted meeting time is highly leveraged. If there are eight people at a meeting and they are waiting for the ninth, the time of all eight people is wasted. The lean project here might be to train people in better meeting practices to make the meetings more effective.

Many companies have bad meeting habits. People come in late, or don't do their homework. They do not pay attention and then act inconsistently with the decisions of the group. They don't have good discipline around meetings, and management often doesn't model good meeting behavior. Start sending people to classes in how to run meetings and improve your meeting sophistication. By the way, do you have rules about texting or checking e-mail during meetings?

3) Use project management software. If there are more than 25 tasks in the shutdown (a very small event) then using project management software will lean up the shutdown by shortening the duration. Be sure the planners and schedulers are well trained in the Project Management Body of Knowledge (called PM BOK) including familiarity with whatever software package you use. The advantages are simple:

- By calculating the critical path you know early on if the project is on or off schedule
- By knowing the tasks that are on or near the critical path you know what to focus on
- You can anticipate if extra intervention is required to prevent the whole project from being delayed
- You see a problem coming when it is small enough to fix easily
- You can create displays that explain the shutdown and show its current status

4) 85% of the planning and scheduling work is done before the shutdown begins. The point of planning is to identify the elements of a unique job. The main point of scheduling is bringing together in precise timing the 11 elements of a unique specific maintenance job:

- Person(s) who are physically able and mentally alert with the right skill(s) to perform the job
- Safe job steps
- Correct parts, materials, supplies, consumables for the job
- Correct tools
- Adequate equipment for lifting, bending, drilling, welding, etc.
- Personal Protective Equipment (PPE)
- Proper permits and lockouts
- Custody/control of the asset
- Safe access to assets, safe work platforms, and humane working conditions
- Up-to-date drawings and wiring diagrams and other information
- Proper waste disposal

Make sure you take advantage of the time before the shutdown starts to line up these 11 elements. Remember, if any item is missing the job will stop or people will improvise (which increases the probability of a problem with quality and safety.)

5) Keep an eye on over-ordering of materials and return unused inventory as soon as you know you won't use it. When the shutdown is complete, the tendency is to shove all the extra material into the storeroom and take a credit for the value. That helps the shutdown budget but there is an overall cost to the organization unless the material is used in a fairly short time. Many storerooms have leftovers from projects and shutdowns for years after the event.

6) Note explicitly whether there are enough supplies for the entire shutdown (the planner should put their hands on these items and not accept the computer's inventory level). Supplies include rags, oil-dry compound, welding rod or wire, gases, nuts and bolts, etc. Shutdowns have been stopped in their tracks because someone made an assumption about the availability of simple resources.

7) Keep an eye on excessive numbers of rented cranes, welding units, generators,

compressors, tanks, scaffolding and other equipment. Investigate and return what is clearly not needed and doesn't provide any benefit, unless it is there to provide insurance against some significant loss. Return rentals of all kinds as soon as practical.

8) Be on the lookout for situations where resources are being paid for but are not being used. Have some lean projects to use them. This would also include spending a little extra to leave scaffolding to do some routine maintenance after the shutdown or keeping cranes for a few extra days as well as labor during the shutdown.

9) Validate the work list and remove duplications. Remove jobs that are not essential and be sure the wording of the work requested is clear. On individual jobs look at the scope of work as a contractor would. Be sure it's as clear and complete as possible. A better scope will result in lower prices if there are fewer unknowns.

10) Settle claims with any contractors promptly to avoid additional fees and penalties. Reducing the fat in your shutdowns can provide large payoffs for your plant in both time and money. Implementing any of the above 10 ideas can put you on the road to leaner shutdowns. Remember, small improvements yield large results.

Joel Levitt has trained more than 15,000 maintenance leaders from 3,000 organizations all over the world. Since 1980 he has been the President of Springfield Resources, a management consulting firm that services clients of all sizes on a wide range of maintenance issues. He has more than 25 years experience in many facets of maintenance including serving in the roles of process control designer, source equipment inspector, electrician, field service technician, merchant marine worker, manufacturing manager and property manager.


