

PRODUCTS AND SERVICES GUIDE



AdEdge Water Technologies



Founded in 2002 and headquartered just north of Atlanta, Georgia, AdEdge Water Technologies specializes in the design, development, fabrication, and supply of water treatment solutions, specialty medias, legacy and innovative technologies that remove a wide range of contaminants from water. Our mode of work and technologies allow our customers to understand how to manage the elements in a variety of industries with outstanding results. These



industries include drinking water, industrial process, mining, dewatering, construction, chemical, remediation, and general tertiary wastewater treatment.

We have extensive experience in the removal of arsenic, iron, manganese, hydrogen sulfide, fluoride, nitrate, and uranium from water and we've sold hundreds of water systems ranging from 5 gallons per minute to over 20 million gallons per day in North America and locations throughout the world including Canada, India, Africa, and countries in Latin America.

We recently expanded our engineering and manufacturing capabilities to design and build all systems in our manufacturing facility. The USEPA awarded us twelve arsenic demonstration projects, more than any company in the industry.

We work with 75 percent of the top twelve design firms in the United States and with hundreds of engineering firms throughout the world. ♦



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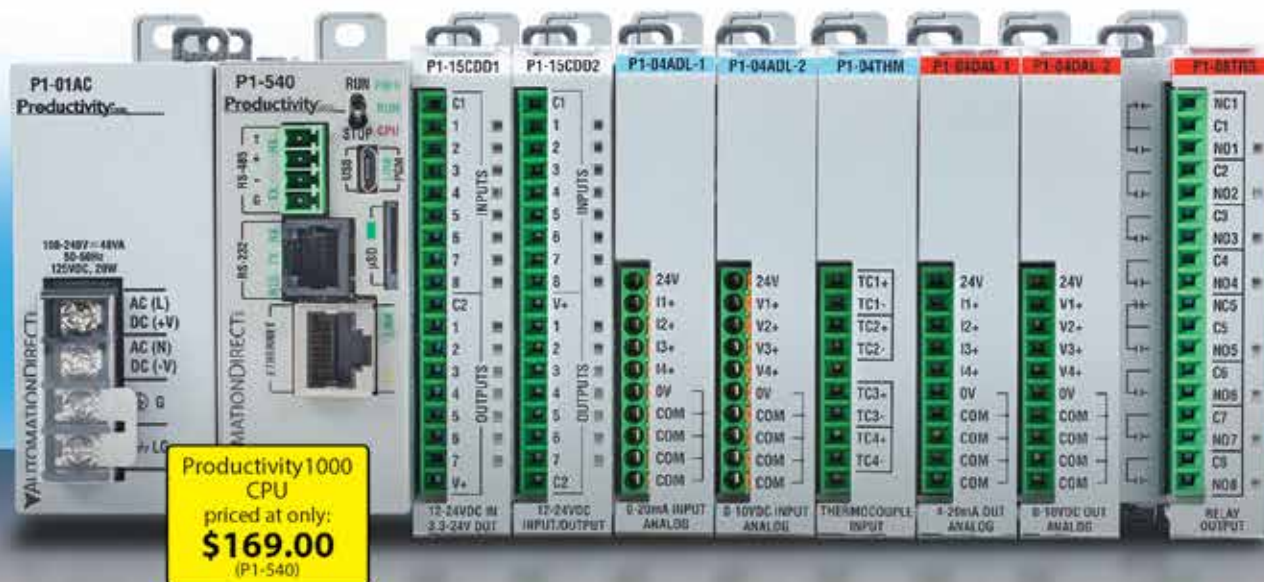


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CPU and I/O Comparison	AutomationDirect Productivity 1000	Allen-Bradley Micro50	Allen-Bradley MicroLogix 1100
CPU/PLC (with Ethernet)	\$169.00 P1-540	\$442.00 1000-L-CIO-240-0	\$704.00 1760-L1000B
(40) 24VDC Inputs (Built-in I/O included)	\$295.00 (5) P1-15CDD1 module	\$586.00 (1) 2080-002 - (2) 2080-001B	\$872.00 (1) 1760-0001T - (1) 1760-0002T
(32) 24VDC Outputs (Built-in I/O included)	\$67.00 (1) P1-04ADL-1	\$222.00 (1) 2080-014	\$405.00 (1) 1760-0001T module
(4) Analog Inputs (Built-in I/O included)	\$95.00 (1) P1-04DAL-1	\$222.00 (1) 2080-004	
(4) Analog Outputs (Based on thermocouple inputs)	\$119.00 (1) P1-04THM	\$343.00 (1) 2080-0014	\$564.00 (1) 1760-174
Total Length (Mount space consumed max (in))	170mm [6.7"]	349mm [15.50"]	270mm [10.63"]
Total Hardware Cost (Includes required terminal blocks, and caps, terminators, etc.)	\$787.50	\$1,830.20	\$2,545.00
Programming Software	FREE PS-1000SW	FREE Connected Component WBS	\$5,890.00 9024-PLC1000K200*

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Crane Pumps & Systems

Sithe Submersible Chopper Pump by Barnes

Elastic solids were clogging the county's station frequently. Pataskala installed the Sithe chopper pump and solved the problem. The Sithe chopper is so reliable that the county's maintenance crew hardly worries about the pump station anymore.

BACKGROUND

Southwest Licking Community Water and Sewer District is a rural water and waste water district in Central Ohio committed to providing economical water and waste water services to over 6,000 customers in three townships.

The district's waste water system includes one WWTP with a capacity of 2.65 MGD, over 160 miles of sanitary sewers and forty-three wastewater pump stations. The district's waste water infrastructure is maintained by its maintenance crew, a team of three people led by supervisor Matt Pennington.

