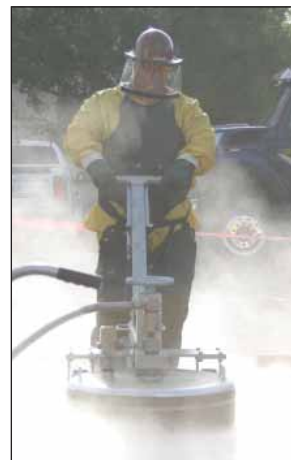


## Waterjets in Action



### On the Inside

WJTA-IMCA Announces New Strategic Plan.....	pg. 2
Write for Us .....	pg. 2
HydroChem Announces Acquisition of Inland Industrial Services .....	pg. 4
OMAX® Meets Growing Demand with Company-Wide Automation System .....	pg. 6
Aquajet Provides the Solution for Difficult Dutch Rail Construction Problem.....	pg. 18
Diamond vs. Ruby Orifices.....	pg. 22

# WJTA-IMCA Announces New Strategic Plan

The WaterJet Technology Association-Industrial & Municipal Cleaning Association (WJTA-IMCA) is announcing the details of the association's new strategic plan, which has been under development for the past year.

"As the largest association dedicated to waterjet technology, industrial cleaning and industrial vacuuming, we take our commitment to developing and improving the industry very seriously," says association Chairman Bill Gaff. "Our new strategic plan will help direct the association in its planning, activities and initiatives."

"While the mission, vision and core values of the association remain much the same as when WJTA was founded," says founding member and association President George A. Savanick, Ph.D., "they have been updated to reflect WJTA-IMCA's growing global presence, the continuing evolution of the waterjet industry, today's technology-driven communications, and the new and dynamic ways WJTA-IMCA will interact with its members."

WJTA-IMCA's vision is to be the premier global association for the waterjetting, industrial cleaning, and industrial vacuuming industries, leading in safety, best practices, new technology and applications, education and training.

WJTA-IMCA's mission is to help our members and the industry become more successful by providing them with information, best practices on safety and technology, and opportunities to network.

WJTA-IMCA's goals include:

**Safety** – Providing and promoting best practices in health and safety for the waterjetting and industrial vacuuming industries.

**Membership Growth** – Growing and sustaining our membership in the primary industries and sector targets of our stakeholder audience.

**Conference and Expo** – Designing and offering our Conference and Expo in a format and with content that drives high participation from our industries and sector targets.

**Financial Stability** – Responsibly managing the finances of our association, ensuring our valued contribution to our members.

**Information Delivery** – Ensuring accessibility to our resources and content to our members.

**Technology Development** – Disseminating information about new technology and automation and supporting academic focus

on the areas of interest and benefit to our members.

**Training** – Providing high quality and relevant training and documentation to our membership.

**Networking** – Fostering trade and promoting learning and engagement within our industry sectors.

"WJTA-IMCA continues to be an association composed of members interested in all aspects of waterjet technology, industrial cleaning and industrial vacuuming, including end users, service providers, manufacturers, job shops, researchers, academicians, and government representatives," says Savanick. "This new strategic plan sets the vision for the organization and will help keep us focused on the future for the benefit of our members and for the betterment of the industry."

## Write for Us

**Jet News** accepts original industry-related articles that have not already been submitted to other publications. All submissions are subject to editorial review prior to acceptance. Once accepted, articles become the property of *Jet News* and cannot be reproduced elsewhere without permission.

### What to Submit:

- Articles about new and innovative applications and equipment
- Case studies detailing implementation of a new product or technique
- Articles related to total quality management, management

trends, marketing, state and federal legislative and regulatory issues, and safety issues

- Articles specific to any specialty area
- Career and student focused features

*Jet News* also welcomes letters to the editor and guest editorials.

**Topics include, but are not limited to:**

Abrasives, Water and the Environment

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(continued on page 19)



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# HydroChem Announces Acquisition of Inland Industrial Services

**A**quilex Holdings LLC, a leading provider of industrial cleaning solutions for the North American petrochemical production, oil refining, power generation, metals and pulp and paper industries, has entered into an agreement to acquire Inland Industrial Services Group LLC, an industrial cleaning company with more than a 30-year history, which serves the Gulf Coast and the Central United States. The combined company will have close to \$400 million of revenue and will continue to provide highly effective and cost-efficient industrial cleaning solutions to customers, including daily maintenance as well as turnaround and project services. The combined company's core services, which include hydroblasting, industrial vacuuming, chemical cleaning, tank cleaning, and paint booth management services, are essential to improving or

maintaining the efficiency and operability of customer facilities as well as extending the useful lives of process equipment and facilities. HydroChem is majority owned by affiliates of New York-based investment firm Centerbridge Partners, L.P., and Inland is majority owned by affiliates of Birmingham, Michigan-based investment firm Strength Capital Partners, LLC.

Gary Noto, CEO of HydroChem, says, "We are excited to welcome Inland's customers and employees into the HydroChem family. Our cultures are highly complementary, and together we will continue to deliver industry-leading safety and quality results to our customers. We remain 100% committed to the accelerated roll-out of HydroChem's proprietary automation technology, which delivers safer, more reliable and higher-quality

outcomes. On behalf of all of Hydrochem's employees, we are eager to get to work in order to merge the operations and build upon Inland's strengths to grow the business."

Kyle Cruz, senior managing director at Centerbridge, adds, "Since our original investment in HydroChem in February 2012, we have supported the Company's investment in equipment and technology. The Company's management team, led by Gary Noto and assembled under the leadership of our Chairman, Donovan Boyd, has delivered strong performance, and the acquisition of Inland is the culmination of a strategic undertaking aimed at expanding into new end-markets and geographies by leveraging our core competencies. We have the utmost confidence in our leadership team."

(continued on page 8)



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# OMAX® Meets Growing Demand with Company-Wide Automation System

To fulfill increasing demand and provide abrasive waterjet solutions to customers as quickly as possible, OMAX Corporation has integrated a companywide custom-designed automated management system. This system, developed in house by OMAX, helps eliminate bottlenecks, provides active real-time measurable data and makes it possible to quickly adjust to fluctuating production schedules. As a result, the company has further streamlined its processes, but most importantly it has shortened manufacturing lead times to get machines on customers' shop floors faster.