Levitt

Food-grade lubricants

Lubriplate's broad food-grade lubricant line meets stringent food processing requirements while assuring effective lubrication

BY CLAIR DAVID URBAIN

Food processing and logistics continue to play a very large role in the U.S. economy, says Jim Girard, vice president and chief marketing officer at Lubriplate Lubricants Company, which manufactures Lubriplate brand industrial lubricants.

"Although many economists report that the United States economy is slipping back into a recession, everyone still has to eat, drink and take medicine. Food-grade lubricants continue to be an area of growing potential for many distributors and even end-users as they get more involved with food-grade manufacturing processes," he says.

Protecting production from contamination

While it's a growing field with great potential, strict regulations require end-users, distributors and product suppliers to think twice about their lubrication approaches to food and beverage processing equipment.

"In the past, the USDA had a simple list of lubricants that could be used in food, beverage and pharmaceutical processing that was the industry standard for food-grade lubricants. The *USDA/FSIS List of Proprietary Substances and Nonfood Compounds* was the only reference for food-grade and non-food-grade lubricants. It was used by food and beverage processors worldwide," Girard says.

That list served as a watchdog of sorts for the lubricants and food processing industries and protected the consumer against substances that had the potential to contaminate food and beverage products. But in 1998, that program was replaced with the Hazard Analysis Critical Control Point (HACCP) program that is monitored by the USDA and the FDA. It monitors potential physical, chemical and biological hazards at food and beverage processors. Because lubricants are considered potential chemical hazards in

PHOTO: RICHARD CLARK, LUBRIPLATE

HACCP, only NSF H-1 registered lubricants can be used in lubrication applications that may have incidental contact with food or beverages being processed.

"To mitigate contamination HACPP concerns, many plants now mandate that only NSF H-1-registered lubricants be used in their facilities. The use of NSF H-1 registered lubricants eliminates the need for a HACCP plan for lubricants because NSF H-1 lubricants are not considered potential chemical hazards.

No watchdog, new watchdogs

"The NSF H-1 registration process has been developed by the National Sanitation Foundation (NSF) and presently relied on by most facilities in the United States. The NSF developed an authorization program that mirrors the USDA/FSIS program and is guided by Title 21 of the FDA's Code of Federal Regulations. Once products are registered, the lubricant manufacturer may use the NSF-registered logo in its promotional literature and trade advertising. The NSF program also requires formulations and products be continually monitored for efficacy," Girard says.

Anatomy of NSF H-1 lubricants

The lubrication industry continues to develop additional petroleum- and synthetic-based Class H-1 food-grade lubricants that provide lubrication for capital-intensive food and beverage processing machinery that do not require HAACP programs.

"Petroleum-based H-1 food-grade lubricants are developed with either technical white mineral or USP-type white mineral oil," says Girard. "USP mineral oils are the purest of all white mineral oils and are the most oxidation-stable. They provide optimum lubrication better than other white mineral oils and manufacturers add FDA-compliant ingredients to increase anti-wear capabilities, improve oxidation resistance and prevent rust and corrosion."

Synthetic H-1 food-grade lubricants, the other main type of food-grade lubricant, are primarily polyalphaolefin (PAO)-based fluids, Girard explains. "They provide significant oxidation resistance vs. petroleum-based H-1 food-grade oils and have significantly better cold-temperature operating capability. PAO-based food-grade H-1 fluids are outstanding lubricants for air compressors, oil recirculating systems, hydraulic systems and gear reducers. Their initial high cost is more than justified by their long-range performance. Fluids that are 100 percent PAOs significantly outperform the PAO plus polymer semi-synthetic fluids," he says.