NINE MONTHS EARLIER

Derek Wooten of Excel Fluid Group carefully studied the duty point of Southwest Licking County's problematic pump station. Derek is Excel Fluid Group's Pump Systems Consultant, whom Matt contacted to solve the frequent pump clogging issues at the station. Derek knew that Barnes pumps would have a solution to this problem.

Excel Fluid Group has been a municipal distributor for Crane Pumps & Systems, the manufacturer of Barnes pumps, for more than twenty years. Crane and Excel have worked together on numerous occasions and are passionate about solving customer problems and providing world-class customer service.

Derek consulted Tom Marshall, Crane's regional sales manager, to select a pump for the application.

Derek had shared with Tom that the station pumps were frequently clogging due to elastic underwear, T-shirts, rags, mop heads, ropes, and diapers. Sources for the station include a trailer park, residential houses, and light commercial facilities.

THE SOLUTION: BARNES SITHE SUBMERSIBLE CHOPPER PUMP

Sithe chopper pumps are the newest Barnes solution to challenging municipal waste water applications. Crane engineered the Sithe chopper pump for superior non-clogging and solid size reduction capabilities, highest reliability, ease of serviceability and low life cycle costs.

Matt was intrigued when Derek proposed the Sithe chopper pump solution. "A chopper pump instead of a regular non clog? Why do you think it will solve our clogging problem?" he asked.

Derek affirmed that Sithe chopper pumps are one of the best chopping and pumping solutions available in the market: "Sithe chopper pumps have a patent pending unique chopping mechanism that slices even the most troublesome solids in the waste stream. The chopping mechanism consists of an open center cutter design with large cutting edges, and is made of heat treated 440C stainless steel with a hardness of 60HRC."

"So, how does this help solve clogging?" questioned Matt.

"The heat-treated blades and open center design have two purposes. Heat treated blades enable Sithe choppers to chop hard solids like wood dowels, nylon rods, plastic bottles and metal cans. The open center cutter design helps in directing solids towards the blade cutting edges. As a result, solids like rags, elastic materials, mop

heads and other stringy solids, that would otherwise clog typical solids handling pumps, are easily chopped and pumped," replied Derek.



Barnes Sithe chopper pump's open center cutting mechanism and heat treated stainless steel blades

CONCLUSION

It's been nine months since the Sithe chopper pump was installed in Southwest Licking County's problematic pump station. Sithe is chopping and pumping hard solids with zero downtime. The district's maintenance crew no longer receives service calls for deragging the pump station.

There are several factors that contributed to the success of this Sithe chopper installation. They include (1) Sithe chopper pump's highly innovative design that makes it the preferred pump of choice for pumping heavily solids-laden waste water, (2) Excel Fluid Group's excellent relationship with the county, (3) Ideal pump selection with all necessary information, and (4) Crane Pumps & Systems' outstanding customer service.

All Sithe chopper pumps are available in industry best lead time of just three weeks. In Southwest Licking County's case, per Matt, "Sithe has definitely led to cost savings in man hours, equipment cost and fuel cost from not having to come out and pull the pump to remove clogs." The Sithe chopper pump has exceeded all expectations. ♦

Yeah, it's kind of like that.



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

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The Gorman-Rupp Company

For more than eighty-five years, Gorman-Rupp has manufactured the high performance, high quality pumps and pumping systems required for lasting service in the municipal, water, wastewater, sewage, industrial, construction, petroleum, fire, and OEM markets. Our extensive line of pump products include self-priming centrifugal pumps, standard centrifugal pumps, submersible pumps, trash pumps, priming assisted pumps, and rotary gear pumps. Gorman-Rupp also manufactures a complete line of state-of-the-art packaged lift stations and booster stations that include pumps, motors, controls, piping, accessories, and enclosures.

Through the years, our continued growth has focused on superior pump design, engineering, and customer service. As a result, Gorman-Rupp has become a company known for market innovations and improvements that continue to set standards for the pump industry.

The company's Mansfield Division operates two manufacturing plants, producing a full line of pumps and sewage pumping stations with custom-



made fiberglass enclosures and electrical control panels.

Gorman-Rupp has over 1,000 distributors throughout the United States and the world that are qualified to give expert advice on pump selection and applications. If you have a service problem, a factory-trained distributor is only a phone call away. Our distributors are backed by the fastest parts service in the industry. Gorman-Rupp stocks more than 60,000 pumps and parts and ships 97 percent of them within twenty-four hours so your parts will be there when you need them.

CONSTRUCTION MARKET

Gorman-Rupp is the leading manufacturer of pumps for the construction market. Offering nearly 3,000 models, we have one of the largest selections of fluid-handling products in the world. We have built our reputation on the workhorses of the construction pump market: self-priming centrifugal trash pumps. These dependable, versatile performers, help contractors move large volumes of water quickly. We also manufacture an extensive line of submersible, diaphragm, and priming assist pumps that offer maximum reliability and service life.

INDUSTRIAL MARKET

You will find Gorman-Rupp pumps operating in the most hostile industrial

environments. Down in the sub-basements, in the waste sumps, in the heat, steam, grease and grime, handling the corrosive and abrasive industrial wastes other pumps cannot. Performing reliably month after month, year after year, in all types of waste control systems, pumping solids and debris that would shut other pumps down, Gorman-Rupp industrial pumps are designed for the people who service them.

MUNICIPAL MARKET

Gorman-Rupp sets the industry standard for sewage pumping systems including pumps, motors and controls (complete sewage lift stations). Our solids handling self-priming and submersible sewage pumps offer maximum dependability and ease of service. Our commitment to "total system responsibility" means you only have to make one call should you encounter a problem with your system, from pumps and controls to the lights and fans in our enclosure. We simply offer the best sewage pumps and pumping systems in the industry. ♦



GORMAN-RUPP PUMPS

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Give it the bird.



