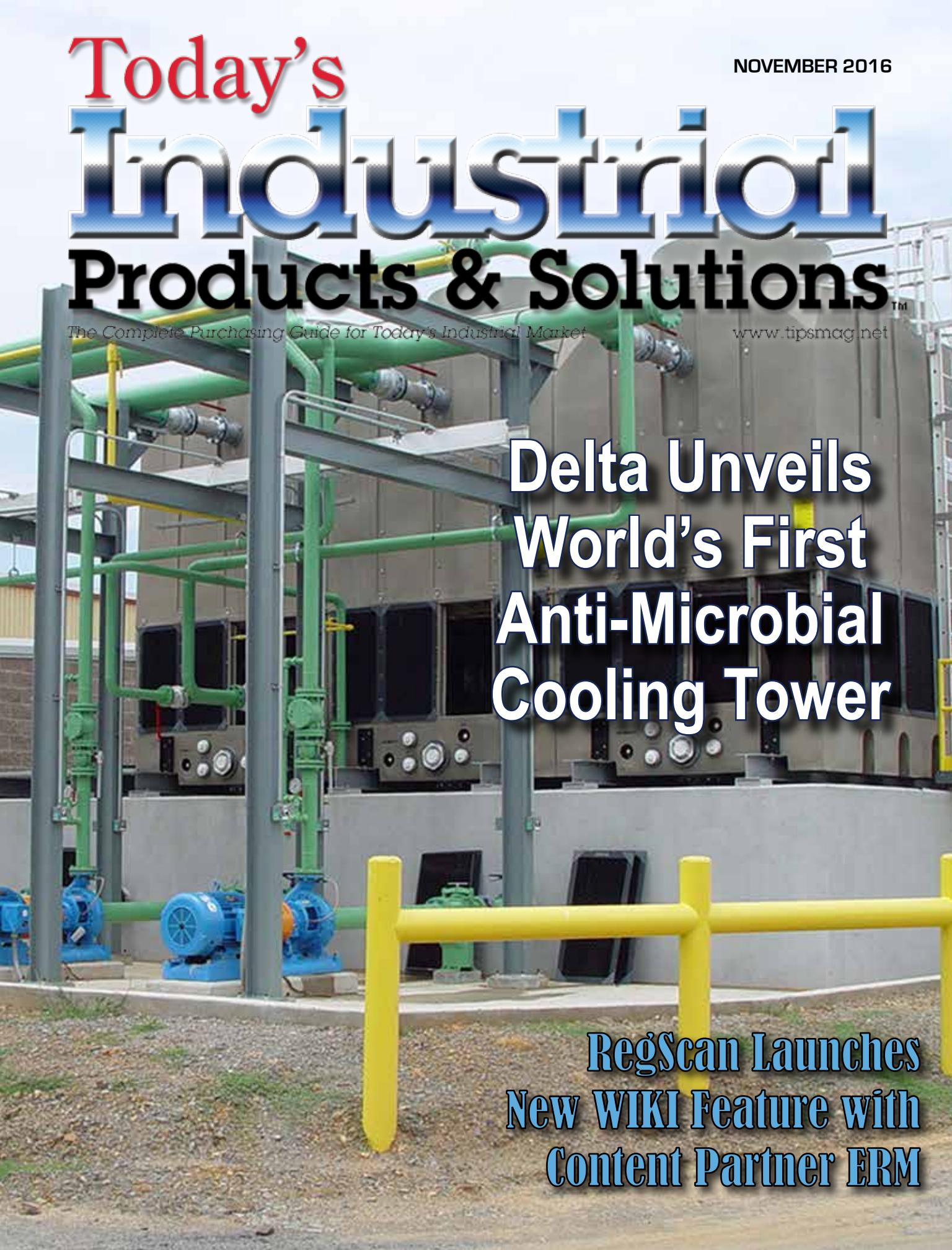


# Today's Industrial Products & Solutions<sup>TM</sup>

The background image shows a complex industrial facility. In the foreground, there are several large green horizontal pipes supported by a steel structure. A blue valve is visible on one of the pipes. In the middle ground, there are more pipes and what appears to be a control panel or pump station with various gauges and valves. The background shows more of the industrial building and some trees under a clear sky.

NOVEMBER 2016

The Complete Purchasing Guide for Today's Industrial Market

[www.tipsmag.net](http://www.tipsmag.net)

## Delta Unveils World's First Anti-Microbial Cooling Tower

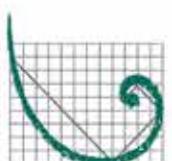
## RegScan Launches New WIKI Feature with Content Partner ERM



# WIKI



- Icon displayed next to reviewed regulations in the RegScanOne database
- Connected with the My WatchList Alert system so authors and articles stay current with regulatory changes
- Includes contact information and bios for all authors
- Displays the date when the article was last updated
- Full-text regulations located next to abstracts and articles



ERM

ERM, one of the world's largest consulting firms, shares its expertise exclusively with RegScan users.

Regulations can be complicated, but they don't have to be. RegScan's WIKI feature provides clear analysis on the newest and most important environmental regulations in easy-to-follow articles authored by subject matter experts. The article-based system explains key provisions and requirements so users can proactively stay transparent while preventing and mitigating risks.



## Revised Ambient Air Monitoring Quality Assurance Requirements

### ABSTRACT

The revised air monitoring quality assurance requirements are EPA's first comprehensive changes to the air monitoring rules since 2006. These changes formalize many changes that had been informally adopted by Agency memorandum and guidance documents. Many of the changes were driven by improved monitoring technology—such as continuous particulate matter analyzers—that were not commonly available at the time of the previous update.

The revised rules also revert to the pre-2006 structure whereby state and federal monitoring program requirements are set out in Appendix A, with industrial PSD monitoring requirements specified in Appendix B. EPA provides a summary of the changes at the following URL:

[https://www3.epa.gov/ttnamti1/files/ambient/pm25/Summary\\_of\\_Appendix\\_A\\_Changes\\_%203\\_25\\_2016.pdf](https://www3.epa.gov/ttnamti1/files/ambient/pm25/Summary_of_Appendix_A_Changes_%203_25_2016.pdf)

### ARTICLE

#### Key Changes

The revised regulation once again separates the quality assurance requirements applicable to state and federal monitoring programs from those for industrial PSD monitoring. This change recognizes the many differences in the objectives and implementation approach between the state and industrial monitoring programs. Other significant items include:

- Increased emphasis on the role and responsibilities of the Primary Quality Assurance Organization (PQAO)
- Requirement that EPA be provided a courtesy copy of an organization's Quality Assurance Project Plan (QAPP), even if that PQAO has been delegated QAPP review authority by EPA.
- Clarification of the applicable system and performance audits and required frequency for each type of monitoring program
- Updated calibration and audit ranges for gaseous analyzers

#### Impacts On Existing Monitoring Monitoring Programs



Don't regret  
your choice  
in EH&S Training.

Join 500,000 satisfied EH&S  
professionals and invest in the best!