Polyalkylene glycol (PAG) and Polyol Ester (POE) H-1 food-grade synthetic fluids are becoming very popular for applications where temperatures range from 400 F to 600 F. "Bearings, chains and gear reducers subjected to these temperatures are candidates for PAG and POE H-1 fluids," Girard says.

"H-1 food-grade lubricants can now effectively handle every machinery lubrication application in any food or beverage processing plant. That means maintenance and production crews can consolidate their lubricant inventory. That is good for the food- and beverage-processing plant employees,

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and most important, gives added protection to the ultimate consumer," says Girard.

Types of food-grade lubricants

Lubriplate offers one of the most complete product lines for food-grade lubricants available, reports Girard. Many come in more than one formulation and some even come in colors, which make leaks easier to detect.

NSF Class H-1 registered lubricants may have incidental contact with food and beverage processing machinery; NSF Class H-2 registered lubricants can be used on food- or beverage-processing equipment but must not have any contact with processed food or beverage. Class H-2 lubricants may also need a Hazard Analysis Critical Control Point (HACCP) program.

By category, here's what's available from Lubriplate:

Class NSF H-1 synthetic food machinery greases

SynXtreme FG and FG 220 Series:

These synthetic greases have a calcium sulfonate complex formula that are highly stable for operating temperatures from 0F to 450 F. They have long lasting anti-wear properties, withstand extreme pressure and are highly resistant to water and caustic solution wash-downs.

SFL Series:

They offer a wide operating temperature range and offer exceptional low-temperature pumpability, high shear stability, excellent water resistance and outstanding load-carrying properties. They are available in all four NLGI consistencies. SFL-1 has an operating temperature range of -60 F to 300 F; SFL-0 and SFL-00 are similar to SFL-1, but have softer consistencies and are rated at NLGI-0 and NLGI-00 respectively and have an operating temperature range of -60 F to 300 F. SFL-2 can be used for most all food processing grease lubrication requirements and has an operating temperature range of -25 F to 400 F.

Class NSF H-1 synthetic food machinery fluids

SFGO Ultra Series:

These zinc-free fluids are formulated with pure polyalphaolefin (PAO) synthetic base oils. They meet a variety of demanding applications where traditional white mineral oils and PAO polymer blends may not stand up to extremely high or low temperatures. They meet FDA 21 CFR 178.3570 and FDA 21CFR 172.882 requirements. SFGO Ultra lubricants are compatible with Lubriplate AC and HO oils, FMO Series and FMO-AW formulations.

SSO-FG seaming/ canning lubricants:

Designed for use in seaming/ canning equipment and related applications, they contain premium performance additives and base fluids that provide superior lubrication and outstanding oxidative, wear, rust and corrosion protection. They comply with FDA 21 CFR 178.3570, 21 CFR 172.882 and 21 CFR 182 G.R.A.S. They are also OU Kosher Pareve- and Halal-certified.

PGO-FGL synthetic gear oils:

Made with polyalkylene glycol base stocks, these fluids are specially formulated for use as gearbox lubricants on food processing equipment. They have outstanding micro-pitting and extreme pressure characteristics. Available in I.S.O. VG 150-, 220-, 320-, 460- and 680-formulations.

RCO-68 FG synthetic refrigeration compressor fluid:

This fluid complies with FDA 21 CFR 178.3570 and FDA 21 CFR 172.882, can be used with CFC and HCFC refrigerants, but is not recommended for use with HFC (Freon) refrigerants. It offers extended drain intervals, excellent chemical and thermal stability and minimizes the formation of harmful varnish, gum and sludge deposits. It has a high viscosity index, low pour point and meets Frick No. 3 oil specifications.

FG-350 silicone lubricant:

A proven food-grade silicone lubricant used in processing, packaging and packing equipment. Complies with FDA 21 CFR 178.3570. It is a high-yield silicone with an odorless, colorless and stainless protective film and performs well as a release agent on rubber or metal molds.