Gorman-Rupp Super T Series® self-priming pumps deliver reliable performance in harsh solids-handling water applications. Add a Gorman-Rupp Eradicator® Solids Management System to deal with stringy poultry feathers, mop strings, flushable wipes and more. Unlike cheap imitators, Super T Series pumps deliver years of trouble-free operation backed by a five-year warranty and the industry's fastest parts service.

For more information, contact your nearest Gorman-Rupp distributor or visit GRpumps.com.

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The Pump People®

NOV

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.

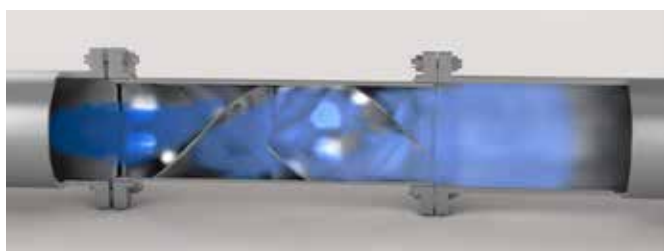
While continuing to engineer industry-leading pump ranges, we also offer Moyno grinders and screens specifically designed for industries requiring solids reduction or waste conditioning.

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. ♦



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Our Mono/Moyno progressing cavity pumps, screens and grinders, and Chemineer, Kenics, Greerco and Prochem mixing equipment have stood the test of time. Now part of the global NOV family, our industrial brands are leaders in providing the right solution for your process.

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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. ♦

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TECO-Westinghouse Motor Company

TECO-Westinghouse Motor Company (TWMC) takes great pride in their commitment to provide the highest quality and premium craftsmanship of AC & DC motors and generators. In addition to motors, TWMC is proud to provide quality variable frequency drives (VFDs) and soft starters, as well as large motor repair services for a myriad of businesses in all industries including petroleum, chemical, water/ waste water, mining, marine propulsion, steel, and electric utility production. Ranging from ¼ to 100,000 horsepower, TWMC's durable high-quality machines are used to power projects of all sizes.

TECO-Westinghouse offers a wide variety of motor product lines to better serve customers' needs. Proven experience in providing custom engineered vertical and horizontal induction and synchronous motors for the electric utility, petrochemical and water/ wastewater industry speaks for itself. In recent advancements, TWMC extended the stocked product line for low and medium voltage, vertical hollow shaft and solid shaft motors up to 800 horsepower. These Max-VHP® vertical motors meet or exceed NEMA Premium Efficiency levels. We recommend pairing one of these vertical motors with a reliable F510, low voltage Pump & Fan VFD for optimal performance. Customers save as much as 50 percent on power by reducing motor activity to 25 percent!

Other product introductions include medium voltage VFDs that are manufactured in the US in NEMA 3R and NEMA 12 enclosures and medium voltage, horizontal, Quick Ship motors from 800 to 3000 HP that are carried in stock. Low voltage VFD options include the L510, an advanced micro drive; the E510, which is designed for NEMA 4 applications; and the A510, a heavy duty



drive that is versatile enough to be used for general applications and tough enough for demanding applications like reciprocating pumps, compressors, and other high torque loads.

Most recently, TWMC has added a new product line of gearing solutions that offers customers highly modular, inventory saving designs that are industry leading in efficiency and cost effectiveness. Unique aluminum housing designs are reinforced and robust to give high performance with excellent heat dissipation that performs well in lower horsepower, higher torque applications. The Helical, Parallel Shaft, and Helical Bevel gear products were designed to directly interchange with the critical dimensions that are commonly used in industry. These gear reducers are suitable for handling a broad range of power requirements from fractional to several hundred horsepower and are complementary to our motor and controls product lines offering our customers a powerful complete solution with system responsibility to drive their applications.

TWMC continues to evolve and looks forward to serving customers' needs by promoting motor and drive solutions that optimize customer efficiencies and needs. The capacities of the Round Rock factory, synthesized with TECO-Westinghouse's global manufacturing resources has uniquely positioned the company to be internationally recognized with an American tradition for excellence in quality. ♦



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- ✓ Dedicated Customer Service & Knowledgeable Technical Support Team
- ✓ Superior Product Reliability



Tsurumi Blue: The Color of Quality

Tsurumi Pump is the manufacturer and originator of some of the most reliable pumping solutions in the world. Founded in Japan in 1924, the company has remained a global innovator in the industry to this day. And for a growing number of pumping professionals, quality has become synonymous with Tsurumi—they know to look for the **Tsurumi blue**.

In North America, Tsurumi pumps have gained prominence in a wide range of sectors, including construction, civil engineering, mining, wastewater, sewage treatment, flood remediation and water features. That versatility stems from the quality materials used in every pump. The wear parts

of each unit are manufactured using only the most durable high-chrome components, including the wear plates and impellers.

Tsurumi also implements proven technology to help prevent water penetration better than any competing manufacturer—patented oil lifters protect the pump's mechanical seal while anti-wicking cable entries keep the power supply safe from moisture.

From the steady flow of a backyard pond to the rigors of the rental market, these pumps are "Built For Work" and can handle any application.

WHEN BLUE TURNS TO GOLD

Mining is a tough industry with little room for error. When the price of gold rises, miners need dependable equipment they can put to use fast. Tsurumi pumps fit that description, which is why Todd Hoffman and the rest of the Hoffman Crew depended on Tsurumi products while filming their final season of **Gold Rush** on the Discovery Channel.

In a season filled with drama, none of it came from malfunctioning pumps.

