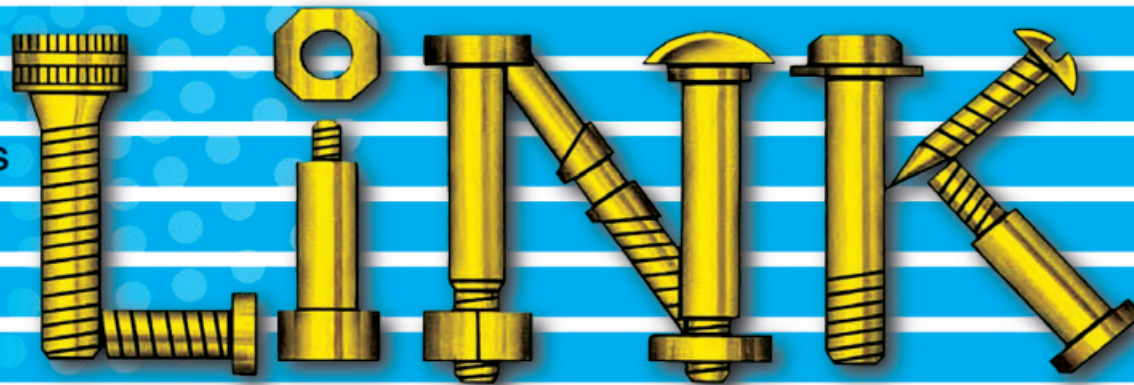


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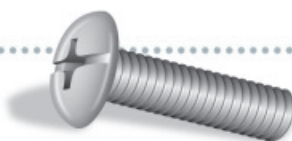
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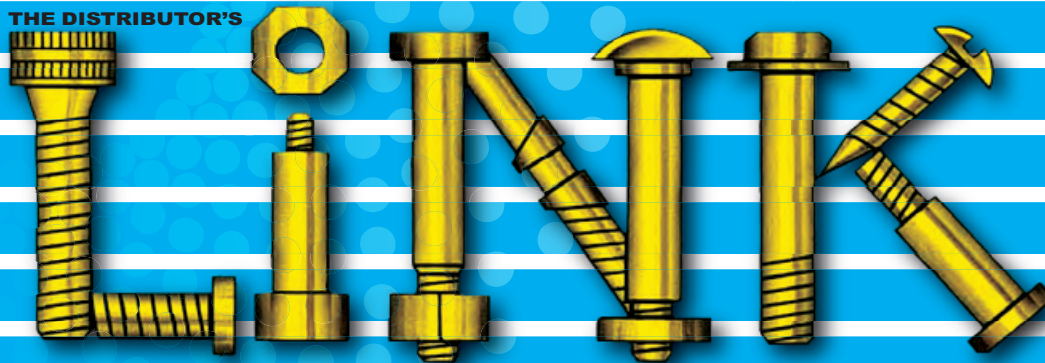


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# DISTRIBUTOR NEWS

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\* \* \*

**Stelfast Inc.**, a leading importer of fasteners is pleased to announce the opening of our newest location in Pico Rivera, California. Mr. Daniel Natividad has joined the company as Branch Manager, he brings a strong background in this industry with years of experience. Along with the expertise of Marty Martinez-Mohr, Vicky Duardo and Daniel Flores as inside sales executives. Leading the outside sales team is Doug Weiland.

Excellent customer service has always been a priority for Stelfast Inc. and with this core of individuals our customers will receive prompt and dedicated service.

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**Rotor Clip Company, Inc.**, the leading manufacturer of retaining rings, spiral rings, wave springs, hose clamps, and related products has created an online account with BlogSpot.

Rotor Clip will use this medium for musings on the manufacturing and fastener industries, Rotor Clip updates, and a Cross Fire-like editorial on issues that affect these industries.

To access Rotor Clip's page visit the following url: <http://www.rotorclip.blogspot.com/> For more information contact Rotor Clip at 800-557-6867 or visit [www.rotorclip.com](http://www.rotorclip.com).

## OBITUARY



**George "Kojak" Walsh**, 84, Navy Veteran of WWII, Mason and Shriner passed away on August 18, 2011 after a long illness.

George was a Manufacturer's Rep in the Fastener Industry since the mid 60's and was an industry legend. For those who had the pleasure of knowing him and calling him a friend, I'm sure you will agree that he will be deeply missed, but never forgotten.

Left to cherish his memory are his wife, Jerry; his children, Diane Davidson (Paul) and Donna Ponce (Pedro); his grandchildren, Richard Alan Denzler Jr. (Jennifer), Michael Ponce and Anna Ponce; his great-grandchildren, Jaden, Garrett and Rylan Denzler; and many great friends and associates that he entertained in the Fastener Industry over the years.

In lieu of flowers, donations in George's memory may be made to Friends of Richmond Animal Care and Control, 1600 Chamberlayne Avenue, Richmond, VA. 23222.





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## Bengt Blendulf

Bengt Blendulf is president/principal lecturer of EduPro US, Inc. Educated in Sweden, he moved to the United States in 1974 to start a subsidiary for a Swedish fastener manufacturer. Bengt also served for eight years on the faculty in the College of Engineering and Science at Clemson University. Since 1997 he (EduPro) teaches highly rated courses in Fastener Technology and Bolted/Screwed Joint Design in the U.S., Canada, Mexico, Europe, Asia and India, for engineers and other fastener professionals. Bengt was the chairman of ASTM F16.96 Bolting Technology from 1996 to 2006. In 2006 he received the Fred F. Weingruber award from ASTM for "his efforts to promote and develop standards for the fastener industry." He is the author of an extensive lecture book as well as over 100 technical papers and articles. His business address is: EduPro US, Inc., PO Box 232, Alameda, CA 94501; phone 510-316-3234; email: [bengt@edupro.us](mailto:bengt@edupro.us); web: [www.edupro.us](http://www.edupro.us).

# CORROSION - CAUSES AND PREVENTION

The main focus in bolted/screwed joint design work is typically based on the initial life of the assembly.

*Will the fasteners generate the desired preload without breaking?*

*Will the joint be able to withstand the external forces acting on it?*

*Did our assembly equipment give a consistent tightening accuracy on all fasteners?*

*Did we get a good handle on the spring rates in the various joint parts?*

*How much of the external forces is picked up by the fasteners, how much by the joint parts?*

These are, of course, very important issues that are covered in other articles, guide lines and course materials. But, how often do we give serious thoughts to the life of the joint some years down the road? Can we maintain the original properties of fasteners and joint materials over a longer period of time?

The main, long term influences are (in random order):

- 1 Relaxation (embedment, etc.)
- 2 Repeated on-off loading (fatigue)
- 3 Temperature fluctuations
- 4 Corrosion

I have covered some of items 1-3 in other articles and this time we will take a closer look at the material "break-down" that we usually call corrosion.

Some materials used in bolted/screwed joints are more protected against corrosion than others. Stainless steels (actually corrosion resistant steels) are protected by a thin, invisible surface layer of chromium (Cr) oxide, Cr<sub>2</sub>O<sub>3</sub>. The chromium oxide will develop naturally in the presence of oxygen (O) or can be accelerated by the immersion into an oxidizing medium like an acid (passivation). Aluminium, Al, can be anodized by an



Figure 1

electrolytic process, which converts the Al-surface to aluminium oxide, Al<sub>2</sub>O<sub>3</sub>, and thereby gives the part added protection against corrosion.

"Normal" steel parts, without the beneficial Cr content, are easily corroded in the presence of moisture and oxygen (both necessary for corrosion to develop). A steel fastener is the result of converting iron (Fe) ore, magnetite Fe<sub>3</sub>O<sub>4</sub> or hematite Fe<sub>2</sub>O<sub>3</sub>, through several processes to the steel wire that we use for the cold forming. The problem is that the steel fastener "remembers" the early life as iron ore and wants to go back to being in the mine (or in the hole) again. Our task is to prevent this conversion from steel back to ore from happening. Severe rust is chemically made up of Fe<sub>2</sub>O<sub>3</sub> or – you got it – iron ore. By the way, this corrosion product adds volume to the fastener, which can partly explain why they get stuck in the hole or nut.

Since corrosion is an electro-chemical process it is important to "mate" material in a bolted/screwed joint in such a way that they don't destroy each other. For example – if a joint consists of a copper (Cu) plate fastened on to an aluminium casting using an unplated steel screw (don't laugh, I have seen it) we have created a self-destructive monster.





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## Robert B. Footlik

*Robert B. Footlik is a licensed professional engineer. A graduate of Illinois Institute of Technology, he has worked extensively in the fields of material handling, plant layout, packaging and management systems. The firm of Footlik and Associates serves as staff warehousing and materials consultants to six trade associations. Footlik writes for 12 trade and professional journals. Footlik and Associates is located at 2521 Gross Point Road, Evanston, Illinois 60601; phone 847-328-5644.*

## IS IT TIME FOR WAREHOUSE INCENTIVES?

In theory, incentive systems should motivate people and encourage them to do their jobs "better." The reality is all too often a complete disaster. Plans that are ill conceived, improperly "sold" to the employees and poorly administered can foster dissension, while creating dissatisfaction. Conversely, incentive systems that reward everyone, and provide opportunities for individual growth can be highly successful. The "trick" is to create a program that everyone wants.

### Establish Goals

One distributor initiated an incentive program that rewarded the driver who returned first with an opportunity to sit and relax in the break room. This never worked, for several reasons. The local delivery route (the shortest, most concentrated run), was always the winner. The driver who worked the hardest and covered the most territory always lost. Every other employee was interrupted by the returning driver, and all of them resented his paid loafing while they worked. In addition, maintenance on his truck increased significantly as he abused the brakes and gears. Customer contact for this driver became virtually nonexistent. No money was saved, customer service suffered, and morale took a nose dive because of the lack of a clearly defined, logical goal.

Set parameters by creating a "decision tree" to compare things two at a time. Which is more important, quality or speed, quality or output, employee satisfaction or more pay? Answering these and other questions will lead to a prioritizing of goals. Many of these goals are complementary, and may carry equal weight. For

example, improving quality and customer satisfaction are often interrelated. Add a numerical weighing system, if necessary, to quantify the results. The end result often points to employee satisfaction and quality as the highest priority. There are many systems that can be

implemented to achieve this, depending on the sophistication of the company, and the level of trust of the employees.

### Start Simple

Most Fastener Distributors do not have a Warehouse Management Systems (WMS) that collects data and sifts through it for information. Trying to establish a financial incentive plan without comprehensive historical data and a reliable means of tracking who did what is an exercise in futility. Don't do it.

What any distributor, of any size or sophistication, can do is

"Statistically Sample" the warehouse output. The process is easy, and the results can be impressive. Try this first in shipping/staging. All you have to do is visit the area periodically, pick up a finished, wrapped and labeled order, cut it open and inspect the contents. Look for every conceivable error, including: under shipping, over shipping, backordering merchandise that should be in house, logic errors, mistakes of transposition, poor packing, improper labeling, etc. This is strictly a "pass/fail" test. The initiators of a perfect order get a reward towards a goal. The orders that fail are tracked back to educating the individual who made the mistake. It's this simple, immediate and relevant. You are in essence inspecting the order the way a customer would open it, and "complaining" before the order goes out.



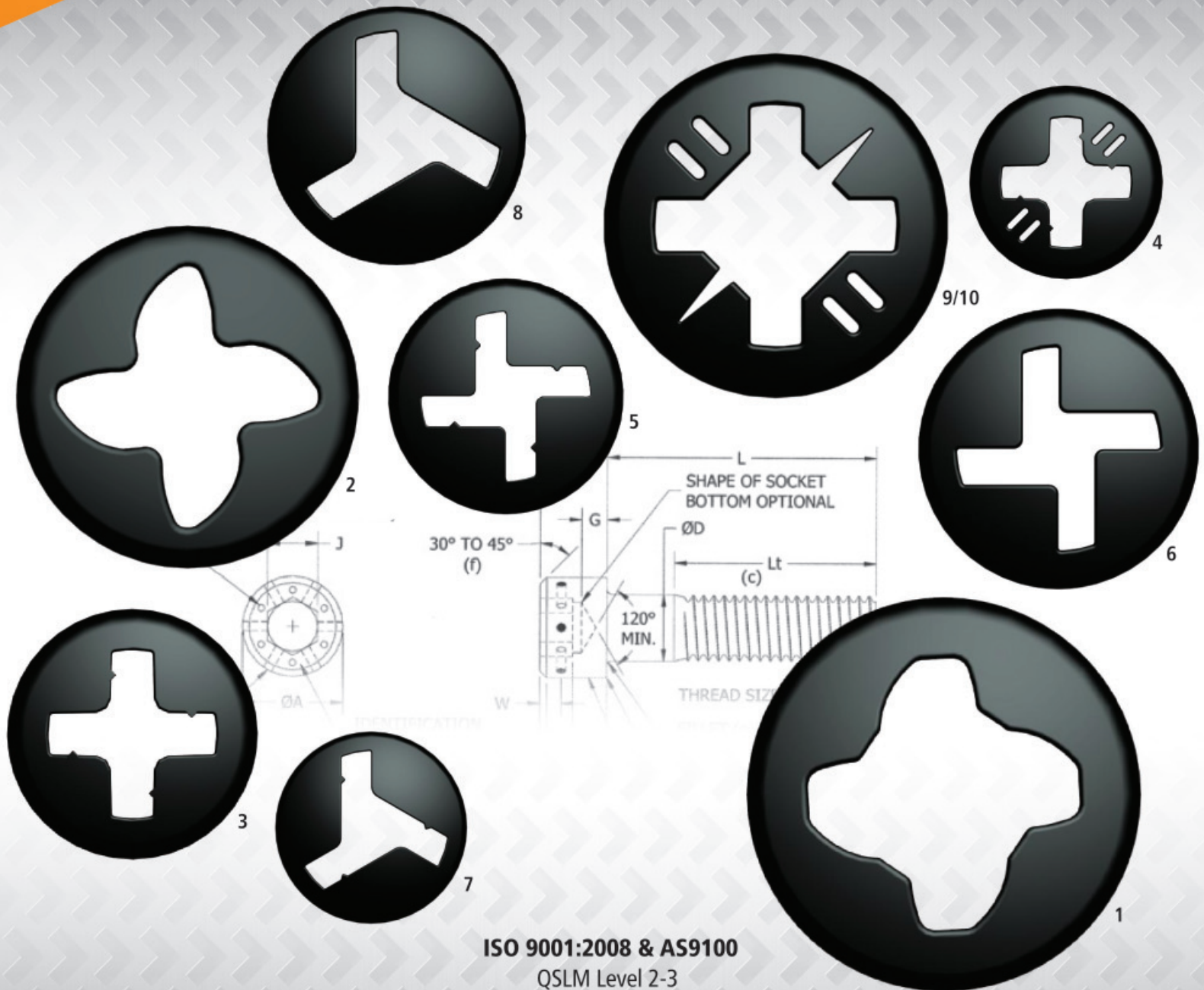


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## Jim Truesdell

*James Truesdell is president of Brauer Supply Company, a distributor of specialty fasteners, insulation, air filtration, and air conditioning with headquarters in St. Louis. Mr. Truesdell is adjunct professor at Saint Louis University and Webster University. An attorney and frequently published writer, he is the author of "Total Quality Management: Reports From the Front Lines".*

# BUSINESSES FIGHT TO BLOCK LABOR LAW END RUN

Distributors need flexible work staffs to deal with the varied demands of their customers. That's what most of them have. Wholesaler work forces often revolve around family members and seasoned long-term workers who step up to do whatever is needed to keep the enterprise running successfully. Anything that would upset this situation would put a company at a disadvantage. In some instances, especially with the larger companies, the possibility of a union organizing workers would disrupt the cooperative balance needed in this kind of business. That's why the National Association of Wholesaler-Distributors and other business groups were so concerned about the proposed "card-check" legislation before Congress last year (misguidingly labeled the "Employee Free Choice Act").

What the Administration could not accomplish in Congress, it seems intent on achieving through its agency appointees. This seems to be especially true as it attempts to make good on campaign commitments to its labor union constituency.

When the President used a recess appointment to place labor attorney John Becker on the National Labor

Relations Board (circumventing the serious concerns voiced in the Senate) it signaled a green light to the now aggressively pro-union majority of the Board to press ahead with an agenda of proposed regulations and lawsuits designed to strongly tilt the playing field in representation elections in favor of union organizing. Businesses would find themselves with limited time to fashion a response to a union representation campaign as the election process would be shortened to as little as ten days. Further proposals would attempt to remove the employer from determinations of employee voter eligibility and remove company input from investigations of whether unfair labor practices have taken place.

All of the effort which the Administration had put into promoting Employee Free Choice Act ( "Card Check"), which was derailed by widespread public opposition, has now been channeled into this back door approach.

The NLRB heard testimony about adopting some of the steps proposed by unions to make organizing and winning representation elections easier. A full schedule of people spoke to the hearing in mid-July after Chairman Wilma Liebman assured the group that the Board would proceed with open minds.







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## Joe Dysart

Joe Dysart is an Internet speaker and business consultant based in Thousand Oaks, California. A journalist for 20 years, his articles have appeared in more than 40 publications, including *The New York Times* and *The Financial Times* of London.

During the past decade, his work has focused exclusively on ecommerce.

Voice: (631) 256-6602; web: [www.joedysart.com](http://www.joedysart.com); email: [joe@joedysart.com](mailto:joe@joedysart.com).

## FOURSQUARE:

### *When a Cell Phone Becomes a Handshake for Fastener Marketers*

Fastener distributors with a demographic that skews toward the young and techno-lusty may want to check-out some interesting marketing opportunities offered by free GPS-driven social networks, including foursquare (<http://www.foursquare.com/business>).

Once seen as a quirky way to use your cell phone to broadcast your precise location to friends, complete strangers and/or local merchants, foursquare is being embraced as a serious marketing tool these days by hundreds of thousands of businesses and organizations.

Essentially, businesses use the service to offer special deals to consumers who 'check-in' at their brick-and-mortar locations with foursquare-enabled cell phones.

So far, the service has been used primarily by merchants. But there's no reason fastener distributors – who often have headquarters in or near retail environments – can't get in on the game.

Latest to the party is American Express, which rolled-out a campaign with foursquare earlier this summer that automatically processes discounts and specials for AMEX users who check-in and make a purchase at participating retailers.

Some of the deals are fairly aggressive: Sports Authority is offering a spend-\$50-get-\$20-back offer to foursquare users who make a purchase under the American Express promotion.

A fastener, for example, could use the same promotion to offer a 10% discount for a first-time-

customer who uses American Express.

"The success of our pilot just a few months ago proved that American Express' digital capabilities and foursquare's expanding application created something extremely powerful," says Ed Gilligan, American Express' vice chairman. "We're thrilled to take this partnership to the next level. For us, this is just the beginning."

As with all foursquare promotions, users take advantage of the American Express' offer by downloading an app from foursquare's Web site, which enables them to check-in with all participating businesses.

Generally, users redeem everyday foursquare offers by showing their cell phones to a store cashier or payment processor, who reads a coupon code off the phone and then punches it into the register for the discount.

But the American Express promotion is more elegant. Instead, payment processors simply swipe the foursquare

purchase with the American Express card, and the special discount or other deal is automatically processed by American Express.

The card company is able to pull this off by requiring consumers to register for its promotion at the foursquare page on the American Express website found at (<http://sync.americanexpress.com/foursquare>). Once registered, card members 'load' the specific specials they want to redeem right onto their card, and American Express takes care of the rest.



CEO Dennis Crowley started foursquare with a friend over a kitchen table a few years ago.



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# LOCKNUT TECHNOLOGY INC.

## ***WHAT DOES IT TAKE FOR A COMPANY TO NOT ONLY SURVIVE, BUT THRIVE IN THE EVER CHANGING FASTENER INDUSTRY?***

The answer is evident in the way that Locknut Technology conducts their business. The key to their success is in their humanity. Locknut Technology puts the highest regard on people; their employees, their business partners and their customers.

## ***LIFE AT LOCKNUT TECHNOLOGY***

Locknut Technology is proud to say that many of the employees who started with the company 16 years ago are still with the company today. Their turnover is very low due to their concept of empowerment management. The employees do not punch a clock and they are encouraged to voice opinions and aid the company in a constant state of evolution.

The employees that work the line are encouraged to stop production at any point if they deem that there is a quality issue or other any problems. They are also involved in the scheduling process to assure timely delivery of all products. Giving all employees the autonomy to make a difference has created a company that is forever changing and providing better and more unique/custom products.

The customer service representatives are given the authority to make the decisions necessary to provide for the needs of the customer. When problems arise, they are encouraged to give a resolution that surpasses the customer's expectation. They then use that knowledge to create solutions that can be implemented daily so that the same problems do not keep occurring. In this day and age, it is a special place that values the human interaction and the human spirit first.





# OUR STORY SO FAR...

The sheer longevity of the employees and their vast knowledge and expertise results in high production as well. They are on a win-win by putting people first, resulting in productivity at its highest potential. The devotion to their employees allows for this high retention because the team feels valued and they know that who they are and what they do matters on a daily basis. Roy Motz, founder of Locknut Technology, gives credit to the entire team for the progress and growth of their company. This foundation of making each employee feel valued allows them to also treat the customer with the utmost respect and honor.

## ***THE HISTORY OF LOCKNUT TECHNOLOGY***

Locknut Technology started in 1995 in the suburbs of Chicago, IL in a 900 square foot facility. In the beginning, the company was primarily serving the distributor market by offering hard to find flange-style locknuts. Roy also began with custom pieces from the very start. He allowed customers to place special orders for their own material to be custom produced into locknuts. Since these very modest beginnings, they have moved four times and now reside in a 30,000 square foot facility that houses close to one hundred million products and has the equipment to produce in excess of one million parts per day.

Locknut Technology is known for fast turn around from order to delivery and vast capabilities to deliver custom pieces. Locknut Technology believes it is important to expand and diversify. They are continuously expanding their product line and recently added a new line of Flextop® Locknuts. This product is a radical departure from their existing product lines, requiring large expenditures for new production equipment. Their in-house expertise in machine design allowed for the development of the most modern processing equipment. Roy Motz was able to use his skills as a toolmaker and designer to create state of the art machinery. This custom built machinery is the cornerstone to their success, allowing them to meet the ever-changing customer requirements and specifications.

***CONTINUED ON PAGE 18***



FROM PAGE 17

## **THE PHILOSOPHY OF LOCKNUT TECHNOLOGY**

Locknut Technology has a passion to serve the customer by anticipating and surpassing their expectations. The manufacturing plant operates 24 hours a day, 5 days a week. This allows for the shortest lead times for production and better utilization of space and equipment. This also results in lower production costs, which translates into greater value for their customers. There are many times when a customer will call for a custom piece at 8 A.M. on a Monday and by Tuesday the customer has the product in their hand. Normally this would take 3 days, but due to the 24-hour operation, 3 days turns into 3 eight-hour shifts and a next day delivery is possible. To ensure world-class customer service, they have a software system that allows for full access to all company functions, such as sales order tracking, inventory, production status, delivery, etc. Now with only one phone call, the customer is able to find out anything and everything dealing with the creation and production of their order.

## **SUCCEEDING WHERE OTHERS FAIL**

With its large investment in custom tooling and the benefits of the increased flexibility created by the 24 hour production lines, Locknut Technology is able to create a platform to provide custom parts quicker than industry standard lead times. In an age where distributors and end-users are downsizing inventories, being able to respond quickly to customer demands give them a strategic advantage. Where other manufacturers or importers are giving lead times of several months, Locknut Technology is able to provide the product in a matter of just several days or a few weeks. In some instances they were able to deliver customized finished parts as early as the next day. Same day emergency service is offered.

CONTINUED ON PAGE 20

# **LOCKNUT TECHNOLOGY INC.**

LOCKNUT'S DRIVING PHILOSOPHY  
ACCORDING TO ROY MOTZ...

***"but for the customer  
we exist"***





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The stable and well-trained workforce has allowed for the development of some of the most modern processing machinery, fully equipped with self-check capabilities. One of the main reasons Locknut Technology is successful against off-shore competitors, is their keen decision to increase on-hand inventory. This is another example of Locknut Technology putting the customers at the forefront in all of their decision making.

Engineering assistance is available upon request. The expert knowledge of applications, uses, material grades, torque specifications, plating and types of locknuts is at the disposal of the customers at any time. Customers are helped to ensure that they procure the correct part for their specifications and applications. An ever-increasing loyal customer base is evidence that Locknut Technology has created a foundation of quality products and exceptional customer service.

### **QUALITY AT LOCKNUT TECHNOLOGY**

Locknut Technology is ISO 9001:2008 certified and has maintained its accreditation since early 2000. They also have an IFI 100/107 quality assurance lab on-site with the latest in specialized testing equipment. This includes ring and thread gauges, torque testing equipment, proof-load testers, hardness testers and digital measuring equipment. This internal lab allows Locknut Technology to reduce the time and expense of using outside labs. Their eye is always on creating an improvement plan based on the future. They take notes from their successes and opportunities and plan accordingly to carve a path into the future. New product lines and marketing opportunities build on the core strength of producing locknuts. This will allow Locknut Technology to serve areas and industries that are not currently well represented by their product line, such as aerospace.

# **LOCKNUT TECHNOLOGY INC.**

THE IMPORTANCE OF INVENTORY  
ACCORDING TO ROY MOTZ...

***"you can't sell from  
an empty cart"***





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## WHAT IS A LOCKNUT?

The simplest definition of a locknut is 'a nut designed so that, once tightened, it cannot be accidentally loosened.'

Prevailing torque locknuts attain their vibration resistance thru frictional interference between the threads of the mating parts. Prevailing torque is the torque necessary to rotate a fastener relative to its mating component. This is the basis of resisting vibration and loosening during use.

All-metal locknuts are constructed from metal only and do not include a nylon insert. Due to their all-metal, one piece construction, they are more suitable where safety, high strength or higher temperature resistance is required.

Numerous styles and designs exist, with Locknut Technology manufacturing and stocking vast quantities of locknuts for shipment from stock. Locknuts are divided into strength grades depending on the materials they are composed of. The higher strength locknuts are made from medium carbon steel and heat treated to specifications. Flange locknuts have a much larger flange diameter to bridge large holes or slots. They are useful to eliminate handling a separate washer during assembly.

## HOW AND WHERE ARE LOCKNUTS USED?

Typical applications for locknuts include areas where vibration, shock or joint motion can occur. Automotive, trucking, large hydraulics, lawn & garden implements, casters, agricultural equipment and railcar construction are just some of the typical applications for all-metal prevailing torque locknuts.

The overall level of quality of manufactured products currently in use today has been greatly enhanced through the use of locknuts as the fastener of choice. This avoids loosening of joints, safety issues, recalls, squeaks and rattles and increases product reliability.

CONTINUED ON PAGE 132

# LOCKNUT TECHNOLOGY INC.

WHY LOCKNUTS?  
ACCORDING TO ROY MOTZ...

***"specializing in only  
one product category  
gives us the product  
knowledge and  
expertise that is  
hard to beat"***





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## Guy Avellon

Guy Avellon has been in the MRO and fastener distribution industry for over 30 years. He began his metallurgical engineering career at Republic Steel Research Center in metal coatings and has since held positions as sales engineer; Chief Engineer; Manager of Product Marketing, Product Engineering and Quality and Director of Quality and Engineering. He founded GT Technical Consultants where he performs failure analysis, presents lectures on fastener safety, worked for law firms and designs and audits Quality systems.

He is a member of SAE and is Vice Chairman of the ASTM F16 Fastener Committee and Chairman of the F16.01 Test Methods Committee, since 1988. He also received the ASTM Award of Merit in 2005.

Guy and his wife, Linda currently reside in Lake Zurich, IL and may be reached at 847-477-5057 or visit his website at <http://www.BoltDoc.com>.

## “SUPER” BOLTS AND NONFERROUS ALLOYS

Nonferrous metals and alloys are defined as those materials that do not contain any significant amounts of iron: except in trace amounts, which are unintentionally present, and with some grades of stainless steels. All nonferrous alloys will work harden to some degree while some alloys can be heat treated. What they all share in common is their ability to be corrosion resistant to alkalis and acid resistant, to some extent, and certainly so when compared with all ferrous materials. The ‘super bolts’ of the industry exhibit superior corrosion and/or acid resistance or extreme heat resistance and strength properties.

Because these materials exhibit corrosion resistant properties does not mean that some surfaces do not form an oxide. Actually, it is this oxide layer formation that enhances the corrosion resistance properties of some metals, such as aluminum, stainless steel and titanium. Some of these alloys will resist heat scaling and heat oxidation, but may be prone to stress corrosion cracking, as with aluminum, or carbide precipitation, as with austenitic stainless steels.

The American Society for Testing and Materials (ASTM) has two standards for general purpose externally threaded fasteners which are under the auspices of the F16 Fastener Committee: F468 and F468M, inch and metric, respectively. The F467 and F467M are the requirements for nonferrous nuts and the F2281 is for fasteners used in high temperature applications, in the range from 500 °F (260 °C) to 1800 °F (962 °C).

Copper and its alloys are designated by the prefix letter C in the UNS (Unified Numbering System). There are many alloys of copper, ranging from brass, bronze, silicon bronze and cupro-nickel, which are represented as both UNS and ASTM numbers in the F468 and F468M standards.

For example: brass alloy 260 has a mechanical property marking of F 468AB and a UNS number of

C26000; a common fastener material, silicon bronze, alloy 651, requires a bolt head identification marking of F 468K and has a UNS designation of C65100; and the cupro-nickel alloy 715 (C71500) has a marking of F 468R. However, you will still find stock available with the “651” head marking as the industry recognizes that it takes several years to purge stocking supplies before the new head markings are employed.



The UNS designation for nickel begins with the prefix letter N; such as N05500 for alloy 500. For example, its ASTM mechanical property marking is F 468W.

Aluminum has a UNS designation of the prefix A; such as A96061 for alloy 6061, whose ASTM head marking is F 468Y and F 468X for alloy 2024-T4 (UNS A92024).

Titanium is recognized by the UNS prefix of R; such as R56401 for alloy 23, which is Ti-6Al-4V, or F 468GT for its head marking.

The UNS designations only denote the alloy, whereas the ASTM numbering system refers to the mechanical properties and marking system for the finished product. Only the ASTM numbers will let the user know if the product he has is an inch or metric threaded part. The F 468 numbers remain the same for each alloy but are immediately followed by the letter M to denote ‘metric’ properties; such as F468MGT, F468MY and F468MW, etc.



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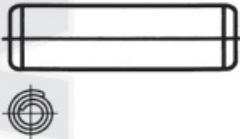
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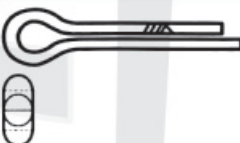
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## DISTRIBUTOR NEWS

**Advance Components**, certified by AVK as one of their premier AVK tool repair stations, announced it is now stocking and repairing AVK ARO pneumatic installation tools.

AVK ARO installation tools are known for their ergonomic design and rocker style trigger that creates comfort and speed without operator fatigue. AVK blind installed threaded inserts and studs can be installed into the structure from the front - eliminating the need to access the backside for installation.

Advance Components, based in Carrollton, Texas, maintains a team of AVK tool experts who can answer any question about these products and every member of the team has completed specialized training and mastered the art of speedy and thorough tool repair. Advance is a master stocking distributor of AVK and many other high-quality specialty fastener products.

"We want our customers to know that Advance is the source for AVK inserts, installation tools, and authorized repairs," said Gary Cravens, Exec. V.P. and GM. "Advance has teamed with some of the best manufacturers in the industry and we take pride in fostering close relationships with our customers and providing exceptional service," he said.

For product information, engineering questions, quotes and repairs, contact them at 1-800-275-7772 or online at [www.advancecomponents.com](http://www.advancecomponents.com).

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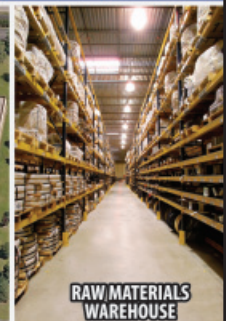
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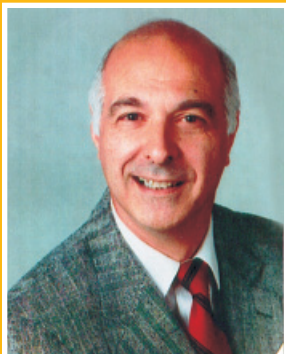
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## Bart Basi

*Dr. Bart A. Basi is an expert on closely-held enterprises. He is an attorney, a Certified Public Accountant, and President of The Center for Financial, Legal & Tax Planning, Inc. He is a member of the American Bar Association's Tax Committee on Closely-Held Businesses.*

# THE FAMILY LIMITED PARTNERSHIP IT HAS ITS PLACE, BUT NOT ALWAYS

## Introduction

Many people have heard of what is known as The Family Limited Partnership, otherwise known as the FLP. The amazing thing, the terms Family Limited Partnership and FLP do not appear in the Internal Revenue Code or any of the accompanying regulations. Quite simply, an FLP is a limited partnership or a Limited Liability Company (LLC) that is utilized largely in estate planning offering some benefits to the users, with some substantial downsides.

## Nuts and Bolts

An FLP allows the general partner to fund the device, transfer value to heirs, keep general control over the assets, and utilize various other strategies to reduce gift and estate taxes. In practice, an FLP is similar to a trust in so far as assets are transferred for the current and future benefit of another while allowing the grantor/general partner to keep control over the assets. The FLP differs from a trust in that it provides for additional tax and nontax advantages while offering potential unlimited life and can keep operating after the grantor's/general partner's death. While the trust still has a well established place in estate planning, the FLPs niche in estate planning is a little less established, but not devoid of advantages.

The Limited Partnership (the LP portion of FLP) is a legitimate business entity set up under state statute. Legally, the General Partner is potentially liable for all the debts and claims against the entity to the extent of the

business assets in the LP and personally held assets. The Limited Partners, on the other hand, are not subject to personal liability and are only liable for debts and claims to the extent of their investment in the FLP. The General Partner's liability can be largely absolved by having the general partner shares owned through an S Corporation or a Limited Liability Company.

## Benefits

While the tax benefits of the FLP are substantial, the non tax benefits cannot be overlooked. Not only are the nontax benefits important for the family business, making an effort to achieve the nontax benefits is important to gain the tax benefit advantages as well.

Consolidation of management is a benefit of the FLP structure. Instead of setting up separate trusts, separate bank accounts, and separate brokerage accounts, the FLP can use one central account. The consolidation also has the effect of reducing investment expenses and unifies the investment as well. Unifying the investment, in the manner of an FLP, also provides longevity to the investment insofar as the FLP can be operated post death by a family member to provide greatest return.

The FLP also provides the benefit of creditor protection. Assets involved in businesses, especially a closely-held business owned by a minority non-voting shareholder, are often not attractive to creditors or potential ex-spouses.





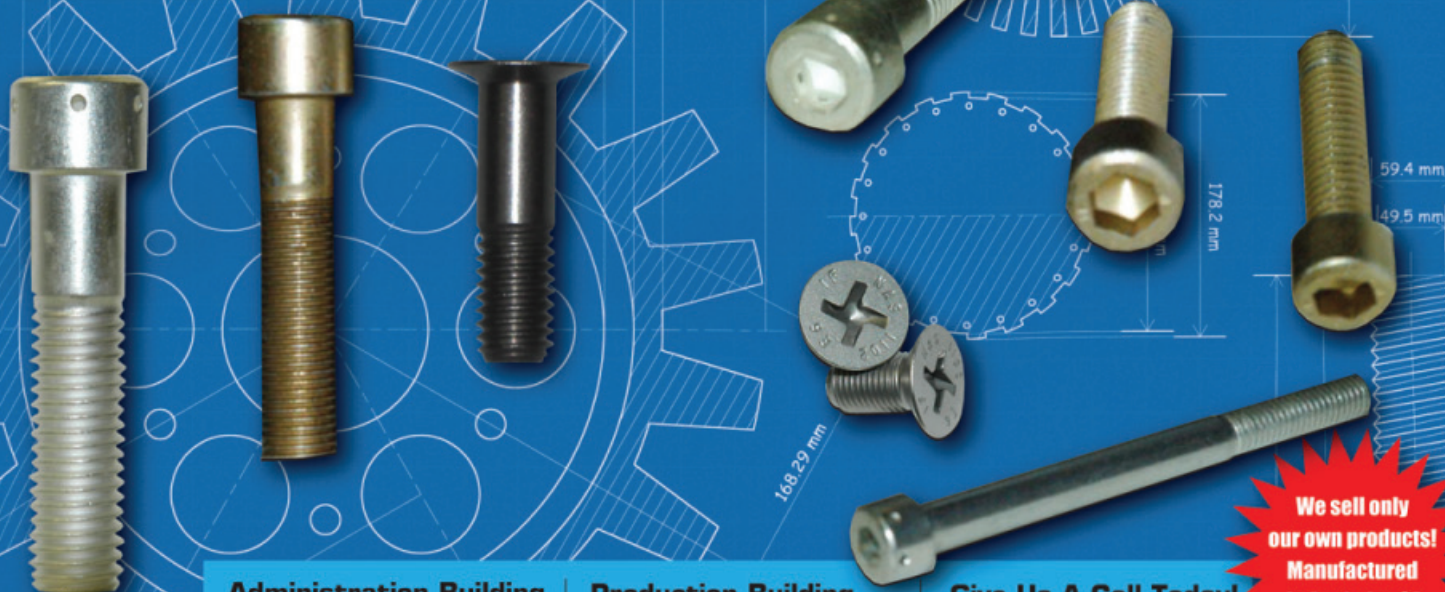
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### The BUSINESS EDGE 2.0

#### Introduction

Computer Insights, Inc, maker of the The BUSINESS EDGE 2.0 is offering a FREE SYSTEM as a prize in a contest at the National Fastener and Mill Supply Show in Las Vegas. The drawing will be on the show floor in the Computer Insights, Inc. booth (Booth 1018) at noon on Friday October 21st. The system can be up to 50 users. It is completely FREE. It even includes one year free hardware and software maintenance. The winner does not need to be present.

Companies can qualify for this contest by filling

out a short survey form which can be found at **www.ci-inc.com/survey**.

Completing the survey form secures your entry into the drawing making you eligible to win the free system. Filling out this form will help the distributor discover what The BUSINESS EDGE 2.0

can do for them. It will also give Computer Insights the ability to determine if The BUSINESS EDGE 2.0 is

a good fit for the client.

Dennis R. Cowhey, CEO of Computer Insights, Inc. is quite excited about this contest. He said, "We are committed to offering the highest value to the fastener industry and this is just one more example. The prize has no cash value, but for someone who needs a new system it couldn't be a better deal."

#### Complete System

The FREE system includes everything the company needs. It includes an IBM Server, User Licenses for up

to 50 concurrent users, an Uninterruptible Power Supply and unlimited free training and support. It also includes a year of online backup service. It even includes free programming of all the custom business forms that the system produces. All the business forms (Quotes, Invoices, Requests for Quote, etc.) can be E-mailed, faxed or printed. The only exception is that Windows PC's, Apple or Ubuntu workstations, printers and other peripherals are not included with the free system. The system is for the exclusive use of the winning company and cannot be transferred to another company. Only one entry is permitted per company.



#### FREE iPad 2

The BUSINESS EDGE 2.0 will be demonstrated at the show. Computer Insights will be taking tentative orders (letters of intent) on the show floor. Any company that approves a letter of intent to purchase The BUSINESS EDGE 2.0 and completes the order before December 31, 2011, will receive a FREE iPad 2.

There is no limit to the number of companies that can receive the iPad 2.

#### The BUSINESS EDGE 2.0

Since their inception in 1981, Computer Insights, Inc. has spent 30 years developing a software package that is now used all over North America by fastener and industrial suppliers. They have developed unique, cost effective online methods of implementing this system that are remarkably effective. Their clients give them rave reviews. Since they only work in this very narrow market, the system that they have developed is truly tailored to the needs of their clients. While custom programming is available, it is rarely needed.

*please turn to page 188*







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## DISTRIBUTOR NEWS

**Chandler Products**, a division of Elgin Fastener Group, announces the appointment of Ron Siedler to the position of Military Sales Specialist. Siedler brings more than twenty years of prior sales and management experience back to Chandler, having previously retired from there in 2010. He will serve as the primary contact for military and defense industry fastener requirements at Chandler Products, which was awarded QSL Manufacturer for Class 2 and Class 3 Threaded Fasteners renewal status by the Defense Logistics Agency in August 2010 (Cage Code: 83386).

Chandler Products is a leading domestic manufacturer of custom engineered cold headed fasteners, offering precision secondary operations (trimming, shaving, grinding, milling, extruding, machining, pointing, drilling) for tight tolerance fasteners in military, diesel engine, transmission, and locomotive markets.

Contact them at 1491 Chardon Rd., Cleveland, OH, 44117; Tel. 216-481-4400; Fax 216-481-4427; email: [info@chandlerproducts.com](mailto:info@chandlerproducts.com) or online at [www.chandlerproducts.com](http://www.chandlerproducts.com).

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**Alfa Tools** has introduced a complete line of High Speed Steel Core Drills that are ideal for enlarging existing drilled, punched and cast holes in truck frames, structural steel and heavy lattice work. This series of drills includes 11 sizes from 3/8" to 1-1/16" diameters.



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## Del Williams

*Del Williams is a technical writer based in Torrance, California. He writes about health, business, technology, and educational issues, and has an M.A. in English from C.S.U. Dominguez Hills.*

# IMPLANT RELIES ON UNIQUE FASTENER TO GEAR UP FOR BABY BOOMER GENERATION

To handle active baby boomers and rising longevity, Skeletal Dynamics specifies an innovative self locking fastener that withstands up to one-million loading cycles for its new elbow replacement implant

As the first of the baby boomer generation turns 65 this year and promises to live longer and more actively than previous generations, implants and their components - including the fasteners that hold them together - must be built to last longer than ever before.

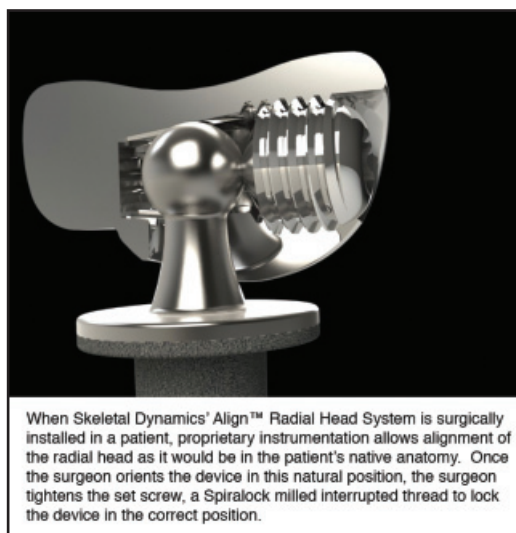
To handle the demands of tomorrow's dynamic baby boomer population, for whom jogging, tennis, and golf have been generational pursuits, some medical device companies are going beyond what's currently required. For instance, some are specifying self locking fasteners in implants of the upper extremities that go way beyond 100,000 load cycles to withstand up to one-million load cycles without loosening or backing out.

"Patients are living longer and more vigorously than past generations, and that's only going to increase as baby boomers demand more from their muscular-skeletal systems well past traditional 'retirement age,'" says Tom Norman, Vice President of Engineering at Miami, Fla.-based Skeletal Dynamics, a designer and marketer of innovative orthopedic devices.

To keep up with active baby boomers, Skeletal Dynamics recently developed its Align™ Radial Head System, an artificial elbow joint designed to restore the

natural function of the native radial head.

Previously, prosthetic radial head designs typically followed one of two approaches with significant drawbacks. While a traditional fixed monoblock design offered stability, it could not be aligned to the patient's anatomy, which tended to wear away natural tissue such as cartilage. A bi-polar radial head was an attempt to align with the patient's native anatomy, as it was able to rotate in a polyethylene sheath, but would not remain in the correct position because it would not lock.



When Skeletal Dynamics' Align™ Radial Head System is surgically installed in a patient, proprietary instrumentation allows alignment of the radial head as it would be in the patient's native anatomy. Once the surgeon orients the device in this natural position, the surgeon tightens the set screw, a Spirallock milled interrupted thread to lock the device in the correct position.

"We aimed to fill a gap in the market by providing the ability to orient the joint to its natural position during surgery, and then locking it in place for the rest of the patient's life," says Norman. "We considered traditional fastener thread forms, but lacked confidence that they would stay in place for the up to a million load cycles an active patient could subject them to in their lifetime. Instead, we selected an innovative self

locking fastener called Spiralock."

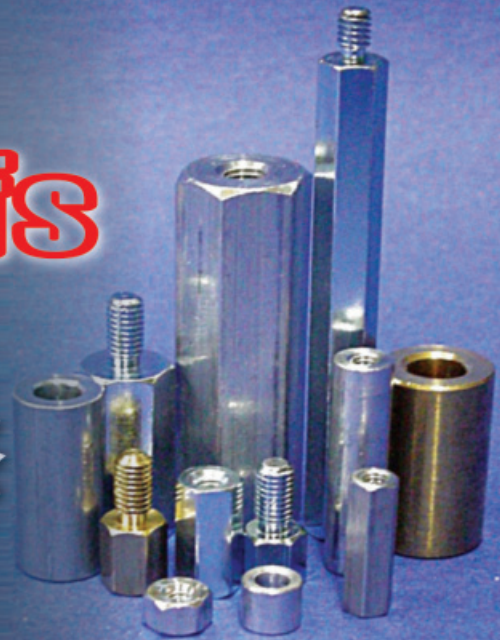
Because repetitive loads, shock and loosening must be decisively handled for implant use, traditional fasteners susceptible to self-loosening rotational movement, stripping, and shearing are not always appropriate. Testing, in fact, has found that the first two threads of traditional fasteners can carry as much as 80% of the load, permitting stripping or shearing, while subsequent male threads "float" within the female threads.