*Compliance Solutions*  
“Today’s Training... Tomorrow’s Solution”

800.711.2706 [www.csregs.com](http://www.csregs.com)

- PG 4** Delta Unveils World's First Anti-Microbial Cooling Tower  
**PG 8** L.S. Starrett Announces the HDV500 Digital Video Comparator  
**PG 10** Company Profile: RegScan One Global Regulatory Software  
**PG 12** One-Stop Repair for Medical Device Manufacturing Equipment  
**PG 18** Miniaturization of Rupture Disks Forces Industry Back to Drawing Board  
**PG 24** Ad Index

**GROUP PUBLISHER**

Brandon Greenhill  
205-733-4343  
brandon@tipsmag.net

**EDITOR**

Annie McGilvray  
annie@handfmedia.net

**ASSOCIATE PUBLISHER**

Anne Marie Miranda  
205-624-3795  
annm@handfmedia.net

**CREATIVE/**

WEB DIRECTOR  
Jacklyn Greenhill  
jacklyn@handfmedia.net

**ADMINISTRATIVE**

DIRECTOR  
Steven Hobson  
steven@tipsmag.net

**CEO**

Christy Hobson

**PRESIDENT**

Glen Hobson

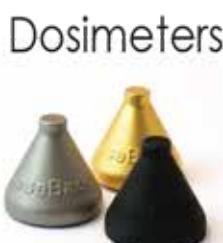


## Your One Stop Shop for Sound and Vibration Measurement Needs

### Sound Level Meters



### Vibration Meters



### Scantek's product line provides complete solutions designed for:

- Occupational & Industrial Hygiene Noise Evaluations
- Hearing Protector Selection
- Workplace Noise Measurements
- Measurements and Analysis of Acoustic and Vibration Signals
- General Noise Measurements
- Loudness and Sound Quality Analysis
- Measurements of Sound Power Levels

Distributed by:

**Scantek, Inc.**  
[www.ScantekInc.com](http://www.ScantekInc.com)

Executive and Advertising Offices

951 1<sup>st</sup> Ave. W.  
Alabaster, AL 35007  
phone: 205-441-5591 fax: 205-624-3354  
[www.tipsmag.net](http://www.tipsmag.net) • [glen@tipsmag.net](mailto:glen@tipsmag.net)

*Today's Industrial Products & Solutions™* is published ten times a year on a monthly basis by CJS Media, 951 1<sup>st</sup> Ave. W. Alabaster, AL 35007 USA. *Today's Industrial Products & Solutions™* is distributed free to qualified subscribers. Non-qualified subscription rates are \$57.00 per year in the U.S. and Canada and \$84.00 per year for foreign subscribers (surface mail). U.S. Postage paid at Birmingham, Alabama and additional mailing offices.

*Today's Industrial Products & Solutions™* is distributed to qualified owners and managers in the industrial industry. Publisher is not liable for all content (including editorial and illustrations provided by advertisers) of advertisements published and does not accept responsibility for any claims made against the publisher. It is the advertiser's or agency's responsibility to obtain appropriate releases on any item or individuals pictured in an advertisement. Reproduction of this magazine in whole or in part is prohibited without prior written permission from the publisher.

POSTMASTER: Send address changes to  
CJS Media, P.O. Box 1568  
Pelham, AL 35124  
PRINTED IN THE USA

# ALL SYSTEMS IN GEAR SUBSCRIBE TO ISO STANDARDS

ISO 9000 & 9001 Quality Management

ISO 14001 Environmental Management

New 2015 editions  
now available!





The Game Changer

**The next generation:  
Premium Bevel Heads**

150-200% improvement  
over the standard  
bevel heads

Fabtech Booth  
**N1811**

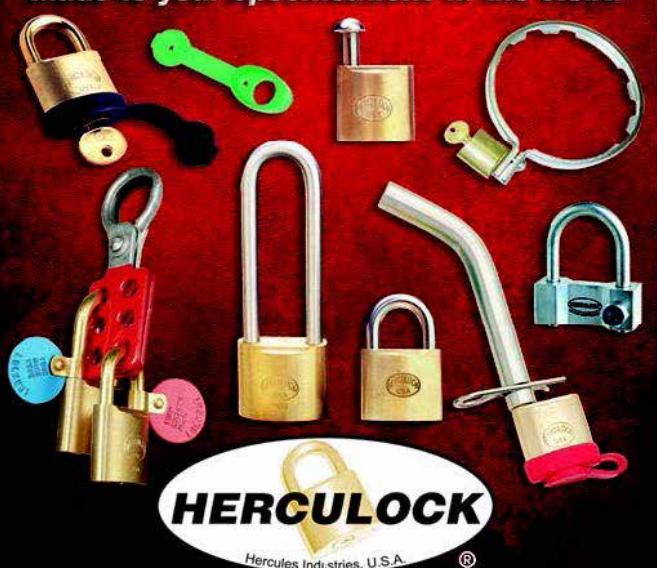


[www.beveltools.com](http://www.beveltools.com)

**Weather Resistant**

**Solid Brass Padlocks**

*Made to your specifications in the U.S.A.*



**HERCULES INDUSTRIES, INC.**

Manufacturer of **HERCULOCK** Padlocks

P.O. Box 197 • Prospect, Ohio 43342

Toll Free: 1-800-345-2590

Fax: (740) 494-2274

[www.HERCULOCK.com](http://www.HERCULOCK.com)



# Delta Unveils World's First Anti-Microbial Cooling Tower

*The risk of propagation of deadly cooling tower-borne pathogens, such as Legionnaire's Disease, can be minimized through the use of towers made of anti-microbial HDPE.*