"If our operations are down for even a day, it can mean up to \$30,000 in gold loss," says Hoffman. "After working with engineers from Tsurumi America and using three Tsurumi pumps, we mined quite a bit of gold and never had any pump-related downtime on the job site. It's been a great relationship." ♦



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Wilo USA

Pioneering For You

Wilo USA is a subsidiary of Wilo SE (Dortmund, Germany) and is one of the leading global manufacturers of pumps and pump systems for HVAC 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 ninety countries by more than sixty subsidiaries, including twenty-one production sites, and employs more than 7,600 people globally.

PIONEERING FOR YOU

The Wilo motto is *Pioneering for You*. It is short, and to the point. These three simple words are our direct promise to our customers and partners to maintain a continuous focus on practical applications and to confront new challenges every day to improve our technical knowledge and competence.

ONE COMPANY, THREE GREAT BRANDS

With Wilo USA, the future begins now. We are still feeling the excitement from the 2017 acquisitions of two highly respected American brands

brought into the Wilo USA family—Scot Pump and Weil Pump, along with component manufacturer Karak Machine Corporation (renamed Wilo Machine Co.).

This new dynamic greatly expands 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. Additionally, the added facilities will enable further expansion in the ability to deliver high-quality products made in the USA. That's what we call "*Pioneering for You*."

ABOUT SCOT PUMP

Scot's roots began as a provider of pumps to the agricultural industry, primarily for transferring and spreading liquid fertilizers. Today, Scot has expanded their expertise to become a specialist in the manufacturing of close-coupled centrifugal pumps for the OEM, HVAC, military and industrial markets.

Scot's manufacturing facility in Cedarburg, Wisconsin, is in the



heartland of the some of America's finest automated foundries, where quality castings in gray iron, bronze, stainless steel and aluminum are readily available. Scot has a distributor network around North America which supports aftermarket and replacement demands by stocking most of the common parts and pumps they offer. Scot's commitment to quality and dedication to short lead times has cultivated a reputation of reliability and outstanding customer service.

Ft. Lauderdale, Florida is home to the Marine Division, which provides all types of non-ferrous pumps and other solutions to yachts and commercial vessels.

ABOUT WEIL PUMP

Weil has long been at the forefront in the design and manufacturing 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 come first. All castings are poured in the United States, and all parts are machined and assembled in Weil's manufacturing facility in Cedarburg, Wisconsin. In addition to pumps, Weil manufactures removal systems and controls, ensuring single-source accountability and trouble-free start-up and operation.

Weil's insistence on high-quality, rugged designs ensures the least maintenance over the life of the pump and yields the lowest lifecycle cost of any pump available. Additionally, Weil has an exclusive, national network of sales representatives whose interests and efforts continue even after the sale. ♦



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Booster Packages & PLC's



Submersible Pumps & Mixers



Submersible Well Pumps



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Systems & Solutions



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Pioneering for You

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Yaskawa

The Yaskawa quality experience

Yaskawa is the leading global manufacturer of low and medium voltage inverter drives, servo systems, machine controllers, and industrial robots. Our standard products, as well as tailor-made solutions, are well known and have a high reputation for outstanding quality and reliability.

We're the only industrial drives manufacturer to win the Deming prize—the most prestigious quality award in manufacturing. But we know that tells only part of the quality story. What about innovative design, knowledgeable, responsive engineers who understand your business, and superior support and training? Those crucial assets are a vital part of how a company is ultimately judged and what we mean by the Yaskawa Quality Experience. At Yaskawa, Quality is more than numbers, more than awards—it's the total experience of purchasing and owning Yaskawa products and working with Yaskawa people.

P1000 DRIVE: THE FLEXIBLE, INTUITIVE SOLUTION FOR FAN AND PUMP APPLICATIONS

Yaskawa's P1000 variable frequency drive provides simple, reliable, cost-effective control for variable-torque loads through 1000 HP. Specific application features, energy savings, and network connectivity make the P1000 a great choice for industrial fans and pumps.

Exceptional quality is the hallmark of Yaskawa products. Yaskawa drives have demonstrated extremely high reliability with an average MTBF (mean time between failure) of twenty-eight years or more.

User-friendly configuration tools, including a multi-language LCD display with a real-time clock, parameter storage, fan and pump application presets, and a portable USB copy unit make programming and configuration simple. DriveWizard® computer software delivers configuration, monitoring, and trending functions



YASKAWA



Standard P1000 Drive



18-Pulse Drive Package

enhanced by direct connectivity through the P1000's standard USB port.

A significant quantity of control points are included as standard. For applications requiring more functionality, the P1000 offers three expansion ports for additional I/O, feedback, and network communications, including DeviceNet, EtherNet/IP, Modbus TCP/IP, Profibus-DP, PROFINET, BACnet, and Lonworks.

Energy efficiency is maximized with variable speed control, and the P1000's integrated 12 pulse version reduces harmonic demand from the power system, contributing to a cleaner environment. Additionally, all materials used in the P1000 comply with the directive for Restriction of Hazardous Substances (RoHS).

P1000 Drives are also available in Bypass and Configured packages. The P1000 Configured package provides a P1000 in a NEMA 1, NEMA 12, or NEMA 3R enclosure, with space for several commonly used options, such as reactors, RFI filters, circuit breakers, etc. Custom engineered 18-pulse packages are also available. The P1000 bypass package provides a P1000 Drive in a NEMA 1, 12, or 3R (UL Type) enclosure, with a 3-contactor style bypass, allowing motor operation from either the drive or across the line. These packages have been designed for flexibility in providing commonly requested features and options to provide a customized drive solution.