OMAX developed its own management system – one that handles every aspect of company operations, including purchase forecasting, inventory tracking, accounting, customer service and manufacturing. Because the custom-designed software system is a web-based platform, the company did not incur the additional time and costs associated with installing multiple programs into the facility's numerous computers. To access the system, employees log on to a highly secure website, even when accessing through public Wi-Fi networks.

“We continuously work to ensure our customers have the high-quality abrasive waterjet solutions they need, when they need them,” says Dr. John H. Olsen, vice president of operations at OMAX Corporation. “With that said, a large portion of the new automated management system's functionality is the ability to switch back and forth according to changing demand and production schedules. These fluctuations drive inventory, and the new system recalculates our production forecasts and inventory values for

generating daily work plans that are accurate and current.”

The new automated management system uses basic consumer technology, which makes it extremely cost effective. Instead of purchasing specialized hardware such as barcode readers or computers with factory-floor features, the OMAX system uses Amazon Kindle Fire tablets, large touch screens and standard label printers.

The company currently has over 100 tablets in operation. The devices are lightweight, and almost every function is initiated within two button clicks so employees can quickly enter all applicable transactions. The management system also provides real-time inventory numbers, which helps the manufacturing staff picking parts, as well as the purchasing and accounting departments. Prior to the new system, data entry was time consuming and often lagged by a day or two.

The automated system and tablets help streamline manufacturing at the OMAX plant. Together, they allow employees to quickly locate and track all the necessary components and subassemblies involved in building the company's OMAX JetMachining® and MAXIEM® JetCutting Centers. The tablets display – in illustrations or photos – the needed model-specific parts and components that, once picked, are



**OMAX Corporation recently integrated a company-wide custom-designed automated management system, which includes more than 100 tablets for streamlining manufacturing plant operations.**

easily marked with labels generated by battery powered label printers on each cart. The carts are then wheeled to assembly stations.

The tablets are also used for monitoring real-time dispatch lists of activities and completion schedules. All activities – transfers, parts gathered,

(continued on page 10)



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## Jetstream Introduces Adjustable Body Pad for Control Guns

Jetstream of Houston, LLP has introduced a fully adjustable body pad, the Jetstream ABP, rated for use with existing 15K, 20K and 40K Jetstream® Durasafe DCPx hand-operated control guns.

“Operator safety and comfort are top considerations for waterblasting applications,” says Richard Scruggs, product manager at Jetstream. “Professional cleaning contractors working on tough cleaning jobs will appreciate the lightweight, ergonomic design and durability of the ABP.”

Built to maximize operator comfort and reduce fatigue when performing a variety of surface preparation and cleaning work, the Jetstream ABP’s patent-pending design allows for the shape to conform to the operator’s body. Water and chemical resistant, with a replaceable, heavy-duty, tear-resistant Cordura® cover for additional protection, the lightweight ABP can be added to a current Jetstream waterblasting control gun with ease.

Weighing less than four pounds, the ABP features aluminum stainless steel construction, a six-inch telescopic

adjustment, swiveling motion to adjust the stock to any orientation and a convex/concave pad curvature with a radius of up to four inches.

The Jetstream ABP is available through Jetstream and nine FS Solutions locations across the United States and through a network of Jetstream dealers worldwide.

For more information, call 800-231-8192 or visit [www.waterblast.com](http://www.waterblast.com).



**Jetstream ABP Control Gun**



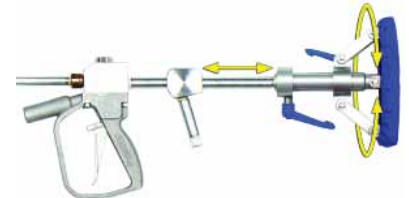
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## HydroChem Announces Acquisition of Inland Industrial Services, from page 4

Mark McCammon, managing partner at Strength, remarks, "We thank the Inland leadership team and employees for their service and are thrilled with the transaction. HydroChem is the right owner for the long-term growth of the combined business, and Inland's specialized capabilities, extensive branch network, diverse customer base and experienced employees are a valuable addition to HydroChem."

HydroChem will finance the acquisition with proceeds from a new credit facility underwritten by General Electric Capital Corporation. The transaction is expected to be completed prior to 2013 year-end. ■





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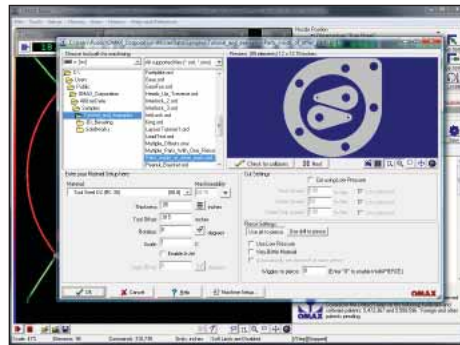
# OMAX® Enhances Waterjet Control Software

OMAX Corporation recently announced the launch of a new version of its Intelli-MAX® Software Suite, an intuitive control software that automatically optimizes the tool paths of the company's advanced abrasive waterjet systems. Intelli-MAX 20 incorporates several enhanced features that improve the speed and memory utilization of OMAX waterjets as well as new tools that allow for increased operator efficiency.

According to Carl Olsen, lead software engineer for OMAX Corporation, the Intelli-MAX Software Suite is what sets OMAX apart from the competition. "This proprietary software, which we continuously update and improve, requires minimal operator training and makes it easy for users to create precision parts faster and at a lower cost. Not only does the software simplify the control of the jet stream while cutting, it also automates programming and tool setup work," he said.

The new automatic tool path planning engine in Intelli-MAX 20 improves the artificial intelligence of OMAX waterjets, creating less need for operator involvement, improved collision avoidance functionality and more efficient traversing between parts.

OMAX has also added a new scripting engine to Layout, the specialized CAD portion of the Intelli-MAX Software Suite. The scripting engine



allows OMAX customers with advanced programming skills to create standalone applications for automating their machines. For example, customers can add barcodes to documents such that when scanned the information is automatically built into the cutting parameters of the control software. The scripting engine also extends the commands of the CAD applications, which users can further

leverage through OMAX's fee-based custom programming services.

Other functions of Intelli-MAX 20 include a new circular window, bridging and capping commands, improved advanced 3D machining features, enhanced machine monitoring and alerts as well as new parametric shapes for easier 3D pipe cutting.

