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**GROUP PUBLISHER**  
Brandon Greenhill  
205-733-4343  
brandon@tipsmag.net

**ASSOCIATE GROUP PUBLISHER**  
Rick Harless  
205-382-6182  
rick@handfmedia.net

**NATIONAL SALES MANAGER**  
Anne Marie Miranda  
205-624-3795  
annm@handfmedia.net

**EDITOR**  
Annie McGilvray  
annie@handfmedia.net

**CREATIVE/ WEB DIRECTOR**  
Jacklyn Greenhill  
jacklyn@handfmedia.net

**ADMINISTRATIVE DIRECTOR**  
Steven Hobson  
steven@tipsmag.net

**CEO**  
Christy Hobson

**PRESIDENT**  
Glen Hobson



**Executive and Advertising Offices**

**951 1<sup>st</sup> Ave. W.**

**Alabaster, AL 35007**

**phone: 205-624-3354 fax: 205-624-3354**

**www.tipsmag.net • glen@tipsmag.net**

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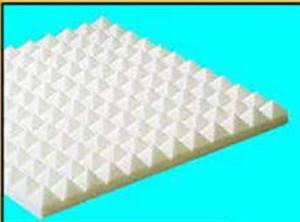
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## New IoT Gateways From HMS Allow Industrial Equipment to Communicate With Power Grids

HMS Industrial Networks now introduces a new family of Industrial IoT gateways for Smart Grid applications. The Anybus SG-gateways enable communication between industrial applications and energy protocols. This communication is the very basis for the so called "Smart Grid" where power plants and energy equipment are interacting with industrial applications. The SG-gateways are yet another example of how HMS realizes the Industrial Internet of Things.

**Anybus SG-gateways make the Smart Grid possible**

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A hand is shown from the palm side, with the index finger pointing upwards. The word "Like" is written in a bold, blue, sans-serif font across the middle of the index finger. The background is a light gray gradient with several white, rounded rectangular outlines scattered around, some overlapping the hand and the text.

**Like**

The new SG-gateways enable communication between industrial devices running Modbus, PROFIBUS, PROFINET, EtherNet/IP, or M-Bus and energy protocols (IEC61850 and IEC60870-5-104). This means that a power plant control room which is using the IEC protocols, can connect to industrial devices such as generators, drives, filters and protection equipment.

Since the SG-gateways can act both as a master and slave, it is also possible to connect Intelligent Electronic Devices (IEDs) which communicate over IEC-standards, to industrial networks, allowing them to be controlled by PLCs from e.g. Siemens, Rockwell or Mitsubishi.

The Anybus SG-gateways can also be used to enable remote control and management of electrical equipment in power grids. Data is sent over Ethernet or the 3G cellular network using the telecontrol protocols, after which the data can be presented by a software application in the power plant control room.

### Different versions – same configuration

The Anybus SG-gateways are available in different versions for handling various industrial networks and communication standards. These include I/O, Modbus, PROFIBUS, PROFINET, EtherNet/IP, or M-Bus. All versions use the same web-based configuration tool where commands are dragged and dropped, allowing for a quick and easy installation. No additional engineering tools are needed, only a standard browser.

“The Anybus SG-gateways are very powerful tools for handling the conversion between energy and industry standards,” says Niklas Selander, Product Manager at HMS Industrial Networks. “The Smart Grid can offer substantial energy savings and optimizations and there is a great demand in the market to create smarter energy solutions. But to make the Smart Grid come true, you need communication between the complex IEC protocols and the industrial world. Our new SG-gateways solve that problem. We already have a number of big industrial customers using the solution.”

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# Automatic Lubrication Systems That Stand Up to Corrosive, Caustic Environments

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*The latest in automated lubrication systems ensure optimum equipment performance, even in harsh plant environments, and reduce unscheduled maintenance.*

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Corrosive plant environments are among the most serious threats to many industries today, contributing to extensive production downtime and exorbitant maintenance costs.

According to a G2MT Laboratories report, the annual cost of corrosion for the U.S. industrial market was expected to reach over \$500 billion in 2015. This estimate is based on the most recent NACE (National Association of Corrosion Engineers) study, adjusted for inflation.

Among the most devastating effects of corrosion is its destructive impact on the load bearing surfaces of plant equipment, which are supported by many types of bearing components such as rollers, spines, gears, ball bearings or other moving parts. Unless these components are provided proper lubrication, they will be subjected to excessive heat and wear, both leading to premature failure.