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## CUSTOM PARTS UNIQUE TO YOUR INDUSTRY

In 1956, the baseball Dodgers were in Brooklyn, IBM was inventing the first hard disk drive, and a small manufacturing company named Lynn Electronics Co. was getting its start in Burbank, Calif.

Today, the Dodgers are in Los Angeles, IBM technology is everywhere, and that not-so-small manufacturing company—now named Lyn-Tron Inc.—is in Spokane, Wash., making quality electronic and connector hardware.

A lot has changed in the past 55 years, and in that time, Lyn-Tron has emerged as a leader in its industry.

Manufacturers throughout the U.S.—as well as in Canada, Israel, the Far East, and other parts of the world—rely on Lyn-Tron's precision parts to make their end products strong, reliable, and high performing.

A third-generation, family-owned business, Lyn-Tron has had many of the same clients for decades. It has watched many of those customers expand and flourish through the years - and has grown along with those clients.

The company currently has 55,000 different parts in stock, all of which are 1.25 inches in diameter or smaller. It maintains an inventory of about 65 million parts at all times. Consequently, 75 percent to 80 percent of all daily orders are shipped from items already in stock, and the company's back-order log typically stays small.

Its ability to maintain a strong inventory allows Lyn-Tron to remain flexible enough to take on custom manufacturing business, and its just-in-time manufacturing book of business has increased in recent years, along with total sales. Making up for a drop in revenue during the recession that hit everybody in 2009, Lyn-Tron rebounded nicely with a 25 percent year-over-year increase in total sales in 2010. This year, the company is on pace to build on that rebound, with a 10 percent increase in sales.

Through economic ups and downs, the company has continued to invest in new manufacturing equipment, both pieces that allow it to perform tasks it couldn't handle previously and new technology that improves upon old pieces.

We're always trying to keep up with the latest and greatest out there," said Don Lynn, president and owner of the Lyn-Tron. "What that's going to do is constantly keep us more competitive as the years go by."

The company's shop currently includes davenport, the iconic multi-spindle automatic machines; CNC machines, the Star swiss-type machines; tooling equipment, allowing the company to save time and customer expense by making tools in house; and seven rotary transfer machines, for efficient, flexible deep-hole drilling and tapping.


All of this equipment, as well as the entire manufacturing process, is subjected to a thorough quality control process. A certified lab frequently tests gauges and tooling to strict specifications. Lyn-Tron's quality department works in concert with sales, manufacturing, and customers to insure high expectations are met.

While technology is instrumental and the quality control is essential, the most important key to Lyn-Tron's success has been its dedicated team of employees. Most of the company's work force has been with it for 10-plus years, and many have been working there for 20-plus years, with a handful who have served for more than 30 years.

One testament to the company's relationship with its staff is what happened when the company moved its corporate headquarters and manufacturing operations to Spokane from Southern California in 1993.

The company offered to move 50 of its employees from California to the Northwest, and 35 of them accepted. A few single people who craved a better social scene moved back to California after a short period of time, but most of the families stayed—and many of them remain with Lyn-Tron.

The third generation of the Lynn family is poised to take ownership of the company in coming years, carrying on a tradition of excellence in precision manufacturing and continuing to foster relationships with quality customers and hardworking employees.

A lot has changed in the past 55 years, and more change is on the horizon. Lyn-Tron is eager to see what the future holds, for itself and for its stakeholders. 





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Lyn-Tron now offers NAS style part numbers as a standard catalog line item. Visit [lyntron.com/nas](http://lyntron.com/nas) for real-time stock levels and pricing.



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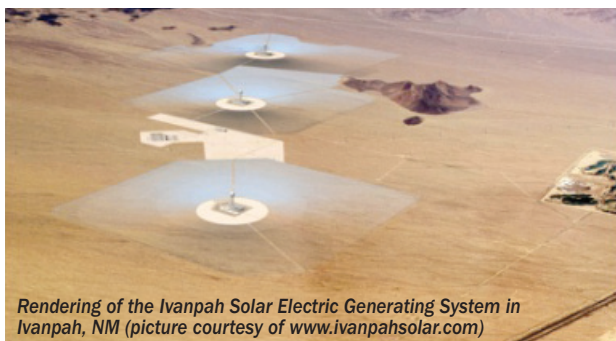
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## SPECIAL SQUIRTERS FOR SPECIAL PROJECTS

Since 1994, Applied Bolting has manufactured and sold tens of millions of DTIs, which have been used all over the USA, Canada, Central America, South America, throughout the Middle East and the Pacific Rim. Our standard product line encompasses imperial sizes 1/2" through 1-1/2" in grades A325 and A490, and metric sizes M12 through M36 in grades 8.8 and 10.9. We also have sizes M36, M42 and M48 designed to serve the needs of the wind energy market.

Occasionally we get requests for non-standard loads and sizes. We love solving problems for our customers, and we travel all over the world to do it. Sometimes the special request involves modifying the Squirter DTI dimensions to fit in confined areas. We've done this in sizes M24 through M36 grade 10.9 for numerous wind energy companies and for a provider a revolutionary space frame structural system in 1" and 1-1/4" grade A490. Other requests are for non-standard loads for special applications. Examples of this are for low-load 1" anchor bolts and M24 and M42 roof bolts for a mining application. In all cases our customers were aware of the benefits of using Squirter DTIs. They wanted to achieve the same level of quality assurance provided by Squirters in their non-standard applications.

We recently designed and manufactured a Squirter for a truly special project. Ivanpah Solar Electric Generating System is a 392 megawatt (gross) solar complex using mirrors to focus the power of the sun on solar receivers atop power towers. Electricity is generated by turbines using steam from the solar receivers. The complex is comprised of three separate plants to be built in phases between 2010 and 2013.

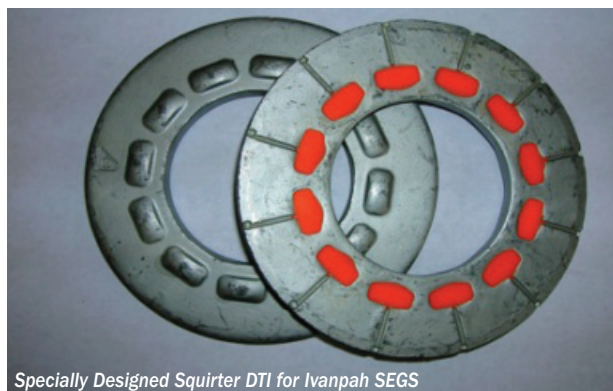


Rendering of the Ivanpah Solar Electric Generating System in Ivanpah, NM (picture courtesy of [www.ivanpahsolar.com](http://www.ivanpahsolar.com))

Bechtel is the engineering procurement and construction (EPC) contractor at Ivanpah. Applied Bolting has supplied Bechtel with Squirter DTIs used in projects all over the world. While many standard Squirter DTIs were specified for Ivanpah, Bechtel also requested a special Squirter to be used in the solar tower supporting the solar receiver steam generator. While the details of the design are confidential, the process used by Applied Bolting is typical of our approach to providing special solutions for our customers.

1. Define the desired Squirter inner and outer diameters, the minimum and maximum bolt preloads and the desired finish (galvanized, Dacromet, etc.)
2. Define the installation details: will the Squirter be installed under the head or under the nut; are special washers required to accommodate oversized holes.
3. Design the DTI using Applied Bolting's proprietary Bumpology to achieve the desired loads.
4. Manufacture or modify tooling to produce the Squirters.
5. Produce/test prototypes to verify proper load performance.
6. Select the silicone fill levels to achieve DTIS (Drive it Till It Squirts).
7. Release design for full scale production.
8. Monitor and document manufacturing quality.
9. Ship the product and provide bolt installer training.

In the case of the special Squirter for Ivanpah, we were able to modify existing tooling to achieve their load. This resulted in a shorter timeline for the project and considerably lower cost than tooling up from scratch. The photograph below shows the finished product.



Specially Designed Squirter DTI for Ivanpah SEGS

*please turn to page 159*



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From: ND Marketing  
Subject: Breakthrough; Expand-A-Seal ES0105

It has been brought to my attention that the R&D Department at ND Industries has created the most technologically advanced fastener locking and sealing adhesive in our company's history. I have reviewed the documentation and firmly believe that the public market is NOT ready for [REDACTED] revolutionary product which expands volumetrically 20-50%, filling gaps and voids within fastener threads. [REDACTED]

Add to this the fact that Expand-A-Seal ES0105 [REDACTED] and can be used to seal critical applications where shock, vibration and fluid pressure would normally cause a fastener to loosen.

It's apparent that what we have created is ahead of its time. To prevent possible [REDACTED] public is NOT it's extremely important [REDACTED] informed about these capabilities. Therefore [REDACTED] existence should be destroyed. Most importantly... Do not let the **FREE SAMPLES fall into the wrong hands. They can be found by contacting: Ph: 248-655-2503 • Email: products@ndindustries.com**

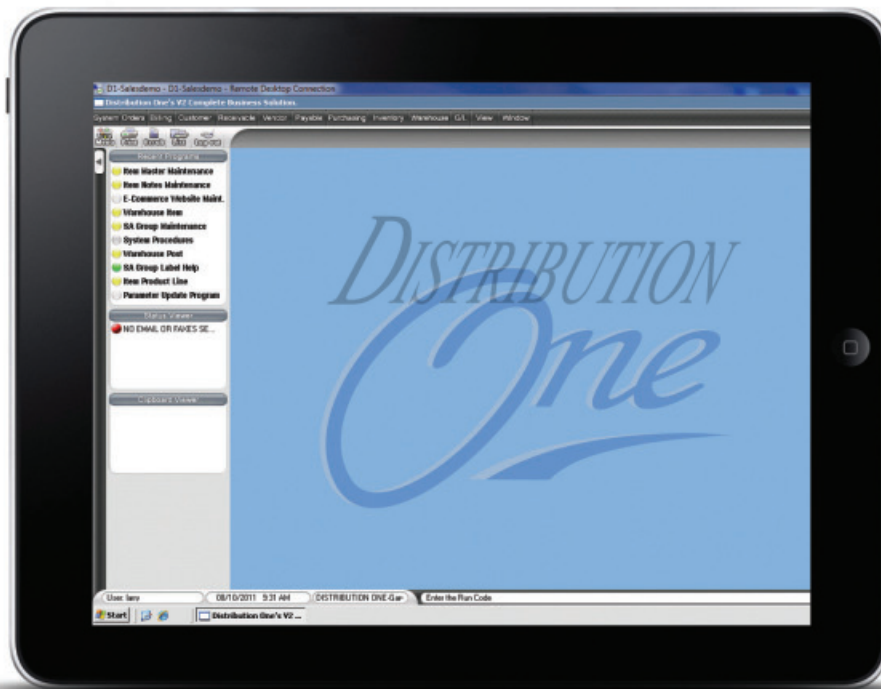
It's also imperative we address the amount of TOP SECRET information regarding Expand-A-Seal found on our website, [www.ndindustries.com](http://www.ndindustries.com).



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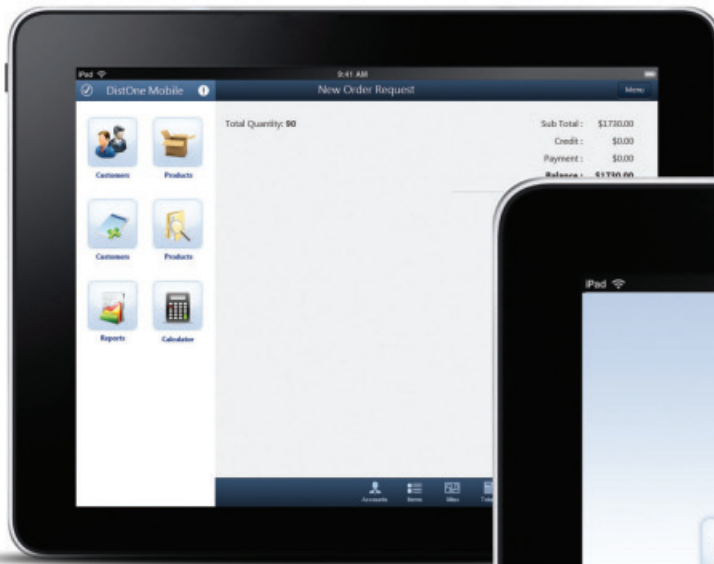
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## WHAT ARE THE APPLICABLE OPERATING TEMPERATURE RANGES FOR VARIOUS FASTENER STANDARDS?

by Joe Greenslade *Director of Engineering Technology, IFI*

Several times during the last year or so I have been asked, "What are the applicable temperature ranges for various fastener standards?" This sounds fairly simple, but unfortunately when I looked for a simple reference to answer this question I found none.

This article will provide such a chart and an explanation of how it was derived. When investigating this question the only commercial fastener standard I found that listed a specific operating temperature range is ISO 898-1: 2009. It indicates that the metric property classes 3.6 through 12.9 are applicable in operating temperature of -50 C to 150C (158 F to 302 F). This ISO standard is similar in material requirements to a number of the popular SAE and ASTM fastener standards.

The title and scope of ASTM A193 refers to "high temperature service" and the title and scope of ASTM

A320 refers to "low temperature service". Unfortunately, neither defines exactly what temperature is "high" or "low".


It is well known that mechanical products should not be used in an operating temperature that is close to its tempering temperature, because the tempering temperature is the point at which the material begins to soften, thus lose its strength. On the other hand, at some point as materials get colder they lose their ductility and toughness and become brittle to where the slightest jarring or shock can make the material shatter like glass.

Using the designated operating temperature range defined as -50 C to 150 C I am offering the chart below as a logical and somewhat conservative way of determining which fastener standards should be considered for use in what temperature ranges.

Below -50 C (-58 F)	-50 C (-58 F) through 150 C (302 F)	Over 150 C (302 F)
ASTM A320/A320M ASTM A194/A194M (nuts)	SAE J429 SAE J995 ASTM A307 ASTM A325 and A325M ASTM A354 ASTM A449 ASTM A490 and A490M ASTM A563 and A563M (nuts) ASTM A574 and A574M ASTM F593 ASTM F594 ISO 898-1 ISO 898-2 and 6 (nuts)	ASTM A193/A193M ASTM A194/A194M (nuts)

This table is for general reference only. As stated above, these are conservative temperature ranges for the listed standards. The design engineer associated with the end use product must be responsible for selecting the correct fastener specification and grade or property class to meet the application's specific operating environment. This table only covers the most commonly used commercial fastener standards. This is not a complete list of all fastener standards. The

aerospace industry uses very sophisticated material standards to cover their extreme temperature requirements.

The standards for both externally threaded and internally threaded fasteners are listed. Guidance for selecting the correct nuts for use with the bolts is generally indicated in the bolt standard. As an example ASTM A320 advises users of L7 bolts to use Grade 4 or 7 nuts from ASTM A194/A194M. 





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By John Wolz  
 editor@globalfastenernews.com

## FIN INTERVIEWS: *Selling Fasteners in South Africa*

The similarities include price competition, importing from Asia, a recession, tariffs, multi-generation family companies and corporate acquisitions.

Differences between the South African fastener industry and how business is conducted in Europe and the U.S. include fewer companies using bar coding, almost no trade associations and fewer outside sales people.

GlobalFastenerNews.com recently visited three fastener companies in South Africa: a manufacturer and a master distributor in Johannesburg and a Cape Town based national distributor.

South Africa is the 25th largest country in the world by geographic size and 28th by population. Its GDP is the 28th largest.

At 24%, South Africa's unemployment rate for its nearly 50 million people is staggering compared with European and American industrial nations.

The Republic of South Africa is the southernmost of 54 African countries with a population of 49.9 million people. Africa as a continent has 1.02 billion.

The largest South African cities are Johannesburg with 3.9 million people and Cape Town at 3.5 million. South Africa exports diamonds, fruit, gold, metal and minerals, wool and transportation equipment. Asia is the major fastener supplier to South African distributors. There is growing interest in importing from India and Malaysia.



*Boltfast operations manager Shawn Duncan, general manager Daneel Herselman and FIN editor John Wolz (Photo by FIN co-publisher Ann Bisgyer)*



*Inside sales at Boltfast headquarters in Cape Town, South Africa.*

Following are interviews with three South African fastener executives – manufacturer Anthony Diamond of Impala Bolt & Nut; master distributor Rob Simes of UPL Socket Screws; and distributor Daneel Herselman of Boltfast.

### *South African Fastener Manufacturer: Competing With Imports*

Just as in North America and Europe, a South Africa manufacturer notices the price competition from imported fasteners. Imports are the first fastener manufacturing problem Anthony Diamond mentions.

"In South Africa, we are faced with problems from imports and the ever increasing challenges we face with skills development in our industry," the managing director of Impala Bolt & Nut SA (Pty) Ltd., told GlobalFastenerNews.com. Impala answered the skills development issue by training internally.

Located in an industrial section of Johannesburg, Impala Bolt & Nut is an independent cold-forming manufacturer of large range of bolts, nuts and screws for a wide variety of industries – including construction, engineering, automotive and mining.

Impala Bolt was founded in 1995 by Anthony Diamond's father, Aubrey Diamond.

Most of the fasteners Impala manufactures are sold in Africa.



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## **VIP INCREASES PRODUCTION CAPABILITIES WITH MOVE TO LARGER FACILITY**




Volt Industrial Plastics (V.I.P.) announces the relocation of their manufacturing operations to a larger facility in Yellville, Arkansas. Volt purchased the former SLM Electronics building and customized the facility for its plastic fastener manufacturing operation.

Founded by Joe Volltrauer in 1992, V.I.P. and has grown to become one of the world's leading manufacturers of plastic fasteners.

The new 65,000 square foot location is over two and a half times larger than the former V.I.P. facility. The new location provides increased production capabilities allowing for future growth in Volt's product line. The improved product development facilities at the new location allow for the manufacture of a wider range of plastic fastener products. In-stock inventory at the new location will double to approximately one billion parts. The increased inventory of ready-to-ship parts allows for same-day order fulfillment for catalog items. Shipping and receiving facilities have also been expanded.

"We are very excited to be operational at the new, larger facility. The new facility not only enhances the efficiency of our operations, it allows for increased production, inventory, and shipping capabilities to benefit our customers. Although our company is expanding, our customers can be assured they will receive the same quality products and exceptional personal service they have come to expect from V.I.P.," states Heidi Volltrauer-Skiver, Volt Industrial Plastics Chief Operating Officer.

As one of the world's leading plastic fastener manufacturers, V.I.P. stocks over one billion parts in its warehouse and provides on-site tooling and production for custom orders based on specific customer applications. Volt Industrial Plastics operates 24 hours a day - seven days a week, and serves clients worldwide from their new location. 

*Photo Below: Volt Industrial Plastics new 65,000 square foot facility located in Yellville, Arkansas, provides increased production capabilities for Volt's manufacturing operations.*





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The National Industrial Fastener & Mill Supply Expo scheduled for October 19-21, 2011 at the Sands Expo & Convention Center in Las Vegas, Nevada is reporting very strong interest and an unusual number of first-time exhibitors.

"We have sold 712 booths to nearly 539 companies from throughout the USA and 12 other nations around the world including Canada, China, Germany, India, Israel, Italy, Korea, Mexico, Singapore, Spain, Taiwan and Vietnam. These numbers are well ahead of last year's pace and we continue receiving new contracts and inquiries on a regular basis. We have added 56 new companies and the Machinery & Tooling area has grown to 38 companies. We expect to be well over 725 booths by show time", informs Susan A. Hurley, CEM, the Expo's General Manager.

"This year's Expo has it all; a myriad of fasteners, machinery & tooling, inspection, testing and packaging equipment, cutting tools, drills, hand tools, computer systems and much more", continues Ms. Hurley.

"The new, earlier, dates and Sands Expo & Convention Center location have proven to be very popular with our exhibitors and we believe these changes will be equally pleasing to Expo visitors. The Expo site as well as our official hotels are conveniently situated in the very heart of the Las Vegas Strip, which offers our exhibitors and show visitors a much wider selection of casinos, restaurants and entertainment venues all within walking


distance. We completely sold out our original block of rooms at the Venetian/Palazzo and have increased our number of rooms there as well as at neighboring Harrah's and nearby Caesars Palace", say Jim Bannister and Mike McGuire, General Partners.

In addition to "North America's Largest Fastener Expo", the event includes a full day of conference programs featuring topics of vital, current interest as well as Fastener Training Institute workshops and a number of meetings on Wednesday, October 19th.

The always popular and well attended Welcome Reception is scheduled for Wednesday evening, October 19th. This Expo Management-sponsored event offers complimentary beer, wine and soft drinks along with tasty hors d'oeuvres to all registered exhibitors and Expo visitors.

A panel discussion on "The State of the U.S. Fastener Industry" will immediately precede the official opening of the two-day Expo on Thursday a.m., October 20. Complimentary coffee, juice and donuts will be served.

The Expo will be open from 9:00 am to 4:00 pm, Thursday, October 20th and from 9:00 am to 1:00 pm, Friday, October 21st. A complete listing of participating exhibitors (as of August 17, 2011) follows this article.

Complete Expo information, on-line registration and hotel reservations are all available at [www.fastenershow.com](http://www.fastenershow.com). Register by August 26th and save! 





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## ATLANTA ROD - AN INTRODUCTION

Since 1981, Atlanta Rod & Manufacturing Co., Inc. has been custom manufacturing anchor bolts, headed bolts, construction and specialty fasteners. Our 120,000 square foot facility enables us to manufacture large-scale construction products as well as smaller short runs of special parts. As an ISO 9001 certified company, we are committed to making high-quality domestic fasteners at competitive prices that meet our customer's delivery schedule. Atlanta Rod maintains a substantial inventory of stainless, carbon, and alloy material for the immediate manufacture and shipment of fasteners from 1/4" to 4 1/2" as well as metric equivalent diameters.

Atlanta Rod & Manufacturing Co., Inc. has far-reaching manufacturing capabilities for the production of not only standard fasteners but also customized specialty and non-standard products. Atlanta Rod has the ability to shear and saw cut materials from 1/4" to 24" diameter. Our threading capacity includes cut and rolled threads from 1/4" to 4 1/2" diameter and metric equivalents in UNC, UNF, Acme, 8 pitch, and metric. Currently, Atlanta Rod forges bolts from 3/8" to 2 1/4" and hot forms nuts from 1/2" to 3" diameter. We also have an in-house CAD drafting department, a certified welding team, a plate fabrication department, a certification and testing department, as well as a bending and miscellaneous fabrication department to facilitate varied customer's needs.

### Estela de Luz Project

To commemorate 200 years of independence from Spain, Mexico announced in 2009 plans to build a 341-foot monument. Due to the height, corrosion concerns, and wind shear factors, the project engineers determined 17-4 ph to be the most suitable material for this project. After international competition, Atlanta Rod was awarded the bid to manufacture over 34,000 specialty 17-4 ph stainless bolts, nuts, and washers from M16 through M39. All tooling for this project was



produced in-house by our tool and die team. These bolts and nuts were precision forged to structural metric tolerances of within .004". In total, Atlanta Rod manufactured over 50,000 pounds of finished product in four weeks. Set for completion in late 2011, this special monument will forever change the Mexico City skyline.


### I-244 Bridge

Earlier this year, Atlanta Rod & Manufacturing Co., Inc. manufactured several thousand 1 1/2"-6 domestic 8M nuts for the westbound I-244 bridge project in Tulsa, Oklahoma. The \$78 million project is to construct a new two-level bridge that will accommodate automobile, pedestrian, bicycle, and rail traffic across the Arkansas River. The bolts for this job were completed in less than four weeks.

### Hot Rush Specials

Atlanta Rod & Manufacturing Co., Inc. prides itself on being large enough to handle sizable construction projects but flexible enough to accommodate special rush orders. In the Spring of 2011, Atlanta Rod was approached by a new customer in need of a short run of Monel K500 1 1/4"-12 Heavy Hex Nuts and bolts within seven days. After days of searching, the shortest quoted lead-time this customer received was six weeks. Upon receipt of order, Atlanta Rod worked through the night to forge, test, certify, and ship these special fasteners within three days.

In June, Atlanta Rod responded to a customer in need of 600 pieces of 1 1/2"-8 A194 8S Nitronic 60 Heavy Hex nuts manufactured, crated, and shipped to Argentina in two weeks. We were able to forge, tap, and expedite this product within seven days to an airport in Miami to be flown overseas.

Atlanta Rod & Manufacturing Co., Inc. is a woman-owned business committed to building relationships through service, expedited deliveries, and customer appreciation. 







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## Anthony Di Maio

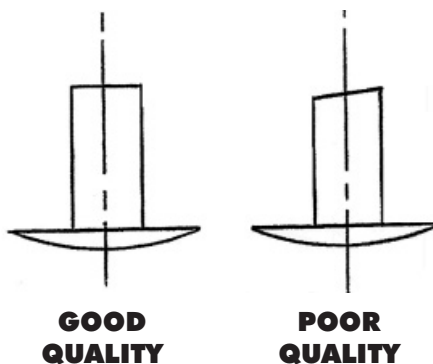
Anthony E. Di Maio attended Wentworth Institute and Northeastern University. In 1962 he started working with Blind Fasteners as Vice-President of Engineering & Manufacturing for two blind rivet manufacturers. He has been Chairman of the Technical Committee of the Industrial Fasteners Institute (IFI) and is still involved in the writing of IFI specifications. In 1991, he started ADM Engineering and is working with Fastener Manufacturers developing new fasteners and special machinery. He can be reached at ADM Engineering, 6 Hermon Ave., Haverhill, MA 01832; phone and fax 978-521-0277; e-mail: [tdimaio@verizon.net](mailto:tdimaio@verizon.net).

# HOW TO RECOGNIZE A QUALITY BLIND RIVET

There are visible signs that can tell you if you are looking at a good quality blind rivet or poor quality blind rivet. A poor quality blind rivet is produced with little or no in-process quality control. I will discuss extruded (made from wire) blind rivet bodies and stamped (made from sheet stock) blind rivet bodies. Stamped rivet bodies are frequently used for stainless rivet bodies with a stainless mandrel and also a stainless body with a steel mandrel. Extruded stainless blind rivet bodies can be difficult to produce if the extrusion tooling is not precisely made and could yield low production rates with a high tooling cost. This is why some blind rivet manufacturers either make or purchase stainless blind rivet bodies.

### Extruded Blind Rivet Bodies

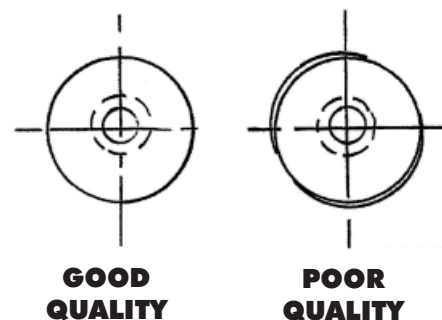
The good quality blind rivet body has a flat barrel end. This tells you that the proper amount of material was used to produce this rivet body. The extrusion tooling was entirely filled with material to form this rivet body.



The poor quality rivet body did not have sufficient material to fill the extrusion tooling, thus leaving a tapered barrel end. This condition will affect the function of the blind rivet when set in work pieces. When this poor quality rivet body is assembled with a mandrel and when the blind rivet setting tool pulls the mandrel to set the blind rivet, the mandrel head contacts the taper and when the mandrel is pulled the taper will force the mandrel head to bend and will not set the rivet properly. The bent mandrel head will bend the rivet barrel which will cause the mandrel to prematurely break and the rivet body will not clamp the work pieces together and you will have a loose assembly.

### Flashing on the Flange of the Rivet Body

This situation is caused by having too much material being fed to the extrusion tooling.



This flange flashing condition will not effect the performance of the blind rivet, but because the flange is the visible section of the blind rivet, the flange flashing makes a very poor appearance of the set blind rivet. Blind rivets with this condition are usually removed from assembly.



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Visit MW Industries in person! We will be at the National Industrial Fastener Expo West in Las Vegas, October 19-21, 2011 - Booth # 343. 

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### MID-WEST FASTENER ASSOCIATION

## MWFA 2012 CALENDAR OF EVENTS

### MWFA 2012 Events Calendar

January 10th	Board Meeting
February 9th	Board Meeting
February 16th	Plating Seminar MWFA/CMFI/AESF Joint Dinner Meeting
March 13th	Board Meeting
March 15th	Dinner Meeting, Milwaukee, WI
April 12th	Education Seminar Board Meeting
May 8th	Board Meeting
May 17th	Dinner Meeting Rockford, IL
June 12th	Board Meeting
June 25th	31st Annual MWFA Fastener Show Eaglewood Resort & Spa/Itasca, IL
June 26th	60th Annual Golf Outing Eaglewood Resort & Spa/Itasca, IL
August 14th	Board Meeting
September 13th	Education Seminar Board Meeting

September 20th	Dinner Meeting
October 2nd	Board Meeting
October 18th	Open House
November 8th	Education Seminar Elections, Scholarships Awarded, Dinner Meeting & Board Meeting, Rosewood Restaurant, Rosemont, IL
December 1st	Planning Meeting
December 6th	Holiday Party

### Welcome New MWFA Members

JHP Fasteners, Inc. of Grand Rapids, MI  
 Jinding Fastening Piece Co., Ltd. of Bloomingdale, IL  
 Production Fasteners of Carol Stream, IL  
 RAF Electronic Hardware (division of MW Industries) of Seymour, CT  
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This ISO 9001:2008 certification validates the effectiveness of Solon's focus on complete customer satisfaction by meeting customer requirements for engineered solutions, quality, performance and customer service through continuous improvement in the organization.

"Achieving ISO certification strengthens our organization's internal processes which allow us to confidently and fully support our customers" said Tim Dunn, President. "As this milestone adds another dimension to Solon's competitive advantage, Solon looks forward to increasing our global competitiveness."

To become ISO 9001:2008 certified, Solon Manufacturing Company underwent an in-depth evaluation process including quality management system review, initial assessment, and final evaluation resulting in accreditation from BSI, British Standards Institute.

Solon Manufacturing Company designs and manufactures Belleville springs and industrial pressure switches for petrochemical, oil and gas, and electrical distribution.

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## Douglas R. Rammer (left)

Douglas R. Rammer is currently a Research General Engineer at the USDA Forest Products Laboratory. He obtained his M.S. degree in Civil Engineering from the University of Wisconsin – Madison in 1991, and holds a B.S. degree from the same university. Douglas works in all areas of design criteria, with current research centering on the mechanical and durable behavior of connections, condition assessment of wood structures in service, and the performance of wood structures subjected to natural hazards such as earthquakes and hurricanes. Douglas is a member of the American Society of Civil Engineers amongst others and is an author on 63 journal publications.

## Samuel L. Zelinka (right)

Dr. Samuel L. Zelinka is currently a Materials Research Engineer at the USDA Forest Products Laboratory. Dr. Zelinka obtained his PhD from the Materials Science Program at the University of Wisconsin, Madison in 2009 and holds B.S. and M.S. degrees from the same university. After obtaining his PhD, he conducted post-doctoral research at Empa – the Swiss Federal Laboratory for Science and Technology in Dübendorf, Switzerland (outside of Zürich). His current research interests are corrosion of metals in wood, the electrical properties of wood, and the interaction of water with wood. Since 2005, Dr. Zelinka has published 18 first-authored refereed journal publications (27 total publications) and given over 25 scientific presentations (6 invited).

# OPTICAL METHOD FOR MEASURING THE SURFACE AREA OF A THREADED FASTENER

## Introduction

Voluntary withdrawal of wood treated with Chromated Copper Arsenate (CCA) for residential construction in 2004 has highlighted the need for an effective and rapid corrosion test to measure the performance of fasteners in contact with wood treated with new preservatives [1]. Experience has shown that to be meaningful, the corrosion test should be run on real fasteners as opposed to coupons with a simple geometry and smooth surface [2]. For controlled experiments where uniform corrosion is typically observed [3], the corrosion rate ( $\mu\text{m}/\text{year}$ ),  $R$ , can be determined by the equation:

$$R = K \frac{\Delta m}{A \rho \Delta t}$$

where  $\Delta m$  (g) is the change in mass,  $\Delta t$  is the change in time (h),  $A$  is the surface area ( $\text{cm}^2$ ),  $\rho$  is the density ( $\text{gcm}^{-3}$ ), and  $K$  is a constant ( $87\,600\text{ mm cm}^{-1}\text{ h year}^{-1}$ ).

Electrochemical techniques can also be used to rapidly determine corrosion rates. The corrosion rate for electrochemical measurements is determined by the equation

$$R = C \frac{E_w I_{\text{corr}}}{A \rho}$$

where  $E_w$  is the equivalent weight (grams equivalent<sup>-1</sup>),  $I_{\text{corr}}$  is the corrosion current (Amps),  $I_{\text{corr}}$  is the surface area ( $\text{cm}^2$ ),  $\rho$  is the density ( $\text{gcm}^{-3}$ ), and  $C$  is a constant ( $3272\text{ mm year}^{-1}$ ). For both expressions, an accurate calculation of the corrosion rate requires an accurate determination of the surface area [4,5]. For axially symmetric fasteners, such as dowels or nails, the determination of the surface area is straight forward, but for more complex geometries, such as screws, the task becomes more complicated.

This article highlights major aspects of a new optical technique to determine the surface area of a threaded fastener; the theoretical framework has been reported elsewhere [6]. Specifically this article describes general surface area expressions used in the analysis, details of

image acquisition system, and major image processing steps contained within the measurement system. In short, the general approach is to acquire a high contrast image, break the complicated fastener geometry into smaller defined segments with known analytical solutions, calculate the surface area of each individual segment, and add the individual segments to determine the total surface area of the threaded fastener. This method has been successfully used to determine the surface area of threaded fasteners used in recent corrosion experiments [3,7].

## Thread Surface Area

From the acquired images, the entire fastener is divided into segments from which known analytical solutions can be used to calculate the surface area of the segment. Axially symmetric fasteners can be idealized as an infinite number of disks of negligible width, but difficulty arises for threaded fasteners because the threads are not axially symmetric and the thread geometry can vary along the fastener length. Rammer and Zelinka [6] have developed analytical expressions for the surface area of threaded fasteners to overcome these difficulties.

The following expression was developed to determine the thread surface area ( $\Gamma$ ) as it varies along the length of the fastener:

$$= \iint \sqrt{T^2 + \Psi_i^2} dr d\theta$$

where  $T$  is a function of the thread flank angle while  $Y$  represents how the upper and lower flank surface are affected by the change of the crest diameter. Upper and lower flanks  $\Psi$ s were developed for the three possible fastener geometry conditions: [1] where both the thread root and crest diameters changing linearly (e.g. fastener tip), [2] where both the thread crest and root diameters are constant (e.g. fastener body), and [3], where the thread root diameter is constant but the thread crest diameter is linearly changing (e.g. fastener body near head).



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The display will also feature samples coated with the Delta-Tone® an inorganic zinc-flake basecoat system, Delta-Coll® an inorganic topcoat system designed for electroplated zinc and zinc alloys and Delta-Seal® Series an organic topcoat systems engineered for compatibility with zinc-flake systems.

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## DISTRIBUTOR NEWS

**The Mid-West Fastener Association**

will be celebrating their 65th anniversary throughout the year including at our golf outing and show. The largest celebration will be November 10th in conjunction with our scholarship awards. This event will take place at the Rosewood Restaurant. We are compiling a list of past industry MWFA, formerly Chicago Bolt, Nut & Screw Association, members. We'd

like to recognize our past presidents, board members and retirees.

Please send us emails of any past presidents, board members, retirees or past members who are no longer in the industry so we can contact them and let them know of 65th anniversary plans.

Please send to Nancy at [mwfa@ameritech.net](mailto:mwfa@ameritech.net) or call her at 847-438-8338.





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## ALL AMERICAN FASTENER SHOW

# BRANSON TRAVEL & ENTERTAINMENT INFO FOR 2012 ALL AMERICAN FASTENER SHOW

80 Industry Lane • Flippin, Arkansas 72634 • Tel 877-865-8237 • Fax 870-453-8707 • [www.allamericanfastenershow.com](http://www.allamericanfastenershow.com)

The third annual All American Fastener Show will be held at the Hilton Branson Convention Center Hotel in Branson, Missouri on Thursday, May 17, and Friday, May 18, 2012. To assist exhibitors and attendees in planning for the conference, the All American Fastener Show website, [www.AllAmericanFastenerShow.com](http://www.AllAmericanFastenerShow.com), now includes specific travel and transportation details, as well as additional information on entertainment, dining, and attractions in the Branson area.



"Branson offers so much to see and do. The city provides a unique opportunity for those attending the All American Fastener Show to also enjoy outstanding live music and variety shows; a full range of dining options;



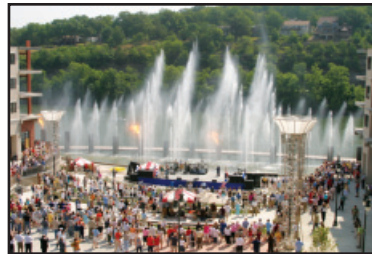
nationally rated golf courses; retail and outlet shopping; as well as theme parks and attractions you'll find only in Branson. By featuring additional travel and entertainment information on the All American Fastener Show website, we hope to assist both exhibitors and attendees in planning their complete Branson experience. Our hope is that the fastener community will take this opportunity to mix business with pleasure and bring their families to enjoy all Branson has to offer," stated Heidi Volltrauer-Skiver, organizer of the All American Fastener Show.

Exhibitors and attendees are encouraged to utilize the enhanced website to register for the show and to plan their 2012 All American Fastener Show itinerary.

Enhancements to the All American Fastener Show website include additional travel information on the Airports and Transportation page. The site now features specific information on direct flights to Branson (BKG) from cities throughout the U.S. including Atlanta; Austin;



Baltimore; Chicago; Dallas; Denver; Houston; Milwaukee; Orlando; and Phoenix. The site also includes a map and information for major airports within a 300-mile radius of Branson including, the Springfield-Branson National Airport (SGF); Northwest Arkansas Regional Airport near Bentonville (XNA); Lambert International Airport in St. Louis (STL); Kansas City International Airport (KCI); Tulsa International Airport (TUL); and Little Rock National Airport (LIT). A complete list of contact information for



airlines providing service to these airports is also included on the site to assist travelers.

Contact phone numbers for shuttle service, taxis, and


limousine service, as well as direct links to Enterprise, National, and Alamo car rentals at the Branson Airport are also available on the Airports and Transport page.



The Branson & Area Entertainment page of the website has also been enhanced to feature details on attractions and entertainment options available nearby the Hilton Branson Convention Center, including the adjacent Branson Landing shopping and entertainment complex. The Branson Landing is a unique development, situated on the banks of Lake Taneycomo, featuring boutique shops, top-brand retailers, as well as an array of dining and entertainment options.

Registration for exhibitors and attendees is available online at [www.AllAmericanFastenerShow.com](http://www.AllAmericanFastenerShow.com). Exhibitors are encouraged to register before February 1, 2012 to take advantage of a \$100 early-registration discount on booth rates.

Registration deadline is April 1, 2012.

Sponsorship opportunities for the 2012 show are also available. A limited number of discounted hotel rooms are available at the Hilton Branson Convention Center Hotel. Rooms can be reserved in advance online at the [www.BransonConventionCenter.Hilton.com](http://www.BransonConventionCenter.Hilton.com) or by calling 417-336-5400 and quoting hotel code AAFS52012. 





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Toll Free: 1-866-621-6565 Fax: 918-251-7311

Email: sclark@bigredfasteners.com

www.bigredfasteners.com

## THE POWER OF THREE

When Shawna and Jerry Clark opened the doors at Big Red Fasteners in August of 2001, they were prepared for hard work and long hours which come with starting any new business. Careful planning and attention to every detail allowed them to get their start with just 3 employees, the two of them and one sales rep.

But how does anyone plan for the events and aftermath of 9/11 and the effects that it had on every business, large or small in not only Oklahoma but all of America? You can't. To persevere, the Clark's worked harder, smarter and kept adapting their plan to the conditions that they were presented with.

This year, Big Red Fasteners celebrates its 10th Anniversary and the company is very different than that start-up in 2001. Big Red now employs 20 people and has grown its physical space from the original 3500 square feet to over 27,500 used for both warehouse and stud manufacturing. They're the largest woman owned fastener distributor in the state of Oklahoma and have been listed as one of the Inc. 5000 fastest growing independently owned companies.

Success, like many things, is dependent upon hard work, good choices and a bit of luck. From the beginning, Big Red Fasteners has partnered with Porteous Fasteners to provide them with the diverse products that they need, aggressive pricing and quick delivery from their multiple locations. "Porteous has a history of partnering with companies and our growth is in part due to that partnership" added Clark.

The Clark's made another good partnering choice when they chose INxSQL distribution software to run their company. INxSQL is easy to use and provides immediate access to vital data. Whether its customer sales information, lot tracking details, reporting on shipping history or purchase history from partners like

PFC, INxSQL's user friendly interface puts it all at their fingertips now. Additionally, INxSQL's state-of-the-art technology choices make it much easier to partner technologically with companies like Porteous, benefitting users like Big Red Fasteners.


The luck for Big Red came into play when PFC released the PFC Direct Connect and INxSQL began collaborating with them to incorporate that capability directly into INxSQL. The Direct Connect allows PFC customers immediate access to pricing and availability via the internet. It also allows them to place orders and track the status of those orders.

This access can save hours each week - and we all know that time equals money.

For companies like Big Red, the incorporation of the PFC Direct Connect into the INxSQL distribution system saves even more time and allows them to better serve their customers. From almost any part of INxSQL, they can immediately access pricing and availability with no need to leave INxSQL. Whether they create an RFQ or a PO, it

can be sent directly to PFC via the Direct Connect. There's no need to leave INxSQL to go to the web - it's all done within INxSQL. As Shawna put it, "knowing that INxSQL was partnered with Porteous made it an excellent fit for Big Red's continued growth."

As Big Red Fasteners celebrates their 10th anniversary, they are the classic American small business success story and exemplify the importance of hard work, good choices and a bit of luck.

For more information on Big Red Fasteners, Porteous Fastener or INxSQL software, please visit their web sites at: [www.bigredfasteners.com](http://www.bigredfasteners.com), [www.inxsql.com](http://www.inxsql.com) and [www.porteousfastener.com](http://www.porteousfastener.com). 





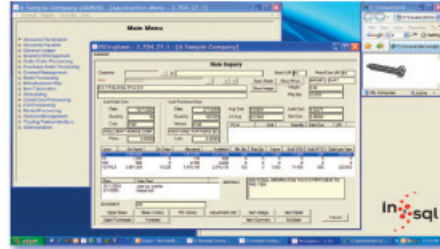
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- **Deb Lack**  
Associated Fasteners, Inc

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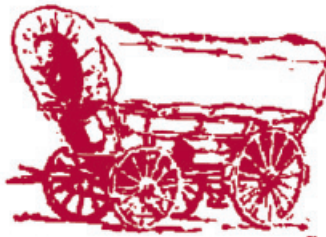
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- ✓ Zinc Pipe Plugs provide clean threads and are rustproof and corrosion resistant



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## Steve Cage

Steven J. Cage is an entrepreneur and pioneer in the sorting and inspecting industry, serving automotive and parts/component manufacturers since 1980. Stratosphere Quality LLC is a sole proprietorship, founded by Steve Cage in February 2009. His foundation for success is great customer service, a company built on strong ethics and high quality standards. He holds a Bachelors degree in Business from Berry College and has worked with some of the largest and most successful OEM and Tier 1 and 2 manufacturers in the world. Stratosphere Quality can be reached at Tel: 877-224-8584 or at [www.stratospherequality.com](http://www.stratospherequality.com).

# STRATOSPHERE - YOUR LINK TO QUALITY PARTS

Stratosphere Quality provides quality assurance and outsourcing solutions to manufacturers of parts and components. As a partner in quality, the company helps minimize defects, improve product quality, increase efficiency and reduce costs associated with quality issues. Stratosphere Quality is currently working in 12 states in the Midwest and the Greater Toronto area in Canada. We've also earned ISO 9001:2008 and ISO 13485:2003 certifications, the only provider of our kind to earn both certifications.

Manufacturers rely on many – sometimes thousands – of suppliers to manufacture their products. The integrity, safety and overall production of their product is dependent on the ability to use quality components and parts from various suppliers, some from the opposite end of the globe. Our services help to address quality issues that arise with their suppliers or to meet internal quality assurance needs.

We offer skilled teams, trained in best practice processes for quality inspection, sorting, containment and rework. This could be applicable for any type of manufacturer – for example, inspection of muffler components before entering production, calibration of medical devices before distribution to the marketplace, rework of electronic devices after being returned to a manufacturer, and/or any other type of application where a manufacturer is seeking to identify quality issues with a part or component that is affecting their production.

Many manufacturers do not have the resources to dedicate to these types of projects as they arise, causing production delays. Our services can provide the quality support they need as it is needed – whether it is ongoing support or project-based to address a supplier quality issue or to meet demand for a new product launch.

We offer some of the most innovative technology in our industry to increase productivity and efficiency in quality assurance. We offer a proprietary, online

reporting system to our customers, which captures all inspection data and project information so they can quickly reference data such as

number of parts inspected, number of man hours worked, number of parts passing/failing inspection,

etc. This is available from an online portal for even greater accessibility and communications with suppliers from all over the world.

For example, an appliances manufacturer might have us in their plant inspecting refrigerator components from two different suppliers, either because they have experienced quality issues or perhaps are using a new


supplier. With our online reporting system, they can quickly access sort/inspection data day by day to determine if the quality issue has been resolved, compare supplier quality performance or investigate historical quality inspection data.