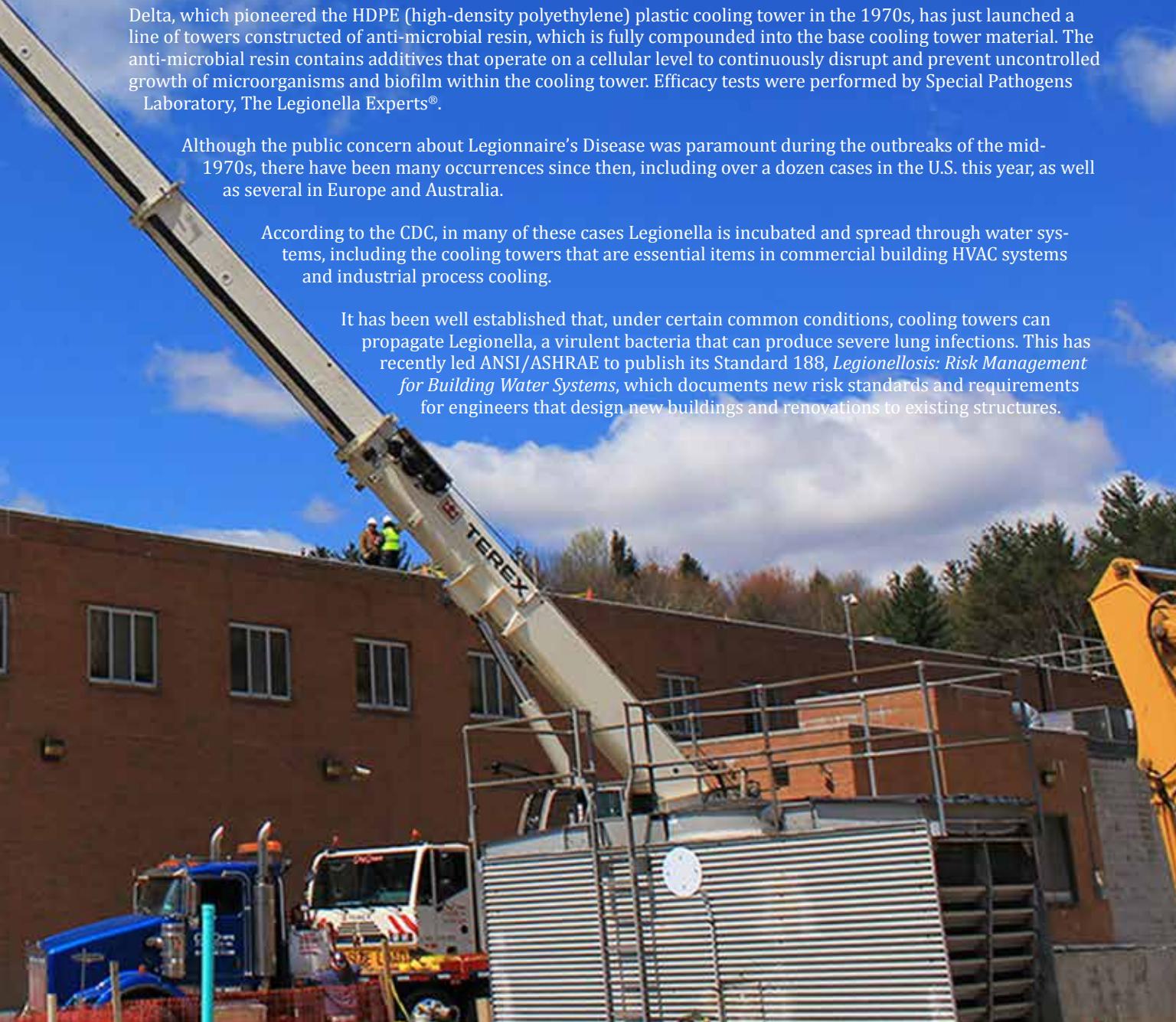
Legionella, the bacteria that causes potentially fatal Legionnaire's Disease, and other strains of deadly pathogens that are hosted by some cooling towers, have been substantially reduced by the development of a unique anti-microbial HDPE material introduced by Delta Cooling Towers ([deltacooling.com](http://deltacooling.com)) on September 1, 2016.

Delta, which pioneered the HDPE (high-density polyethylene) plastic cooling tower in the 1970s, has just launched a line of towers constructed of anti-microbial resin, which is fully compounded into the base cooling tower material. The anti-microbial resin contains additives that operate on a cellular level to continuously disrupt and prevent uncontrolled growth of microorganisms and biofilm within the cooling tower. Efficacy tests were performed by Special Pathogens Laboratory, The Legionella Experts®.

Although the public concern about Legionnaire's Disease was paramount during the outbreaks of the mid-1970s, there have been many occurrences since then, including over a dozen cases in the U.S. this year, as well as several in Europe and Australia.

According to the CDC, in many of these cases Legionella is incubated and spread through water systems, including the cooling towers that are essential items in commercial building HVAC systems and industrial process cooling.

It has been well established that, under certain common conditions, cooling towers can propagate Legionella, a virulent bacteria that can produce severe lung infections. This has recently led ANSI/ASHRAE to publish its Standard 188, *Legionellosis: Risk Management for Building Water Systems*, which documents new risk standards and requirements for engineers that design new buildings and renovations to existing structures.



PRECISION MAKES  
THE DIFFERENCE

NEW!  
HDV500  
Digital Video  
System

## 135 YEARS OF INNOVATIVE TECHNOLOGIES

More than 5,000 products including precision hand tools, vision systems, force measurement systems, non-contact measurement systems, profile projectors, band saw blades, hand tools and power tools accessories.



**Starrett**  
Innovation Rules

See the new HDV500  
in booth C-16028



**From professionals for professionals:**  
the right tools for every application

## RHODIUS

Simplify your work.

Fabtech  
Booth N1811

[www.rhodiususa.com](http://www.rhodiususa.com)

John Flaherty, president of Delta Cooling Towers, points out that the aforementioned standards and requirements do not significantly detail the maintenance practices necessary to keep water systems, such as cooling towers, healthy. He says that competent maintenance; consistent, top quality water treatment and accurate monitoring are essential to that effort.

"Without consistent, competent water treatment, the legionella risk is not completely eliminated, even with the new antimicrobial cooling tower," Flaherty explains. "While cooling tower conditions are often managed by water treatment chemicals, such treatment is sometimes inadequate and poor piping designs, lead to 'dead legs' creating an environment in which pathogens – including Legionella – can thrive."

Flaherty adds that cooling tower design and materials can be very significant in the prevention of pathogen growth. Also, the best water treatments for Legionella prevention are oxidizing biocides which react aggressively toward metal surfaces, effectively attacking metal-clad cooling towers and shortening service life. However, because Delta's cooling tower fills and shells are constructed of anti-microbial plastic, they are virtually impervious to corrosive water treatments and also minimize the risk of microbial growth. A 20-year factory warranty provides evidence of the durability of these HDPE cooling towers.



The design of many cooling towers creates pockets where water may stagnate, another condition that can lead to microorganism development. The stagnant water areas are prime breeding grounds for Legionella to grow. To avoid such problems, Delta's cooling tower designs feature a sloped basin and/or basin sweeper system.

While other cooling tower manufacturers may market a tower with an anti-microbial fill (the medium over which the hot water is distributed as it is being cooled), no company other than Delta has engineered a cooling tower featuring both the fill and structural casing composed of anti-microbial material.

*For more information, contact Delta Cooling Towers, Inc., 185 US HWY 206, Roxbury Twp., NJ 07836; Phone: 800-289.3358; Fax: 973.586.2243; E-mail: sales@deltacooling.com*

[www.deltacooling.com](http://www.deltacooling.com) •

# EFFORTLESSLY LIFT ITEMS WEIGHING 300 LBS with The LadderPort Cranky Portable Winch System



With this system you can easily and safely haul tools, motors, compressors and toolboxes up to the roof.



ALL LadderPort™  
Products are Proudly  
MADE IN THE USA

**SPECIAL \$999.00\***  
**Cranky Portable Winch**  
**& Port-A-Post**

\*Plus Applicable Taxes & Shipping

**Refer to code CWPAP314**

**800-770-8851 • sales@ladderport.com**  
**www.ladderport.com**

# L.S. Starrett Announces the HDV500 Digital Video Comparator

Starrett Kinematic Engineering, Inc., a subsidiary of the L.S.

Starrett Co., announces its all new HDV500 digital comparator that combines the features of a vision metrology system and an optical comparator. The Starrett HDV500 includes a 5-megapixel digital video camera and is available with a choice of 3 Telecentric lenses with magnifications that provide micron-level resolution and minimal optical distortion for accurate field-of-view (FOV) up to 80mm.