With today's equipment running at higher speeds and longer periods, it is more important than ever to ensure that lubrication systems are providing bearing devices with efficient, timely applications of lubricating oil or grease in order to ensure wear life, safe operation, reduced unscheduled downtime of processing machinery, and more economical operating costs. For that reason many manufacturers are opting for automating their lubrication systems.

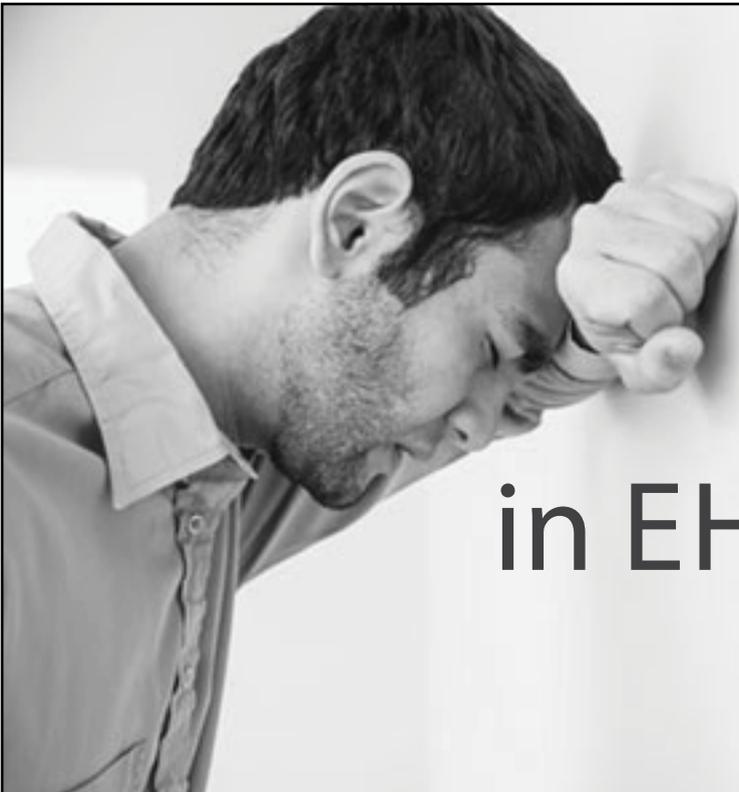
## *The multi-point challenge*

Many food and beverage manufacturing operations have hundreds, even thousands of lubrication points in a single facility. Although automatic lubrication systems have been around for decades, much of this work is still conducted using manual labor – particularly when the lubricant is grease.



While the food and beverage industry is manifestly moving to higher-speed, higher-volume automated equipment, it is becoming increasingly impractical for the industry to depend on labor-intensive, point-by-point, manual grease gun lubrication on a timely basis.

“Bearing giant SKF has estimated that 57 percent of all bearing failures are lubrication-related,” explains Richard Hanley, president of Lubrication Scientifics, LLC (Irvine, CA). “That rate can be reduced dramatically by automating the lubrication process, which ensures that the right amount



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and type of lubrication are delivered to every equipment bearing point.”

Lubrication Scientifics engineers and manufactures a variety of automated lubrication systems and components that are installed on equipment used in a wide variety of industries in addition to food processing, including the pulp & paper, chemical processing, steel, petrochemical and mining industries.

From an economic point of view, for most of these systems the payback period is less than a year. In some cases, engineered lubrication systems with advanced monitoring capabilities can easily save elaborate processes such as brewing operations millions of dollars in downtime costs per year.

Automated lubrication systems eliminate the cost and sometimes-hazardous task of manually applying controlled amounts of lubricant to multiple equipment locations at frequent time intervals while the equipment is operating.

“More frequent delivery of smaller amounts of lubricant is particularly important to bearing points on high-speed equipment,” Hanley says. “This prevents overheating the bearings due to excessive lubricant buildup, and ensures longer operating life.”

*Harsh food processing environments*

Food processing plants are exposed to some of the harshest

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environmental factors, including extreme room temperatures and mandatory wash-down procedures that may occur at frequent intervals.

FDA, 21CFR110.35 requires that all processing lines and equipment be adequately sanitized, as often as necessary. This requirement is typically met by a full equipment wash down, with an approved cleaning agent. These wash-downs create serious corrosion problems for any non-stainless steel components used in the processing line.

Corrosive damage from exposure to caustic wash-down fluids can severely compromise the performance and service life of lubricating system metering valves - the valves that dispense oil or grease in controlled proportions to each connected lube point - which are constructed of zinc- or nickel-plated carbon steel.

