

# WJTA

**Water Jet Technology  
Association**



# Jet News

APRIL 1992

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**Hydraulic Mining: Placer Mining, a scene from the past.**

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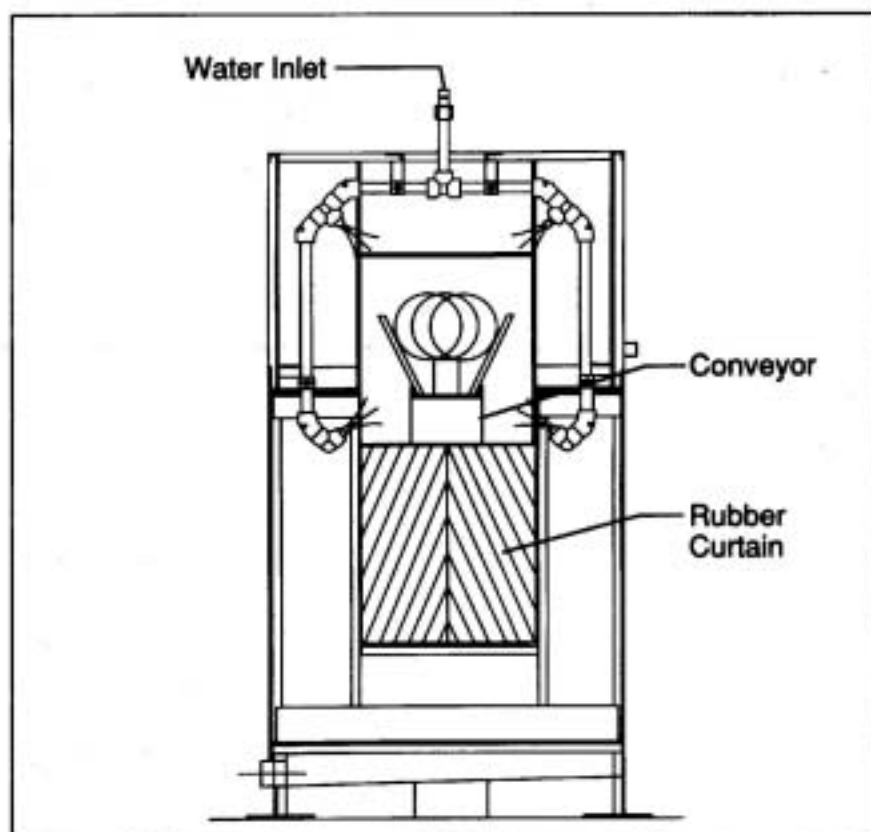
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## Water Jet Removes Scale and Reduces Scrap



**Descaling Cabinet, End Section View**

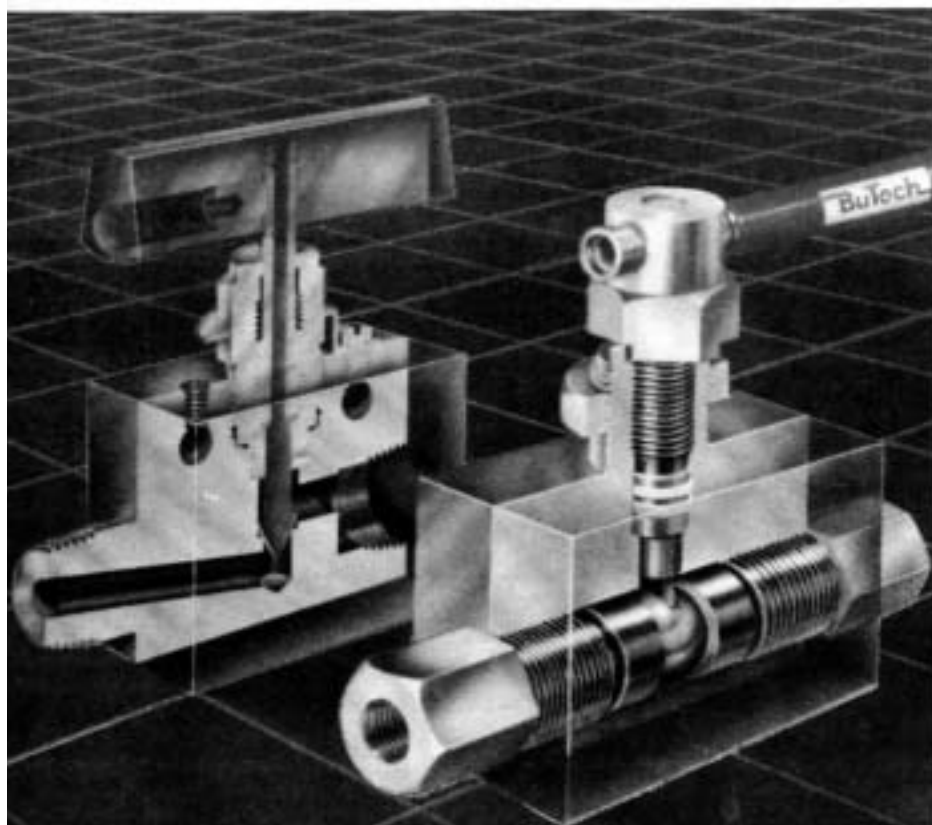
Companies seeking to improve the quality of their forged parts and reduce their scrap rates are finding high-pressure water jet systems from National Liquid Blasting Corporation (NLB) a fast, efficient means of descaling hot billets before they are forged. Working at water pressures of from 1,500 to 10,000 psi, the NLB systems descale as many as 500 parts per hour and have reduced one manufacturer's scrap rate from seven percent to less than one percent.