We have also implemented scanning technology with many of our customers. The information is collected with a handheld scanner and transferred directly to our online

data reporting system. This delivers considerable improvements in accuracy and efficiency.

A case in point, an automobile manufacturer performing yard hold activities for final vehicle inspection previously required two employees to perform the activities, manually capturing lengthy Vehicle Identification Numbers (VIN). There was much room for error in transcription, and then data entry of the digits. Now, one person can perform the search, simply scanning the VIN barcode and using the scanner keypad to enter “conforming” or “non-conforming” for each part under inspection.

We bring a very innovative technology into a very traditional aspect of the manufacturing process.

Stratosphere Quality also engages in many projects that support manufacturing facilities in efforts to operate “environmentally-friendly” in reducing scrap by reworking and repairing defective parts. 





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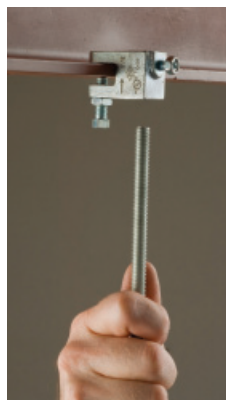
## THE UNIQUE FEATURES OF THE CADDY® ROD LOCK SYSTEM

Shorter deadlines. Budget cuts. Fewer resources. These are just some of the pressures contractors are faced with on a daily basis. So when a product comes along that can help reduce installation time while utilizing less hardware, it can understandably generate a lot of attention. And that's just what the CADDY® ROD LOCK threaded rod mounting system has done.



This innovative system was developed by ERICO, a leading global designer, manufacturer and marketer of precision-engineered specialty fixings, fasteners and supports. CADDY ROD LOCK provides a quick and economical solution for installing electrical and mechanical systems supported by threaded rod. One highlight of the system is its breakthrough "push-install" design. During installation, simply push the threaded rod through the mounting hole and it instantly locks into position. The system can even be used on threaded rod with slightly damaged threads or minor burrs, a feature which helps to save time by minimizing the amount of deburring that is usually required prior to installation.

The individual components of the CADDY ROD LOCK system include:

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- Reduces installation time up to 60%
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- 3:1 safety factor

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- Reduces installation time up to 34%
- Load capacity up to 750 lbs (3/8" rod) or 3750 N (M8, M10 rod)
- Electro-galvanized finish
- 3:1 safety factor



please turn to page 199



# Domestic Critical **Care** Fasteners



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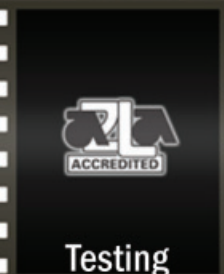
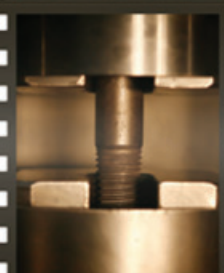
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## DISTRIBUTOR NEWS

Michael O'Shea Jr. has been appointed Vice President of **S&M Retaining Rings**. Michael has been with the company since 1998.



Michael started from the bottom up, working as a press operator and now has advanced to the position as V.P. He previously took on the role as production manager after graduating from Seton Hall University in 2002. During that time he has learned the full operation of the organization and has implemented many policies to help make the company run smoother to supply our customers.

Laura O'Brien started in the sales department in 2007 as a sales assistant but quickly moved to lead sales person. Laura is now the Sales Manager and has worked with all of our customers to increase our customer base every year. Laura keeps her eyes on the complete operation to make sure our customers always come first and we keep them satisfied. She has also taken on the responsibility as Corporate Secretary. Both Laura and Michael add years of experience to the Board of Directors of the company.

For information contact S&M Retaining Rings at 112 Phil Hardin Road, P.O. Box 39, Newton, NJ 07860. Tel: 973-383-2200, Fax: 973-383-6529 or visit their website at [www.smretainingrings.com](http://www.smretainingrings.com).

\* \* \*

**Nord-Lock, Inc** has acquired US company Superbolt Inc and Swiss company P&S Vorspannssysteme AG.

Superbolt and P&S offer high-quality products for critical bolting applications. The products are used in heavy industries such as offshore, energy and mining. Like Nord-Lock, Superbolt and P&S have developed an excellent solution that provides maximum security, and hold global recognition.

Two of the most innovative and trusted bolt securing technologies are now brought together.

To read more about Superbolt & P&S at [www.superbolt.com](http://www.superbolt.com) and [www.p-s.ch](http://www.p-s.ch). To find out more about Nord-Lock, visit [www.nord-lock.com](http://www.nord-lock.com).





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## PREMIUM STRUT ACCESSORIES

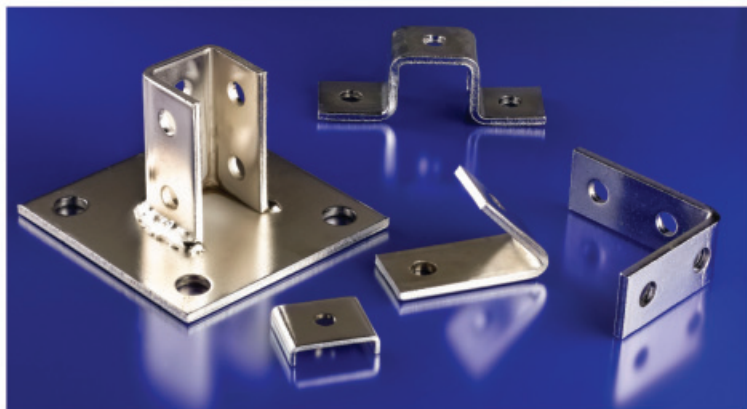
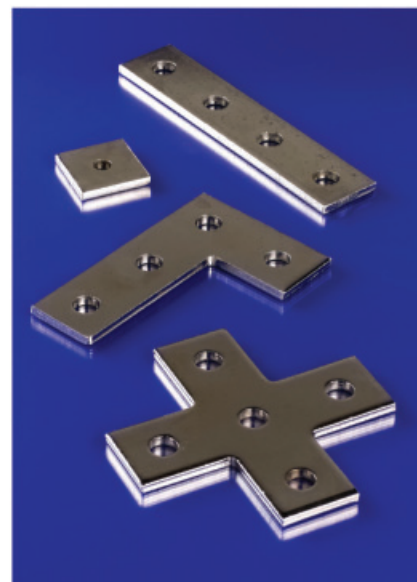
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## SOUTHWESTERN FASTENER ASSOCIATION

# SOUTHWESTERN FASTENER ASSOCIATION SPRING CONFERENCE & EXPO - MARCH 22-25, 2012

SFA's Spring Conference and Table Top Exposition will be held March 22 to 25, 2012. The Table Top EXPO will be held from 1:00 to 5:00 P.M. on Saturday, March 24, 2012. Houston Marriott Westchase Hotel, site of the 2008 Spring Conference and Exposition will again be the Houston location. SFA has secured an excellent room rate of \$79 per night for the conference. The last two EXPO's that were held in Houston were hosted by the Marriott Westchase. The hotel features free parking and is close to many of the finest restaurants in Houston. The hotel is also conveniently located off of Beltway 8 and Westheimer and is an equal distance from Houston George Bush Intercontinental Airport and Hobby Airport. Exhibit agreements will be mailed shortly to prospective exhibitors. Planning for the conference is well under way. Full Conference registrants will hear from Bruce Darling, Vice President, Materials Management, Porteous Fastener Company, on the latest developments from fastener providers from China and other Asian manufacturers on Friday morning, March 23. Also, on Friday morning, an industry panel is in the process of being assembled to discuss the latest developments in domestic fastener manufacturing. Friday afternoon will feature the Spring golf tournament. Golf Chairman, Bobby Salome, El Paso Bolt & Screw, is working on a new and



*Marriott WestChase Hotel, Houston TX, location for the SWFA 2012 Spring Conference and Table Top Exposition*



*Houston TX, host city for the SWFA 2012 Spring Conference and Table Top Exposition*



*Kim Wyle, Brighton-Best & Don Carr, Porteous Fastener Co.*



*Michael Rodriguez & The Fastener Connection Staff*

unique format for the tournament, a format that will keep everyone in the game so a true winner can be determined at the end of the tournament. The tournament will be played at Longwood Golf Club, a 27 hole course that is challenging for the avid golfer and fun to play for the beginning golfer.

In other SFA activities, SFA awarded twelve one-thousand-dollar scholarships for the 2011/12 academic school year. This year's winners include Tyler Condon, Hillsdale Terminal, was the winner of the Will Rodriguez Memorial Scholarship. Additional winners include Trevor Pells, Tifco Ind.; Jared Burks, Tifco Ind.; Andrea Carr, Porteous Fastener Co.; Mallory Condon, Hillsdale Terminal; Laura Cotaya, Fateners Inc.; Ryan Frazier, Linus Products; Abbey Jackson, Delta Fastener; Michelle Jones, EFC Int.; Hilary Osiecki, Porteous Fastener Co.; Nicole Owens, Tifco Ind. and Sarah Stout, Threaded Fasteners. Scholarship applications for the 2012/2013 academic school year are available from the website at [www.sfa-fastener.org](http://www.sfa-fastener.org).

For information on SFA Conferences and/or membership in the Southwestern Fastener Association, simply contact John Elsner, Executive Director at 292 Sugarberry Circle, Houston, Texas 77024. Alternatively, Phone: 713.952.5472, Fax: 713.952.7488 and/or email at [swfa@swbell.net](mailto:swfa@swbell.net). 



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## WOMEN IN THE FASTENER INDUSTRY

# WIFI SPEAKER SERIES TO FEATURE JENNIFER FRIEL AT NIFS WEST

Women in the Fastener Industry (WIFI) will host its premier Speaker Series at the 15th Annual National Industrial Fastener & Mill Supply Expo on October 19, 2011 at the Sands Expo Center in Las Vegas. The WIFI gathering will be held in the Expo Center's Room 304, from 4:00 to 6:00 p.m.

Members of the fastener industry are invited to hear Jennifer Friel, chairperson of the Industrial Fasteners Institute and president of Mid-West Fabricating Company, who will discuss her career in the industry and the ways the institute is making a difference for its members. She will share her experiences and then take questions from the audience.


Lou Aderman of the Aderman Co., will moderate the event, and Simmi Sakhuja, President and CEO of Stelfast, Inc., will introduce Friel. Following the speech, attendees are encouraged to stay for the WIFI social networking hour. Tickets are \$25.00. Proceeds from the

event will go to the WIFI Edith Cameron Scholarship Fund.

Women In the Fastener Industry (WIFI) is a network of women dedicated to supporting women in the fastener industry.

WIFI's mission is to provide opportunities for women in the fastener industry, at all levels of experience, to unite in order to educate, mentor and encourage one another, for the express purpose of advancing women in the fastener industry.

The group is facilitated on the LinkedIn social networking site by Mary Lou Aderman, owner of The Aderman Company, and Pam Berry, co-owner of Advance Components.

For more information about attending the event, or getting involved with WIFI, contact Mary Lou at [adermanco@aol.com](mailto:adermanco@aol.com). 





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ZnCoat is totally chrome-free, and contains no other hazardous materials, making it RoHS and REACH compliant. It is applied through a non-electrolytic process to a coating thickness of .0003" – .0004" (8-10  $\mu$ m), the same as standard zinc plating. Because the ZnCoat process does not promote hydrogen embrittlement, it does not require a post-process bake, reducing cost and alleviating concerns for sudden failure, especially for high-strength threaded fasteners.

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- With its laminar structure and significantly higher corrosion resistance, ZnCoat offers superior galvanic protection for joints involving steel fasteners and aluminum or other light metals.

- ZnCoat is compatible with all thread adhesives, sealants and nylon locking patches.

- Ultraviolet protection is comparable to conventional zinc and chromate finishes, offering over 1000 hours of QUV resistance with no change in appearance.

- Since ZnCoat is a thin coating like zinc electroplate, no special thread adjustments are necessary.

ZnCoat can be used in place of commercial zinc electroplate wherever higher performance and more consistent quality are needed, at no increase in cost. Based on experience to-date, ZnCoat can actually reduce the cost of many applications. It is ideally suitable for a wide variety of fasteners and metal components for commercial applications such as construction, appliance, recreations, marine, military, heavy equipment, lawn & garden equipment, electrical, hardware, toys and HVAC.

Contact Brian Lowry at Curtis Metal Finishing Company (586) 939-2850 (Ext. 325), email: [brian.lowry@curtismetall.com](mailto:brian.lowry@curtismetall.com), or visit the product website at [www.ZnCoat.com](http://www.ZnCoat.com) for more information. 





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## John R. Graham

John R. Graham is president of Graham Communications, a marketing services and sales consulting firm. He writes for a variety of business publications and speaks on business, marketing and sales issues.

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## DON'T MESS UP YOUR MARKETING

### Getting The Most From Your Investment

While driving down Boston's Massachusetts Avenue one Saturday afternoon, it dawned on me that every bus stop shelter along this popular main artery sported advertising signage for Apple's iPad 2. Assuming that many bus riders were not target customers for a product selling between \$500 and nearly \$900, the two of us in the car thought that spending advertising dollars at bus stops seemed like a waste of money.

We were wrong. Just get on any type of public transportation and what do you see? *Almost everyone is clearly a prospective iPad customer.* Thumbs are going at incredible speed, while others are talking on their cell phones, playing games on a smartphone or watching movies on a hand held device. And with white earbuds everywhere, it was all about music. Rather than a marketing mistake, bus stops can be a perfect advertising venue for promoting the iPad.

Contrast all this with the huge number of businesses that don't have a clue about marketing. Feeling desperate to do something, they sign up after hearing the latest sales pitch offering a magical means for getting more customers. Rather than doing nothing, they write a check - and nothing happens.

*The truth is that the communications environment is so dynamic today there are no firm marketing answers.* This makes it incredibly important to avoid wasting marketing dollars. Here are thoughts that may be useful:

### 1. Don't get mauled in the discount trap

One of the unintended consequences of the recent recession is a discounting mindset that continues to shape consumer behavior. The Groupon, as well as its

imitators, thrives on consumer demand for discount deals and, as might be expected, there are apps for managing them.

One retailer, who had just signed up for a Groupon-type deal, was attending a meeting and constantly checking sales on an iPad. He was only interested in the number of sales, rather than the impact they had on his bottom line, even though the net was rather small.

As a Harvard Business Review article pointed out, "...Merchants should be cautious and skeptical about these innovations. Even when sweetened with incentives for

repeat purchasers, jazzed up with time- or item-specific discounts, or offered through location-aware mobile devices, all daily deals are simply price promotions.... A steep price promotion can make consumers permanently price sensitive by lowering the reference price they expect to pay, and price promotions can distract customers from products' benefits, causing irreversible damage to brands."

Making an intense effort to portray the value of a product or service can create value without cutting the price.

### 2. Stay away from "ego-driven" marketing

When he answered the phone, the owner of a service company was immediately fascinated with the idea of having a 30-second video commercial — not to mention being the "star." Too much to resist, it was a slam-dunk deal, if there ever was one, even though there was no plan for using it.

When something catches the CEO's fancy, that's it, whether or not it has a role to play in the company's marketing. This can be called "ego-driven marketing."





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## FROM WHEEL BOLTS TO COLD FORMED SPECIALS *By Stan Lockhart*




By whatever name you know them, B&D Thread Rolling or B&D Cold Heading, you should know them for their great reputation for producing wheel bolts and double end studs. But, that is just the beginning of the story!

In 1970, when Albert R. Doyle approached his employer of Niagara Cold Forging to do all of their thread rolling, he put in motion a business plan that carries through to the company today. Albert could not have imagined the full extent of the parts B&D would produce and the industries his company would eventually reach. As current president and owner of B&D Cold Heading, Dennis Doyle introduced the name of B&D Cold Heading to reflect the company's increased capacity to produce complete cold headed specials. Throughout the past four decades while continuing to offer their thread rolling services to other manufacturers and distributors for blanks or damaged threads, the company was steadily forging their niche in the fastener market as a leader in wheel hardware for military and commercial vehicles. Dennis was not content to let the story end there, however. If you continue to peel back the layers of this company, you find another whole realm of manufacturing for cold headed specials and you begin to see the true potential of this world class supplier.

Operating today out of two facilities in the Detroit area, B&D utilizes 48,000 square feet of manufacturing space with another 63,000 feet of warehousing and distribution to service their customers in more than thirty states including some exports that now go to China. Great attention has been given to material flow and as a result of a grant from the state of Michigan in 2008, the company implemented lean manufacturing that has resulted in B&D being able to reduce their inventory, work in process, and lead times. Within their core product group of wheel bolts and double end studs, they are able to manufacture, store and ship within 17 days on average. The production team at B&D is able to process difficult-to-run parts and work with their customers to solve application issues...quite often suggesting material upgrades and tolerance modifications that can reduce overall cost and improve part performance. The heavy truck and bus market is a key industry for B&D and recent developments of a

proprietary line of wheel hardware that reduces "wheel offs" exemplifies the company's commitment to innovation and creative design reducing liability in critical application areas. "Careful attention to detail and the addition of cutting edge technology with two Laser Lab inspection units has eliminated errors and reduced inspection time", commented Tim Quick, COO of B&D.

Today, B&D is registered as ISO 9001, and by the fourth quarter of this year, they will be TS certified and operate a fully equipped A2LA accredited lab. B&D increased their production capabilities when they purchased the assets of United Bolt in 2007 and today they manufacture specials, wheel bolts and studs up to 1 1/4" diameter and 10 inches in length out of medium and high carbon alloys. Branching out into other cold headed specials has been a major contributor to the overall growth and success of B&D and today the company produces a variety of cold headed bolts to include 12-point flange, special carriage, shoulder bolts and a wide range of application specific parts. Ted Schiebold, the sales manager for B&D, said they are very customer focused and offer full support to distributor VMI arrangements and will package in a variety of containers, including quarter cartons, pallet boxes or returnable totes. Other value added services include patching, centerless grinding, special platings, thread protectors, sorting and multi-layered packaging. With their strategic shipping location near Detroit, parts can be delivered to most areas of the country with a two day leadtime.

With one of the largest inventories of wheel bolts and double end studs, B&D's products reach most major OEM's either directly or indirectly through tiered suppliers and they are able to service aftermarket volumes by optimizing manufacturing runs for similar items tied to a particular industry. B&D enjoys an expanded role for cold headed specials and will look at any part within their range of capability; and, management is not afraid to purchase additional equipment if the right opportunity comes along to partner on long range projects. Never losing sight of the need for domestically produced parts and with quality as their focus, B&D uses the tagline "Many depend on us... You can too!" 







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ASF utilizes over 250 production machines. Its manufacturing capabilities include metal cutting, hot forging, conventional and CNC machining, threading, bending and impression and low stress marking. ASF has the ability to cut bar to 24 inch in diameter. In addition to its 21 band saw machines, ASF offers precision finish machine cuts with a  $\pm$  tolerance of .005 inch with five precision metal cutting machines. The company also has machining capacity for turning diameters from 1/4 inch to 22 inch and in lengths up to 50 inches long.

ASF head style forging capabilities is not only inclusive for hex patterns but also for sockets, 12 points, hex flange, flat heads and round head patterns in lengths up to 38 inches long. The company has 24 cut

threading machines for bolt and stud threading, 10 roll forming machines for in-feed and through-feed threading requirements with a 3 inch diameter maximum capacity. ASF also offers threads with a machined finish with its machined turning services.

ASF has the ability to manufacture the out-of-stock or hard-to-find nominal, decimal and metric bar stock sizes quickly. Its alloy and stainless in-house metal bar manufacturing capabilities includes bar drawing, bar peeling, bar straightening, bar grinding, and bar polishing. The manufacturing services incorporated for the many types of alloy and stainless bar stock products add an in-house resource capacity to produce fastener and custom machine parts effectively and rapidly.

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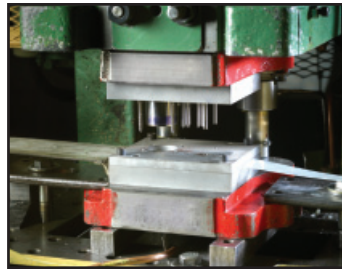
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## MID-WEST FASTENER ASSOCIATION

# FASTENER TECH™ '11 A Solid Success!

MWFA - P. O. Box 5, Lake Zurich, IL 60047 - Tel: 847.438.8338, 1.800.753.8338 - mwfa@ameritech.net - www.mwfa.net

Hundreds of fastener manufacturers, distributors, users and industry suppliers gathered in Rosemont, IL, USA, on June 13 through 15, 2011, for FASTENER TECH™ '11, the third staging of "The All-Fastener-Industry Event in the Heart of the Fastener Industry." This event was designed to offer attendees and exhibitors a valuable, cost-effective and easy-to-attend venue that provided value to all types of fastener industry professionals. On this and many other levels, the show was a solid success.

The three-day event featured a two-day exhibition, seven educational sessions, association meetings, an All-Industry Reception, and co-location with the SUR/FIN 2011 exhibition and conference for the surface finishing industry. Total registration for FASTENER TECH™ '11 was recorded at 1049 people, and the SUR/FIN 2011 event added another 1174 registrants. Visitors had open access to the exhibits for both shows: 112 exhibiting companies at FASTENER TECH™ '11 and 162 at SUR/FIN 2011.

As a trade event, FASTENER TECH™ '11 was unique on several fronts, including the following: the relatively low-cost and ease-of-exhibiting at and attending the show, the all-industry focus, the heart-of-the-industry location, and the high level of participation from fastener industry associations and publications. FASTENER TECH™ '11 was produced by Fastener Technology International magazine, Akron, OH, USA, and the Mid-West Fastener Association (MWFA), Lake Zurich, IL, USA.

Additional trade associations and industry publications that participated in organizing, promoting and executing FASTENER TECH™ '11 were:

- ASM Heat Treating Society (HTS), Materials Park, OH, USA  
www.asminternational.org/heattreat
- Chicago Metal Finishers Institute (CMFI), Chicago, IL, USA  
www.chicagometalfinishers.org
- China Fastener Info, Guangzhou, CHINA  
www.chinafastener.info
- Distributor's Link magazine, Naples, FL, USA  
www.linkmagazine.com
- Fastener Training Institute, Long Beach, CA, USA  
www.fastenertraining.org
- Fully Threaded Radio, Naperville, IL, USA  
www.fullythreaded.com
- GlobalFastenerNews.com, Portland, OR, USA  
www.fastenernews.com
- Industrial Fasteners Institute (IFI), Independence, OH, USA  
www.industrial-fasteners.org
- National Association for Surface Finishing (NASF), Washington, DC, USA, www.nasf.org
- National Fastener Distributors Association (NFDA), Chicago, IL, USA; www.nfda-fastener.org
- Pacific-West Fastener Association, Long Beach, CA, USA  
www.pac-west.org
- Women In The Fastener Industry (WIFI), Long Beach, CA, USA  
www.adermanco.com

FASTENER TECH™ '11 organizers are pleased to report that the overall mood of the show was drastically better than it was in 2009 as well as its top five observations for the 2011 event:

- The all-industry focus, the Chicago metropolitan location, the every-other-year scheduling, and the ease of participating are the key strengths of FASTENER TECH™.
- Money is still tight, so the free seminars were the most crowded of all the education sessions.
- Free food and drinks were very popular as FASTENER TECH™ delivered twice on this front with its free "Exhibitor Lunch" and the complimentary "All-Industry Reception."
- Co-location with the SUR/FIN event for surface finishing technology was a good decision that added value for FASTENER TECH visitors and exhibitors.
- Metropolitan Chicago is easy to get to, and it is still in the heart of the American fastener industry with a majority of the industry located in Great Lakes Region of the USA and Canada.

Comments from FASTENER TECH™ '11 participants included the following:


**"FASTENER TECH™ '11 was great. Very active aisles as attendance was very strong"**

*"Chicago as a host city for a fastener show makes so much sense."*

**"It's a great turnout, the people in Chicago always put on a good show."**

*"I think it's a very good regional show, and it has a very nice attendance. I don't know that the suppliers who are exhibiting feel that there are as many distributors here as they would have liked. But for a distributor, it's a wonderful opportunity to see people."*

**"I just wanted to let you know how much I enjoyed the show this year. Having the show in Rosemont along with SUR/FIN turned this into an excellent venue. I would hope that this model would get serious consideration for all future shows."**

The next FASTENER TECH™ will be offered in June of 2013 in Rosemont, IL, USA, and efforts are under way for another co-location with SUR/FIN. 





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Norm Spitzig, Principal at Master Club Advisors, is internationally recognized as an eloquent, visionary speaker and private club industry expert. His talks have been well received by numerous professional associations, individual businesses, private club leaders, and civic groups on six continents. His groundbreaking book "Perspectives on Club Management" continues to inspire and challenge business leaders worldwide, and his newer books, "Private Clubs in America and around the World" and "Murder and Mayhem at Old Bunbury," offer insightful and humorous looks into the private club world. Both available at [www.CliveEndiveOgiveIV.com](http://www.CliveEndiveOgiveIV.com). For more information, please contact Norm at [normspitzig@hotmail.com](mailto:normspitzig@hotmail.com), 1-352-735-5693, or visit [www.MasterClubAdvisors.com](http://www.MasterClubAdvisors.com).

# WHAT TO LOOK FOR IN AN ASSISTANT MANAGER

Great companies are populated by great employees. While a top general manager is necessary, it's not sufficient for the genuine long-term success of any company or major operating division. Businesses that genuinely succeed and flourish over the long run have general managers who possess the vision, wisdom and courage to identify, attract, hire, and mentor great assistant managers.

Mark is an accomplished and a well respected general manager who, by and large, does an excellent job for his company. Like many, Mark also spends too much time on tasks that should be handled by assistant managers. Mark's claims that he is "just too busy to hire and train an assistant" and "he's better off doing it himself" are typical of those in his position. Yet by securing and mentoring the right assistant managers Mark will have significantly more time to do what someone in his position should be doing (e.g., strategic thinking, developing multi-year business plans, etc.). His business, in turn, will run more efficiently and profitably—and, equally as important, the next generation of senior leadership will be firmly in place.

What ARE the attributes that savvy general managers look for when they hire their key assistants?

### Complementary skills

Good assistants are typically not clones of their general manager, but rather bring new and different talents to the senior managerial mix. As but one example, a "low tech" general manager would be particularly well-served to hire someone who really understands, and know when and how to use, the many

"high tech" tools that are available and applicable to the specific business needs of the company.

### Practical experience

While in no way diminishing the fundamental importance of a formal, industry-specific education, good assistants also need relevant hands-on experience before they are truly ready to function effectively. Ideally, this practical experience can and should be garnered in

a variety of positions within the company or another company in the same industry. The proverbial mail room and assisting accounts payable are always two good places to begin.



### Loyalty

Good assistants in any profession must be totally loyal to their boss, the general manager. Anything less is simply unacceptable. Office politics might make for a good television sit-com, but they make for a bad assistant manager. There is more than a modicum of truth in the old saw "When the boss looks good, everyone looks good." Effective assistant managers fully trust in the experience and knowledge of their bosses, and, in so doing, earn over time the complementary respect and admiration of their bosses.

### Good work ethic

The successful assistant manager is someone who is willing and able to put in the necessary time it takes to help make the business a success. Nine-to-fivers need not apply. Acclaimed filmmaker John Frankenheimer of *The Manchurian Candidate* and *Birdman of Alcatraz* fame once said that "the importance of hard-working assistants cannot be overemphasized."



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## DISTRIBUTOR NEWS

**Ohio Rod Products**, a division of Elgin Fastener Group, announces the hiring of Mark Limardo for the position of Product Engineer.



Limardo has prior engineering/management experience in the wood, automotive, and medical industries, and has been instrumental in the transition and start-up of machinery that EFG acquired earlier this year with their purchase of Silo Fasteners. He will focus on the areas of machine capability and the development of new product lines for Ohio Rod.

Ohio Rod Products manufactures cold headed and threaded long-length specialty fasteners for durable goods and consumer product industries, and is headquartered at 1415 S. Benham Rd., Versailles, IN 47042.

For more information, you contact Ohio Rod Products by phone 812-689-6565, by fax 812-689-6635, or via email: [info@ohiorod.com](mailto:info@ohiorod.com) or visit their website at [www.ohiorod.com](http://www.ohiorod.com).

## DISTRIBUTOR NEWS

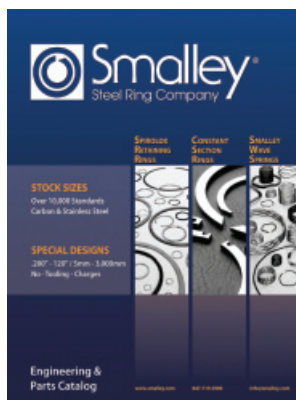
**Smalley Steel Ring Company**, offers our customers a comprehensive look at all of manufacturing and development of Smalley's 10,000 standard parts. Spirolox® Retaining Rings, Constant Section Rings and Wave Springs announces the launch of a new Parts and Engineering Catalog. The new catalog combines the previously existing Spirolox Retaining Ring and Wave Spring series with newly released series including Hoopster Retaining Rings, Constant Section Rings, Metric Wave Springs and Small Series Wave Springs.

Smalley is pleased to offer the new catalog to its customers. Bill McClelland, Smalley's Director of Engineering says, "The new catalog

The newly updated content features 130 pages of part tables, engineering guides, design information and expanded part offerings. The catalog is an ideal resource for engineers needing detailed product information for quick prototypes."

The new catalog is offered both in paper and PDF formats. Both versions can be requested by going to: [www.smalley.com/getcatalog](http://www.smalley.com/getcatalog).

For more information contact Smalley by phone on 847-719-5900 or their website at [www.smalley.com](http://www.smalley.com).





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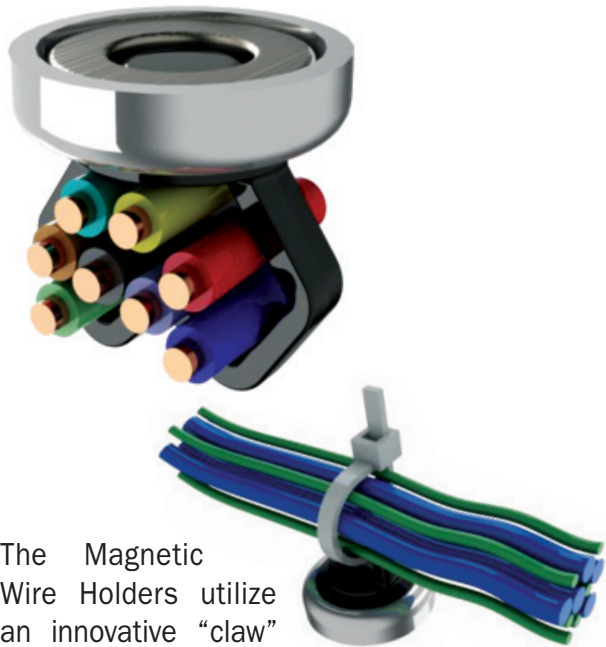
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RES is making its first appearance at the National Industrial Fastener & Mill Supply Expo, October 19 – 21, 2011. Come find us at booth # 1836 so that you can see your RES Solutions.

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## WIRE MANAGEMENT 201: HEAT SHRINK TUBING

Cable Tie Express was established in 1995 with the goal of becoming a first class world market provider and leader in the cable tie and wire management arena. Our offering has grown over the years to where we now provide a wide variety of wire management products including cable ties, mounting bases, cable clamps, wire connectors and heat shrink tubing.

In the spring issue of Link Magazine, we kicked off our "Knowledge is Power" series with our article entitled Cable Ties 101, highlighting cable ties, their material make up, applications, and ordering and storage considerations. In this issue, the focus concentrates on another wire management product and the fastest growing segment of our product line - Heat Shrink Tubing.

Heat shrink tubing products from Cable Tie Express are ISO manufactured, UL Certified and conform to Military Specifications. Cable Tie Express offers a complete line of sizes, colors, materials, and types to meet the demands of our customers.

Focusing on the basics, heat shrink tubing is a sleeve or tube that is placed over a connection to be protected. It is then shrunk by applying heat with a hot air gun or similar device. The result is an insulated connection protected from moisture, solvents or other environmental conditions that could promote corrosion. Heat shrink tubing is used to insulate wires, offering abrasion resistance and environmental protection for stranded and solid wire conductors, connections, joints and terminals. It can also be used to repair the insulation on wires, to bundle them together and to protect wires or small parts from minor abrasion.

Because heat shrink tubing offers abrasion resistance and environmental protection for wire conductors, connections, joints and terminals, it is used in a variety of industries, including electrical, electronic, communication, power generation, automotive, and ship building.

There are two main categories of heat shrink tubing: THIN WALL and DUAL WALL.

### Thin Wall

Cable Tie Express "TTW" product category - This series is manufactured of Polyolefin material and is used for both commercial and military applications. It has a 2:1 shrink ratio and is readily available in standard spools, mini spools, and 6" and 48" sticks. We also offer cut to length sizes to meet customer's specific requirements. In addition, Cable Tie Express

offers a Thin Wall "TTWZ" series. This series has the same high quality properties as the "TTW" line. However, it has not undergone the certification processes to become Military certified. This particular series provides a cost savings when ordering for non-military applications.

### Dual Wall

Cable Tie Express "TDWF" product category - This series is also manufactured of Polyolefin material but has an additional liner made of meltable adhesive that flows inside the tubing when heated and adds a permanent, flexible, water-proof barrier. "TDWF" has a 3:1 shrink ratio and meets military standards. The Dual Wall series is available in the same standard packaging as the Thin Wall series.

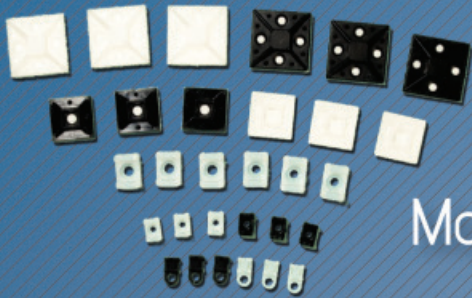


*Heat Shrink Tubing – the Fastest Growing Segment of the Cable Tie Express Product Offering*





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## Mariah deForest

Mariah deForest is Executive Vice President of Imberman and DeForest, Inc., international management consultants headquartered in Evanston, IL. She specializes in productivity improvement and positive employee relations programs in companies having predominantly Spanish-speaking workforces. She also consults for American companies with Mexican facilities concerning employee relations in that country. She has lectured at scores of universities including Northwestern University and the University of Illinois School, and has authored over 80 articles and reports on her areas of expertise.

## CULTURAL AWARENESS

### How To Use It To Nail Your Competition

By focusing on the cultural traits of their growing foreign-born Latino population, specialty fastener producers can to boost productivity, lower per-unit costs, and better meet the ever-stiffer demands of customers.

Most specialty fastener makers have already tried to motivate their workers for better productivity – with varying degrees of success. Those with mainly Mexican or Spanish-speaking workers find Gainsharing gives them more productive employees and a greater competitive advantage. Why? Latin cultural traditions meld closely with Gainsharing precepts.

### What is Gainsharing?

Gainsharing is a group pay-for-performance program. Worker performance is quantified and given a dollar value. When workers top a performance threshold pre-set by management, they can earn a bonus. Employees receive half the value of their better performance, and the company, the other half. So for every dollar paid to workers for better performance, a fastener producer saves a like amount through higher productivity (less overtime), improved quality (less scrap, customer returns) and better safety (lower workman comp costs). No sense of entitlement results, since employee bonuses must be re-earned each short Gainsharing period. (See: "How Employees Can Improve Your Profit Level," *Distributor's Link*, Feb. 2005)

In 1981, Congress ordered the Government Accounting Office to evaluate productivity improvement programs. The GAO reported Gainsharing plans were "...the wave of the future" because they unite an organization's workforce in the goal of boosting

operational performance. On the average, the GAO said, "performance climbed by 17 to 22 percent." (*Productivity Sharing Programs: Can They Contribute to Productivity Improvement?* US General Accounting Office, AFMD-81-22, March 3, 1981)



### Cultural Differences

To refer to "cultural traits" here is not to stereotype nationalities or revert to old labels or pigeonholes. Understanding different cultural points of view prevents the communication lapses and inadvertent missteps that harm productivity. Being alert to cultural differences is what "cultural sensitivity" means. Gainsharing and the Mexican-born workforce

For fastener makers having diverse workforces, group pay-for-performance programs succeed because they incorporate four aspects of traditional Latino culture:

- Tradition of working together in collaborative groups;
- Value of mutual support and collaboration;
- Acceptance of authority, and preference for specific work goals and instructions;
- Positive response to incentive pay plans that reward performance immediately.

As a group bonus plan, Gainsharing strongly appeals to Latin culture by emphasizing group cooperation and incentives. Gainsharing promotes cooperation among workers of all backgrounds better than any "sensitivity" or "diversity" training program can, because of its financial benefit. By fostering the need to work cooperatively with other workers, no matter their ancestry, Gainsharing offers all employees the opportunity to become a meaningful member of a workforce and partner with management in productivity improvement.





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## DISTRIBUTOR NEWS

**The Mid-West Fastener Association** has partnered with Marathon Solutions, Inc., a leader in the credit card processing industry, to offer the following benefits:

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*Alternatively, contact Matt Smith at Marathon Solutions, Inc. for more information. Email him at : [matthew@marathonsi.com](mailto:matthew@marathonsi.com) or call 913-953-5305.*

## DISTRIBUTOR NEWS

**Hi-Tech Fasteners, Inc.** of Frederick, Maryland, has announced the launching of Hi-Tech Fasteners-Canada. This new entity will be based in the Greater Toronto Area (GTA) of Ontario and will service all customers throughout Canada.

"Given how much our sales in Canada have grown the past few years, it was clear to us the time was right to enter this marketplace on a full-time basis," said Hi-Tech Fasteners President Tom Waller. "We believe our aggressive inventory strategy fills a void in Canada, and offers us greater partnering opportunities with our customer base than we have ever had before."

During the expansion announcement, General Manager

Mark Mertz and Sales Manager Mark Williams introduced Steve Hill, as the sales manager for Hi-Tech Fasteners-Canada.

"In opening a new venture such as this, we felt it was important to tap someone with detailed knowledge of the products we offer and the Canadian marketplace as a whole," Mertz said. "Given Steve's background and experience with both the customer base and our valued suppliers, we believe we found the perfect person for the job."

For more information about their products, contact Hi-Tech Fasteners, Inc at 4940 Winchester Boulevard, Frederick, MD 21703. Tel: 1-800-466-1940, or Fax: 301-831-8296 or visit their website at [www.hitechfasteners.com](http://www.hitechfasteners.com).



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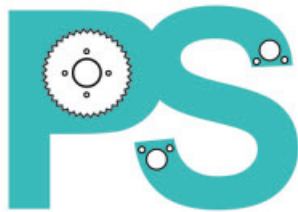
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### Our History

S&M Retaining Rings became a division of Schneider & Marquard in January of 2001 as a result of the vision of the current owner Michael J. O'Shea, who realized the need for additional manufacturers in the retaining ring market. Originally a tool & die maker, he also brought to S&M over 20 years of hands on experience in the complete manufacturing of retaining rings.

With the understanding of the skills and limitations of the other retaining ring manufacturing companies in the USA, England, and Germany, he developed new designs for high-speed precision tooling. This tooling has made it possible for S&M Retaining Rings to produce and deliver exceptional quality rings in a short period of time.

By utilizing our tool and die manufacturing resources and Mike's experience in the industry, S&M Retaining Rings has been able to quickly grow into the major retaining ring supplier it is today. S&M Retaining Rings initially began and continues to manufacture higher volume rings in order to satisfy the market's demand for these items. Custom rings are also fabricated based on our customer's needs.

### Our Products

S&M Retaining Rings has a significant inventory of rings, including 1074 carbon steel, stainless steel (PH15-7Mo) and beryllium copper. We can supply our carbon steel rings with black phosphate, zinc bright/clear, zinc dichromate yellow and zinc trivalent plating. Our rings are manufactured to the military standard and certificates of compliance to the MS number are

available upon request. All of the items we manufacture are DFAR compliant.

We also manufacture retaining ring applicators and dispensers for our customers and have the capability to fabricate custom automated tooling for a company's individual application.

All of the employees at S&M Retaining Rings strive to make sure that our rings will always meet the highest quality standards. Our rings are inspected continuously throughout the manufacturing process with excellent SPC results. Our employees are committed to total quality management from the time we quote the job until the rings are shipped from our facility. We stand behind the quality of our rings 100% and are very proud to be ISO9001:2008 certified.

### Our Future

Mike O'Shea, his son Michael and the employees of S&M are taking steps to prepare and expand for the future so that our customers may be serviced more effectively. We are steadily increasing our product line each year and will soon be offering some metric sizes in addition to our inch sizes.

Employees of S&M are proud to say that we continue to manufacture all of our products in our own facility in New Jersey, and in turn are helping to support the United States' economy.

We at S&M Retaining Rings value the relationships we have with our customers and appreciate their loyalty. We look forward to growing in the future with your support. 





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## NEW ENGLAND FASTENER DISTRIBUTORS ASSOCIATION

# NEFDA INDUCTS BILL AND PAT LANG INTO THEIR "HALL OF FAME" *by Joe Soja*

On Oct. 3, 2011 Bill and Pat Lang were inducted into NEFDA's "Hall of Fame" at the Table Top Show at the Sturbridge Host Hotel & Conference Center in Sturbridge, MA. Bill and Pat both serve on NEFDA's Board of Directors. Pat is Vice President and Bill is Membership Chair. Bill is General Manager for ND Industries and Pat is Sales Manager for Kanebridge Corporation. They give generously of their time and talent to help make NEFDA a successful fastener association. NEFDA is grateful to both Bill and Pat for all they do for this association.

## *We invite you to read their fascinating bio...*

Bill was born on March 19, 1954 in Paterson, New Jersey. In 1965, his family moved to Fair Lawn, NJ. Pat was born on May 29, 1954 in New York, NY. In 1958 her family moved to Fair Lawn, NJ. And that's where our story really begins.

The most important event that took place in Fair Lawn was when we met and fell in love at the tender age of 16. After graduating high school in June of 1972 Bill was under a self-imposed deadline to obtain a job before our July 8th wedding date. After two interviews with Bell Fastener Corporation, which was then located in Paramus, New Jersey, he was hired just three days before our wedding. We were married and left for a week of camping in the wilds of Maine, both of us secure in knowing that upon our return Bill had a very interesting future in the bell making industry.

After Bill's first day of work he returned home and announced that he had to look for another job because he could not spend the rest of his life selling screws! After a few weeks he realized that fasteners were not as boring as he first thought, and he decided to stay at Bell. Bill began to get more involved in the technical side of the products and, after a whirlwind training program, became Quality Control Manager for Bell Fasteners.

Bill's stint in Q.C. lasted about a year, and then he returned to the sales desk where he worked until 1976, attaining the position of Inside Sales Manager. After Bell Fasteners was purchased by Pawtucket Manufacturing we expected them to move the company to Rhode

Island, (not that there's anything wrong with Rhode Island) but we wanted to stay in New Jersey so Bill began to look for another position.

During this same time, Pat was working at a local drug store and later left to help her parents run a Laundromat they had recently purchased.



After interviewing with Aerospace Nylok, Bill was hired as a salesman and began to learn about locking fasteners. This field of the fastener industry that Bill found very interesting, and so he spent a great deal of time learning the principles of both the products and the equipment to apply them. The hard work paid off and he was promoted to the position of Sales Manager. Things went very well for years and Bill began to build long-term relationships with others in the industry.

In the meantime, Pat's parents sold their Laundromat and Pat needed a job.

One of Bill's many friends in the industry was looking to hire a sales person for a division of Monogram World Fasteners that would be opening in NJ and soon after that Pat also became a member of the fastener world. World Fasteners was an importer and all of their sales people were women. This was significant because at that time there were very few women in the fastener industry. Some of her very first customers were Joe McGrath and Bobby Williams, owners of a small company called Kanebridge Corporation that was making waves by selling product to other distributors in smaller than keg quantities that they referred to as "kegs". In July 1983, after Monogram Industries closed the doors on World Fasteners, Pat went on a job interview at Kanebridge Corporation. Joe hired her that same day. Kanebridge was on the leading edge of technology and after dealing with old fashioned Kardex cards and inventory print outs, suddenly Pat was thrust into the world of computers.

In 1985, Pat was promoted to the position of Sales Manager and her department has grown from 4 people to 18 who all now work from home. The challenges and changes she has experienced working for Kanebridge Corporation for the past 27 years has always kept her job exciting and new.

*please turn to page 213*





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## DISTRIBUTOR NEWS

**American Imperial Screw Corp.**, a distributor for ITW-Shakeproof-SIP is stocking stamped fasteners (commonly known as Palnuts) in hex, hex washer, self threading locknuts, push-on retainers and push-on hats. The push-on hats are stocked from 3/16" diameter to 3/4" in zinc RoHS, mech zinc, nickel, black or any other finish you may require.



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## DISTRIBUTOR NEWS

### RAF Electronic Hardware

recently presented their Outstanding Sales Award to D.B. Roberts Company at their corporate headquarters located in Wilmington, MA.

Pictured in the photo from left to right: Kym Takach, Purchasing, Lisa Breton, Purchasing Manager, Mike Heywosz, RAF Eastern Regional Sales Manager, Mike Laurence, Regional Manager, Kelly Davenport



Loeb, Marketing Manager, Scott Mugford, Inside Sales Manager.

Contact RAF Electronic Hardware (a division of MW Industries) by Tel: 203-888-2133, Fax 203-888-9860 or at [www.rafhdwe.com](http://www.rafhdwe.com).