The P1000 drive is available in 200-240VAC Three Phase 50/60 Hz (up to 175 horsepower), 380-480VAC Three Phase 50/60 Hz (up to 1000 horsepower), and 500-600VAC Three Phase 50/60Hz (up to 250 HP) ratings. All ratings are available in a Flange configuration that allows for mounting the drive with its heatsink out

the back of any Type 12 enclosure. In addition, the P1000 is designed for use around the world, and carries agency certifications for all major geographical regions. ♦

Proven Worldwide



23 million inverters, 15 million servo axes and 360,000 robots in the field are proof positive that Yaskawa has the engineering expertise, innovative technology and unsurpassed quality to inspire complete customer confidence.



The Yaskawa P1000 variable frequency drive provides simple, reliable, cost-effective control for variable-torque loads through 1000 HP. Specific application features, energy savings, and network connectivity make the P1000 a great choice for industrial fans and pumps.

No matter how you add it up, nobody equals Yaskawa. Call us today.



For more info: <http://budurl.me/YAI1146>

Yaskawa America, Inc. Drives & Motion Division 1-800-YASKAWA yaskawa.com

YASKAWA

Check-All Valve Mfg. Co.

Since 1958, Check-All Valve Mfg. Co. has manufactured a complete line of in-line spring-loaded piston-type check valves. With worldwide service, Check-All Valve serves a wide range of industries including the chemical, petrochemical, pharmaceutical, food and beverage, water treatment, OEM, MRO, and many others. Lightweight, efficient, and rugged, every Check-All valve is designed and built to perform to exact needs and specifications. The company is ISO 9001-2008 certified and manufactures product lines compliant with CE/PED requirements, Canadian Registration Number guidelines, 3A Sanitary Standards, and others.

Check-All valves are engineered for silent operation. They close quickly and smoothly to eliminate

hammer noise. They are designed to function equally well in either a vertical or horizontal position, with proper spring selection. They are also designed to reduce installation costs. The insert series check valves easily fit into existing line components, which reduces initial cost and installation time. The seating surfaces are parallel to each other thereby eliminating the excessive wear occurring in plug, cone and ball seats. Check-All valves can also be used as low-pressure relief valves and vacuum breakers.

With many styles available, Check-All Valve provides check valves for practically every service application. Valves are offered with metal-to-metal or soft seats in sizes ranging from 1/8-inch NPT to 20-inch flange connections. Pressure ratings are

available from full vacuum to 10,000 PSI. Standard or exotic materials are available and you can choose from a wide variety of spring settings and seat materials for any valve. Most options are available with fast delivery. Specially designed valves are another option that Check-All Valve performs on a regular basis. Check-All Valve Mfg. Co. is staffed to supply you with a quality product as well as personal technical services. ♦

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Our check valves close quickly and smoothly to minimize hammer noise.

UPSTREAM TRIM!

The upstream trim is protected from corrosive media mixing, thereby, extending valve service life.



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Crisp Industries

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.

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 Pump and Pipe Division was established in order to provide our customers more options for their slurry and fresh water needs. We use the highest quality equipment on the market and a skilled field crew to ensure that we exceed customer's expectations. Our pump and pipe division caters to the aggregate industry as well as municipalities, oil patch, geothermal, landfills, golf courses and irrigation systems. Pump and Pipe manager, Chris Dunn, has twenty years of operational experience and oversees all aspects of the division to ensure that quality workmanship goes into all projects. We keep a well-stocked inventory of HDPE Pipe, several pumps, fusion equipment and accessories. ♦

CLIENTS TESTIMONIAL

"I'm as proud today of the plant John and Duane built, as I was ten years ago when they handed it over to me. They designed the plant with maintenance in mind and it's really paid off. We run a 24/7 operation and the ease of changing chutes, or popping screens up and down is paramount to this operation. I would have no reservations about standing behind any plant Crisp Industries built."

—Brett Ballard
Texas Materials
Marble Falls, Texas

CHRIS DUNN.

General Manager
Pump & Pipe Division
cdunn@crispindustries.com

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Fluid Components International (FCI)

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. ♦





Flow Switches and
Level Alarms



Vortab Flow Conditioners
Reduce Straight Run
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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.

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Gemü

480/490 Butterfly Valves for a wide range of applications

The GEMÜ 480 and the 490 butterfly valve series are very versatile and can be used for a wide range of applications. These butterfly valves are approved by the German Technical and Scientific Association for Gas and Water (DVGW), and can be used in the areas of drinking water treatment, sea water desalination, industrial supply systems, and mining and metal extraction.

The soft seated butterfly valves of the GEMÜ 480 Victoria® series are available in nominal sizes from 1 to 24 inches. Three different versions of body configuration are available. The GEMÜ 490 Edessa® series is available in 1-1/2 to 36 inches. The customer can choose from a range of materials and coatings for the body and butterfly discs. The seats are also available in numerous versions, from EPDM and

FPM to TFM. Exchangeable seats or a special version with seats bonded into the body can be supplied. This version is particularly suitable for applications involving high pressures, mechanical stress, and vacuum. The valves can be integrated into any automation concept without difficulty.

APPLICATION

In the production facilities of a reputable research institutes, there are different production sectors independent of each other where special microchips and test wafers for the electronics industry are manufactured. All the facilities are hermetically separated from the outside world in order to prevent the contamination of the wafers and microchips.

PLANT TECHNOLOGY

The piping is stainless steel for the deionized water which is used as a heat transfer/coolant. The heat exchanger is installed on the roof of the building. The pump and distribution station, as well as the buffer tanks for warm and cold water, are in the basement. The piping is located in supply channels. All pipe sections, pumps, and production sectors are controlled by manual and automated valves.