The Starrett HDV500 provides a 42" LCD monitor, 32" x 8" top plate, 500mm (20") x-axis table travel, 200mm (8") vertical travel with three-axis CNC power drive for larger part capacity and enhanced performance. The main operator interface displays a live video image, measurement tools and graphical digital readings of measurements. A part image can be resized using pan and zoom and measurements taken by simply clicking on a feature on the monitor screen. An environmentally sealed keyboard and a touchpad are also provided for the purposes of entering file names and targeting key functions. MetLogix M3 software includes 2D geometric functions including points, lines, circles, arcs, rectangles, distances, slots angles and skew, and utilizing the part design DXF/CAD file digital overlay makes part inspection simple. Optional Profile Fitting software provides enhanced form measurement capability.

The HDV500 video based measurement system by Starrett is a rugged, innovative system that blends the power of the Optical Comparator with the power of digital video, hi-resolution cameras, telecentric optics and LED illumination. Equally effective on the manufacturing floor or in the Quality lab. The structure of the design allows for work handling, part fixturing and an operator interface typical of an Optical Comparator with digital technology to measure parts in a progressive and practical way.



# jesco®

Since 1932

A Woman Owned Small Business

"From the simplest to the complex, Jesco does it best!"



### DIAMOND WIRE MESH ENCLOSURES

Time tested diamond mesh partitions have been pre-engineered for easy installation, give an unrestricted view into the cage, total air circulation, low initial cost and maintenance. Send us the footprint of your project and allow our engineers to assist you on your next project!



### SELF DUMPING HOPPERS - 50+ Sizes and Specials!

All welded self dumping hoppers are available in more than 50 different sizes that will fit to your application. All units are engineered to return to an upright position and have a positive locking latch. Safety retaining chain and trip rope assembly is standard on all our units. Open-sided, low profile, narrow, extra wide, and 10,000# capacity units are all within our product line. Casters available on standard units up to the 2½ cubic yard size.



### WIRE MESH INFILL PANELS

We will custom fabricate these infill panels to meet your specific requirements. Just send us your specs!

Available in diamond, rectangular and square mesh, with or without standoffs. Frames available in 1" x ½" channel or with a hemmed edge. Other size framing materials and mesh are available, specify weld pattern and types of weld finish desired. Division 5,8 and 10.



### EEZY STAK® Enclosures

2" x 1" Rectangular Mesh EEZY STAK® Enclosures are designed and engineered to save time and money on your project installation. Woven wire mesh panels welded into an angle frame; frames secured to the posts. No wire ties or unheard of specialty clips. Just nuts, bolts, and standard hand tools are required. Dark Gray painted panels allow for full visibility into enclosure.

Visit [www.JescoOnline.com](http://www.JescoOnline.com)



Jesco Industries, Inc.  
PO Box 388  
Litchfield, MI 49252-0388

Call 800-529-6697

Tel: 517-542-2903  
Fax: 517-542-2501  
E-mail: [Jesco@JescoOnline.com](mailto:Jesco@JescoOnline.com)

# Seamless Integration

## RegScan Web Services



Your System, Our Content

 **RegScan ONE**  
One World, One Platform

[www.regscan.com](http://www.regscan.com)

**REGSCAN  
ONE GLOBAL  
REGULATORY  
SOFTWARE**

*Discover your software solution today!*

With a dedicated staff of experts in four U.S. states and Washington D.C., and an ever-growing network of in-country resources, RegScan can always be counted on as a trusted resource for up-to-date regulatory information from every corner of the globe. RegScan has consistently outpaced a growing league of competitors in the industry niche we inceptioned, by offering unique solutions to our Fortune 1000 customer base. Whatever business you're in, we can assist you with your compliance needs. Our vast product line includes online compliance solutions for a variety of industries:

- Manufacturing
- Transportation
- Energy
- Chemicals and more!

RegScan's unique online tools enable easy access to, and interpretations of, global environmental regulations and operational standards. Do your research and get your alerts through the RegScan One system, or have your content exported via web services to any online environmental management system. Users of the RegScan One system can create custom legal registers and audit protocols for more than 140 jurisdictions. Access the interface in five languages:

- English
- French
- Spanish
- German

### Educational Resources

#### *Webinars*

RegScan understands that staying in compliance is critical. But it doesn't have to be complicated. That is why we host webinars several times throughout the

year that help our clients tackle ever-evolving problems in the EHS industry. Prior topics covered included regulatory overviews, the Changing Role of the EHS Manager, and ISO 14001:2015. Such topics specifically address the newest industry standards while banishing compliance confusion, provide necessary tools to manage today's EHS challenges and reduce time and money spent on compliance activities.

#### Tutorials

RegScan also produces a number of helpful videos for our users. They answer most commonly asked questions on using the RegScan One interface. You may wish to visit our Informational & Tutorial Videos Page prior to submitting a ticket to see if your question can be answered with the assistance of one of these videos.

#### Conference

And now RegScan has gone beyond the computer screen to bring partners and clients their first ever Inaugural Regulatory Conference. Government officials, regulatory experts and executives from Fortune 1000 companies will gather on Capitol Hill in Washington D.C. on May 24th-25th, and be among the first to learn what the Environmental Protection Agency has planned for 2017 and beyond. And with RegScan, sometimes it is all fun and games. We're taking everyone out to the ballgame with box seats for the Washington Nationals as they host the National League Champion New York Mets.

## Tracking Regulatory Change

### *Strikethrough*

Strikethrough allows you to effortlessly see the amendment history of a regulation by comparing the current regulation with an earlier or future version. Changes are easily identified by color-coding.

Anything that has been added will appear in green, while anything that has been deleted will appear in red.

### *My WatchList*

My WatchList is a custom regulatory change management tool that allows you to monitor change at various levels of detail. It gives you quick access to only the information you need, while providing a clear record of what you have and haven't reviewed. My WatchList is the easiest way for a Web Services user to build a custom regulatory register, which RegScan will automatically export to your online environmental management system.

### *LookOut Email Alert*

By defining specific keywords or phrases, LookOut allows you receive daily Email alerts on State or Federal regulatory changes.

### *RegScan Customer Support*

As part of our ongoing commitment to improve the RegScan user experience, we use a ticketing system for customer support inquiries. This allows us to streamline requests and better serve you. Available 24/7, the ticketing system

allows you to immediately report an issue and track the support team's response to it. Every support request is assigned a unique ticket number. For your reference, we provide complete archives and history of all your support requests. A valid email address is required to submit a ticket.

### *Schedule a Demonstration*

The RegScan team will gladly demonstrate any of our products or services for free. Our online demonstration sessions can accommodate up to 25 people, and we will schedule a meeting whenever it's convenient for you. During these interactive demonstrations, our experienced staff will go through whatever products or services interest you. You'll also have the opportunity to ask questions, and discuss licensing options that are tailored to your needs. If you decide to purchase, we can take of your training and support needs too. We frequently update our library of training videos, and we'll be happy to arrange online or in-person training sessions. Furthermore, our in-house technical support team is always available on weekdays (except for holidays) between 8 a.m. and 8 p.m. Eastern time, and online 24/7.

To learn more about RegScan, please call +1 570-323-1010, or Email info@regscan.com.

Also find us on LinkedIn and follow us on Twitter @RegScanOne!

