

## High-Speed Ferries Show the Way for Waterjet-Warships



Top photograph: This 325-ft. Incat fast ferry under construction in Australia will be able to achieve speeds of 50 knots. It will be the world's first high speed passenger roll-on/roll-off (Ro-Ro) ship powered by Liquefied Natural Gas (LNG).

Bottom photograph: The Incat-built *Condor Rapide* operates between the Channel Islands of Jersey and Guernsey and St Malo, France, and has a speed of 38 knots.

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# High-Speed Ferries Show the Way for Waterjet-Warships

By Edward Lundquist

The use of waterjet-powered high-speed ferries is accelerating.

Several large ferries have reliably employed waterjets to provide high-speed operations, and correspondingly more revenue generating trips than the slower ferries they replaced. Some of these ships are serving as prototypes for naval applications.

Australian shipbuilders Austal and Incat have both built high-speed catamarans that have been used as car and passenger ferries.

There are a number of fast ferries in service or building that employ waterjets. Their experience is helpful in matching the proper waterjet system for the naval requirement.

Bornholmstrafikken's fast ferry H/F *Villum Clausen*, was built by Austal in Fremantle, powered by GE two LM2500 gas turbines and four Rolls-Royce Kamewa 112 SII waterjets. The 282-foot catamaran established a new world's one-day distance record in 2000 when it covered 1,060 nautical miles transiting between Malaysia and India while the fast ferry was enroute to Denmark, at an average speed of 44 knots. It was the longest distance traveled in a 24-hour period by a commercial passenger vessel. *Villum Clausen* can load 215 cars and 1055 passengers. It can achieve 48 knots and can make the Ronne, Denmark-to-Ystad, Sweden run in 1 hour, 15 minutes.

Austal also built the 416-foot diesel-powered trimaran auto ferry *Benchijigua Express* for Fred. Olsen, S.A., service in the Canary Islands. *Benchijigua Express* is built to the same basic hull design as the General Dynamics USS *Independence* LCS



design. The trimaran operates with four MTU 20V 8000 diesel engines, rated at 9,100kW. The pair of engines in the after engine room power a Rolls-Royce Kamewa 125 SII steerable waterjet. The pair in the forward engine room together power a Rolls-Royce Kamewa 180 BII booster waterjet. *Benchijigua Express* can achieve speeds of up to 42 knots. The ferry has a capacity for 123 cars and 1,291 passengers.

Austal made available by lease the 331-foot *Westpac Express* (HSV 4676) for intra-theater use by the III Marine Expeditionary Force in the Pacific theater of operations. *Westpac Express* has four Caterpillar 3618 diesels, rated at 7200kW each, and four Rolls-Royce Kamewa 125 SII waterjets. *Westpac Express* can operate at speeds up to 37 knots. Military Sealift Command Far East officials say the Marine Corps is very pleased with the flexibility that *Westpac Express* offers in moving units of Marines with their vehicles-and even helicopters-throughout the region quickly without requesting airlift support. The stern ramp equipped ferry can carry more than 900 Marines, as well as 153 HUMMWWs or 12 AAVPs and 20 LAVs. Most recently, *Westpac Express* participated in the U.S. response to the Japanese earthquake and tsunami.

Austal is not the only fast ferry builder down under. Australian shipbuilder Incat and its U.S. subsidiary Bollinger Shipyards, has built several high-speed waterjet

vessels for the U.S. military. Based on successful catamaran ferry designs, *Joint Venture* (HSV-X1) was chartered to the U.S. Army TACOM and operated by the Navy and then the Army. *Joint Venture* displaces 1,740 tons fully loaded, is 96 meters long, and can achieve speeds up to 48 knots. The catamaran uses four Caterpillar 3618 marine diesel engines with four Wärtsilä-Lips LJ150D steerable waterjets. The Army liked the HSV concept so much, it chartered another wave piercing catamaran for the Theater Support Vessel Advanced Concept Technology Demonstrator (ACTD) role. Named *Spearhead* (TSV)-1X, while the Navy chartered *Swift* (HSV 2) to support the Mine Warfare Command and perform LCS experimentation. The 321-foot *Spearhead* is powered by four Ruston 20RK270 marine engines, driving four Wärtsilä-Lips LJ120E waterjets through Reintjes gearboxes. The 321-foot *Swift* is fitted with four Caterpillar 3618 high density diesel engines and four Wärtsilä-Lips water-jets that allow speeds in excess of 47 knots at lightship and 39 knots fully-loaded up to sea-state 3, with a range of 4400 nautical miles at 40 knots and 6500 nautical miles at 25 knots.

Australian shipbuilder Incat Tasmania Pty Ltd is building what they say is the world's first high speed passenger Ro-Ro ship powered by LNG (Liquefied Natural Gas). The 325-ft. fast ferry can achieve speeds of 50 knots, and can carry 1000 passengers and 153 cars. The ship is being built for South American operator Buquebus, which will operate the vessel on their River Plate service between Buenos Aires, Argentina and Montevideo in Uruguay.

(continued on page 10)

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# 2011 WJTA-IMCA Elections

Nominees for the WJTA-IMCA Board of Directors are:

**Pat DeBusk**, Inland Industrial Services  
**Kay Doheny**, Jack Doheny Supplies, Inc.  
**Greg Galecki, Ph.D.**, Missouri University of Science and Technology  
**Luis Garcia**, Channel Safety & Marine Supply, Inc.  
**Axel Henning, Ph.D.**, OMAX Corporation  
**Steve Johns**, Parker Hannifin EPD  
**Bill Krupowicz**, Federal Signal Environmental Products Group  
**Kathy Krupp**, Dow Chemical Company  
**Larry Loper**, High Pressure Equipment Company  
**Kerry Petranek**, StoneAge, Inc.  
**Forrest A. Shook**, NLB Corporation  
**Tryan Stutes**, Stutes Enterprise Systems, Inc.  
**Mike Taplin**, Terra Contracting  
**Franz Trieb**, BHDT

Only WJTA-IMCA members in good standing (2011 membership dues paid) are eligible to vote. Members who have not yet paid their 2011 membership dues are encouraged to renew as soon as possible in order to participate in this important election of board members. Take advantage of this opportunity to cast your vote for the WJTA-IMCA leadership. Renew membership online at [www.wjta.org](http://www.wjta.org) or call (314) 241-1445.

Seven (7) board members will be elected, six (6) to each serve a four-year term of office and one to serve a two-year term of office, all beginning on September 19, 2011.

An official ballot listing the eligible nominees and a brief biographical sketch for each individual will be forwarded by mail to all eligible voting members of the Association on **June 28, 2011**. **Signed and executed ballots must be mailed to the WJTA-IMCA office for tallying no later than July 26, 2011.**

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## WOMA GmbH Announces Sale of Controlling Interest to Kärcher GmbH & Co. KG

**W**OMA GmbH has announced that as of April 1, 2011, Kärcher GmbH & Co. KG has acquired controlling interest in WOMA GmbH of Duisburg, Germany. Kärcher GmbH & Co. KG is a family owned enterprise with 75 years of tradition and WOMA GmbH will celebrate its 50<sup>th</sup> anniversary in 2012.

Kärcher GmbH & Co. KG is a world leader in cleaning technology. As a whole the Kärcher Group employs 8,000 employees worldwide and generated record sales of over 1.5 billion Euro for the year 2010.

Kärcher's strong sense for innovation, focus on quality, and substantial experience accumulated in nearly all fields of cleaning applications will be complemented

by WOMA's valuable competency in ultra high pressure cleaning.

Kärcher and WOMA have known each other for many years, and have been successfully cooperating with each other on specific projects since 2006.

With Kärcher GmbH & Co. KG as the strategic partner, the worldwide WOMA Group headquartered in Duisburg, Germany, with subsidiaries,

affiliates, distributors, and representatives in 90 countries will continue to operate as a self-contained unit and successfully develop markets in synergy with the Kärcher Group.

WOMA will further develop its product range and increase capabilities and activities in order to serve customers in the best possible manner. WOMA's aim will continue to be maximum customer satisfaction.

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*Steve Johnson, Division Manager  
CCS, Longview, WA*

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*Charlie Underwood, Operations Manager  
Midwest Waterblasting, Clinton, MI*

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# FusionTECH Integrated Inc. Finds Waterjet Cutting Solutions for Clients

**B**ased in Roseville, Illinois, FusionTECH Integrated Inc. is a full-service fabricator offering turnkey solutions for projects made mostly from stainless steel material, which require cleanly welded joints. Furnished with two OMAX 80160 JetMachining® Centers, the company builds equipment for various industries including the food processing and packaging, pharmaceutical, and waste management fields. General Manager Dan Bentz discovered waterjet technology works best for cutting stainless steel, especially when secondary machining operations are involved in the fabrication process. The cold cutting process lessens cleanup time for secondary CNC machining operations, eliminates heat-affected zones, and offers tighter part tolerances. He later discovered the versatility of the waterjet when cutting projects from other materials, such as plastic and rubber. All of these waterjet technology benefits became important factors for his clients, and as a result, kept FusionTECH busy with even more project opportunities.