“In such an environment, the corrosion resistant life of a plated carbon steel metering valve or system component will only be weeks to months,” Hanley says. “Although the initial corrosion will look much like rust, it will eventually cause the lubrication metering valve to lose its effectiveness long before normal wear and tear would compromise that part.”

In the food processing industry, corrosion problems are normally prevented through the use of equipment made of stainless steel. However, as a broad offering of stainless steel metering valves has not been readily unavailable, the only effective anti-corrosion solution for automatic lubrication system components has been to enclose the plated carbon steel metering valves into stainless steel enclosures. Including the cost of the enclosure, the bulkhead fittings, and the installation labor, it is easy to spend \$2,000 to protect a \$500 hundred dollar plated carbon steel metering valve. Yet, the space required to mount such as enclosure may not

be available on or near the processing line.

In such cases the installation metering devices made of stainless steel that can be mounted directly to the plant equipment is the most cost effective solution to maintaining sanitary standards and insuring long-term production reliability.



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Typically, stainless steel metering valves such as those offered by Lubrication Scientifics cost between 1-1/2 and 3 times the price of a carbon steel-plated metering valve. Still, this is typically 40% to 60% less expensive than enclosing plated carbon steel valves in a stainless steel enclosure.

#### *Automated system basics*

There are several different types of automated lubrication systems, but a typical system consists of controller/timer, pump with reservoir, supply line, metering valves and feed lines.

Whatever the design, automated lubrication system metering valves must stand up to the rigors of harsh plant environments.

One of the most common lubrication systems is the Single-Line Parallel, which is also referred to as the Injector-type of lubrication delivery methodology. This system is known for its ease of installation, adjustable metering of valves (or injectors) and applicability to a minimum of one and maximum of six lube points per device. Lubrication points may be added or removed without redesign of the system. On the down side, it is difficult to verify that each lubrication point is constantly being serviced.

Another common system is the Dual-Line Parallel. This system is also easy to install and features adjustable metering valves. With this type of system a minimum of one and maximum of eight lube points may be serviced from each device, and lubrication points may be added or subtracted without system redesign. Also, heavy greases may be delivered over very long distances. However, with this system it is difficult to verify that each lubrication point is constantly being serviced.

A third type of automated system, the Single-Line Progressive System (aka the Divider Valve System), is precisely engineered to deliver exact lubricant requirements to each point. However, with this system lubrication amounts and points may not be altered, and initial installation costs are higher than with other systems. A primary advantage of these systems is that system performance can be easily and inexpensively monitored to verify that each lube point is constantly being serviced.

In order to overcome the various threats of corrosive and caustic environments, Lubrication Scientifics makes all three types of system and components available in 303 and 316 stainless steel, most of which are available within days rather than months.

#### *Verifiable system advantages*

Plants that have the verifiable automated system normally have the need to deliver precise amounts of lubrication to many points.

The biggest advantage of the Single-Line Progressive type of system is that every lubrication point is monitored, ensuring that each point is receiving the proper lubrication, thereby maximizing production uptime.

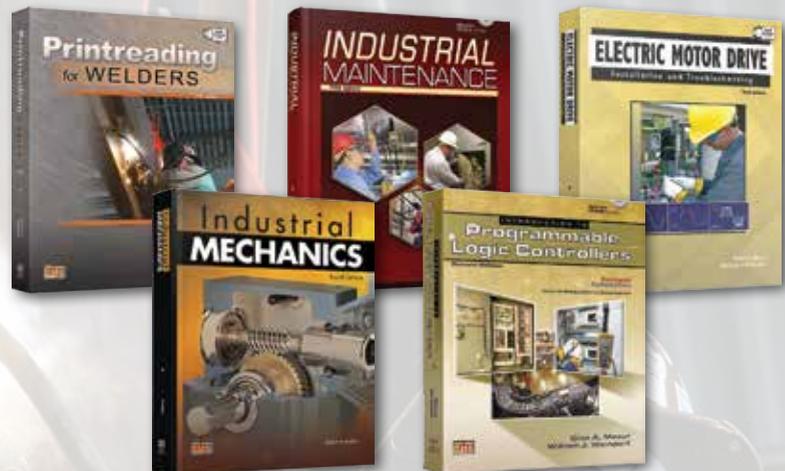


In addition, this type of system prevents unauthorized interference with system settings, so that workers cannot inadvertently change the precise amounts and intervals of lubrication sent to various points.