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## ANTHONY MANNO LOOKING AHEAD

Through these hard economic times, Anthony Manno & Co's Sr. Vice President Russ Fragala said "We are experiencing a huge growth spurt over the last few months". "While machine shops around the country may be experiencing a slow down, we just added 17 machines to our manufacturing facility to help in the current demand for our product line.

Russ Fragala, who is managing this new startup company which is just under a year old claims that because of recent decisions made and the perfect timing of purchasing machines from failing companies, is posing a great opportunity for Anthony Manno & Co.

"I've had the ability to add on recently purchased machines to our manufacturing facility in Wyandanch New York to keep up with the current demand. Our customer service and sales staff thrives to make sure our parts are nothing but the best and always delivered on time. We are beating our competition's prices because of our low overhead."

Fragala watches closely to overhead and material costs to assure his sales staff can give their customers the "rock bottom" price for their part. "We have also beaten our competition on our customer's custom orders from their print."


"Each sales person personalizes their relationship with their customer. It's all about relationships! Many have our team member's cell phone numbers just to

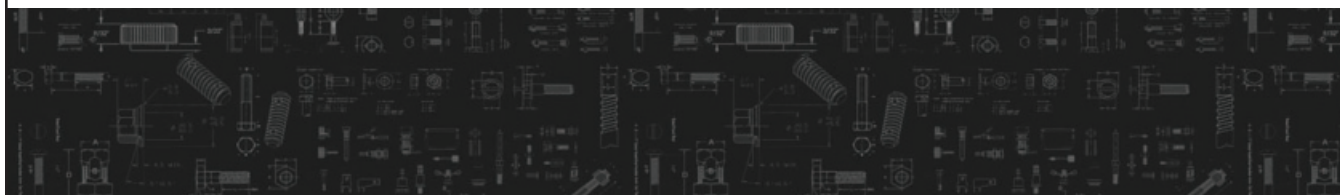
know we are there for them even after hours when the most important quote usually is needed in minutes."

Fragala is currently negotiating additional space adjacent to their current location. "We have a lot going on and what we're told we have coming up in contract work for the fall, we're going to need this additional space. As fast as we have our product going out the door, we get a shipment of new machines to keep up with the demand almost every other day. It's been crazy, but a good crazy" says Fragala.

"I feel it's a perfect time to make our mark in the industry." With many manufacturers either going out of business or just retiring we are here to fill that gap. Anthony Manno has a great reputation being in this industry for the past 18 years and that solid reputation now lives on through Anthony Manno & Co.

With so much going on at Anthony Manno & Co. the crew still has the time to travel and meet with their customers Nationwide. "We are happy to be a part of the Vegas trade show this year. We are excited to meet many new customers that we have been quoting. It's a real exciting time for us and look forward to a great 2012."

Come see the Anthony Manno staff at booth number 1345 while visiting the Vegas fastener show. 





# Anthony Manno



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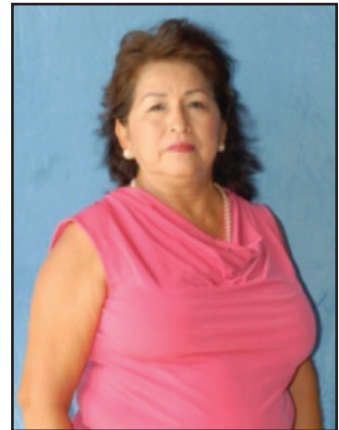
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## DISTRIBUTOR NEWS

**PAC FAS division Big H Corporation**, announces the retirement of long-term employee Maria Medrano.



Maria retired after 22 years with Pac Fas. She was a dedicated and caring employee who took great pride in her work. Maria, like many of our employees, came on board and found a home. She chose to make it more than just a job, she made a career of fasteners. A special lunch was held in her honor with awards.

Pac Fas has 9 current employees with 25+ years, 4 with 20+ years, 3 with 15+ years, 7 with 10+ years and 6 with 5+ years. Initially, most people hired on at Pac Fas may look at it as "just a job," but once they get to know the Pac Fas system they realize that it's more than that, it's an important challenge. We wish Maria a happy and prosperous retirement. She will be missed.

PAC FAS can be contacted at: 1509 Alabama, South Houston, TX 77587. Tel: 1-800-444-5834, Fax: 1-800-388-8077 or visit their website at [www.pacfas.com](http://www.pacfas.com).



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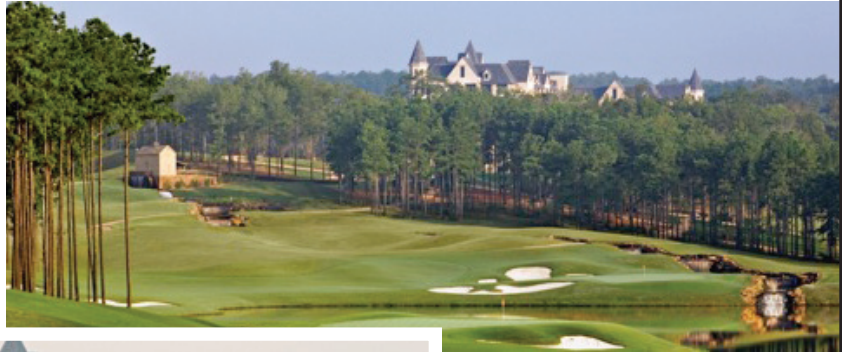


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## SOUTHEASTERN FASTENER ASSOCIATION

# SAVE THE DATE: SEFA ANNUAL SPRING MEETING - APRIL 11-13, 2012

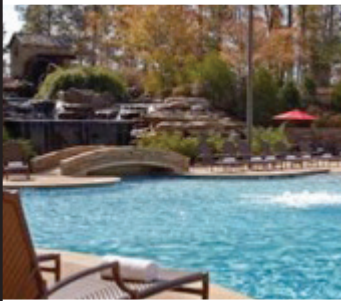
Members who attended the 2011 Spring Meeting in Orlando, FL this past March suggested Charlotte, Atlanta, and Birmingham as places to go in the next few years. They also requested we have it a little later in March or in early April. Based on availability and rates in the potential areas, we are pleased to announce that this coming year's event will be held at the Renaissance Ross Bridge Golf Resort and Spa in Hoover, just outside of Birmingham, Alabama. This location is easy to get to whether attendees are driving or flying. The resort offers amenities such as golf and spa and offers a great value for the money spent in terms of quality of accommodations, resort activities, and quality of food and beverage.



player, coffee and coffee maker, and separate tub and shower. All of the 259 rooms are in the same building and look exactly the same (except for the suites).

## Highlights

- Ross Bridge is the only full service 4 Diamond in the area and a brand new build (opened August 15, 2005)
- Travel & Leisure named the resort one of their Top 500 Hotels in the World.
- They are the unique blend of Scottish castle architecture and style (complete with daily bagpipe player) and the breath-taking setting of the rolling foothills of the Appalachian Mountains...all in the heart of the South. The facility invokes the exclamation, "Where did you FIND this place???"
- Ross Bridge is upscale and stylish (you won't find silk flowers there), but also comfortable and relaxed with good old fashioned Southern Hospitality.
- Every one of the guest rooms has a balcony overlooking the grounds as well as a mini refrigerator, CD




• The backyard is a 330 acre 18 hole championship golf course that is currently the third longest course in the world. Golf World recently honored the course with the 2010 Readers' Choice Top 50 Resort Courses Award.

• Relax and rejuvenate in the fantastic 14,000 sq ft European Spa & Salon with separate men and women's quiet rooms, Jacuzzis, steam rooms, and lounges, and 10 treatment rooms. Other amenities include the tennis courts, bicycles, horseshoes, badminton, croquet, fitness centers, game room, indoor/outdoor pools, and walking/jogging paths. All complimentary!

• They embody the Renaissance emphasis on culinary excellence. Some ways they have achieved this are the careful selection of food vendors (leaning towards local growers), seasonal menu rotations, and their partnership with a local culinary school.

• They have 2 on-site restaurants plus a lively lobby bar and in-room dining so there are plenty of options for meals on your own.

• The clubhouse terrace is perfect for our first night welcome reception. This terrace looks out over the putting green, where we will have "night putting": basically a "putt-putt" tournament! Very fun for nongolfers as well as golfers and a great way to kick-off our meeting with socializing and lots of laughter!!

Beginning our new "every other year" format of table top shows, we will be filling the "table top" void with exceptional business practices to include a top speaker, a 4-person panel discussion, and round table discussions. If you are interested in learning more about the event and or want to participate more, please contact the SEFA at [sefa@thesefa.com](mailto:sefa@thesefa.com). 



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 Email: sales@rareearthsolutions.com  
 www.rareearthsolutions.com

## ARE YOU TIRED OF ATTEMPTING TO ORGANIZE YOUR LOOSE WIRES?

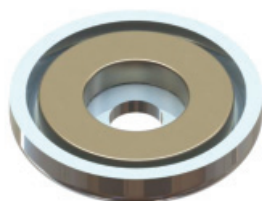
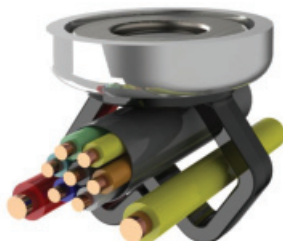
If the answer to the above question is yes, then Rare Earth Solutions (RES) has the answer!

RES is a fast growing organization that has revolutionized wire support systems to help maintain and organize electrical wiring.

RES was established August 2011 by Tru North USA LLC. Owned and operated by Michael and William Smith. RES is based out of Lake Zurich, IL. The fact that RES is an American manufacturer is something we are greatly proud of. Currently RES works hand in hand with one of the leading automotive fastener corporations, Termax Corporation. Termax has been involved in the fastener industry for over 40 years. RES and Termax work together to develop the most efficient tools and solutions.

Our product line is designed to bundle and secure any loose wiring. These products can be used in a large array of different industries such as HV/AC, audio and visual, security, fiber optics, office environment, warehouses, construction, and endless other opportunities.

Some benefits of our product line are found in the ability to use RES Fasteners in high corrosion area applications, outdoors, oily surfaces, metallic tubing, wavy surfaces; etc. Our parts also are a




reusable product, fast and rustproof.

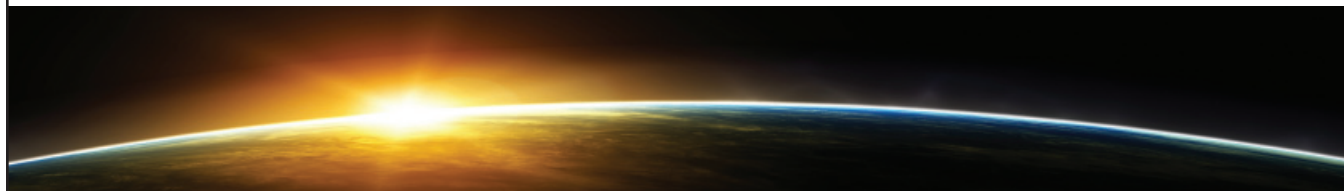
Our patent pending wire/zip tie holders have been designed to attach to metallic surfaces using a N35 grade rare earth magnet. This magnet is designed with extra strength in mind in order to secure and maintain numerous cables.

The way our product works is simply snap/tie wires into place. Once secured attach the magnet to a metallic surface. This process cuts down on time and expenses it takes using other wiring solutions. Our goal at RES is to provide high quality products at a fair price to meet the needs of your industry.

Aside from the wire/zip tie holders we also offer circular and rectangular N35 magnets which contain the minimum retention force of 22lbs. A small insertion hole of 5.0mm in diameter can be used to apply a #10 – 32 BHMS sized screw.

RES is making its first appearance at the National Industrial Fastener & Mill Supply Expo this coming October 19 – 21, 2011. Come find us at booth # 1836 so that you can see your RES Solutions. 

*Remember to ask yourself "Wire aren't you using this yet?"*





# Announcing the New Era in Cable Management...

Rare Earth Solutions announces its new line of  
innovative Magnetic Cable Management Systems.

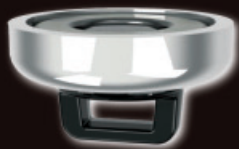
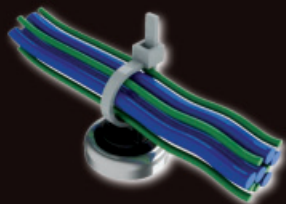
The Magnetic Wire Holders utilize an innovative "claw" design along with a magnet to offer a simple and easy way for wire and cable management.

Available in Round or Rectangular configurations, the range of Small, Medium and Large holders allows for practical wire management in all hard to reach areas.

The Magnetic Zip Tie Holder expands on the range and offers the ability to hold the vast majority of cables and wires currently in use, dependent on which zip tie is being used.

All our products use rare earth N35 magnets and contain a minimum retention force of 22lbs.

**The Future has arrived.**



See RES at  
NIFMSE Oct.19-21  
Booth #1836

**CONTACT US FOR MORE INFORMATION OR DISTRIBUTOR LOCATIONS & OPPORTUNITIES**

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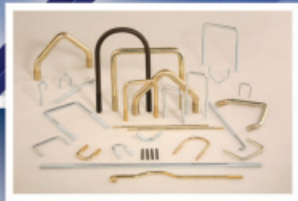
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## DISTRIBUTOR NEWS

In 2008, the ASSY® 3.0 screw was released in European markets and now, nearly three years later, the patent was finally approved in the United States. The innovative screw "Made in Germany" is now distributed by **Würth Industry of North America.**

ASSY® screws are known for their ability to connect wood, not split it. The self tapping ASSY® 3.0 particle board screw is unique in its ability to allow for maximum power transfer with no wobbling motion and no wood splitting. The asymmetric coarse threaded 34 degree tip allows for pinpoint accuracy and can increase time efficiencies by up to 30% compared to conventional particle board screws. By drilling the screw into a piece of wood, almost no shavings are produced, which makes the ASSY® 3.0 an ideal product for coated wooden surfaces.

Production of the screw takes place in Waldenburg, Germany near Würth's worldwide headquarters in Künzelsau. The large flat-head of the ASSY® 3.0 screw is specifically designed for the timber and carpentry industries. It is perfect for fittings in staircases, prefabricated elements and other products of wood.

For more information on Würth Industry of North America (WINA) visit them at [www.wurthindustry.com](http://www.wurthindustry.com).

## DISTRIBUTOR NEWS

**RAF Electronic Hardware** are pleased to announce that recently they presented their Outstanding Sales Award to Bisco Industries, Inc at the 2011 EDS Show in Las Vegas.

Pictured in the photo left to right are the Bisco Industries team: Robert Rist, Vice President of Sales & Marketing, Don Wagner, President, Chad Delmore, Director of Purchasing.



Contact RAF Electronic Hardware (a division of MW Industries) by Tel: 203-888-2133, Fax 203-888-9860 or at [www.rafhdwe.com](http://www.rafhdwe.com).



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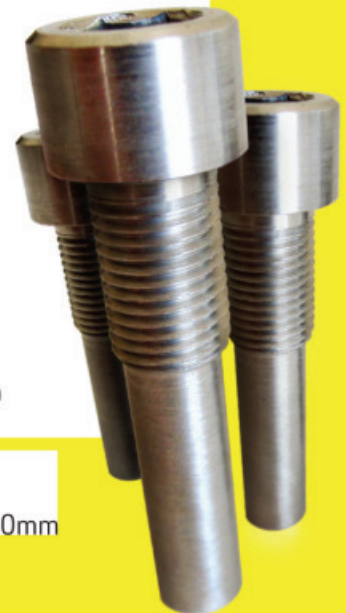
Socket Cap Screws  
Socket Set Screws-Any Point  
Socket Shoulder Bolts  
Flat Head Socket Caps  
Square Head Set Screws-Any Point  
Slotted Set Screws-Any Point  
Hex Heads  
Slotted Machine Screws  
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Low Head Socket Caps  
1936 Series Socket Caps

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4140  
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316 Strain Hard, 317L Stainless,  
321, 330, 410, 416, 420, 430, 431,  
440 Stainless  
Aluminum  
Brass  
Bronze  
Copper  
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Nik 200, Nic 600  
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## DISTRIBUTOR NEWS

**Vertex Distribution**, an industry leading master distributor of corrosion-resistant inch, metric and alloy steel metric fasteners, blind rivets and worm-drive hose clamps, is now offering pin-in Security Screws in 18-8 stainless steel.

The NEW Security Screw line consists of 100 sku's in Button and Flat Head Machine and Sheet Metal Screws. Both the Machine and Sheet Metal Screws are offered in the 6-Lobe and Hex Socket Head pin-in style.

Vertex, with nine stocking locations across the United States, is the only hose clamp supplier that is able to offer and ship stainless steel inch and metric fasteners, alloy metric fasteners and a full line of blind rivets and Security Screws to their customers with their hose clamp order.

For more information regarding Vertex Distribution and a listing of their locations near you, please visit their website at [www.vertexdistribution.com](http://www.vertexdistribution.com). To request catalogues and product feature sheets, please send an email to [hoseclamps@vertexdistribution.com](mailto:hoseclamps@vertexdistribution.com).

## DISTRIBUTOR NEWS

The Smart DI+ Bit™ from **Powers Fasteners** is an all steel internally threaded anchor specifically designed with Safety, Reliability and Speed in mind. The patented Smart DI+™



design reduces the amount of force required to set the anchor. What used to take approximately twenty hammer blows on a typical 3/8 diameter part can now be accomplished in approximately 5

blows. Thus. Reducing overall labor costs by approximately 50% the cylindrical plug design concentrates more expansion at the bottom of the anchor where it's needed to maximize performance.

Mechanical contractors and electrical contractors use drop-in style anchors to hang threaded rod from ceilings to run pipe supports, fire sprinklers, cable trays and strut. Concrete contractors use them for temporary form work. Drop-in anchors are used everywhere, and by many different contractor trades. With the added feature that allows a contractor, general foreman or inspector to see if the anchor has been set, Smart DI+™ drop-in is not only easy to set but safer than convention drop-in anchors.

Smart DI+™ drop-in has the highest safety rating in its class. That not only makes the choice smart, but easy!

Easy to use:

1. Drill the hole with Smart DI+ Bit™
2. Lock on the Smart DI+™ setting tool
3. Drive the plug with the same tool used to drill the anchor hole

Smart DI+™ Drop-in Anchors are now in stock and ready for delivery.

For more information about the Smart DI+™, to arrange a free demonstration or to find your nearest authorized Powers distributor call our toll free number 1-800-524-3244 or visit us on the internet at [www.powers.com](http://www.powers.com).



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## FONTANA FASTENERS INVESTS OVER \$65 MILLION IN LEP SPECIAL FASTENERS

Lake Erie Screw/LEP Special Fasteners is now part of The Fontana Group, extending their vision of Global Presence, Technical Excellence and Quality Focus.

Lake Erie has 65 years of history and fastener manufacturing experience beginning in:


- 1946 John C. Wasmer Sr. opens Lake Erie Screw in Lakewood, Ohio to manufacture the highest quality cap screws and structural bolts.
- 1986 Private investor buys Lake Erie and takes public with John's son George Wasmer at the helm.
- 1993 Lake Erie Screw builds additional capacity in Frankfort, Indiana.
- 2004 TriMas Corp. moves all large diameter bolt makers and Formax bolt makers from Lakewood, Ohio to Frankfort, Indiana.
- 2007 The Fontana Group purchases Lake Erie Products division from TriMas Corporation.
- 2011 Fontana family invests \$65 plus million in Lake Erie as the company continues on the tradition started by the Wasmer family some 65 years ago.

LEP manufactures a quality line of fasteners that includes hex head cap screws and structural bolts, Grades 5, 8 and 9, metric classes 8.8 and 10.9; A325 and A490 structural bolts, 1/4x1/2 thru 1 1/4 x 10 inch; as well as flange bolts, track bolts, plow bolts, sems, knurled shoulder bolts, projection weld studs, TC bolts, wheel bolts and custom cold-formed specials per print. Normal production materials include: low carbon steel, carbon steel, alloy steel and boron steel. Standard in-house coatings include phos. & oil, RoHS zinc with clear, yellow and blue.

Fontana Fasteners was opened in 1947 by two brothers Loris and Walter Fontana. Still owned and operated by the Fontana family, today The Fontana

Group has a workforce of over 2,500 employees at 17 production sites in Europe and the USA, sales of over 12 billion fasteners per year and a commercial presence in 53 countries world-wide. The Fontana Group is one of the most advanced fastener manufacturers in the world. It is this background of knowledge and commitment to making quality fasteners that brought the Fontana family to buy LEP Special Fasteners located in Frankfort, Indiana and most recently commit to invest \$65 plus million over the next 3 years, expanding Lake Erie's plant.

This investment will include 30 new bolt makers, 3 new furnaces and new sorting machines, doubling its size and capacity and workforce from its current 35 bolt makers, 3 heat treat furnaces, 3 finishing lines (2 zinc, 1 phosphate), various secondary process equipment, 8 Mectron sorters and 8 automated packaging lines.

LEP Special Fasteners experience and capabilities utilize a 240,000 square feet manufacturing plant and a 200,000 square feet distribution center to aid customers with design applications, APQP process, PPAP approval, and in house laboratory certified to ISO 17025 per A2LA, company certified to ISO 9001:2008 and TS 16949-2009. LEP manufactures quality cold formed fasteners of steel melted and rolled in the USA. 



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## NORTH COAST FASTENER ASSOCIATION

# NCFA's ANNUAL SCREW OPEN GOLF OUTING

*Michael Delis, NCFA Vice President (Fastener Tool & Supply)*

Over 50 NCFA Members and supporters took part in the 2011 NCFA Screw Open Golf Outing. This year's event was held on Friday, July 22nd at Coppertop Cherokee Hills Golf Course in Valley City, OH.

Record temperatures and high humidity did not keep our teams from producing some record low scores. The real-time GPS tournament scoring heightened the excitement for our teams, as there were over 10 lead changes during the round!


The race for first place required a tie breaker to separate two teams at 22 under par. Earnest Machine eagled the number one handicap 5th hole par 4, setting them apart from the defending champions of American Ring. Fastener Tool & Supply won a tie breaker with



Stelfast for the third place position, finishing at 20 under par.

The day concluded with prizes for our skill shot winners, \$1,000 shootout, and a wonderful dinner to celebrate the successful event and our association. This event could not have been possible without all of the efforts of the our sponsors. We had great sponsorship participation from our

core NCFA Members along with all the new members and supporters. The earnings from the event will be used to continual development of the NCFA Scholarship Program.

The NCFA would like to thank all of the participants, volunteers, and sponsors, and we look forward to next summer's event! 

## NCFA ANNUAL GOLF OUTING – JULY 22, 2011





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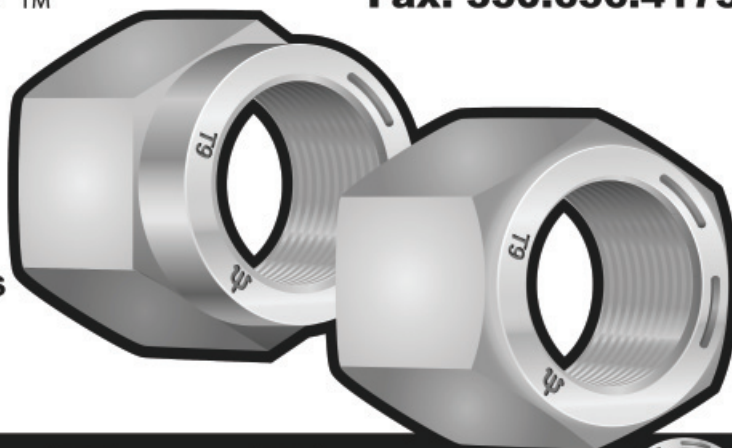
Works with High Strength Bolts

Stock 3/4" - 1 1/2"

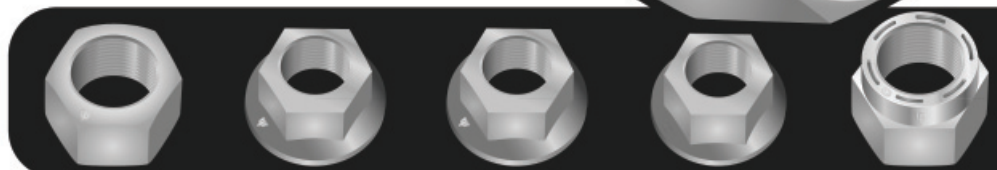
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Metric Flange  
M6 - M16

**Grade C**  
Collar &  
Thin Collar  
5/8" - 3"



## THE PRODUCT LINE AT LOCKNUT TECHNOLOGY

Locknut Technology manufactures a large variety of locknuts. Two product catalogs cover most of their line with ongoing additions. To assure off-the-shelf shipments on time, the current inventory of parts is approaching one hundred million pieces. Typical products are illustrated below.



**Automation Style Locknuts** — Also known as Stover®, Oval Lock, Cone Top and Uitorque®, this style is used in high volume assembly operations. The cone shaped top allows for automated, high speed assembly with fewer temperature limitations. A top choice when a reusable, rugged, one-piece construction locknut is required. Available from stock in strength grades A, B and C in a variety of plating types.



**Flange Locknuts** — Best used in areas where their larger bearing surface can cover oversized holes or bridge elongated slots. The additional bearing surface distributes the clamp load stresses over a larger area making it useful when mated with softer materials. In addition, use of a flange locknut eliminates the need for flat washers or lock washers, thereby speeding up assembly operations. Available from stock in various sizes such as small, regular and large, styles such as flat top and cone top, types include center lock, top lock and oval lock, and strength grades include F and G.



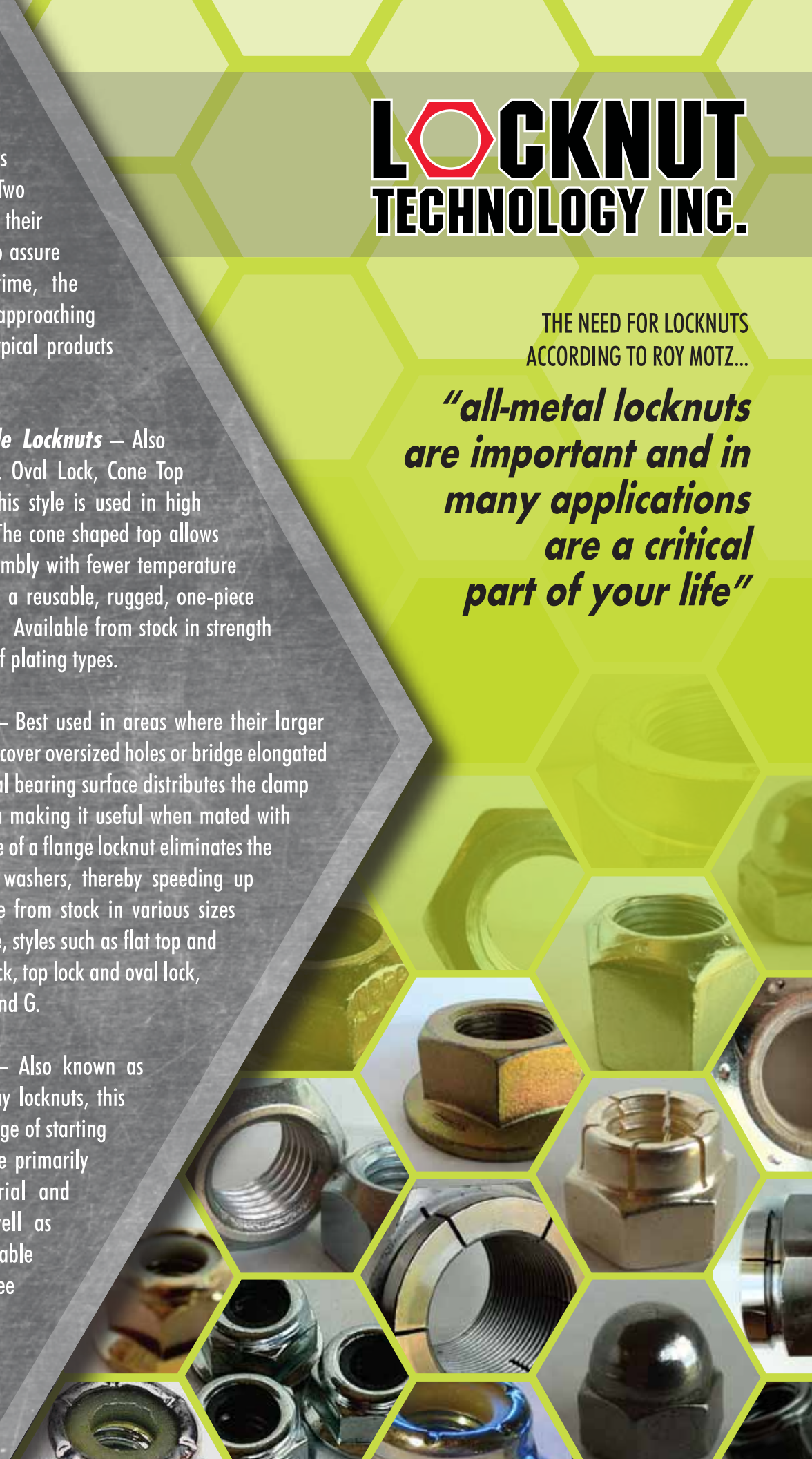
**Center Locknuts** — Also known as reversible or two way locknuts, this type has the advantage of starting from either direction. They are primarily used in high volume industrial and commercial applications as well as automotive and trucking. Available from stock in one, two or three hit locking configurations. Strength grades include A, B and C.

CONTINUED ON PAGE 134

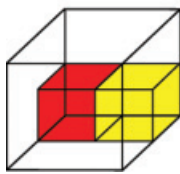
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THE NEED FOR LOCKNUTS  
ACCORDING TO ROY MOTZ...

***“all-metal locknuts  
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many applications  
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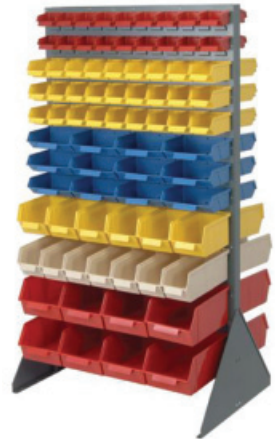
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Quantum's NEW, four-color, 132 page catalog features many new products including Quantum's new line of giant-size Clear-View stackable containers utilizing the company's unique, crystal-clear visibility technology for easy parts identification. The catalog is available for viewing on Quantum's website and printed copies are available by calling or emailing customer service. 



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**Full Collar/Thin Collar Locknuts** — Collar locknuts are most suitable in applications involving larger diameters and high strength. The round machined collar is ovalized at two opposing points creating an elastic, spring-like locking element. Used extensively in large hydraulic cylinder applications. Available from stock in both a full and thin pattern with a strength grade of C.



**Weld Nuts** — Weld nuts are used where a thread needs to be attached on a sheet metal assembly. As their name implies they are welded on when electric current and some pressure is applied after locating the nut in the proper position. Weld nuts are available in standard series in both 3 and 6 projection configuration, as well as short and long pilot diameters. Both inch and metric sizes are available in free spinning and prevailing torque top lock styles.



**Acorn Cap Nuts** — Acorn cap nuts are available in both free spinning styles as well as a centerlock variety. The centerlock deflection is located on two opposing sides on the hexagon flats to resist vibration. This style nut is suitable where a locknut is required for a decorative or snag free applications.

CONTINUED ON PAGE 136

# **LOCKNUT TECHNOLOGY INC.**

A QUALITY LOCKNUT  
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help assure that  
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performs as intended  
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FROM PAGE 134

## PLANNING FOR THE FUTURE AT LOCKNUT TECHNOLOGY

There is an old saying that "you either plan for the future or you're planning to fail." Locknut Technology's plan for the future includes exciting new products using exotic materials to decrease fastener weight and increase strength. Their production floor space was recently increased by over 30% to accommodate current and future production. Smarter production equipment is currently being developed with self-check capabilities to help achieve their goal of zero defects. Locknut Technology is clearly on a path to greater success with a solid foundation of quality, business acumen, moral ethics and superior customer service behind them. 



*"Modern industry's requirements for threaded fasteners are more stringent than ever. Locknut Technology will continue to meet these challenges with ever expanding products, quality and our world-class customer service. With the addition of my two sons to the ownership structure, we will be assured of business continuity and locknut leadership."*

**ROY MOTZ, FOUNDER  
LOCKNUT TECHNOLOGY**

# LOCKNUT TECHNOLOGY INC.

**351 South Lombard Road  
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# FASTENER CROSSWORD PUZZLE

Test Your Knowledge!

## ACROSS

1. Bearing surface on the end of a fastener
5. Fastener shaped like a candy cane
10. \_\_\_ washers
14. Inked cylinders in printers
17. Cupid's darts
19. Three and five
21. Show \_\_\_; air an episode twice
22. Grassland
23. Went off course
25. 90° from WNW
26. Mailman's beat: abbr.
27. Basketball's \_\_\_ Thurmond
28. Lamb bearers
30. \_\_\_ de cologne
31. Jump
32. Luau instrument
33. Carnival
34. Foundation
35. Actress Turner
38. Electric drill tips
40. Sandwich types, for short
41. Loses color
42. As limp as \_\_\_
43. Paul and Howard
44. Say a rosary, for example
45. Lock \_\_\_ blind rivets
46. Deceptively smooth
47. BPOE member
48. Roaring beast
49. \_\_\_ studs; wedge anchors
52. One who performs alone
54. Supporter
55. Oliver's bowlful
57. \_\_\_ de Janeiro
58. Permit
59. Surface defects
60. Vane direction
61. "Trees" or "If"
62. Truisms
65. Speed, for short
66. Part of a foot
67. Famed gymnast from Romania
68. Ziegfeld and his namesakes
69. Word with askew or structural
70. Depressed
71. Corrosion-resistant steel plating
72. Common illness, for short
73. Prickly plants
74. Dine

75. Six-sided bearing surface
79. \_\_\_ fastener; one with two or more keys under the head
81. \_\_\_ a soul; nobody
83. Shade tree
84. Singer Fitzgerald
85. \_\_\_ bolts
86. Opposed to, hillbilly-style
87. Policemen
88. Prayer closing
89. Used up
91. Sightseeing trip
92. Feed the pigs
93. Prescribed amount
94. Model \_\_\_ Banks
95. Painter's cover
96. Ring king, once
97. List-shortening abbrs.
100. Gore and Roker
101. Sharpen; hone
102. Abbr. in some high school names
103. Gun rights org.
104. Eerie sighting, for short
107. ASPCA's advice
109. Slumbering
111. \_\_\_ washer; one with an oblique angle
113. Disturb others at night
114. Pulley; grooved wheel
115. Longed

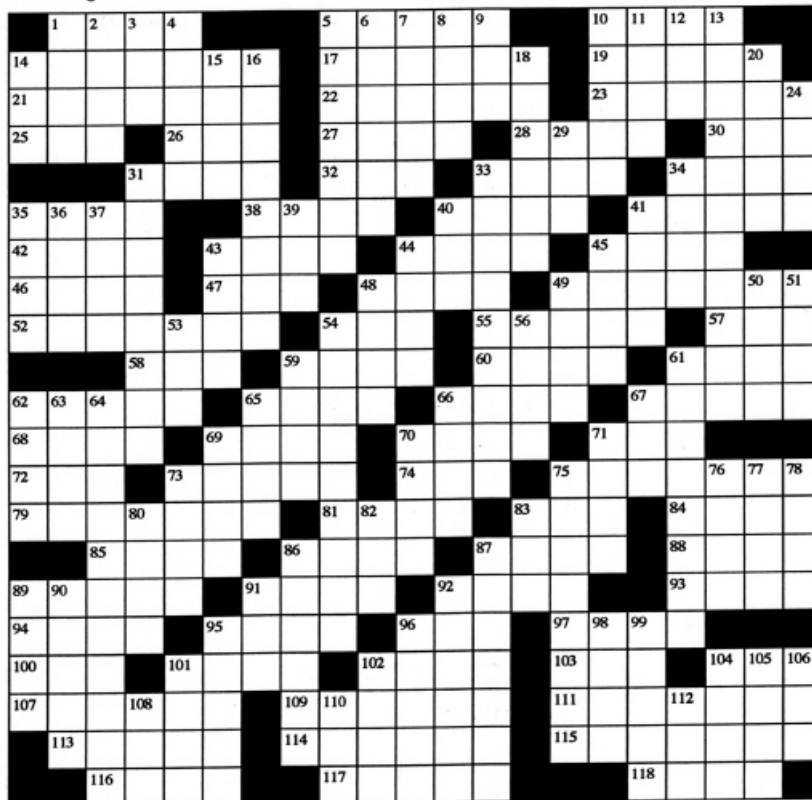
116. Leg joint
117. \_\_\_ up; relaxed
118. Make airtight

## DOWN

1. Brass instrument
2. Civil War Gen. Robert \_\_\_
3. Mont Blanc, for one
4. Name on a tractor
5. Low-profile screw securers
6. Surface defects
7. Give a speech
8. Vein of ore
9. Cube root of eight
10. Meningitis symptom
11. Fibs
12. Grow old
13. Headless fastener used as an extra-long bolt
14. Galloped
15. \_\_\_-tat-tat
16. Square-necked fastener
18. Dripping with perspiration
20. Josh with
24. Member payments
29. Madison's place: abbr.
31. Fasteners used for wood connections
33. Screw tightener with a built-in washer

34. Horse's home
35. Fails to keep up
36. Woody Guthrie's son
37. Slim, pointed fastener
39. Pen contents
40. Harlem address
41. Ump's call
43. Nap
44. Clevis and cotter
45. Newsman Huntley
48. Thin, flat wood strip
49. Fanny
50. "...had a farm, \_\_\_ O..."
51. Actress Downey
53. Suffix for book or cook
54. \_\_\_ bolt; short fastener used with a nut
56. Marathon
59. Animal hide
61. Broad, flat bearing surfaces
62. Horrible report card
63. "\_\_\_ want for Christmas is my two front..."
64. \_\_\_ bolt; fastener with a flush-mounted head
65. Make fun of
66. "Now \_\_\_ me down..."
67. Put the kibosh on
69. \_\_\_ and forth
70. Swiss capital

71. \_\_\_ self-drilling fasteners
73. Penny
75. \_\_\_ chance; occur accidentally
76. "Sesame Street" guy
77. Pub orders
78. Copenhagener
80. Grandma
82. Broadcast
83. Tic-tac-toe win
86. Main arteries
87. \_\_\_ washers
89. Baseball's Musial
90. Ernie and Gomer
91. Edison's initials
92. \_\_\_ nut; turnbuckle alternative
95. One and two
96. Regions
98. Pine or palm
99. Inferior vena \_\_\_; veins to the heart
101. "Would that it \_\_\_ so!"
102. Entreaty
104. Arm bone
105. Perceive; sense
106. Peculiar
108. Heavy weight
110. That girl
112. Prior to



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Solution on Page 245



**SLICK?**

[ maybe ]

**SLICK?**

**DEFINITELY.**



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No. 6,872,039  
Foreign Patents  
Issued



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WORKS LIKE A HAIR PIN  
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ITSELF ON.



U.S. Patent No.  
6,135,693 and D431,181



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LOCKS ITSELF ON.



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## Positive Lock Pins

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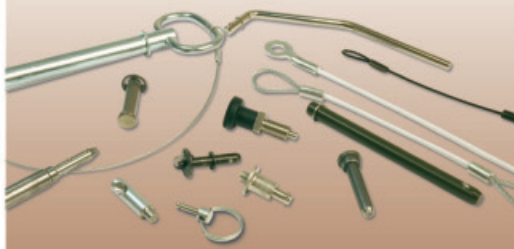
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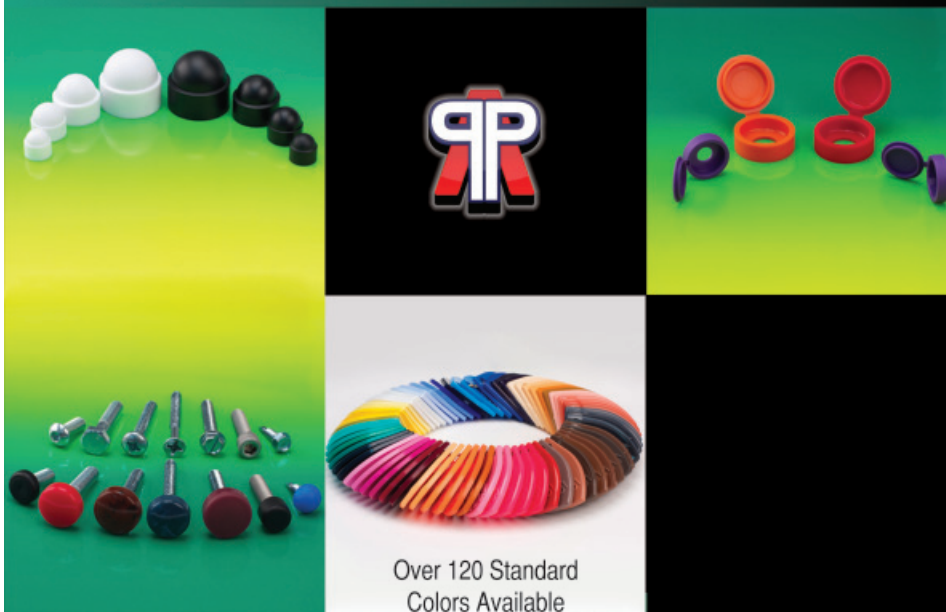
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## DISTRIBUTOR NEWS

**Screw Products, Inc.** is delighted to welcome David Ondich of New Jersey, to the Professional Sales Team at SPI! Ondich will be acting as the NE Regional Sales Manager, whose focus is to expand the SPI brand on the East Coast. David has twenty-five years experience in the building supply industry and is a member of NADRA and NARI.

To set up an appointment with David please contact: 973-713-2770 or email [david@screw-products.com](mailto:david@screw-products.com).

\* \* \*

**Washer Tech, LLC** has relocated to expanded facilities with the acquisition of tooling and equipment for nearly 9000 part numbers formerly owned by JH Rosenbeck of Torrington, CT.

According to company President, Garret Gassman, "this product line and tooling acquisition gave us the push we really needed to expand our capacity, nearly doubling our manufacturing space to better serve our growing list of customers in the fastener industry."

For additional information or to request a parts catalog, contact the Sales and Engineering Department at Washer Tech LLC, 956 Old Colony Road, Meriden, CT 06450. Tel: 1-203-886-0054 or Fax: 203-886-0063 or visit them at their website [www.washertech.com](http://www.washertech.com).

## DISTRIBUTOR NEWS

**RAF Electronic Hardware**

recently awarded Hardware Specialty, Inc. their Outstanding Sales Award.

Pictured from left to right: Mike Heywosz, RAF Eastern Regional Sales Manager, Steve Boush, Hardware Specialty Director of Marketing & Procurement, David Granger, RAF Director of Sales, Arlene Crowley, RAF Customer Service, Jeff Sands, Hardware Specialty VP of Sales, Scott Solomon, RAF General Manager,



Jeff Kaufman, Hardware Specialty Executive VP.

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**CORROSION - CAUSES AND PREVENTION** *continued from page 8*

Figure 2 shows how some metals relate to each other galvanically. (On page B-38 of the 7th edition of the IFI inch fastener standards there is a more extensive listing of materials for those who wish to dig deeper into this).

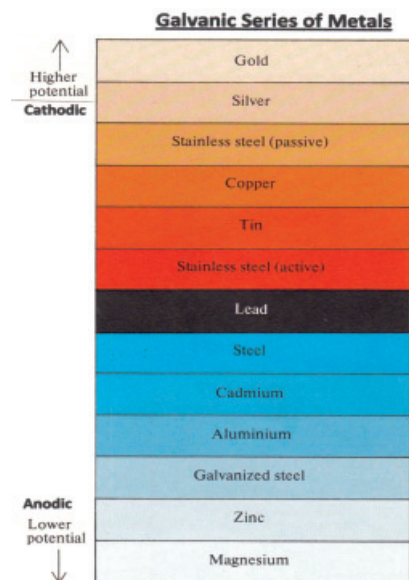


Figure 2

On the top we have the cathodic (electro-positive) materials and at the bottom the anodic (electro-negative). The anodic parts will sacrifice themselves for the ones higher up if they are coupled in a setting where moisture (the electrolyte) and oxygen are present. The action will be similar to the flashlight battery generating an electric current by connecting the electro-positive center rod (i.e. graphite/carbon) with the electro-negative battery casing (i.e. zinc) filled with a paste acting as the electrolyte. Similarly, an electric current will also be generated between various metals and materials with different electro-potential if an electrolyte, i.e. moisture, is present. Typically, at about 60% relative humidity a thin moisture film easily forms on metal surfaces and will act as an electrolyte. The current will flow from the cathodic material to the anodic and cause corrosion starting where the current leaves the anode. Over time the corrosion attack will spread out from the initial starting point.

Figures 3a and 3b shows two examples where an unplated steel screw is used in joints made of copper and aluminium respectively. In the Cu case the screw is anodic to the joint material, in the Al case the screw is cathodic. Notice how the electric current always flows from cathode to anode. The larger the difference is in electric potential, the quicker the anodic part will corrode.