SOLUTION

Gemu butterfly valves, with either epoxy coated cast iron bodies and EPDM liners or stainless steel bodies and TFM liners are working well in these applications. ♦

Versatile and Robust Butterfly Valves

Features:

- Sizes 1" – 24"
- Wafer, Lugged and U pattern ANSI class 150 RF flanges
- Cast Iron – Epoxy Coated
- EPDM seats with numerous options
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- Suitable for vacuum
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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, petrochemical, 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 www.hydra-tech.com, email htpump@hydra-tech.com, or phone 570.645.3779. ♦



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Milton Roy

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 comprehensive portfolio of metering pumps, mixers and control systems for chemical metering applications used in upstream applications as well as every aspect of industrial water and wastewater treatment.


Our latest innovation is PROTEUS® the most intelligent chemical metering pump for the water and wastewater, chemical, power generation, oil and gas, agricultural, pulp and paper, and textile industries. PROTEUS is built on a universal technology platform with the ability to adapt as technology evolves. It features a mechanically actuated diaphragm 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 models with flow rates 0.006 to 18 gallons per hour (0.023 to 68 liters per hour) the PROTEUS intelligent chemical metering pump provides complete process control.

The workhorse of the 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 accuracy and reliable performance that Milton Roy is known for. 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.

Milton Roy's PRIMEROYAL®-X is the industry's most powerful metering pump, capable of delivering 20,000 psig to overcome the extreme pressures associated with ultra-deep offshore applications. The API 675 compliant Primeroyal X pump is designed for the consistent and accurate delivery of flow assurance chemicals used to enhance offshore product recovery, eliminate corrosion, and prevent the formation of hydrates or wax deposits.

In addition to metering pumps, Milton Roy also makes a range of mixers and agitators that are used in the water treatment process, for flocculation and coagulation applications, as well as side entry mixers that are used by crude oil storage operators, to blend crude of different gravities together until it can be sent to refineries. This efficient blending keeps basic sediment and water (BS&W) from settling at the tank bottom, which protects storage tanks, and also maximizes storage space for operators. ♦



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Introducing LMI's PD Series Chemical Metering Pump

Designed specifically for industrial water treatment applications, the PD Series pump adds advanced technology to fit seamlessly into your process.

Available in two models, Manual and Enhanced, the PD Series sets the industry standard for reliability, convenience, and value.

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Murphy's PowerCore® rugged controller and panel solutions will get you pumped about powerful control. Superior control and monitoring for pumps and engine systems is our heritage and we do it right. We engineer versatile, configurable controllers that provide consistency across multiple applications, with easy-to-use intuitive menus. Our wide range of control solutions extend from simple mechanical engines to the most advanced Tier 4 Final electronic engines used in mission critical applications around the world. Monitoring and control is simplified with our plug-and-play panels, fully-configurable control solutions and harnessing options. Additional features and benefits of the PowerCore line of controllers include:

- Best in class viewability in full sunlight with an easy-to-read monochrome LCD
- Fully sealed to meet IP67 rating
- CE approval
- Five language options: English, Spanish, German, French, and Italian
- Easy setup, intuitive menus and security passcodes
- Auto start/stop, auto throttling capabilities

We are an international leader in complete, fully-tailored solutions, with the industry's largest portfolio of innovative

displays, controllers, and instrumentation. With versatile software and product platforms, we create customized solutions on aggressive timelines that are engineered and tested for superior durability and performance. Our products boast ease-of-use, intuitive design and rich customization.

We serve the needs of diverse applications through our trusted Murphy brand. Born from the need for simple, reliable engine protection, Murphy has outpaced the industry as an early leader in J1939/CAN bus technology with market-leading display, controller, and instrumentation solutions.

Our industry-leading ruggedized machine displays and controllers, combined with our CAN I/O, power distribution, mapping, and telematics accessories, allow us to deliver an integrated solution specific to even the most complex system application. We serve a variety of markets including off-highway, recreational and commercial marine, power sports and specialty vehicles, agriculture and water pumping, power generation, and engine-driven industrial equipment.

See what makes Murphy the better choice and experience the advanced technology that only Enovation Controls and the Murphy brand can deliver at www.enovationcontrols.com. ♦

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Murphy's rugged PowerCore® controllers deliver the most intuitive, easy-to-use control for your pump control needs on mechanical engines through Final Tier 4/Stage IV electronic applications.

3X



MPC-20
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Proco Products, Inc.

Proco Products, Inc. is your premier expansion joint supplier for offshore oil rig applications. We have the most complete selection of expansion joints for use in applications such as HVAC chiller systems, mud pump operations, mud tank operations, etc. Our products are manufactured in accordance with ASTM F1123-87 and are Coast Guard approved. For requirements where ABS is required, we can also offer products that meet this standard.

When choosing the correct equipment for mud pumps, shale shakers or frac tanks, our Series 240/242 Molded Spherical joints are an excellent choice. Available elastomers for the Series 240/242 would include neoprene tube and cover for fresh/salt water systems, neoprene tube and cover for HVAC chiller systems, nitrile tube and neoprene cover for hot water systems where glycols are present, nitrile tube, and neoprene cover for diesel based mud operations and PTFE tube and neoprene cover for operations where Zinc Bromides may be present.

When designing a piping system where flexible expansion joints are needed, please use our online CAD library powered by TraceParts International. TraceParts is a free online 2D/3D CAD modeling program that allows engineers to download our expansion joint



models into various formats and will provide all pertinent information for design. ♦

Please visit www.tracepartsonline.net/ws/proco for more details on this service from Proco Products, Inc. Proco carries the most complete inventory of expansion joints for offshore oil rig applications.

