



2017 BUYERS GUIDE



Automation Direct

AutomationDirect takes the best ideas from the consumer world to serve the industrial market. As a direct seller of industrial automation products for more than twenty years, AutomationDirect is a leader in the industry that offers many customer services not typical with traditional distributors. The company created a print catalog, and later an online store that provides complete product information and pricing so customers can make informed decisions on their automation purchases quickly and independently.

AutomationDirect's products are practical, easy to use, and offer a low cost of ownership. The company offers quality products at prices up to 50 percent lower than those of more traditional distributors. Most of their products' programming software is free, requiring no initial or upgrade costs and no software maintenance contracts. Product offerings include programmable logic controllers (PLCs), alternating-current (AC) drives/motors, operator interface panels/human machine interface (HMI), power supplies, direct-current (DC) motors, sensors, push buttons, National Electrical Manufacturers Association (NEMA) enclosures, pneumatic supplies, and more.

AWARD-WINNING SERVICES SATISFY CUSTOMERS

AutomationDirect has always maintained a huge inventory, allowing them to ship 99.7 percent of orders complete the same day. They were among the first to offer free two-day shipping, available for any order over \$49. Shipment confirmations and any backorder status and



estimated delivery information are communicated electronically to keep you informed.

Their online store is one of the most exhaustive in the industry—all technical documentation can be downloaded free of charge, as well as software and firmware updates. Hundreds of instructional videos are available for viewing without registration. Online access to your account allows viewing and changing account information, viewing order history and making payments.

Customers can also obtain return authorizations online for quick and easy product returns or exchanges.

AutomationDirect's phone technical support staff has garnered top honors in service from industry magazine readers fifteen years in a row. And, with tens of thousands of active customers, the company's online technical forum taps into that knowledge base by encouraging peers to help each other with applications and other questions. Other online help includes frequently asked questions, application examples and product selection guides.

THEY GUARANTEE IT

AutomationDirect wants you to be pleased with every order. That is why they offer thirty-day money-back guarantee on almost every product they sell, including software (see Terms and Conditions for certain exclusions). ♦

AUTOMATION DIRECT

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Ethernet-ready Micro HMIs

FOR LESS!



C-MORE MICRO HMI PROGRAMMING SOFTWARE
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(EA-MG-PGMSW)

3 INCH
ETHERNET-READY
TOUCH PANEL HMI
PRICED AT
\$198.00
(EA3-S3ML)

4 INCH WIDESCREEN
ETHERNET-READY
TOUCH PANEL HMI
PRICED AT
\$269.00
(EA3-T4CL)



C-more Micro HMI Panels

With their low price, free software (with simulator), small form factor and now built-in Ethernet capability, C-more Micro panels are undoubtedly the best value in industrial micro HMIs.

NEW EA3 3" Micro HMI features:

- 3.1" STN LCD monochrome touch-screen display
- Twelve selectable LED-driven backlight colors
- Five user-defined function keys
- Serial, USB and Ethernet Ports
- 2-year warranty

NEW EA3 4" Widescreen Micro HMI features:

- Widescreen 4.3" touchscreen display
- 32K colors
- Serial, USB and Ethernet Ports
- 14MB memory
- 2-year warranty



Research, price, buy at:
go2adc.com/CmoreMicro



Order Today, Ships Today!

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AUTOMATIONDIRECT.COM
1-800-633-0405 the #1 value in automation

Gas Clip Technologies

4-Gas Detector Runs for 2 Years and NEVER Needs Charging

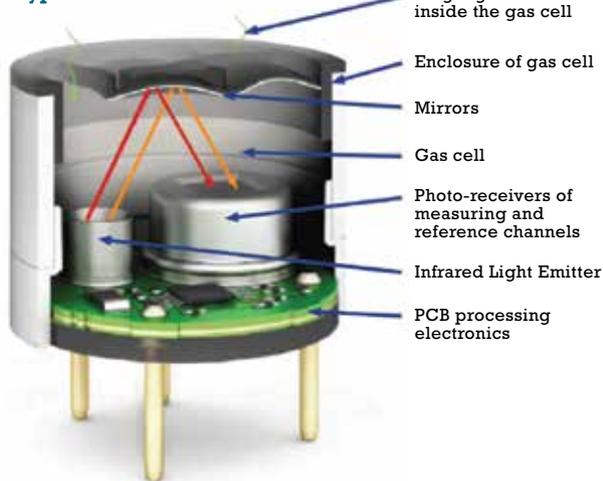
Finally eliminate the risk of being unprotected against toxic gases due to your portable gas detector running out of battery in the middle of a shift. Gas Clip Technologies introduces a new, maintenance-free 4-gas detector that has a 2-year continuous runtime with no charging—the **Multi Gas Clip Simple**. Reliably test for hydrogen sulfide (H₂S), carbon monoxide (CO), oxygen (O₂), and combustible gases (LEL) with this simple-to-use and simple-to-maintain detector. No charging ever! No calibrating needed! Just turn it on and have worry-free assurance of protection against toxic gases 24/7 for 2 full years ... with no maintenance costs.

What makes this ultra-durable detector able to perform so well for so long even under the harshest of conditions? Gas detection has come a long way since the first portable gas detector with a catalytic diffusion sensor was introduced in the 1920's. New technology has led to the development of sophisticated, yet easy to use, gas detectors that can run for their entire lifespan without ever needing to be charged or calibrated.

The **Multi Gas Clip Simple** uses a low-energy infrared beam of light inside the LEL sensor to detect gas. This type of detection process has an extremely low drain on the battery, allowing the battery to last for months and months at a time. Non-infrared (pellistor/catalytic bead) LEL sensors, which were the only combustible gas sensors available for many years, contained two beads and a filament which needed to heat up to detect gas. That continual heating process used an enormous amount of energy which consumed the battery power quickly. By the end of a shift, and sometimes even before a shift was over, gas detectors would need to be recharged. Think of the convenience now of not having to plug a gas detector in every single day to charge it up.



Typical Infrared LEL Sensor



Pellistor/catalytic bead LEL sensors had to have oxygen present to perform the heating process, therefore it was previously impossible to obtain accurate gas readings in inert environments. The infrared LEL sensor, using just a beam of light to detect gas, doesn't require oxygen at all, so it always will provide an accurate gas reading in oxygen-enriched or oxygen-depleted environments.

The pellistor/catalytic bead filament was also fragile so it could burst when suddenly exposed to high levels of gas or it could easily break when the detector was accidentally dropped. The infrared LEL sensor contains no

fragile filament to break or burst. It also doesn't contain beads that can get poisoned over time with exposure to typical sensor poisons such as H₂S or silicones.

The **Multi Gas Clip Simple** is the easiest to use and easiest to maintain gas detector available today. Gas Clip Technologies' continued development and refinement of advanced low-power photometric infrared technology for LEL measurement helps make gas detection simpler than ever in this newest member of their gas detector family.

For more information, visit www.gascliptech.com. ♦

From the company that brought you the industry leading
run time 4-gas detector, Multi Gas Clip Infrared...
a new chapter is here.

Introducing the Multi Gas Clip **Simple**

by **gasclip**
technologies

NO CHARGE 4-GAS, 2-YEAR RUN TIME



- No charging required... EVER
- Detects H₂S, CO, O₂ & LEL gases continuously for 24 months
- No need for calibration
(can be calibrated if required)
- Fails to safe
- No costly maintenance
- LEL sensor is immune to poisoning
- Detects gas in inert environments
- Full data logging at 1 second intervals
- Large, easy to read display
- Simple one button operation
- Assembled in USA



Gas Detection Made Simple

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GEMÜ Valves

GEMÜ Valves is one of the leading manufacturers of valves, measurement and control systems. The globally focused, family owned enterprise was established in 1964 with the Atlanta, Georgia, manufacturing facility opening in 1988. Today, GEMÜ continues to be a market leader with its innovative products and customized solutions. With several manufacturing centers and a presence all over the world, GEMÜ is committed to the pursuit of quality and excellence in the development, production, and manufacturing of their products. GEMÜ specializes in the following sectors with products and services: pharmaceutical, biotechnology, and cosmetics; food and beverage; microelectronics and semiconductor; water treatment; processing and power generation.

GEMÜ is proud to assume a leading role in the development and introduction of optimized valve design, superior sealing concepts, material development and instrumentation technology. Innovative technology is evident in leading edge instrumentation,

including process controllers, valve positioners, flow measurement, and valve communication / control modules for network control systems.

Automation options include Communication and Control Modules that facilitate commissioning and optimize diagnostic benefits of control network architecture. Unprecedented precision, repeatability, and reliability in communication and control are provided as a result of advanced sensor and microprocessor based control technology.

GEMÜ's ground breaking design and leading edge manufacturing technology provides engineered solutions to complex process challenges. GEMÜ's overriding philosophy is to ensure that each and every customer contact is a quality experience. ♦



GEMÜ®

VALVES, MEASUREMENT AND
CONTROL SYSTEMS

GEMÜ Quality Products... GEMÜ Quality Service

4212 & 4242 Automation features:

- Class 1 DIV 2, UL & CSA
- Multiple control options: 24 VDC, AS-I, DeviceNet
- Super bright LEDs indicate valve position

Multiport Diaphragm Valve features:

- Thousands of block designs to solve process challenges
- Minimize dead leg and hold up volume for optimal process efficiency

Globe Valve features:

- High cycle life
- Variety of end connections, materials of construction and actuation



550
Globe valve
with 1434
positioner



Multiport

4212 Switch



650 Diaphragm valve
with 4242 switch



Godwin

With modern wastewater, you never know which pump-clogging material you will be faced with next.

With new products and materials finding their way into modern wastewater, pumps are being asked to handle more today than ever before. Not only are wastewater pumps required to handle more flow, they are also facing new challenges like rising energy costs and nondegradable solids that increase the risk of clogging, leading to unscheduled maintenance, costly downtime, or even sanitary sewer overflows (SSOs). Here are the top five offenders:

- Paper towels—Unlike toilet paper, paper towels are designed to stay intact when wet, so they often tangle into fibrous clumps that jam sewer systems. A recent study found that paper towels (mostly from public restrooms) account for 42 percent of all pump clogs.
- Flushable wipes—In 2015, personal wet wipe sales hit an estimated \$2.2 billion. Regular toilet paper dissolves in water in minutes. New flushable wipes, however, do not. They can reduce a pump's flow rate by as much as 30 percent.
- Disinfecting and baby wipes—Pre-moistened disinfecting and baby wipes dissolve even more slowly than flushable wipes and are more hazardous to pumps.
- Feminine hygiene products—Like pre-moistened wipes, tampons are far from pump friendly, even if they are labelled 'flushable'.
- Fats, oil and grease—Fats, oil and grease (FOG) cling to solids and fibers, creating balls of sludge know



as fatbergs. In September 2017, workers in London discovered one of the biggest fatbergs ever seen—weighing an estimated 130 metric tons, or the size of 11 double-decker buses!

So how do we stay one step ahead of the challenge and ensure our wastewater networks can handle these harmful pump clogging materials? New modern wastewater pump technologies can help you tackle these system-clogging hazards head on. These technologies allow you to reduce service time and the risk of SSOs, gain full control and visibility of your pumping systems no matter where you are, and comply with EPA Tier 4 requirements while reducing fuel usage.

- Non-clog technology—Today's wastewater requires non-clog technology like self-cleaning impellers with sustained hydraulic

efficiency to help wastewater pumps power through the challenging materials that come their way.

- Smart monitoring—New smart monitoring technologies give you peace of mind through real-time insights into the status of your system, helping to optimize flow and energy usage. Connected alert systems send text messages or emails when maintenance is required.
- Green engines—New pump technologies are equipped with high-performance EPA Tier 4-compliant engines that can decrease emissions by 90 percent and fuel consumption by 10 percent.

As the challenges of wastewater pumping systems grow more complex, your solutions have to keep pace. Imagine a solution that combines all these technologies in one. Xylem's Godwin NC150S Dri-Prime® Pump—the smart solution for water—comes equipped with self-cleaning, non-clog Flygt N-Technology and Godwin's Field Smart Technology for remote monitoring and control anytime, anywhere. The NC150S delivers dramatically lower cost of ownership thanks to 40 percent less maintenance time and simplified serviceability, 10 percent less fuel consumption, and a 20 percent increase in product reliability. All of this as well as an environmentally sustainable FT4 engine that ensures 90 percent less emissions. Solving modern wastewater may be tough, but being smart about it has never been easier.

Visit Xylem.com/smart to learn more about the Godwin NC150S Dri-Prime® pump. ♦



OUTSMART WATER FROM THE COUCH



Manage your pump anywhere, anytime with the new Godwin NC150S Dri-Prime® Pump with Field Smart Technology.

Our new Godwin S Series Non-Clog Dri-Prime pump just set the standard. Again. With remote monitoring and control from any smartphone, tablet or desktop computer, it's nothing short of amazing. Turn it on. Turn it off. See flow rates, fuel levels and more. Solving water may be tough, but being smart about it has never been easier.

Learn everything the new Godwin NC150S Dri-Prime® Pump can do at www.xylem.com/SmartNC150S

godwin 
a xylem brand

Gorman-Rupp Pumps

Manufacturing quality lift stations for over fifty years

Gorman-Rupp built its first pump eight-five years ago in the outskirts of Mansfield, Ohio. Founders J.C. Gorman and Herb Rupp focused on producing a “quality product... backed by reliable service” for industrial, construction, and agricultural customers. As the company’s product offering expanded through the years, the markets it served grew to include petroleum and sewage applications.