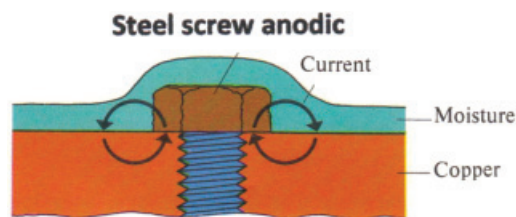


Figure 3A

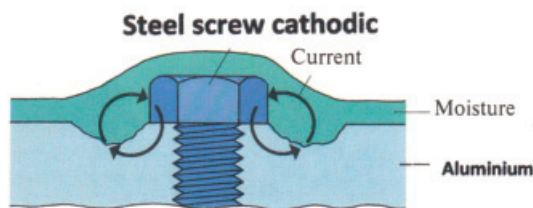


Figure 3B

An obvious question is – why is a piece of steel rusting even if it is not coupled to another material. The answer is that very small galvanic cells are always present on metal surfaces. It could be remnants (slag) from a hot rolling operation or other impurities, being cathodic to the steel, which can cause local corrosion, gradually spreading over larger areas (and deeper). If surfaces are dirty they will hold more moisture and thus speed up the corrosion process. (hint – a well washed car will not rust as quickly as a dirty one).

### ***A couple of practical design suggestions:***

Keep water from staying on the joint by good drainage and ventilation. Dry conditions will always minimize or slow down the corrosion process.

Avoid connecting a small anodic part with a larger cathodic surface, for example a zinc plated screw on a stainless steel plate. The will both look shiny and nice, but only for a short time in a moist environment.

### ***Protection methods***

There are several commercially available methods for protecting steel fasteners.



Figure 4





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## DISTRIBUTOR NEWS

### Elgin Fastener Group

announces it has been acquired by Audax Group, a Boston, MA.-based premier investor in middle market companies. Established in 1999, Audax manages over \$4.8 billion of capital through its private equity, mezzanine debt, and senior secured debt funds. Audax focuses on growing companies organically through the development of new products and markets, as well as through acquisitions. Previously a part of GFI Energy Ventures, Elgin Fastener Group was identified by Audax as a group of companies with a solid reputation for performance, good growth prospects, strong market positions, and excellent management teams.

The members of Elgin Fastener Group (Ohio Rod Products, Leland Powell Fasteners, Chandler Products, Silo Fasteners, Best Metal Finishing, and Elgin Fasteners International) look forward to serving all of our current and future customers in the same reliable fashion we have been known for, as we begin our association with Audax.

For more information, contact Elgin Fastener Group. 1415 S. Benham Road, Versailles, IN 47042. Tel: 812-689-8917, Fax: 812-689-1825, send an to [info@elginfasteners.com](mailto:info@elginfasteners.com) or visit the website at [www.elginfasteners.com](http://www.elginfasteners.com),

## DISTRIBUTOR NEWS

**Screw Products, Inc.** has recently acquired the assets of DeckLok Bracket Systems. DeckLok is a patented, advanced lateral anchor system that significantly strengthens the critical connections between deck components.

Decks fail when the nailed connections pull loose. When DeckLok brackets are used, decks hold together to the limit of the timber strength, not just until the

nails pull out. By adding DeckLok Brackets to your current construction methods, your deck will be able to meet or exceed IRC 2006 requirements for resisting lateral force and guard rail post loads.

For more information about the DeckLok Bracket System, including installation instructions and warranty information on its products, visit [www.screw-products.com](http://www.screw-products.com) or call us toll-free at 1-877-844-8880.





### **Gage Bilt Inc.**

44766 Centre Court, Clinton Township, MI 48038

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Email: [solutions@gagebilt.com](mailto:solutions@gagebilt.com) [www.gagebilt.com](http://www.gagebilt.com)

## **GAGE BILT'S FOURTH CUSTOMER VALUE**

Gage Bilt Inc. has been manufacturing blind rivet and lock bolt tools since 1956. Initially the company manufactured "swage gages," tools and nose assemblies for Huck Manufacturing, until Huck decided to produce these items in their own facility in 1979. Since then Gage Bilt has been manufacturing a complete line of tools, noses and swage gages to the global aerospace and industrial markets. Gage Bilt strives to meet the three basic customer value requirements of price, quality and delivery but adds an important fourth customer value and that is a "Can Do Attitude".

The Gage Bilt team welcomes the opportunity to uncover the true needs of the customer. In several cases the company has discovered opportunities for innovation where the competitor said no or avoided the opportunity because of volume. Combine that with a "Can Do Attitude" and the result is an innovation, one that might be small to the competition but is large to the customer and Gage Bilt.

Recently a customer complained of a competitor's right angle nose breaking too often. Investigations revealed the need for an offset nose. An existing Gage Bilt tool and offset nose assembly was tested at the customer's location. A positive result yielded orders. The floor supervisor commented "finally a supplier who gives more than lip service."

Another example is an offset pulling head used for a popular aerospace blind rivet. The customer complained that the competitor's nose assembly had a single jaw system that would slip when pulling the rivet. Gage Bilt redesigned the upper "saddle" to include jaw teeth to create a double jaw system. This simple idea eliminated "slipping" and assured rivet installation in one pull. 



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# **GAGE BILT**

HUCK® is a registered trademark of Alcoa Fastening Systems. AVDEL® is a registered trademark of Avdel UK Limited.

**CORROSION - CAUSES AND PREVENTION** *continued from page 142*

The common principle is to apply a cover of material that is anodic to the steel fastener = sacrificial anode. The environment will be the determining factor when we choose the best protective material (zinc, phosphate, organic coatings, etc.) and the amount or thickness applied. The following is a brief description of the most common methods of corrosion protection for fasteners.

**Hot dip galvanizing**

Heavy zinc (Zn) layer, usually 50-100 µm, applied by dipping parts into molten zinc (approximately 540°C, 1000°F) for a couple of minutes and then spinning in a centrifuge to remove excessive zinc. For higher strength fasteners (10.9 or Grade 8 and up) made of low carbon martensitic steels (i.e. boron alloyed) this method could additionally temper the fasteners since they usually are tempered at 340°C (650°F). Due to the heavy layer of zinc, thread tolerances must be adjusted by either over-tapping the nuts (US practice) or under-sizing the bolt threads (European practice). Hot dip galvanizing gives excellent out-door life time (10-50 years depending on service environment). Typical applications are power lines, highway guard rails, steel structures, etc. Drawbacks include high coefficient of friction and wide scatter range. These fasteners should be lubricated with wax or other suitable medium for good control of tightening and the lowering of torsional stresses.

**Electrolytic plating**

Currently, this is the most common method for corrosion protection of commercial fasteners. Zinc is the primary plating metal, but several others can be used like cadmium (Cd), nickel (Ni), copper, chromium and combinations like Zn+Ni, Zn+Co (cobolt), Zn+Al, Zn+Fe and some others. Layer thickness typically 3-15 µm depending on thread size. Nickel and chromium are mainly used for decorative purposes or for wear since they are cathodic to the steel. The use of cadmium is down significantly (almost gone commercially) due to health issues. Cadmium was very popular, particularly for prevailing torque nuts and thread rolling screws due to lower friction coefficient than zinc and less scatter. Zn performs better than Ca in industrial atmospheres (SO<sub>2</sub> present), in marine environments the opposite is usually the case.

The application of plating materials is normally a done in a water-based electrolysis where zinc is deposited onto the surfaces of the fasteners by means of a DC source in a well controlled process. The zinc is

transported as zinc ions through the electrolyte from a source (zinc plates or balls) and accepted by the fasteners. In this process, free electrons and atomic hydrogen are present. The hydrogen atoms have a "bad habit" of entering in to the metal structure and with preference for the parts of the fastener where high stresses are present (under head fillet, thread roots, etc.). Forming up to combine with others to molecules they can cause the steel to crack under load. When we subsequently tighten the fastener and increase the stresses, the concentration of hydrogen can lead to sudden failures. This phenomenon is known as hydrogen embrittlement or hydrogen assisted cracking. Fasteners in property class 8.8 (Grade 5) or lower are considered "immune" to these failures, but from 10.9 (Grade 8) and up, special treatments may be necessary. This also applies to surface hardened fasteners like tapping screws and thread rolling screws. The post-treatment to avoid these failures is called "baking" which means that the fasteners are put in an "oven" and kept at approximately 200°C (400°F) for 4-23 hours depending on customer demand. Testing for this condition can be performed by using a test plate and tighten a number of plated fasteners to a certain load level and hold for about 24 hours to see if heads are popping off. More information about all this can be found in IFI-142 and in various ISO, ASTM and SAE specifications.

Since the "jury is still out" on this, a lot of research is going on to fully understand why we have these hydrogen assisted failures and what to do about preventing it. I have a feeling that there are as many opinions as there are researching academics. For now it may be wise to consider product hardness of HRC32 as a "bench mark" for the danger zone, but this varies unfortunately a lot between standards and opinions.

**Mechanical plating**

Another method to apply a protective surface, suitable also for higher strength fasteners and without process hydrogen, is to mechanically "hammer" pigments of zinc, tin, aluminium or combinations of those onto the fastener surfaces. The plating thickness and the protection can be about the same as for electrolytic plating, the density is a little lower.

**Chromate treatment**

The three methods described above can be called sacrificial protections. To make them more durable and attractive they will also have to be additionally treated for



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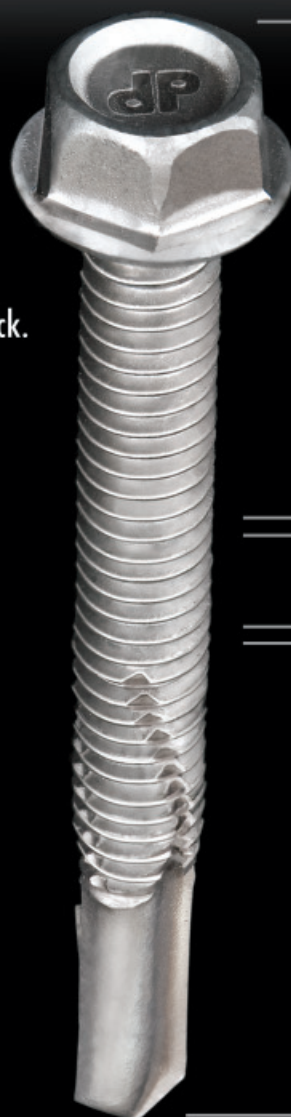
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## DISTRIBUTOR NEWS

**Intercorp.**, an importer of high quality construction fasteners under the Strong-Point brand, is pleased to announce the successful move of its Dallas branch to a warehouse twice the size and just a few miles from their previous warehouse.



"Our branch has been growing rapidly over the last several years and our new offices and warehouse can now accommodate this growth for years to come," said Branch Manager Ed Harper.

"Ultimately, we want to be able to serve our customers throughout the Southwest from our Dallas and Houston warehouses as quickly as possible. With this move we have substantially increased our inventory levels which will allow us to do just that."

Intercorp's new Dallas branch address is: 1252 Avenue T, Suite B, Grand Prairie, TX 75050.

For more information on Intercorp and their Strong-Point® brand of fasteners, contact them at 1-800-558-7222 or 972-602-1080 or visit the new website at [www.strong-point.net](http://www.strong-point.net).

## DISTRIBUTOR NEWS

**Powers Fasteners** is proud to add Stephen Ludwig to its team of fastening and anchoring professionals. Ludwig will serve as Director of the newly developed Electric Tools and Accessories segment. The focus of his responsibilities will be to augment Powers' world-class line of anchoring products with the power tools used to install those products.



"The professional contractor will be able to buy not only the code listed anchors, fasteners and adhesives as they always have, but now can be fitted with quality Powers branded cordless and corded tools for their unique applications. Everything works perfectly together, with tools uniquely designed to install our products, plus innovative accessories to make the installation distinctively faster and easier. It creates an unmatched value proposition that only a committed Powers distributor can provide, as well as benefit from, being a single source for everything a contractor needs to start and finish a great anchoring installation", Powers states.

For more information about the Powers Fasteners range of products, to arrange a free demonstration or to find your nearest authorized Powers distributor call our toll free number 1-800-524-3244 or visit us on the internet at [www.powers.com](http://www.powers.com).

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## DISTRIBUTOR NEWS

**Intercorp.**, an importer of high quality construction fasteners under the Strong-Point brand, is pleased to introduce their new 5lb. and 1lb. product packaging of fasteners. Featuring a metallic logo on the front, in varying families of colors, these products are a must have for any distributor with a retail store.



"This is a game changer," said David Harlan, Director of Marketing. "In a retail environment your packaging is the key to getting a buyers attention. With our new 5 lb. and 1 lb. packaging we have really taken it up a notch in terms of visual appeal. By simply moving the window from the front of our design, we were able to utilize that space more effectively for branding impact. The free space allowed the addition of foil and graphics, which now gives the packaged product a look of strength and high-end performance, which is what our products are all about."

To learn about InterCorp's 5lb./1lb. packaged product call: 1-800-762-2004 or e-mail: [info@intercorpusa.com](mailto:info@intercorpusa.com). To download the latest catalog visit the website at [www.strong-point.net](http://www.strong-point.net).

## DISTRIBUTOR NEWS

**Laboratory Testing Inc. (LTI)** was proud to sponsor Materials Camp 2011, conducted by ASM International on June 20-24, 2011. The materials and nondestructive testing laboratory and sustaining member of the ASM Philadelphia Chapter has been a regular sponsor of the seven-year-old program. The Camp gives high school students with strong abilities in math and science the opportunity to learn principles and practical applications of all phases of Materials Engineering. While Materials Camp is held across the country, the ASM Philadelphia Camp utilized the facilities of Drexel University Materials Science and Engineering Department.

"LTI is pleased to support the ASM Materials Camp again this year," says Mike McVaugh, President of Laboratory Testing Inc. "Exposing today's youth to the career opportunities in materials testing and engineering shows how they can impact the future for themselves and the world they live in."

The Camp students attended classes and laboratory sessions led by Drexel University faculty and graduate students and competed in a team competition to design and build a composite beam. They were also able to see materials testing in action by touring the CH-47 Chinook Helicopter Production Line at Boeing.

For more information visit Laboratory Testing at [www.labtesting.com](http://www.labtesting.com) or contact them at [sales@labtesting.com](mailto:sales@labtesting.com) or call 800-219-9095.

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**Intercorp.**, an importer of high quality construction fasteners under the Strong-Point brand, is pleased to announce the relocation of its Portland branch to a much larger and more strategic location.



"Like our other branches throughout the U.S. this year, we have been experiencing unprecedented growth out of our Portland branch and needed to expand to meet the demand," said National Sales Manager, Law

Winchester. "Because on-time deliveries and order fill rates are a top priority for us, we decided to move to this new location. This will allow us to stock a larger inventory and deliver our quality products to any location in the region within 2 days, and nearly 70% of the region overnight."

Intercorp's new Portland branch address is: 9494 SW Tualatin-Sherwood Road, Tualatin, OR 97062. To contact the branch call toll-free at: 1-800-434-5606, local at 503-783-5550 or e-mail: [portland@intercorpusa.com](mailto:portland@intercorpusa.com).

## DISTRIBUTOR NEWS

**Sherex Fastening Solutions** announces the launch of RIV-FLOAT® -SHORT. Ensure easy, accurate, and fast attachment of components in off center applications with the new, innovative, addition to the RIV-FLOAT® family; RIV-FLOAT® -SHORT.

These rivet nuts were developed for use in applications such as replacing riveted nut plates in aircraft interiors. The RIV-FLOAT® -SHORT was developed for applications requiring backside clearance similar to cage nuts & riveted nut plates. The new RIV-FLOAT® -SHORT has all the features & benefits of the original RIV-FLOAT® including knurls which increase spin out resistance in soft materials. RIV-FLOAT® is the next generation of fastening technology that was designed for post installation in applications where cage nuts, clinch nuts, floating nut plates or weld nuts are typically used.

This innovative family of rivet nuts is RoHS compliant and can provide higher thread strength than regular rivet nuts. These breakthrough rivet nuts are installed with the new hydro-pneumatic rivet nut tool Sherex has launched, The SFS FLEX Tool. Automated installation systems with process monitoring/control are also available for the RIV-FLOAT®, RIV-FLOAT® -SHORT and the full line of Sherex fasteners.

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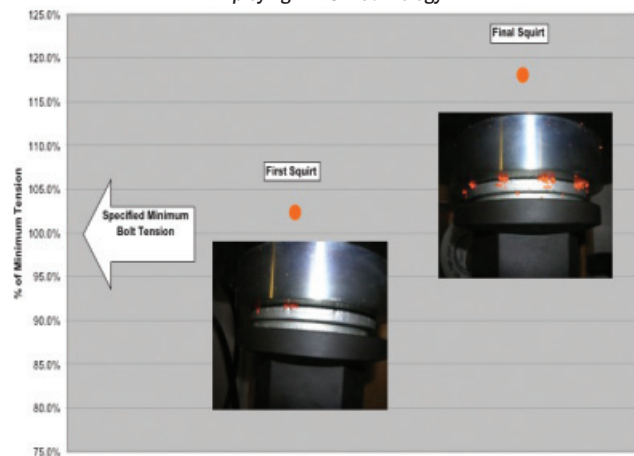
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## CORROSION - CAUSES AND PREVENTION *continued from page 146*

further protection. This is usually done by adding a thin film of chromate.

If pure zinc is subjected to moisture, it will also corrode and form a white surface of zinc oxide or zinc carbonate. To prevent this from happening we use a chromate treatment. The plated parts are immersed in a solution containing chromium salts. This is to protect the zinc from oxidizing. Depending on the chemical make-up we can get a clear/bluish finish using trivalent (Cr+3) chromate or progress to yellow, green or black finish by using hexavalent (Cr+6) chromium. That treatment was first banned in Europe (European Parliament directive 2002/95/EC) since it was discovered that it was a carcinogenic. This was illustrated also in the movie "Erin Brockovich" where Cr+6 had been used as a rust inhibitor in some electrical equipment. The ban was quickly followed by the US auto industry and plating companies were scrambling to develop substitutes. The yellow was very popular also from a marketing point of view, looking like gold.

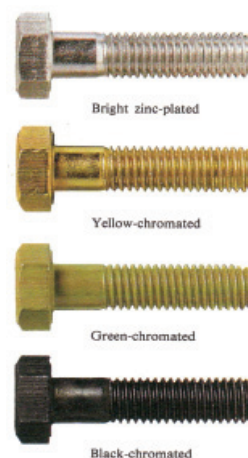


Figure 5

The colored chromates showed a better resistance to corrosion (to red rust) than the clear in salt spray chamber testing. However, long term exposure (in coastal environment) conducted by Bulten-Kanthal in Sweden showed no difference between clear and colored in 4, 5 and 6 years of testing. And, how many fasteners spend their lives in salt spray chambers anyway?



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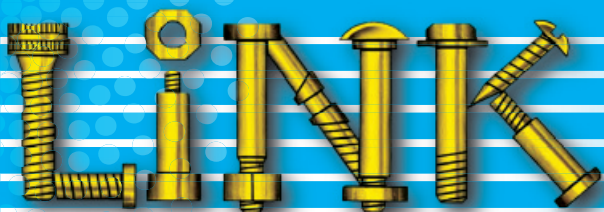


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## DISTRIBUTOR NEWS

Former Reed Rico/PCC employees established **H&L Toolworx**, located in Gaffney SC, in 1999 when their local plant closed. H&L Toolworx is owned and operated by machinist David Lavender with over 30 years of experience in the cold header tooling business.

H&L Toolworx provides all accessories for header machines including cased carbide dies, steel dies, solid dies, punches, steel inserts, quills and feed rollers.

They cater to one-piece orders as well as large orders and are committed to competitive quoting, quality products and customer satisfaction.

For more information, contact H&L Toolworx at 808 Victory Trail Road, Gaffney SC. Tel: 864-488-0320 and Fax: 864-488-0740. You can email them at: [hltoolworxtool@aol.com](mailto:hltoolworxtool@aol.com) or visit their websites at [www.hltoolworx.com](http://www.hltoolworx.com) or [www.coldheadertooling.com](http://www.coldheadertooling.com).

\* \* \*

**The Gilchrist Foundation** has awarded four scholarships from the 2011 applicants. Congratulations to the recipients. We wish them well and are pleased to assist them with their education. They are as follows;

From the NFDA applicants: Jessup Cooper, sponsored by Southern Fasteners & Supply in Winston Salem, NC, Maria Cristina Garza sponsored by Wurth-Adams, McAllen, TX and Kyle Strahm sponsored by Wurth Snider Bolt, Louisville, KY. From the SEFA applicants: Andrew Vu, Sponsored by Brighton-Best International.

Robbie and Gina Gilchrist established the Gilchrist Foundation Fastener Scholarship in 2000. Their goal was to return something to the industry. The application criteria is that upon completion of schooling, the applicant must make an effort to work in the Fastener Industry or be a current employee from an NFDA or SEFA member company. The Gilchrist Foundation Scholarship may be applied for during any year of a persons schooling, and the applicant may be a part time student currently working in the fastener industry. Since inception, it has awarded, despite two recessions, scholarships to 36 applicants.

For additional information about the Gilchrist Scholarships, contact: Robbie Gilchrist by phone: 336-884-1704 or by email [rgilchr485@aol.com](mailto:rgilchr485@aol.com).



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## FASTENER TRAINING INSTITUTE

# FASTENER TRAINING WEEK WILL BE OFFERED FOR THE FIRST TIME ON WEST COAST IN 2012

The Fastener Training Institute® in partnership with the Industrial Fasteners Institute will offer Fastener Training Week for the first time on the west coast. This five-day intensive version of FTI's Certified Fastener Specialist™ advanced technical training program will take place February 27-March 2, 2012 in the Los Angeles area.

Fastener Training Week - Los Angeles will include everything that a student would experience in the regular seven-course CFS™ training, but all on consecutive days.



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low as \$2,500 for the first person from a company with a 40% discount for each additional attendee from the same company. We have not raised our registration fees since this program was created in 2009!

Endorsing associations for Fastener Training Week 2012 include:

- Canadian Fasteners Institute
- Industrial Fasteners Institute
- North Coast Fastener Association
- Pacific-West Fastener Association
- Southeastern Fastener Association
- Southwestern Fastener Association

## Fastener Training Week features:

- Learning labs taught by leading industry experts: (Joe Greenslade (IFI) Carmen Vertullo CFS (Carver Engineering) Salim Brahimi (IBECA Technologies)
- Interactive exercises
- Quizzes to reinforce learning
- Plant tours of manufacturing, secondary processes and testing facilities.

Upon completion of this training and passing a final exam, attendees will be eligible to receive the Certified Fastener Specialist™ (CFS) designation.


The difference between you and your competition is employee skill, knowledge and productivity. Your return on investment will be:

- Added value to your company and your customers
- Enhanced company image
- Increased efficiencies in processes, resulting in

## What our students have to say:

"Great. Well worth my time and money. The instructors are very dedicated to the improvement and education of the industry."

"The CFS program drastically shortened my learning curve regarding fastener specifications.....CFS is a great program taught by excellent instructors."

The deadline for this special rate is December 30, 2011. Fastener Training Week - Cleveland for 2012 is scheduled for July 23-27, at the IFI Training Center. 

## DISTRIBUTOR NEWS

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## MEET OUR ENGINEERING AND APPLICATION SUPPORT TEAM

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### Meet our team:

#### Mike Kaindl

Mike has over 30 years of engineering experience. He has a Master of Science and a Bachelor of Science degree in Mechanical Engineering from the University of Illinois Urbana/Champaign, with specialty being in machine control and design. Mike spent twelve years in the aerospace industry as a systems project engineer on programs ranging from helicopter engine control to space shuttle flight control and space station orbit/attitude control. He has devoted the last 18 years to developing locknut production and testing equipment, locknut products, and solutions to locknut application issues. In addition, Mike is fluent in materials, mechanics, electronics, and software. His specialty is looking at locknut application specifics, and coming up with an efficient, low cost, and low risk approach that gets the job done.

#### Guy West

Guy has 37 years of experience in quality management within the Automotive, Commercial, Telecommunications, and Military/Defense industries. He has a Master of Applied Science degree in Metallurgical Engineering from the Illinois Institute of Technology and a B.S. Degree in Geology and Chemistry from Northern Illinois University. He has attained his Six

Sigma Master Black Belt and holds the following Certifications; ASQ Certified Six Sigma Black Belt, Certified Quality Engineer, Certified Quality Auditor, Certified Product Safety Manager, Certified ISO Auditor QMS and EMS and is a Certified Manager.

Guy's solid fastener and cold heading experience was achieved through five years at Semblex as the Vice


President of Quality, and eight years at Elco-Textron where he served as Manager of Quality. He has also held positions of Chief Metallurgist at Burgess-Norton Mfg, Quality Assurance Manager / Six Sigma Program Manager at CTS Frequency Controls, and Senior Quality Assurance Engineering Manager/Six Sigma Leadership at ATK - Ordnance Systems.



From left to right: Guy West, Mike Kaindl, Andy Hayman

#### Andy Hayman

Andy is Aztech's National Account Sales Manager and field application specialist. He has 17 years of experience in the Fastener industry. He has worked with Aztech Locknut for 5 years and previously worked for 10 years with Emhart Technologies selling a wide array of fasteners and installation tooling including the POP, Parker Kalon and Gripco product lines. Andy has spent most of his 17 years working directly with end users to identify solutions for Tooling, Application and Fastener related opportunities and challenges. The majority of his hands-on field work has been conducted jointly with key Fastener Distribution partners. He brings a wide range of experience to aid in the field and is adept at evaluating application and installation related issues. Andy also conducts in-house locknut training for our National Distributors and their customers.

Aztech's product application and engineering specialists are here to serve you! Contact us and see what we can do for you. 



# Memo to Purchasing

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Our business model exposes all hidden costs when handling process work. From customer specific print specials to standard material, examine your options and the benefits we can add:

- (1) Utilizing our material at the lowest import price
- (2) Benefit from most competitive plating costs in the country

- (3) Volume pricing advantage on patch & self-sealing processes
- (4) Eliminate Multiple purchase orders & inspections
- (5) Reduce Inventory – Blanket Orders welcome
- (6) No material handling when receiving one shipment with item complete
- (7) Save FREIGHT...inbound & outbound

We have trained our staff to stay focused, determined and committed to exposing the hidden \$avings when utilizing our benefits.

Solution Industries will allow our Distribution Partners to run lean, save time and add money to their bottom line. 



**Let us save you  
TIME & MONEY  
ONE CALL  
ONE PRICE  
ONE SHIPMENT  
ONE INVOICE  
ONE SOLUTION**



# **Solution Industries**



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CALL**

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**IS IT TIME FOR WAREHOUSE INCENTIVES?** *continued from page 10*

By charting and maintaining the results of the sample process, everyone can see who has problems. Individual and group rewards can be monetary in a separate paycheck handed out in a gold envelope, or simply some special treat or recognition. Team rewards can be used to foster greater interaction with other employees, and informal training by the group. Larger operations can subdivide the warehouse into competitive units, and create a "quality contest."

For maximum impact, add a note to the inspected order indicating that you personally checked the merchandise as a "quality control audit." This individualizes an otherwise impersonal process, and communicates directly with the customer. Include a special "quality hot line" phone number or Email address, and solicit comments.

The beauty of this system is that a sample size of only 4% to 6% of the orders can provide 97%+ confidence that any conclusions that are drawn are valid. With this feedback, every employee will know where they stand at all times and so will their peers. Even in a unionized environment, tracking errors for educational (not disciplinary) purposes is legal and acceptable. This sampling process can also be used to validate the need for secondary checking. If everyone does their job perfectly, you can eliminate "checking" as a separate process and thereby generate a payback that can be used to fund the incentives. This is a form of "gain sharing;" giving the employees a portion of the savings.

### ***Incentives in a Bar Coding Environment***

One of the key advantages of bar coding is that most bar code readers will "time stamp" every transaction. This data can then be downloaded to any computer using Lotus, Excel or other spread sheet programs.

For example, if 400 lines are picked in an eight hour period, a pick rate of 50 lines/hour is being achieved. Any changes that improve this number, without negatively impacting quality, are desirable. Tracking this information on a continuing basis will indicate whether improvements implemented are actually working as predicted. Virtually every function in the warehouse can then be charted, and displayed for the personnel. Merely posting this information should automatically generate at least a 10% improvement. Using the charts with employee involvement will significantly raise this number. Maximum benefits will result when this

information becomes trusted by the staff; and it can then be used as the basis for monetary or psychological motivation.

Computer analysis tools and simple graphical displays can be coupled with "management by exception" rules that feed directly into an incentive program for other functions. Truck routing information on the time required between stops, for example, can be used in conjunction with a planning program to enable the drivers to choose a more efficient route. Drivers who utilize this resource are then rewarded for their increased productivity. All the data for this can be generated by a bar code reader, GPS based locator or "smart phone" application that is used to scan and/or track each stop while making your delivery look more efficient in the customer's eyes.

### ***Gain Sharing For Fun and Profit***

There are many other ways to fund a monetary incentive program while sharing the profits. For a large Fastener Distributor, with dedicated personnel, the best monetary incentive program is to reward the pickers for their output — when they are picking. Establish a relatively high threshold, such as 100 lines per hour and paying a substantial bonus, perhaps \$100, for breaking this incentive on a weekly basis. If they average 110 lines, they get \$110. Anything under 100 lines per hour means no incentive pay. Take off a \$20 penalty for each error made. Therefore, if a picker does 115 lines/hour average, but makes two errors, his take home will be \$75.

Everyone else who supports their efforts receives the average of the picker's bonuses. Under this plan, if there were three pickers who receive incentive bonuses of \$105, \$125, and \$130, each warehouse team member would receive the average of their incentive pay (\$360/3) or \$120 each. If next week the pickers receive \$95, \$115, and \$0 (for not making the minimum), then the incentive pay for the whole crew drops to \$210/ 3 or \$70 each. This adds peer pressure, and rewards a team that coordinates their efforts. Under these circumstances, stockers who do not maintain a full inventory on the picking shelves will cut their own take home pay, as well as the pickers' pay checks.

Even the janitor contributes to the picker's productivity by keeping the floors clean and maintaining the equipment and tools. Rotating the crew through each function will enable everyone to have an

**Deep down  
inside your worst  
employee there is a  
spark of goodness and  
pride. Find it and  
use it against  
them.**



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**IS IT TIME FOR WAREHOUSE INCENTIVES?** *continued from page 172*

opportunity for the higher incentive pay and enhance their understanding of what is required to support the pickers. This is also a great way to ensure that the staff is fully trained in every area of the operation. Remember to start new hires in the picking area, where statistical sampling of their output will be easiest and most valuable. Errors made by the pickers during the training period count against their trainer or checker and cost both of them accordingly.

Funding this program is not a problem. If you can trust a trained, motivated staff to get things right the first time, techniques such as pick/pack, where the person who picks the order packs it as part of the pick process will eliminate a major component of the work force. Statistical sampling can then eliminate at least one checker. Redistributing some of the payroll savings to the remaining crew should pay for the incentives, with some profit left over for the company. Lower body count, better quality, happier and better paid employees are all major gains in a recessionary or expanding market.

**When No Money Is Available**

For a smaller operation, funding monetary incentives is much more difficult. With a limited warehouse crew, whose jobs are not dedicated to only one process (i.e. picking, packing, stocking, etc.), efficiency

improvements are typically invested in additional time available for other functions. Under these circumstances, psychological rewards, time off (at the boss's discretion), uniforms or sports/recreational equipment can be easier to administer than money. The rewards can be summarized in a three letter word — FUN!

Contests, compliments, cooperation, and communication can compensate for cash. While everyone has a minimum need for money, often the benefits of the job can far outweigh the paycheck. People want and need recognition for their efforts. Giving them 10% more money will not generate 10% better productivity. Giving them 10% more satisfaction and pride can generate 100% better output. Invest heavily in these areas, and the money will follow as customer service and satisfaction rises. This is the best way to "grow" the business.

**Supervisory Judo**

Deep down inside your worst employee there is a spark of goodness and pride. Find it and use it against them. Any idiot can reward with cash — until the money runs out. The best incentive programs recognize and reward individuals and teams whose actions show loyalty to the customers and the business. They earn their incentives and deserve every consideration. ◻

**BUSINESSES FIGHT TO BLOCK LABOR LAW END RUN** *continued from page 12*

Attention focused a lot on the threat of 'Quick Elections' which employer representatives charged would create an ill-informed group of employee voters by not providing the opportunity to hear the employer's side of the story. A representative of the National Association of Manufacturers decried the "adverse impact" on business where the votes would be counted before the employer even had the chance to craft a defense.

Additional provisions of the proposed regs would require employers to provide union organizers employee e mail addresses and access to avenues of communication frequently used by the Company for other matters. Other options on the table are the holding of certification elections by electronic means which would raise serious concerns of privacy as opposed to the traditional secret ballot.

The National Association of Wholesaler-Distributors, in a June 11 memo to its members, pointed with concern to Secretary of Labor Hilda Solice's statements that "Many of the Department's outcome goals are furthered by high rates of union membership" and that declines in union membership are a negative influence on the Department's achieving its goals. This is part of the biased approach that moved NAW to participate in the Coalition for a Democratic Workplace, an organization originally formed to combat "card check" which has now realigned its own goals to combat the decidedly adversarial position which DOL and the NLRB have adopted with regard to struggling businesses working for economic recovery and job creation.

At the behest of the Coalition and other concerned groups the House workforce committee addressed the problem, considering and passing The Protecting Jobs

from Government Interference Act. The proposed legislation was partially prompted by distress over the NLRB's unprecedented complaint that Boeing Co. illegally moved work from union plants in Washington State to a new nonunion facility in South Carolina.

The NLRB seemed to be reaching pretty far in basing its suit on the assumption that Boeing was making the move as "punishment" for union work stoppages in Washington.


How could they be getting into the Company's head about such motives when there were apparently a host of factors involved in the decision and when substantial work projects remained in the Washington locations?

**What the Administration could not accomplish in Congress, it seems intent on achieving through its agency appointees.**

The proposed act passed the House committee on a straight party-line vote. It is uncertain when or if it will hit the full House. Sledding will be even tougher in the Senate.

Nevertheless the committee chairman, John Kline (R. Minnesota), said it was designed to prevent federal bureaucrats from reversing employers' business decisions and thus would help create the atmosphere of certainty needed to put Americans back to work right here in this country.

**If a union is the best answer in any given situation that case should be made in an open and free election**

Union representation will arise wherever workers are sufficiently convinced that their rights are best protected in such a format. That decision should rise and fall on its own merits. It should not be a result of government agency maneuvers to stack the deck so that the outcome is almost pre-determined. Neither should the implementation of rules result from political paybacks when the Congress and public opinion clearly are leaning in another direction. If a union is the best answer in any given situation that case should be made in an open and free election with all sides given a fair chance to present their arguments. Will that reasonable and logical approach prevail? 



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**TESTING CERT #1272.01**



**FOURSQUARE: WHEN A CELL PHONE BECOMES A HANDSHAKE FOR FASTENER MARKETERS** *continued from page 14*

"The load-to-card functionality of the Smart Offer APIs provides the millions of American Express merchants with an effortless way to serve up Specials," says Dennis Crowley, foursquare's CEO.

With the promotion, the card company also announced plans to release an easy-to-use online tool soon that will enable fastener distributors and other businesses to create their own coupon-less offers backed by American Express.

During the past two years, increasing numbers of businesses have made foursquare popular by texting electronic coupons and similar specials to passersby's foursquare-enabled cell phones. For some, the effort has resulted in significant gains in spontaneous foot traffic.

In addition, foursquare has attempted to stoke interest in by offering a number of other pre-designed sales incentives. These include deals for "swarms" of friends who visit a business location simultaneously, and "flash" specials that are only good for a short time period.

The service is also imbued with a sense of play. Members can use foursquare to alert other users to their precise whereabouts for spontaneous meet-ups. And they can post reviews of restaurants, nightclubs and other gathering places on foursquare, which can be shared with the foursquare community.

Already on social media's radar, foursquare turned heads earlier this year with its report that it had signed-up its ten millionth user worldwide. Currently, more than 3 million people 'check in' to foursquare every day, and more than 400,000 organizations are promoting with the GPS service in some way, according to a report on the company's Web site.

Not surprisingly, some of the biggest guns on the Web are trying to elbow-in on the upstart's success. Facebook offers a similar 'check-in' service it calls Places (<http://www.facebook.com/places/>). And Google features check-in social networking as part of its Latitude ([http://www.google.com/cell\\_phone/latitude/](http://www.google.com/cell_phone/latitude/)) service. Other key players scrambling for market-share

include Gowalla (<http://gowalla.com/>), Yelp Check-ins (<http://officialblog.yelp.com/2010/01/youre-gonna-want-to-checkout-yelp-for-iphone-v4.html>), Groupon Now (<http://www.groupon.com/now/about>) and Loopt (<https://www.loopt.com/>).

This phenomena in GPS social networking is seen as part of a larger trend by some market research consultants, in which digital media is expected to devour an increasingly larger share of local advertising dollars. "Our analysis indicates that as advertisers move to online, cell phone and, particularly, the variants of social media, we are fast-approaching a tipping point where

digital media will soon become a dominant segment of the local advertising marketplace," says Tom Buono, chief executive officer at BIA/Kelsey, a market research firm.

Overall, BIA/Kelsey predicts digital media — delivered to consumers via cell phone, Internet or other electronic methods — will grab 23.6% of all local ad spending by 2015.

Fortunately, testing the waters with foursquare and similar services generally only takes a few minutes, and can translate into substantial increased foot traffic and sales for fasteners — although, to be fair, it can also be a complete dud.

Best bet: you'll probably have the greatest luck if your business headquartered in a densely populated city that is teeming with

thousands of young cell phone users.

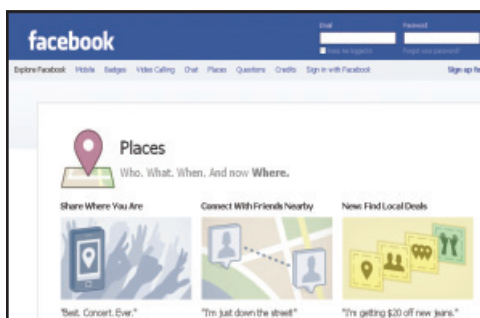
You may also have some success running a foursquare or similar service promotion at a trade show. For example, you could offer 10% off the first order to the first 100 new customers who show up at your booth with a cell phone phone coupon.

With foursquare, businesses sign-up for the service by logging onto the foursquare Web site, searching for their business name in foursquare's directory and claiming the establishment as their own. (If your fastener distributorship is not listed, you can easily add it yourself.)

Once you've been verified as a bonafide representative of your business, you can try out the



*Check-in services like foursquare especially appeal to young technology users.*



*Facebook has also launched a check-in service.*



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The HexStix® Stable Drive System from Phillips Screw Company is a lobular recess design which provides exceptional stability and alignment in one-

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With this addition, Semblex once again demonstrates their commitment to new technology and providing fastening solutions SM to our customers.

For more information about Semblex's products and services, you can contact the Semblex Corporation at 199 W. Diversey Avenue, Elmhurst, IL 60126. They can be reached toll-free at 1-800-323-1736 or alternatively, visit them on the internet at [www.semblex.com](http://www.semblex.com).

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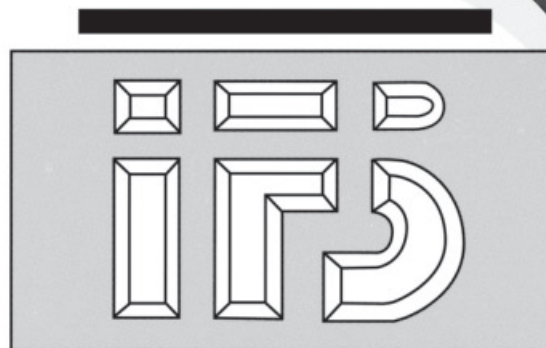


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Ningbo Tengling Industry & Trading Co., Ltd.  
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 Zonbix Enterprise Co., Ltd.

**"SUPER" BOLTS AND NONFERROUS ALLOYS** *continued from page 24*

As always, it is best to consult the applicable product standard for complete information.

Copper is mainly alloyed with zinc. Some alloys include aluminum, manganese, silicon, nickel and lead. As usual, some element combinations will enhance ductility, tensile or yield characteristics. Some properties make it ideal for bearing use. These alloys have excellent corrosion resistance to sea water. Silicon bronze 651 is most frequently used in general fasteners.

Aluminum has good electrical and thermal conductivity. It is resistant to oxidation, is light weight but not strong. It is used to join other aluminum parts to avoid galvanic corrosion with dissimilar metals. Aluminum and steel react violently against each other.

Titanium has the highest strength-to-weight ratio of any metal. Without any benefit of an alloy, it is as strong as most steels but 45% lighter. Alloys can achieve tensile strengths of 200ksi (1400 MPa) but will begin to lose strength when exposed to temperatures above 800 °F (430 °C). Its high density ratio to strength gives titanium excellent corrosion and fatigue resistance, along with high crack resistance. It also has the ability to withstand moderate temperature increases without experiencing creep. Besides being able to withstand elevated temperatures, it also exhibits excellent cryogenic properties.

Nickel is such a versatile element, that when alloyed with other elements such as chromium, cobalt, molybdenum, titanium, copper, aluminum, cobalt, etc. spawns a category called 'super alloys'. It should also be noted that these super alloys are for highly specialized applications and are very expensive.

Inconel® is a registered trademark of Special Metals Corporation. Inconel® is from a family of austenitic nickel-chromium based super alloys used for high temperatures. The nickel content may vary from 44-72%. Operating temperature range is up to 1200 °F (650 °C) and is very oxidation and corrosion resistant. Strength is developed by age hardening, solid solution strengthening, or precipitation strengthening. The material is difficult to machine due to its rapid cold working, so tensile testing full sized specimens is always recommended. Besides fasteners, this alloy is used in nuclear steam generators and in exhaust systems for Formula 1 race cars.

Hastelloy® is the registered trademark of Haynes International and represents a group of super alloys with many designation numbers to identify different physical

characteristics. Tensile strengths can be up to 135 ksi and are used for high stress and elevated temperature applications. It has excellent corrosion resistance, especially to acids, and is used in many chemical plants. Monel® is also the trade mark of Special Metals Corporation. Monel is a nickel-copper alloy that is extremely resistant to corrosion, alkalis and acids, such as hydrofluoric and sulfuric acids. The K-500 alloy can reach tensile strengths of 190 ksi. This material also work hardens rapidly.


Waspalloy® is the registered trademark of United Technology Corporation. This is an age hardening, austenitic nickel-based super alloy that is used in very high temperature applications. The Waspalloy® maintains its strength properties through 1800 °F (980 °C). It exhibits good corrosion resistance and is impervious to oxidation.

The ASTM F2281 is a standard for stainless steel and nickel alloy fasteners used primarily for heat resistance and high temperature applications. This standard describes several different heat treated conditions which are explicitly outlined and given a totally new numeric designation for the product head marking. Therefore, a heat resisting austenitic alloy (Type 316) with a condition HWA (hot formed from annealed or solution-annealed stock and then re-annealed) will have a head marking of F1F.

This is of extreme importance when ordering for special applications: make sure the engineering staff gives the full details to Purchasing, and be sure the vendor understands those requirements when placing an order. For example: a full alloy condition description would be; condition AH3 – precipitation hardened alloy, Type III Class B, head marking F3F.

Nonferrous alloys will cold work, some more so than others. Cold working means that the metal will become harder and lose its ductility the more its grain boundaries are moved around, by machining, bending or forming into a different shape.

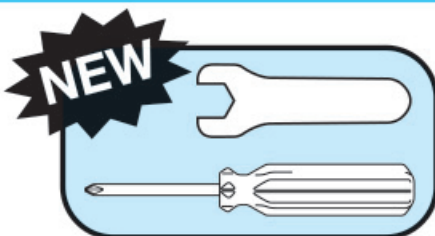
When testing a full sized nonferrous fastener, it is not uncommon to have the shank yield and dog-bone first, instead of the threads. The stresses begin in the weaker cross-section of the threads, but as that area rapidly becomes harder, the material must yield elsewhere.

As always, verify all data with the product standard when specifying or ordering a bolting material. Make sure all mating components match the atmospheric, corrosion properties and strength requirements of the connection. 



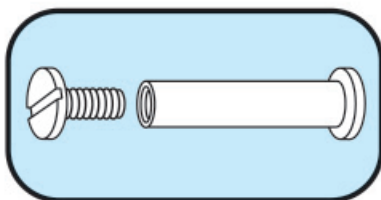
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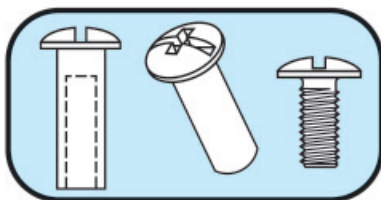
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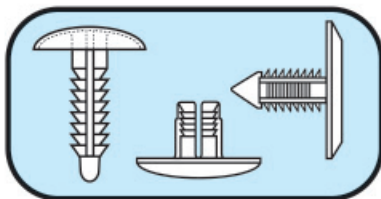
## SEX SCREWS (Male & Female)

Also known as Binder Posts, Chicago Screws. 1/8" thru 6" long & extensions. Other sizes available. Aluminum, Brass & Anodized Black



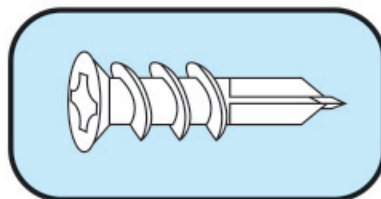
## SEX BOLTS (Male & Female)

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**THE FAMILY LIMITED PARTNERSHIP HAS ITS PLACE, BUT NOT ALWAYS** *continued from page 28*

A professional business appraiser is required to be retained when valuing an FLP. An FLP, as most businesses, is not a simple asset to value. Houses, cars, antiques, items for donation must be valued by a qualified appraiser. Closely-held businesses, including FLPs, are often so intangible in nature and so different from one another that a simple valuation by a nonprofessional is not sufficient. Because of the complexity, differences, and unique nature of each business, an appraisal by a professional appraiser is needed. The appraiser will appraise the business using a variety of methods; methods that may be advantageous to your estate tax position.