Three specific project examples came to mind when asked how waterjet cutting became the best solution for his company and his clients:

**Food Industry:** FusionTECH utilized their OMAX waterjet with a dual cutting head configuration to efficiently fabricate stainless steel vegetable and rice steam trays with a 60% slot opening for each end product. To offer a competitive price for the client, they stacked the material and cut the part patterns in a nearest shape arrangement. The cut parts were then later formed into its final shape by another machining process. The unique waterjet capabilities, such as stacking and nest shape cutting, offered the advantage of a shortened

project lead time in this particular case, according to Bentz.

“If you were to use any other application to cut this project, such as laser or plasma, the material would have warped or deformed greatly,” Bentz said. “By using the waterjet to cut this product, which only used 40% of the material, we were able to offer our customers with a flat product and stack cut the material to save them money.”

**Pharmaceutical Industry:** On another project, FusionTECH relied on their OMAX waterjet machines to cut stainless steel ring flanges with bolt holes for automated handling equipment that



The basic stainless steel components of these industrial-sized vegetable and rice steam trays were cut from FusionTECH’s OMAX 80160 JetMachining Center.

sorted pharmaceutical products. By introducing waterjet capabilities to the component manufacturing process, the

(continued on page 21)

## Vacuum Truck Rentals Sponsors “Professor” Phil Stein’s Return to WJTA-IMCA Conference and Expo

**V**acuum Truck Rentals is proud to sponsor Phil Stein’s Vacuum Training Seminars at the upcoming WJTA-IMCA Conference and Expo, September 19-21, 2011, at the George R. Brown Convention Center in Houston, Texas.

Stein will be presenting his legendary seminar two times during the Conference and Expo: on Monday, September 19, 3-5 p.m., and again on Tuesday, September 20, 10:30 a.m.-12:30 p.m.

Stein has over 40 years of practical knowledge in the vacuum conveyance industry and utilizes visual training models that are both informative and entertaining to illustrate how vacuum systems



Phil Stein

work. Stein’s unique approach, utilizing numerous props, shows operators how simple things like vacuum hose diameter

can have a huge impact on vacuum performance in easy-to-see demonstrations. Stein has been providing this special industrial vacuum loader training for decades and has trained thousands in understanding the power of vacuum. Don’t miss this unique training opportunity when attending the WJTA-IMCA Conference and Expo.

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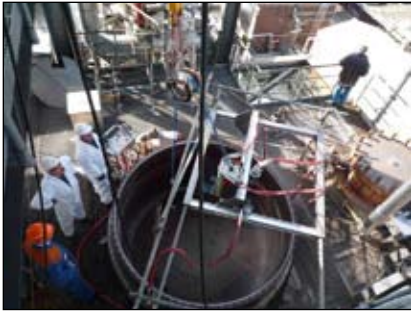


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# Automatic Cleaning of Heat Exchangers using Peinemann's Flexible Lance Machine



Top view of heat exchanger with the vertical three transfer line exchanger set-up supported by scaffolding.

Sasol in Moers, Germany, requested their in house contractor Schliemann to come up with a safer and more automatic system to clean their heat exchangers. Schliemann, an independent contractor in Germany but belonging to the large Buchen group, decided to turn to Peinemann of Holland, a leader in specialized heat exchanger cleaning and extraction equipment.

Approximately 33% of all accidents with high pressure water happen with flexible lances and they have therefore been a safety concern all over the world. In the Netherlands, regulations for high pressure cleaning of exchangers prescribe automated equipment as much as possible. These regulations, first officially installed by the Waterjet Foundation of the Netherlands (SIR), have now been adopted by the ARBO Law, which protects all conditions for workers. These special regulations have resulted in a few special heat exchanger cleaning machines with single, dual or triple lance feed mechanisms. As many plants in the Netherlands have already seen a dramatic increase of heat transfer by using automated equipment versus manual cleaning, it was an easy step to adopt a system that also provides a safer environment for the operator.



Transfer line exchanger mounted vertically with a "basic" remote control panel and high-performance pump controls.

The basic problem with manual cleaning of exchangers is the following:

To be able to clean tubes in a safe way, the waterjets must always have more backward jets compared to forward jets to move the nozzle away from the operator during cleaning. These reverse waterjets are basically used for the propulsion of the nozzle and not used much for actual cleaning of the tubes.

The other issue is that most operators are not allowed to pull the nozzle back under pressure, which results in a one-way cleaning path. As the speed of the nozzle is inconsistent versus a machine, the cleaning quality differs in the tube resulting in a non-smooth surface where contamination easily builds up.

When tubes are blocked, there is another serious threat which is hydraulic of the nozzle. This so-called hydraulic happens when the water coming out of the nozzle is able to build up pressure inside the tube, which can result in the nozzle shooting back. Normally when high pressure water leaves the small hole in the nozzle, water pressure is converted into high speed. When for example 1000 Bar is used, the speed of the

water leaving the nozzle is around 1000 Km per hour.

We have also seen (fatal) accidents with flexible lances that came back out of the tube due to the damage on the thread of the nozzle or breaking of the fitting of the high pressure hose.

## Cleaning of the Vertical Bundles at Sasol in Moers, Germany

These results were very clear after cleaning the heat exchangers at Sasol. Where the manual cleaned bundles had to be cleaned often after every four to five weeks, the cleaning cycle went to eight to nine weeks after they used the machine.

This result came due to the special nozzles used, which were all at a 90 degree angle to use the water as efficient as possible for the actual cleaning of the tube instead of moving the nozzle. Another reason was that the machine moved the nozzles with a constant speed in and out of the tubes under pressure, cleaning the tubes twice.

When tubes are cleaned properly, this can easily result in a 30% to 40% additional heat transfer for the plant owners. This results in a better production, mostly close to the values when the plant was new. Studies have shown that a 1mm layer of scaling can result in a 10% additional fuel required to reach the same amount of heat transfer as a 100% clean tube. In these days with rising oil prices, these costs can be substantial.

The heat exchanger, which had to be cleaned at Sasol, was a large diameter (3.2m) vertical bundle with around 2000 tubes, which is fixed in place.

(continued on page 29)



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WJTA-IMCA Expo Booth #517

## The Peinemann TLE Updated

Thanks to input from operators in the field, Peinemann Equipment has made some changes to the Peinemann TLE. The updated TLE features an increase in power of 50% thanks to mounting the powerful air motors both on the top and lower part of the machine. The power loss via gears is done away with. Peinemann also developed a new lightweight control panel (see photo inset) that has been simplified for added ease when operating the TLE.



New stainless steel side plates, less wear parts, and more hard wearing materials give the TLE added strength and durability. With the latest design changes, Peinemann has created a more durable and simple cleaning machine suitable for the toughest of jobs.

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

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## High-Speed Ferries Show the Way for Waterjet-Warships, from page 2



The all-aluminum 34-knot *Lake Express* was built in 2004 at Austal USA in Mobile, Alabama. The 192-foot *Lake Express* operates between Milwaukee, Wisconsin and Muskegon, Michigan, and can carry 46 cars. Four MTU 16V 4000 M70 diesel engines producing 3000hp each drive four independent Kamewa 80 SII waterjets.

Italian shipbuilder Rodriquez Cantieri Navali, Messina, Sicily, has constructed an 82-metre monohull ferry, *Aquastrada* that will be able to carry up to 1246 passengers with a maximum payload of 56 cars or 22 cars and 110 metres of truck lanes. The four MAN B&W Diesel Ltd. 18VP185s (rated at 3700 kWb each), driving Lips waterjets through Reintjes gearboxes, will be located at the aft end of the aluminum ship, to optimize

interior volume for vehicles. Fully loaded, the ferry will make 39 knots and the quadruple VP185 engines will drive Wärtsilä Lips LJ91E waterjets through Reintjes gearboxes. Waterjets permit the ferry to rotate 360 degrees around its centre; move laterally for mooring; and stop from full in less than four ship lengths.

Rodriquez Cantieri Navali also constructed the monohull *Princess* for Arab Bridge Maritime Company in Jordan. *Princess* employs four Wärtsilä Lips LJ91E waterjets, each linked to one 3920 kW diesel engine to reach speeds up to 41 knots.

Fincantieri's Riva Trigoso shipyard in Genoa built the 1,000-tonne MDV 3000 Jupiter-class Ro-Ro fast ferries *Aries* and *Taurus*, the biggest fast ferries in the world, for Italian state-owned operator Tirrenia. Four MTU 20V 1163 20V TB73 L units rated 6,500kW each and two GE LM 2500 systems rated at 22,000kW each are connected to the largest steering water jets ever built. This class has two gas turbine-driven booster waterjets

and two diesel-shaft powered wing steering waterjets.

The Greek 140-meter monohull *Aeolos Kenteris* is one of the largest of the fast ferries. Built in France in 2001, she is capable of 40 knots, carrying up to 442 vehicles and more than 1,700 passengers. She now works in the Red Sea between Safaga, Egypt and Jeddah, Saudi Arabia.

The CODAG propulsion plant features two GE LM2500+ gas turbines and two Pielstick 20PA6B STC engines. Each gas turbine is connected to a two-stage Renk BS 210 gearbox and a Kamewa 200 511 steerable and reversible waterjet, while the diesels are connected via a Renk AUSL 72-reduction gearbox la seven-bladed Kamewa 140 511 steerable and reversible waterjet. *Aeolos Kenteris* also has a pair of electrically-driven bow thrusters for close maneuvering.