In 1963, Gorman-Rupp began shipping a new self-priming pump designed specifically for handling sewage—the T Series. The new pump line not only passed three-inch spherical solids and operated “high and dry” above water, but also featured a patented double-floating, self-aligning mechanical seal that ensured reliable service over time. The T Series was quickly accepted in the marketplace and soon found its way into the designs of many of the major lift station manufacturers of the day.

After a few years of experience with field service calls to these stations, Gorman-Rupp learned that issues stemming from system design challenges and faulty ancillary components were often wrongly attributed to the pumps; additionally, problems with lift stations often arose from the limitations of the steel enclosures that were commonly used at the time. As a result, Gorman-Rupp resolved to develop its own sewage packages using a new, more durable material for the enclosures.

Gorman-Rupp entered the pre-packaged lift station market in 1967 with a below-ground duplex station featuring T3A3-B pumps. Delivered to Hopkins, Minnesota, the station featured a fiberglass reinforced polyester (FRP) enclosure containing pumps, motors, controls, valves, and piping—entirely built and tested by Gorman-Rupp. That first station was still in operation over forty years later.

Five decades and more than 16,000 lift stations later, Gorman-Rupp continues to innovate and refine its offering of engineered products for the municipal market. The ReliaSource® line of above-ground, below-ground, submersible, and modular pump packages are carefully



The first manufactured lift station by Gorman-Rupp was shipped to and installed in Hopkins, MN in 1967.



In 2015, Gorman-Rupp released the ReliaSource modular above-ground lift station allowing for larger pump configurations, the latest in control technology and offering a variety of enclosure finishes.

designed, manufactured, and tested by expert staff at a state-of-the-art facility in order to guarantee low maintenance costs and minimal service interruptions. Unlike standard ninety-day or one-year warranties, every component of a ReliaSource lift station is warranted for a full five years. A commitment to Total System Responsibility means there is only one number to call for parts or service for the entire lift station, making it easy and convenient for operators to keep the equipment running as it should.

Pumps are the heart of every lift station, and Gorman-Rupp maintains close to one million square feet of the most modern manufacturing, testing, and warehousing facilities in the world. Reliable, long-lasting, self-priming, horizontal end suction centrifugal, submersible, priming-assisted, utility, and rotary gear pumps are carefully designed, manufactured and assembled using the latest technology. Rigorous testing at actual operating conditions is performed on individual pumps as well as entire pumping systems, making sure these products are ready to tackle the toughest jobs—before they go out the door.

After installation, a worldwide network of Gorman-Rupp distributors continues to provide

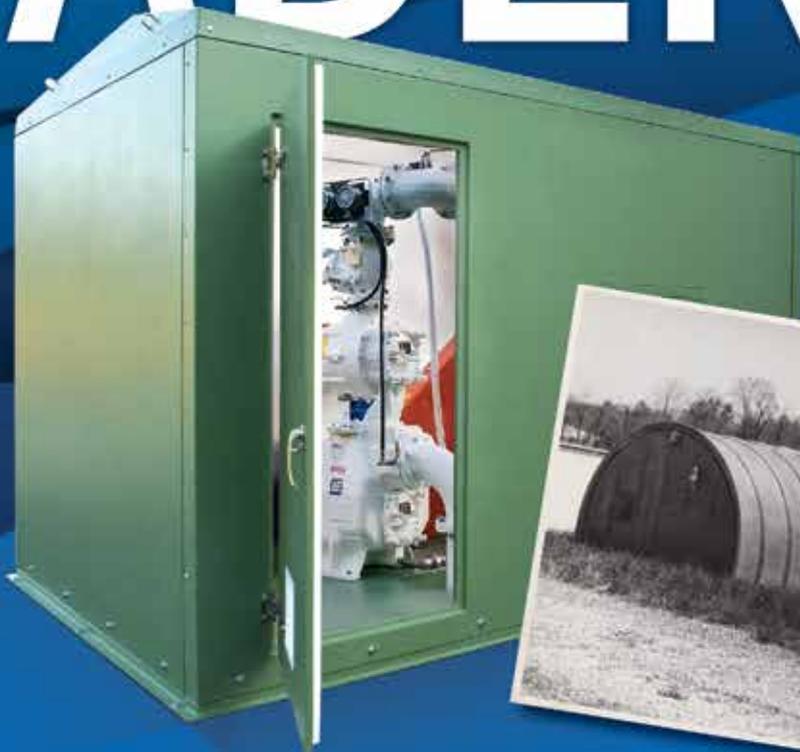
ongoing service and support. Extensively trained, they not only work hand-in-hand with engineers, contractors, and end users to recommend, customize, and specify equipment, but they also continue to assist with keeping Gorman-Rupp equipment running optimally throughout its service life.

Finally, it takes unrivaled parts availability to ensure equipment continues to run as it should. When a pump goes down, time is money. Gorman-Rupp invests heavily in an extensive inventory of repair parts. Distributors either have needed parts in stock or can have them shipped from a Gorman-Rupp warehouse—usually within twenty-four hours.

So, what does this all mean to you? Gorman-Rupp’s fifty years of experience in manufacturing lift stations means unparalleled up time, life cycle costs, and system reliability. That’s ReliaSource. ♦

50 SOLID LEADER

SINCE
1967.



COMPLETE LIFT STATION SOLUTIONS.

Gorman-Rupp has custom-engineered, manufactured, and installed more than 16,000 ReliaSource lift stations for municipalities around the world. Our complete lift stations include industry-leading pumps, enclosures, controls, and valves — everything custom-designed from the ground up. Rely on ReliaSource today — and for the next 50 years.

RELIA SOURCE

GRpumps.com

GR
GORMAN-RUPP
PUMPS

The Pump People

Homa Pump Technology

A leading global manufacturer of submersible pumps

Headquartered in Ansonia, Connecticut, we have been serving the North American wastewater industry quickly and reliably for thirty-five years through our network of competent and locally committed factory trained distributors and service centers.

Our 40,000 square feet engineering and test center, workshop, and warehouse facility is fully equipped to help design, build, deliver, and service all your wastewater handling needs. Our dedicated and competent staff provides full support; from applications and product selection, to the initial purchase and installation of your equipment, planned maintenance, spare parts sales, replacements and upgrades. For more complex projects and custom product solutions, our German Manufacturing and Technology Center's electrical, mechanical, and hydraulic experts are standing by to assist and innovate.

Downtime is a dirty word, so we specialize in fast deliveries from our over \$10M pump and spare parts inventory. Five to seven days is standard for submersible pumps up to 120 horsepower, with same day delivery possible for emergencies. Retrofit with HOMA, or let us support you with an engineered new installation. HOMA builds submersibles that work. Simple. Reliable. Efficient.

PRODUCTS

- Submersible motors from 1 horsepower TO 500 horsepower
- FM Class 1, Division 1, Groups C & D
- Jacketed motors from 2.8 horsepower for wet or dry pit installation
- Submersible wastewater pumps with channel impellers up to 8-inch solid size
 - Heads to 275-feet TDH, flows TO 20,000 gallons per minute
- Submersible axial flow propeller pumps
 - 5,000 to 35,000 gallons per minute
- Full range of submersible grinder pumps from 3/4 horsepower to 13 horsepower
- Standard CI material is ASTM A48 CLASS 40B
- Submersible stainless steel pumps
- Submersible mixers
- Non-proprietary abrasion resistant silicon-carbide seals
- Complete line of adapter brackets for direct replacement of other pump brands ◆



HOMA PUMP TECHNOLOGY

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INTELLIGENT BY DESIGN

The "EffTec Solution" combines the new HOMA EffTec IE3 premium efficiency motor range with our hydro-dynamically optimized MS hydraulics - setting the standard for maximum reliability and total economic efficiency. But, it is not just about reliability... it is also about availability. Our 40,000 square foot CT warehouse is fully stocked with inventory, including adapter brackets for every brand of pumps - and we measure lead time in days...not weeks. Install peace of mind with HOMA.

- UNCOMPROMISED SOLIDS HANDLING
- ENGINEERED RELIABILITY
- SUSTAINED EFFICIENCY
- LOWEST COST OF OWNERSHIP



Hoosier Pattern

Located in Decatur, Indiana, Hoosier Pattern has been leading the way when it comes to additive manufacturing for pump components. At one point, HPI was the only facility in the United States that housed an ExOne S-Max™ 3D Sand Printer to print molds and cores for foundry use. Since then, there are now more 3D sand printers in the U.S.; however, Hoosier Pattern continues to raise the bar within the industry.

With one ExOne S-Max™ and access to a second one that is stored and run in house, allows Hoosier Pattern to produce cores and molds without the need for hard tooling. This is what truly sets Hoosier Pattern apart from their competitors. Complex pieces can be printed in as short of a time as a couple days allowing their customers to get castings to their customers in record time. Hoosier Pattern is able to manufacture parts for a wide variety of pumps and commercial pumps, including: centrifugal pumps, water and sewage pumps, turbine pumps, transfer pumps, fluid flow pumps, and more!

Often, Hoosier Pattern is asked "how big of a part can you print in your sand printer?" Hoosier Pattern chooses to answer that question with another question, "how big do you need it to be?" The sand printer has a job box of 70.9 inches x 39.37 inches x 27.56 inches. This large build envelope opens the possibility to build molds and cores that previously were not possible by current CNC machines. This allows Hoosier Pattern to provide



Since opening its doors Hoosier Pattern has seen continual growth in the pattern making business. Known for its reputation of quality workmanship and commitment to "On Time Delivery," HPI has gained recognition as a premier pattern shop.

rapid prototyping and speed up lead times for producing castings of any alloy.

The cost for 3D printed sand components, sand molds, or sand cores is \$0.15 a cubic inch. No extra charge for complex pump geometries. The only extra charges are if you want it NOW, as in the next day NOW (yes, they can do that). Complex geometries of parts do not make for higher costs to make your castings. Design does not need to be sacrificed for manufacturability. Complex core designs are 3D

printed as one piece, thus reducing or eliminating assembly errors and foundry casting defects. No internal fins or mismatches. 3D printed foundry molds do not need traditional parting lines and flask sizes. This gives the foundry the freedom to gate, riser and feed the casting in the best way possible to produce the best possible casting. The freedom of pump design combined with the freedom of the foundry to manufacture a pump component casting is a huge advancement in the pump industry. Complex pump component castings produced quickly and at a known cost is why pump manufacturers are turning to 3D printing as a solution to pump casting problems.

Have a specific need but don't have the right resources to design it? Hoosier Pattern has an experienced team of highly skilled CAD designers who has a passion for precise, efficient, design. Our CAD designers can help you achieve a simple or highly complex design

that could be required to help take your project to the next level.

With almost 50 employees in a 45,000 square foot facility, Hoosier Pattern continues to stay committed to quality products getting delivered to customers on-time and on-budget. The team at Hoosier Pattern is not scared of big, complex or projects that aren't even on paper yet. Hoosier Pattern is confident in what they do and how they do it. They encourage you to contact them to see what their team can do for your next project. ♦



Discover Metalcasting Options

with 3D printed sand molds and cores

- True design freedom
- Reduced lead times
- Print Directly from CAD files

HPI. Integrated Foundry Solutions

To Request A Quote

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Infomedia

Full-service Web Company

We love the challenge working with industrial clients to give them a return on their investment. A website is not just pictures and words. It can increase your clients and efficiency. What do our clients say about us? They like that we have been around for over 22 years, that we stand behind what we do and that we speak their language. They like that we're able to find creative solutions, but we don't let fancy design trends get in the way of functionality. And, they love that our support team is on-call 24/7 to prevent issues and answer questions.

We don't just build websites. We build relationships.

We're a full-service web company:

That means we do as much or as little as you need, from supporting and making changes to your current website to designing and building a better website. For the past 22 years, we've been giving business owners like you peace of mind so you can run your business while we take care of your website.

U.S.-BASED SUPPORT

We refuse to outsource our support team—programmers and developers are standing by 24 hours a day, seven days a week to answer client calls and find solutions to problems fast, even years after our websites go live. Current customers looking for feedback or support can get in touch with the friendly faces of our support team by phone or email.

FIND OUT WHAT'S WORKING

Want to know how your site's performing now? Our free Site Audit takes a look at site speed, user experience, optimization, and more. We'll let you know what's going great and what could be better. We'll look at (or install) your Google Analytics and analyze those results and help you find potential in your current website.

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We specialize in complex functionality from secure and streamlined intranet development to effective and efficient online catalogs, brochures, online ordering, etc. We also develop websites with easy-to-use content management systems that you own so you can change your content as easy as sending an email. Plus, our support team is ready to train your team and troubleshoot any issues.

GET HELP AND KEEP UP WITH CHANGES

Once you're an Infomedia client, you'll have access to our U.S.-based support team. Help and updates are always just a phone call or email away. Hosting is free. We pride ourselves on keeping clients happy for years after our websites launch, so you'll never have to worry about backups, security, and updates—we take care of that for you.

GET YOUR WEBSITE NOTICED

When your website launches, you'll want people to see it—that's where our digital marketing experience serves you well. We use Google Analytics to see what's working, and we offer Search Engine Optimization and Local Search to improve your performance. And, we take it a step further with digital advertising to spread your message to exactly the clients and customers you're aiming for. ♦

We're in step with you from concept to completion and beyond.

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your data is not encrypted with an SSL?



your site is not mobile friendly and responsive?



your content is stale or out-of-date?



your site loads too slow?