One benefit of the FLP is the ability to use marketability and minority shareholder discounts upon valuation. It follows such that along with an appraisal, the professional appraiser can assign discounts for lack of marketability and lack of control. For an FLP, combined discounts for lack of control and marketability can total from 20-40%.

### Disadvantages

Along with the advantages, there is a substantial downside, that downside is a substantial list of ways to derail the intent of the FLP and the advantages it sets forth.

1) Many promoters of the FLP actively encourage people to insert nearly all of their personal property into the FLP. Property included in the transfer typically includes their house, business interest, recreational property, and any and all possessions. Including all personal property in the FLP, to the point where it is impossible to be financially viable is often fatal to the instrument. This is the worst possible thing that could be done. The IRS sees right through it, brings it to court, and oftentimes, wins easily.

2) Failure to follow formalities is another fatal event to the FLP. Corporate structures, such as corporations, LLCs, S Corporations all have requirements on their formalities. Such formalities include a charter of some sort, minutes, elections, etcetera. Failing to have or follow the charter and rules is a sure way to give the structure less credibility within a court or other state proceeding. It is nearly universal that those holding a corporation or FLP will not exactly follow the procedure necessary to uphold the use of the corporate entity or its like. It is with this many FLPs fail and leave the owner

with a large tax bill.


3) Forming the Entity, but placing nothing in it is another folly that is common. Many individuals go to great lengths and expenses to form an FLP, a lot of times they form very proper, well utilized entities in fact. The downfall is sometimes that they do not place sufficient assets in the FLP. This is also common with trusts that are written up by attorneys. Once the instrument is created, you must put assets in it, otherwise the instrument is of no use and the assets outside the entity do not benefit.

4) Failing to maintain the FLP can also mean the downfall of the entity. Each state has a mandatory fee for every entity registered within its borders. This includes corporations, partnerships, and all other entities. The FLP is no different in they must pay a fee. If this fee is not paid, eventually the entity is administratively and involuntarily dissolved. The result, no FLP benefits.

5) Jurisdictional Issues can also present problems. In any legal or tax strategy it pays to know the jurisdiction. From a legal perspective bankruptcy laws differ, as in some states offer only a charging order to creditors trying to collect from Limited Partnerships. A charging order allows creditors to accept distributive payment instead of collecting the principal and assets of the company. It is a less preferred method of collection to the creditor. If states do not allow charging orders, this is less favorable for an FLP. discounts are also imperative.

**The time to engage in business succession planning is today. Don't let your business become yet another statistic.**

### Conclusion

Estate and business Succession should not be done in a one size fits all concept. While the Family Limited Partnership has its place for certain individuals, most people would benefit from other or additional estate planning. The fact is only 25% of those doing estate planning should have an FLP. Trusts, business planning, and a whole host of other instruments are available to properly plan the actions and courses to be taken when the time comes. The time to engage in business succession planning is today. Don't let your business become yet another statistic. Call the professionals at The Center for details and assistance with your business succession plan and estate planning. 



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Cards

FREE BUSINESS EDGE SYSTEM AT VEGAS FASTENER SHOW *continued from page 30*

# The BUSINESS EDGE 2.0



## The Brighton-Best Connection

In 2010 Computer Insights, Inc. and Brighton-Best International released the Brighton-Best Connection and now it is in use all over North America. This exclusive system allows users of The BUSINESS EDGE 2.0 to view price and availability from Brighton-Best while they are inside The BUSINESS EDGE 2.0. They can also place orders with Brighton-Best from inside The BUSINESS EDGE 2.0. The distributors get their web discount from Brighton-Best and eliminate the need for double entry.

## Vendor Managed Inventory

The system has a complete Vendor Managed Inventory system for bin stocking at customer locations. This is included in the base system and the scanners for capturing the data at the customer locations are as little as \$300.00.

Orders can be transmitted to the distributor over the Internet and the customer automatically receives an eMail acknowledgement.

## Quality System

In addition to the normal ERP (Enterprise Resource Planning) capabilities that The BUSINESS EDGE 2.0 offers, there is an optional Quality System Module that integrates all of the major functionality required by an ISO or AS9100 quality system. Integrating these capabilities eliminates the possibility of errors and it saves The BUSINESS EDGE 2.0 fastener clients a huge amount of time and money.

## Wireless Warehouse System

The system also has an optional Wireless Warehouse module which uses bar codes to track every movement of inventory from the moment it is received to the final shipment of the inventory.

With thousands of stock keeping units, having a bar code tracking system enables near zero errors. All the labels are produced and read by the system so there is very little room for human error.




## Great Opportunity

Dennis Cowhey said, "This is an unprecedented and outstanding opportunity to learn more about our industry leading system and perhaps even own it FREE."

## For More Information

For more information or to schedule a demonstration and see what The BUSINESS EDGE 2.0 can do, contact Computer Insights, Inc. at 108 Third Street, Bloomingdale, IL 60108. Their telephone number is 1.800.539.1233, E-mail [sales@ci-inc.com](mailto:sales@ci-inc.com) and their website is [www.ci-inc.com](http://www.ci-inc.com).

## Complete the Survey

If you have a smartphone, use it to scan the QR code and get direct access to the survey form online. 





## DISTRIBUTOR NEWS

**Shamrock International Fasteners**, a metals and plastics component manufacturer and distributor, based in Itasca, Illinois with warehouse facilities in North Carolina and Texas, has been in business since 1971. Mr. Sam Waichulis, Chairman and Mr. Robert Waichulis, President and CEO, recently announced the expansion of their Itasca facilities.



FROM LEFT TO RIGHT: Jeffery J. Pruyn, Mayor of Itasca, Illinois, Mrs. Jo Lyn Waichulis, Erik Boelens, Executive Vice President, Sam Waichulis, Chairman, Rob Waichulis, President & CEO & Mrs. Lindsey Waichulis

Despite the recession of the last few years, Shamrock has continued to grow by increasing its market share with their existing customers, several of which are Fortune 100 companies and by attracting new customers.

"The 17,000 square foot addition to the warehouse will quadruple Shamrock's product storage capacity because of a high racking system and narrow aisles. This will allow more of the existing warehouse to be freed up for manufacturing space. The 5,000 square foot office expansion will provide not only office space but a larger cafeteria for employees and a product showroom.

Other locations both in Illinois and nearby states were considered but the central location of Itasca, which provides competitive logistics and skilled employees, made this the appropriate decision.

To learn more about the company and its products and services, please visit our website at [www.shamrockif.com](http://www.shamrockif.com).

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**IMPLANT RELIES ON UNIQUE FASTENER TO GEAR UP FOR THE BABY BOOMER GENERATION** *continued from page 34*

Medical device manufacturers such as Skeletal Dynamics are successfully attacking these problems with a variety of new technologies. One of the most interesting solutions is also the simplest - an innovative self-locking fastener called Spiralock. By its unique design, it is capable of resisting loosening even under loads and vibrations strong enough to break the fastener.

What makes Spiralock unique is its 30° "wedge" ramp cut at the root of the female thread (while traditional fasteners use a 60° thread). Under clamp load, the crests of the threads on any standard male bolt are drawn tightly against the wedge ramp. This not only eliminates sideways motion that causes vibrational loosening but also distributes the threaded joint's load throughout all engaged threads, a claim supported by a Massachusetts Institute of Technology research study. The load percentage on the first engaged thread is significantly lower than traditional thread forms, which further reduces possible bolt failure and improves product performance.

In the medical field, because of their vibration-resistant, reliable self locking features, the innovative fasteners hold various components together in implants, artificial limbs, heart pumps and MRI machines, and are also being considered for cardiovascular devices such as pacemakers and implantable defibrillators, as well as for dental and orthopedic surgical instruments and CT scanning applications.

When Skeletal Dynamics' Align™ Radial Head System is surgically installed in a patient, proprietary instrumentation allows alignment of the radial head as it would be in the patient's native anatomy. Once the surgeon orients the device in this natural position, the surgeon tightens the set screw in a Spiralock milled interrupted thread made of cobalt chrome, against a long

titanium stem designed for 3-point fixation, to lock the device in the correct position.

"While fasteners used in upper extremities are frequently tested to 100,000 cycles, third-party testing showed that the Spiralock self locking fastener used on the Align™ Radial Head successfully survived load and fatigue testing to one-million cycles without loosening or backing out," says Norman. "That gave us the design confidence we needed, and helped with our FDA approval."


Early in the design process, when Skeletal



An assortment of Spiralock fasteners

Dynamics considered the manufacturability of the self locking thread, Spiralock Corp. stepped forward to manufacture prototype tooling for them, then customized tools to cut the thread form, and finally worked closely with their contract manufacturer to scale up production. "We were happily surprised at the cost of the self locking fastener, and are considering its use in other medical applications," says Norman.

"Going right to the Spiralock self locking fasteners, to address fastener fatigue and loosening, potentially saved us millions of dollars and years of development time," concludes Norman. "For fastening challenges in the medical industry, like designing for active baby boomers and rising longevity, the sooner they're considered the better."

Spiralock, whose self locking fasteners are used for design challenges in a wide range of industries including medical, aerospace/military, automotive, heavy truck, food processing, agriculture, construction, rail, and oil drilling is part of Emhart Technologies, known for total vehicle innovation in the auto industry. The self locking Spiralock fasteners have been used in extreme fastening applications with virtually no chance of recall: from the main engines of NASA's Space Shuttle; to the Saturn Cassini orbiter and Titan Huygens probe; to medical implants, artificial limbs, and heart pumps. 

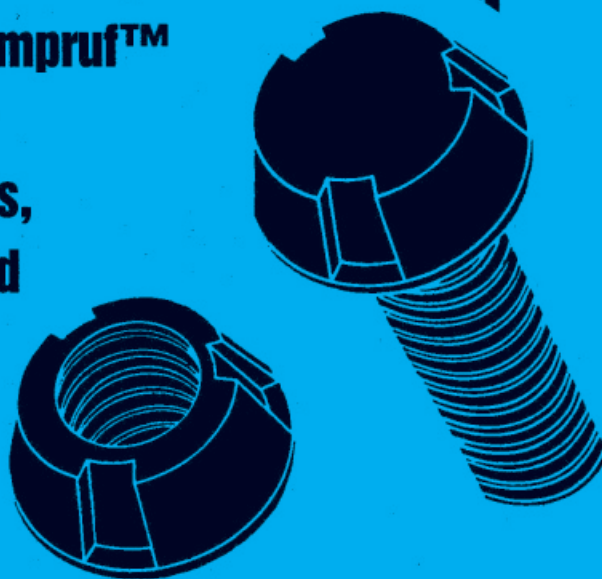




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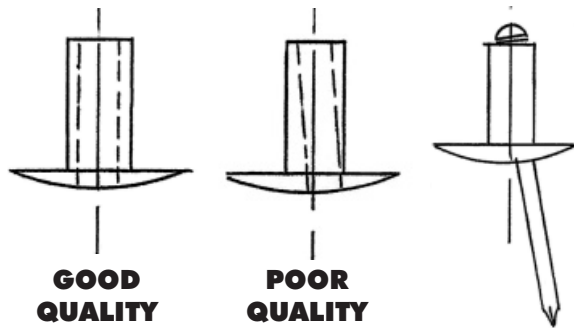


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**HOW TO RECOGNIZE A QUALITY BLIND RIVET** *continued from page 52****Off Centered Hole in Extruded Rivet Bodies***

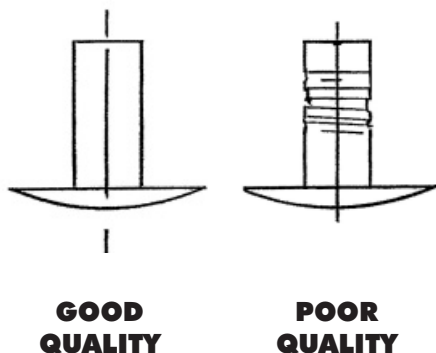
The poor quality rivet body is caused by the extrusion pin that forms the hole. The extrusion pin has a slight point that enters the material to create the hole. If the point is not ground exactly on center the extrusion pin will drift as it enters the barrel of the rivet body. A tell tale sign of this condition is that the mandrel is not on center of the rivet body.



This condition does not affect the performance of the blind rivet when it is being set. When the mandrel is pulled by the blind rivet setting tool to set the blind rivet, the rivet body will not set on the center line of the rivet body. The mandrel head will follow the angle of the hole and will deform the barrel of the rivet body. This condition will also cause the mandrel to break before the blind rivet is set and will not clamp together the work pieces being riveted.

***Ripples on the Barrel of the Rivet Body***

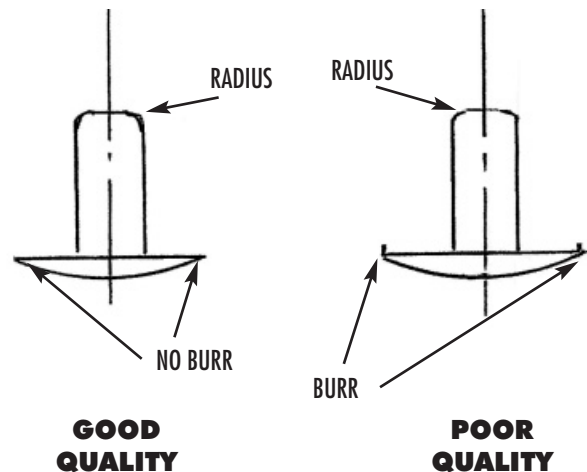
The poor quality rivet body is caused by a lack of rivet body material in the extrusion tooling. This condition can lower the shear strength of the set blind rivet.



Extrusion rivet bodies require good extrusion tooling and the proper setting of the wire feed rollers. The extrusion must be inspected for wear and cracks before it is set in the extrusion machine. Feed rollers must be set properly so as to be sure that the correct volume of rivet body material is fed to the cut off station. The wire that the rivet bodies are made from must have a consistent wire diameter to maintain proper volume.


***Stamped Rivet Bodies***

The poor quality stamped rivet body is caused by dull cutting tooling. After the barrel is formed, the rivet bodies flange is cut away from the strip on material. If the tooling is dull, a burr will form on the outside diameter of the flange.



The way you can tell if a rivet body is extruded is by looking at the end of the rivet body barrel. If you see a radius (as shown above) the rivet body is a stamped body. If the end of the barrel is flat (as shown on extruded rivet body section), the rivet body is extruded.

Again, stamped rivet bodies are made from sheet material and extruded rivet bodies are made from wire.

Above all, the tensile and shear strength of the blind rivet is the main requirement. The blind rivet is a fastener used to rivet two or more pieces together. The tensile and shear values of the set blind rivet is created by the blind rivet manufacturer and should be equal to the shear and tensile values listen in the IFI (Industrial Fastener Institute) blind rivet specifications. 





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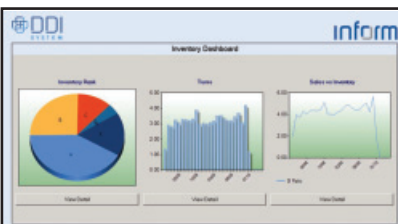
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FIN INTERVIEWS: SELLING FASTNERS IN SOUTH AFRICA *continued from page 44*

"Impala's focus has always been to sell to end users, although we have aligned with certain distributors whom we assist in increasing their market share. We have an understanding of cooperating with our distributors entirely so we do not compete at any stage."

While more Americans know of "Impala" as a model of the Chevrolet produced since 1958, the bolt manufacturer is named after the southern African reddish-brown antelope with the characteristic "M" rear white marking. Web: [impalabolt.co.za](http://impalabolt.co.za)

### Master Distributor: India & Malaysia Top Suppliers in Price-Dominated Market

"Price, price and price," master distributor Rob Simes described the key to the South African fastener market.

Simes, managing director of Johannesburg, South Africa-based UPL Socket Screws (Pty) Ltd., and his brother, Richard Simes, are second generation in the fastener industry. Their father, Edward Simes, spent a career in the fastener industry and in finding niche markets.

Today the UPL Group supplies fasteners to a variety of distributors in South Africa.

The recession that most of the world felt in 2008 also struck South Africa. "It has been a tough market. By the end of 2010 we were in recovery, but not back to what we had in 2007."

Development of the UPL Group goes back to 1929 when Gordon Webster founded Gordon Webster & Company (PTY) Ltd. as a distributorship for various fixtures and fittings.

Unbrako bought the Webster company in 1966 and changed its name to Unbrako (Pty) Ltd.

In 1985 some university-based owners from the U.S. protested the Unbrako ownership of an African company during apartheid. In 1986 Edward Simes bought the company from Unbrako and changed the name to UPL – an abbreviation of its previous name, Unbrako Propriety Limited.

The second-generation brothers each started in warehouse jobs and since their father retired in 2009 they now share management duties at the headquarters in a business/industrial park in suburban Johannesburg. Web: [upl.co.za](http://upl.co.za)



Rob Simes, managing director of Johannesburg, South Africa-based UPL Socket Screws (Pty) Ltd.



UPL Socket Screws (Pty) Ltd. headquarters in Johannesburg, South Africa



Impala Bolt & Nut SA (Pty) Ltd. manufacturing plant in Johannesburg, South Africa

### Distributor: Recession Increases Price Pressure

"The competition has become more price intense since the recession," Daneel Herselman observed of the current South African fastener industry.

Herselman, general manager of the Boltfast seven-branch distributorship based in Cape Town, finds more competition with smaller, new distributors opening. "It has a quick impact on the market with their low operating cost," Herselman said, "But they can't always maintain those lower prices." he continued to tell [GlobalFastenerNews.com](http://GlobalFastenerNews.com).

Boltfast seeks to "provide solutions, not just a quick buck," Herselman added.

A key to Boltfast's success has been "expertise and focus on services. We have stock available with one-stop shipping."

Many South African distributors "fear keeping too much stock," Herselman finds.

Boltfast's fasteners primarily come from Taiwan or China. There are a limited amount from Europe and the United States.

Today two-thirds of Boltfast sales are to end users, including manufacturing, mining, boating and marine OEMs. Boltfast's specialties include stainless steel

fasteners.

South Africa has imposed anti-dumping duties on bolts, nuts and set screws, Herselman noted.

Founded in 1983, Boltfast has grown to a distributorship with seven branches in South Africa.

Herselman came to Boltfast from Overberg Agri Ltd. after it was acquired by the publicly held agriculture-based company in 2007 and last year became general manager. Web: [BoltFast.co.za](http://BoltFast.co.za) 



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## FOURSQUARE: WHEN A CELL PHONE BECOMES A HANDSHAKE FOR FASTENER MARKETERS *continued from page 178*

service by activating pre-designed foursquare specials that have a proven track-record with other businesses.

The company even offers an online dashboard, which can be used to track and distill which specials are working best for you. Featured reports include accounts of total daily foursquare check-ins over time, your most recent visitors, your most frequent visitors, the gender breakdown of your visitors, the time of day people are checking in and similar stats.

So far, there are seven pre-designed specials you can run with the click of a mouse:

**\*Friends Special:** Friends that arrive simultaneously as a group at your location get a discount or other reward.

**\*Swarm Special:** Designed for the more adventurous, this special rewards a pre-determined number of complete strangers with rewards for "swarming" your fastener distributorship at a specific time (say a free clinic or discount on shots.)

**\*Flash Special:** Perfect for foursquare types passing by your location, this special offers a discount or reward that may only last a few minutes.

**\*Newbie Special:** Any foursquare member who checks into your location for the first time gets a

discount or other reward – one of the easiest ways to create new customers.

**\*Check-in Special:** A coupon or reward for anyone who checks into your business, whether they're completely new or a longtime customer.

**\*Mayor Special:** One of the most commonly used promotions, this generally rewards a person who frequents your business more than any other customer. The concept may sound goofy, but there are people who consider jockeying for Mayorship of a business as an all-consuming, never-ending, competitive sport.

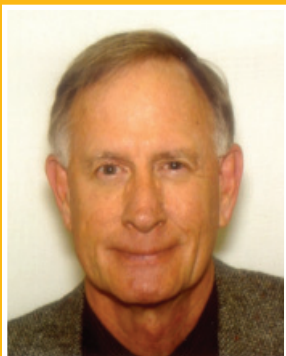
**\*Loyalty Special:** This rewards customers who repeatedly check-in and buy a predetermined

number of times, who repeatedly check-in during times when business is slow, and similar variations.

Given the ease-of-entry, experimenting with GPS-driven services like foursquare seems like a no-brainer. For the rabidly interested, there's even a new online trade magazine exclusively devoted to tracking the burgeoning business of location-based services and advertising appropriately called Streetfight - check it out at (<http://streetfightmag.com/>). 



*Jockeying for Mayorship of a business is embraced by many as an all-consuming, never-ending, competitive sport.*



## Ralph S. Shoberg

Ralph S. Shoberg is the Technical Director of PCB Load & Torque, Inc., a manufacturer of load cells, torque transducers, and fastening technology measurement equipment. Shoberg has 30 years experience in test, measurement, and control of the threaded fastener tightening process. He has been granted numerous U.S. and international patents for transducer and instrumentation inventions. Shoberg helped create the first electronic strain-gage transducer based monitor and control system for automated fastener assembly. He is a frequent lecturer on the design and analysis of bolted joints, has contributed to a number of threaded fastener handbooks, and is a frequent contributor to fastener industry-based periodicals.

# REVIEW OF THE APPLICATION OF DESIGN GUIDELINE VDI 2230 USING SRI FOR PCs

## Preliminary Note

In the Guideline VDI 2230 Part 1, bolted joints are treated which have to transmit constant or alternating working loads and which are designed with high duty bolts. A bolted joint is a separable joint between two or more components using one or more bolts. The bolts must be designed such that the joined section fulfils its allotted function and withstands the working loads occurring. Calculation of the bolted joint aims at determining the required bolt dimensions, allowing for the following influential factors:

- Strength grade of the bolt
- Reduction of the assembly preload in the interface or in parts of the interface by the working load
- Reduction of the assembly preload by embedding
- Scatter of the preload during tightening
- Fatigue strength under an alternating load
- Compressive stress on the clamped parts due to the bolt head and/or the nut.

## 1. Range of Validity

The design rules established in this Guideline are valid for steel bolts. The values in the tables are given for the dimension range M4 to M39 and for clamp length ratios  $l_k/d < 10$ . Bolts with smaller and larger dimensions can be calculated according to the Guideline. The given characteristics of materials apply only at room temperature. At higher or lower temperatures allowance must be made for their temperature dependence. Extreme operating stresses such as high and low temperatures outside the given limits, corrosion and impact stresses, are not considered in the present Part 1.

The following DIN standards, directives and special regulations should be observed where applicable:

- DIN 18800 Part 1 Steel Structures, Dimensioning and Construction
- DIN 18801 High Steel Constructions; Dimensioning, Design and Manufacturing
- DIN 15018 Part 1 to 3 Cranes; Steel Supporting

## Constructions, Calculation

- DIN 2505 (preliminary standard) Calculation of Flanged Joints
- DAST-directive 010 Application of High-strength Bolts in Steel Constructions (published by the German Committee for Steel Construction, Stahlbau-Verlag GmbH, Cologne)
- AD Note B7 (January 68) Calculation of Pressure Vessels; Bolts
- AD Note W 7 Materials for Pressure Vessels; Nuts and Bolts in Ferritic Alloy Steels
- TRD 309 Technical Regulations for Boilers; Bolts (published by the Vereinigung der Techn. Überwachungsvereine e.V. Essen, Beuth-Vertrieb, Berlin)
- DIN ISO 898 Part 1 and 2 Mechanical Properties of Fasteners
- DIN 267 Part 1 to 24 Mechanical Fasteners; Technical Delivery Conditions
- DV 804 (preliminary version) Directive for Railway Bridges and other Engineering Structures VEI

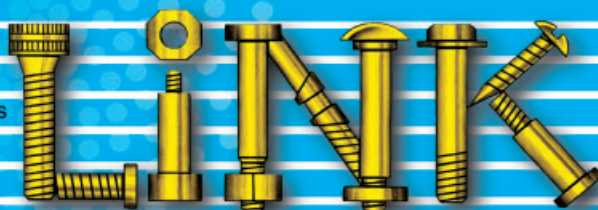
## 2. Choice of Calculation Approach for Bolted Joints

The calculation procedure for a bolted joint is fundamentally dependent on its geometry. More elaborately designed multi-bolted joints must be divided into geometry that is easily handled by the calculation. Fig. 1 shows joint geometry with the relevant applied loads, as well as the suggested calculation procedure. As the formulae are derived from different mechanisms acting during loading, the complexity of the calculation procedure increases according to the complexity of the joint.

For all joints it is assumed that the bolt axes are parallel to each other in the unloaded state, and that they are also parallel to the normal to the interface line. Bulk plastic deformations are excluded. In the microgeometrical range, plastic deformation is allowed for as preload loss due to embedding.



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OPTICAL METHOD FOR MEASURING THE SURFACE AREA OF A THREADED FASTENER *continued from page 58*

These three regions are highlighted in Figure 1a. Transitions between the possible fastener conditions are handled through the limits of integration for expression [3].

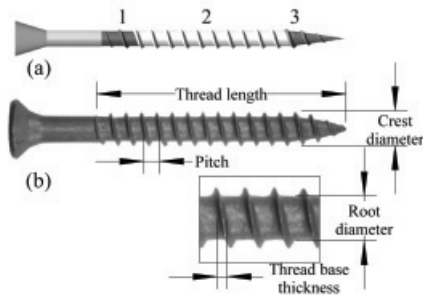


Fig 1: Threaded fastener (a) highlighting the three regions to calculate the surface area and (b) a photographed fastener, with key characteristics identified, showing appropriate lighting for image analysis with the custom developed LabView software.

### Image Acquisition

Image acquisition, image analysis, and surface area calculations were conducted within a custom developed LabView® software program (National Instruments, Austin, TX). Fasteners are placed on a stage with light sources placed on all sides of the fastener with the goal to develop enough contrast to define the fastener edges and minimize shadows while not sacrificing the details of the thread surface detail (Figure 1b). Backlighting, which defined the fastener edges, was provided through a diffused opaque glass. The fastener thread features were illuminated by top lighting with a 3-inch diameter ring light attached to the front of the camera lens and regulated by a Schott ACE 1 – 150W power source (SCHOTT A6, Mainz, Germany). Additionally, three lights provided low angle light to soften shadows on the fastener edges.

A Pulnix® 1320 CL CCD mounted with a tele-centric lens (Jai Inc., San Jose, CA) was used to acquire calibrated images (1020x1396 pixels 8-bit grayscale). A certified glass distortion target was used to calibrate the systems optics. While in a live stream image acquisition mode, the lighting could be adjusted by the operator until sufficient contrast was obtained. After the contrast was properly adjusted, the image was acquired in LabView® (National Instruments, Austin, TX), saved as a bitmap file, and used to determine the surface area.

### Image Processing

For threaded fasteners the key characteristics that are needed to determine the surface area from the acquired images are: root diameter, thread crest diameter, thread length, thread width at the root diameter, and thread transitions (ie. location between fastener tip and constant shank region). Figure 1b highlights these key fastener characteristics. Image acquisition, image analysis, and surface area calculation were carried out in a interactive program developed using LabView® which took advantage of the subroutines contained within the LabView® vision development module. One of the goals of the program was to minimize the level of human interaction within the

image analysis procedure to decrease the variability of results due to user judgment. However, four key user interactions are still required to assist with the image processing. All image analysis is carried out using a local coordinate system that is established at the middle of the fastener head and runs along the axis of the fastener.

The first user interaction locates the transition between the smooth shank and threaded shank region (Point A in Figure 2). Using this location, an algorithm calculates the surface area of the smooth shank region using pixel wide cylinders while a separate algorithm determines the root diameter edge and creates lines defining the upper and lower crest diameter locations within the threaded region.

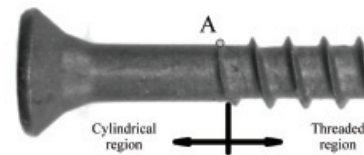


Fig. 2: The user must select the point at which the cylindrical (axially symmetric) region meets the threaded region (Point A).

The second user interaction locates the transition between the straight threaded region and the cone-shaped tip region (Point B in Figure 3a). Using this location, the coordinate of intersection between a line perpendicular to the fastener axis through this point and the line representing the crest diameters are determined (Point C in Fig. 3b). Using this coordinate and the coordinate of the fastener tip, the slope of the threaded crest with the fastener tip,  $k_D$ , is determined.

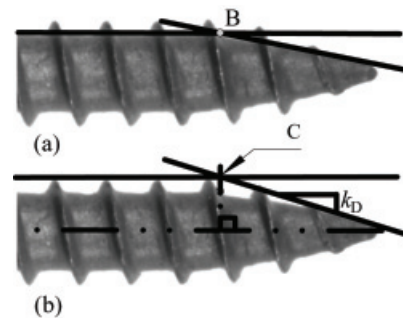


Fig. 3: The user then selects (a) Point B, where the fastener transitions from a constant diameter to a decreasing diameter and (b) computer program determines point C and  $k_D$ .

The third user interaction determines the thread base thickness at the root diameter,  $t_w$ . Using the fastener axis as a reference line, the user draws a line whose endpoints are defined by the intersection between the thread flank and the root diameter of the reference line. (Fig. 4).

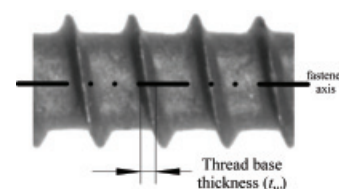


Fig. 4: The user draws line along fastener axis to measure thread base thickness.



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### THE UNIQUE FEATURES OF THE CADDY® ROD LOCK SYSTEM *continued from page 70*



#### Anchor Screw

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- Reduces installation time up to 35%
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- Can be used on threaded rod with slightly damaged threads or minor burrs
- Electro-galvanized finish
- 3:1 safety factor



The unique features of the CADDY ROD LOCK system help to reduce the installation time of threaded rod by up to 52% when compared to conventional fasteners. And, in many common applications, the system also requires less installation hardware. 

**DON'T MESS UP YOUR MARKETING: GETTING THE MOST FROM YOUR INVESTMENT** *continued from page 82*

In the same way, questions about the purpose of the ad, the message or how it might be used are pushed aside and deliberately ignored.

Failing to have a marketing plan and to spend time thinking through how each component fits into the overall picture is a tragic and costly mistake. It results in wasting valuable marketing dollars.

### 3. All marketing is individual

The late U.S. House Speaker "Tip" O'Neil held that "all politics is local." Such advice is also applicable to marketing.

For decades, much of marketing was done with a broad brush: advertise in major daily newspapers, network TV stations and national magazines, and then toss in billboards and direct mail to the mix just to be sure.

By 2000, such an approach was dead and technology threw in the last shovel of dirt. The ability to gather, analyze and use enormous amounts of consumer data has pushed the bar to the point where all marketing is individual.

With companies' strategy of empowering customers to manage their individual marketing protocols, it's all about the individual. And will become even more so. Today's customers aren't flooded with random marketing messages. The only messages Amazon customers receive are those that fit their profile.

### 4. The longer a company has been in business, the more it needs marketing.

This runs contrary to the popular view that the longer a company is in business the less it needs marketing. The assumption is clear: they are well known to their customer and their constituency believes in the brand. Based on that, spending money on marketing is both unnecessary and a waste.

Yet, Coca-Cola, a very old brand, has one of the largest marketing budgets. And what about Heinz ketchup, Levi's and a host of others?

It's a specious argument if there ever was one, since

it's easy to forget that the longer a company is in business, the greater the need to replace existing customers. It's also easy to ignore the fact that new competitors come into the picture and many consumers are easily lured by "new and better."


Without marketing, companies can become "dated" in the minds of even loyal customers.

### 5. Basing decisions on common sense is asking for trouble

In fact, common sense is both untrustworthy and dangerous. "We don't need to survey our customers," said the head of the organization, who takes pride in knowing his customers. "If I ask a handful, they'll tell me what we need to know?" When the issue of continuing attrition is raised, he explains it away with such a "common sense" explanation as a downturn in the economy.

As so many marketing professionals know from bitter experience, it's difficult to challenge the marketing views of those who are successful in business with facts, since their success serves to "validate" their views. This is why a book by the principal research scientist at Yahoo!, Duncan J. Watts, Ph.D., is valuable in helping to set the record straight. The sub-title to *Everything is Obvious: Once You Know the Answer* says it clearly: "How Common Sense Fails Us."

Duncan contends, as Christopher F. Chabris writes in the *Wall Street Journal*, "Common sense is a shockingly unreliable guide to truth and yet we rely on it virtually to the exclusion of other methods of reasoning." He points out that relying on common sense puts us in the position of dismissing and rejecting out of hand the objective testing of our decisions — including marketing and sales initiatives. When that happens, it can't avoid wasting our marketing dollars.

Far too much of today's marketing is based on what was popular in the past or what worked even a few years ago. These five principles provide guidelines for developing programs that produce positive results instead of wasting money. 

**...Making an intense effort to portray the value of a product or service can create value without cutting the price.**

**With companies empowering customers to manage their individual marketing protocols, it's all about the individual.**



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OPTICAL METHOD FOR MEASURING THE SURFACE AREA OF A THREADED FASTENER *continued from page 198*

The final user interaction locates where the thread crest diameter starts to decrease into the smooth shank diameter and the rate of crest diameter decrease. To determine these parameters, the user selects the apex of a thread in the transition region (Point E in Fig. 5).

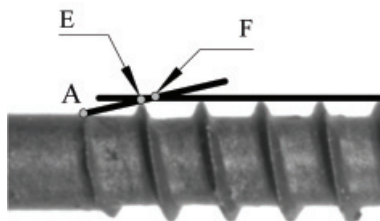


Fig. 5: By selecting the height of a thread in the region where the thread height varies but not the root diameter (Point E), a line is generated through point A. The intersection of this line with the height of the thread in the constant region determines Point F, the beginning of Region 1 in Fig 1.

Using point E, a line through point A (determined from the first user interface) is determined and this slope is the rate of crest diameter decrease. The intersection of this line with line defining the crest diameter is the point where the crest diameter starts to decrease (Point F). Using these four user interaction parameters, machine vision detected parameters, and the analytical expressions [6], the surface area of threaded fasteners may be determined.

### Example

To demonstrate the efficacy of the surface area algorithms, the surface area of a No. 10 (2.54 cm) wood screw was calculated. The parameters of the No. 10 wood screw are specified by ASME [8], and these parameters were used to generate a geometric model to test the algorithm (Fig. 6).



Fig. 6: Actual No. 10 wood screw and mathematical model.

The surface area of this geometric model was then calculated numerically by sectioning the model into squares, taking the norm of the cross products of the vectors of each one of these squares, and summing the results over the entire model [6]. Figure 7 shows the results of the numerical analysis along with the analytical solutions. As Figure 7 shows, the numerical solution converges to the analytic solution as the number of grids increases, which validates the general analytical expression for surface area.

### Application

Before this algorithm, fastener corrosion was reported in terms of a percent weight loss because it

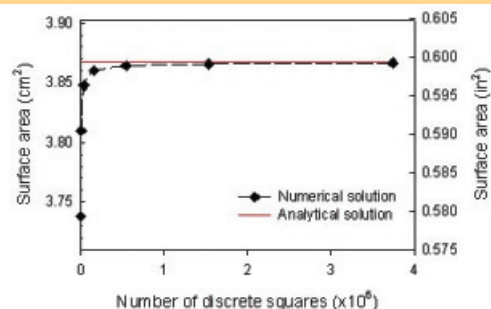


Fig. 7: Comparison of analytical and numerical surface area calculations for No. 10, 2.54-cm- (1-in.-) long wood screw.

could be calculated without knowing the surface area. However, it is impossible to compare the percent weight loss between different size fasteners because in addition to mass loss, the corrosion rate depends on surface area and density of the specimen (Equation 1). Baker [9] conducted a corrosion test on 11 different types of fasteners exposed to CCA treated wood for 17 years in two different environments, and reported his data as percent mass loss. These data represent a significant baseline upon which to compare new wood preservatives, but were limited because they were presented as percent mass loss. Using photographs from Baker's [9] laboratory notebook, we were able to use the current method to calculate surface areas for the fasteners tested, and convert his data into corrosion rates, and establish a historical baseline for corrosion rate of metal fasteners in wood preservatives [3].

### Summary

Quantifying the surface area of a threaded fastener is essential to properly calculating an accurate corrosion rate. The method proposed here determines the surface area by acquiring a digital image of the fasteners and applying specific algorithms to identify key features of the fasteners to extract appropriate dimensions that can be used in analytical expressions to determine the total surface area of a threaded fastener. This method was then validated by correctly calculating the surface area of a #10 wood screw. By applying this method to historic corrosion data, the true corrosion rates were calculated for comparison with other studies [3].

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## WÜRTH GROUP RANKED 50th BIGGEST GERMAN FIRM IN THE UNITED STATES

The German American Chamber of Commerce (GACC) has announced privately owned company, the Würth Group, as the 50th biggest German firm in the U.S. based on figures for the 2010 business year. They are joined by other well known companies, such as: the Daimler Group, Siemens, Allianz and BMW.

The Würth Group originally expanded into the U.S. through successful acquisition and development of key distributor companies throughout multiple business segments.

### *Growth in the U.S.*

Würth's sales increased in North America by nearly 12 percent totaling over \$794 Million in 2010. To reach these sales, more than 700,000 order lines were added, increasing the total number to 6.7 Million; an 11.7 percent increase over 2009.

All five of Würth's divisions experienced growth: Trade, Wood, Metal, Auto and Industry. The wood division accounted for the largest portion, encompassing 46 percent of sales throughout North America. Industry experienced the largest growth over 2009, boasting a 24 percent increase and composing 32 percent of the groups sales.


The industry division attributes this increase to their innovative inventory management products and programs, such as: W-KLT® Bins, CPS® Space Saver

Racks and the online tools offered under their service brand, CPS® C-Parts Solutions.

The sales organization has always been the heart of Würth Group's success. This core competence was further developed by changing with the market conditions and the customers' needs. Robert Friedmann, Chairman of the Central Managing Board, explains, "2010 was marked by worldwide growth. It has therefore been our goal to grow quickly and disproportionately to win market share. In case worldwide economic growth slows down, we will be able to further improve this market position thanks to our strength."

With Q1 of 2011 determined, the Würth Group drives increases throughout multiple metrics, and continues to grow. By 2020 the company plans to generate sales of \$28.7 BN (EUR 20 BN) worldwide with around 100,000 employees.

### *The Würth Group of North America*

The Würth Group specializes in assembly and fastening materials, supplying customers in the manufacturing and construction industries. In the U.S. alone, Würth services over 98,000 active customers and employs more than 2,300 personnel. Worldwide, the group has more than 400 operating companies serving markets in 84 countries and employing over 62,000 people. 





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- Simpson Strong Tie AISI 316 Stainless Steel Framing Connectors and Seismic & Hurricane Ties. The recommended stainless steel fasteners are included with all framing connectors.
- Star Drive Stainless Steel Deck Screws are now available in trim head and bugle head design in both AISI 305 & 316 stainless steel.

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**CULTURAL AWARENESS: HOW TO USE IT TO NAIL YOUR COMPETITION** *continued from page 104*

Since successful Gainsharing plans rely on employee and supervisory suggestions for working smarter rather than harder, care must be taken to encourage group participation in Spanish. (See: "How To Manage Hispanic Workers Profitably," *Distributor's Link*, Fall, 2003)

### ***How Gainsharing Differs from Profit Sharing and 401(k)'s***

Gainsharing avoids the drawbacks of profit sharing plans and 401(k)'s. Both are designed to motivate and reward workers for successful company performance by giving them a personal financial stake in its future. However, most distributors and producers of fastener products find that neither profit sharing nor 401(k)'s lead to greater worker efforts toward better quality and productivity now because workers do not equate their daily efforts today to a payout at the end of the year, or upon retirement.

Gainsharing avoids the drawbacks of profit sharing and 401(k)-based retirement plans for several reasons:

- Gainsharing's rewards are immediate. Employees identify what they do today with the bonuses they can earn at the end of a month.
- Gainsharing encourages teamwork rather than destructive competition.
- Gainsharing emphasizes cooperation and group effort. It is the only realistic plan tying additional individual earnings to over-all plant performance. Employees quickly learn that cooperation and collaboration pays off.
- Because Gainsharing rewards specific performances and recognizes collaboration, it appeals to a Mexican-born workforce. In fact, Gainsharing has an even better chance of success with this workforce than other plans, because the basic concepts of the plan are in sync with their cultural expectations.

### ***Not One Size Fits All***

Fastener producers differ in size, technology, customer base, and internal problems. What works for a cold header making blind rivets will make little sense for a company producing anodized aluminum fasteners. Because of these differences, there is no one-size-fits-all Gainsharing plan.

### ***Today's Workforce Makeup***

A great preponderance - 80% - of our foreign-born workers speak Spanish. About 80% of foreign workers in the U.S. are Latino, and of these, 86% are Mexican. Within the next decade, Hispanics will likely be the largest minority in the United States.

In fact, Hispanics will make up nearly a quarter of the U.S. population by the year 2050, compared with 13.2 percent today, as reported the U.S. 2010 Census.

Nationwide, the workforce in the fastener industry is just under 25% Hispanic. However, many fastener producers of all kinds, especially those in California, the Southwestern states, and Midwestern Rust Belt cities are already almost 100% Hispanic.


### ***Preparation for Gainsharing Success with Mexican-born Workers***

The proper roll-out of a Gainsharing program is a key to its underlying success. It should include:

- Meeting with the workforce to articulate Gainsharing goals (lower scrap and rework, faster throughput, better productivity) clearly and simply in Spanish.
- Emphasizing Gainsharing's immediate rewards: bigger paychecks, employee unity. Positive employee attitudes are an important byproduct of this.
- Underlining that Gainsharing goals are achieved not just by "working harder," but by working together to identify causes and remedies of production problems.
- Train, train supervisors how best to interact with their Mexican workers. (See: "Realistic Training for Today's Realities," *Distributor's Link*, Aug, 2004)

### ***Results of the Great Recession***

Even though the economy is improving and the fastener industry is busy, there is no let-up to competitive pressures. Specialty fastener makers are faced with customers finessing Pacific Rim competition to insist on lower prices, better quality, and faster deliveries. Their key to success lies in cheerful employee cooperation in boosting productivity, lowering per-unit costs, and boosting quality.

What are you doing to generate cooperation among your employees? 

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Segal, Inc., which combines the knowledge of two experts, providing full technical support and application assistance for both rivets and machinery solutions.", stated Bill Goodman, President of Industrial Rivet. Goodman continued, "That means in addition to a variety of existing handheld, bench mounted and freestanding machines, we can work with you to design and build custom engineered, automated assembly systems for virtually any application need." 

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## INTERFAST, INC: PROVIDING SUPERIOR SERVICE TO CUSTOMERS

With a global customer base, spread predominantly across North America, Asia Pacific, Europe, and South America, Interfast is a valued and trusted partner to some of the world's leading aerospace, airline, and industrial companies. Started as a company with three people by founder and current CEO Doug Woollings back in 1966, today it has grown into a top 10 aerospace and industrial fastener distributor globally and holds the number one market position in Canada.

The company is recognized for its excellence in delivering high-quality products and value-added services that meet or exceed customer expectations. Interfast works with both OEM (original equipment manufacturers) and MRO (maintenance, repair and overhaul sectors) companies, delivering proactive and innovative fastener-based solutions for a broad base of applications in the aerospace sector.

In addition to aerospace, Interfast services a robust industrial customer base in the automotive, electronic, energy, telecommunications and general industry markets.

Interfast maintains distribution agreements with more than 45 fastener manufacturers – carrying recognized branded products from major manufacturers, such as ALCOA, LISI Aerospace, PennEngineering, SPS Technologies and Unbrako® – as well as engineering representation agreements with some specific specialized product manufacturers. Customers have access to a full line of fasteners, speciality fasteners, fastening systems and standard hardware, precision hole preparation and production installation tooling. This is the company's primary business, delivering quality parts on time to customers at competitive costs.

Interfast's expertise in supply chain management and fastener engineering support services have been a key differentiator for the company. Deep technical knowledge, along with a superior understanding of

suppliers, manufacturing processes and customer needs, has led to a legacy of providing high value-added solutions that address customer problems.

The company's unique application engineering services help customers ensure that parts have been properly designed or seek alternative parts that meet or exceed design, engineering and quality requirements if a specified fastener is unavailable. With more than 40 years of experience in the fastener industry, engineering departments often turn to Interfast for assistance with fastener applications, product design, material selection, product standardization and rationalization, helping them to determine the optimal standard and specialty fastener equipment required for a wide range of projects. Known for its ingenuity and engineering strength, Interfast can present comparisons of engineering techniques, applications and technologies as the basis for alternative fastener-based solutions, with emphasis on safety and total quality management.

Interfast has become a valuable resource for engineering support, offering value and assistance:

- Expertise – Extensive experience with base materials, fastener design, fluid systems, clamping technologies, and quick-access latching.
- Material Selection – To assure compatibility with joint materials and suitability for environmental conditions, including temperature variations, vibration and corrosion.
- Design Assistance – Selection of optimal joining mechanisms to ensure cost efficient assemblies.
- Technical Committees – Interfast participates in the development and modification of standards, materials & hardware (GIDEP, NASC, AIAC, ISO, SAE Aerospace)

Interfast participates at the design level with major aerospace manufacturers on new products on a daily basis, as they tap into Interfast's technical expertise for advice and guidance.



please turn to page 212



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#### CORROSION - CAUSES AND PREVENTION *continued from page 162*


### Coatings

Historically, the most common form of coatings has been phosphate treatment (zinc or manganese) with some light oil added as rust inhibitor and lubricant. For many years it was the preference in the automotive industries for high strength fasteners. Unfortunately, the exposed fasteners were rusting in about one year or less. Another problem was that, while stored, the oil added to the fasteners migrated to the bottom of the box or bin due to gravity. This made the top layer dry with higher friction coefficient and the bottom layer lubricated with lower friction. In other words, the resulting preload from a lot like that fluctuated quite a bit.