Class H-1 USP mineral oil-based food machinery oils

FMO-AW USP:

These multi-purpose, food-grade USP white mineral oils are anti-wear fortified and manufactured in 10 ISO grades for a variety of applications. FMO-350AW is also available in a red and orange color to aid in leak detection.

Food-grade cooker oil:
This zinc-free oil is designed for use with Manzel lubricators and Micro-valve systems. Unique additives provide high load-carrying ability and corrosion protection.

FP-150 and FP-150L oils:
These clear, tacky, adhesive oils resist heavy water wash-down and steam. A good choice for helical gearboxes, chains, linkages, cams, slides and wherever a dripless, adhesive fluid lubricant is desired.

Pure Flush oil:
This lubricant can clean and flush bearings, gear cases, hydraulic systems, centralized lubricating systems, chains, air lines and air tools. It is fully compatible with petroleum-based lubricants and most petroleum-compatible synthetics.

Class NSF H-1 USP mineral oil-based greases

FML Series:
These white, anhydrous calcium-based, multi-purpose greases are available in three NLGI densities for a wide variety of applications.

FGL Series:
They are fortified with anti-wear, anti-rust and anti-corrosion additives that provide excellent shear stability, load-carrying capability and water and caustic wash-down resistance. Available in four NLGI densities for a variety of applications; FGL-CC is specially formulated for centralized/ automatic lubrication systems on high-speed can-closing equipment.

Clearplex Series:
These clear, multi-purpose food-grade greases are engineered with an aluminum complex thickener and a non zinc-oxide anti-wear additive. They are available in NLGI 1 and NLGI 2 formulations.

Pure Tac and Pure Tac Light:
These tacky, adhesive, highly water-resistant greases are designed for applications subjected to chemically treated water, heat and steam. Works well on all types of medium- and slow-speed bearings, open gears and hydrostatic cooker chains.

Class H-2 food machinery oils

No. 78 cooker oil:
Designed for use in Manzel lubricators on cookers, sterilizers and applications in high humidity conditions. It can provide lubrication in sustained temperatures of 225 F without coating the cans in process with an oily film.

No. 72-C oil:
Developed specifically for lubrication where SAE 90 grade oil is recommended. It effectively prevents chatter on moving plates and dies.

STO-4 oil:
A special compound for lubricating bottle-filling machine stirrups. Detergent-type additives prevent residue build-up on metal surfaces.

Class H-1 food-grade spray lubricants

FML-2 aerosol:
This white multi-purpose grease comes in a handy, easy-to-use spray can.

FGL-1 aerosol:
This aerosol formulation can totally replace H-2 greases. It offers excellent shear stability, load-carrying capability and resistance to water and caustic wash down.

FMO-350 AW aerosol:
This general-purpose USP/AW mineral oil is easy to apply and can be used anywhere Class H-1 oil is required.

SFGO Ultra-7 penetrating fluid:
A multi-purpose PAO-type synthetic fluid lubricant for use on chains, slides and general lubrication on bottling, dairy and food processing machinery. It has an effective operating temperature range from -25 F to 250 F. It penetrates and protects against rust and corrosion and helps keep chains clean.

FMO-85-AW non-aerosol spray:
A multi-purpose oil packaged in 14 oz./414 ml. hand-pump spray bottle.

Best practices for maintenance supervisors

BY REX GALLAHER

I had the privilege of visiting a large pharmaceutical plant in North Carolina several years ago. It was in response to a presentation I had made on just what should supervisors be doing. My organization was undergoing a work sampling on our 2,800 maintenance supervisors to help us get a handle on what they were actually doing.

Most managers felt that we had burdened the supervisor with too much administrative work and, as a result, kept them from being on the floor interfacing with operations, providing assistance to the craftsperson and evaluating reliability performance. I wondered if our supervisors comprehended the need for face time and what that meant. I personally needed to get a handle on what I was to define as "face time."

We were introduced to the plant's maintenance management team and the dayshift maintenance coach. He had a team of 18 facilities craft persons who maintained the building and environmental equipment for a million-square-foot-plus facility.