Article and photographs reprinted courtesy of MaritimePropulsion.com, April 19, 2011. This article also appears in the June 2011 edition of *Maritime Reporter & Engineering News*. For more information, visit [www.MarinePropulsion.com](http://www.MarinePropulsion.com) or [www.marinelink.com](http://www.marinelink.com).

# OMAX® Portable Abrasive Waterjet System

With the development of its mobile OMAX JetMachining Center, the OMAX Corporation meets the specific requirements of the oil field maintenance, high-rise steel construction, shipbuilding, commercial industries supporting government programs, and any other commercial businesses needing to easily transport waterjet equipment on a regular basis. Essentially, the extremely durable and reliable system is a transportable abrasive waterjet shop mounted to a steel base with forklift access points, so the entire system can be quickly and easily moved. Three types of OMAX JetMachining Centers are available for the mobile unit configuration: the Model 2626, the Model 2652, and the Model 5555.



**The mobile JetMachining® Center can be an ideal solution for any business or organization needing to transport abrasive waterjet equipment on a regular basis.**

System components rest on a durable, epoxy-coated platform that features metal tie-down rings for safe and secure shipping. Manufacturing facilities can also move the system with an overhead crane using the platform's provided corner eyebolts.

Delivered completely assembled and factory tested, the mobile OMAX JetMachining Center includes a direct drive pump, a pump chiller, water softener system, and 100 lb bulk hopper for abrasive storage. These standard, commercially available components make for ease of use in the field. Additionally, quick-disconnects for air, power, and water allow operators to have the system up and running in a matter of minutes.

The mobile OMAX JetMachining Center effortlessly cuts titanium, stainless steels, Kevlar, ceramics, laminated materials, hardened steel, armor plating, and many other types of materials up to 8 inches thick. For safe operation in rough environments,

(continued on page 22)



**PEINEMANN**  
EQUIPMENT



## The latest development for lifting bundles is the Peinemann Combi Lifter.

This lifter gives added flexibility as it can be used as an integral part of the Aerial Bundle Extractor (Main Lifting Frame) as well as a separate Bundle Lifter when disconnected from the Extractor. Thanks to the large pick up surface area and by spreading the force on the Bundle, 'no' damage is done to either the tubes or baffles. The new Combi Lifter gives you the option to pull and lift bundles safer and more efficiently without the requirement of slings.

For more information on our latest development please visit our website:  
[www.peinemannequipment.com](http://www.peinemannequipment.com) or contact us on +31-102955000.

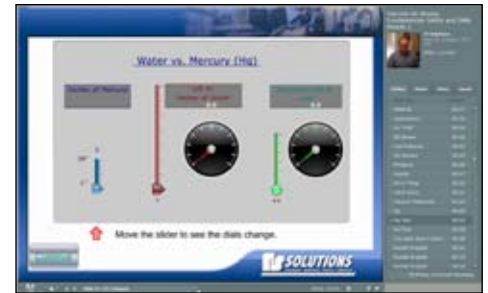
WJTA-IMCA Expo Booth #201

## FS Solutions Adds Online Training

Federal Signal Environmental Solutions Group has announced that FS Solutions now offers three online training courses as part of the company's comprehensive training programs to help its customers increase job safety, operational efficiency, and regulatory compliance in a variety of applications.

The new online curriculum, offered through FS Solutions' ESG University, includes two industrial services courses – "Fundamentals of Waterblast Theory, Skills and Safety" and "Vacuum/Air Moving Fundamentals, Safety and Skills" – along with a course covering "OSHA's Combustible Dust National Compliance Directive." The courses provide introductory content or serve as prerequisites for advanced classroom and hands-on training sessions.

The structure and content of the online courses provide a flexible training environment for adult learners. Developed by board-certified trainers and technologists, the courses incorporate WJTA/IMCA



Screen views from the FS Solutions online training courses.

recommended practices. Course content applies to all manufacturers' equipment.

"In addition to providing flexible instruction for students who need introductory courses, our new online courses serve as a convenient way for experienced operators to take their re-certification training," said Gary Toothe, training manager, FS Solutions. "Instead of attending two or three days of classroom training, students can learn the same material online at their own pace and at their own location."

The online courses include tests that each student must pass with a grade of

at least 80 percent before advancing to the next training module.

Toothe said the company plans to add more online courses to its training curriculum, including courses on project estimating, job set up, and equipment selection. Future courses will include industry-specific training – such as industrial vacuuming for the oil and gas industry – that address the unique procedures, equipment selection, and safety issues of key markets.

For more information, visit [www.fssolutionsgroup.com](http://www.fssolutionsgroup.com) or call (800) 822-8785.

## StoneAge's Newest Warthog® Sewer Nozzle

The new WGP-1™ is designed to produce more thrust than existing tools available today. The rear facing jets have been angled more sharply and the centralizer fins have been trimmed back. The result is more pulling power to handle longer lines, extra distance, and moderate inclines.

It features five jet ports, including a boring jet offset at 15 degrees, and four jets at 155 degrees. The inlet port comes in either a 1-inch npt or BSPP. This tool will benefit contractors with operating pressures of 2,500 psi or less (172 bar or less).



A special combination case with a WG-1 Classic™ with the WGP-1™ plus a descaling head is also available. For more information, visit [www.stoneagetools.com](http://www.stoneagetools.com) or call (970) 259-2869.

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WJTA-IMCA Expo Booths #316/329

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Contact: Bret Guidry, Gonzalez, Louisiana • Office: 225-450-3241 • Cell: 225-270-0887 • Email: [bret@aquablasters.com](mailto:bret@aquablasters.com)

# New 710 V Classic Hydrodemolition Robot from Aquajet Systems

Aquajet Systems AB has introduced its next generation of the Aqua Cutter series of robots with the 710 V Classic offering further improved automatic and manual options to suit the demands for efficient concrete removal.

The new model is ideal for working on bridges, tunnels, roads, walls, parking garages or overhead roofs. Working with a typically 1,000 bar pressure and 250 L/min, the robot handles removal depths down to approximately 1,000 mm of concrete if required.

Aquajet has recognized that there is frequently a demand for its hydrodemolition systems with reduced computer control allowing manual handling with, for example, flow control valves for oscillating speed, roller speed, lance-angle speed, and mechanical stops for operation widths and lance angles.

Facilitating the operator's comfort and convenience, new improvements have been made to the settings of programs with several parameters easily selected and adjusted on the color display with iconic multi-language operator instructions.

Built to operate in tough conditions, the system has been designed with the operator in mind and is easy to operate.

Aquajet robots are equipped with the patented Equal Distance System (EDS). Regardless of the set lance attach angle, the system controls and maintains the distance of the nozzles from the concrete surface. Maintaining an optimum distance, EDS ensures that no power is lost due to the nozzles being too far from the

surface, which will ensure a 15% to 20% increase in removal capacity.

The lance attack angle can be set from  $-30^{\circ}$  to  $+30^{\circ}$  allowing for efficient removal of concrete under rebars.

The patented Intelligent Sensing Control (ISC) is an advanced sensing system and features no electronics, such as sensors or cables, exposed to the moisture environs, resulting in a more efficient production with less stops due to problems with sensors, etc.

The total length varies from 2.65 m - 2.85 m, and the new unit features a total width of 2 m. Minimum height is 1.42 m and, with a sturdier base, an extended free vertical reach of up to 7 m is possible and a 4 m width operation.

The variable-width chassis provides maximum stability during set up and operation. The low center of gravity in the chassis further enhances the stability. In its narrow version, access



to the tightest passages: doorways, alleys, footbridges, is achieved.

The variable track width extends from 1.04 m to 1.64 m to offer optimal stability.

The weight of the unit is 2,300 kg.

A new improved rubber-lined splashguard on the power head ensures improved noise reduction. Easy service access is also assured with gull-wing hoods and fold-down hydraulics for cleaning and maintenance.

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





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**Terydon, Inc.**

## FS Solutions Centers to Offer U.S. DOT 407/412 Inspection Services

**F**ederal Signal Environmental Solutions Group FS Solutions center in Long Beach, California, will be offering inspection services for any U.S. Department of Transportation (DOT) 407/412 cargo tank equipped vehicles in California, effective immediately. Performed by FS Solutions' trained service technicians, these inspections include external visual inspection, internal visual inspection, leakage test, pressure test, and thickness testing.

Vehicles equipped with U.S. DOT 407/412 cargo tanks are primarily used for the transportation of hazardous materials in commerce and require inspection at certain intervals to keep the vessel or tank in compliance.

"Our industrial cleaning customers rely on FS Solutions for their vacuum truck related needs – including parts, accessories, service, and equipment rentals – so the U.S. DOT tank

inspections are one more way we can provide value and convenience," said Tony Fuller, director of industrial sales for FS Solutions. "By helping to ensure that our customers' vehicles comply with U.S. DOT 407/412 cargo tank regulations, customers are able to reduce downtime and minimize the potential for costly fines."