The new Intelli-MAX 20 Software Suite is free to all existing OMAX JetMachining® Center owners. By continuously adding and updating its help screens, users have access to over 2,000 pages worth of the latest tutorials, troubleshooting guides, and tips and tricks directly at the control.

For more information call 800-838-0343 or visit [www.omax.com](http://www.omax.com).

## OMAX® Meets Growing Demand with Company-Wide Automation System, from page 6

shipped materials and the like – are prioritized and instantaneously displayed.

OMAX enhances its work order tracking with the new system. For each order, the system lists all prescribed steps to follow and within which of company's various work centers the work will be done. Each work center can then view its workload and schedule, as well as track a work order as it progresses through the factory.

At various work centers throughout its factory, OMAX has 27-inch touch screen monitors that, as part of the automated management system, provide visual instructions for workflow management. Images of components and subassemblies are

prominently displayed so those assembling machines can do so without accessing a laptop or computer screen. Any new or updated procedures that have been incorporated are also noted on the monitors.

Prior to its full implementation in 2013, OMAX ran both the old and new management systems in tandem. Running the two systems together made the transition seamless. Employees had ample time to learn the new system as the migration took place, and there were no disruptions to workflow and machine delivery times shortened almost instantaneously.

For more information, call 800-838-0343 or visit [www.omax.com](http://www.omax.com). ■

*Jet News* is published by the WaterJet Technology Association (WJTA)-Industrial & Municipal Cleaning Association (IMCA) and is a benefit of membership in the Association.

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# WARDJet Hosts Successful Open House in October 2013

On October 23-24, 2013, WARDJet held an open house event at its manufacturing and engineering facility in Tallmadge, Ohio, to introduce customers to the latest WARDJet developments as well as provide valuable information on a number of waterjet-related topics. WARDJet staff organized a schedule of live showroom floor demonstrations and conference hall presentations in order to give visitors the opportunity to explore the facility during the course of the event. WARDJet welcomed more than 100 guests, speakers, students, officials and press over the two day event. Special guests included Tallmadge Mayor David Kline, Ohio State Representative Anthony DeVitis and WARDJet-sponsored pro snowboarder Steve MacCutcheon. The response was overwhelmingly positive and WARDJet plans to organize another open house in October 2014.

The live showroom floor demonstrations included the multipurpose abrasive waterjet robot, the Emerald Series waterjet, the Z-Series flagship waterjet and the WARD Pro abrasive recycling system. Guests particularly enjoyed watching the waterjet robot use pure water to cut a jack-o-lantern face into a foam pumpkin. This demonstration occurred at the top of every hour both days and a lucky group of visitors even got to take a pumpkin home with them. The Emerald Series waterjet demonstrated its versatility by cutting a foam dinosaur puzzle while a WARDJet representative explained the controller and software to guests. The Z-Series waterjet was utilized to demonstrate 5-axis capabilities by cutting a fan blade out of quarter-inch aluminum. Visitors also got a sneak peek at the massive G-4816 waterjet with 5 feet of Z-axis travel. With unrestricted access to the entire WARDJet facility, guests were able to see firsthand how high-quality WARDJet waterjets are assembled every day.

Speakers in the conference hall discussed a range of topics. Presentations were given by Richard Ward, the president of WARDJet, as well as a number of other WARDJet employees that covered the types of waterjets and accessories manufactured at WARDJet and how they can facilitate waterjet cutting. Other speakers included Motoman representative Sam Schenck who described robotic technology and applications and Kim Faustini of In-House Solutions who introduced Open House guests to Robotmaster software and capabilities. Each presentation was informative and educational and allowed visitors the opportunity to ask the experts questions pertaining to the topic for further explanation.

Guests were treated to lunch and refreshments both days, giving them the chance to network with other visitors and

(continued on page 16)



**Richard Ward and Ohio State Representative Anthony DeVitis pose in front of a large-format waterjet.**



**WARDJet owner Richard Ward and Tallmadge Mayor David Kline stop for a photo in front of a six-headed waterjet being built for Tesla Motors Inc.**



**WARDJet Representative Tim Ghrist describes the process used by the WARD Pro abrasive recycling system to turn sludge abrasive into reusable abrasive.**



**WARDJet owner Richard Ward gives a presentation about customizable waterjets.**





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# Jet Edge Produces New Corporate Video

The Jet Edge, Inc. new corporate video is now showing on Jet Edge's YouTube channel at [www.youtube.com/jetedge-waterjets](http://www.youtube.com/jetedge-waterjets).

Featuring a behind-the-scenes look inside Jet Edge's 100,000

square foot manufacturing facility in St. Michael, Minn., U.S.A., the video includes an overview of the waterjet manufacturer's capabilities and products as well as testimonials from three Jet Edge customers from across the United States.

In the video, Jet Edge Spokesman Jeff Schibley explains how water is pressurized up to 90,000 psi to create a powerful cutting stream that can cut precise parts from virtually any material, from huge steel parts to intricate stone inlays. Because of their versatility, Jet Edge waterjets are used in nearly every industry around the world.

"You come across items every day that were cut with water and don't even realize it," Schibley says. "Look around inside of your automobile. The dashboard, the carpet, the headliner, even the trunk liner, these were all cut with waterjet. If you have a titanium hip or knee, that was cut with a waterjet. The applications for waterjet are endless. Why? Because it cuts without heat, doesn't leave a heat affected zone, or a recast in the material at the cut edge."

Jet Edge President Jude Lague discusses how Jet Edge's willingness to rapidly develop customized solutions has made it the go-to waterjet supplier during times of crisis.

"After the Gulf War, Jet Edge was



**Jet Edge's 100,000 square foot headquarters in St. Michael, Minnesota.**

called upon to help put out the oil field fires in Kuwait," Lague recalls. "By the end of the ordeal, we had cut off most of the wellheads... During the Gulf oil spill, BP contacted us about making a system that could go 5,000 feet under water. This had never been done before. We were able to accomplish that and were able to help in ending the disaster."

The video also highlights how Jet Edge customers are using waterjet technology to gain an edge on their competition and solve complex manufacturing challenges.

NASCAR's Michael Waltrip Racing uses two Jet Edge waterjet systems to cut more than 1,000 parts for its Sprint Cup teams. MWR Waterjet Operator Jeremy Vanderleest credits Jet Edge for helping MWR get design improvements to the racetrack two weeks faster and get more work done in-house.