He told about his work day. It began with a 15- to 20-minute team meeting in which updates were made on the day's schedule and plant/corporate performance. Employees identified any unusual situations they envisioned, potential problems and lessons from their completed jobs. Time was always allotted for social interaction.

The coach reviewed operational impacts, what was planned for the next day, unusual activities for the following week and his expectations for the day. That was their only gathering for the day. The team went to work on their assigned preventive and scheduled work orders.

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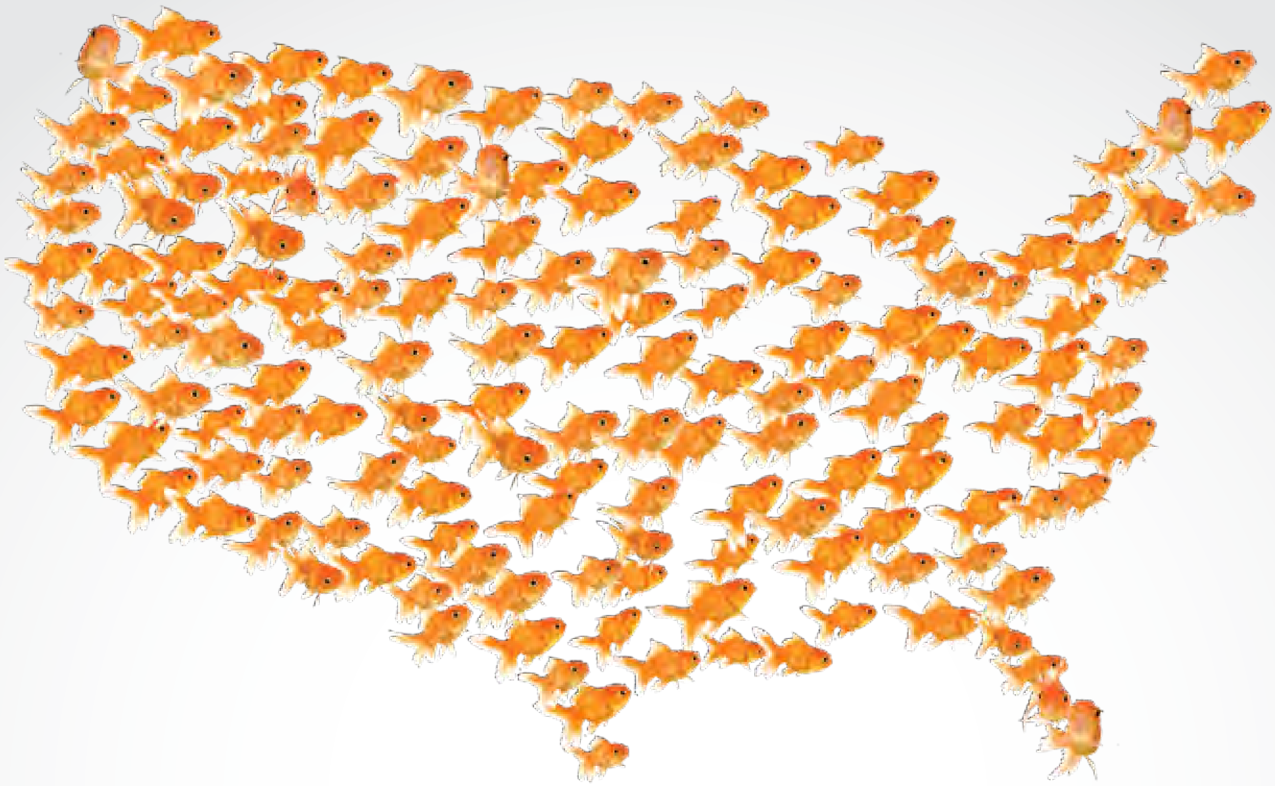
PHOTO: KALI9



So far, I found nothing unusual, until I asked him about "face time." What did this consist of? He replied that each team member was an important, unique person and that he spent at least five minutes a day with each of them. If he could, he tried to see each twice during the day. His job was to assure that they had the resources needed to complete their work. If he received a call, he would respond to the work site for face-to-face assistance. Using the daily work schedule and assignments, he worked his way through the plant, interfacing with operations managers/supervisors about scheduling and priorities and some personal dialogue.