[www.regscan.com](http://www.regscan.com)

The screenshot shows the RegScan ONE software interface. At the top, there's a navigation bar with icons for file operations (New, Open, Save, Print, etc.), a search bar, and language selection (English). Below the header is a sidebar containing a tree view of regulatory categories: United States (Federal, State, Federal Register, State Registers, Regulatory Change Services, BIA, Environmental Analysis, CheckPoint, Energy Audit Protocols), U.S. Team Sales, Taken Standards Collection, Global (Africa, Americas (Latin America and the Caribbean, Northern America (Canada, Mexico, Central America), Europe, Oceania)). The main content area features the 'RegScan ONE' logo and the tagline 'One World, One Platform'. It displays several news feeds: 'RegScan Socrates Alerts' (No Updates Today), 'ELR Global Update' (No Updates Today), 'LookOut Update Federal' (Table of Contents/Federal Register Vol. 81, Issue 48, Friday, March 11, 2016, CENTERS FOR DISEASE CONTROL AND PREVENTION), 'NOTICES' (Recent data collection submitted for public comment and recommendations, Pages 12900-12901 [FR Doc# 2016-05520], View Full Article Matching: Medicare (2 hits)), 'Summary: The Centers for Disease Control and Prevention (CDC), as part of its continuing efforts to reduce public burden and maximize the utility of government information, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collect...'), 'CENTERS FOR MEDICARE & MEDICAID SERVICES', 'NOTICES' (Agency Information Collection Activities: Submission for CMS Review; Comment Request, Pages 12903-12904 [FR Doc# 2016-05472], View Full Article Matching: Medicare (6 hits)), 'Summary: The Centers for Medicare & Medicaid Services (CMS) is announcing an opportunity for the public to comment on CMS' intention to collect information from the public. Under the Paperwork Reduction Act of 1995 (PRA), federal agencies are required to publish notice in the **Federal Register** co...), 'Agency Information Collection Activities: Proposed Collections; Comment Request, Pages 12904-12905 [FR Doc# 2016-05471], View Full Article Matching: 2016 Affordable Care Act (5 hits), Medicare (5 hits), Medicaid's Affordable Care Act (8 hits)), 'Summary: The Centers for Medicare & Medicaid Services (CMS) is announcing an opportunity for the public to comment on CMS' intention to collect information from the public. Under the Paperwork Reduction Act of 1995 (PRA), federal agencies are required to publish notice in the **Federal Register** co...').



# One-Stop Repair for Medical Device Manufacturing Equipment

*Medical device manufacturers speed repairs and reduce costs by working with single source for full gamut of machine repairs, from mechanical to hydraulic to electronic.*

From engineering to fabrication, finishing and assembly, medical device manufacturing incorporates a range of advanced mechanical, hydraulic and electronic technologies into its processes. With many enterprises utilizing digital design and prototyping systems, automated fabrication, CNC finishing, and multi-axis, laser-based quality assurance systems, the demands for effective and timely repair or replacement of equipment are often critical.

Given the vast array of parts involved, the seemingly straightforward task of maintaining equipment often presents a logistical nightmare that involves farming out components to a variety of specialty repair shops with variable capabilities, quality, pricing and turnaround time.

Fortunately, the repair services industry is responding by broadening its capabilities to provide more of a one-stop-shop service for medical device fabricators, often with facilities strategically located near major manufacturers or manufacturing regions.

## Specialized equipment

Fabricators of medical devices incorporate manufacturing technologies that are common to many industries, ranging from aerospace to consumer electronics.

For example, companies that make surgical implants, orthotic devices and medical instruments often employ sophisticated CNC systems to maximize productivity and control. Although CNC systems may be unique in some

aspects, many platforms, such as the Siemens 840D include sub-systems and components that are similar or common to other industries such as digital drives and motors, connectivity to many types of tools through standard interfaces such as Ethernet, and easy integration to many different CAD/CAM systems.

In addition, medical device manufacturers utilize a variety of spindles, spindle motors, arbors and tools to automatically perform precise machining operations such as drilling and milling.

There is no shortage of mechanical or hydraulic components. High-purity hydraulic pumps, mixers, motors, cylinders, rotary actuators, pneumatic valves, servo valves and blowers are used to provide automated handling of

liquids, degassing systems, liquid-end assemblies, and flow cells.

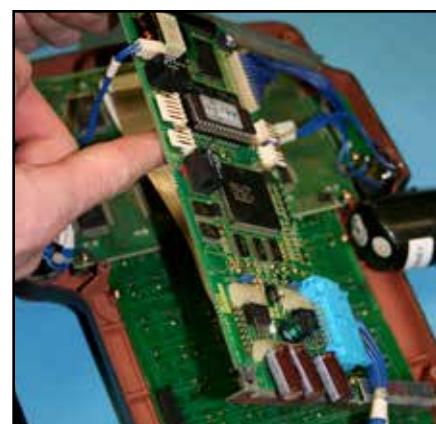
Finally, manufacturing systems often contain sophisticated electronic control elements, such as robotics, PLC controllers, environmental sensors, and HMI control panels that are designed to display real-time status information and alarm monitoring while also recording critical production-related data for on-the-fly analysis of events, system troubleshooting and process improvement.

Given the variety and complexity of machine components, repair or replacement often involves sending specific components out to specialty repair shops. For example, a hydraulic component repair shop does not have the capability to also repair motors; a motor repair shop cannot replace power supplies, I/O, memory or communication cards in sophisticated PLC systems; and robotic equipment must usually be repaired at a dedicated facility.

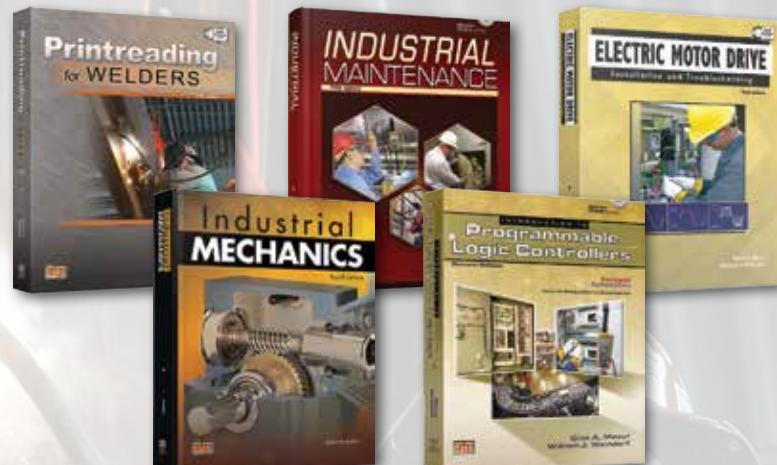
However, where these services can converge are with larger international repair service companies such as K+S Services. Due to its size and expertise in many industries from automotive to aerospace, they are equipped to offer an array of repair services under one roof.

This includes the repair or replacement of components, including major manufacturer brands for the mechanical (servo motors, gear boxes and gear reducers, brake assemblies, vacuum pumps and blowers, air/fluid pumps, ballscrews) to the hydraulic (pumps, motors, cylinders, rotary actuators, servo valves).