"This saves us money and keeps our designs from being copied by the competition," Vanderleest comments.

Pegasus Northwest, Inc. of Kent, Wash., is an AS-9100-certified waterjet shop that is known for its tight tolerances and quick turnarounds. As a

Boeing supplier, Pegasus must maintain the highest precision and accuracy standards.

"The Jet Edge systems we have here have a lot of unique features," says Dennis Pavlov of Pegasus Northwest. "My personal favorite is the main Z and the sub Z motors. It allows us to control our nozzles individually at the same time. We have the capability to tilt our heads, to pre-drill a hole and all of those features make our job a lot easier. We are very pleased with our Jet Edges. That's why we have five of



**Precision Waterjet Concepts mirror cuts large parts on its Mid Rail Gantry waterjet system. This enables them to cut large parts twice as fast.** Courtesy Precision Waterjet Concepts.

them."

Precision Waterjet Concepts is a thriving Northern Minnesota waterjet shop that counts three Jet Edge systems among its eight waterjet systems.

"Jet Edge was very easy to work with," says Joe Quaal, Precision Waterjet Concepts president. "They were friendly, they were able to provide the services we were looking for, and they've been very durable equipment for us."

For more information, visit [www.jetedge.com](http://www.jetedge.com), e-mail [sales@jetedge.com](mailto:sales@jetedge.com) or call 1-800-JET-EDGE (538-3343).



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## NLB Lances Operator-Friendly

NLB's new NCG-286A high-pressure water jet lances increase operator comfort while making hose or fitting failures even less likely. The new models, which replace the NCG-286 Series, reduce stress on the inlet hose connection and feature a redesigned, padded shoulder stock that helps center the thrust of the high-pressure water.



The new lances have an inlet tube with a 90-degree bend, supported by a bracket, that eliminates the bend radius in the hose behind the inlet connection. Hose friction is also eliminated,

since the hose no longer has to pass through a loop on the shoulder stock. The bracket also strengthens the overall assembly.

The NCG-286A Series includes lances rated for operating pressures up to 10,000 psi, 15,000 psi, 24,000 psi, and 40,000 psi (700 bar, 1,035 bar, 1,400 bar, and 2,800 bar). Brackets and couplings are available to convert older-style NCG-286 lances to the new design.

## WARDJet Hosts Successful Open House, from page 12

employees. WARDJet also hosted a Friends and Family event for employees following the conclusion of Wednesday's Open House festivities. Staff and loved ones were able to tour the facility and see the latest WARDJet innovations and were treated to pizza and cake as a 'thank you' for their hard work and dedication. WARDJet sponsored pro snowboarder Steve MacCutcheon spoke during the Friends and Family event to share his experience of recovering from a near-fatal injury and his journey training as an Olympic hopeful.

Overall, feedback received from open house guests has been positive; visitors remarked that demonstrations and talks were informative and entertaining. WARDJet looks forward to hosting the next open house to update customers on the next chapter in waterjet innovation in 2014. For more information on the 2013 WARDJet open house or to view photos and videos from the event, visit the WARDJet open house web page at [wardjet.com/openhouse](http://wardjet.com/openhouse). ■



**WARDJet Representative Ken Carter discusses Emerald Series waterjet with a group of Open House visitors.**



**Guests watch the multipurpose waterjet robot cut a jack-o-lantern face into a foam pumpkin.**



**Pro snowboarder Steve MacCutcheon describes his journey towards the Winter Olympics.**

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# Hughes Pumps Add Pressure to the Water Atomizing Process

**H**ughes Pumps recently supplied three HPS5000 high pressure pump sets to one of the world's leading South Korean steel manufacturers as part of a Water Atomizing project – a process that has the potential to handle huge throughputs of metal on a single melt stream, potentially delivering increasing performance levels and low operating costs.

In the water atomizing process, molten metal is poured through a high-pressure water spray ring fitted with high-pressure fanjet nozzles that atomizes the molten metal into metal powder, which is typically used for sintering engineering components.

## Water atomization

Driven by the trend towards higher density levels in Powder Metallurgy

(PM) structural parts as a means of increasing performance levels, sponge iron powders have been increasingly supplanted by powders made through water atomization.

Water atomized iron powders also have irregular particle shape and therefore good green strength. Unlike sponge iron, the individual powder particles do not contain internal porosity and, because of extensive development of the annealing process, have superior compressibility. Water atomized powders are therefore the material of choice where high green density is sought in PM structural parts.



**Pouring Molten Steel**

Water atomization was chosen because it produces irregular shaped particles as well as allowing large processing rates of up to around 1,000 kg (2,200 lb) per minute. This irregular shape offers the benefits of a much larger surface area, which

(continued on page 20)



## HIGH & ULTRA HIGH PRESSURE

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We also welcome enquiries from potential new distributors in territories without representation.



HPS650

# Aquajet Provides the Solution for Difficult Dutch Rail Construction Problem

An existing elevated rail decking in Holland presented demolition problems for the contractor BAM Civiel bv in making ready for joining it to a newly constructed concrete deck and new twin rail track.

Fabricated some 20 years ago in readiness for future expansion, the old reinforced concrete deck – above the busy A10 highway through the southern suburbs of South Amsterdam – included two post-tensioned cables.

After removing a balustrade/end wall at one end of the old deck, using a conventional concrete wire saw, it was necessary to further remove the deck concrete to expose the rebar for reinstalling to the new adjoining deck.

However, a bigger problem was exposing the post-tensioned cables for inspection and recasing in new concrete, without any damage whatsoever to the steel cables and rebar.

Specialist contractor Velsen-Noord – based Aqua Demolition Services (ADS) provided the solution with hydrodemolition techniques using two Aquajet Systems Aqua Cutter 710V evolution robots.

“Without using the Aqua Cutters, possibly the only other solution would have been to use hand lances – taking 8-10 operators at least 2 weeks to clear all the specified concrete safely,” confided ADS Director, Arjan de Waard.

He continued, “Using Aquajet’s hydrodemolition techniques allowed us to complete the job inside 1½ days including set up times.”



Overhead view of work area.

The first post tensioned cable was located 50 mm below the surface of the 12 m wide x 27 m long concrete deck.

Comprising some 12 bundles of cable to give a 140 mm diameter, the post-tensioned cables were ‘tied’ in to a steel plate. Once exposed and inspected, the cables will be re-cased in new concrete and the steel plate removed.