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Think of all the time, effort or money you waste not knowing what your next move should be.

Tired of slow response times and getting nicked and dimed for every little change?

Our website management plans start at \$160 or as we like to think... \$1/hour



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International Products Corporation

International Products Corporation (IPC) produces and markets two lines of specialty chemical products: precision cleaners and P-80® temporary rubber assembly lubricants. The company serves an international market with customers in the commercial, industrial, governmental, and academic sectors. It reaches these markets through distributors and direct-sales.

The full-line of precision cleaning products features IPC's flagship cleaner, Micro-90® Concentrated Cleaning Solution. The line also includes biodegradable, alkaline, acidic, neutral, and enzyme cleaning products for a broad range of industries and applications. All cleaners are registered with NSF as USDA A1 Cleaners.

IPC makes some of the most effective membrane cleaning products worldwide. Our proprietary formulated cleaners work effectively at restoring 100 percent flux at safe pH ranges. We have a wide range of chemistries available for all membranes and soils, and an on-site R&D laboratory that offers free support and assistance. Our laboratory has membrane specific testing equipment and can provide compatibility test results for different membrane types. Our cleaners are compatible with UF, RO, ceramic, and many other types of membranes, and can be used to clean membranes used for food and beverage, heavy oil, automotive, wastewater, water recycling, desalination, medical, and many other applications. IPC has been selling cleaners to the filter membrane industry for over thirty years and has



worked with some of the largest membrane system manufacturers in the world. Our cleaners can save you time and money by reducing cleaning frequency, restoring membrane flux, prolonging membrane life, and decreasing the number of cleaning products and steps used.

IPC's P-80® Temporary Rubber Lubricants are uniquely formulated products to assist with the assembly of rubber and soft plastic parts (such as belts, bushings, grips, grommets, hoses, O-rings, and seals to name a few) for the automotive, agricultural, appliance, aerospace, heavy equipment, marine, pump, tool, truck, and other industries.

IPC is committed to manufacturing products that are water-based and designed to replace solvent and petroleum based cleaners and lubricants. IPC avoids the use of known carcinogens and target organic chemicals, using materials found on the TSCA and EINECS inventories. In addition, IPC maintains a ZERO discharge policy; this includes wastewater, emissions, and hazardous waste. Plus none of the products are considered toxic or corrosive. It is company policy to keep abreast of environmental regulations, such as the removal of flame-retardants, phenols, and certain metals (cadmium, mercury, chromium, and lead) in products. IPC is an ISO-Certified Company. All products are made in the USA.

For more information or to request a free sample, visit our website at www.ipcol.com, call us at 609.386.8770, or send us an email at mkt@ipcol.com. ♦

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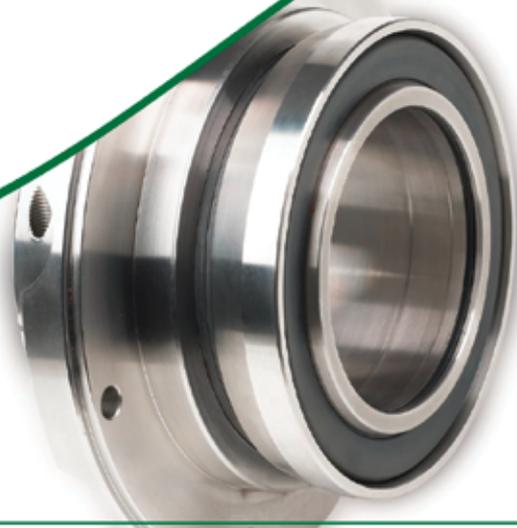
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Backed by strong legacy brands, National Oilwell Varco (NOV) provides pumping and mixing solutions in various industrial markets around the world. We have been manufacturing pumping and mixing equipment and systems since the early 1900s, and over time have expanded our product lines and aftermarket support. With decades of application experience, equipment and solutions, we're ready to work with you to understand your unique challenges and provide Moyno™ pumps, screens and grinders, and Chemineer™, Kenics™, Greerco™, and Prochem™ mixing equipment to help you improve productivity, efficiency, quality, and performance.

PUMPS, SCREENS, AND GRINDERS

Our Moyno pumps provide global leadership in the design and development of progressing cavity pump technology. Delivering superior performance and operating efficiency, our pumps are ideal fluids handling solutions for a wide range of applications including slurries, viscous, shear sensitive, two or tri phase mixtures, or when applications require significant suction lift capabilities.

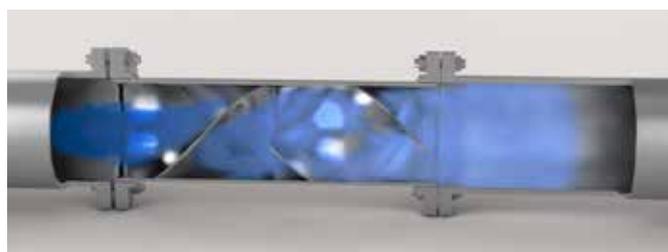
While continuing to engineer industry-leading pump ranges, we also offer Moyno grinders and screens specifically designed for industries requiring solids reduction or waste conditioning.

MIXING TECHNOLOGIES

Our Chemineer agitators, Kenics static mixers and heat exchangers, Greerco high shear mixers, and Prochem belt-driven side entry mixers bring superior, highly engineered mixing solutions to your industrial processes. Our fluid mixing knowledge, supported by the best application software, proprietary mixer designs and state-of-the-art laboratory allows us to be the preferred supplier of fluid mixing equipment. With many of the original gearboxes still in service today, we are recognized for producing dependable, heavy-duty equipment.

SERVICES AND AFTERMARKET

Service expertise drives predictable uptime that is critical to your operation. In every situation, you can rely on us to provide quick and effective support throughout the entire life of your project. Our deep knowledge of your processes ensures you have the latest technology for your application to get the job done right, with trusted products you can depend on. From consulting and field services to spare parts and training, let us be your strategic partner. ♦



NOV
industrial@nov.com
www.nov.com/industrial



Two words that are turning industry heads: Quick Ship.

Our new Quick Ship program lets you experience the maintain-in-place benefits of our EZstrip™ pump faster than ever.

Our Quick Ship program ensures you'll have the products when and where you need them most. Select Moyno™ EZstrip pump models are available to ship in just **two weeks**.

Our EZstrip progressing cavity pumps offer an innovative solution for materials transfer and sludge conditioning to keep your operations flowing – safely and efficiently. Whether you are managing a treatment facility in municipal wastewater, mining or a chemical process industry, we're ready to help you stay productive.

Learn more about our solutions at nov.com/industrial.

Rosedale Products Inc.

Rosedale Products, Inc. is a leading technology developer in the field of liquid filtration systems and waste minimization products for customers around the globe. With more than fifty years of experience, Rosedale offers an exceptional product line that includes high-performance filtration solutions for multiple industries. Rosedale technicians help customers find the best, most cost-effective approaches to their filtration needs.

Our product line sets the industry standard in versatility and reliability and includes bag and cartridge filters, basket strainers, automatic back washing filters, filter cartridges, and many special application products. Together with ongoing consulting, troubleshooting, and support from our team of in-house experts, Rosedale provides comprehensive solutions for every critical industry filtration need.

We are generalists. Rosedale manufactures industrial filtration products for virtually any industry where liquid and gas flows are present.

We have a vast product line that suits many needs, as well as the flexibility to customize standard products. Our sales staff has knowledge of many industrial practices, giving customers the confidence that their filter solution is the best available for their specific need. Our most popular products are bag filters, pleated cartridge filters, and basket strainers.

MULTI-BASKET STRAINERS AND MULTI-BAG FILTERS

Multi-basket strainers and multi-bag filter housings offer a wide range of flow capacities and contaminant-holding capabilities. They contain from 2 to 23 baskets. To serve as a strainer, a unit is ordered with perforated stainless

steel baskets (mesh-lined if desired). When ordered as a filter, it's fitted with perforated stainless steel baskets designed to hold filter bags or pleated cartridges. Industry-standard size bags are used: the standard 30 inch baskets accept bag size 2, the optional 15 inch baskets take size 1.

The standard pressure rating for all models is 150 psi. All multi basket strainer and multi bag filter housings can be supplied with an ASME code stamp, if required.

Features include

- Multiple housing styles available (standard, quick access, low profile, hinged)
- Permanently piped housings are opened without tools and without disturbing the piping
- Machined cover gasket groove provides positive O-ring sealing
- Carbon steel, 304 or 316 stainless steel construction housings
- Large-area, 30 inch deep, heavy-duty, 9/64 inch perforated baskets
- Easy to clean
- Low pressure drop
- Four cover seal materials: Buna N, Ethylene Propylene, Viton®, and Teflon®
- Pressure rating 150 psi
- Flanged connections for 2 through 12 inch pipe
- Vent, drain and gage connections

Available with the following options:

- ASME code stamp
- Higher pressure ratings
- Corrosion allowances
- Steam jackets
- Special connection locations
- Inner baskets for dual-stage straining or filtering
- Cleanable wire mesh lined or

- perforated strainer baskets
- Special alloy materials
- Hydraulic cover lifting assembly
- Sanitary fittings
- Differential pressure indicators

Quick Access Cover (QAC) features a clamp and spring assisted hinged cover that is quick and easy to open and close with no tools required. This will significantly reduce change-out time and lower operating costs. The QAC is rated to 150 PSI and constructed to meet ASME code requirements. Built-in safety features ensure that the cover cannot be opened unless the internal pressure is first released. The QAC is offered with our low profile design making bags more accessible and easy to remove.

Low Profile Design (SLP) Housings are compact and space saving, allowing for ease of bag change-out. Standard operating height is reduced, resulting in a safe design by eliminating platforms and ladders. The SLP is manufactured in any housing version, including our standard davit arm cover, QAC design, and spring assisted hinged cover.

Spring Assisted Hinged Cover (HLP) opens and closes without effort. Simply loosen the swing bolts and lift the cover up to open. An automatic cover stop is provided. This design saves time by eliminating the labor intensive handwheel. It is offered standard with our low profile design, or can be ordered in the QAC design.

Standard Housing Design (STD) is durable and economic. It includes a davit arm and handwheel to facilitate cover removal. It is our most versatile housing design offering a variety of options, including our low profile design. ♦

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Smith & Loveless Inc.

Safe and efficient above-ground EVERLAST® pump stations

At Smith & Loveless, we revolutionize the way you tackle wastewater and stormwater pumping. Our specially-crafted non-clog, solids handling pumps and innovative factory-built pump station design concepts pave the way for municipalities, private developments and industry to reap the benefits of single-source solutions, ease of operation and operator-safe maintenance. The result is efficient performance, long service life and realized savings. Our proven track record of longevity, verified by decades of successful installations sustained by robust construction and operator-friendly features, enables us to brand our newest pump station series as EVERLAST™ Pump Stations. Offering redesigned tip-up and rolling enclosure options, convenient packages and durable pumping accessories, the EVERLAST™ provides peace of mind backed by the industry's longest warranty protection for pump stations.

THE WET WELL MOUNTED ADVANTAGE

By mounting sleek lift station designs above the wet well at the surface level, wastewater pumping with the EVERLAST™ becomes dramatically simpler, safer and more economical, while offering the best life-cycle costs of any pump station design in the world. The stations feature pumps primed through a process known as vacuum-priming, which creates fluid suction-lift in order to prime the pumps residing at grade level. All the pumping equipment, valves and controls are immediately accessible to operators. Confined space requirements including special safety gear and harnesses, prevalent in the use of submersible

pumps, are eliminated because wet well entry is not required for inspection or maintenance. Routine O&M can be performed onsite by existing staff, without the use of outside contractors or pricey pump maintenance centers. This contributes significantly to lower parts and O&M costs – documented as much as 50-plus percent—and long service life. Because of the packaged design of the station, installation and start-up is easy and can be achieved within a few hours. Simply connect suction and discharge piping and electrical connections, and secure the baseplate to the wet well. Best of all, with its DURO-LAST™ baseplate and durable construction, S&L can offer the industry's longest warranty protection for pump stations, including ten-year protection for various pump, baseplate and enclosure equipment.

Available in two-pump, three-pump, and four-pump series arrangements, in completely above-grade, semi-recessed and CAPSULAR® configurations, EVERLAST™ Wet Well Mounted Pump Stations feature pumping capacities (up to 12 inches in size) of up to 12,500 gallons per minute and 350 feet TDH.

PUMPS AND PRIMING

Driving every EVERLAST™ Pump Station are proprietary S&L Non-Clog Pumps, each designed to meet the 10 States Standard for passing 3-inch solids. These pumps—with their exclusive oversized stainless-steel pump shafts, oversized bearings, and bronze seal housings—deliver the industry's longest service life and high efficiencies. The larger diameter of the shaft provides increased rigidity, while its stainless steel composition

eliminates the possibility of rusting, one of the leading causes of eventual pump failure for wastewater solids handling pumps. For applications experiencing a high volume of pump clogs caused by wipes, rags, stringy or unusual trashy items, the X-PELLER® Impeller is available. It easily passes these types of items with its proprietary mono-port design.

Additional S&L pumping systems include vertical, non-clog flooded suction (underground) and vacuum-primed (above-grade) pumps, additional pre-engineered lift stations, custom-engineered pump stations, skid and trailer mounted systems, storm water pumps and water booster pump stations.