According to Fuller, the FS Solutions center in Leeds, Alabama, offers inspection services for U.S. DOT 407/412 cargo tanks. The FS Solutions center in LaPorte, Texas, will also offer this service in July.

Additional FS Solutions centers are located in Birmingham, Alabama; Gonzales, Louisiana; Toledo, Ohio; and Streator, Illinois.

For more information, visit [www.fssolutionsgroup.com](http://www.fssolutionsgroup.com) or call (800) 822-8785.

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## NLB 605 Waterjet Unit Combines UHP with High Horsepower

**T**he NLB 605 series of waterjet pump units now gives users a powerful combination of ultra-high pressure and high horsepower in a rugged unit they can convert to a variety of operating pressures.

The range of the NLB 605 Series has been expanded to include eight operating pressures from 4,000 psi to 40,000 psi (275 bar to 2,800 bar), with engines of up to 600 hp (447 kW). Diesel and electric models are available. They offer flows as low as 20 gpm (83 lpm).

These reliable, highly-productive units can be converted from one



pressure to another in about 20 minutes and are easy to maintain. NLB now offers 27 convertible waterjet pump units.

For more information, visit [www.nlbcorp.com](http://www.nlbcorp.com) or call (248) 624-5555.





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WJTA-IMCA Expo Booth #1008

# Attend WJTA-IMCA

## 2011 WJTA-IMCA Co

### Preliminary Schedule of Events

September

George R. Brown Convent

#### Monday, September 19, 2011

- 8:00 a.m.-3:00 p.m.  
Waterjet Technology – Basics and  
Beyond Pre-Conference Workshop
- 3:00 p.m.-5:00 p.m.  
Understanding the Power of Vacuum  
and How Industrial Loaders Work
- 6:30 p.m.-8:30 p.m.  
Industry Appreciation Reception –  
Exhibits Open
- 7:30 p.m.-8:00 p.m.  
Awards Presentation in Exhibit Hall

#### Tuesday, September 20, 2011

- 8:00-10:00 a.m.  
Live Demonstrations
- 10:30 a.m.-5:00 p.m.  
Exhibit Hall Open
- 10:30 a.m.-5:00 p.m.  
Boot Camp Sessions
- 1:00 p.m.-5:00 p.m.  
Paper Presentations
- 5:30 p.m.  
WJTA-IMCA General Membership  
Meeting

#### Wednesday, September 21, 2011

- 8:00-10:00 a.m.  
Live Demonstrations
- 10:30 a.m.-2:00 p.m.  
Boot Camp Sessions
- 10:30 a.m.-3:00 p.m.  
Exhibit Hall Open
- 1:00 p.m.-3:00 p.m.  
Paper Presentations



## Understanding the Power of Vacuum and Loaders Work by “Professor” Phil Stein

Geared to contractors, employees, and end users who use industrial vacuum technology, adding industrial vacuum technology to their services, this session will cover

- Basic Types of Trucks
- How Pressure – High or Low – Works
- How to Measure Vacuum and Pressure
- Why Hose Diameter and Length is Important
- Viscous Materials
- Air Mover Configuration
- Special Operations
- When Things Go Wrong
- Major Safety Concerns



Stein has been working in the industrial and municipal cleaning industry since 1996. Specialized “Science Lab” presentations have been given to over 2,000 individuals. Training programs started in 1996. The vacuum session will be presented twice: on Monday, September 19, 3-5 p.m., and again on Tuesday, September 20, 10:30 a.m.-12:00 p.m.

For more information and to  
register visit [www.wjta.org](http://www.wjta.org)



# 2011 Main Event

## Conference and Expo

September 19-21, 2011

Convention Center • Houston, Texas

### Exhibitors

Advanced Pressure Systems  
Aqua Sales, LLC  
BIC Alliance  
Blasters, Inc.  
Boatman Industries, Inc.  
CSM Supply  
Carolina Equipment & Supply (CESCO)  
Cleaner Times  
Dragon Products, Ltd.  
Federal Signal  
Fruitland Tool & Manufacturing  
GMA Garnet (USA) Corporation  
GapVax, Inc.  
Gardner Denver Water Jetting Systems, Inc.  
General Pump  
Giant Industries, Inc.  
Hammelmann Corp.  
High Pressure Equipment Co.  
HoldTight Solutions, Inc.  
IMS Staff Services  
IVS Hydro, Inc.  
Idrojet S.R.L.  
Inland Industrial Services Group, LLC  
Jack Doheny Companies, Inc.  
Kroy Industries, Inc.  
LaPlace Equipment Co., Inc.  
Lemasa Ind. e Co. Ltda.  
Maxpro Technologies, Inc.  
NLB Corp.  
Parker Hannifin-EPD  
Peinemann Equipment B.V.  
Powertrack International Inc.  
Pratt & Whitney Military Aftermarket Services, Inc., USA and VLN Advanced Technologies, Inc., Canada  
PRESVAC Systems  
Ramvac Vacuum Excavators  
Red-D-Arc Inc.  
SPIR STAR  
Stewart R. Browne Manufacturing Co., Inc.  
StoneAge, Inc.  
Stutes Enterprise Systems, Inc.  
Super Products LLC  
Terydon, Inc.  
The Blast Bag Company, Inc.  
TurtleSkin WaterArmor by Warwick  
Under Pressure Systems, Inc.  
Vac-Con, Inc.  
Vacuum Truck Rentals LLC  
Wastequip  
Wilco Supply, LP

As of 6-7-11



## and How Industrial Vacuum

Equipment, are first-time users, or who are considering

:



Since 1969. His  
individuals since the  
time: Monday,  
12:30 p.m.

See details throughout this issue of the *Jet News*

### Live Demonstrations by (preliminary list):

- Aqua Sales, LLC
- GapVax, Inc.
- Gardner Denver Water Jetting Systems
- Guzzler NX
- Hammelmann Corporation
- NLB Corp.
- Peinemann Equipment
- Red-D-Arc Inc.
- StoneAge Inc.
- Stutes Enterprise Systems, Inc.
- Terydon, Inc.
- TurtleSkin WaterArmor by Warwick

## Semi-automated VertaJet™ SRT-6LT Makes Surface Prep Easier

The VertaJet™ SRT-6LT from NLB Corp. does surface preparation faster than manual waterjetting and is even more ergonomic than previous models. The new handheld unit needs no air connection to rotate the 40,000 psi (2,800 bar) waterjets, and it weighs just 20 lbs. (9.1kg).

The VertaJet quickly removes paint, epoxies and other coatings from steel structures and other surfaces. With multiple waterjets rotating at

3,000 rpm to create a six-inch (15cm) cleaning path, productivity is very high. Features to enhance operator comfort and safety include ergonomic handles, a counterbalancing system, and dual-trigger operation to dump pressure.

The NLB SRT-6LT uses no abrasive and has vacuum recovery to contain the water and debris, reducing clean-up and operating costs. Maximum flow is 6 gpm (23 lpm).



For more information, visit [www.nlbcorp.com](http://www.nlbcorp.com) or call (248)624-5555.

### 2011 WJTA-IMCA Conference and Expo

Papers will be presented on Tuesday, September 20, from 1-5 p.m. and Wednesday, September 21, from 1-3 p.m.