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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. ♦



**Hydraulic Diaphragm & Gear Pumps
for Industrial Water Treatment**

PULSAPRO:	ECLIPSE:
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www.pulsa.com

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!

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



**Easily installed and
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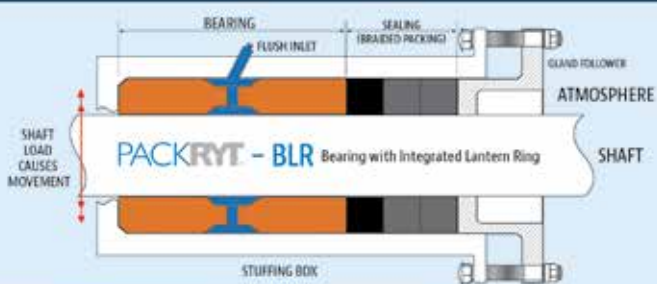
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The PackRyt® Sealing System is a unique stuffing box sealing arrangement that incorporates a bearing and flush channel system together. Our system brings shafts into concentricity and keeps them there, significantly increasing sealing reliability.

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SealRyt

We solve sealing problems others can't

The PACKRYT® System is a shaft stabilization methodology that retrofits into existing stuffing boxes without box modification. This system combines high-capability bearing structures with either premium mechanical packing or mechanical seals depending on the best solution for the application. Each part is custom manufactured to your stuffing box dimensions. Options include

- **BLR:** A unique stuffing box sealing arrangement that incorporates a bearing and flush channel system together. This replaces outdated packing/lantern ring/packing configurations. Our system brings shafts into concentricity and keeps them there, significantly increasing sealing reliability.
- **BRG:** A unique stuffing box sealing arrangement that incorporates a bearing custom made to close tolerances for your application. This replaces outdated braided-packing-only configurations. Our system brings shafts into concentricity and keeps them there, significantly increasing sealing reliability.
- **ORM:** Mechanical seals are ultra-precision devices with seal faces carefully lapped to less than 1.8 microns. This type of precision is expensive and downtime, due to seal face parting and failure, is even more costly. Bearing with O-ring mounted on outside diameter for use with mechanical seals to keep seal faces concentric. Optional locking collar available.
- **Line Shaft Bearings:** Any shaft utilizing a steady bushing for support, whether vertical or horizontal, is a candidate for a SealRyt® Lineshaft bearing. These locations can be found inside tanks on agitator shafts, vertical pump columns, auger screw supports, powder blade mixers, marine drive shafts, and so on.
- **SteamRyt:** A long-term soot blower sealing solution developed through years of polymeric and textile research. SealRyt's polymer bearing attains exceptional, previously unheard of temperature capabilities and our unique arrangement of one bearing fore, one bearing aft creates a protected cavity for our sealing material.
- **Diverter:** A unique stuffing box sealing arrangement that incorporates a flush channel relocation system internally within the composite bearing. This replaces outdated lantern ring/packing configurations that dump excess water into the process. The Diverter relocates the flush deposit and drastically throttles flush volume. Our system ALSO brings shafts into concentricity and keeps them there, significantly increasing sealing reliability. ♦

SEEPEx Inc.

SEEPEx is a leading worldwide specialist in pump technology that provides progressive cavity pumps, systems, macerators, accessories, spare parts, 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 based on low pump life-cycle costs. SEEPEx progressive cavity pumps convey fluids of all characteristics gently, accurately, and reliably.

SEEPEx Inc. is an ISO-9001-2008 certified, 82,000 square feet manufacturing facility situated on ten acres of land in Enon, Ohio, USA. We have a larger presence in North

America than any other progressive cavity pump manufacturer!

Our company's headquarters, SEEPEx GmbH, is in Bottrop, Germany. We are 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. With SEEPEx, all things flow. ♦



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As part of an independent university test*, a standard progressive cavity pump and a SEEPEx pump with Smart Conveying Technology (SCT) underwent a constant-flow wear test with bentonite and water within a closed-loop system. The standard pump suffered performance failure after around 240 hours of operation, while the SEEPEx pump lasted approximately 2,196 hours.

*"Accelerated Wear Testing of Water Pumps" Russ College of Engineering and Technology, Ohio University
To learn more visit <https://seepexsales.com/go/ou-wear-test>

YOUR BENEFITS WITH SCT

- Service in place: no need to remove the pipe work/joint
- Reduced maintenance time by up to 85%
- High productivity due to less maintenance downtime
- Small footprint
- Environmentally friendly



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Thordon Bearings Inc.

Thordon Bearings Inc. designs and manufactures a complete range of high performance, long lasting pump bearings that require no oil or grease. We are the world's leading manufacturer of long lasting non-metallic bearings used in vertical pumps and other industrial applications. Our proprietary polymers developed and produced by Thordon deliver high reliability and low maintenance costs, particularly in tough and abrasive operating conditions.

Thordon pump bearings have been used for both open and closed tube vertical pumps in a variety of applications including: power plants, pulp and paper mills, sewage and waste water treatment plants, nuclear power plants, steel mills, oil and chemical refineries, and shipyards. Our vertical pump bearings provide long wear life because of their low inherent coefficient of friction and self-lubricating properties, high abrasion resistance and dry start up capability.

We produce several pump bearing grades which offer specific operating advantages in any pump bearing application:

- **Thordon XL** is excellent for water-lubricated applications and limited dry running performance.
- **Thordon SXL** is the preferred choice for dry start-up operation, with a lower dry coefficient of friction, and similar wear life and abrasion resistance properties as Thordon XL.
- **Thordon Composite** bearings are specially formulated to provide outstanding wear life in highly abrasive operating conditions.
- **ThorPlas-Blue** can be used in relatively non-abrasive pump bearing applications with water temperatures up to 176 degrees Fahrenheit (80 degrees Celsius) as well as offering improved chemical resistance versus other Thordon grades.
- **ThorPlas-White** is our new food grade material that expands the applications of our bearings. It is ideal for food equipment and as a component for the treatment and distribution of potable water.