ABOUT S&L

Founded in 1946, Smith & Loveless is a U.S. manufacturer of water and wastewater pumping and treatment systems for municipal and industrial applications, including pumps, lift stations, membrane bioreactors, packaged treatment, screens, grit removal, filtration, and aeration systems. From our world headquarters in metropolitan Kansas City, S&L operates offices and affiliated companies in metropolitan Los Angeles, Atlanta, Denver, London and Auckland. S&L Engineering boasts more than 30 engineers, including several licensed professionally. Smith & Loveless' extensive manufacturing capabilities span more than 120,000 square feet for system assembly, allowing us to provide single-source solutions. Our ability to test complete pumping systems at actual conditions before they ship delivers significant value and peace of mind to our customers. ♦

SMITH & LOVELESS INC.

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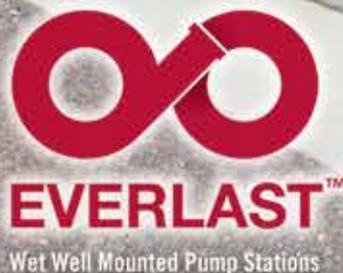
ARE YOU CONFINED BY PUMP O&M?

Immediate Access

No Confined Space

Low O&M Costs

Safest Operation



S&L Above-ground EVERLAST™ Pump Stations are never submerged—in sewage or the associated pit of submersible pump O&M costs and requirements. EVERLAST™ eliminates confined space burdens, operator safety concerns, and inconvenient pump clogs several feet underground. This translates to real savings in O&M labor time and costs—documented to be more than 50% versus submersibles.

Request a budget and design proposal today!



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Smith & Loveless Inc.

The Highlands Accounting Group, Inc.

The Highlands Accounting Group, Inc. (THAG), headquartered in Birmingham, Alabama, is a leading accounting firm specializing in 401k and other retirement plan audits (profit sharing and defined benefit), bookkeeping services, financial statement reviews, financial statement audits, and general contractors license applications and renewals for various states.

At THAG, we have seen firsthand the power of relationships and investing in people's lives and businesses with, most importantly, our time. Our mission is to maintain and develop trusting relationships by remaining authentic, genuine, and compassionate. Our firm thrives from those types of relationships.

401K/RETIREMENT PLAN AUDITS

401k plans are governed by complex rules and regulations that are constantly changing. At THAG, we realize an audit of a retirement plan is a regulatory requirement and a commodity. We understand that a 401k audit is not our client's main area of focus and are looking to pay a fair price.

WHY THAG FOR YOUR 401K/RETIREMENT PLAN AUDIT?

As a fiduciary of the Plan, one of the most important decisions made is to hire an independent and qualified public accountant. THAG understands the complex rules and regulations that affect retirement plan audits and we pride ourselves on providing a quality product and adding value to Plan management. It is important for us to provide retirement plan education to the Plan Administrators, financial accounting personnel, human resources personnel, and payroll. This education can help prevent future compliance and operational errors, plus bring peace of mind.

We are members of the American Institute of Certified Public

“Our mission is to maintain and develop trusting relationships by remaining authentic, genuine, and compassionate.”

Accountant Employee Benefit Plan Audit Quality Center, and adhere to the highest quality standards by voluntarily agreeing to the rigorous membership requirements.

WHAT WILL I PAY FOR A 401K/RETIREMENT PLAN AUDIT?

Our fee structure is significantly less than those of large CPA firms. You get the expertise from a large firm with the cost and attention needed of a small firm. The more specialized training and experience an auditor has, the more familiar the auditor will be with plan practices and operations. At many CPA firms, you will work with a Shareholder/ Partner in the initial stages of the audit, but during the audit, you will most likely have a less experienced person working with you. At THAG, you will work exclusively with a Shareholder throughout the entire audit.

BOOKKEEPING SERVICES

Accurate financial statements are the backbone to a successful business. The tasks of managing the financial statements can be time-consuming and an administrative burden. With bookkeeping services such as monthly financial statements, bank reconciliations, general ledger reports, and budgets, we can help you better manage your company's financial records.

TRADITIONAL PUBLIC ACCOUNTING SERVICES

We understand that finances are the heartbeat to your business. Careful consideration of the level of assurance provided by your CPA is important. Many companies are paying for services that are not required or warranted. THAG can help you determine the level of assurance needed. Below are some characteristics of each financial statement assurance level.

AUDIT, REVIEW, AND COMPILATION

THAG offers a range of assurance engagements including audits, reviews, or compilations.

An **Audit** provides the highest level of assurance and credibility to your organization's financial picture for all stakeholders (board members, owners, financial institutions, and customers) by providing an opinion on whether the financial statements are presented fairly in accordance with applicable financial reporting framework. A **Review** provides limited assurance that there are no material modifications to financial statements. A **Compilation** does not provide any assurance.

CONTRACTOR'S LICENSE

THAG has extensive experience in helping contractors prepare the necessary financial statement data needed to obtain a state contractor's license or state renewal. Each state has specific requirements as to the type of statement needed. Please call us for a free consultation. ♦

“At THAG, you will work exclusively with a Shareholder throughout the entire audit.”

ONE TEAM. ONE DREAM. IT'S ALL ABOUT RELATIONSHIPS.



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Tax Accounting

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Weil Pump, A Wilo Company

Simply the best

During its long and distinguished history, Weil Pump has been at the forefront in the design and manufacture of centrifugal pumps for construction, industrial, commercial, and municipal applications. Dedicated to building a product that engineers can specify and contractors can sell and install with confidence—quality has always been foremost in company decision making. Engineers and contractors owe their clients the best and Weil Pump provides it.

All castings are poured in the United States and all parts are machined and assembled in Weil's manufacturing facility. In addition to pumps, Weil manufactures removal systems and controls, ensuring one source accountability/reliability and trouble-free start-up and operation.

Weil pumps have the lowest lifecycle cost of any pump available. The insistence on high quality, rugged designs ensure the least maintenance over the life of the pump. The pump requiring the fewest number of removals is the best value—and no one beats Weil for dependable in-pit operating time.

Weil's national network of local sales representatives are second to none. The agents are exclusive and their interest and effort does not stop with the sale.

Significant dates and accomplishments in Weil's history include:

- 1927: Weil Pump founded in Chicago, Illinois
- 1955: Developed the first submersible pump capable of handling unscreened solid waste
- Mid 1960's: First company to submit a submersible pump to UL for Class 1, Div. 1, Group C&D explosion-proof listing
- 1993: Developed grinder pump line



- 1994: Developed slicer pump line
- 2011: Developed mover pump line
- 2014: Developed PLC panels
- 2017: Weil Pump purchased by Wilo USA

In March 2017, Wilo USA (Rosemont, Illinois) acquired U.S. pump manufacturer Weil Pump, along with Scot Pump, and component manufacturer Karak Machine Corporation. The three companies have headquarters and production facilities in Cedarburg, Wisconsin, and Ft. Lauderdale, Florida.

The deal was a strategic step in Wilo USA's future growth through expanded sales channels and a larger customer base, and reinforces their overall commitment to the North American market. Additionally, the new machining facility will enable further expansion in the ability to deliver high-quality products made in the USA. Previously, Wilo USA's American manufacturing was solely performed in the Thomasville, Georgia facility.

Wilo USA is a subsidiary of Wilo SE, which is headquartered in Dortmund, Germany. Wilo is one of the leading manufacturers of pumps and pump systems for heating, cooling and air-conditioning technology, for water supply, and for sewage and drainage. Founded in 1872, Wilo has evolved from being a local specialist to a global player. The company is represented worldwide in over 90 countries by more than 60 subsidiaries, including 21 production sites, and employs more than 7,600 people globally. ♦

WEIL
Pump
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WEIL
Pump
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Wilo USA Pioneering for You

Wilo USA is a subsidiary of Wilo SE, which is headquartered in Dortmund, Germany. Wilo is one of the leading manufacturers of pumps and pump systems for heating, cooling, and air-conditioning technology, for water supply, and for sewage and drainage. Founded in 1872, Wilo has evolved from being a local specialist to a global player. The company is represented worldwide in over 90 countries by more than 60 subsidiaries, including 21 production sites, and employs more than 7,600 people globally.



ABOUT SCOT PUMP

In the early days Scot initially provided pumps to the Agricultural Industry, primarily for transferring and spreading liquid fertilizers. While still a leading supplier for the agricultural industry, today Scot specializes in manufacturing close-coupled centrifugal pumps for the OEM, HVAC, military, and industrial markets.

Scot's manufacturing facility in Wisconsin is in the heartland of some of America's finest automated foundries, where quality castings in gray iron, bronze, stainless steel, and aluminum are all readily available.

Scot has a distributor network around the USA and Canada which supports the aftermarket and replacement demands by stocking most of the common parts and pumps they sell. Additionally, customers rely on Scot to ship pumps and parts that are not stocked with very short lead-times.

PIONEERING FOR YOU

Our claim "Pioneering for You" is short and to the point. In just three words, it explains what has driven us and our business, our thoughts, and our actions since the company's founding.

As one of the world's leading manufacturers and suppliers in the pump and pumping systems industry, "Pioneering for You" symbolizes our aspiration to continuously improve our technical knowledge and competence in order to further cement our status as an innovation and technology leader.

It is our direct promise to our customers and partners to maintain a continuous focus on practical applications and to confront new challenges every day. After all, it is our customers' needs and desires that form the basis for our actions and products.

MEET THE NEW WILO USA

In March 2017, Wilo USA acquired U.S. pump manufacturers Scot Pump and Weil Pump, and component manufacturer Karak Machine Corporation. The three companies have headquarters and production facilities in Cedarburg, Wisconsin, and Ft. Lauderdale, Florida.

The deal was a strategic step in Wilo USA's future growth through expanded sales channels and a larger customer base, and reinforces their overall commitment to the North American market. Additionally, the new machining facility will enable further expansion in the ability to deliver high-quality products made in the USA. Previously, Wilo USA's American manufacturing was solely performed in the Thomasville, Georgia, facility.

ABOUT WEIL PUMP

During its long and distinguished history, Weil Pump has been at the forefront in the design and manufacture of centrifugal pumps for construction, industrial, commercial, and municipal applications. Dedicated to building a product that engineers can specify and contractors can sell and install with confidence—quality has always been foremost in company decision making. Engineers and contractors owe their clients the best and Weil Pump provides it.

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Weil's national network of local sales representatives are second to none. The agents are exclusive and their interest and effort does not stop with the sale. ♦

WILO USA

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WILO BRINGS THE FUTURE.

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With Wilo USA, the future begins now.

We are excited to announce the recent acquisition of two highly-respected American brands into the Wilo USA family – Scot Pump & Weil Pump. This new dynamic will greatly expand our lineup while continuing to keep up with market demands for highly-engineered solutions that live up to their promises. More importantly, this growing family of American-built products provides an even better future for our external partners and customers. That's what we call Pioneering for You.

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& Circulators

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Packages & PLC's

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Pumps & Mixers

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wilo®

Anue Water Technologies

Innovative solutions for improving the processing and treatment of water and wastewater. We serve the global market with a network of sales representatives and service providers to actively support applications development, leading to optimized solutions. Our company works with municipalities, wastewater operating and industrial companies who encounter challenges with wastewater, to create tailored, highly effective solutions for treating odor, corrosion, and fat, oil, and grease issues.

Our company develops, manufactures, markets and services our unique technologies. In order to assist our customers in identifying the best solution, matching the application requirement to a specific system, our network of applications and sales professionals provide local support to consult with engineers and users.

PROPRIETARY SYSTEMS

At the core of our designs, Anue Water Technologies focuses on the delivery of technology that is highly effective, sustainable, and provides cost-savings. Our FORSe 5 system for odor & corrosion control in wastewater collection systems use onsite oxygen and ozone generation, providing a truly sustainable approach to lift station or force main treatment.

As well, our EnviroPrep™ and HydroSpear™ systems provide both cost savings and a sustainable solution for fat, oil, and grease (FOG) remediation in wastewater lift stations. Users can automate lift station clean-out and benefit from lower maintenance costs and consistent lift station operation.

ENVIRONMENTALLY-SUSTAINABLE SOLUTIONS

ANUE's innovative ozone and oxygen generation applications, and efficient low-cost well washing products for FOG control, are designed to virtually eliminate odor and corrosion in municipal wastewater treatment systems including force mains, wet wells, and lift stations. ♦

ANUE WATER TECHNOLOGIES

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Bartlett Bearing Company

Bartlett Bearing Company is a family owned independent distributor that specializes in the electro mechanical repair industry, focusing on pumps, electric motors, and gearboxes. Tom Bartlett and his wife, Gladys, founded Bartlett Bearing in Philadelphia in 1951. Their ownership and employees are committed to the Bartlett tradition of providing excellent customer service, innovative solutions, and top-quality products at competitive prices.

For over sixty years, Bartlett Bearing has continued to grow while maintaining the same core values on which it was founded. Starting from a small warehouse, we have grown to five fully stocked and staffed locations in Philadelphia, Pennsylvania; Gastonia, North Carolina; Hebron, Kentucky; Pelham, Alabama; and Tampa, Florida. We are excited about our sixth and newest Kansas City area location that is strategically situated in Grain Valley, Missouri. This new facility will be fully open and operational beginning January 2018.

Bartlett Bearing Company has one of the most extensive and complete breadth of bearings and related components in the industry. Our inventory is composed of grounding

rings, bearing isolators, oil seals, mechanical seals, insulated and housing repair sleeves, grease, couplings, belts, pulleys, sheaves, housed units, all types of anti-friction bearings, and more.