## Paper Presentations

- Abrasive Grain Breakage Process During the High Pressure Waterjet Formation, by *A. Percec*.
- Abrasive Slurry – Injection Jet (AS-IJ) a New CNC Cutting Technology, by *D. Liwzyc, A. Liwzyc, J. Liwzyc and A. Percec*.
- Current Practices in Design Standards and Criteria for High Pressure Waterblasting Tools and System Components, by *D. Wright*.
- Determination of Spatial Velocity Distributions of Abrasive Particles in Abrasive Water Jets Using Laser-Induced Fluorescence Under Real Conditions, by *K.C. Heiniger, R. Balz, H. Looser and J. Podzorski*.
- Effect of the Uniaxial Compressive Strength of the Rock on the Cutting Performance of AWJ, by *I. Karakurt, G. Aydin, and K. Aydiner*.
- Efficient Operation of Abrasive Waterjet Cutting in Industrial Applications, by *A. Henning and P. Miles*.
- Energy Loss From an Abrasive Waterjet for Rock Cutting, by *T. Oh and G. Cho*.
- How Automated Water Jetting Improves Tube Bundle Cleaning Efficiency, by *J. Van Dam and T. Shawver*.
- Influence of De-Painting Method on Substrate Surface Profile, by *H. Teimourian, H.V. Tamaddoni, B. Mutabi and A. Soleimanzadeh*.
- Measuring the Water Temperature Changes Throughout the Abrasive Water Jet Cutting System, by *M. Jerman, H. Orbanic, A. Lebar, I. Exteberria, A Suárez and M. Junkar*.
- Methods for AWJ Cutting Process Control, by *A. Lebar, M. Cvjeticanin, M. Junkar and H. Orbanic*.
- Micro-AWJ Technology for Micro-Meso Machining, by *H.-T. Liu, D. McNiel, and E. Schubert*.
- Performance Optimization of Abrasive Waterjet Technology in Granite Cutting, by *G. Aydin, I. Karakurt, and K. Aydiner*.
- Precision Robotic Waterjet and Abrasivejet Industrial Applications, by *D. Snider*.
- Selecting the Most Effective Waterblast Pressure and Flow for a Given Standoff Distance, by *D. Wright*.
- Stream-Forming Nozzles Out of Diamond Polycrystals for Gas-Abrasive and Liquid-Abrasive Cutting and Processing, by *N.I. Polushin, E.N. Sorokin, A.I. Laptev and V.N. Gulbin*.
- Stripping Coatings with High-Frequency Forced Pulsed and Ultra-high Pressure Waterjets: A Comparative Study, by *M. Vijay, M. van Wonderen, W. Yan, A. Tieu and B. Daniels*.
- Study on Abrasive Disintegration in an AWJ Cutting Head, by *P. Nambiath, G. Galecki, D. Tischler and S. Reynolds*.
- Submerged Abrasive Suspension Jets Issuing from Sheathed Nozzle with Ventilation, by *H. Ito, G. Peng and S. Shimizu*.
- Technique of Oil Jet Tank Cleaning Equipment, by *S. Xue, Z. Chen, Y. Wang, S. Ba, and H. Zhu*.
- The Effect of Diameter Ratio and Abrasive Grain Size on Exit Velocity by Numerical Simulation of Flow Through Abrasive Water Suspension Jet Nozzle Using Statistical Experimental Design, by *Deepak D, A. Devineni and N.Y Sharma*.
- The Super-High Pressure Plunger Pump, by *Yu.V. Kovalev, D.A. Smirnov, V.N. Gulbin, V.Yu. Chernobaev and A. V. Divaev*.
- The Technology and the Machine for Quarrying Fashioned Sidewalk Parts from Rock Massive by Ultra High Pressure - Waterjet, by *J. Asatryan and Kh. Suvaryan*.
- Theoretical and Experimental Basis of Water Pipeline Renovation with High-Pressure Water Jet Technique, by *P. Borkowski*.
- Two Special Mechanisms for Controlling the Waterjet Gun and Eliminating the Reaction Force of the Jet, by *H. Teimourian, H.V. Tamaddoni, B. Mutabi and A. Soleimanzadeh*.
- Waterjet Removal of Casting Residues from Large-Diameter Telescope Mirrors, by *H.B. Miller and S. Pandey*.
- What's Happening in Surface Preparation Standards for Paint, by *L. Frenzel*.

## FusionTECH Integrated Inc. Finds Waterjet Cutting Solutions for Clients, from page 6

operators were able to eliminate secondary machining and reduce their client's previous processing method by 50%.

"These ring flanges were 1-inch, 1 1/2-inch, and 2-inches thick in some cases," Bentz said. "It was obvious these parts were too thick to be cut on a laser. Plasma was another option to cut the flanges, and that was our client's previous cutting method; but they would have a great deal of heat-affected zone to machine off."

Before the waterjet solution, the client would conduct an initial rough cut of an oversized ring flange for the outer/inner dimensions, usually by an extra half inch. Afterwards, they used a secondary machining process to acquire the exact part size and appropriate quality finish without heat-affected zones.

"The advantage with a waterjet is that you are able to cut outside diameters and inside diameters to the exact size without secondary machining," said Bentz. "We were able to eliminate the extra o.d./i.d. machining requirement, cut instead of drill the bolt holes, and then tap the holes. That was a huge savings for them."

**Waste Treatment Industry:** A waste treatment facility required commonly shaped rubber gaskets made out of buna rubber for their welded equipment which comprised of bolt flanges. Before FusionTECH proposed the waterjet cutting process for the job, their customer hand-cut the parts with shears or razor blades and scrapped nearly 70% of their material from their inefficient, cumbersome process. The FusionTECH team modified an existing component drawing for the rubber gasket and changed the material cutting parameters through Intelli-MAX® Software, the OMAX PC-based controller software that controls repeatable, precision waterjet cutting.

"You wouldn't be able to flame cut, plasma cut, or laser cut buna rubber because of the emissions or



A 40-inch diameter ring flange was cut from a two-inch thick stainless steel slab by FusionTECH's OMAX waterjet equipment.

(continued on page 24)



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WJTA-IMCA Expo Booth #417

## Candidates Sought For 2011 WJTA-IMCA Awards

You are invited to submit candidates for the special awards that are presented biennially by the WJTA-IMCA to honor a company, organization or individual who has made a significant contribution to the industry through accomplishments that directly enhance waterjet and industrial cleaning technology and the industry as a whole. A list of previous WJTA-IMCA award recipients appears at right.

**Candidate nominations must be received no later than August 1, 2011.** The award recipient(s), to be selected by the Awards Committee of the WJTA-IMCA, will be honored at a presentation ceremony on Monday, September 19, 2011, in conjunction with the 2011 WJTA-IMCA Conference and Expo in Houston, Texas.

An official form for candidate nominations appears on page 28. Complete one form for each nomination submitted. Please make additional copies of the form as needed. Completed nomination forms may be faxed to (314)241-1449 or mailed to the WJTA-IMCA, 906 Olive Street, Suite 1200, St. Louis, MO 63101-1448, USA.

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### OMAX® Portable Abrasive Waterjet System, from page 11

a rubberized non-skid material can also be installed on the platform floor. Watch the "Introducing Mobile OMAX Waterjets" product video on [omax.com/news/videos/](http://omax.com/news/videos/).

OMAX is committed to developing cutting-edge technology and innovative software to ensure that each customer enjoys the benefits of these technologically advanced abrasive waterjet machines and accessories.

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

### Previous Award Recipients

- |   |   |
|---|---|
| <b>1981 Pioneer Award</b><br><i>Jacob Frank</i>   | <b>1999 Pioneer Award</b><br><i>Mohamed Hashish, Ph.D.</i>          |
| <b>1983 Pioneer Award</b><br><i>H.D Stephens</i>  | <b>Safety Award</b><br><i>Bruce Wood</i>                            |
| <b>1985 Pioneer Award</b><br><i>William Cooley, D.Sc.</i>   | <b>Service Award</b><br><i>John Wolgamott</i>                       |
| <b>1987 Pioneer Award</b><br><i>Norman Franz, Ph.D.</i>   | <b>Technology Award</b><br><i>Ryoji Kobayashi, Ph.D.</i>            |
| <b>1989 Pioneer Award</b><br><i>Richard Paseman</i>   | <b>2001 Pioneer Award</b><br><i>George A. Savanick, Ph.D.</i>       |
| <b>1991 Pioneer Award</b><br><i>John H. Olsen, Ph.D.</i>  | <b>Technology Award</b><br><i>Richard Ward</i>                      |
| <b>1993 Pioneer Award</b><br><i>Fun-Den Wang, Ph.D.</i>   | <b>2003 Pioneer Award</b><br><i>Pat DeBusk</i>                      |
| <b>Safety Award</b><br><i>David Summers, Ph.D.</i><br><i>NLB Corporation</i>  | <b>Service Award</b><br><i>Mohamed Hashish, Ph.D.</i>               |
| <b>Service Award</b><br><i>George A. Savanick, Ph.D.</i><br><i>Mohan Vijay, Ph.D.</i>                                   | <b>Technology Award</b><br><i>Ernest S. Geskin, Ph.D.</i>           |
| <b>Technology Award</b><br><i>Mohamed Hashish, Ph.D.</i><br><i>Autoclave Engineers</i><br><i>Hammelmann Corporation</i> | <b>2005 Pioneer Award</b><br><i>Hartmut Louis, Dr.-Ing.</i>         |
| <b>1995 Pioneer Award</b><br><i>George Rankin</i>   | <b>Safety Award</b><br><i>TurtleSkin WaterArmor</i>                 |
| <b>Safety Award</b><br><i>Autoclave Engineers</i>   | <b>Service Award</b><br><i>NLB Corporation</i>                      |
| <b>Service Award</b><br><i>Thomas J. Labus</i>  | <b>Technology Award</b><br><i>Jay Zeng, Ph.D.</i>                   |
| <b>Technology Award</b><br><i>Thomas J. Kim, Ph.D.</i>  | <b>2007 Pioneer Award</b><br><i>Forrest Shook</i>                   |
| <b>1997 Pioneer Award</b><br><i>David A. Summers, Ph.D.</i>   | <b>Safety Award</b><br><i>Vacuum Equipment Safety Committee</i>     |
| <b>Service Award</b><br><i>Andrew F. Conn, Ph.D.</i>  | <b>Service Award</b><br><i>Tony Fuller</i><br><i>Jim Petillo</i>    |
| <b>Technology Award</b><br><i>Prof. Dr-Ing. Hartmut Louis</i>   | <b>Technology Award</b><br><i>Mamidala Ramulu, Ph.D.</i>            |
|   | <b>2009 Pioneer Award</b><br><i>John Wolgamott</i>                  |
|   | <b>Safety Award</b><br><i>Gary W. Toothe</i><br><i>Philip Stein</i> |
|   | <b>Service Award</b><br><i>Bill McClister</i>                       |

## Boot Camp Sessions

Preliminary Topics

Tuesday, September 20, 2011

### Vacuum Trucks

Phil Stein

### Safety in Waterjetting

Ed Twaddell

TurtleSkin WaterArmor by  
Warwick

### Reduction of Hydro Blasting Manual Labor at Dow Chemical

Hans Borgt

Maintenance Engineer, Industrial  
Cleaning  
Dow Benelux, B.V.