In addition, the company can handle sophisticated electronic components including, replacement of controller



## Knowledge is Your Competitive Edge



ATP's line of comprehensive print and digital learning resources are suitable for novices as well as seasoned professionals. These industry-leading materials cover such topics as basic principles, industry standards, and the latest industrial processes and technologies.

**Scan here to visit our website for more product information**



**AMERICAN TECHNICAL PUBLISHERS**

800-323-3471 • [www.atplearning.com](http://www.atplearning.com)

Follow Us  
@ATP\_Connect

cards for power supply, I/O, communication and memory, as well as HMI control panels. For robotic elements, their extensive expertise is used in other industries such as in the automotive manufacturing industry.

Regardless of the type of part, it is important to look for a repair company that will conduct an initial evaluation to identify the probable cause of failure, and then repair and test the part according to the manufacturer's specifications and test procedures.

### Proximity of Repairs

A repair service company such as K+S Services is unique in the industry because it has pursued a strategic model of expansion by opening new locations in close proximity to existing major plants, as well as geographic regions that attract and support U.S.-based manufacturing.

The company now operates twelve facilities across the globe, including the U.S., Mexico, Canada, and Europe. More than just a store front with a lone representative that coordinates with a larger office, these repair facilities are fully equipped and functioning shops with managers, technicians and spare parts at each location.

Proximity, after all, has many advantages for the manufacturer. First and foremost, having a repair service in close proximity means repairs can be completed faster and the maximum possible uptime maintained. Today, most manufacturing plants need replacement parts quickly due to decreased on site spare parts inventory.

In the event of an emergency, turnaround time is practically negligible. Cases exist where a part has been picked up in the morning, repaired, tested, and returned that same day.



A photograph of a yellow steel safety guard rail system installed in a facility. The rail is made of multiple horizontal bars supported by vertical posts. In the background, there is a large metal structure and a QR code on the left side of the rail.

## SAFETY YOU CAN AFFORD.

When budgets run tight, don't trust the safety of your facility to cheap, foreign-made guard rail. ValueRail™ safety guard rail is precision formed from high strength steel to protect your facility with Made in the USA quality you can rely on.

CALL 262-549-1963 OR VISIT [VALUERAIL.COM](http://VALUERAIL.COM)

**VALUERAIL**  
Safety Guard Rail

# Southern Stud Weld, Inc.

[www.studweld.com](http://www.studweld.com)

Manufacturer and Supplier of Stud Welding Equipment, Accessories and Fasteners.



Stud Welding is a versatile, one-step metal fastening system. It is an instantaneous welding process in which a metal fastener is end-joined to a metal surface by creating a high quality fusion weld.

## WE ARE YOUR ONE STOP SHOP

### *Industries We Serve*

Aerospace  
Appliances  
Automotive  
Construction  
Electronics  
Food Service

Insulation Installation  
Light/Heavy Duty Equipment  
Offshore  
Petrochemical  
Shipbuilding  
Signs and Decorative Trim



Come see us at



November 16-18  
Las Vegas Convention Center  
Las Vegas, NV  
Booth N1606  
Mention this ad for a free gift



Two Locations To Serve You

15603 West Hardy Road.  
Houston, TX 77060

**800-929-0296**

713-691-0897

[Sales-Houston@studweld.com](mailto:Sales-Houston@studweld.com)

3645 Conflans Road  
Irving, TX 75061

**877-929-6707**

972-790-3339

[Sales-Dallas@studweld.com](mailto:Sales-Dallas@studweld.com)

# Daniel Safety Products...

*brings a wealth of knowledge and 40 years of experience to the industry. Our commitment is based on quality products, excellent customer service, and a complete range of protective apparel from basic coveralls to gas-tight suits. We are committed to bringing the ever-changing technology and new products to our customers at a competitive price.*

*To learn more about our products, please go to our website [www.danielsafetyproducts.com](http://www.danielsafetyproducts.com)*

4039 Nixon Chapel Rd, Albertville, AL 35950  
Phone:(256) 878-1440

*Our commitment is based on quality products!!!!!!*

If physical proximity in terms of location has its benefits, there is no relationship closer than having a repair service representative stationed within the plant itself.

Some repair service companies provide additional specialized programs like K+S' Smart Total Asset Management Program (STAMP) where customers are assigned a full-time, on-site account manager to serve as a one-stop facilitator and manager of all repairable assets within a specific plant.

This level of service includes tracking all repairs, expediting when required, shipping or delivering to and from the nearby repair facility, maintaining database integrity, streamlining and stabilizing procedures, generating a wide variety of reports and keeping the customer informed throughout the process.

Proof of the success of this business model rests with the number of corporations ascribing to it such as Chrysler, DePuy, GE Healthcare, GM, Ford, Goodyear, Stryker and Siemens which are among the well over 800 manufacturers successfully serviced by K&S Services.

For more information, contact K+S Services, Inc. Headquarters; 15677 Noecker Way; Southgate, MI 48195; (734) 1-374-0400 or 800-542-1331; [sales@k-and-s.com](mailto:sales@k-and-s.com).

[www.k-and-s.com](http://www.k-and-s.com) •

The advertisement features a red and black background. At the top left is a stylized red 'WP' logo. To its right, the text 'MAKE EVERY STEP A SAFE ONE' is written in white. Below this, a large red banner with white text reads 'Help Prevent SLIP AND FALLS'. In the center, there's a circular inset showing a person working on industrial stairs. To the right of the inset is a roll of 'Flex-Tred' anti-slip tape. Below the banner, there's a large image of a 'Stairmaster' anti-slip mat. On the left side, there's a can of 'WALK-A-SURE' floor cleaner and a small bottle. At the bottom, the text 'WOOSTER PRODUCTS' is displayed in a bold, white, sans-serif font. To the right of this text is a 'MADE IN U.S.A. PRODUCT' badge featuring the American flag. A small circular icon in the bottom left shows a person using a product.



# TANK MANUFACTURING EQUIPMENT

- Tank Turning Rolls
- Plate Rolls
- Fit-Up Rolls
- Off-Set Joggle Machines
- Side Beam Track Supports
- Tank Assembly and Girth Welding Machines

TURNING ROLL



FOUR ROLL  
HYDRAULIC PLATE ROLL



SLIP ROLL



*The* **WEBB** Corp.



402 E. Broadway, P.O. Box 549, Webb City, MO 64870

Phone: (417) 673-4646 • Fax: (417) 673-4649

**[www.webbcorporation.com](http://www.webbcorporation.com)**

# Miniaturization of Rupture Disks Forces Industry Back to Drawing Board



*Miniaturized rupture disks from 1/8" to 1" deliver protection against overpressurization at low, medium and high set burst pressures*

For more than 85 years, the rupture disk has served as an effective passive safety mechanism to protect against overpressure or potentially damaging vacuum conditions in tanks and other enclosed vessels. However, as these pressure relief devices become increasingly miniaturized to sizes as small as 1/8" to meet the demands of a new generation of smaller, lighter applications, the industry is running squarely into design and raw material challenges that often require reengineering the product itself.

Fortunately, leading rupture disk manufacturers have embraced this challenge with novel structures and design elements that have led to a new category of miniaturized options from 1/8" to 1" at all ranges of pressure including low (15-1000 psi), medium (350-16,000 psi) and high (1,500-70,000 psi).