Dependable service you can trust is our top priority. As application specialists, we offer technical support, same day shipping, and after hours' emergency service 24/7. We believe knowledge is the driving force behind our unsurpassed customer service. We continually invest in internal training of our staff plus explore new designs as well as technical product advances. Our hands-on approach in educating customers gives them an in-depth understanding of the products we offer and assists them in being successful with their end users.

Bartlett's unique combination of quality products, innovative technology, and our experienced sales staff makes us the number one choice for repair facilities in the electro mechanical repair market throughout the United States. We are extremely proud to say that many of our satisfied customers are our best salespeople. Give us a call and see for yourself! ♦



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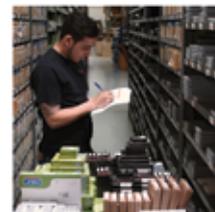


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Blackmer®

Blackmer® is a leading global provider of innovative, high-quality rotary vane, regenerative turbine, screw and centrifugal pumps, and reciprocating compressors for the transfer of liquids and gasses in critical applications. Since 1903, the Blackmer brand has stood for unparalleled product performance, superior service and support, well-timed innovation and a commitment to total customer satisfaction. Headquartered in Grand Rapids, Michigan, Blackmer is a brand within PSC®, a Dover company.

Blackmer pumps and compressors are used in a multitude of applications in the Process, Energy, and Military and Marine markets. Blackmer is recognized as the global leader in refined fuels applications with pumps and compressors widely used to load, transfer and unload such liquids and gases. Chemical and industrial companies around the world also rely on Blackmer throughout the fluid-movement process—from the transfer of raw products to the loading of the end product onto the transport vehicle. In addition, Blackmer pumps are used around the world onboard both military and commercial marine vessels, as well as by ground forces in mission critical services.



A customer-centric focus is the engine that powers everything we do at Blackmer. This includes our design and engineering teams, and our customer life cycle support system. Developing exceptional product quality and supporting these products through the total life cycle process requires a world-class manufacturing commitment, capability and capacity.

Blackmer applies continuous quality improvement processes that ensure every product consistently adheres to the highest standards. An important goal is to change the world for the better by providing innovative fluid-transfer technologies that are sustainable and make a positive difference in our customers' lives. We will always strive to make our customers more successful by providing solutions that enable them to become better, faster and stronger.

One of Blackmer's latest offerings is the S Series screw pump. Blackmer S Series pumps are self-priming double-ended positive displacement pumps that offer outstanding performance in the most demanding applications.

To learn more, please visit www.blackmer.com. ♦

Where Innovation Flows

Challenging Your Efficiency

Blackmer® S Series Screw Pumps offer a more efficient solution for a wide range of your most challenging liquid-transfer applications. More efficient than centrifugal pumps, S Series are becoming a preferred choice around the world.

- Reduced operating and maintenance costs
- Produce highest flow rates achievable by rotary PD pumps
- Self-priming, dry-run capable for a limited period
- Quick installation and low noise
- Ideal for a wide range of liquids and viscosities
- Stable flow rate when pressure and viscosity vary

For More Information Visit: blackmer.com

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Check-All Valve® Mfg. Co.

Check-All Valve® Mfg. Co. is proud to introduce a new check valve product offering. The EPIC® series consists of in-line spring-loaded poppet-type check valves that are designed to be cost effective, simple, rugged, and efficient while operating in any flow orientation.

The EPIC® is machined from 300 series stainless steel bar stock with Aflas® seat/seals and a 1/2-PSI stainless steel spring (cracking pressure). It is streamlined so that media flows through the valve over smooth, contoured surfaces with a minimum change in direction. The check valve also achieves a high flow capacity and reduced pressure loss compared to other poppet style check valves of similar sized connections. These features minimize the pressure drop across the valve. The EPIC® closes quickly and smoothly for silent operation and eliminates water hammer.

Additionally, the EPIC® series incorporates a replaceable drop-in check mechanism (Replaceable Insert Kit sold separately) that is easily installed into the existing body without requiring additional assembly of separate checking components. This pre-assembled complete check mechanism eliminates the need to assemble individual checking components, creating an efficient and economical method of effectively rebuilding the entire check mechanism, if an application requires.

Due to the materials of construction, high flow capacity, complete repairability, and the quality customers have come to expect from Check-All®, the EPIC® check valves are uniquely suited for a very wide range of applications in liquids, gases, and steam. ♦

CHECK-ALL VALVE® MFG. CO.

1800 Fuller Road • West Des Moines, IA 50265
 515.224.2301 • Fax: 515.224.2326
sales@checkall.com • www.checkall.com

It's called **EPIC®** for a reason...

The EPIC® series consists of in-line spring-loaded poppet-type check valves with a one piece, drop-in, replaceable check mechanism, that are designed to be cost effective, simple, rugged and efficient while operating in any flow orientation.
 Plus, you can **buy online.**

Check valves with a World of Possibilities

Pre-assembled Drop-in Replaceable Check Mechanism

PATENT PENDING

Manufactured in West Des Moines, Iowa, USA
 by Check-All Valve Mfg., Co.®

www.epiccheckvalves.com ♦ sales@epiccheckvalves.com

Crisp Industries, Inc.

For over thirty years, Crisp Industries has been a leader in the aggregate service industry specializing in design and erection of new aggregate material handling systems and custom fitting major additions to customer's existing operations. Our state-of-the-art facilities, fabricators, installation staff, and service crews can provide solutions to all your needs

Complete Project Management describes our capabilities as we take your vision and recreate it in the field. When working with Crisp Industries, Inc., it is without a doubt that you will receive top-of-the-line service in hardware, structural steel, design, and overall individual experience above what any other manufacturer in the field has to offer.

We take pride in using the highest quality workmanship in every project from start to finish, while doing so in a timely manner and at a competitive price.

Crisp Industries, Inc. provides our customers with quality services including, fabrication, installation, safety, fines recovery, pipe and pump, and field service crews.

Crisp Industries, Inc. is always on the look-out for new ways to grow and expand as a company. Coming from humble beginnings, we take pride in the fact that we have come a long way and will always maintain our vision for

providing the most innovative and quality workmanship in the industry.

Bridgeport Steel, Pump and Pipe Division, and our South Texas location enable Crisp Industries, Inc. to uphold the title of a "one-stop shop" for the aggregate industry.

Crisp Industries, Inc. is dedicated to supplying the aggregate industry with high quality equipment and parts. We keep up with the latest innovations and needs for the industry so that you can be sure that you are receiving the best parts and equipment available. We have recently added AZFAB's fine recovery process equipment product line to accommodate the growing frac sand plant industry.

Our inventory of equipment, parts and accessories enables Crisp Industries, Inc. to be a comprehensive provider for the aggregate material industry. Our experienced sales personnel and service team members can help answer your questions and provide solutions. ♦

CRISP INDUSTRIES, INC.
 PO Box 326 • 323 Energy Way • Bridgeport, TX 76426
 940.683.4070 • Fax: 940.683.2181

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Rock Solid Solutions
Built on Experience
Since 1977...



Experience
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Service



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SITHE

BY BARNES®

Excellence in Innovation



Designed to chop and macerate solids in extremely challenging waste water applications

CRANE PUMPS & SYSTEMS

www.cranepumps.com

Crane Pumps and Systems

Crane Pumps and Systems is a world class manufacturer of pumps, accessories, and services. Crane Pumps and Systems provides solutions for municipal, commercial, industrial, residential, and military market segments. Crane Pumps is a recognized leader in meeting the ever-changing needs of today's global marketplace. Crane Pumps takes great pride in designing and developing pump solutions that solve customers' problems in water and waste water applications.

Crane Pumps' brands include Barnes, Burks, Crown, Deming, Prosser, and Weinman. All these brands are highly renowned and trusted for their quality and reliability. Crane Pumps and Systems has world class manufacturing facilities in Ohio and is headquartered in Piqua, Ohio. Crane Pumps' product portfolio consists of a whole line of water and wastewater pump solutions including submersible non-clog pumps, grinder pumps, NSF certified split case and end suction pumps, vertical inline pumps, vertical multistage pumps, self-primer pumps, and other products.

Crane Pumps is constantly looking for opportunities to solve our customers' pumping problems and develops highly innovative market-driven solutions that help our customers succeed. As an example, Crane Pumps recently launched the SITHE submersible chopper pump series. Backed by the dependability and longevity of the Barnes reputation in submersible pumping, SITHE chopper pumps are the newest Barnes solution to highly demanding wastewater applications in the collection systems market.

The SITHE chopper pump was developed from voices of customers requesting a high quality chopper pump. The largest problem customers face in the waste water industry is clogging. SITHE chopper pumps solve clogging with a unique, first-of-its-kind, patent pending chopping technology that slices even the most troublesome solids in waste stream. SITHE chopper pumps provide immense value to customers like ease of servicing, ability to upgrade, high reliability, and low life cycle cost. SITHE provides this value to customers in the form of market distinguishing features like open center cutter design, field replaceable heat treated blades, plug-n-play cord, a liquid cooled motor, and large lifting bail.

Contact Crane Pumps and Systems for more information at www.cranepumps.com. ♦



Fluid Components International

FCI's products are specified by name in many of the world's most demanding environments for flow instrumentation. They are recognized for their reliability, accuracy and repeatability in harsh conditions, where their total performance ensures users of both their end-product's quality and operational safety. FCI offers a broad range of application solutions from off-the-shelf devices to custom-engineered systems.

FCI flow switches are ideal for pump protection and flow assurance to prevent pump run-dry conditions, which can damage pump components, degrade pump performance over time and reduce their useful lifecycle. These flow switches feature a no-moving parts thermal dispersion flow sensor and plant rugged design that makes them ideal for a wide range of point-level process applications. Their versatile design also allows them to measure flow or level or temperature.

Flow conditioners developed by FCI's Vortab Company provide a low-pressure loss solution to correct flow profile irregularities that also affect the operation of pumps and the accuracy of flow instrumentation. In today's crowded plants, elbows, valves, blowers and other devices in the pipeline often disrupt flowing media and affect other equipment.

For efficient and low maintenance operation, pumps require a repeatable, uniform upstream flow profile of the liquid entering the pump. When elbows, valves, or other equipment are installed too closely to a pump, they can cause swirl and velocity profile distortions, resulting in uneven force placed on the pump impeller. Such disturbances can create excess noise and cavitations, resulting in reduced bearing life. Vortab Flow Conditioners correct these flow profile problems to keep pumps running longer and reduce maintenance costs.

FCI's flow meters are designed with advanced thermal dispersion mass flow sensors. They combine precision flow measurement accuracy with a rugged design that is compatible with caustic, corrosive, humid and high temperature environments. They are highly reliable, easy to install, require virtually no maintenance, and are designed for long-life.

All FCI products are tested and calibrated to rigorous standards at FCI's world-class, fully NIST traceable flow calibration laboratories to ensure instrument accuracy with the customers' actual fluid and process conditions. FCI is ISO9001:2008 and AS9100 certified and meets MIL-STD-45662A and ANSI/NCSSL-Z-540 requirements. ♦

Pump Flow Assurance

FCI Flow Switches ensure early warning and safe shutdown when leaks, low flow or dry conditions occur. **Vortab Flow Conditioners** maximize pump life by eliminating distorted velocity profiles at pump inlets.

FCI FLUID COMPONENTS INTERNATIONAL LLC

Visit FluidComponents.com

1-800-854-1993 ■ 1-760-744-6950

Flow Switches and Level Alarms

Vortab Flow Conditioners Reduce Straight Run and Eliminate Swirl

Gorman-Rupp Company

The quality manufacturing and testing that go into every G Series pump guarantee long-lasting, trouble-free operation. All G Series pumps are designed with features that are only available on Gorman-Rupp rotary gear pumps.

Optimum bushing locations provide high pressure operation while reducing overhung loads. On both packed box and mechanical seal models, the bushings are located as close as possible to the applied loads, providing maximum shaft support. High strength gear material eliminates the need for special steel fittings traditionally required for viscous applications.

Venting provides continuous flow of liquid through seal cavity, ensuring cooling. The seal cavity maintains low pressure, reducing seal face load and increasing seal life.

G Series Pumps offer the widest selection of sealing options available in the industry. The pumps are engineered to allow installation of industry-standard cartridge, compression packing, or standard component mechanical seals.

Intelligent design makes servicing G Series pumps faster, easier and more cost effective. The back pull-out design provides the ability to perform service and maintenance without disconnecting pump housing from piping. Innovation o-ring design on the relief valve allows for adjustment during operation, without leakage.

Gorman-Rupp gear pumps are designed for maximum application flexibility and include built in features that make them completely interchangeable with other gear pump manufacturers. Foot brackets are centrally located under pump ports to provide stability to the pump and piping. Pumps can be configured to fit any piping configuration making them extremely versatile.

Available in Medium-Duty, Heavy-Duty, and Extreme duty abrasive resistant models. Materials of construction include cast iron, cast

steel, ductile iron, austempered ductile iron, and stainless steel.

Patented features enable our rotary gear pumps to perform better and

last longer in countless applications, providing quality and reliability that makes them the ideal gear pump in the industry. ♦

GENUINELY RELIABLE.

Day in, day out performance. Year after year. That's what matters in a pump. And that's why we engineer every **Gorman-Rupp rotary gear pump** to be the most reliable, durable, and easy-to-service pump on the market.