Today, we have many highly effective organic coatings available on the market. Some of these are simply barriers to prevent moisture to reach the steel fastener. Others (the majority) are more effective by providing long term protection of the fasteners. Typically, they consist of a binder/resin in which anodic metal pigments (mostly Zn and Al) are added to form an effective long-term protection. The process works in steps by doing a dip-spin-bake two or three times. After immersion in the heated resin, the fasteners are spun in a centrifuge to remove excessive materials. A curing/hardening is then performed in special "ovens" at

a temperature in the 200-300°C range. The baking temperature is well below where the steel can be tempered or annealed. In the last dip-spin-bake cycle, color pigments and lubricants (like PTFE polytetrafluorethylene) can be added. This way the fasteners can be color coded both for aesthetic and practical reasons. The addition of the solid lubricant means a low friction coefficient in a very narrow scatter range. This will mean a relatively limited amount of torsional stresses in the fastener when tightened and also a better controlled preload.

Since there is no hydrogen involved in the coating processes, it can be safely used even for the highest property classes without risking hydrogen embrittlement. The time to red rust in salt spray testing is also much longer than for the electrolytically applied platings, where 24, 48 and 96 hours may be the limits. With the modern coatings 500-1000 hours are typical.

Some coatings may require a little more "living space" than the regular electrolytic plating, but the initial problems with thread tolerancing are for all intents and purposes solved. The modern coating technology is, in my opinion, the future of fastener protection. Collect the latest product information from the companies in this field, a lot of new things happen all the time. 



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### WHAT TO LOOK FOR IN AN ASSISTANT MANAGER *continued from page 94*

#### *Desire to be a general manager someday*

Today's assistant manager is potentially tomorrow's general manager. Someone who is content "just to be an assistant manager" without fervently aspiring to become a general manager someday, is, generally speaking, not someone who most general managers would want on their senior management team. (Yes, there are always exceptions.)

#### *Passion and enthusiasm for the industry*

Successful assistant managers are those people who genuinely love their work and the particular industry they are in. It is, simply put, "in their blood." Hall of Famer Ernie Banks of the Chicago Cubs reiterated throughout his illustrious major league career that he would have gladly played baseball even if they never paid him a cent.

#### *A willingness to be creative*


The truly successful assistant manager is someone who is willing to think outside the proverbial box. Better yet, her or she doesn't think about boxes at all. A common shortcoming of newer assistant managers is

that they are, on occasion, too rules-oriented and/or too rigid. "Industry-specific sense" (i.e., common sense applied to a particular industry) comes to most assistant managers over time, especially when they are working for a mature, supportive, and nurturing general manager.

#### *An interesting person*

Finally, truly successful assistant managers are not one-dimensional.

They have creative, fulfilling personal lives and myriad interests and activities independent of their work. Nerds may be particularly good at the specific tasks they perform, but seldom do they rise to positions of real leadership within a company, particularly that of assistant manager and/or general manager.

Whatever one's business, hiring the right assistant managers can only increase the likelihood of long-term success for all concerned. Better yet, top assistant managers make the workplace more enjoyable - and when people truly love their work, productivity, customer satisfaction, and profits all naturally increase. Locating, attracting, hiring, and mentoring the right assistant manager is well worth the effort. 

**hiring the right assistant managers can only increase the likelihood of long-term success for all concerned.**

**INTERFAST, INC.: PROVIDING SUPERIOR SERVICE TO CUSTOMERS** *continued from page 208****Distribution and Supply Chain Management***

In today's highly competitive market, gaining an advantage by lowering costs and improving efficiencies, without sacrificing quality or service, is a key differentiator.

Fastening elements generate high costs in logistics, which can lead to material handling and administration costs. Product costs of "C" parts (fasteners) typically account for only 20 per cent of the total costs of a fastening application, with up to 80 per cent spent on logistics and technical costs. Hidden or installed costs can include invoice costs, acquisition costs, monitoring inventory levels, shipping, handling costs, inspection, stocking, installation costs and out-of-stock situations. Any savings achieved in logistics and technology reduces the overall costs of a fastener application and ultimately the total costs of the end product. Industry experience has shown that these costs can be reduced by 50% or more.

Interfast has a demonstrated track record of helping companies optimize their operations, lowering materials handling and administration costs while maintaining component traceability, improving responsiveness to shifts in supply and demand, and eliminating hidden costs. It's expertise in vendor managed and customized inventory management services, along with their unique problem-solving capability, have earned the trust, support and long-term commitment of customers worldwide.

In addition to taking a customized approach to helping customers manage their supply chain issues, Interfast offers the following value-added services:

- Customized Inventory Management System (CIMS™) – Using bar coding and other automated inventory management techniques, Interfast designs and implements inventory management systems that are tailored for each customer's production line schedule, often in kitted parts. This service relieves customers of the need to carry and manage their parts inventories.
- Vendor Managed Inventory – Customers hand over the everyday tasks of sourcing, ordering, delivery, quality control, warehousing and maintaining safe levels of back up stock. OEMs are learning that by supplying Interfast with inventory and buying data upfront, Interfast is able to successfully turn what used to be unpleasant tasks into a successful and efficient replenishment process.
- Custom Kitting Service - The provision of kits reduces storage requirements, simplifies product assembly and further reduces handling costs. From sourcing, inspection, packaging, bar-coding labelling, all while maintaining complete traceability, complex kits of parts can be delivered to each production stage either on demand or to a manufacturer's build program.

- Integrator / Subassembly / Super Kitting – Subassembly capability results in lowering manufacturing costs and improves production time. Interfast manages the assembly of its own supplied parts as well as components directly produced by the customer (or sub contractors) and deliveries can be made to match production schedules. This can be accomplished while maintaining one subassembly and individual component traceability.

As an engineering oriented and customer-driven company, the Interfast Quality Management System is registered under ISO 9001:2000 + AS 9100B and FAA-AC00-56, Rev. A, dated June 13, 2002, whose quality system complies with most OEM manufacturers. Interfast holds a Transport Canada approval, which is recognized globally. For a full list of certificates and approvals, visit <http://www.interfast.ca/certificates>.


***Expanding its reach***

In 2009, the company established a physical presence, launching a new European division in England operating under the name Interfast Europe Ltd. This is viewed as an important step in taking European operations to the next level.

In the United States in 2010, Interfast significantly expanded its Miami operations, establishing a warehousing distribution facility to augment its existing marketing and sales functions.

Interfast also recently opened an office and distribution facility in Los Angeles to accelerate delivery time to customers in the aerospace community and to improve the efficiency of shipping material to customers in Asia. The company has made significant inroads in servicing the rapidly growing aerospace sector in China, Japan and other parts of Asia.

In addition to these offices and its Toronto, Canada headquarters, Interfast also has offices in Montreal, Calgary and Vancouver, a forward stocking location in Seattle, as well as representatives in China and other parts of Asia and Europe.

Since its inception in 1966, Interfast has focused on delivering on a simple mission, to provide value-added products and services to customers with quality that meets or exceeds their expectations, while serving as a pre-eminent distributor of precision fasteners and advisory services to customers worldwide. This has enabled Interfast to become one of the leading industry experts in sourcing and in advising customers on the specific precision fasteners, fittings, components, and hardware required to meet their requirements. 





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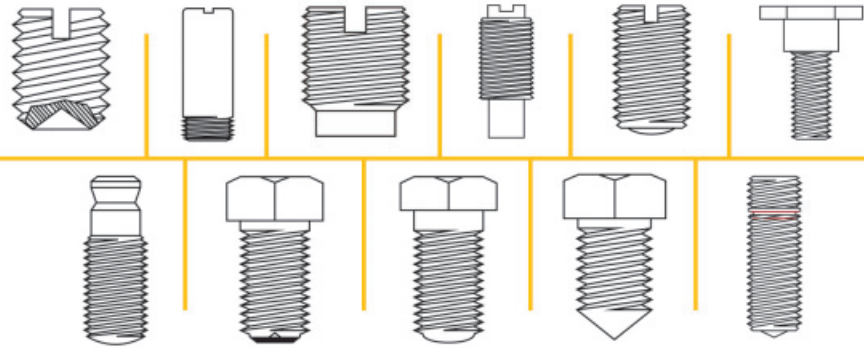
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Bill has been with ND Industries now for 23 years and they have been most rewarding, as he moved from Sales Manager to Assistant Division Manager and finally Division General Manager. With constant new product innovations and new types of equipment being developed there are always new challenges and new things to learn. In 1998, after 25 years and many expansions, his division outgrew its original location in Wyckoff New Jersey and they ended up setting up shop just one block from Pat's office at Kanebridge Corporation in Oakland.

We have both been very lucky in our careers, especially in that we get the chance to work and travel



together in an industry that we did not suspect even existed back in our high school days. We look forward most to our visits with all of our friends and associates at the N.E.F.D.A. meetings, golf-outings and week-ends. We have our home in the small town of Highland Lakes, New Jersey, which is located in northwestern Sussex County. This little known area of the state is home to many parks and forests, resulting in an interesting mix of native black bear, bobcat, coyote,

large herds of deer and flocks of wild turkeys. In our spare time we enjoy golf, gourmet cooking, swimming, exercise, gardening, ballroom dancing and hiking and agility classes with our dogs, Reggie, Reagan and Barney. We are both Board members for the MFDA and are members of a non-profit group called D.O.G.S. of Vernon. 

**WIRE MANAGEMENT 201: HEAT SHRINK TUBING** *continued from page 102*

In addition to our standard Polyolefin shrink tubing, we also have other materials available via special order for unique applications. Following are other materials that can be provided:

**PTFE (Polytetrafluoroethylene)** - Characterized by a wide operating temperature range (-55°C to 175°C) and providing a high resistance to chemicals and punctures, this material is typically clear or translucent.

**Viton** - Highly chemical resistant, Viton is widely used in hydraulic equipment. It is highly flexible with a very high operating temperature of -55°C to 220°C making it suitable for protecting sensitive devices against heat.

**PVDF (Polyvinylidene Fluoride)** - This material is most effective for applications requiring high temperature performance, outstanding abrasion and cut-through resistance, or superior chemical and solvent resistance. Cable Tie Express "TTW150" and "TTW175" series are made of the PVDF material.


**Elastomeric** - Maintaining high flexibility even at low temperatures, this material meets stringent international specifications and has an operating temperature range of -75°C to 150°C. The material is resistant to many chemicals (including diesel and petrol) and provides good resistance to abrasion even in severe environmental conditions.

**Silicone Rubber** - This material offers excellent

resistance to scrape abrasion with a high degree of flexibility.

**PVC (Polyvinylchloride)** - This low-cost, economical heat shrink tubing is used for military, commercial, and industrial cable assemblies. It offers great electrical insulation, has a low shrink temperature and is very flexible. PVC also resists many chemicals, oils, sunlight, moisture, and fungus.

"We hope this quick review has peaked your interest in heat shrink tubing products" comments Char Cooper, President of Cable Tie Express. "We believe that 'knowledge is power' and are eager to support our distributor partners with opportunities to increase product and application knowledge as they seek to grow sales. In addition, we can also provide personal product and application training through seminars at our customer's facility, at our location in Indiana, or online. This focus truly adds that 'something extra' in addition to the quality products and unparalleled service levels we provide our customers. Our professional inside sales staff and our qualified outside sales agents are eager to field your questions with informative answers and additional data."

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- **Grade 8 Shaker Screen Bolts** Trinity's Grade 8 Shaker Screen Bolts (fully threaded Carriage Bolts) are available in stock in 3/8" to 3/4" diameters. Their square neck on shank is designed for use in square punched holes which prevents turning when the nut is tightened.
- **Grade 8 #7 Bucket Tooth Plow Bolts** Also new and in stock are the Grade 8 #7 Bucket Tooth Bolts in 3/8" to 1-1/2" diameters. These feature a flat, round, countersunk head with a single reverse key that prevents the head from turning.
- **Large Diameter Cap Screws, Nuts, and Washers** made in the U.S.A. Trinity Hardware Headquarters' Large Diameter Cap Screws are made in the U.S.A. and are stocked in Grades 5 and 8 in diameters of 1-1/4" and 1-

1/2" in lengths of 10" to 24". The Grade A354 BD Cap Screws are stocked in diameters of 1-3/4" and 2" in lengths of 10" to 24". Accompanying Hardened Flat Washers and Nuts are also available.

Hundreds of items are packed in smaller package quantities to meet today's fastener buyers' needs. Trinity can provide 1/8 keg and 1/4 keg configurations as well as additional value-added services such as custom packaging, kitting, subassembly, private labeling, drop shipping, and third-party logistics (3PL).

## Visit us in Las Vegas

Trinity Hardware Headquarters will be at the National Industrial Fastener & Mill Supply Expo on October 20-21, 2011 at the Sands Expo Center in Las Vegas, Nevada. Please stop by booth #827 and see Trinity's latest line of Large Diameter Fasteners, Grade 8 Carriage Bolts, and #7 Bucket Tooth Bolts. 

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## DISTRIBUTOR NEWS

**Craftline Storage Systems** is pleased to announce the release of their New (4) Drawer Bin Cabinet with removable plastic bins.



Four slide out shelves hold (24) 4" wide and (4) 8" wide black polystyrene bins. Each bin includes (3) adjustable dividers. The drawers slide in and out with heavy duty ball bearing slides and can support 100 pounds each. The cabinet measures 35.25"W x 12.5"D x 21"H and can be stacked or used with other Craftline modular storage products including fixed hole, "Scoop Front" bin cabinets, utility drawer cabinets and two door utility cabinets. Pre drilled wall anchoring holes in rear and side ganging holes to prevent tipping with heavy loads. Leg sets and heavy duty bases are also available.

For more information contact Craftline Storage Systems, P.O. Box 398, 70 Stoddard Avenue, North Haven, CT 06473. Toll free 800-505-9099, Fax 203-234-7978, send an Email to: [sales@craftline.us](mailto:sales@craftline.us) or visit them on the internet at [www.craftline.us](http://www.craftline.us).

## DISTRIBUTOR NEWS

**J.W. Winco, Inc.**, a leading supplier of standard industrial machine components, announced it now offers series AN 5672 Clamping Heads for Clamping Knobs or Screws, in metric and inch sizes.

The RoHS compliant clamping heads are available in nickel-plated brass or stainless steel, European Standard No. 1.4301 (American Standard Series 304). The fasteners are stainless steel, European Standard No. 1.4301 (American Standard Series 304).

These clamping heads are usually used in conveyor systems to affix adjusting rods. Typically mounted to a side bracket, they can be assembled where needed on the conveyor. An accompanying star knob AN 5662 is also available



J.W. Winco offers an extensive selection of inch and metric size adjustable levers, cabinet U-handles, plastic and steel hinges and locking mechanisms, revolving and retractable handles, hand wheels, hand cranks, tube connection and conveyor components, leveling mounts, hand knobs, spring, ball and indexing plungers, jig, fixture and fastening components, retaining magnet assemblies, toggle clamps, metric casters and wheels, universal joints, oil sight glasses, and metric tools for the industrial and commercial equipment industries.

For more information, contact J.W. Winco at 800-877-8351, by fax at 800-472-0670, on the Web at [www.jwwinco.com](http://www.jwwinco.com), and via e-mail at [sales@jwwinco.com](mailto:sales@jwwinco.com).



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## CUSTOMERS FOR LIFE

The most successful companies place great value on developing lifetime relationships with their customers. In today's competitive marketplace, they are aware that their customers are aggressively prospected and their loyalty cannot be taken for granted. Customer focused companies recognize that relationship building and follow on service are critical components for promoting both customer retention and revenue growth.

### ***First Build a Relationship***

Today we have access to innovative tools such as the Internet, cell phones, faxes, and voicemail all designed to enhance our communication. Nevertheless, even with all of these technological tools at our disposal, the alarming number of dissatisfied customers, lost sales and failed relationships all reflect the fact that none of us are as effective at communicating as we would like to believe.

Temperament understanding helps to foster effective communication. Research in the field of human psychology indicates people are born into one of four primary behavioral styles: aggressive, expressive, passive, or analytical. Each of these four temperament styles requires a unique approach and communication strategy. For example, if you are working with the impatient, aggressive style, they want a quick fix and a bottom line solution. Under pressure they can be ill tempered and quick to anger. Give them options so you don't threaten their need for control. Don't waste their time with chitchat - stick to business. While at the other extreme, the stress-prone analytical style requires more information and is interested in every detail. Their cautious and analytical nature makes them susceptible to buyer's remorse. Be sensitive to their need for reassurance and guarantees. Once you learn how to identify each of the four primary behavioral styles you will be able to work more effectively with all of your customers.



### ***Communicate Effectively***

Recognize the importance of nonverbal communication and learn to "listen with your eyes." It might surprise you to know that research indicates over 70 percent of our communication is perceived nonverbally. In fact, studies show that body language has a much greater impact and reliability than the spoken word.

Create a favorable first impression and build rapport quickly by using open body language. In addition to

smiling and making good eye contact, you should show the palms of your hands, keep your arms unfolded, and your legs uncrossed. You can develop harmony by "matching and mirroring" your customer's body language gestures. Matching and mirroring is unconscious mimicry. It is a way of subconsciously telling another that you like them and agree with them.

Improve your active listening skills. To develop and encourage conversation, use open-ended questions to probe the meaning behind your prospect's statements. Occasionally repeat your prospect's words verbatim. By restating their key words or phrases you not only clarify communication, but also build rapport. Keep your attention focused on what your customer is saying and avoid the temptation to interrupt, argue, or dominate the conversation.

### ***Little Things Make a Big Difference***

Rendering quality customer service is both a responsibility and an opportunity. Often salespeople view customer service as an administrative burden that takes them away from making a sale. The truth is that customer service provides opportunities for cross-selling, up-selling, and generating quality referrals.



## DISTRIBUTOR NEWS

**Bay Fastening Systems**, the long-time leader in blind riveting and engineered fastening systems distribution, today announced the hiring of Michael Eichinger in the newly created role of Vice President, Chief Operating Officer.

In this role, Mr. Eichinger will be responsible for charting the course for continued growth across all of Bay Fastening Systems business segments including fasteners, rivets, tools and service. He will also drive process efficiencies throughout the organization.

Mr. Eichinger comes to Bay Fastening Systems with over 20 years of experience in operations management, sales and marketing, having successfully built several companies from the ground up in the manufacturing and business services industries. He was most recently President and CEO of Granite Industries, Inc.

"Michael has a proven ability to lead companies through effective growth stages," said Clifford Bernard, president of Bay Fastening Systems. "As we approach our 50 year anniversary, we believe Michael is the ideal choice to help us navigate the future and expand in innovative ways that will continue to enhance our customers' experience with Bay," added Bernard.

For more information about Bay Fastening Systems, visit them on the internet at [www.bayfastening.com](http://www.bayfastening.com) or [www.bayrivet.com](http://www.bayrivet.com).

## DISTRIBUTOR NEWS

**Sherex Fastening Solutions** announces the launch of RIV-FLOAT® -SHORT. Ensure easy, accurate, and fast attachment of components in off center applications with the new, innovative, addition to the RIV-FLOAT® family; RIV-FLOAT® -SHORT.

These rivet nuts were developed for use in applications such as replacing riveted nut plates in aircraft interiors. The RIV-FLOAT® -SHORT was developed for applications requiring backside clearance similar to cage nuts & riveted nut plates. The new RIV-FLOAT® -SHORT has all the features & benefits of the original RIV-FLOAT® including knurls which increase spin out resistance in soft materials. RIV-FLOAT® is the next generation of fastening technology that was designed for post installation in applications where cage nuts, clinch nuts, floating nut plates or weld nuts are typically used.

This innovative family of rivet nuts is RoHS compliant and can provide higher thread strength than regular rivet nuts. These breakthrough rivet nuts are installed with the new hydro-pneumatic rivet nut tool Sherex has launched, The SFS FLEX Tool. Automated installation systems with process monitoring/control are also available for the RIV-FLOAT®, RIV-FLOAT® -SHORT and the full line of Sherex fasteners.

For additional information on our innovative rivet nuts including a demo video & specific sales print, visit [www.sherex.com/riv-float.html](http://www.sherex.com/riv-float.html).

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## NATIONAL FASTENERS DISTRIBUTORS ASSOCIATION

# NFDA's NEW STRATEGIC DIRECTION AIMS TO UNITE FASTENER INDUSTRY AND DELIVER GREATER VALUES TO MEMBERS

If you haven't taken a look at the NFDA over the last year or two then you should, you will probably be surprised. The association has been making significant changes to its operating model and strategic plan. The new tagline "Your Partner for Long-Term Growth" sums up the NFDA's focus on holding events, providing insightful information and educational opportunities that help our members' grow their business.

One of the most significant changes we've made has been to our conference strategy. NFDA has historically offered two meetings per year; one in the Spring held at a resort location and one in the Fall held in Chicago. This was a very successful model for many years, but as the demands on our members' time and money have grown we started to notice a drop in attendance at our events.

When the NFDA reached out and asked why fewer people were attending the events we were frequently given one of the following reasons:

*"Our company has already committed to participate at another event that month, we can't make two..."*


*"I can't afford to be out of the office, we're too busy right now..."*

*"We can't afford to spend additional money on attending events right now..."*

Since there are so many industry shows going on at any given time and the economic realities have caused all companies to look more closely at expenditures, NFDA has listened to our members and taken steps to reduce the number of trips our members make during the year by co-locating our Fall Forum with the National

Industrial Fastener and Mill Expo (NIFME) show in Las Vegas. Given that most NFDA members attend the NIFME show anyway it is easier for them to come in a day early and attend our NFDA specific events than it is to make an additional trip to Chicago within the same month. The efficiencies of co-locating with the NIFME have also allowed NFDA to be conscious of our member's pocketbooks by offering a high-caliber event at the reduced cost of \$295.

Perhaps the biggest change in our conference strategy has been made to our Spring Event. The Spring 2012 NFDA Meeting will be the first to include a tabletop show and private meeting rooms at our Spring conference. The 2012 meeting will be a hybrid of past Spring Meetings and our successful Fall City Meeting and ESPS sessions. The location will still offer a resort feel and amenities such as golf, tennis, horseback riding, wine tours, etc., but it is more conveniently located just over 30 minutes from downtown Atlanta. In addition to the savings that will be realized on airfare the hotel room rates will also be more economical than at our typical Spring Meetings. NFDA wants to create an event that will allow the option for those who can only come for business to arrive and depart easily leaving little time away from the office while at the same time providing those that want to make a vacation out of the trip time to enjoy a beautiful winery in the Appalachian foothills of GA.

NFDA has taken the first step in what we believe to be a much needed and long overdue correction in the fastener industry. NFDA looks forward to the future and truly being "Your Partner in Long-Term Growth. Join us at the 2012 Spring Meeting in Atlanta to experience our new format that provides the greatest return on your investment. You'll want to be a part of what the NFDA is planning next! 



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## SELLING IN A TOUGH ECONOMY

### *How To Distinguish Yourself from the Competition*

One dreaded statement from a sales prospect could make a salesperson turn pale. "Is this your best deal?" "I've interviewed a couple of your competitors and they are willing to sell for less. Thanks, but we want to shop around before we make a decision."

How many of us have recently heard, "Our business has been so good for the past five years we haven't felt a need to do any sales training, but things are different now and we need help!" In today's market of intense competition and constant margin pressure, this scenario continues to replay itself.

When not prepared for the price resistance seen in tough market conditions, a weak salesperson stammers with a poorly thought-out response like, "Well, let me see what I can do."

Is it really about price or is it value? Let's consider some solutions.

### **What is value anyway?**

The truth is value, like beauty, is quite subjective. It is, indeed, in the eye of the beholder. It is incumbent upon every sales professional to find out exactly what the prospect values. Be sure to lead with your ears and ask the questions that reveal what your prospect actually values. The prospect's definition of value is more important than yours.

In tough markets we need to learn to sell value by differentiating all of our deliverables. The degree to which we are perceived as different from and better than

the competition is critical today.

To decision makers, salespeople often appear to offer just about the same products and services. Your prospective customers may be busy commoditizing your solution, in which case you must be busy differentiating it. The bottom line is this: Unless you can create a powerful and distinct difference to the customer, you are not going to stand out from the crowd.

So the question is: "How do I separate myself and our offerings from the competition?" The answer: You've just got to be different - really different. And it's not always about price!



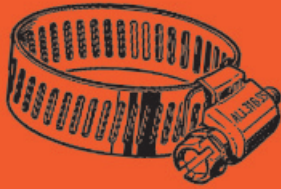
### **Seven Ways to Differentiate Yourself from the Competition**

1. Product Differentiation: How is your product or offering different from or better than your competitors'? If you can't come

up with some solidly unique components, you may be in danger of being perceived as just another commodity. Here's a strategy: Now that you know what your prospects value, perhaps you and others within your company can make product enhancements a major initiative. The collective intellect of this group might well be able to create something unique about your product or service; then creatively exploit every aspect of the difference and tie it into what the prospective customers told you they wanted. Your goal is to come up with both UCAs (unique competitive advantages) and RAs (relative advantages).



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### CUSTOMERS FOR LIFE *continued from page 218*

Customers describe quality customer service in terms of attention to detail and responsiveness. Customer satisfaction surveys consistently point to the fact that the little things make a big difference. Not surprisingly, the top two customer complaints with regards to customer service are unreturned phone calls and a failure to keep promises and commitments. Make an effort to see yourself through your customers' eyes. True customer service is meeting and surpassing your customers' expectations.

Successful salespeople "go the extra mile" when providing service and turn the customers they serve into advocates to help them promote their business. Your referrals and follow on business are in direct proportion to the quality and quantity of service you render on a daily basis. Want more referrals? Improve your service!

### *Here are five powerful customer service tips*

1. Under-promise and over-deliver. Develop a reputation for reliability; never make a promise that you can't keep. Your word is your bond.


2. Pay attention to the small things. Get in the habit of returning phone calls, e-mails and other correspondence quickly. Follow up, follow up, and follow up.

3. Stay in contact and keep good records. Take the

time to jot down notes from meetings and phone calls making certain to record all relevant information. Maintain a written record of service. This is especially helpful when clients are reassigned to new agents. Setup a suspense system to track important contact dates such as client review calls and birthdays. Consider sending a personal note or an article of interest every six months.

4. Give your customers a promotional gift. Consider sending them a letter opener, coffee mug, or a calendar with your picture and contact information.

5. Establish a feedback system to monitor how your customers perceive the quality and quantity of the service you provide. Service is not defined by what you think it is, but rather how your customers perceive its value. When it comes to customer service, perception is reality.

Progressive companies emphasize commitment to customer service from the top down by establishing training standards and continuously monitoring customer satisfaction. Companies that fail to implement an effective customer service program actually do a disservice to their customers and unknowingly, leave the backdoor open to their competitors. If you do it right, sales and service blend seamlessly and you will exceed your customers' expectations! 

**SELLING IN A TOUGH ECONOMY - HOW TO DISTINGUISH YOURSELF FROM THE COMPETITION** *continued from page 222*

2. **Price Differentiation:** Unsophisticated marketing and sales people often think the best way to get business is by under pricing everybody else. Thin margins have put more companies out of business than any other single factor. If the boss chooses to go to market as the low-price provider, your company better have every expense category cut to the bone, including sales commissions, or it will perish in short order! This might be your worst avenue of approach in trying to build a viable long-term enterprise.

3. **Relationship Differentiation:** Harness the power of relationships and lock out the competition, regardless of the marketplace. If there is a solid relationship between you and your clients based on high trust, you have an inside track of tremendous value. This environment will make you the envy of your competitors, and your client may not even give your competitor a chance if the relationship is strong enough.

Build trust with a solid, high-integrity win-win approach by exceeding their expectations and being a valued resource in every conceivable way. Be prepared to earn their trust, which takes time, planning and perseverance. Be impeccable with your word from the get-go and implement a communication process that continues to keep you and your clients connected.

4. **Process Differentiation:** Many companies don't attach enough significance to the processes that dictate the image of their business model. The "We've never done it that way" syndrome bites companies in the backside when they don't give innovative thought to their business practices. Get your best minds together and brainstorm better, more customer-friendly out-of-the-box ways to do business. Remember that how business is conducted changes every day due to globalization, e-commerce, the Internet, ever-changing buyer behavior, and new software and technology platforms. Capitalize on innovation rather than being a victim of it!

5. **Technological Differentiation:** This age of modern technology affords many opportunities to advance our ways of operating and communicating. These new modes of communication encompass a wide variety of options, from using podcasts to update customers or address customer-sensitive issues to a


blog that provides "voice" and interface to "hear" from your customers that results in your prospects better understanding updates, changes and timely buying opportunities. Cardinal rule: Make it easy for the customer to communicate and buy.

6. **Experiential Differentiation:** Many people believe the country is in an "experience economy." Can you provide customers with knock-your-socks-off service and experiences that are so memorable that they start telling their friends and colleagues? Customer service miracles are anything you can do to make a customer say "Wow!" Ask yourself, "How can I make doing business with me an irresistible experience?" Your goal should be to create not only a brand but a service experience that is terrific!

7. **Marketing Differentiation:** Give careful thought to how you go to market. If you can outsell your competitors, you will be on your way to gaining market share. Determine ways to create a distinction in your sales and marketing approaches that support setting you apart in your marketplace. If

your sales process is so compelling that your prospects see you and your offering as irresistible, it renders your competitors irrelevant!

Remember, people will always pay for expertise and do business with those individuals they know, like and trust! When trust is high, stress levels go down and vice versa, which is why high-pressure tactics really don't work anymore.

In conclusion, revisit the original price objections mentioned at the beginning. Your goal should be to transition your prospect from a discussion on price to a discussion on the differentiated deliverables you offer. When the prospect asks if that is your best price, you should be able to say, "Mr. Bradley, it is very easy to simply focus on apparent price rather than actual cost. I would ask that you give me a few minutes to allow me to distinguish between our product offerings and those of our competitors. We have engineered some significant advantages for you that are unique to the marketplace." After getting his permission to continue, you should go into your differentiated advantages, building the value of your solutions in light of his expressed needs. Good luck and good selling! 

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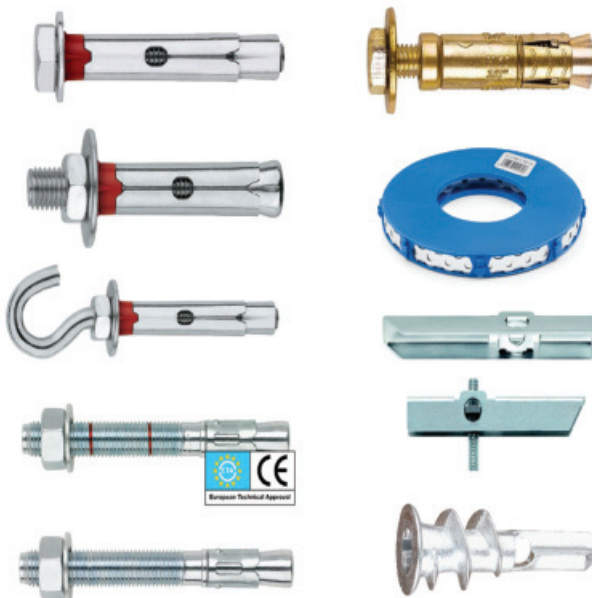
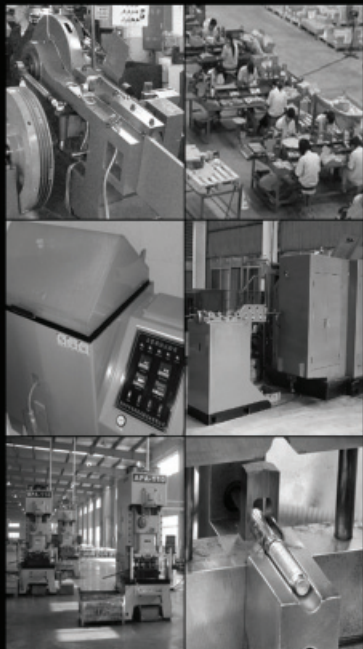


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## WHAT'S A PROFESSIONAL SALESPERSON?

I often hear my clients lament that they wish they had a more professional sales force. That idea of a "professional sales force" gets a lot of conversation in sales management and sales executive circles. But what exactly does it mean? And why is it a good thing?

### *Here's one person's opinion.*

First, let's eliminate those things that don't matter. There are a number of misconceptions about the attributes of a professional sales person that center around the externals of a sales person's situation. For example, being a professional sales person has absolutely nothing to do with the product or service the sales person sells.

I have met very professional sales people who have sold some of the strangest things imaginable. In almost every open-enrollment seminar that I present, I come across someone who sells something that I have never even heard of before. In my own experience, for example, I have sold cake mixes, men's shoes, men's suits and underwear, surgical staplers, sophisticated amplification equipment for hearing impaired children, business opportunities, life insurance, catheters, hand soap and yes, even sales people (as a sales recruiter), to name just a few.

### *Here's another irrelevant external issue.*

Being a professional sales person has nothing to do with the folks to whom you sell. There are people in this country who sell something to every single job description and organization imaginable. Some of the

customer types to whom my clients have sold include farmers, both crop growers and live stock growers; tool and die shops, tier one, two and three automotive suppliers; schools at every level, and government agencies of all kinds; the military, grocery stores, restaurants, convenience stores and retailers of every kind; contractors of every ilk, including electrical, mechanical, HVAC, plumbing; builders both residential and commercial, etc. I could go on and on, but you get the picture. In each and every one of these industries, there are professional sales people.



Being a professional sales person has nothing to do with the company for whom the sales person works. There are thousands of independent representatives in this country, for example, who work for themselves. Other sales people work for small family-held businesses, others work for large multi-nationals. Thousands sell for the distributors; tens of thousands

sell for retailers of every possible thing; more thousands sell for manufacturers and service providers of every type. Professional sales people are sprinkled throughout every one of these business types.

Finally, being a professional sales person has nothing to do with how long he's been at it, his educational background or experience level. I have encountered many sales people who have been selling for over twenty years, for example, who don't come close to fitting into the mold of a professional sales person. On the other hand, last week, I met a 21 year old, in his first sales job, who was very professional.

I have met professional sales people who had only a





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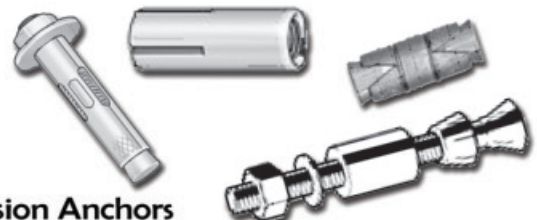
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**WHAT'S A PROFESSIONAL SALESPERSON?** *continued from page 226*

high school degree, and many with college and post-graduate degrees. None of these things, which are external to the sales person's character, matter.

Now that we've eliminated the things that a professional sales person is not, let's look at the other side and examine the marks of a professional sales person. "Professional" is the name we choose to put on a certain set of character traits and attitudes that reside inside a sales person a certain set of character traits and attitudes that reside inside a sales person.

### ***1. A professional sales person is proud to be a sales person.***

Can you imagine a doctor who is embarrassed to admit that he is a doctor? Or a nurse who covers up that fact? A teacher who doesn't want anyone to know what he does for a living? A firefighter ashamed to admit it? A lawyer who pretends to be somebody else? (Well, ok, maybe on this one.)

You see, in every profession, the members of that profession are proud to be a part of it. Amazingly, that is not the case with the majority of sales people.

They don't like to think of themselves as sales people. Instead, they make up other terms. They are account executives, product specialists, customer liaison agents, mobile customer service representatives, to name a few.

On the other hand, the professionals understand the challenging nature of what they do for a living, the importance it has for their families, their companies and the economy as a whole. The work of the average sales person in this nation supports four other families within the organization. They are proud of that and proud to be sales people.

They don't hide it or apologize for it, they revel in it.

### ***2. A professional sales person likes his job.***

Not only are they proud to be sales people, but they like being sales people. They like the freedom and autonomy they have on the job, and they relish the responsibility that comes with that. They thrive on the customer contact, and are energized by the constant challenge. They get a high from closing a big or difficult sale, and aren't afraid to celebrate those successes.

That doesn't mean that they relish every aspect of every job. I've had a sales manager, for example, that I was embarrassed to introduce to a customer. I've sold products that didn't excite me, and worked for

companies whose management styles and cultures left me looking for something else. In all of these negative situations, though, I never disliked what I did.

### ***3. A professional sales person believes he is a professional***

He doesn't see what he does for a living as just a job. He understands that it is one of the most fundamental and important functions, not only in his company, but in the economy in general. He realizes that he touches and influences hundreds, if not thousands, of people, that his work supports and enables a number of other families, and that he represents much of the visible face of the company that employs them. These are serious responsibilities, and the professional sales person understands that to do this well, he must see himself as a professional.

### ***4. A professional sales person continually invests in his own development.***

Over the twenty plus years that I have been training sales people, educating sales managers and working to transform sales organizations,

I have stumbled upon an observation which bothers me every time I communicate it. It's this: Out of a group of any 20 sales people, only one has invested \$25.00 of his own money on his own development and improvement in the past 12 months.

The non-professional sales people don't think it's their responsibility to improve themselves. They won't buy a book, or attend a seminar without their bosses paying for it and requiring it of them. To them, it's just a job.

The professionals invest in themselves. Since they see themselves as professionals, they understand that they must constantly and continually "sharpen the saw." They buy the books, get the newsletters, attend the conferences, listen to the podcasts, etc.

Can you imagine your CPA, as he delivers your tax return, mentioning that he hasn't spent any time updating himself in years? Or the doctor, as he goes into surgery to work on your spouse or child, off-handedly tossing off the fact that "it's been years since he bothered to take a class or upgrade his skills."

These seem like silly examples. But most sales people (95 percent) don't bother to take the initiative to upgrade their skills and develop their competencies. Only the professionals do.

**... professionals understand the challenging nature of what they do for a living, the importance it has for their families, their companies and the economy as a whole**



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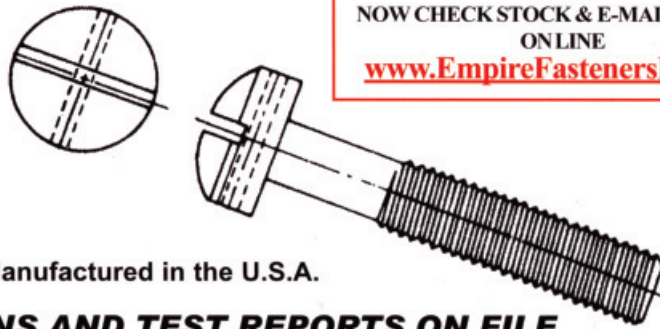
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#### WHAT'S A PROFESSIONAL SALESPERSON? *continued from page 228*

**5. A professional sales person always acts with the best interests of his company and his customer above his own.**

There is, resident in the psyche of every professional sales person, an obligation to "serve." Ultimately, the professional sales person does serve two masters: his customers and his company. A professional understands that the sales he makes are the tangible expressions of win/win solutions for the customer as well as profitable transactions for his company.

The professional will not "push" an inappropriate solution onto a customer, just to make a sale. He's in it for the long term, understanding that his reputation as a professional is worth far more than any individual deal. "Integrity" is the overriding personality trait, and adherence to a strict code of ethics is the specific expression.


The unprofessional sales person sees his company's management as, under the worst scenario, the enemy with whom to contend, and under the best, as a somewhat less than competent irritant to be tolerated. The professional understands that he is an employee of the company, and has a responsibility to nurture the company's interests. He is mindful of his need to provide a return on the company's investment in him,

and seeks continually to increase his profitability to his employer.

**6. A professional sales person recognizes a responsibility that is larger than just the job.**

A professional sales person, by virtue of the demands of his job, naturally develops exceptional "people" skills. He knows how to get things done, and how to work effectively with a variety of people. These are skills that are helpful in his communities as well as his position. Since he's a professional, he invests some of his time in the larger community, serving on boards and task forces, coaching the elementary kids, adding his input to PTO meetings, etc. He gives a portion of his income to those less fortunate than himself.

He understands that he is one of the world's more fortunate individuals and accepts the responsibility to pay it forward. I once heard this expression: "Service is the rent you pay for the position you occupy in society." Professional sales people occupy a favored position, and accept their responsibility to pay the rent.

A professional sales force is an incredibly valuable asset to any organization, and the acquisition and development of a professional sales force is one of a businesses greatest accomplishments. 



## Richard Weinblatt

*Dr. Richard Weinblatt, The Cop Doc, is a former police chief, excriminal justice professor, and past police academy director who is an expert on police, crime, and safety topics. A speaker and book author, Dr. Weinblatt regularly writes articles and has been interviewed in the media including CBS News, CNN, MSNBC, and The Washington Post. To find out more or to contact Dr. Weinblatt, visit [www.TheCopDoc.com](http://www.TheCopDoc.com).*

## SOCIAL MEDIA IN THE WORKPLACE: *Tips to Protect Your Employees*

There are many stories out there already, which any manager will share when complaining about their employees. There is the one with the salesman who scans Twitter for hours. And then there is the employee who harasses a co-worker several cubicles down from him by hijacking her Facebook account and then posting harassing comments. And of course there is the ubiquitous case of the worker that slams the employer on LinkedIn and is fired, thus exacting a morale-busting toll on the employee, the workplace, and the organization.

From a work-place distraction to conduit for stalking, harassment and other criminal activity, the rise of social networking has its supporters and its detractors. While some lament the greater bandwidth demands, virus/Trojan infiltration, and social engineering (identity theft) issues that can pummel a company's computer network and employees, along with sapping of productivity and channel for co-worker harassment, others point to the teamwork and mental break productivity enhancement outcome.

While initially scrutinized by law enforcement agencies with hopeful candidates who hope to be a badge bearer, employers have now embraced its usefulness as a method of assessing the true character and traits of aspiring employees. On the flip side, for some enterprises, the ever expanding world of Facebook and their ilk has encroached into the workplace with devastating professional and personal consequences.

But can the likes of Facebook, Twitter, LinkedIn, and FourSquare be used in the workplace in a way that doesn't expose supervisors and employing organizations

to moral and legal liability? Can the anonymity-germinated freedom of the Internet that workplace bullies, would be Lotharios, and just plain lazy folks are emboldened by be controlled and channeled into worker productivity? The answer is a resounding yes.



While the concept of social networking is a relatively new and recent technological manifestation, other forms of technology have long dotted the desks and shared the cubicles of workers. The phone, the fax, and the copy machine are but three examples of other technologies that could, at least to some extent, be abused by the lazy up to the

downright criminal worker.

The main key for supervisors and executives is to recognize the uses and abuses facilitated by the innovation and what steps should be taken to control the relevant actions.

***Here are a few tips that you can implement in your enterprise today:***

### ***Have Clear Policies.***

Very specific policies need to be in place, which govern the usage of the Internet and social networking sites. While some organizations may find it easier to just ban their access altogether, this is akin to throwing the baby out with the bathwater. A middle of the road approach is probably more appropriate for most employers. Have them sign for those policies indicating that they have read, understood and had the opportunity to ask questions.



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


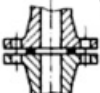





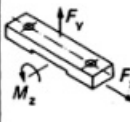
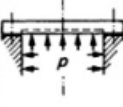
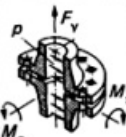


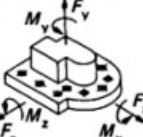
Single-bolted joint		Multi-bolted joint						Bolted joint
Concentric or eccentric		In a plane	Axial symmetry			Symmetrical	Asymmetrical	Bolt axes
Cylinder or prismatic body	Beam	Beam	Circular plate	Flange with sealing gasket	Flange with plane bearing face	Rectangular multi-bolted joint	Multi-bolted joint	Joint geometry
								
								Relevant loads
Axial force $F_A$ Transverse force $F_Q$ Bending moment $M_B$	Axial force $F_A$ Transverse force $F_Q$ Moment in the plane of the beam $M_z$	Axial force $F_A$ Transverse force $F_Q$ Moment in the plane of the beam $M_z$	Internal pressure $p$	Axial force $F_A$ (Pipe force) Bending moment $M_B$ Internal pressure $p$	Axial force $F_A$ Torsional moment $M_T$ Moment $M_B$	Axial force $F_A$ Transverse force $F_Q$ Torsional moment $M_T$ Moment $M_B$	Axial force $F_A$ Transverse force $F_Q$ Torsional moment $M_T$ Moment $M_B$	Forces & moments
VDI 2230		Limited treatment by VDI 2230		DIN 2505 AD Note B7 VDI 2230	Limited treatment by VDI 2230			Calculation procedure
Beam bending theory (VDI 2230) with additional conditions		Plate theory			Limited treatment using simplified models			
Finite Element Method (FEM)								

Figure 1. Outline of the Bolted Joints

From an evaluation of previous theoretical and experimental work the mechanics of the joint geometry shown in Fig. 1 can be described in the following way.

1. Mechanics of the cylindrical single-bolted joint (geometry (1)).
2. Mechanics of the beam connection (geometry (2) and (3)).
3. Mechanics of the circular plate (geometry (1)).
4. Mechanics of the rotation of flanges (geometry (5)).
5. Mechanics of flanged joints with plane bearing face (geometry ((6), (7) and (8)).