Having the pillars of maintenance excellence in place supports supervisors and team members.

Face time was personal dialogue. It primarily was exchanges about children, sports, work impacts and other seemingly non-process items. Not so unusual, but this was the primary type of dialogue between him and his team members. He knew their goals in life, spouse's and children's names, some of their home issues, what was happening on the Fourth of July or this summer, and other "non-work" type stuff.

He headed off our questions about "work progress," saying that unless he had something pertinent to scheduling or planning, he seldom initiated that dialogue. If the employee wanted to discuss work, the employee started that conversation. The coach's time was spent maintaining interpersonal relationships with his team members.

His members were the skilled experts, and he felt they wanted the respect that entailed. How did he determine progress against the work order? During their social interaction, he observed what had been accomplished against the PM checklist or planned work order and could pretty well figure the progress. (He had previously reviewed these documents.) If he thought they may be a bit behind and might need help, he could bring up that "Joe was ahead today and could come over to provide another set of hands." Otherwise, unless the employee brought up an issue, the coach stayed out of the job.

Toward the end of our visit, several team members came to join us. We expressed our appreciation for their coach but wanted their take on his approach to "coaching" them. To a person, they expressed their gratitude for their "boss." They felt needed, respected and trusted. If the coach had asked them how they were doing or if they needed any help, they would have interpreted that as interfering with their responsibilities. The coach was always available to them, if they needed him. They looked forward to his visit each day. They knew him first as a person and second as their coach who represented the company to them.

Would they take a higher-paying job at the competitor down the road? No way! Did we know that if an employee found a seminar, a conference, a course or a new tool, he was encouraged to pursue it with company money? "We have a responsibility to provide the best product we can. We enjoy doing that, and it is more than appreciated."

Their plant had been evaluated against similar plants on reliability and cost-effectiveness and was considered the maintenance benchmark plant for their company and several of their competitors.

Now I had an example of "face time" that represented a best practice. It requires planned floor time with a set agenda. However, it is only possible with a plant-wide mind-set about the empowerment that employees would appreciate, having the pillars of maintenance excellence in place that supports supervisors as well as the team members, and providing the information, training and communication within an atmosphere of trust.

Rex Gallaher, CMRP, CPMM, BSME, BSIE, MSM is a founding and lifetime member of SMRP. He writes and speaks on maintenance, logistics, design of work, management, leadership, motivation, quality and organizational change. He is also an executive coach and career counselor. He can be reached at RMGallaher@att.net.

Gallaher

Meeting pet peeves

Learn to avoid these mistakes that plague organizations

BY JEAN KELLEY

Nearly all meetings succumb to a few pet peeves that derail the meeting's purpose, waste time and cause friction and frustration among attendees.

While all meetings fall prey to pet peeves, it's the process-oriented, information sharing meetings that most business people dislike and that are the most common. Even though the role of this sort of meeting is to keep others informed and to learn how what they're doing fits in the big picture, many people leave these meetings feeling confused, aggravated and sometimes overwhelmed.

If a meeting isn't informative at the very least and enjoyable at the most, then the company is wasting a lot of money getting people together. Additionally, if your meetings aren't on the mark, you'll get the reputation for holding poor meetings, which erodes morale and productivity.

To ensure your meetings are effective, informative and enjoyable, be aware of the top five meeting pet peeves and avoid them at all costs.

Not having an agenda or not sticking to one

The top three rules for Toastmasters are to start the meeting on time, end it on time, and always have an agenda. This rule should be true for business meetings too.