“We were extremely worried about initially removing the concrete as the client, the rail authority O.V. Saal had specified there must be no damage to the steel cables. But the fears proved unwarranted as the Aqua Cutters removed all the concrete cleanly and left the steel cables totally exposed and undamaged,” said Bam Civiel Project Manager Leen van Anrooij.

A second, similar sized post-tensioned cable was also located some 600 mm below the first cable.

Access to this one, however, was close to the elevated deck’s columns and beam above the pile cap and, once again, the client specified no damage to the beam behind the contoured deck.

“We therefore opted to tackle this problem by using a second Aqua Cutter 710V evolution robot installed with a 7 m vertical mast,” explained ADS CEO Hans ‘t Geloof.

“Not only did it ease the demolition process from the front of the 900 m deep deck, it also allowed us to progress at a fast

rate and with no damage to the beam wall.”

Hydrodemolition works by pressurizing and widening existing pores and micro-cracks in a concrete structure using high-pressure water penetration.

The rate of removal is dependent on the amount of water directed towards the concrete surface, and consequently the area and depth of removal can be closely controlled. Using a high pressure waterjet also makes it easy for the operator to work around obstructions; particularly when compared with, for example, conventional jackhammer methods.

“With hydrodemolition, once programmed the jet moves rapidly and continuously over the selected area for removal,” explained Hans.

“There is no percussive effect on the surface, with the waterjet penetrating the deteriorated concrete, and there is no modification of the concrete micro-structure or pore structure.

“Apart from very effective cleaning there is also no effect on the rebar.”

Both operated at a pressure of 1040 bar and 26 l/min of water.



Close up of work area.

(continued on page 21)



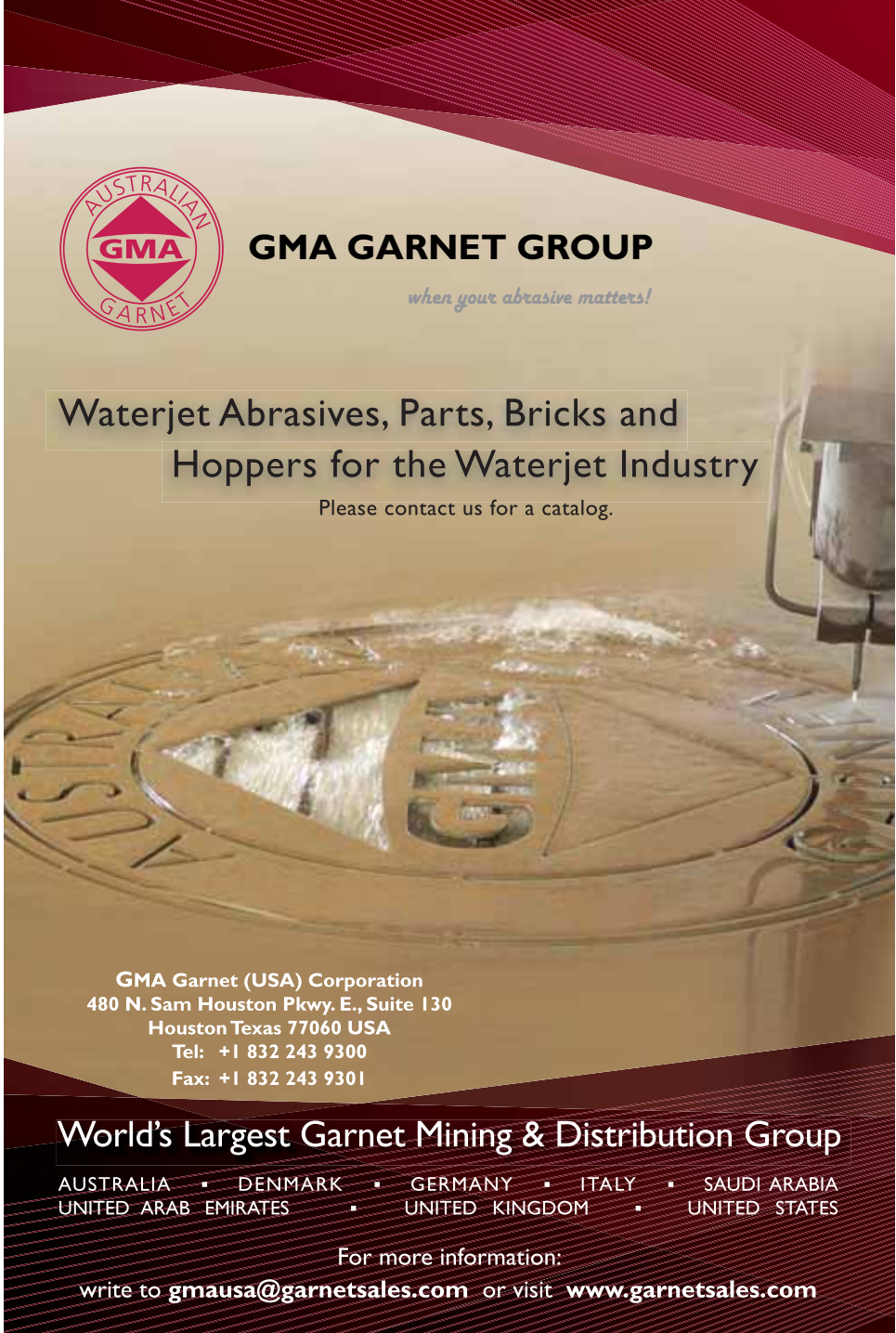
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Articles should be approximately 1,000-1,500 words long and submitted via email as a Word document. Illustrations, photographs, graphics and charts are encouraged to complement the article. All accompanying materials should be labeled to provide appropriate originator credit. Suggested captions are required.

Degrees and accreditations, professional titles and current position should be included. All statements based on published findings should be referenced appropriately. References



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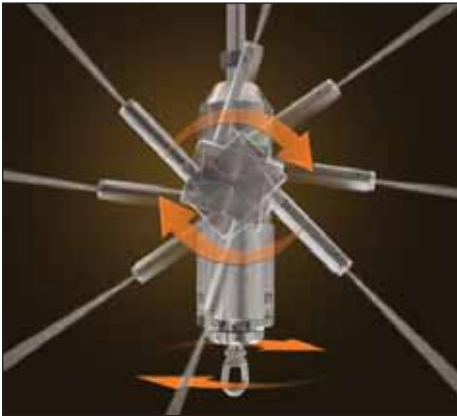
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should be listed numerically within the text and at the end of the article. Articles not meeting submission criteria may be returned for reformatting at the editor's discretion.