If the scale is not removed before the billet enters the press, it can become embedded in the part during the forging process. This not only requires additional machining of the part - or, if the scale is heavy enough, scrapping the part entirely - but it can cause parts to stick in the forging dies and even damage the dies. NLB's high-pressure water, however, produces parts that are nearly scale-free.

Because production facilities and plant layouts vary widely, NLB systems can be designed to meet specific requirements. Each includes a high-pressure pump to supply water to the nozzles (usually contained in a cabinet enclosure), that sprays both ends and all sides of the billet. Billets are generally carried through the cabinet on a customer-supplied conveyor. They can be loaded and unloaded manually or automatically, and the scale is collected in a dump box or removed by a drag conveyor.

At Teledyne Portland Forge in Lebanon, Kentucky, an NLB descaler blasts scale off round or square bars that vary in length from 1.5 to nearly 20 inches. The billets are cut off at temperatures between 1,400 and 2,200 degrees F, then descaled by NLB's 3,000 psi water jets. Each billet is manually placed in the forging press, but a pick-and-place positioner is planned.

NLB Corporation, a leader in high-pressure water jet technology, manufactures a full line of quality water jetting systems for many uses, including descaling, deburring, parts cleaning, concrete cleaning and demolition, and removal of paint, rust and sludge.



## Finally. Pipe Valves Up To 15,000 PSI

**Butech introduces a line of pipe valves, fittings and accessories that really handle the pressure.**

Our new "Pipe Series" needle valves are designed to operate at working pressures up to 15,000 PSI. They are available in a variety of configurations for on-off, throttling and metering.

Ball valves are designed for working pressures up to 12,000 PSI and can be equipped for continuous operation up to 500°F or excursions up to 550°F.

Standard construction is of 316 cold worked stainless steel in sizes from 1/8" to 1" NPT. Valves and fittings can be manufactured in all machinable metals.

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## From the President's Desk

**T**he next American Water Jet Technology Conference will be held from August 28-31, 1993 at the Red Lion Hotel, Seattle-Tacoma Airport, in the State of Washington.

The Conference will open on Saturday, August 28 with a one-day course on the fundamentals and applications of water jetting technology. The following three days will be dedicated to technical sessions covering the latest research in water jetting along with concurrent sessions designed to appeal to contractors and to people interested in the manufacturing aspects of water jetting.

Exhibits of water jetting equipment, supplies, and services will be held in a large exhibit hall directly adjacent to the meeting rooms.

A banquet with entertainment will be held aboard the yacht, *Spirit of Puget Sound*, on an evening cruise off Seattle.

The Conference will culminate with a tour of water jetting facilities in the area.

— George A. Savanick, Ph.D.

## Polyflex Buys Rogan and Shanley

**R**ogan and Shanley, Inc. supplier of Polyflex high pressure thermoplastic hose assemblies to the U.S. for the last 10 years, is now part of the international Polyflex group of companies.

Founded in 1970, Polyflex has production facilities in Germany, France and Japan, as well as world-wide distribution, making it by far the largest producer of this type of hose in the world.

Polyflex's rapid growth is largely due to its consistent high quality, international research and development efforts, and the reliability and technical expertise of its distributors.

New literature that reflects recent improvements in existing products and a wide range of products and services will be available soon.

Dr. William A. Lees, formerly vice-president of engineering at Aqua-Dyne, Inc. succeeds Dr. John Rogan as president of Rogan and Shanley.

## This Space For Sale

**T**he *Jet News* is the ideal medium in which to communicate your company's products and services to Water Jet Technology Association members around the world or to locate qualified individuals to fill your company's personnel needs.