GOR
GORMAN-RUPP
PUMPS

The Pump People



> GRpumps.com

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Hydra-Cell by Wanner Engineering

Superior seal-less pumping technology

Wanner Engineering patented Hydra-Cell positive displacement pumps

in 1973 and has seen the product line expand to twenty-five models

to meet a wide range of OEM and processing applications.

The secret of Hydra-Cell is its seal-less design that separates the liquid flow of the pump from the hydraulic end so that the fluid is drawn through a manifold (containing check valves) and then discharged by the pumping action of hydraulically balanced diaphragms.

ISOLATED HYDRAULICS

On the hydraulic end, all components are bathed in lubricating oil and separated from the process fluid. Isolating the hydraulics from the fluid flow enables Hydra-Cell to pump corrosive or non-corrosive fluids of any viscosity at low or high temperatures.

The seal-less design of Hydra-Cell means that there are no leak paths for VOC emissions to escape, and no dynamic or mechanical seals, packing or cups to leak, wear or replace. Due to its horizontal check valve orientation, Hydra-Cell can handle abrasive particulates that would damage or destroy other types of pumps. In fact, Hydra-Cell can run dry without damage to the pump.

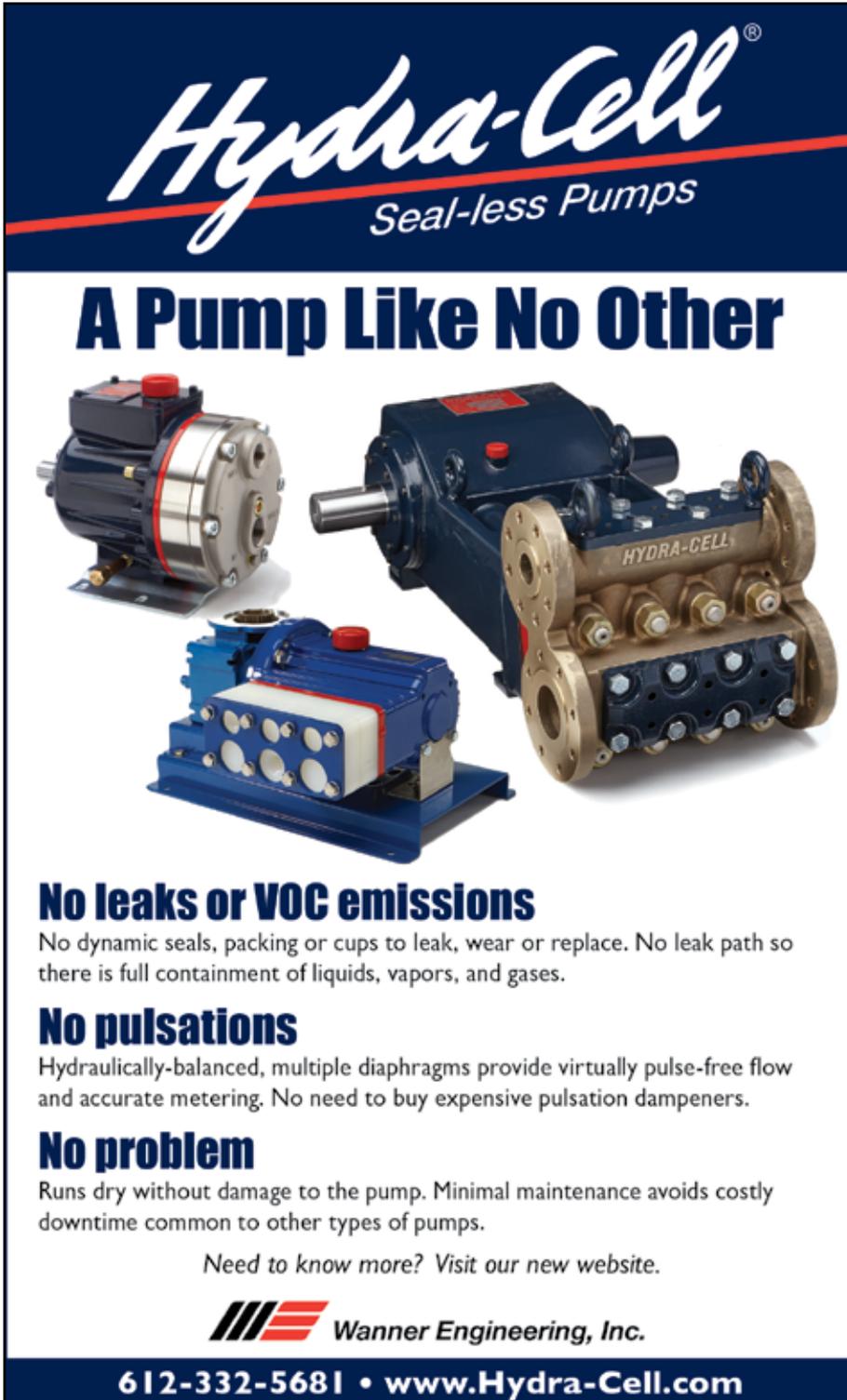
PULSE-FREE FLOW

Multiple diaphragms, standard with most models, also enable Hydra-Cell to provide linear, virtually pulse-free flow without the need for expensive pulsation dampeners.

PRODUCT LINE

In addition to an extensive line of Hydra-Cell Seal-less Pumps and Hydra-Cell Metering Solutions models, Wanner Engineering also manufactures Stan-Cor non-metallic ANSI centrifugal pumps and distributes the Vector line of peristaltic pumps.

Hydra-Cell seal-less pumps are designed, built, and tested in the Wanner Engineering 80,000 square foot facility in Minneapolis, Minnesota, home of the company's world headquarters and manufacturing. ♦



The advertisement graphic features a dark blue background with the 'Hydra-Cell Seal-less Pumps' logo in white script and sans-serif fonts. Below the logo, the headline 'A Pump Like No Other' is written in large, bold, blue letters. Three different models of Hydra-Cell pumps are shown: a compact stainless steel pump, a larger blue industrial pump, and a blue pump with a white diaphragm assembly. Below the images, three key benefits are listed in bold blue text: 'No leaks or VOC emissions', 'No pulsations', and 'No problem'. Each benefit is followed by a short paragraph explaining the advantage. At the bottom, there is a call to action to visit the website, the Wanner Engineering logo, and the contact information '612-332-5681 • www.Hydra-Cell.com'.

Hydra-Cell
Seal-less Pumps

A Pump Like No Other

No leaks or VOC emissions
No dynamic seals, packing or cups to leak, wear or replace. No leak path so there is full containment of liquids, vapors, and gases.

No pulsations
Hydraulically-balanced, multiple diaphragms provide virtually pulse-free flow and accurate metering. No need to buy expensive pulsation dampeners.

No problem
Runs dry without damage to the pump. Minimal maintenance avoids costly downtime common to other types of pumps.

Need to know more? Visit our new website.

 **Wanner Engineering, Inc.**

612-332-5681 • www.Hydra-Cell.com

Hydra-Tech Pumps

Hydra-Tech Pumps a USA manufacturing company, located in the northeastern part of Pennsylvania has been designing and building pumping solutions since 1977, giving them over forty years of experience and expertise. As a manufacturer of hydraulically driven submersible pumps and hydraulic power units, Hydra-Tech offers high quality, low lifetime cost products for a variety of pumping applications. Our systems are designed to cover the widest range of applications including construction, OEM, municipal, petro-chemical, mining, marine utilities, and government customers.

There are several different types of pumps designed and manufactured by Hydra-Tech, including slim line, general purpose, axial flow, sand/slurry, solids handling, shredder,

and specialty pumps. Many models are produced in various materials of construction to handle the most difficult job conditions.

To compliment these pumps, Hydra-Tech also designs and manufactures hydraulic power units which include open, sound attenuated, and electric drive designs.

Pairing Hydra-Tech's submersible pumps with their standard line of hydraulic power units insures that your pumping system will operate with maximum performance, efficiency, and reliability.

With Hydra-Tech Pumps you can expect:

- No shock hazard
- Easy setup, no priming pumps
- No suction hose failures
- Field serviceability

- Pound for pound lighter, stronger, and more efficient pump than comparable electric submersibles
- Low carbon footprint
- Private labeling and custom colors
- Available to answer the phone and offer support before and after the sale

In addition, Hydra-Tech offers solutions to many unusual pump or hydraulic power unit requirements. From customization for specific purposes, custom hydraulic circuits or unique environmental conditions to simple color matching, we can build the right product for you.

For more information, please contact us at website www.hydra-tech.com, email htpump@hydra-tech.com or phone 570.645.3779. ♦

HYDRA-TECH PUMPS
 "The World Pumps Us for Solutions"

24 hour turnaround

2 year warranty on pumps

Low Repair Cost

Live Phone Support

Low Lifetime Cost

USA Made

Website: www.hydra-tech.com
 Phone: 570-645-3779

Milton Roy

Controlled-volume metering pumps and packages

Built on a strong reputation of reliability, Milton Roy combines vast industry experience, a proven track record, and a culture of continuous technological improvement to deliver the most reliable, comprehensive range of metering pumps.

Our latest innovation is the PROTEUS™ intelligent chemical metering pump. Engineered to meet today's most demanding requirements for a wide range of applications including water and wastewater treatment, agricultural, chemical, oil and gas, power generation, pulp and paper, and textile industries to name a few. This intelligent pump is built on a universal technology platform with the ability to adapt as technology evolves. It features a mechanically-actuated diaphragm pump driven by advanced variable speed technology for accurate and reliable performance. An easy-to-use operation interface with a backlit color display enables convenient navigation in five languages. Available in manual or enhanced versions with flow rates 0.006 to 18 gallons per hour (0.023 to 68 liters per hour), PROTEUS intelligent chemical metering pump provides complete process control.

The workhorse of our portfolio is the mROY® metering pump. This pump has been upgraded and offers enhanced safety, improved hydraulic efficiency, easier startup and

maintenance, and the same great performance you depend on—helping you accurately convey chemicals while reducing downtime and maintenance costs. Produced in a variety of models and frame sizes that provide capacities from 0.20 gallons per hour up to 87 gallons per hour in a simplex configuration, the mROY metering pump boasts a hydraulically balanced diaphragm with 96,000-hour design life and a three-year warranty.

Along with the most reliable metering pumps, Milton Roy can develop a customized chemical injection package, adapted for your requirements. These packages are designed in-house or through our channel partner network. You will benefit greatly from our extensive engineering experience and broad, field-proven product selection and solutions. ♦

MILTON ROY

201 Ivyland Road • Ivyland, PA 18974

215.441.0800 • 877.786.7298

Fax: 215.441.8620 • www.miltonroy.com



THE NEW mROY® PUMP

THE STANDARD MADE BETTER.

- Enhanced safety
- Improved hydraulic efficiency
- Easier startup and maintenance
- Same great performance

The upgraded mROY® metering pump sets the global standard for dependable performance in any challenging environment and application. Trust the world's most preferred metering pump to accurately control the dosing of chemicals, reduce maintenance costs, and achieve the extreme precision and high reliability you need.

Visit MiltonRoy.com or contact your local sales representative.



Pulsafeeder®

Pulsafeeder® is a global leader at providing engineered pumping solutions to fluid handling challenges. Larry Wilson pioneered the hydraulically actuated diaphragm metering pump principle in 1942. His Pulsafeeder pump was the first of its kind to feed chemicals at an adjustable flow, accurately, without leakage.

With seventy-five years of experience in multiple industries and chemical injection applications, Pulsafeeder Engineered Products' major markets include chemical and petrochemical processing, water and wastewater treatment, oil and gas, and OEM applications. Its pumps and systems are manufactured to serve the unique requirements of its customers. The company's ingenuity led to the development of the HYDRAtube® and HYDRAcone® diaphragm designs.

Years of refinement have produced designs that are not only reliable and efficient but also exceptionally easy to service. Pulsafeeder backs up its pumping heads with the finest mechanical drive train and best-in-class warranty. The innovative HYPO valve is the solution for the injection of sodium hypochlorite and other off-gassing fluids.

Pulsafeeder offers multiple pump technologies, exceeding industry standards. With its patented replaceable liner and front-pull-out design, Eclipse® non-metallic gear pumps offer nearly universal corrosion resistance at a fraction of the cost of exotic materials. It has the fewest number of components, compared to other external gear pumps on the market, making maintenance easy and reducing downtime. The PulsaPro® hydraulically

actuated diaphragm metering pump line is the next technological evolution for Pulsafeeder. It builds from its legendary predecessor, Pulsa Series®, with expanded performance, compact size, API 675 compliance (with no exceptions), and new features to simplify operation and maintenance.

Precisely engineered pumps and superior customer service is why Pulsafeeder technology is specified in highly engineered metering and transfer applications. Its team will create specific pumping solutions to maximize output and safety, while creating long-term value. The company always follows the strategies of quick response time, short lead times for standard equipment, design excellence, and customer support. This culture has fueled its success.

Pulsafeeder is certified to ISO 9001 standards. ♦

ECLIPSE®

METALLIC & NON-METALLIC SEALLESS GEAR PUMP

PULSAFEEDER®
ENGINEERED PRODUCTS

Never interrupt your core process to perform maintenance on a gear pump.

The patented Eclipse front-pull-out design keeps downtime at a minimum, and gets you up and running in minutes.

www.pulsa.com/eclipse

Reliability Concepts

B.A.T. Belt Alignment Tool®

This tool was developed to alleviate typical shaft and pulley alignment issues that occur with traditional alignment tools. When relying on the human eye, the preventative maintenance and alignment task are not as accurate as they can be. Based on decades of experience in preventative maintenance, Mike Olszewski saw an opportunity to fill a void, making alignments accurate and incredibly faster to complete.