Send submissions to [wjta-imca@wjta.org](mailto:wjta-imca@wjta.org), attention: George A. Savanick, Ph.D. ■

# New Torrent™ 200 Has Higher Flow for Tank Cleaning

The Torrent™ 200, a new 3D water-jet head from NLB Corp., combines high flow with high horsepower to increase the efficiency of tank, tote and reactor cleaning. It is rated at up to 200 gpm (757 lpm) and 2,300 hp (1,715 kW).



The Torrent 200 rotates horizontally while two high-velocity waterjets spin vertically, driven by the flow of high-pressure water (20,000 psi, or 1,400 bar). This 3D action produces complete 360° coverage of the interior walls, not only reducing cleaning time but automating a process that previously required personnel to enter a tank and be exposed to risk.

In large vessels, the head is typically attached to a telescoping lance and positioned to produce the optimum angle.

Like the smaller Torrent 50, the Torrent 200 features carbide orifices in the rotating nozzles and a magnetic brake that makes it easy to adjust the rotation speed. Maintenance is simplified by easy-to-replace seals that last hundreds of hours between changes. The head is made of corrosion-resistant stainless steel for long life, with a variety of nozzle arm sizes and configurations to suit user needs.

The Torrent 200 3D head is 30.8 inches long (939 cm) with a minimum

width of 6-inches (15.25 cm), and requires a 1-1/2-inch MP inlet connection.

For more information, visit [www.nlbcorp.com](http://www.nlbcorp.com).

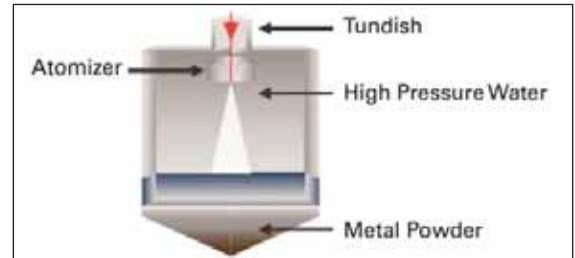
## Hughes Pumps Add Pressure to the Water Atomizing Process, from page 17

when used in refining applications allows a greater surface area for chemical attack. PM parts, produced by pressing and sintering, rely upon the irregular shapes to produce the compressibility and locking nature that holds the parts in their green shape – a certain strength that allows easier handling and sintering.

The Hughes Pump's system comprised of two duty and one standby pump, each with a performance of 750 lpm at 140 bar (200 gpm at 2,000 psi) giving a combined performance of 1500 lpm at 140 bar (400 gpm at 2,000 psi). Each pump was driven by a 200 kW (270 hp) electric motor.

The HPS5000 pumps were chosen for their quintuplex (5 cylinder) design, which produces a much smoother output than triplex (3 cylinder) pumps. The pumps were also fitted with discharge pulsation dampers to smooth the output even further. This was a prerequisite due to the extensive run of rigid stainless steel discharge pipework installed on the system.

The pumps incorporated pneumatic dump/pressure regulating valves that were controlled by the central PLC to enable remote on/off load control and pressure adjustment.



The Atomizing Process



Hughes HPS5000 Pumpsets awaiting dispatch

As with all Hughes Pump models, the HPS5000 pump is pressure lubricated and oil cooled as standard. As the process water was to be re-cycled and therefore subject to heat rise, increased size oil coolers were fitted to the pumps to allow for the incoming water supply at 40°C (104°F).

For more information, visit [www.hughes-pumps.co.uk](http://www.hughes-pumps.co.uk), email [sales@hughes-pumps.co.uk](mailto:sales@hughes-pumps.co.uk) or call +44 (0)1903 892358. ■



## Aquajet Provides the Solution for Difficult Dutch Rail Construction Problem, from page 18

In accordance with all environmental specifications ADS was responsible for bringing to site its own water supply and using eight 35 m<sup>3</sup> tanks to remove contaminated water off-site for cleaning treatment.

Bam Civiël's contract was awarded two years ago and has a completion date of 2015.

Comprising a 7 km section of the new proposed 18.5 km link from Amsterdam South to Duivendrecht, the contract featured laying twin rail tracks both at grade and on seven new elevated bridges alongside the existing rail network. It also includes a station extension at Rai.

The new line is intended to form a vital link in public transport plans

between Schiphol and Lelystad aimed at doubling the number of passengers each day to almost 80,000 people by 2020.

It is planned to double the number of trains for 6 to 12 per hour by 2016 and introduce a 'traveling without timetable' service.

In addition, the new track between Amsterdam South and Utrechtboag, in addition to improving the service to Schiphol, will also improve services to Utrecht and beyond.



**Specialist contractor ADS relied on two Aquacutters to expose the rebar without any damage.**

For more information, visit [www.aquajet.se](http://www.aquajet.se) or email [stefan.hilmersson@aquajet.se](mailto:stefan.hilmersson@aquajet.se). ■



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## Diamond vs. Ruby Orifices

Can you use ruby or diamond orifices with WARDJet waterjets? Yes, you can use either. Of course, the next question is which one should be used. That answer depends on the environment the machine will be working in and a number of other issues.



Cost is a major factor in deciding between the two. A ruby (or sapphire) orifice costs in the \$15-\$20 range. These orifices can last anywhere from 0-40 hours. If proper break-in procedures are not used, a ruby orifice could fail the first time you turn high pressure water on. Following the WARD-Jet recommended break-in procedure can help you to avoid orifice failure. Unfortunately, even with proper break-in, the life of a ruby orifice is highly variable.

Currently, diamonds cost around \$425. With proper water quality and a thimble filter installed at the cutting head, diamonds are guaranteed to last for at least 600 hours. The thimble filter is a very small, very fine filter that is located above the orifice to trap any debris before it gets to the diamond orifice.



### Reasons to Choose a Diamond Orifice:

- Because of their long life, diamonds offer a major benefit

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when cutting long-running jobs, especially those out of very expensive materials. For instance, a 6-inch thick Inconel part that takes 20 hours to cut would probably be a poor candidate for a ruby orifice that could potentially fail before the cutting program is complete.