For more information, contact Lubrication Scientifics, LLC., 17651 Armstrong Avenue, Irvine, CA 92614; Phone: 714-557-0664; Toll-free: 877-452-0157; Fax: 714-546-4564; Email: sales@lubricationscientifics.com.

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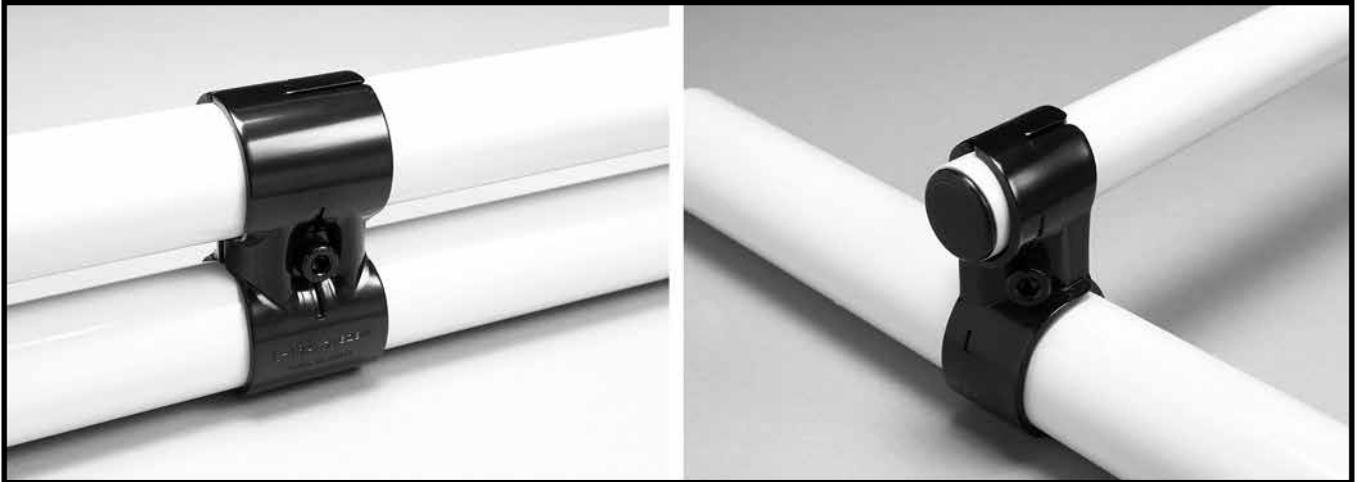


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# Creform Introduces New Metal Joint Sets for 42 mm Dia. Pipe



Creform Corporation, manufacturer of adaptive material handling systems such as workstations, flow racks, carts and AGVs has introduced a new series of structural metal joint sets for its unique 42 mm dia. pipe in a variety of shapes and configurations.

The metal joints, designated the LJ and the LEJ series are complete joint assemblies for connecting 42 mm pipe most commonly used to assemble Creform heavy-duty structures such as the aforementioned workstations, flow racks and carts.

The metal joint sets are either nickel plated for anti-static applications or e-coated black for standard applications. They are available as LJ (42mm/42mm) and LEJ (42mm/28mm) joint sets.

When choosing the appropriate joint, consideration is given to configuration, flexibility, strength, environment and cost factors of the structure. Many joints are well suited for industrial and logistic applications because of their durability, flexibility and reusability.

Creform standard 42mm metal joints are made of cold-rolled, 10 gage steel. Components are joined together with special high strength socket head cap screw and nuts. The joints are designed to hold the nut so only a simple hex head wrench is required for assembly or disassembly. Joint assembly is easy as no special technical skills are necessary to build a structure.

The Creform System is used to create an array of material handling and efficiency enhancing devices and is a proven component in continuous improvement and Lean Manufacturing programs.

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# Ceramic Centring Pins for Welding: Longer Service Life, More Reliability, and Higher Precision

One would expect that manufacturers and users of sheet metal and welding systems would prefer to use metallic materials in their machines. However, when it comes to fixing the sheets and assemblies in automated welding lines, avoiding the use of (hardened) metal has definite advantages. Because in these applications, ceramic centring pins have a service life that is up to 40 times longer. For this reason, DOCERAM has expanded its CERAZUR range of centring pins made of blue high-performance ceramic.

The first reason for the extended service life of the ceramic centring pins is due to the extreme durability and impact strength of high-performance ceramic. With the very short cycle times of automated production lines such as car body assembly for example, then even hardened metal centring pins quickly become deformed and worn. Components made of Cerazur, a yttrium-stabilized zirconium oxide, stay geometrically stable even when undergoing extreme mechanical stress.