### Driving to Zero...Together! (NEW)

Kathy Krupp

Managed Services Leader  
The Dow Chemical Company

### Hose Safety; Color Coding of Hoses and Equipment

Paul Webster and James Kim  
Parker Hannifin-EPD

Wednesday, September 21, 2011

### Automated Tube Cleaning

Todd Shawver

NLB Corp

### Hydro-Excavation

Brett Hart

### Automated Waterblasting Equipment

Bill Shires

StoneAge, Inc.

### Nozzle Selection for Sewer Cleaning

Frank Ligor

StoneAge, Inc.

### High Pressure Waterblasting

Gary Toothe

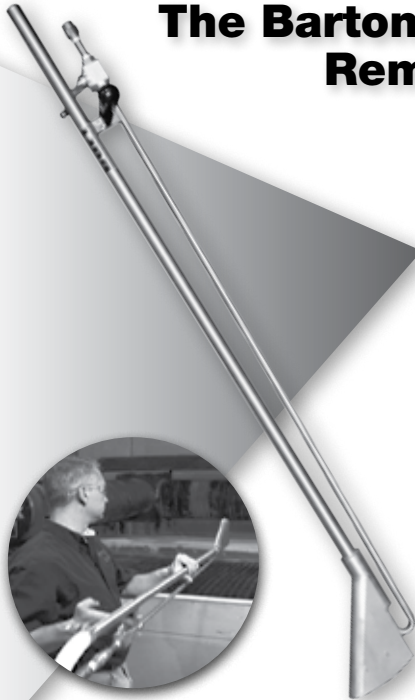
FS Solutions

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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## Comments Solicited on Improvements to Recommended Practices

Comments are solicited regarding improvements to the WJTA-IMCA publications, *Recommended Practices for the Use of Manually Operated 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.

## FusionTECH Integrated Inc. Finds Waterjet Cutting Solutions for Clients, from page 21

smoke the material would generate,” Bentz said. “The waterjet really resolved a lot of problems for them because they were scrapping a lot of rubber.”

Based from these three application examples, FusionTECH delivered successful product output for their clients and even helped them reduce project costs. Presenting the idea of a waterjet cutting solution for returning customers is just a matter of knowing your clients and their everyday processes, Bentz said.

“I don’t think a lot of people consider the variety or grades of material a waterjet can process,” he said. “Not only can a waterjet process stainless steel, which is difficult to



With the help of abrasive waterjet cutting technology, FusionTECH cut buna rubber gaskets for stain-less steel flanges without unpleasant fumes or emissions. The gaskets were 18-inches to 20-inches in diameter and each gasket could be cut in about three to five minutes.

machine anyway, but we’ve had success with plastic and rubber too.”

For more information, visit [www.omas.com](http://www.omas.com) or [www.ftiinc.org](http://www.ftiinc.org).

### Apply Now To Be Considered Complimentary WJTA-IMCA Conference and Expo Registration

VLN Advanced Technologies, Inc., Ottawa, Ontario, Canada, is sponsoring complimentary registrations for the 2011 WJTA-IMCA Conference and Expo, September 19-21, 2011.

An individual who is interested in attending the Conference, but unable to do so without financial assistance, is encouraged to apply for a complimentary Conference registration made available through VLN’s sponsorship.

To apply for a complimentary registration, complete the form on the WJTA-IMCA web site at [www.wjta.org](http://www.wjta.org). Click on 2011 WJTA-IMCA Conference and Expo under “Upcoming Events;” then click - Complimentary Conference Registration. Apply **NO LATER THAN JULY 15, 2011**.

Many thanks to VLN Advanced Technologies, Inc. and to VLN President Dr. Mohan M. Vijay for his generous sponsorship activity.

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## Super Products Introduces Mike Reis as Industrial Regional Sales Manager

Super Products LLC., has selected Mike Reis to serve as industrial sales manager for its western region. Based out of Scottsdale, Arizona, Reis will support the company's industrial customers throughout the western states as well as promote its full compliment of products including Supersucker® industrial vacuum trucks, Mud Dog® hydro excavators, and Camel® sewer and catch basin cleaners.



Mike Reis

In addition to solid sales, rental and customer service management experience, Reis's professional background includes having served in operations-focused roles for several heavy-duty truck and equipment suppliers.

For more information, visit [www.superproductscorp.com](http://www.superproductscorp.com) or call (800)837-9711.

## Maxpro Technologies Names Greg Soltys Vice President of Engineering

Maxpro Technologies has announced the executive promotion of Gregory Soltys to the position of vice president of engineering. This promotion is reflective of Maxpro's commitment to build and maintain a strong and dynamic management team dedicated to continued growth in the high pressure industry.



Greg Soltys

Soltys will continue in his management of the engineering team at Maxpro Technologies as well as being involved in the development of business strategies.

Soltys graduated in 1981 with a Bachelor of Science degree in mechanical engineering technology from Gannon University in Pennsylvania. In 1988 he became a registered professional engineer. Soltys has thirty years of experience in mechanical engineering, including twenty years in the high pressure industry, nine of which were at Maxpro.

For more information, visit [www.maxprotech.com](http://www.maxprotech.com) or call (814) 474-9191.

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### 2011 WJTA-IMCA Conference and Expo

#### Pre-Conference Workshop

#### Waterjet Technology: Basics and Beyond

Monday, September 19, 2011

#### Preliminary Schedule of Events

##### THE BASICS

7:30 a.m.–8:00 a.m.	Registration
8:05 a.m.–8:30 a.m.	History of Waterjet Technology
8:30 a.m.–9:00 a.m.	Applications of Waterjet Technology
9:00 a.m.–10:00 a.m.	Equipment Considerations
10:00 a.m.–10:15 a.m.	Break
10:15 a.m.–10:45 a.m.	UHP & Abrasive Cutting Applications
10:45 a.m.–11:45 a.m.	Safety
11:45 a.m.–12:45 p.m.	Lunch

##### BEYOND THE BASICS

12:45 p.m.–1:45 p.m.	Cleaning Applications
1:45 p.m.–2:15 p.m.	Field Cutting Applications
2:15 p.m.–2:45 p.m.	Surface Prep
2:45 p.m.–3:00 p.m.	Break
3:00 p.m.–5:00 p.m.	Understanding the Power of Vacuum and How Industrial Loaders Work

## Jet Edge Introduces 150hp, 60KSI Intensifier Pump

Jet Edge, Inc. has introduced the new 150hp, 60,000 psi iP60-150 waterjet intensifier pump, capable of producing up to 3 gallons per minute (11.4 l/min) of ultra-high pressure water for precision waterjet cutting and UHP surface preparation applications. It supports orifices up to .025-inch (.64 mm) and features dual intensifier systems.

Design improvements include an efficient kidney loop hydraulic cooling and filtration system, an anti-corrosive interior coated hydraulic reservoir, easy-to-remove lift-off covers, and touch-screen controls. The pump's motor drive assembly has been mounted on an isolation system to reduce noise and vibration.



Like all Jet Edge waterjet pumps, the iP60-150 features Jet Edge's reliable tie-rod design. This design has no threaded cylinder, no threaded end caps, and no threaded hydraulic

cylinder, making it less prone to cracking than threaded designs. Jet Edge waterjet pumps feature hydraulic accumulators, which reduce wear on the hydraulic pump, and a rugged hydraulic center section that incorporates high-duty cycle-rated piston seal and wear rings. Jet Edge's hydraulic systems have a 4,000-hour warranty. Jet Edge waterjet pumps also feature attenuators that smooth pressure fluctuations and deliver a constant and steady stream of UHP water to the cutting tool, ensuring optimal cut quality.

For more information, visit [www.jetedge.com](http://www.jetedge.com) or call (763) 497-8700.

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## Hilton Americas - Houston

**T**he Hilton Americas - Houston, 1600 Lamar, Houston, TX 77010, is directly connected



to the George R. Brown Convention Center via two indoor sky-bridges. The room rates are \$142 single/\$152 double occupancy. For reservations, call toll-free (800)236-2905, contact the Hilton directly at (713)739-8000, or register online.

**Monday, August 29, 2011**, is the deadline for guaranteed room availability. Reservations received after August 29 will be confirmed on a space available basis. Rooms may still be available after August 29, but not necessarily at the rates listed above.

### Alternate Hotels

The **Hyatt Regency Houston**, 1200 Louisiana Street, Houston, TX 77002, is a 15-minute walk from the George R. Brown Convention Center. The room rates are \$142 single, \$152 double occupancy. Reserve your room online or call 888-421-1442. When calling, mention that you are attending the WJTA-IMCA Conference and mention the grouping code G-WATE to receive the group rates.

**August 19, 2011**, is the deadline for guaranteed room availability. Reservations received after August 19, will be confirmed on a space available basis. Rooms may still be available after August 19, but not necessarily at the rates listed above.