- When cutting with multiple cutting heads, diamonds are a benefit because you can plan to change them all out at one time, once or twice a year (depending upon usage). Just imagine trying to cut

(continued on page 25)



## Jet Edge's Jaimie Larson Named Chamber's Ambassador of the Year

The I-94 West Chamber of Commerce in Minnesota recently honored Jet Edge Sales & Marketing Assistant Jaimie Larson as its 2013 Chamber Ambassador of the Year.

Larson, who performs a wide range of sales and marketing duties for Jet Edge, was recognized for her commitment to the local Chamber and its Ambassador Program.



Jaimie Larson

"Jaimie has been a great asset to the Chamber with all her help working as an Ambassador to organize a highly successful blood drive, developing the eLeaders Group, and her attendance and participation at numerous ribbon cuttings and business visits throughout the year," says Rhonda Baack, president of the I-94 West Chamber of Commerce.

This is the second time in two years Jet Edge has been recognized by the Chamber. In 2012, Jet Edge received the Chamber's Manufacturing Excellence Award.

"We're very proud of Jaimie," says Jet Edge President Jude Lague. "The Chamber's Ambassador program is one of the many ways Jet Edge connects with our local business community to help grow our regional economic vitality. Jaimie has done a fantastic job representing Jet Edge as a Chamber Ambassador. We are also humbled to be recognized two years in a row by the Chamber. It is a tremendous honor."

## SPIR STAR Expands SAMI Instruments Product Line

SPIR STAR, Ltd., the exclusive distributor for SAMI Instruments, has announced the expansion of SAMI Instruments product offering. In addition to the NPT, Medium and High Pressure needle, ball and check valves, SPIR STAR now offers the complete SAMI Instruments product line.

The new product line expansion includes tube compression fittings; 6,000 psi and 10,000 psi needle and ball valves; instrumentation valves; DPT manifolds; monoflanges; double block and bleed (DBB) valves; as well as many other fluid and pressure control valves and accessories.

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## Sam Nunez Joins Gardner Denver

**G**ardner Denver Water Jetting System welcomes new Aftermarket Sales Manager Sam Nunez. Sam joined the GDWJS Aftermarket team on September 23rd. He brings with him a varied and strong customer service background in different industries. He has over 18 years of customer service management experience in manufacturing, distribution and sales. In his new position as Aftermarket Sales Manager with Gardner Denver, Sam will address your concerns with any service issues and looks forward to getting to know each and every one of you in the near future.



From left to right. Eric Rougier, LaToya DeJohnette, Marcy Flores, Jerry Montemayor, Brittany Mattocks, Craig Neveux, and Sam Nunez.

The Gardner Denver Aftermarket team is always ready to assist.

For more information, call 1-800-580-3569 or visit [www.waterjetting.com](http://www.waterjetting.com).

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The WJTA-IMCA leadership requests that members respect the contact information of fellow members and not use that information for the dissemination of spam or junk email. Membership information is not meant to be circulated beyond the WJTA-IMCA membership.



### The range of **THE PEINEMANN 2LTC** cleaning equipment is continuously being expanded.

Because of the limited access at Air Fin Coolers Peinemann has developed a new piece of equipment called the: 2LTC Fin Fan. This very compact piece of equipment will allow for a safe working method that is also much more effective. Thanks to a Flex Frame set up you can now clean Air Fin Coolers with 2 flex lances at a time while only a single operator is required for carrying and assembly. The remote control will give added safety and control while only a small HP pump needs to be used. The 2LTC Fin Fan, as it is modular in design, can even be used with a standard horizontal set up or in a vertical position. **Safer, Quicker, Portable, Versatile and much more efficient cleaning comes standard with Peinemann Equipment.**

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## Diamond vs. Ruby

### Orifices, from page 22

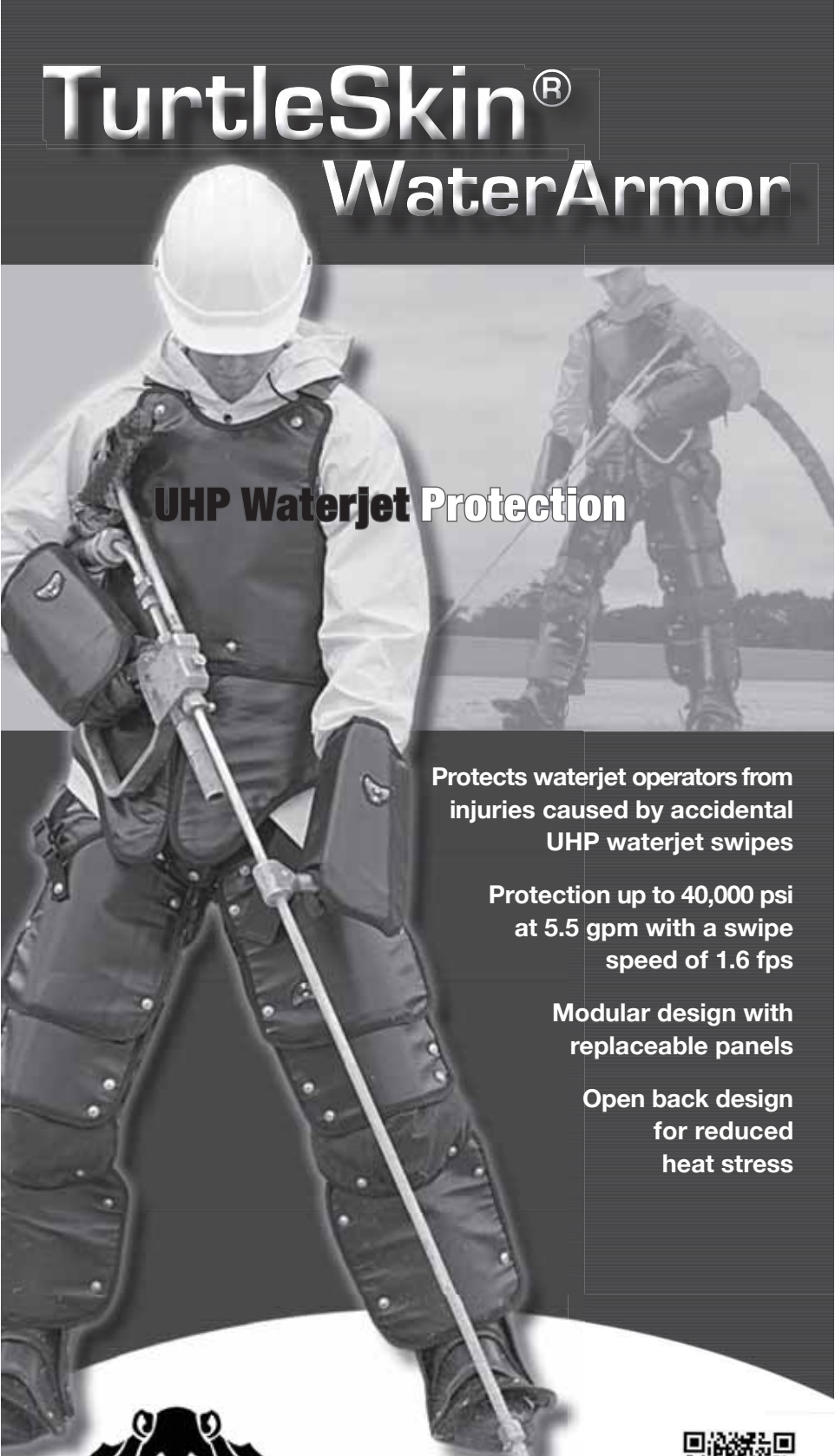
with 4 cutting heads equipped with ruby orifices – the ruby in head one lasts 19 hours, the ruby in head two lasts for 24.7 hours, the ruby in head three lasts 12.5 hours and the ruby in head four lasts 43 hours. You can either change all four out when the first one fails or you will end up changing an orifice every couple of hours.