Having an agenda is not only simple courtesy, it also tells attendees that the meeting has a goal and will be productive. An agenda gives the meeting facilitator control over the meeting's flow, keeps the meeting on task and reduces confusion among participants. Realize that the agenda does not need to be elaborate; a simple bullet list of topics will do.

Remember to send the agenda out a day or so before the meeting so attendees can prepare. And if you forget to send it out early, bring copies of the agenda to hand out when the meeting starts. On meeting day, stick with the agenda. If a topic comes up in conversation that is not on the agenda, offer to address that topic after the meeting. This way you keep the meeting on schedule and won't derail the meeting's purpose.

Lack of facilitation

Some people mistakenly believe that meetings run on their own – that all you have to do is get a group of people together in a room and they'll automatically produce good results. Wrong! Getting the people together is the easy part; leading them in a productive discussion takes skill. That's why solid meeting facilitation is so critical.

The facilitator's job is to control the flow of the meeting, help attendees work together, provide structure to the meeting, and get everyone involved. When attendees are allowed to have their cell phones ringing, when one or two people dominate the conversation, or when it's acceptable for key people to not contribute to the discussion, good facilitation is lacking.

People arriving late to the meeting

How many meetings have you arrived to on time, only to have the meeting start late while waiting for others to show up? Even worse, if the meeting does start on time, it restarts 10 minutes later when a few people straggle in. Rather than continue with the meeting, the facilitator attempts to bring the late comers up to speed by rehashing everything that was just covered.

Why penalize the people who arrived on time? A better approach is to close the door when the meeting starts and put a note on the door that says,

PHOTO: © NIKADA

"Meeting in Progress." Those who arrive late will know to sneak in as inconspicuously as possible and, hopefully, won't make the same mistake next time. Additionally, unless the late person is the boss, don't restart the meeting. When start times are enforced and honored, people will make the effort to be on time.

Using PowerPoint when it's not needed

Typical information sharing meetings require a facilitator asking questions and everyone contributing in round-robin style. Watching someone read PowerPoint slides is not how these meetings should run. After all, if people simply needed to read pages of text, you could just send them the file and skip the meeting completely.

If your informational meeting needs to involve other senses, then use PowerPoint to add that visual component. Likewise, if you're combining everyone's data and showing it in chart or graph form, PowerPoint is great. But don't use PowerPoint just for the sake of it. Know why you're using it, and then do it right.

Listening to unprepared or ineffective speakers

Nothing is worse than listening to a monotone speaker who says "um" or "ah" every other word, or having someone start their portion of the meeting by saying, "I really didn't prepare anything for this, so let's just wing it."

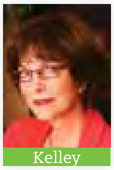
While everyone should speak and offer ideas at these meetings, some people may have to give more thoughtful, polished information. These people should be identified beforehand so they have time to prepare. This is crucial, because in most organizations, to be promoted you must have solid public speaking skills.

Additionally, if someone simply isn't good at giving presentations, no matter how much preparation he or she does, that person needs to get support and training to become more effective. Granted, no one wants to tell a colleague, "You need to work on your public speaking skills," but offering support to others will make meetings more effective and will also make the company stronger.

Do your part

No matter what you think of business meetings, they'll never go away. Knowing this, isn't it time we all work to avoid the top meeting pet peeves? If we all do our part, we can make meetings more enjoyable, productive and meaningful for everyone involved.

Jean Kelley, author and entrepreneur, is the managing director of Jean Kelley Leadership Alliance, whose faculty and trainers have helped more than 750,000 leaders and high potentials up their game at work in the U.S. and Canada. For information on keynotes, in-house programs, or customized training, e-mail jkelley@jeankelley.com or go to www.jeankelley.com.