Thordon's bearings, and bearing systems, are the proven, cost-effective, environmentally-responsible solution for rigorous and demanding bearing applications. They are available worldwide through a network of local distributors who are factory trained specialists in our products. By providing engineered, customizable solutions, our bearings save companies both time and money. ♦



ENGINEERED for performance

WE COVER IT...
FROM DESIGN TO RELIABILITY,
TO ZERO IMPACT ON
THE ENVIRONMENT.

● ThorPlas-Blue ● SXL
● ThorPlas-White ● XL
● Composite ● PT80

Thordon Vertical Pump Bearing Benefits

At Thordon we manufacture high performance, long lasting bearings that require no oil or grease. Our vertical pump bearings have proven performance in various industrial facilities - power plants, water treatment, refineries, mining, agriculture and any industry moving water.

<ul style="list-style-type: none"> • Abrasion resistance • Extended wear life • Dry start up • Easy to design, machine & install 	<ul style="list-style-type: none"> • ThorPlas-White complies with NSF/ANSI 51, 61 and WRAS approval (UK)
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Thordon Bearings Inc. is on the Approved Materials list of top 10 global pump OEMs

THORDON
THORDON BEARINGS INC.

For your local distributor, visit us at
www.ThordonBearings.com

Watson-Marlow Fluid Technology Group

Watson-Marlow Fluid Technology Group (WMFTG) the world leader in peristaltic pumps and associated fluid path technologies, showcased its Quantum peristaltic pump for single-use downstream bioprocessing at INTERPHEX 2018, held April 17 through 19, 2018, at the Javits Center, in New York, New York.

The innovative Quantum peristaltic pump on display features patented ReNu single-use cartridge technology. Engineered by the world leader in peristaltic innovation, Quantum sets the new standard for high-pressure feed pumps in single-use tangential flow filtration, virus filtration, and high-performance liquid chromatography (HPLC). Quantum represents a step-change in pump technology for bioprocessing by enabling higher downstream process yields throughout the pressure range, delivering virtually

pulse free linear flow, lowest shear, and easy validation aligned with Biophorum Operations Group (BPOG) guidelines.



Quantum outperforms other pumps by delivering higher accuracy with flow linearity independent of back-pressure, removing the need for flow meters and load cells. Flow linearity is achieved across the 43.5 pound-force per square inch (psi) single-use processing pressure range up to 5.3 gallons per minute, with trace pulsation of only ± 1.74 psi, far lower than

other pumps. This virtually pulse-free performance enables constant pressure, thus maximizing process efficiency and yield.

Watson-Marlow Fluid Technology Group (WMFTG) is the world leader in niche peristaltic and sinusoidal pumps and associated fluid path technologies. Founded on nearly 60 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, a global organization employing approximately 4,800 people worldwide. Watson-Marlow Fluid Technology Group comprises nine established brands, each with their own area of expertise, but together offering our customers an unrivalled breadth of solutions for their pumping applications. ♦

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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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Ebac Industrial Products

Ebac, located in Newport News, Virginia, was opened in 1978 to serve and support the North and South America markets. With over forty product lines and a new location in Riverside, California, Ebac specializes in providing pre-engineered dehumidification solutions for military, industrial, commercial, and residential applications, such as:

- **Cleaning and Restoration:** A wide variety of portable dehumidifiers used to dry rooms and materials after water damage has occurred.
- **Rental:** Rugged portable and semi-permanent dehumidifiers made available to the public through national tool rental companies.
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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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Hoosier Pattern

Hoosier Pattern prides itself on being innovative and consistently raising the bar within the industry while maintaining the level of quality they are known for. Back in 2013, Hoosier was the first top-service center to own and operate their own 3D sand printer in the United States. Coming summer 2018, Hoosier will be the only service provider to own and operate two 3D sand printers under their roof along with maintaining a third printer in their facility as well.

Customers are the driving force behind everything Hoosier does and this expansion is no different. This will allow Hoosier to take on jobs that once had to be turned away due to capacity restrictions. The current turnaround time for printed sand of ten days will remain standard; however, the possibility to turn printed parts around sooner if needed for customers has greatly increased.


On top of the addition of the third sand printer in house, Hoosier has recently added a five-axis machining center as well as three Doosan DNM 650's to the machining side of the shop. All of these additions allow Hoosier to maintain current customers as well as take on new customers with more complex projects. ♦



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InfoSight

In industrial environments, accurately tracking assets means knowing what you have, where it is, and its condition. InfoSight Corporation's metal tags withstand physical challenges including heat, abrasion, and exposure to ultraviolet light and enable error-proof tracking that can be maintained throughout an asset's lifespan.

InfoSight's tags can be used to track a wide variety of assets. One application is for plants that are required to have Leak Detection and Repair Programs. InfoSight's LDAR Tag System gives plants control over each LDAR component's unique ID number and tag supply. Customers order blank tags and print new ones only as needed. Additionally, InfoSight's unique LDAR tag design allows the attached tag to be read from either side.

InfoSight's durable metal tags can be applied directly to the asset or attached using a flexible wire type tie. The software included with InfoSight's laser tag printers allows the user to design tags that include alphanumeric messages, barcodes, and logos. A scan of the barcoded tag can confirm that the operator is checking the correct asset, update service records to show the completed work, or access notes and technical information via a customer's IT system.

InfoSight tags make asset identification and tracking simple. ♦



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