- Stream quality with a diamond is better than ruby or sapphires, and as a result, cut quality is smoother.

### Reasons to Choose a Ruby Orifice:

If none of the benefits of diamonds listed above applies to you or if you are frequently changing nozzle/orifice combinations, you may find it better to stick with rubies. In a “job shop” or short-run environment, rubies may be a better choice because every time you take the cutting head off the machine to change the orifice/nozzle combination, you increase the risk of debris getting to the orifice that could cause damage. Also, every time the operator changes the orifice, there is a chance that it may accidentally drop in the waterjet tank. (NOTE: always change the orifice and nozzle away from the machine to avoid this.) Dropping a \$20 ruby orifice in the tank, while unfortunate, is not heart breaking. Conversely, dropping a \$425 diamond orifice in the tank would drastically impact your potential profits on a job.

For more information, email WARDJet at [sales@wardjet.com](mailto:sales@wardjet.com) or call 330-660-9100. ■



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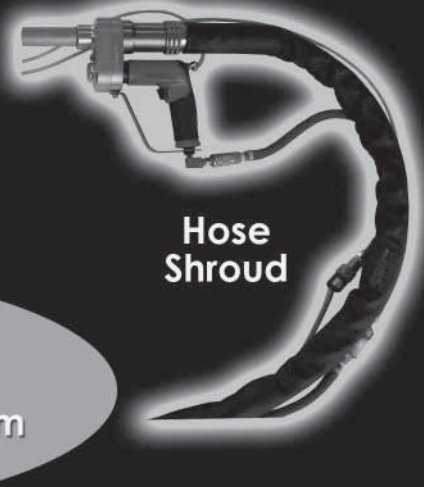
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**Comments Solicited on Improvements to Recommended Practices**

Comments are solicited regarding improvements to the WJTA-IMCA publications, Recommended Practices for the Use of High Pressure Waterjetting Equipment and Recommended Practices for the Use of Industrial Vacuum Equipment. While both publications are reviewed periodically at the WJTA-IMCA conferences and throughout the year, your comments and suggestions for improving the publications are invited and welcome anytime.

Please address your comments and suggestions to: WJTA-IMCA, 906 Olive Street, Suite 1200, St. Louis, MO 63101-1448, phone: (314)241-1445, fax: (314) 241-1449, email: [wjta-imca@wjta.org](mailto:wjta-imca@wjta.org). Please specify which publication you are commenting on.



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## Index of Advertisers

A.M. Gatti, Inc.	<a href="http://www.gattiam.com">www.gattiam.com</a>	pg. 13
Carolina Equipment and Supply Co. (CESCO)	<a href="http://www.aquamiser.com">www.aquamiser.com</a>	pg. 26
FS Solutions	<a href="http://www.fssolutionsgroup.com">www.fssolutionsgroup.com</a>	pg. 5
GMA Garnet (USA) Corporation	<a href="http://www.garnetsales.com">www.garnetsales.com</a>	pg. 19
Gardner Denver Water Jetting Systems, Inc.	<a href="http://www.waterjetting.com">www.waterjetting.com</a>	pg. 15
Guzzler	<a href="http://www.guzzler.com">www.guzzler.com</a>	pg. 9
High Pressure Equipment Co.	<a href="http://www.highpressure.com">www.highpressure.com</a>	back cover
Hughes Pumps	<a href="http://www.hughes-pumps.co.uk">www.hughes-pumps.co.uk</a>	pg. 17
Jetstream	<a href="http://www.waterblast.com">www.waterblast.com</a>	pg. 7
MaxPro Technologies	<a href="http://www.maxprotech.com">www.maxprotech.com</a>	insert
NLB Corp.	<a href="http://www.nlbcorp.com">www.nlbcorp.com</a>	pg. 11
Parker Hannifin	<a href="http://www.parkerepd.com">www.parkerepd.com</a>	pg. 21
Peinemann Equipment	<a href="http://www.peinemannequipment.com">www.peinemannequipment.com</a>	pg. 24
SPIR STAR	<a href="http://www.spirstar.com">www.spirstar.com</a>	pg. 8
SPIR STAR	<a href="http://www.spirstarvalves.com">www.spirstarvalves.com</a>	pg. 23
StoneAge, Inc.	<a href="http://www.stoneagetools.com">www.stoneagetools.com</a>	pg. 3
TurtleSkin WaterArmor by Warwick	<a href="http://www.turtleskin.com">www.turtleskin.com</a>	pg. 25
Vacuum Truck Rentals, LLC	<a href="http://www.vactruckrental.com">www.vactruckrental.com</a>	pg. 23
WARDJet, Inc.	<a href="http://www.wardjet.com/wardpro">www.wardjet.com/wardpro</a>	pg. 22

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