The result is a tremendous savings in time through less man hours, and less downtime for maintenance.

If you're looking for a way to eliminate the guesswork out of belt and pulley alignment, save money and increase efficiency, then this is the Belt Alignment Tool for you.

HOW DOES THE B.A.T. MOUNT TO THE PULLEY/SHEAVE?

We're often asked how does the B.A.T.

Laser Modules attach to the sheave face or pulleys.

The B.A.T. modules have magnets it two different locations. This allows you to mount the B.A.T. Belt Alignment Tool modules to many different pulleys and sheave faces.

To get started using the B.A.T. Belt Alignment Tool:

- Be sure the AA Batteries are installed in each of your B.A.T. modules.
- Magnetically affix a B.A.T. laser module to each sheave or pulley with the laser emitters pointing at the opposing sheave/B.A.T. laser module.
- Turn on each laser module by turning the batter knob clockwise.
- Your Green line laser should now be visible.
- Align the laser lines to the center white target lines: The green line laser should be visible on the

opposing B.A.T. target face. Observe target faces; observe the offset and angular alignments. If a green line laser is not visible on white center target faces, see the below rough alignment procedure or see the offset alignment procedures described herein.

- Rough corrections can be made by aiming the lasers on floors, ceilings, etc. crossing the beams and observing the beam angles. Then, align laser lines on these alternate surfaces. Now, re-aim the lasers at the B.A.T. targets for final correction.
- Make corrections by moving the moveable pulley system until the laser lines fall onto the white middle of the both B.A.T. GlowLine™ Target surfaces.
- Confirm belt tensioning prior to returning equipment to normal service. ♦

The advertisement features a large graphic of a bat with glowing green eyes, with the text 'B.A.T. BELT ALIGNMENT TOOL®' below it. The background is a photograph of an industrial facility with several tall chimneys and a large lattice tower, silhouetted against a bright orange sunset sky. The sun is low on the horizon, reflecting on a body of water in the foreground.

The patented B.A.T. Belt Alignment Tool is the fastest and easiest belt alignment system available. Get accurate error free belt alignment in one fast and easy tool.

WWW.BELTALIGNMENTTOOL.COM
sales@beltalignmenttool.com 800-887-5890

Ruthman Companies and Gusher Pumps

Continuing a century of service

Since 1912, the Ruthman Companies has achieved through continuous growth, innovation and service what few manufacturers have—over a century of service and success in the fluid handling industry. Today, with a host of industry partners, Ruthman Companies serves industries in America as well as Europe, the Middle East, and China.

GUSHER PUMPS

The Ruthman Companies flagship brand, Gusher Pumps, which now includes over 11,000 products, is today stronger than ever, largely because of the Ruthman consumer based manufacturing and market-ing philosophy. While many in the industry are content in producing “off the shelf” standard models, Gusher engineers products for specific customer requirements and is willing to meet challenging situations with innovative engineering. The result is Gusher’s unique acquired expertise and ability to serve today’s global market with one of the most extensive selections of pumps and equipment available anywhere in the world, including, to name a few, Gusher 7071 ANSI Series pumps, the 7550 series pumps, designed for heavy duty industrial applications, and the vertical top pull-out 7600.

A FAMILY PROFESSION AND A PROFESSIONAL FAMILY

The story begins in 1924 when Alois Ruthman designed the first vertical ball-bearing machine tool coolant pump and named it “The Gusher.” In 1949, Thomas R. Ruthman joined his father’s company and, as president, is still active in the company today along with his son, Thomas G. Ruthman. Les, Gary, and Scott Smith follow their father, Pete, a founding member who joined Gusher in 1929. Gusher now has five locations and over 200 employees.

MORE PARTNERS IN PERFORMANCE

Today the Ruthman Family of Companies also includes: Gusher Pumps of Williamstown and Dry Ridge, Kentucky; Gusher Pumps of Newcastle, Indiana, and Gusher Pumps of California. Other Ruthman Companies include BSM Pump Corporation specializing in vane and positive displacement gear pumps. Fulflo Specialties manufactures the industry standard in hydraulic pressure relief valves. FPI Pumps of Florida, specializing in Large Volume Axial Flow Pumps, Great Lakes Pump and Supply distributes pumps and related products in the Midwest, USA. GM Treble is the Ruthman Companies distributor in the United Kingdom. Great Southern Pump serves the Florida municipal market. Nagle Pumps of Chicago manufactures heavy duty sludge and slurry pumps

to a global market. Process Systems Inc. is a manufacturer of turbine pumps, including the Ruthman owned Deming® Vertical Turbine Pump brand. Ruthmann Pumpen und Filter of Germany produces DIN standard pumps and filtration equipment for the European and Middle Eastern markets. Vulcan Tools of Dayton, Ohio, manufactures tool and die making equipment. Wagner Process Equipment serves the industrial and municipal equipment needs in California and Nevada.

Gusher and the Ruthman Company partners’ success and growth is primarily due to the high demand for a quality product and a continuous willingness and ability to meet the challenges presented by customers and the industry with innovative products and solutions. ♦



Scalewatcher

Developed and patented in the Netherlands by Mr. Jan P. de Baat Doelman, Scalewatcher technology was introduced to the European

market in the 1980s. With immediate market success, Mr. Doelman brought the technology to the United States and applied and received a

patent in 1991. From that moment on, Scalewatcher North America has been on the forefront of environmentally-sensitive water treatment. Located in Oxford, Pennsylvania, Scalewatcher North America continues to lead the industry in descaling products that do no harm to the environment.

Scalewatcher North America focuses on the elimination of scale and the problems associated with scale build up. Industries know the costs involved in keeping their capital investments running smooth. Scalewatcher is there to help. Scaled cooling towers, chillers, and associated equipment can negatively impact a company's bottom line, and not just in cash. The caustic chemicals used to remove scale only create more problems with the environment. Your company can "GO GREEN" and stay within your budget.

If our product does not work for your application, we will buy it back! With our "Performance Guarantee," you never have to worry about losing cash on a product that does not work.

Scalewatcher North America Inc. manufactures its products in Oxford, Pennsylvania, so you know its MADE IN THE USA! We can treat pipe sizes from ½ inch up to and including 120 inches. Cooling towers, chillers, evaporative condensers and boilers can all benefit from Scalewatcher water treatment. If it scales up, we can break that scale bond and show you cost savings on maintenance. No plumbing required!

Why keep adding chemicals when Scalewatcher can reduce your chemical dependency?

Break the cycle now and save on energy, water, and maintenance costs with Scalewatcher products!

For more information, call 800.504.8577 and visit www.scalewatcher.com. ♦

**Be Scalewatcher™
Green**

**eco-friendly hard water conditioning
no salt, no chemicals, no maintenance**

**Easily installed and
truly maintenance free**

- Removes scale from pipe work
- Removes scale from heat exchangers and steam boilers
- Saves energy by keeping heating elements scale free
- Increases life of capital equipment
- Reduces cleaning costs, chemicals & labor
- Saves 50% on cooling tower make up water
- Saves irrigation water
- Provides short term payback

Applications:
Residential • Commercial • Industrial

Dealer territories available.
Scalewatcher North America Inc., Oxford PA
Call Toll Free (800) 504-8577 or by email: sales@scalewatcher.com
www.scalewatcher.com

Schenck USA

The All-Rounders: Vibroport 80 and Vibrotest 80

VIBROPORT 80 and VIBROTEST 80 are the newest generation of portable measuring instruments. They are designed with powerful diagnostics and analysis, balancing and condition monitoring capability, these all-purpose instruments are easy to use flexible enough for a broad range of applications with modules for specific requirements. The two instruments can perform all of the same functions.

VIBROPORT 80: With its large screen, VIBROPORT 80 is perfect for in house measurements. The large screen also allows two-plane polar plots to be easily viewed.

VIBROTEST 80: A more compact, lightweight version of the VIBROPORT 80, this instrument is ideal for field analysis/balancing. It provides fast and easy route-based data collection, monitoring the condition of machines, and balancing.

The VIBROPORT 80 and VIBROTEST 80 come in several ready to use starter packages with optional additional modules available to add on at any time to meet your monitoring requirements.

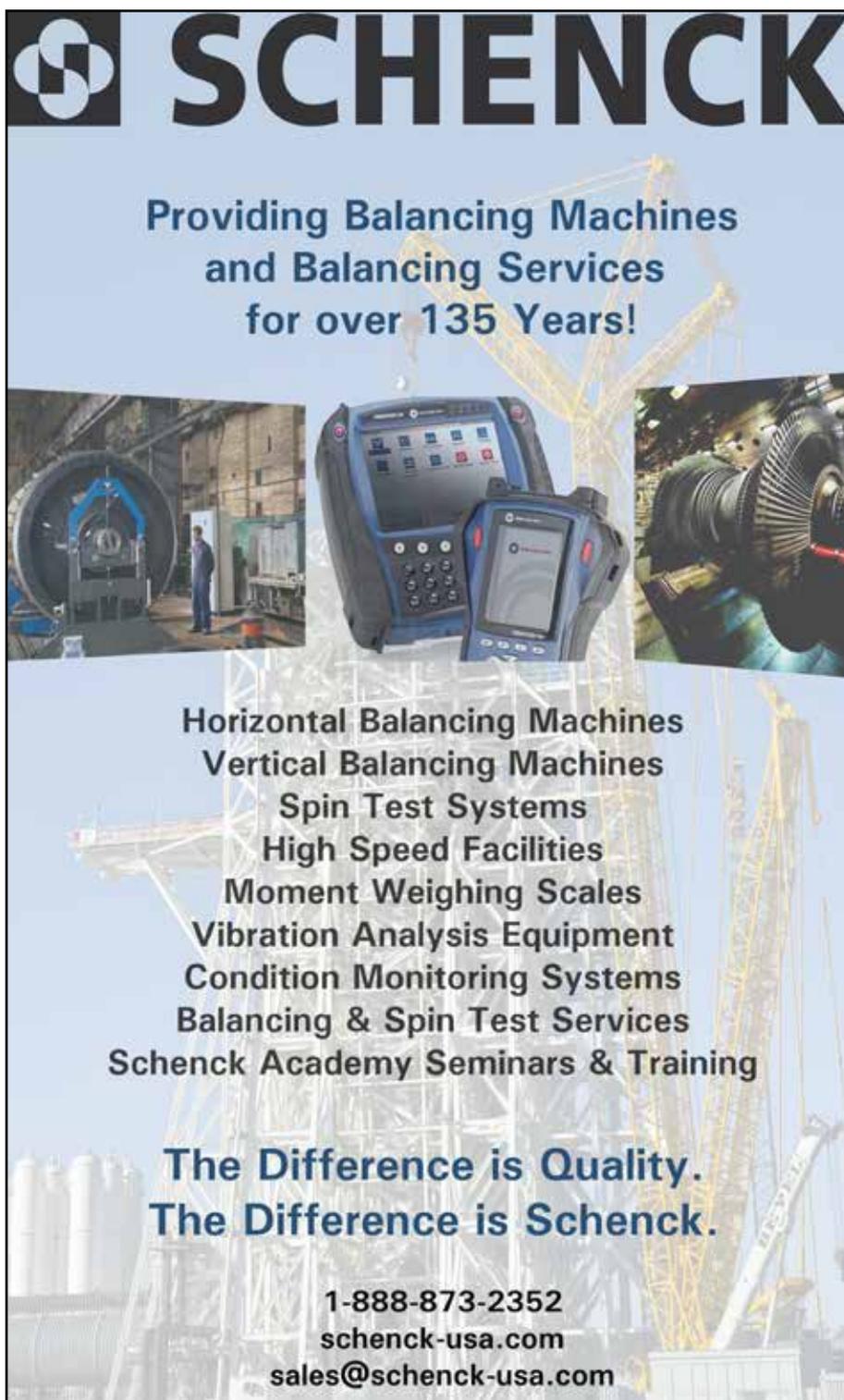
ANALYZER PACKAGE: The analyzer package includes powerful vibration analysis for general machine condition. This package merges the two main modules for typical applications in the machinery diagnostics day to day business: Overalls Module and the FFT-Analyzer with the Report and EXaminer Software (ReX).

BALANCER PACKAGE: The balancer package makes field balancing easy. Unbalance occurs in nearly all types of rotating machinery. With one or two plane field balancing, machines can be balanced by means of the Balancer Module and Overalls Module with the Report and EXaminer Software (Rex).

DATA COLLECTOR PACKAGE: The Data Collector package allows for efficient machine management via route-based inspection. One of the important principles of condition monitoring is data acquisition and

monitoring to alarm limits. With the Data Collector Module and Overalls Module with Report and Route Management software (ReO) you can

upload a route and will be prompted to go from one machine to another in a systematic and efficient way to collect data. ♦



SCHENCK

**Providing Balancing Machines
and Balancing Services
for over 135 Years!**

**Horizontal Balancing Machines
Vertical Balancing Machines
Spin Test Systems
High Speed Facilities
Moment Weighing Scales
Vibration Analysis Equipment
Condition Monitoring Systems
Balancing & Spin Test Services
Schenck Academy Seminars & Training**

**The Difference is Quality.
The Difference is Schenck.**

**1-888-873-2352
schenck-usa.com
sales@schenck-usa.com**

Seepex Inc.