But the second advantage of ceramic is that welding spatters do not stick to it. This avoids interrupting production because of a defective welding caused by the build-up of material. This means: When Cerazur centring pins are used in the manufacturing line, the positioning accuracy is guaranteed for long periods.

Because of this, it is possible to obtain exactly reproducible welding results and the ensuing high availability and minimum downtimes pay off for the user. In automated, short-cycle industries like car body manufacturing; this particular advantage outweighs the additional cost of high-performance ceramic. And this applies not only to welding lines, but also for other types of assembly, like flanging and clinching.

All these reasons have led the major automotive manufacturers to rely on Cerazur centring pins and to benefit from their technical and economic advantages. They either use the pins that DOCERAM offer in many different assemblies and forms. Or they use the complete welding electrodes consisting of a base electrode, a screwed-on change electrode and a compressed-air controlled centring pin made of ceramic (Figure 2). These complete electrodes have a modular construction allowing them to be adapted to almost any kind of equipment and their “plug and play” design allows them to be installed very quickly.

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# EXSYS Tool Introduces High-Precision Modular Clamping System

EXSYS Tool Inc., the exclusive North America supplier of pL LEHMANN rotary tables, has expanded its offering of ultra-high precision products to include the pL LEHMANN swissClamp modular clamping system. This new system allows operators to mount multiple work pieces on machine tool tables for uninterrupted production and unmanned operations.

For use with rotary and standard tables on vertical or horizontal milling machines, the Swiss-manufactured swissClamp modules mount on face plates or directly on worktables. The system extends a shop's potential part-clamping range from 90 mm to 200 mm – a 40 percent increase in work piece capacity within the same clamping length.

swissClamp's four basic modules enable more than 240 possible configurations, including both mono clamping, requiring only one basic body, and duo clamping, where two mono clamps are mounted opposite one another. Configuration options include creating a clamping tower/tombstone on a fourth axis, a horizontal clamping cone that is overhung or with counter bearing, or a clamping bridge on a trunnion table set up where both sides require a different design with mono and duo systems. Operators can also create clamping modules on the fourth or fifth axis.

Ideal for a variety of mass production applications in automotive, aerospace, medical/dental and micro technology industries, swissClamp is suitable for either strong gripping or light finish clamping applications. For strong gripping, the system achieves rigid, pull down clamping to depths of 3 mm or 6 mm via a mechanical grid on its jaws.

When used for finish clamping, swissClamp's finish jaws achieve non-rotating, precise parallel clamping with a clamping stroke of approximately 1 mm that prevents indentations and ensures high surface quality. The system enables finish clamping to a depth of 6 mm.

The swissClamp system is compact with a simple, yet robust design that makes it easy to clean and offers good chip and coolant flow.



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# NEW Simple Vision Sensor, More Versatile and Stable Inspection than Ever Before from KEYENCE

A new product has been added to the popular vision sensor family from KEYENCE Corporation of America, the IV Series. The new IV-H Series vision sensor increases the stability and functionality of visual inspection.

**Visual Inspection Solutions:** The IV Series vision sensors can handle difficult detection applications with ease. KEYENCE vision sensors will typically replace multiple sensors for an all-in-one solution for applications with multiple parts to detect.

**Toolset:** The new IV-H models boast increased stability and versatility with a brand new toolset. Previously existing units used three tools for detection:

- Outline tool for shape and pattern detection
- Color detection
- Position adjustment to account for change in orientation and position

KEYENCE has expanded the toolset for the new IV-H models. These new tools increase the stability of inspection, and increase the number of applications the IV can solve. Along with the three tools present in earlier models, the IV-H also incorporates the following new tools:

- Width/height detection
- Diameter detection
- Edge presence verification
- Edge Pixel tool (for detecting machining/finishes)

**Ease of Use:** Typically, vision software can be cumbersome and difficult to use. To set up a new program in the IV software, the user needs to only complete four steps. Tools are simple and intuitive, allowing operators of various vision software competencies to set up a program in about one minute. With an Ethernet/IP and Profinet communication setup wizard, the IV series vision sensors are extremely easy to network.

The IV-H from KEYENCE is revolutionizing the vision sensor market with its ability to handle a wide variety of applications with ease.

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During this informative table-top forum, attendees will have the opportunity to discuss their water jet cutting applications with experts from Jet Edge and its Canadian distributor Elliott-Matsuura Canada Inc. Admission is free.

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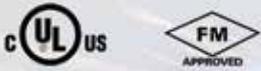
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