Kelley

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Crossed roller bearings

IKO International announces a new addition to its roller bearing family, CRBF Mounting Holed Type High Rigidity Crossed Roller Bearings. These specialized bearings feature a space-saving design, with rollers alternately crossed at right angles between inseparable inner and outer rings. Because the rollers make inline contact with raceway surfaces, elastic deformation under load is minimal. Bearings can simultaneously accommodate loads from all directions, including radial, axial and moment loads. Applications include industrial robots, machine tools, medical equipment and other machinery requiring high rigidity and superior accuracy in a compact footprint. Contact your local IDC Owner-Distributor for more information or visit www.ikont.co.jp/eg/.

Synthetic food-grade oil

Lubriplate PGO-FGL-460 is a 100% synthetic NSF/H-1 registered food grade gear oil which delivers ultimate performance in worm gear reducers. It is a polyalkylene (PAG) gear fluid. PAGs are recommended by many leading OEMs of worm gear sets. Lubriplate PGO-FGL-460 is conveniently packaged including quarts. For more information, visit www.lubriplate.com or contact your local IDC Owner-Distributor.

Silicone gasket makers

Vibra-Tite announced the addition of RTV Silicone Gasket Makers to an existing line of Anaerobics, Cyanoacrylates, Epoxies and Ultra-Violet technologies. Widely used in the automotive industry, Vibra-Tite RTV Silicones can be purchased at a cost savings of up to 40% when compared to name brands. For more information visit www.vibra-tite.com or contact your local IDC Owner-Distributor.

Engineering class drive chain

Renold Jeffrey Engineering Class Drive Chain is the answer for tough applications in heavy industries. Whether it's construction equipment, mining, pulp and paper or the primary metals industry, Renold Jeffrey Drive Chains provide optimal value by reducing down time and lost production at a competitive price. Contact your local IDC Owner-Distributor or visit www.renoldjeffrey.com.

Pillow blocks and piloted flange units

Moline Bearing's latest additions to the M2000 Spherical line are 4-15/16-inch 4-Bolt Pillow Blocks and Piloted Flange mounted units. Brand name spherical inserts, combined with components that are made in the U.S., create a rugged bearing that is suitable for a wide variety of applications. Available in expansion and non-expansion styles. Contact your local IDC Owner-Distributor or visit www.molinebearing.com.

SCSH Series holdbacks

When looking for large holdbacks for conveyor applications, think of the NEW Renold SCSH Series of Holdbacks. These units have bore ranges from 4 inches to 20 inches, with holdback torque rating up to 500,000 ft. lbs. Comparable to FALK, Formsprag, Morse, and Marland, these Renold Holdbacks are perfect for aftermarket replacements. Visit www.Renold.com to view instructional videos on this product, or talk to your local IDC Owner-Distributor.

Lithium bearing grease

FYH Lithium Bearing Grease exhibits excellent water wash-out resistance, and extensive testing has proven this lubricant to be successful where such challenging conditions exist. Due to its compatibility with the existing formula, not only can the new and improved formulation enhance operating characteristics, it can also extend the useful life of units thatare currently in operation. Available from FYH in 14-ounce cartridges. Contact your local IDC Owner-Distributor or visit www.fyhusa.com.

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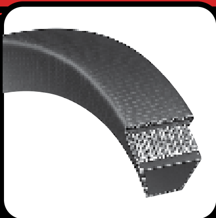
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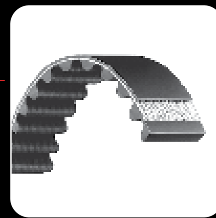
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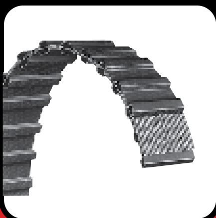
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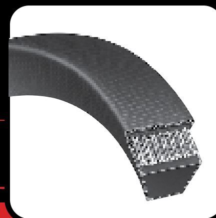
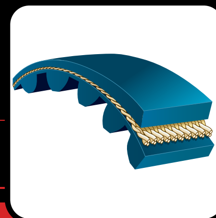

Metric V-Belts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