SEEPEX is a leading worldwide specialist in pump technology that provides progressive cavity pumps, systems, accessories, and services. We take a consultative approach to offering innovative products and customized solutions. Each pump we supply meets the specific needs of an industry, a company, an application, and the product being pumped. For more than forty years, SEEPEX has been offering customers in environmental, chemical, food and beverage, oil and gas, pulp and paper, and numerous other industries, optimal, economical pumping solutions.

SEEPEX Inc. is an ISO-9001-2008 certified, 82,000 square feet manufacturing facility situated on ten acres of land in Enon, Ohio. We have a larger presence in North America than any other progressive cavity pump manufacturer! We are also represented in more than seventy countries through a dense network of subsidiaries, branch offices, distributors, and agents. We will keep expanding consistently in the future by developing innovative, market driven products and services, by expanding our enterprise purposefully on an international basis and by opening additional market segments.

For example, SEEPEX BRAVO Chemical Metering Systems are our newest offering. These are plug-and-play, pre-engineered chemical feed systems provide users complete reliability with improved process control, accurate and repeatable flows, and reduced chemical consumption. BRAVO is an integrated, modular and scalable solution used in a variety of industries for disinfection, pH control, flocculation, corrosion inhibitors, oxygen scavengers, and containment elimination. It's a single source for pumps and controls built from standardized panels in floor or wall mounted simplex, duplex, or triplex options. Operators can build a solution to accommodate current flow needs, and scale up to meet future demands. BRAVO incorporates NSF/ANSI 61 certified SEEPEX progressive cavity (PC) Intelligent Metering Pumps for superior chemical metering capabilities. ♦

SEEPEX INC.

511 Speedway Drive • Enon, OH 45323
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SEEPEX's BRAVO Chemical Metering Systems provide complete reliability and whole process control. The modular and scalable BRAVO systems offers the best flexible solution for disinfection, pH control and flocculation in your industry.

BENEFITS

- Simplified design reduces initial and operating costs
- Single source for pumps and controls
- Less chemical use with minimal pulsation
- NSF/ANSI 61 certified progressive cavity pumps

SEEPEX Inc.
sales.us@seepex.com
 T +1 937 864-7150
www.seepex.com

See Water, Inc.

See Water, Inc. located in Riverside, California, manufactures proprietary electronic control panels for commercial, industrial, utility, and environmental treatment applications. See Water continues to develop innovative solutions for the water and wastewater industry.

OIL SMART® TECHNOLOGY

The company was founded on the premise to safely pump water and eliminate the risk of pumping hydrocarbons into the environment. The easy-to-install design and long-term reliability makes the Oil Smart® products the preferred choice among manufacturer representatives and contractors.

PUMP PANELS

See Water provides a complete line of innovative pre-engineered sewage

and wastewater control panels that will operate pumps up to 65 FLA. See Water provides a complete line of innovative pre-engineered sewage and wastewater control panels that will operate pumps up to 65 FLA. The

quality simplex and duplex control panels provide complete pump monitoring, come standard with NEMA-4X enclosures and are UL 508A or UL 698A listed for the United States and Canada.



DISTRIBUTION NETWORK

All products are sold through a worldwide network of manufacturer representatives and distributors. Every product is 100 percent factory tested, third-party approved, backed with three-year warranties and made in the U.S. ♦

SEE WATER, INC.
 888.733.9283
info@seewaterinc.com
www.seewaterinc.com



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QUALITY ENGINEERED CONTROL PANELS

See Water, Inc. provides proprietary electronic control panels for the commercial, industrial, and utility industries. For over twenty years, See Water has innovated the industry by providing high quality pre-engineered products that offer ease of installation and unwavering reliability.

- High Quality Compact Design
- OEM Solutions
- Transducer & VFD Capabilities
- Three-Year Warranty



Watson-Marlow Fluid Technology Group

Watson-Marlow Fluid Technology Group (WMFTG) is the world leader in niche peristaltic pumps and associated fluid path technologies. Founded on nearly sixty years of supplying engineering and process expertise and with over one million pumps installed worldwide, our pumps are tried, tested, and proven to deliver.

WMFTG is a wholly owned subsidiary of Spirax-Sarco Engineering plc (LSE: SPX), a global organization employing approximately 4,800 people worldwide. Watson-Marlow Fluid Technology Group comprises ten established brands, each with its own area of expertise, but together offering our customers an unrivalled breadth of solutions for their pumping applications:

- **Watson-Marlow Pumps:** peristaltic tube pumps for biopharm and process industries
- **Watson-Marlow Tubing:** precision tubing for pumping and other purposes, in a range of materials
- **Bredel:** high flow, heavy duty hose pumps
- **Alitea:** unique peristaltic solutions for OEM customers

- **Flexicon:** aseptic filling and capping systems
- **MasoSine:** gentle sinusoidal pumps for food, chemical and cosmetics applications
- **BioPure:** advanced single-use tubing connector systems
- **ASEPCO:** aseptic valves for the biopharmaceutical industry
- **FlowSmart:** high purity sanitary gaskets, silicone transfer tubing and reinforced silicone hoses for the biopharmaceutical industry
- **Aflex Hose:** specializes in the design and manufacture of PTFE-lined flexible hoses

Watson-Marlow Fluid Technology Group is an international operation based in Falmouth, Cornwall, UK. Watson-Marlow Fluid Technology Group has offices in Argentina, Australia, Austria, Belgium, Brazil, Chile, China, Canada, Denmark, France, Germany, Ireland, India, Indonesia, Italy, Japan, South Korea, Malaysia, Mexico, the Netherlands, New Zealand, Poland, Russia, Sharjah UAE, Singapore, South Africa, Sweden, Switzerland, Taiwan, Thailand, USA, and Vietnam. ♦

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Westerberg & Associates, Corp.

For thirty years, W&A has worked to offer quality consulting, training, and products to meet the needs of our customers across the country. Our goal is to provide excellent service—whether through our books, manufactured products, representative products, seminars or speeches, customer satisfaction remains our priority. Nick Westerberg has been in the industrial community for thirty years, teaching, consulting, and servicing industrial equipment.

DOC'S PUMP JOURNAL

Doc's Pump Journal is the handbook everyone involved with pumping will want to have in their library! This book, with over 700 pages, will make your pumping life much easier. Doc's Pump Journal includes information on hydraulic principals, simple sizing equations, packing, seals, bearing,

foundations, grout, piping, alignments, reliability, pump types, and more... and you don't need a PhD to read it!

DOC'S STEAM JOURNAL

Nothing can replace experience: It is the best, sometimes the hardest, teacher—but the lessons of experience last a lifetime. In Doc's Steam Journal, readers will find over 500 pages of resources, graphs, charts, and images to help in a variety of situations, as well as specific information on steam generation, steam traps, manufacturers, installation, assessment, and engineering. Doc's Steam Journal is the resource you will go back to again and again throughout your career!

THE ARMADILLO PALM GUIDE™

The W&A Armadillo Palm Guide™ face is one of the toughest "rodents"

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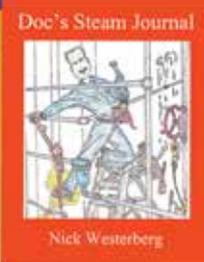
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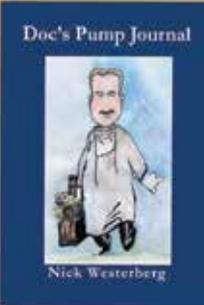
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Doc's Steam Journal
Nick Westerberg



Doc's Pump Journal
Nick Westerberg

All-Flo Pump Company

Established in 1986, All-Flo Pump Company is a leading American manufacturer of air-operated double diaphragm pumps. Suitable for a wide variety of transfer applications, the pumps are manufactured from polypropylene, PVDF, nylon, aluminum, and stainless steel. The internal elastomers are manufactured from a wide variety of thermoplastic elastomers and rubbers. All of All-Flo's pumps are built in the USA, are 100 percent tested prior to shipment, third-party approved, and are backed by a five-year warranty. The company supports its global network of distributors with distribution centers in Ohio, California, Belgium, and China. The engineering philosophy behind all of All-Flo's product is simplicity. The pump's air valve system contains only three moving parts and the design principle is the same across the entire product line. On all of All-Flo's products, the main air-valve contains two moving parts; the spool and the shuttle. The pilot valve contains only one moving part, the pilot sleeve, which is housed internally around the main diaphragm shaft, protected from contact with the inner diaphragm plate. Additionally, the air system contains only one flat, easy to handle gasket, facilitating ease of maintenance. Simply speaking, we pump solutions.™ ♦

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BJM Pumps

BJM Pumps® is headquartered in Old Saybrook, Connecticut, and has been providing fluid handling solutions for industrial and municipal services since 1983. BJM Pumps has grown quickly by supplying world class pumps and accessories, priced competitively, through its global network of stocking distributors in the United States, Canada, and South America.

BJM Pumps® supplies a wide variety of submersible pumps and pump accessories for many different applications. Products include slurry pumps, stainless steel pumps, corrosion resistant pumps, sump pumps, sewage pumps, trash pumps, sludge pumps, non-clog pumps, solids handling pumps, shredder pumps, vortex pumps, submersible dewatering pumps, sand pumps, agitator pumps, hydraulic pumps, explosion proof pumps, utility pumps, and specialty pumps such as 12 Volt pumps and residue pumps (or Mop-Up-Pump). ♦

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- **Rental:** Rugged portable and semi-permanent dehumidifiers made available to the public through national tool rental companies.
- **HVAC:** Moisture removal and air quality solutions including residential, pool, industrial processes, archival storage, commercial, and municipal applications.

Ebac strives to provide the highest quality product, service, and application engineering support to each one of its diversified market segments. An active, ongoing research, and development program ensures that Ebac clients are supplied with the latest and most cost effective moisture removal solutions. ♦



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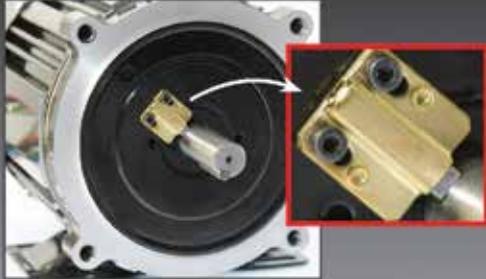
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Helwig Carbon Products

One of the fastest growing areas in the pumping industry is bearing protection. When VFD drives control pump motors, you get significant energy savings and longer pump life. The downside is the induced shaft currents that are created in the pump motor will discharge through the motor bearings and cause frosting, fluting, noise, and eventual failure. This downtime can be costly. These induced currents can be mitigated by installing a Bearing Protection Kit (BPK) with a silver graphite brush on the motor or pump. This engineered solution will provide a path of least resistance for the induced currents and lead them to ground without going through the bearings. You will experience longer pump life, less costly downtime, fewer returns, and satisfied end users with a Helwig Carbon Products BPK.

Helwig Carbon also makes mechanical carbons for pump applications. These components are used for vanes, rotors, seals, bushings, and bearings in a variety of pumps. These precision machined carbon components maintain tight tolerances. Carbon graphite bushings are self-lubricated and can operate at high temperatures. A wide variety of grades and sizes are in stock, plus we can manufacture custom parts quickly. For more information, visit www.helwigcarbon.com. ♦

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Hidrostal is now in the USA to better serve our customers in the North American market. Hidrostal Pumps is located in Aurora, Illinois, and cooperates with independent manufacturers' representatives and distributors across the USA and Canada.

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Singer Valve

Singer™ designs and manufactures automatic control valves for the global water industry. Since 1957, the company's pilot operated diaphragm control valves have been installed on virtually every continent around the world. With innovative technologies, Singer provides solutions for water loss management, water conservation, and urban water and wastewater distribution projects. In early 2017, Singer Valve was acquired by Mueller Co., one of North America's largest full-line manufacturers of water distribution products. Mueller Co. is a subsidiary of Mueller Water Products, Inc. (NYSE: MWA).

Many of Singer's innovative products were invented out of the company's inherent desire to solve an application challenge. Presented with a problem, a team of electronic, instrumentation, and control valve specialists are relentless in their research and design to find a solution. Some of these innovative products include

- Patented anti-cavitation cage
- Patented hydraulically controlled flow modulation valve
- Pressure reducing valve with integral, secondary back-up system
- Single rolling diaphragm technology
- Self-flushing PRV pilot for dirty water

For more information about Singer, go to www.singervalve.com. ♦

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The Topog-E® Gasket Company

From the humble beginnings of Frank Maxwell Thomas, a combustion engineer, selling steam boilers and hot water heaters, the Topog-E Gasket Company is now a globally represented enterprise that continues to invest in new technology, increase its production capacity, and extend its research and development program to expand and enhance its range of gaskets.

Having established a compound that worked in the hostile steam environment, Frank hired a rubber technologist to refine the proprietary mixture. He created Topog-E's own rubber laboratory and acquired manufacturing equipment to begin production of the first molded rubber boiler gaskets.

Today, Topog-E still mixes its own compound and manufactures the gaskets on site, making approximately one million gaskets per year in over 300 sizes. Two generations on, Frank's family is still running the company, with the same focus, commitment, and passion as the day Frank started.

The original line of rubber gaskets, now known as Series 180 gaskets, has been complemented by Series 2000 gaskets manufactured from exfoliated graphite—providing the superior sealing capabilities that Topog-E is famous for. Series 2000 gaskets are designed specifically for medium and high pressure/temperature applications. ♦

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