The **Embassy Suites Houston** – Downtown, 1515 Dallas Street, Houston, TX 77010, is a five-minute walk from the George R. Brown Convention Center. The room rates are \$159, single or double occupancy. Reserve your room online or call (888)482-0230. When calling, mention that you are attending the WJTA-IMCA Conference and the group code WJT to receive the group rates.

**August 22, 2011**, is the deadline for guaranteed room availability. Reservations received after August 22, will be confirmed on a space available basis. Rooms may still be available after August 22, but not necessarily at the rates listed above.

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## StoneAge Receives Governor's Award for Excellence in Exporting

**G**overnor John Hickenlooper presented the Governor's Award for Excellence in Exporting to StoneAge, Inc., at Colorado's World Trade Day 2011 on May 17. StoneAge was recognized in the small-sized manufacturer category as a leader in providing tools and equipment for water blast cleaning. StoneAge was established in 1979 in Durango, Colorado. Today, all of StoneAge's operations are still in Durango, and the company exports to 43 different countries.



**Governor Hickenlooper presents the Governor's Award to StoneAge CEO Kerry Petranek.**

The Governor's Award for Excellence in Exporting has been given every May since 1970 and honors Colorado companies that demonstrate a commitment to international trade. Hosted in Denver, World Trade Day is a full-day conference on international trade and business opportunities. The event showcased the powerful World Trade Center network, directly connecting businesses of the Rocky Mountain region to businesses in key markets in Europe.

# 2011 WJTA-IMCA Awards Nomination Form

**Instructions:** Complete sections below and submit a narrative (300-word maximum) to support your nomination on a separate sheet of paper. Please print or type all information.

I nominate the following company, organization, or person as a candidate to receive a 2011 WJTA-IMCA Award (please print or type full individual, company, or organization name):

\_\_\_\_\_ company, organization, or person

## Distinguished Pioneer Award

The nominee must:

- Have made contributions to the waterjet or industrial cleaning industries;
- Have made contributions to the achievement of the goals of WJTA-IMCA;
- Have high moral character;
- Have strong personal and business ethics;
- Be dedicated to the future of the waterjet industry and to the growth of WJTA-IMCA.

## Service Award

How has the nominated company, organization, or individual contributed in time and talent toward improvement in the WJTA-IMCA?

## Technology Award

What has the nominated company, organization, or individual done to introduce new and innovative ideas in engineering or manufacturing? This could include, but is not limited to, new products, new manufacturing techniques, patents . . . any unique activity that advanced the technology of the waterjet industry.

## Safety Award

What has the nominated company, organization, or individual done to introduce new and innovative ideas in safety? This could include, but is not limited to new products, new concepts, new safety techniques . . . any unique activity which increases the overall safety of waterjet equipment.

**CANDIDATE** \_\_\_\_\_ Company \_\_\_\_\_

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**Nominations must be received no later than August 1, 2011.**

**For a prompt response, fax completed form to (314)241-1449, or mail to the WJTA-IMCA, 906 Olive Street, Suite 1200, St. Louis, MO 63101-1434, USA.**

## Automatic Cleaning of Heat Exchangers using Peinemann's Flexible Lance Machine, page 8

Inside the tubes, which are around 16mm ID, there was a medium hard contamination with some tubes blocked.

Cleaning was done with a pressure of around 800-1,000 Bar with a flow of around 40L per flexible lance, 120L in total for the 3 flexlances. There are two bundles side-by-side to by-pass the system to continue operation. The tube sheet of the bundle is 1.6m lower than the flange and the walking platform is fixed at 90 cm below the flange.

For this reason, an extra large custom-made indexing frame was offered, which can be fixed on top of the bundle and can clean the whole bundle in one time. This saves costs in changing positions of smaller indexing frames, which were used at the beginning.

The hoses were guided through a custom-made roll, which was positioned at approximately 4m above the center of the exchanger. One operator can operate the remote control and stand at a distance of around 3m from the cleaning activities, safe and comfortable. The machine that feeds the flexlances works with two endless chains fitted with friction blocks, which move all three flexlances at the same time forward or backward. If a blockage is encountered inside a tube, the machine is able to allow one or more flexible lances to slip in the machine, giving each flexlance the time to clean its own tube.

Previously, the work was done with two operators at the same time working side by side on the tubesheet, feeding the high pressure hoses in by hand.

Overall, the TLE machine has reduced the number of shutdowns due to a longer stand-time of the bundle, improved heat transfer and reduced fuel costs. Besides that, it has also provided the operators with a safe and

comfortable work place and has been satisfactory for the contractor as well as the plant.

For more information about the Peinemann Flexible Lance Machine, visit [www.peinemannequipment.com](http://www.peinemannequipment.com).



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WJTA-IMCA Expo Booth #607

## AccuStream Appoints TrennTek as Exclusive Agent for Germany

**A**ccuStream Inc. has appointed TrennTek GmbH of Niederwinkling as exclusive agents in Germany, Switzerland, and Austria.

Having first established contact with TrennTek at EuroBlech in 2008, the two companies worked together on a number of projects before reaching the agency agreement. AccuStream sees TrennTek as the ideal partner for Germany as John Hennessey, Sales Manager explains, "TrennTek has in-depth knowledge of the German waterjet market through its existing sales of waterjet solutions, high pressure spares, abrasives as well as through its waterjet contract cutting services. The technical expertise and high levels of customer support that TrennTek offers will be invaluable to customers."

TrennTek, established in 1997, builds customized 3D and micro-cutting waterjet tables for customers from many

sectors, including the aerospace industry. The addition of the Accustream agency will give customers the opportunity to integrate intensifier technology with TrennTek waterjet cutting technology.

Harald Volk, president of TrennTek, says, "The high quality of AccuStream intensifier technology, together with the wide range of products to suit all types of waterjet customers, will appeal to our German, Swiss, and Austrian customers. AccuStream has outstanding global experience in providing solutions for many different industries and their products will complement TrennTek's own product range and services."

For more information, visit [www.accustream.com](http://www.accustream.com) or call (866) 566-7099.

## Flow International Receives Customer Excellence Award from Microsoft

**F**low International Corporation has been recognized by Microsoft® with the 2011 Microsoft Dynamics Customer Excellence Award for Global Implementation. The award was presented on April 11 at Convergence, Microsoft's Dynamics user conference in Atlanta, Georgia.

Microsoft Dynamics AX is an enterprise-wide platform that contains financial, project tracking, inventory control, and supply chain management software. It was selected by Flow to simplify and streamline its business information and operate as one company worldwide.

Flow International was honored for its strong commitment and progress made in implementing Microsoft Dynamics across multiple countries, currencies, languages and business processes. Working with Microsoft Dynamics certified partner, Tectura Corporation of San Mateo, California, Flow is implementing a multi-phased roll-out, initially across eight countries, with over 400 system users, and six languages. Flow anticipates launching the system within at least eight more countries and an additional four languages.

"Microsoft Dynamics AX is fundamentally improving our company as it is improving our access to meaningful data," says Daric Schweikart, vice president and chief information officer of Flow International.

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

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## Vacuum Truck Rentals Expansion Continues

Vacuum Truck Rentals has opened a seventh rental location in Merrillville, Indiana. The Merrillville location at 8209 Grand Boulevard geographically compliments the other six locations in Deer Park, Texas; Geismar, Louisiana; Richland, Mississippi; Gaston, South Carolina; Worcester, Massachusetts; and Oakland, New Jersey.

Vacuum Truck Rentals has also added dedicated hydro excavation units and vacuum loaders with rail gear to further expand their rental offering. Vacuum Truck Rentals maintains a quality rental fleet that includes industrial vacuum loaders, combination sewer cleaners with hydro excavation kits, DOT coded liquid vacuum tankers in mild and stainless steel, roll off trucks, 130 barrel vacuum tank trailers, liquid ring vacuum loaders, as well as road tractors with wet kits.

Vacuum Truck Rentals offers daily, weekly, and monthly rentals as well as a "Rent to Own" option on all their rental units, which allows customers to apply a percentage of their rent to purchase the rental equipment. Vacuum Truck Rentals is continually updating their late model fleet so there are always well maintained, quality used units available for sale for the cost conscious buyer. For more information, visit [www.vactruckrental.com](http://www.vactruckrental.com) or call (601) 933-4650.