The beneficiaries are expected to be equipment manufacturers and design engineers currently developing the next generation of aircraft safety systems, fire suppression systems, lithium batteries and battery packs, cryogenic systems, bioreactors, refrigeration systems, chemical systems, and hydraulics.

## The Evolution of Rupture Disks

To understand the challenge requires an understanding of the origins of rupture disk technology.

When it comes to pressure relief devices, the two most common are safety valves (reclosing) and rupture disks, also known as bursting discs (non-reclosing). Rupture disks are designed to fail within milliseconds when a predetermined differential pressure, either positive or vacuum, is achieved. The device has a one-time-use membrane usually made out of various metals, but also exotic alloys and graphite.

In many applications the superior leak tightness and flow characteristics of a rupture disk are preferred over safety

valves, which are known to leak. In fact, it is a common industry practice to install a rupture disk on the inlet side of a safety valve to economically protect against corrosion and provide the required leak tightness.

In another potential use unrelated to pressure relief, rupture disks can be designed to activate as one-time fast acting valves or triggering devices to initiate a sequence of actions with high reliability and speed.

## Transition to Miniature

For decades, rupture disks have been used in petrochemical, aerospace, defense, medical, railroad, nuclear, chemical, pharmaceutical, food processing and oil field applications. In these applications, rupture disk sizes ranged from 1"- 6", with larger sizes up to 60" for the largest piping configurations. To install the product, the rupture disc is placed in a holding device, called a safety head, and installed between flanged pipe ends.

However, as equipment manufacturers strive to make their products smaller and lighter, the rupture disk industry has been challenged to deliver miniaturized options well under 1" in diameter.

Due to a delicate balancing act between the shrinking diameters, a complicated choice between two rupture disk design philosophies, the limitations of the specific raw materials utilized for the membrane, and the variations required to meet the requirements



# BALLISTIC CONTAINMENT AND SAFETY SOLUTIONS

## CUSTOM BALLISTIC AND CONTAINMENT BLANKETS

Stroud Blankets are available in Kevlar and Ballistic Nylon, and designed with fitments and straps for your equipment containment requirements.

Stroud Ballistic Containment Blankets have been proven in the field to effectively and safely contain projected debris that results from catastrophic equipment failure.



Blower Housing Containment



300,000 psi Fracking Test Containment

## STROUD FIRE BLANKET

The Stroud Fire Blanket is an indispensable piece of safety equipment that should be a staple for every industrial facility, workshop, and home.

Manufactured with fire-resistant Nomex® and sewn with Nomex® thread and reinforced with nylon stitching, this heavy-weight blanket is essential in a fire emergency to quickly help smother a fire on an individual or equipment.

Comes with storage bag and opens to over 25 square feet.



## STROUD FIRE SUPPRESSION

Stroud Safety offers a versatile range of FE-36 fire suppression delivery systems for many industrial applications (other agents available). We have the sizes and components for your specific needs.

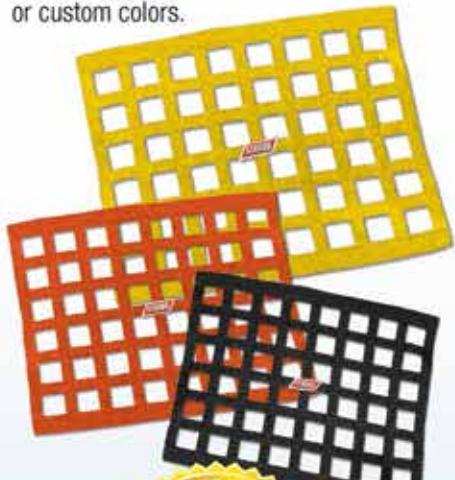
Custom applications are our specialty.



## STROUD CUSTOM BARRIER NETS AND RESTRAINTS

Stroud can custom engineer and design barrier or restraint net systems to meet your most stringent requirements.

Our nylon webbing is available in a variety of widths and triple sewn for maximum strength and durability. Choose standard or custom colors.



Stroud Industrial Safety Solutions specializes in custom applications for machine guarding and ballistic containment, custom netting and barrier restraints, fire suppression systems, Nomex® apparel and much more. Let us design a custom safety application for you.

# STROUD

# INDUSTRIAL SAFETY SOLUTIONS

STROUDINDUSTRIALSAFETYSOLUTIONS.COM • 800-554-4648

MADE IN  
THE USA!

for low, mid and high burst pressures have forced rupture disk manufacturers to the drawing board.

### Competing Designs: Forward-Acting vs. Reverse Buckling

The first major decision when selecting any rupture disk of any size is the choice between forward-acting and reverse buckling technologies.

In the traditional forward-acting design, the loads are applied to the concave side of the disk. The thickness of the raw material employed and the diameter of the fitting in which it is mounted determine performance.

However, with this approach the rupture disk is prone to metal fatigue caused by aggressive cycling and operating conditions that can limit its operational life. Traditional rupture disk technology is additionally limited to applications having an operating to burst pressure ratio of 75% or less to avoid fatigue effects leading to potential unwanted activation. Exacerbating the issue, forward-acting miniaturized disks with low set pressures require the use of tissue paper thin raw material that is fragile and prone to leakage when assembled.

This has caused a somewhat negative view of this type of disk

even though it is still utilized in many static pressure applications and suffices for certain high pressure applications.

In a reverse buckling design, on the other hand, the dome is inverted toward the source of the load. Burst pressure is accurately controlled by a combination of material properties and the shape of the domed structure.

By loading the reverse buckling disk in compression it is able to resist operating pressures up to 100% of minimum burst pressure even under pressure cycling or pulsating conditions. The result is greater longevity, accuracy and reliability over time.

### The Miniaturization Challenge

However, miniaturization of reverse buckling technology presents its own unique challenges.

As burst diameters decrease it becomes increasingly difficult to design a reverse buckling dome that will reliably collapse through such small orifice sizes. In many ways it can be like trying to fit a camel through the eye of a needle.

To resolve this issue some manufactures have created novel structures that control the reversal of the rupture disk to



**“Our approach to any design must consider all possible outcomes, especially the safety of the individuals for whom and through whom our designs are intended.”**

**Mike Wright, President, STE Inc.**



[www.ste4u.com](http://www.ste4u.com)

- Registered Professional Engineers with PE in 46 States + DC
- Industry Reputation in Fabrication drawings, CAD, & Engineering
- 3D Structural Designs
- Members ANSI, ASCE, ASSE, ASTM, BCSP & NCSEA

# CARNIE CAP™

## CUTTING EDGE IMPALEMENT PROTECTION

National OSHA Compliant  
CAL-OSHA Approved



**CARNIE CAP** is the most effective way to cap exposed rebar keeping your workers safe and on the job.

- ✓ WORKS IN HORIZONTAL, VERTICAL & INCLINE APPLICATIONS
- ✓ SAFELY DISTRIBUTES WEIGHT ACROSS ENTIRE SYSTEM
- ✓ ASSEMBLE WITH 2x4 OR 2x6 LUMBER ALREADY ON-SITE
- ✓ NO MORE CAPPING EVERY REBAR!