From an understanding of the actual design of the joint being considered, the design engineer can select the most appropriate calculation method using the idealized models given.

### 3. Analysis of Force and Deformations

The working load on a bolted joint greatly affects the resilience of the entire joint. Therefore, optimum use of highly stressed bolted joints is only possible by means of thorough and exact consideration of the joint's state of forces and deformation. The behavior of forces and deformation in bolted joints is examined in the following terms:

- Elastic Resilience including the resilience of bolts and the resilience of superimposed clamped parts
- Load and deformation ratios for directly superimposed parts including the assembled state, the operating state, and special cases.

### 4. Calculation Steps

The calculation of a bolted joint is based on the external working load,  $F_B$ , acting on the joint. This working load, and the elastic deformations of the component parts which result, cause an axial force,  $F_A$ , a transverse force,  $F_Q$ , a bending moment,  $M_B$ , and in some cases a torque moment,  $M_T$ , at the particular bolt location. The generally difficult and large-scale analysis of forces and deformations, involved in the determination of these initial quantities, cannot be addressed by this Guideline because of the large variety of designs of components and bolted joints. These calculations must be made by means of elastomechanics. Only for simple symmetrical and relatively stiff joints, can the initial quantities be obtained by a simple analysis of the working load. The values  $F_A$ ,  $F_Q$ ,  $M_B$ , and  $M_T$  are subsequently assumed to be known.

In Section 4.1, the method with calculation steps R1 to R10 is specified, which should mainly be carried out as a preliminary assessment (draft-phase) of bolted joints. It is based on the elementary consideration of the linear dependence of deformations and stresses (linear rule  $\Delta l/l = \sigma/E$ ). In contrast, a non-linear relationship for clamp load eccentricity, dependent on  $F_V$  and  $F_A$ , is derived in Section 4.2, so that all the forces on a bolted joint under equilibrium conditions can be determined.



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### SOCIAL MEDIA IN THE WORKPLACE: TIPS TO PROTECT YOUR EMPLOYEES *continued from page 230*

#### Educate Employees

Make sure that employees, as well as supervisors, understand what is expected of them as far as social networking conduct within and when referring to the workplace. While you're at it, reinforce sexual harassment, related issues, and their relevant consequences even when they're taking place within the virtual world.

Employees that bash the workplace online can be heading to a headache-laden experience for everyone. While free speech and whistleblower protections exist, the laws vary from state to state. Employees may not be on as solid footing as they thought when confronted with some disparaging comments they posted online about the employer or a fellow worker.

Take steps to assure them that such online networking etiquette expectations are in place to protect them, as well as the company.

#### Take Technological Precautions


Be sure to keep one step ahead of the nefarious

forces of the Internet. Continuously updated anti-virus protection, mandatory changing of passwords on a temporal basis, and strong firewall protections are imperative to the smooth operation of your endeavor in the new social networking world. Web filtering systems are also available to enable the employer to restrict access based on a number of different options including time frame (such as breaks or lunchtime) or a time limit (such as one hour per day).

**From a work-place distraction to conduit for stalking, harassment and other criminal activity, the rise of social networking has its supporters and its detractors.**

#### Monitor Usage

Be able to monitor Internet usage and, in particular, social networking within the workplace. Be sure that employees understand that their computer interaction is being recorded. This oversight is vital as the company may bear civil or criminal responsibility for some actions of their employees.

The democratization effect of the technology has diffused communication channels and put more power in the hands of individuals. As said in Spiderman: "with great power comes great responsibility." Employers need to be properly suited up to fight the scourge of villainous social networking in the workplace. 

REVIEW OF THE APPLICATION OF GUIDELINE VDI 2230 USING SRI FOR PCs *continued from page 232*

#### 4.1. Calculation Procedure for the Basic Linear Case

For calculation of the required bolt dimensions, knowing the working load conditions, allowance is made for the following factors:

- A loss of preload,  $F_z$ , in service due to embedding.
- The assembly preload,  $F_M$ , is reduced in service by a proportion of the axial bolt force,  $F_{PA} = (1 - \Phi) F_A$ .
- To meet certain requirements, e.g., sealing functions, prevention of self-loosening, and prevention of one-sided opening of the interface, a minimum clamp load,  $F_{Kerf}$ , is necessary in the joint.
- Finally, allowance is made for the various levels of preload scatter, which will depend upon the assembly method. All of these factors are considered in the main dimensioning formula that forms the basis of the bolt calculation.

The assembly preload,  $F_M$ , in the bolt is a criterion for determining the bolt diameter.  $F_M$  is the load that, in combination with the thread friction torque produced during tightening, utilizes 90% of the minimum yield strength of the bolt. For a given material strength, the bolt will have clamp load,  $F_M$ , related to it, which is at least as high as the calculated maximum assembly preload,  $F_{Mmax}$ . For assembly, the tightening torque,  $M_A$ , is taken from Tables 1 to 4.

When the clamp load, together with the thread torque resulting from tightening, leads to a total stress which reaches 90% of the yield strength or 0.2% extension limit of the bolt material, the difference force,  $F_{SA}$ , resulting from axial force must not exceed  $0.1 R_{p0.2} A_S$ , so that the 0.2% extension limit of the bolt is not exceeded:

$$F_{SA} = \Phi_n F_A \leq 0.1 R_{p0.2} A_S$$

If alternating stresses occur in service, the amplitude of the oscillating force  $\pm F_{SAa}$ , must not exceed the endurance limit of the bolt (see calculation step R9).

Finally, the calculation procedure also includes a check of the surface pressure under the bolt head or the nut. The limiting surface pressure of the material should not be exceeded in order to avoid preload loss due to creep.

The working load,  $F_B$ , with its axial force and transverse force components,  $F_A$  and  $F_Q$ , and under certain circumstances the bending moment,  $M_B$ , at the bolting point must be given as the initial conditions.

The design and assembly conditions can usually be selected or influenced; these determine the values to be inserted for embedding and scatter in assembly preload.

Taking account of the appropriate derivations and explanations in Section 3, the calculation procedure can be carried out as follows in the calculation steps **R1 to R10**:

**R1** Rough determination of bolt diameter  $d$ , of clamping length ratio,  $l_K/d$ , and of the average surface pressure under the bolt head.

The appropriate assembly preload,  $F_M$ , for various bolt dimensions and strength grades can be found in Tables 1 to 4 together with Table 5.

Recommendations for maximum allowable surface pressure,  $p_G$ , of various materials are contained in a table. If  $p_G$  is exceeded, the design conditions must be modified (in the extreme case, by using a washer of adequate strength and dimensions). In this case  $l_K/d$  must be redetermined, and the rough dimension calculation must be verified.

**R2** Determination of the tightening factor,  $\alpha_A$ , allowing for the selected tightening method and the lubrication of surface condition.

**R3** Determination of the minimum required clamping load,  $F_{Kerf}$ , allowing for the following specific requirements:

- Friction grip to absorb a transverse load component,  $F_Q$ , or a torque,  $M_T$
- Sealing functions for known pressures and surfaces, as well as the material characteristics of the sealing elements
- No opening on one side in cases of eccentric loading and/or stressing. Subject to simplifying assumptions, a calculation formula for  $F_{Kerf}$  is possible
- The largest value determined for  $F_{Kerf}$  should be substituted in the design equations

**R4** Determination of the load factor,  $\Phi$

Determination of the elastic resilience of the bolt,  $\delta_S$ , and estimation of the load introduction plane  $n * 1_K$

Determination of the elastic resilience of the clamped parts,  $\delta_P$

**R5** Determination of the loss of preload due to embedding

**R6** Determination of the required bolt size

a) For all tightening techniques in the elastic range of the bolt, identify a bolt (diameter and strength grade) for which  $F_M \geq F_{Mmax}$

For Tables 1 to 4 are not applicable for specially profiled bolts, the clamping forces and the tightening torque must be calculated from equations. In this case, the coefficient of friction is dependent on the selected lubrication and surface states. The appropriate tightening torque  $M_A$  for the clamping load  $F_M$  can also be determined from the Tables.

b) For tightening techniques that give or exceed the yield load identify a bolt (size and strength grade) for which  $F_M/0.9 \geq F_{Mmin}$ . The assembly preloads from Tables 1 to 4 are inserted here.

**R7** Repetition of the calculation steps R4 to R6, if changes in bolt or clamping length ratio are necessary

**R8** Check that the maximum permissible bolt force is not exceeded. The maximum permissible bolt force will not be exceeded if the differential load  $F_{SA}$ , is  $F_{SA}$ , is  $F_{SA} = \Phi F_A \leq 0.1 R_{p0.2} A_S$

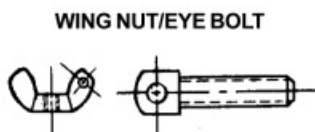
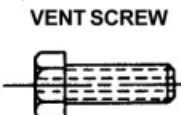
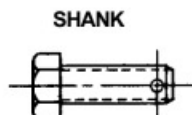
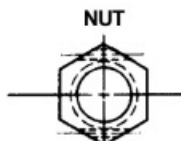
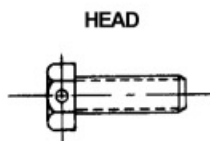
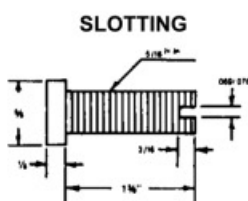
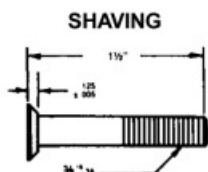
For necked-down bolts we have accordingly  $= \Phi F_A \leq 0.1 R_{p0.2} A_T$  In the case of tightening techniques





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REVIEW OF THE APPLICATION OF GUIDELINE VDI 2230 USING SRI FOR PCs *continued from page 234*

which indicate the yield load or exceed the yield load, this test will be replaced by tests to determine whether an additional plastic elongation of the bolt by the working load is permissible, to what extent the bolt can undergo plastic elongation, and how frequently the bolt can be reused.

**R9** Determination of the alternating stress endurance of the bolt.

For eccentric load application, allowance must also be made for bending stress. For an increasing working load, this calculation step is simplified.

Approximate values for the permissible stress deviation,  $\sigma_A$  (stress amplitude), of the endurance limit can be obtained. If this condition is not satisfied, the design must be improved if possible, or a bolt with a larger diameter or greater endurance limit must be used.

**R10** Checking calculation of surface pressure under the bolt head and nut bearing area.

In determining the bearing area,  $A_p$ , allowance must be made for chamfering of the hole.

Recommendations on the maximum allowable surface pressure,  $p_G$ , for various materials are given.

For tightening techniques that indicate the yield load and exceed the yield load there is a calculation.

## 5. Influencing Factors

Allowance must be made for a number of factors that are dependent on the material and surface design of the clamping parts and the clamped surfaces, the shape of the selected bolts and nuts, and on the assembly conditions. The wide range of these influential factors is discussed in this section.

### 5.1. Strength of the Bolt

The bolt size necessary for safe operation can be reduced by means of a bolt material with increased tensile strength and increased yield strength or 0.2% proof stress (saving of space and weight). The screw mechanical properties (strength and ductility) are according to the standard DIN ISO 898 Part 1.

Generally, dimensioning of the bolt is done so that the stress on the bolt, composed of the torsional and axial stresses during tightening (reduced stress  $\sigma_{red}$ ) together with the additional stress,  $\sigma_{SAb}$ , resulting from the working load, does not exceed the yield load or 0.2% proof stress of the bolt material.

However, with adequate bolt material ductility and bolt toughness, the yield load or 0.2% proof stress can be exceeded without danger up to certain limits. This occurs when techniques are used that tighten to yield or beyond, in order to obtain a specific assembly preload with a relatively low scatter.

Bolts whose mechanical properties meet the

requirements of DIN ISO 898 Part I are generally capable of withstanding the high local stresses, which occur during the tightening process, without affecting the bolt's service performance. The maximum force, which the thread section can withstand before fracture, is calculated.

## 5.2. Minimum Thread Engagement

### 5.2.1. Bolt-Nut Strength Matching

The full utilization of a bolted joint for tensile loading, i.e., its capability for loading up to the fracture point of the unengaged loaded thread section or reduced shank section, can only be achieved with an adequate length of engagement of the bolt thread in the nut thread.

The design principle which requires that overload fracture occurs in the loaded unengaged thread requires that the shear strength of the engaged screw and nut threads is at least as high as the tensile strength of the loaded unengaged thread. To ensure this, a minimum thread engagement and/or a minimum nut height,  $m_{kr}$ , are necessary. The critical engagement length, for which the shear strength of the engaged threads is equivalent to the tensile strength of the unengaged loaded threads, depends on several factors, some of which interact with each other:

- The thread form
- The pitch
- The thread tolerance (flank envelope)
- The thread diameter
- The form of the nut (wrenching width), the bolt hole
- The strength and ductility of the bolt and nut materials (material selection, manufacturing process, heat treatment)
- The type of stress (tensile-, torsional-, bending stress)
- The friction coefficients (tightening torque), the number of tightenings

If the thread engagement is less than the critical value,  $m_{kr}$ , either the screw- or the nut thread, which ever has the lowest strength, will shear. Therefore, in this case the weak point of the thread is the shear strength of its engaged section. The unengaged loaded part of the thread is not damaged. In this particular range, the breaking load of the joint increases linearly with thread engagement length up to the point where the shear strength of the engaged bolt- and nut thread equals the tensile strength of the bolt.

The intersection of the increasing straight line of shear strength versus thread engagement with the line for thread tensile strength, which is independent of thread engagement, identifies the critical engagement length,  $m_{kr}$ .



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It is true that an increase of the nut height exceeding the critical engagement length will increase shear strength of the engaged thread, but this has no influence on the tensile strength of the free part of the thread. That remains constant. Therefore, an increase of the holding power of the joint by increasing the nut height beyond the critical range is not possible for tensile loading.

### 5.2.2. Calculation of the Required Nut Height

The calculation model for the calculation of the required height of the nut allows for the geometry and mechanical properties of joint elements, nut and bolt, and predicts the type of failure caused by overloading, e.g., shearing of the screw or nut thread or breaking of the screw. For calculating the loading capacity of threaded joints, the following essential factors are allowed for which influence the tensile strength:

Dimensional values, such as tensile cross-section of the bolt thread, shearing area of the internal and external threads, the thread engagement length, pitch, dimensions of the thread, thread tolerances, thread form, nut form (wrenching width), and the clearance hole for the threaded bolt.

The effective thread engagement,  $m_{\text{eff}}$ , is calculated from the difference between the total height of the nut,  $m_{\text{ges}}$ , and the inside chamfer on both sides running into the bearing surfaces. It is assumed that the chamfered regions have only 40% of the loading capacity of the fully formed thread of the same height.

Expansion of the nut, caused by the radial component of the axial load being applied to the thread flanks, reduces the effective shearing areas of the bolt and nut threads.

The relationship of the shearing forces determines the amount of plastic deformation between the bolt thread and the nut thread. This plastic deformation of the threads reduces the effective shearing area and decreases the angle between the loaded flank of the thread and the bolt axis. Therefore, the radial component increases, the expansion of the nut is increased, causing the shear strength to be reduced.

The dynamic friction occurring due to relative movements between the thread flanks of the bolt and nut during tightening which has a lower friction coefficient than static friction, reduces the shear strength of the joint compared with its shear strength under purely axial load. This reduction can amount to 10 to 15%. In principle, however, the load capacity of the engaged loaded part of the bolt thread is also reduced under combined torsional and axial stresses. But the degree of reduction of shear strength by twisting the bolt or nut during tightening is about 5% lower than the degree of reduction in strength of the unengaged thread.

In the limiting case, this may cause the failure mode 'shearing of the thread' occurring under pure tensile loading, to change to a fracture in the unengaged loaded thread during the tightening process.

### 5.3. Surface Pressure at the Bolt Head/Nut Bearing Areas

Surface pressures capable of causing creep processes (time-dependent plastic flow) giving a loss in preload (relaxation) should not be allowed in the bearing areas between the bolt head or nut and the clamped parts, either as a result of the preload or as a result of the maximum service load. Thus, the surface pressure that is calculated from the maximum load should not exceed the compressive yield point of the clamped material.

If creep cannot be avoided, estimation must be made of the remaining preload after the end of the relaxation process.

The initial preload must then be set high enough so that the remaining clamp load guarantees safe operation of the joint.

Experimentally determined limiting surface pressures are given.

If washers are used to reduce the surface pressure, care must be taken to ensure that they have sufficient strength and thickness.

Information on the computation of limiting surface pressures is given in Section 4.7 (calculation step R10).

### 5.4. Tightening Factor, $\alpha_A$ , (Assembly Technique)

Determination of the dimensions and strength grade of a bolt depends on the magnitude of the required preload. The assembly preload can be obtained with different tightening methods. In most cases, the bolts are subject to a torsional stress caused by pitch and friction in the thread, in addition to the axial tensile stress. Allowance must be made for this in determining the total stress in the bolt.

If the torsional stress increases - with a constant tensile stress - the total stress in the bolt increases. This can eventually require a larger diameter or higher strength grade. The tightening methods currently in use do not measure the preload produced directly, but indirectly, e.g., as a function of the tightening torque, of the elastic elongation, of the angle of rotation or by determination of the yield point of the bolt. In almost all these cases some uncertainty remains concerning the level of tensile/torsional stress. This is due to the relatively high scatter in friction coefficients and errors in the method of controlling the preload. Therefore, it is necessary to over-design by an amount reflected in the tightening factor,  $\alpha_A$ .



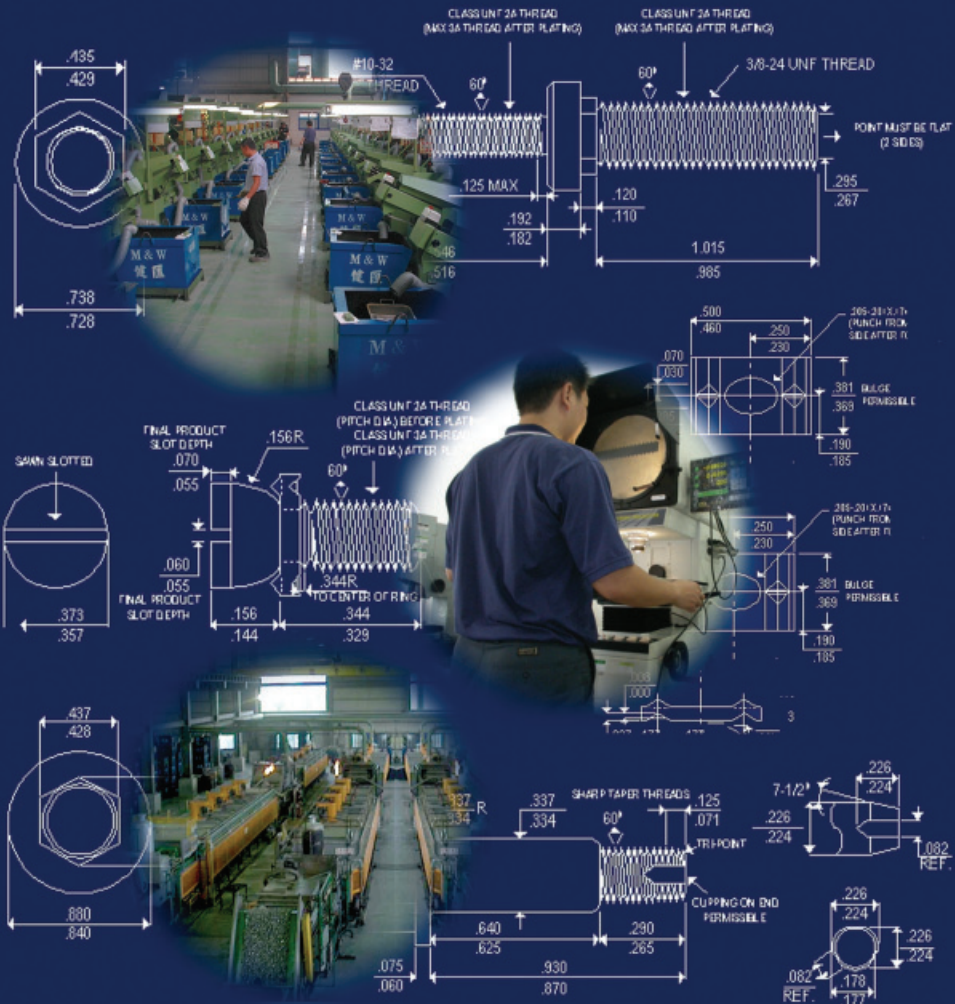


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The value of tightening factor,  $\alpha_A$ , used in the design equation depends on the selected tightening method. With increasing confidence in level of preload attained,  $\alpha_A$  decreases, and with it the requirement for overdimensioning. Thus, the assembly technique considerably influences the required bolt dimensions. Therefore, the selected tightening technique must be carefully considered, since it is taken as a basis for the calculation.

### 5.4.1. Bolt Stresses during Tightening

In most cases the preload is generated by turning the nut or bolt. Thus, the bolt is subject to a torsional stress in addition to an axial stress. For some tightening methods, however, e.g., hydraulic tensioning, the bolt is stressed only axially during preloading.

The relationship between the assembly preload,  $F_M$ , and the torsional moment,  $M_G$ , due to preload in the thread can be derived from the mechanics of oblique planes.

During tightening, the yield point and highest tensile stress are influenced by the tensile stress,  $\sigma_M$ , and torsional stress,  $\tau$ , acting simultaneously. For calculation of tensile stress, the total stress resulting from these factors is reduced to an equivalent uniaxial state of stress (equivalent stress  $\sigma_{red}$ ) by means of a yield criterion.

### 5.4.2. Scatter of the Assembly Preload During Tightening

The assembly preload in bolted joints is influenced by numerous factors, such as:

- The friction conditions (see Tables 5 and 6) in the surfaces moving relative to each other
- The geometrical shape of the joint
- The tightening method
- The tightening tool

Errors in estimating the friction coefficients scatter in friction coefficients within one lot of bolts, tightening methods varying in precision, as well as instrument/setting/reading error lead to scatter in these influential factors at various levels. Especially if the assembly preload is applied indirectly, e.g., by a tightening torque, these factors result in scatter of the preload achieved. Thus, the bolt must then be oversized, by an amount related to the tightening factor,  $\alpha_A$ .

The  $\alpha_A$  that accommodates the scatter in assembly preload between  $F_{Mmin}$  and  $F_{Mmax}$  as a result of the scatter in friction coefficients is introduced in equation form.

For a constant required minimum preload, an increasing tightening factor means that the bolt must be designed for a higher maximum assembly preload resulting from the higher scatter. This can be achieved for example by a proportionately larger bolt cross section.

### 5.4.3. Assembly Techniques

#### 5.4.3.1. Torque Controlled Tightening

Torque controlled tightening generally implies tightening using controlled or indicating torque

wrenches. In principle, however, motorized tightening using bolt installation spindles also comes within this concept since a compressed air spindle, for example, gives a measurable torque adjustment.

#### 5.4.3.2. Yield Controlled Tightening

For yield tightening with an electronic control system, the yield point of the bolt is automatically identified. This is done by measuring the torque and the rotation angle during tightening and by determining their difference quotient, which is equivalent to the slope of a tangent to the torque/angle curve. As soon as the yield point is reached, the gradient falls. This drop to a predetermined fraction of the stored maximum value obtained from the linear part of the torque/angle curve activates the shut-off signal. Since undulations occur in the early part of the curve, resulting from the elastic and plastic deformations as the interfaces are brought together which could lead to premature shut-off of the tightening spindle, a snug torque is required. Therefore, comparison of the gradient values and storing of the maximum gradient only starts after the snug torque has been exceeded.

#### 5.4.3.3. Angle-Controlled Tightening

Angle controlled tightening is indirectly a method of length measurement. Not only is the compression of the clamped parts measured at the same time as the elongation of the bolt, but also the plastic and elastic deformations occurring before complete closing of the interfaces which are irregular and cannot be predetermined. Therefore, in practice, the joint is preloaded - as for yield tightening - by means of a snug torque until all the interfaces are completely closed. The angle of rotation is only measured from this snug point.

Practice has shown that this technique reaches its highest precision when the bolt is tightened into the plastic range because in this range the deformation line is roughly horizontal, and angle errors have almost no effect. In contrast to this, in the elastic range, angle errors can occur in the steep part of the deformation line, and would cause preload errors of similar order of magnitude to that of torque controlled tightening.

#### 5.4.3.4. Momentum-Controlled Tightening (Impact Wrenches)

Impact wrenches transfer energy by means of momentum; it is thus almost impossible to measure the resulting torque. Like bolt installation spindles, impact wrenches must also be adjusted on the original bolted joint; this is done most accurately by measuring the elongation of the bolt and less accurately, using the re-tightening torque. The error considerations are essentially the same as those for bolt installation spindles. The tightening factors are so high that this tightening technique cannot be recommended for high duty bolted joints.



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#### 5.4.3.5. Hydraulic Tensioning

For hydraulic tensioning, the bolt is held at its free end above the nut position and is loaded in tension relative to the clamped parts. As this occurs, the nut is lifted off the clamped parts, and is repositioned against the clamped parts by rotating it. After unloading, a defined preload remains in the bolt. A disadvantage is the fact that the bolt must be tensioned beyond the specified preload since elastic and plastic deformation in the thread and the clamped parts occurs only after unloading and, thus, leads to a loss of preload. The position of the joining surfaces (thread and nut bearing face), which are not stressed during pre-tensioning, changes during removal of the pre-tension, and this can be compensated for by means of repeated re-tightening. Often a general re-tightening is specified in order to compensate for preload variation resulting from the preloading of the adjacent bolt.

Hydraulic tensioning, e.g., as it is employed for the construction of large pressure vessels, has the advantage that several bolted joints can be tightened to the same preload simultaneously. The precision that can be achieved for defined preloads depends mainly on the length of the screw. The tightening factor takes on values between 1.2 and 1.6, where the smallest values are for long screws and the largest values are for short screws.

#### 5.5. Fatigue Strength

For bolted joints, a high notch effect is present at the first stressed screw thread. The notch factor can have values between 4 and 10, depending on the configuration.

For alternating stress, therefore, the tensile load capability of bolted joints is reduced to less than 10% of their capability under uniform tensile stress.

This tensile load capability under alternating stress—the endurance limit—is determined by numerous factors.

On the basis of qualitative judgment, a table is provided that shows possible methods for improving the endurance limit of bolted joints.

Besides thread rolling after heat-treating, modifications of the design can effectively improve the endurance limit of bolted joints. Modifications of the design contribute to minimize the high local stresses that must be absorbed by the bolt for a given working load. These modifications can consist of causing a more even stress distribution within the nut, and reducing the portion  $F_S$ , of the working load component,  $F_A$ , thus reducing the additional stress felt by the bolt.

Modifications of the design generally do not improve the endurance limit of the thread but reduce the local stresses. This increases the endurance limit indirectly. A direct improvement of the endurance limit of the thread is only possible to a very limited extent because of the dominating influence of the notch effect (except by inherent compressive stresses induced during manufacturing by thread rolling after heat treatment).

#### 5.6 Embedding

Besides the elastic deformations in the bolted joint, embedding also occurs which is mainly caused by the flattening of surface irregularities. The amount of embedding has an effect on forces in the joint and reduces the elastic deformation, thus reducing the assembly preload.

The amount of embedding is generally smaller than expected from the roughness of the clamped interfaces, because during tightening a considerable flattening has taken place, and even for alternating working loads, the stress variation at the interfaces remains relatively small.

According to currently available experimental results, the total amount of embedding is nearly independent of the number of interfaces, and of the surface roughness of the interfaces, but it increases with the clamping length ratio.

The amount of calculated embedding is only appropriate if the values given for the limiting surface pressure are not exceeded. Otherwise the clamped material at the head and/or nut bearing area is subject to creep and the amounts of embedding can increase uncontrollably.

#### 5.7 Self-loosening and its Prevention

Under service stresses, the preload in a bolted joint can drop for two totally different reasons:

- Relaxation - as a result of embedding or creep in the bolted joint
- Rotational loosening (self-rotating) - as a result of relative movements between the mating surfaces

Thus, distinction can be made between 'embedding prevention features' to overcome creep and embedding and 'self-rotation prevention' which can arrest or prevent the 'internal' off torque; 'component loss prevention' cannot prevent partial self-rotation, but prevents the joint components from completely falling apart.

A bolted joint which is well designed for the working load, and which has been tightened up reliably does generally not need additional safety features. On the contrary, by improper use of safety elements the reliability of a bolted joint can be affected. If self-loosening cannot be prevented by means of joint design (e.g., high preload, long bolts), a locking element must be inserted which is suitable for the given stress. The locking elements currently available on the market can be classified in five groups according to their function and in only three groups according to their efficiency.

Bolted joints that are loaded only axially are generally not in danger, i.e., they do not need to be secured. Only for very short bolts of the lower strength grades can the use of elastic elements be recommended, which are clamped within the joint (for prevention of embedding). The elastic effect, however, must also be present under full preload and at the highest working load.

In the case of stresses that are predominantly at 90 degrees to the bolt axis, transverse slippage between the clamped parts can occur as a result of insufficient





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## REVIEW OF THE APPLICATION OF GUIDELINE VDI 2230 USING SRI FOR PCs continued from page 242

preload, which leads to relative movements in the thread. Hence, the friction grip in the joint is neutralized. Under the wedge effect of the thread, an internal off-torque occurs which can lead to self-rotating under full preload. Efficient prevention of self-rotation can neutralize this internal off torque or can prevent it, e.g., serrated bearing face bolts or adhesive locking elements.

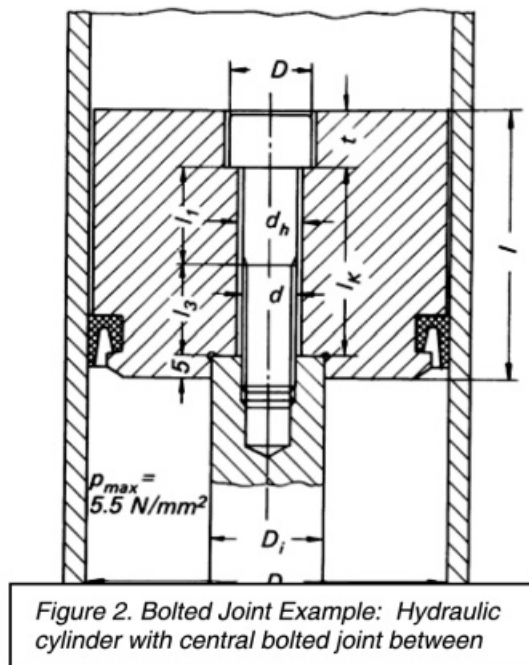
However, due attention must be paid to the fact that for bolted joints that are permanently subject to transverse displacements, there is a danger of a fatigue failure due to bending.

If a certain drop in preload can be tolerated by removing the self locking but it is required that the joint components do not fall apart (suffer loss) then loss-prevention devices can be considered, e.g., clamping elements. After installation and stressing, the remaining preloads can be 60% (good loss-prevention) or only 10% (poor loss-prevention) of the original preload.

## 6. Calculation Example

### 6.1. Calculations of a Bolted Joint between a Piston and a Piston rod in a Hydraulic Cylinder as an Example of Concentric Clamping and Concentric Loading

#### 6.1.1. Initial Conditions



The bolted joint shown in Fig. 2 is calculated as a concentrically clamped concentrically loaded joint. At an internal pressure of:

$p_{max} = 5.5 \text{ N/mm}^2$  and a stressed surface area of  $A = (80^2 - 25^2) \pi/4 = 4,536 \text{ mm}^2$ , the axial load is calculated as  $F_A = 24.9 \cdot 10^3 \text{ N}$ .

Measurements in mm:

$l_1 = 24$  from DIN 912

$l_2 = 0$

$l_k = 42$

$l_3 = l_k - l_1 = 18$

$L = 60$

$t = 13$  (fixed)

$D_i = 25$

$D_A = 80$

The cylinder is part of a press with 300 working strokes per hour. The axial load should thus be considered as a dynamic working load.

Because the bolt is also required to perform a sealing function, then the residual clamping load after unloading by the working load should be not less than  $F_{KR} = 10^3 \text{ N}$  for safety reasons.

C45V is specified as the piston material.

It is assumed that the joint is tightened using an indicating torque wrench.

#### 6.1.2. Calculation Procedure

The joint is calculated following the calculation steps R1 to R10.

**R1** Rough determination of the bolt diameter and the clamping length ratio  $l_k/d$  as well as the rough determination of the surface pressure under the bolt head. For a concentrically applied dynamic working load  $F_A = 24.9 \cdot 10^3 \text{ N}$  acting in the axial direction of the bolt, a required minimum preload of  $F_{Mmin} = 40 \cdot 10^3 \text{ N}$  is estimated. From the possible diameter strength combinations, a DIN 912 - M 12 x 60 - 10.9 cylindrical screw was chosen.

The lengths  $l_1$ ,  $l_3$ , and  $t$  are thus fixed as  $l_1 = 24 \text{ mm}$ ,  $l_3 = 18 \text{ mm}$ ,  $t = 13 \text{ mm}$ .

The clamping length is  $l_k = l - t - 5 = 42 \text{ mm}$ .

The clamping length ratio is  $l_k/d = 42/12 = 3.5$

The surface pressure under the bolt head is:

$$p = \frac{F_M / 0.9}{A_p} \leq p_G$$

$F_M = 56 \cdot 10^3 \text{ N}$  from Table 1 for  $\mu_G = 0.14$ .  $A_p = 90 \text{ mm}^2$  with  $d_w = 17.23$  (from DIN 912) and  $d_h = 13.5$  (from DIN ISO 273).  $p$  thus becomes:

$$p = \frac{56 \cdot 10^3}{0.9 \cdot 90} = 691 \text{ N/mm}^2$$

The limiting surface pressure for C45V becomes:

$$p_G = 700 \text{ N/mm}^2 \gg 691 \text{ N/mm}^2$$

**R2** Determination of the tightening factor  $\alpha_A$

It is assumed that the bolt is tightened using an indicating torque wrench, thus  $\alpha_A = 1.6$ .

**R3** Determination of the required minimum clamp load  $F_{Kerf}$

The required minimum clamp load must be at least equal to the minimum residual preload as stated in the initial conditions ( $F_{Kerf} = F_{KR}$ ); we thus have  $F_{Kerf} = 10^3 \text{ N}$ .





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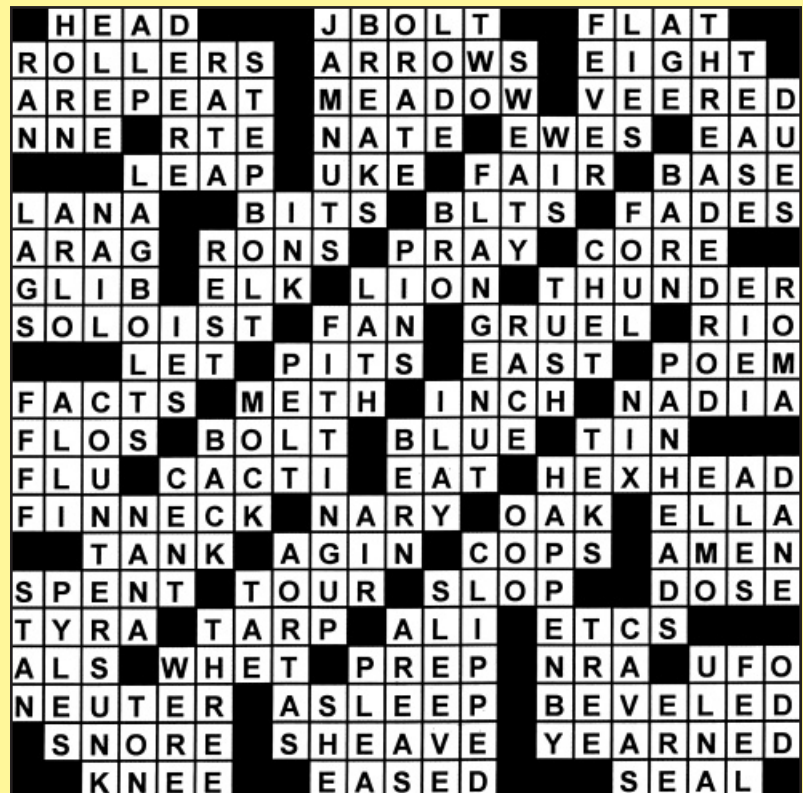
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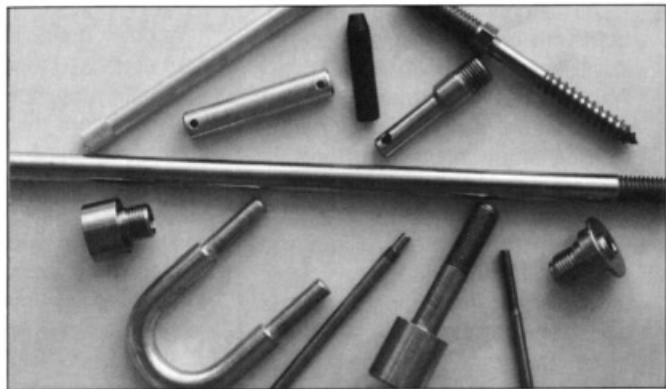
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## REVIEW OF THE APPLICATION OF GUIDELINE VDI 2230 USING SRI FOR PCs continued from page 244

**R4** Determination of the load factor  $\Phi$ 

$$\Phi = \frac{\delta_p}{\delta_p + \delta_s}$$

With the equations in Section 3.1.1, the elastic resilience of the bolt is determined to:

$$\delta_s = \delta_K + \delta_1 + \delta_2 + \delta_{GM}$$

$$\delta_K = \frac{0.4 * d}{E_s * A_N} = 0.207 * 10^{-6} \text{ mm / N}$$

$$\delta_1 = \frac{l_1}{E_s * A_N} = 1.032 * 10^{-6} \text{ mm / N}$$

$$\delta_3 = \frac{l_3}{E_s * A_{d3}} = 1.152 * 10^{-6} \text{ mm / N}$$

$$\delta_{GM} = \delta_G + \delta_M$$

$$\delta_{GM} = \frac{l_G}{E_s * A_{d3}} + \frac{l_M}{E_s * A_N} = 0.592 * 10^{-6} \text{ mm / N}$$

$$\delta_s = 2.99 * 10^{-6} \text{ mm / N}$$

With the following:

$$l_1 = 24 \text{ mm}, l_3 = 18 \text{ mm}$$

$$l_G = 0.5 d = 6 \text{ mm}$$

$$l_M = 0.4 d = 4.8 \text{ mm}$$

$$d_3 = 9.853 \text{ mm}, A_N = 113 \text{ mm}^2$$

$$A_{d3} = 76.2 \text{ mm}^2$$

$$E_s = 205 * 103 \text{ N/mm}^2$$

With equation the elastic resilience of the clamped parts  $\delta_p$ , is calculated as:

$$\delta_p = \frac{l_K}{A_{ers} * E_p} = 0.39 * 10^{-6} \text{ mm / N}$$

With  $A_{ers}$  from equation, with  $E_p = 205 * 103 \text{ N/mm}^2$  and with  $D_A = d_w + l_K$

$$A_{ers} = \frac{\pi}{4} (d_w^2 - d_h^2) + \frac{\pi}{8} * d_w * l_K [(x+1)^2 - 1]$$

$$A_{ers} = \frac{\pi}{4} (17.23^2 - 13.5^2) + \frac{\pi}{8} * 17.23 * 42 [(0.591+1)^2 - 1]$$

$$A_{ers} = 522.4 \text{ mm}^2$$

With the following:

$$x = \sqrt[3]{\frac{l_K * d_w}{(d_w + l_K)^2}} = 0.591$$

Thus we have:

$$\Phi = \Phi_K = \frac{\delta_p}{\delta_p + \delta_s} = 0.115$$

It is estimated that the load introduction planes are at a distance  $n_{IK} = 0.3 l_K$ . Therefore  $\Phi = \Phi_n = 0.3$   $\Phi_K = 0.035$

**R5** Determination of the loss of preload due to embedding

For a clamping length ratio of 3.5 there is a total amount of embedding of  $f_z = 5 * 10^3 \text{ mm}$  (rounded).

Thus, the preload loss is:

$$F_z = f_z \frac{1}{\delta_s + \delta_p} = 1.48 * 10^3 \text{ N}$$

**R6** Determination of the required bolt size. According to equation, we have req.  $F_{Mmax} = \alpha_A [F_{Kerf} + (1 - \alpha) F_A + F_z] = 42.4 * 10^3 \text{ N}$ 

For the cylindrical screw DIN 912 - M 12 x 60 - 10.9, with  $\mu_G = 0.14$ , an assembly preload is determined of  $F_M = 56 * 10^3 \text{ N} > \text{req. } F_{Mmax}$ .

The selected bolt meets the requirements.

The corresponding tightening torque for  $\mu_{Kmin} = 0.10$  is  $M_A = 104 \text{ Nm}$ .

**R7** Repetition of calculation steps R4 to R6 in order to effect a required change of bolt and/or clamping length is omitted.

Checking that maximum permissible bolt force is not exceeded. According to equation, the following must be fulfilled:

$$\Phi_n * F_A \leq 0.1 R_{p0.2} * A_s$$

( $R_{p0.2} = 940 \text{ N/mm}^2$  from DIN ISO 898 Part 1;  $A_s = 84.3 \text{ mm}^2$ )

Substituting numerical values, this relationship becomes:

$$\begin{aligned} 0.035 * 24.9 * 10^3 \text{ N} \\ < 0.1 * 940 \text{ N/mm}^2 * 84.3 \text{ mm}^2 \\ 872 \text{ N} < 7924 \text{ N} \end{aligned}$$

The conditions of the equation are satisfied, i.e., the maximum bolt force is not exceeded.

**R9** Determination of the alternating stress endurance of the bolt. We have the following:

$$\sigma_a = \pm \frac{\sigma_{SA}}{2} = \pm \frac{\Phi_n F_A}{2 A_{d3}} \langle \sigma_A$$

$$\sigma_A = \pm 51 \text{ N/mm}^2$$

$$\sigma_a = \pm \frac{0.035 * 24.9 * 10^3}{2 * 76.2} = \pm 6 \text{ N/mm}^2 \langle \sigma_A$$

**R10** Checking calculation of the surface pressure below the bolt head bearing surface.

See proof in R1.

$$\begin{aligned} p &= \frac{F_M + \Phi F_A}{A_p} = \frac{56 * 10^3 + 0.035 * 24.9 * 10^3}{90} \\ &= 632 \text{ N/mm}^2 \langle p_G = 700 \text{ N/mm}^2 \end{aligned}$$

**Result:** The bolted joint from Fig. 2 is secure for the estimated working load. 

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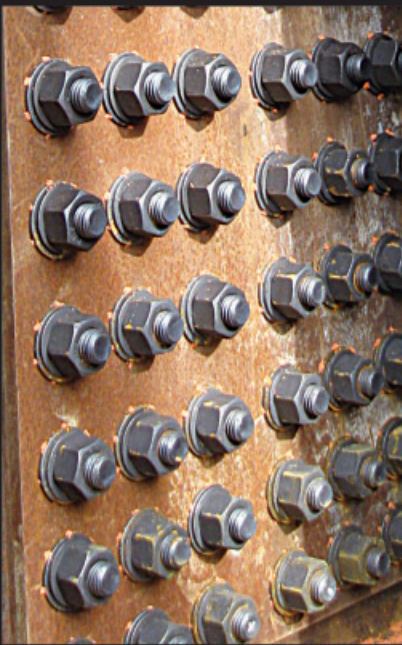
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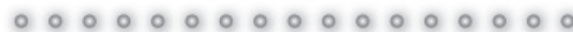
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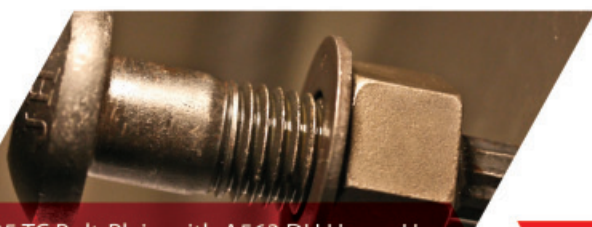




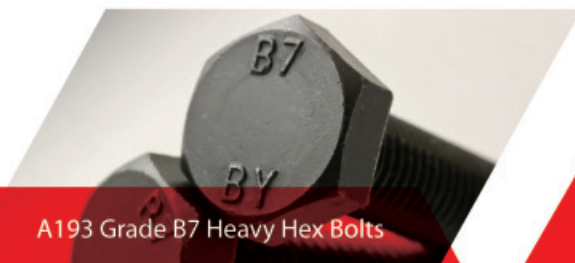
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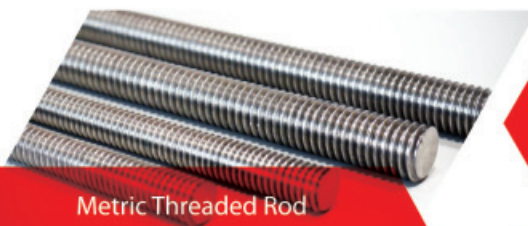
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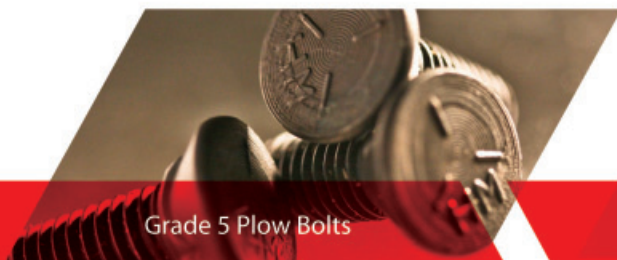
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