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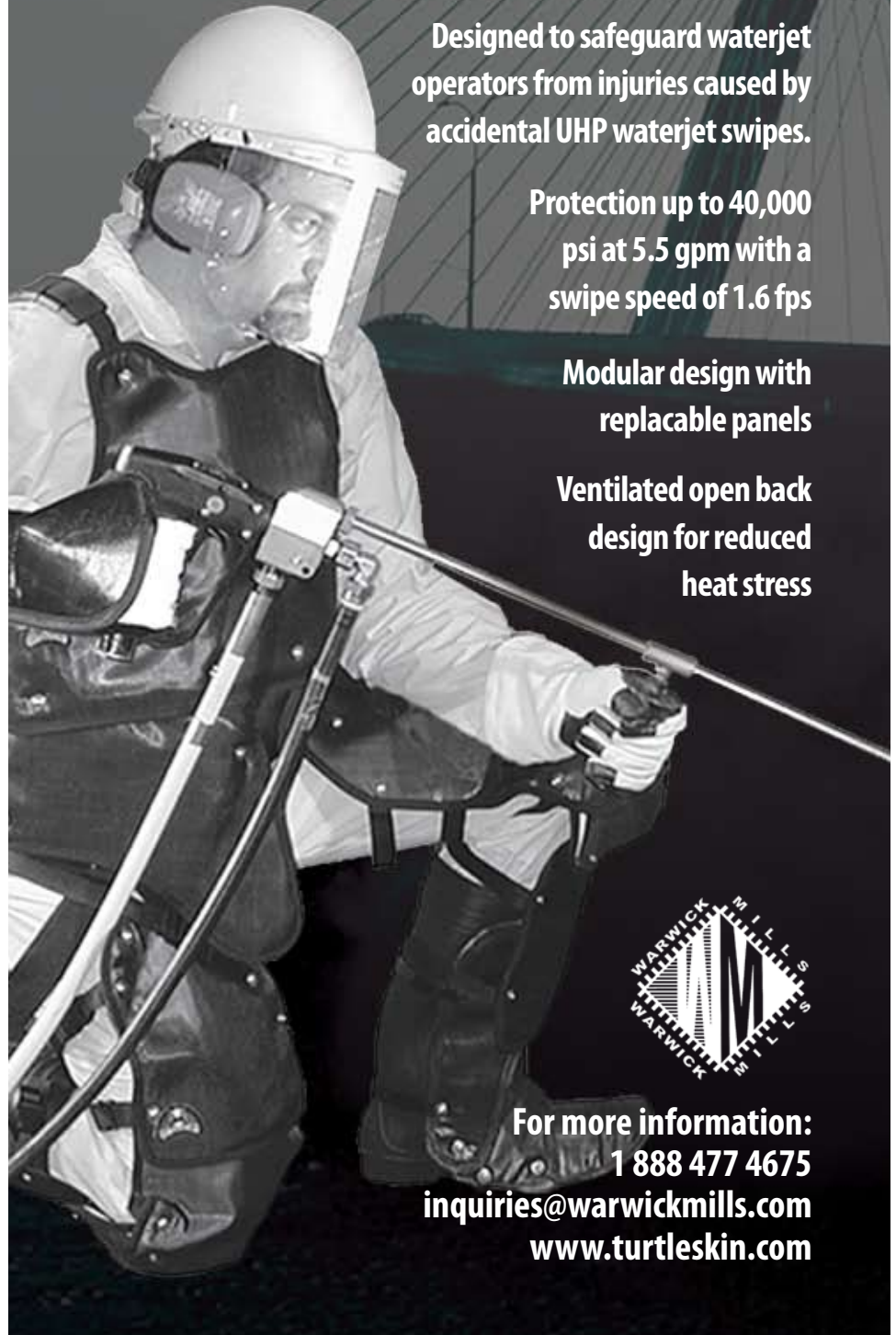
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# WJTA-IMCA Welcomes New Members

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 Company \_\_\_\_\_ Title \_\_\_\_\_  
 Address \_\_\_\_\_ Mailing Address:  Home  Work  
 City \_\_\_\_\_ State \_\_\_\_\_ Country \_\_\_\_\_ Postal Code \_\_\_\_\_  
 Telephone # [ ] ( ) \_\_\_\_\_ Fax # [ ] ( ) \_\_\_\_\_  
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### HOW TO REGISTER

- **Online** with a credit card at [www.wjta.org](http://www.wjta.org).
- **Telephone:** call (314)241-1445 with credit card information.
- **Fax:** fill out the registration form with credit card information and dial, (314)241-1449.
- **Mail:** fill out the registration form and mail with applicable payment to: WJTA-IMCA 2011 Conference and Expo, 906 Olive, Suite 1200, Saint Louis, MO 63101-1448.

**Join WJTA-IMCA now and receive a substantial discount off Conference registration fees.**

### WJTA-IMCA MEMBER

### NONMEMBER

By 9/6/11	After 9/6/11	By 9/6/11	After 9/6/11
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**OPTIONAL TRIP to NASA's Johnson Center, Sunday, Sept. 18** .....\$ 30 .....\$ 30.....\$ 30.....\$ 30..... = \$ \_\_\_\_\_

**Exhibit Hall/Live Demo Pass**

Registration includes admittance to the exhibit hall, boot camp sessions, and live demonstrations on the day(s) that you are registered; and the Industry Appreciation Reception on Monday (9/19).

<input type="checkbox"/> Tuesday, September 20, and Wednesday, September 21 .....	\$ 45	\$ 45	\$ 45	\$ 45	= \$ _____
<input type="checkbox"/> Tuesday, September 20 .....	\$ 30	\$ 30	\$ 30	\$ 30	= \$ _____
<input type="checkbox"/> Wednesday, September 21 .....	\$ 30	\$ 30	\$ 30	\$ 30	= \$ _____

**Full Conference** .....\$ 399 .....\$ 459.....\$ 459.....\$ 519..... = \$ \_\_\_\_\_

Registration includes admittance to the Industry Appreciation Reception on Monday (9/19); and exhibit hall, boot camp sessions, paper presentations and live demonstrations on Tuesday (9/20) and Wednesday (9/21). You will also receive one copy of the Conference Proceedings on CD-ROM and two (2) lunch vouchers that can be used on Tuesday and Wednesday (one per day) at the lunch counter located in the WJTA-IMCA exhibit hall.

**Combo** .....\$ 499 .....\$ 559.....\$ 559.....\$ 619..... = \$ \_\_\_\_\_

Registration includes all the activities in the Full Conference PLUS the Pre-Conference Seminar on Monday (9/19). You will also receive one copy of the Conference Proceedings on CD-ROM, one (1) lunch ticket, and two (2) lunch vouchers that can be used on Tuesday and Wednesday (one per day) at the lunch counter located in the WJTA-IMCA exhibit hall.

**Daily**

Tuesday and Wednesday registrants will receive one (1) lunch voucher to be used that day at the lunch counter located in the WJTA-IMCA exhibit hall, and a "50% off" coupon to use toward the purchase of the 2011 Conference Proceedings on CD-ROM.

<input type="checkbox"/> Monday, September 19 .....	\$ 119	\$ 179	\$ 179	\$ 239	= \$ _____
<input type="checkbox"/> Tuesday, September 20 .....	\$ 219	\$ 279	\$ 279	\$ 339	= \$ _____
<input type="checkbox"/> Wednesday, September 21 .....	\$ 219	\$ 279	\$ 279	\$ 339	= \$ _____

Registration includes admittance to the Pre-Conference Seminar, lunch, and Industry Appreciation Reception.

Registration includes admittance to the exhibit hall, boot camp sessions, paper presentations and live demonstrations on Tuesday (9/20); and the Industry Appreciation Reception on Monday (9/19).

Registration includes admittance to the exhibit hall, boot camp sessions, paper presentations and live demonstrations on Wednesday (9/21); and the Industry Appreciation Reception on Monday (9/19).

**Student** .....\$ 20 .....\$ 20..... N/A..... N/A..... = \$ \_\_\_\_\_

Registration includes admittance to the Pre-Conference Seminar and Industry Appreciation Reception on Monday (9/19); and exhibit hall, boot camp sessions, paper presentations and live demonstrations on Tuesday (9/20) and Wednesday (9/21). Registration does NOT include a copy of the Proceedings or lunch ticket/vouchers. NO discount is available for students that are not members of WJTA-IMCA. WJTA-IMCA student members must be enrolled full-time in a university graduate or undergraduate program.

**MULTIPLE CORPORATE REGISTRATIONS** (Applies to third and subsequent registrants from same company)

<input type="checkbox"/> <b>Full Conference</b> .....	\$ 359	\$ 419	\$ 419	\$ 479	= \$ _____
<input type="checkbox"/> <b>Combo</b> .....	\$ 459	\$ 519	\$ 519	\$ 579	= \$ _____

<input type="checkbox"/> <b>WJTA-IMCA MEMBERSHIP</b> (US, Mexico, Canada)	<input type="checkbox"/> \$60 Individual	<input type="checkbox"/> \$20 Student	<input type="checkbox"/> \$400 Corporate.....	= \$ _____
<input type="checkbox"/> <b>WJTA-IMCA MEMBERSHIP - International</b> (all other countries)	<input type="checkbox"/> \$80 Individual	<input type="checkbox"/> \$40 Student	<input type="checkbox"/> \$460 Corporate .....	= \$ _____

**Conference Proceedings** \_\_\_\_\_ Copies x \$89.00 ..... = \$ \_\_\_\_\_

2011 WJTA-IMCA Conference registrants may purchase extra copies of the Conference Proceedings on CD-ROM for only \$89. Regularly priced at \$109, you will SAVE \$20. Offer valid through 9/30/11.

### SPECIAL OFFER!

Cancellation Policy: Fees will be refunded in full for cancellations received at least four (4) weeks prior to the Conference. Cancellations received more than ten (10) days and less than four (4) weeks prior to the Conference will be subject to a \$50 charge. No refund will be made for cancellations received less than 10 days prior to the Conference. However, substitutions may be made at anytime. Refunds will not be processed until after the Conference.

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