**ORDER TODAY!**  
**(888) 743-7725**  
**[www.carniecap.com](http://www.carniecap.com)**



Patent # 5826398, 6073415





always collapse in a predictable manner.

This includes, for example, a hybrid shape that combines reverse buckling and forward bulging characteristics that are pre-collapsed. In this type of design, a line of weakness is typically placed into the rupture disk structure to define a specific opening flow area when the reverse type disk activates.

Small nominal size rupture disks can also be very sensitive to the detailed characteristics of the orifice through which they burst, causing normal variations in holder support machined part dimensions to have an unwanted impact on burst pressure accuracy.

With small size pressure relief devices, the influence of every feature of both the rupture disk and its holder is amplified.

For miniaturized products  $\frac{1}{4}$ " and up certified for high burst pressures up to 70,000 psi, there are now rupture disks and holders from a single piece of material, eliminating the usual connection between a rupture disk membrane and its support fitting. The rupture disk is intrinsically leak-tight by virtue of its unitary construction.

As for installation, these miniature rupture disks are available as a single, integrated assembly certified to perform at the desired set pressure. The devices are typically threaded, but are also available in configurations for welding, soldering, or crimping based on the application conditions and leak tightness requirements.

*For more information, contact  
BS&B Safety Systems at 7455 East  
46<sup>th</sup> Street, Tulsa, OK 74145-6379,  
(918) 622-5950, e-mail: sales@  
bsbsystems.com.*

*By: Geof Brazier  
Managing Director  
BS&B Safety Systems,  
Custom Engineered Products Division*

[www.bsbsystems.com](http://www.bsbsystems.com) •

## With Noise Mitigation

Show Compliance

Be a Good Neighbor

WebSLARM

Build-in Web Server

Try It

[netslarm.timewave.com](http://netslarm.timewave.com)

User: SLARM

Pw: admin

SLARMulti™



The Question is -

dB or not dB?™

The Answer

The **SLARM**solution™  
Community/Industrial Noise Monitor and Alarm



### SLARMsuccesses

#### Construction

Johns Hopkins Hospital Floor Remodel  
Apple's New Headquarters Construction  
Airport Jet Run Up Monitoring

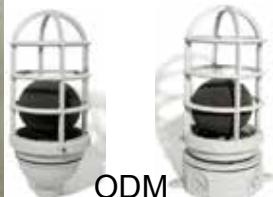
#### Industrial

Boatyards-Ferry and Tug construction  
Hospital Medivac Helicopter Monitoring  
Remote Alarm Monitoring-Dams

#### Entertainment

Red Rocks- Colorado  
ATT Performing Arts-Dallas  
Ocean Speedway -Watsonville, CA

#### Indoors or Out



ODM

**ACO Pacific, Inc.**  
[www.acopacific.com](http://www.acopacific.com) Tel:1-650-595-8588 Sales@acopacific.com

On YouTube Search: SLARMsolution



## SAFETY YOU CAN AFFORD.

When budgets run tight, don't trust the safety of your facility to cheap, foreign-made guard rail. ValueRail™ safety guard rail is precision formed from high strength steel to protect your facility with Made in the USA quality you can trust.

CALL 262-549-1963 OR VISIT [VALUERAIL.COM](http://VALUERAIL.COM).

**VALUERAIL™**  
Safety Guard Rail

Company	Pg.	Website
ACO Pacific	22	<a href="http://www.acopacific.com">www.acopacific.com</a>
Amerex	24	<a href="http://www.amerex-fire.com">www.amerex-fire.com</a>
American Technical Publishers	13	<a href="http://www.atplearning.com">www.atplearning.com</a>
ANSI	3	<a href="http://www.webstore.ansi.org/sitelicense">www.webstore.ansi.org/sitelicense</a>
Bevel Tools	4	<a href="http://www.beveltools.com">www.beveltools.com</a>
Carnie Cap	21	<a href="http://www.carniecap.com">www.carniecap.com</a>
Compliance Solutions	1	<a href="http://www.csregs.com">www.csregs.com</a>
Daniel Safety	16	<a href="http://www.danielsafetyproducts.com">www.danielsafetyproducts.com</a>
Herculock	4	<a href="http://www.herculock.com">www.herculock.com</a>
Jesco	9	<a href="http://www.jescoonline.com">www.jescoonline.com</a>
Ladder Port	7	<a href="http://www.ladderport.com">www.ladderport.com</a>
RegScan	IFC, IBC, BC	<a href="http://www.regscan.com">www.regscan.com</a>
Rhodium USA	6	<a href="http://www.rhodiumusa.com">www.rhodiumusa.com</a>
Safety Through Engineering	20	<a href="http://www.ste4u.com">www.ste4u.com</a>
Scantek	2	<a href="http://www.scantekinc.com">www.scantekinc.com</a>
Southern Stud Weld	15	<a href="http://www.studweld.com">www.studweld.com</a>
Starrett	6	<a href="http://www.starrett.com">www.starrett.com</a>
Stroud Industrial Safety	19	<a href="http://www.stroudindustrialsafetysolutions.com">www.stroudindustrialsafetysolutions.com</a>
Value Rail	14, 23	<a href="http://www.valuerail.com">www.valuerail.com</a>
Webb Corporation	17	<a href="http://www.webbcorporation.com">www.webbcorporation.com</a>
Wooster Products	16	<a href="http://www.wooster-products.com">www.wooster-products.com</a>



### **Amerex Corporation**

P.O. Box 81 • Trussville, AL 35173  
Ph: (205) 655-3271 • Fax: 800-654-5980  
email: [sales@amerex-fire.com](mailto:sales@amerex-fire.com)  
[www.amerex-fire.com](http://www.amerex-fire.com)

"Quality is Behind the Diamond"

## **EXTINGUISHERS AND FIRE SYSTEMS**

**INDUSTRIAL • RESTAURANT • MINING • UTILITY • FACILITY  
WASTE MANAGEMENT • FORESTRY • AGRICULTURE  
SERVER ROOM • TELECOMMUNICATION • AIRCRAFT  
AIRPORT • CONSTRUCTION • OFF-SHORE PLATFORM  
REFINERY • TRANSIT BUS • MANUFACTURING  
VESSEL • MILITARY VEHICLE...MORE!**



ISO 9001 & 14001  
OHSAS 18001  
CERTIFIED



*Designed and Assembled in the USA!*

NEW

# Applicability Wizard



Streamlined,  
Simplified,  
Legal Registers  
& Audit Protocols



# RegScan Country Monitor

Published monthly and authored by environmental lawyers, the RegScan Country Monitor covers the same topical areas (listed below) as our global legal registers and audit protocols. Our globetrotting experts review multiple sources for crucial regulatory developments, and provide clear analysis on what they REALLY mean for EH&S professionals.

Since the RegScan Country Monitor is fully integrated with the LookOut Alert service, subscribers can set up keyword-based queries by topic and jurisdiction - and have the change notifications pushed directly to their inboxes. Both final and proposed rules are covered.

Affordable subscription packages are currently available for 32 countries from every corner of the globe. To see a full list, please contact the sales team or visit [www.regscan.com](http://www.regscan.com).