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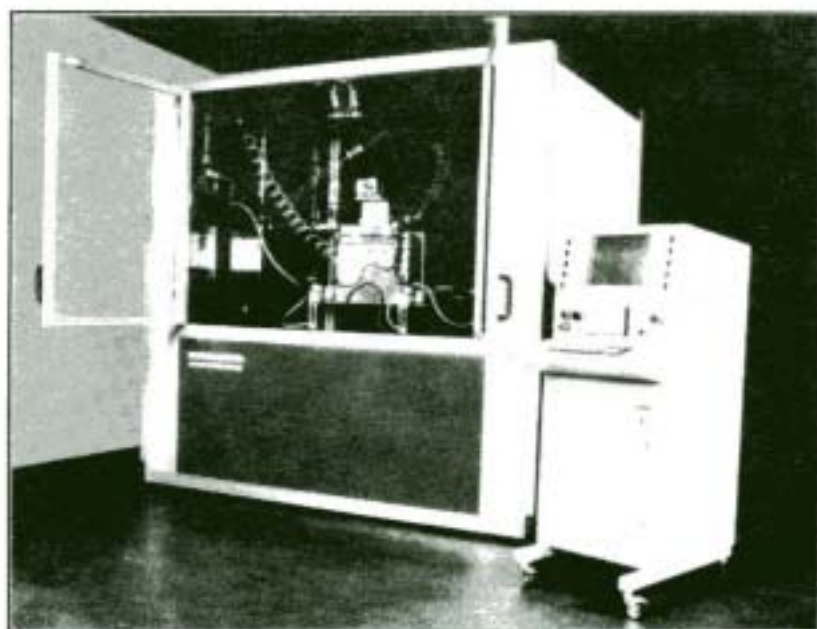
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## Turnkey Water Jet Cutting System



**Ingersoll-Rand Waterjet Cutting Systems' New HS-500 is an enclosed, compact, accurate X, Y and Z axis moving gantry system designed to economize cutting materials as diverse as metals, composites, plastics, foam, rubber, and glass.**

**I**ngersoll-Rand Waterjet Cutting Systems has introduced the HS-500, an enclosed, compact, extremely accurate X, Y and Z axis moving gantry system designed to economize cutting materials as diverse as metals, composites, plastics, foam, rubber and glass.

Ingersoll-Rand's new cost-effective, HS-500 features an environmental enclosure as protection against noise and dirt, a smaller (3' x 3' maximum) work envelope with a compact footprint to fit smaller shops and tight spaces in existing production lines, multiple cutting heads for high volume small parts, and cutting accuracy of  $\pm 0.005$ ".

"The HS-500 is an affordable, flexible system whose accuracy and reliability will enable job shops to do business better by increasing volume and quality, reducing scrap, and removing design constraints," says Mike Dixon, product manager for Ingersoll-Rand. "Its just-in-time manufacturing capabilities and low-cost maintenance also make it ideal for large production lines."

Easy to install, the turnkey system is completely plumbed and wired with air, high pressure water and abrasive connections located at the back of the machine. Dedicated fixturing for manual or automatic material handling equipment can be added to the material support bed.

The omni-directional, non-contact attributes of water jet cutting are optimized by a menu-driven, PC-based controller using standard RS-274D NC programming language.

Designed for both water jet and hydro-abrasive cutting, the HS-500 has a reinforced steel catcher tank fitted with sacrificial steel plates.

A water jet's ultra-high-pressure stream is capable of cutting materials as diverse as soft plastic, high strength composites and space age titanium. For further information on the new HS-500 contact: Mike Dixon, Ingersoll-Rand Waterjet Cutting Systems, 23629 Industrial Park Drive, Farmington Hills, MI 48335 or call (313)471-0888.

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Autoclave has a wide range of high pressure components for the water jet industry in addition to our valves, fittings and tubing. Autoclave also is a source of supply for manifold blocks and valves, accumulators/attenuators and custom articulation coils. Eleven coned and threaded tubing sizes are available as well as all types of specialty and custom designed high pressure products. Autoclave is your one-stop source for quality high pressure components. And we ship from stock to arrive just-in-time to meet your schedule.

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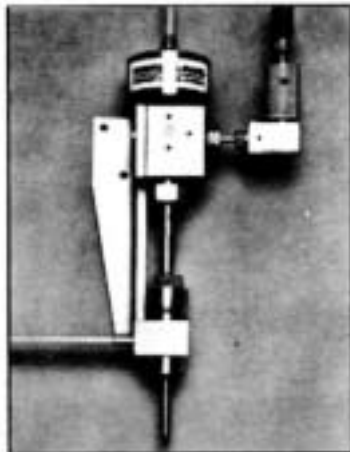


## Autoclave Engineers



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## New Carbide Abrasive Water Jet Nozzle



**Ingersoll-Rand's New XL-2000 Abrasive Nozzle**

**I**ngersoll-Rand Waterjet Cutting Systems has introduced the XL-2000 abrasive nozzle. The new nozzle offers substantially longer lifetime, guaranteeing up to 500 hours of operating time, as well as consistent, accurate, quality cutting of materials ranging from metals, high-tech plastics and composites to six-inch-thick titanium.

According to Mike Dixon, product manager for Ingersoll-Rand Waterjet, the new nozzle solves a problem that has long plagued the water jet industry. "Abrasive water jet cutting has been considered a non-conventional cutting method in the past because of nozzle wear. With the new XL-2000 nozzle, our abrasive machines can now cut consistently for a substantially longer period of time, increasing productivity and lowering overall production costs. We expect this in turn will help commercialize the technology."

In addition to long life and quality cutting, engineers at Ingersoll-Rand point out that the new nozzle also offers a simple design, with no need for high tech monitoring systems, as well as I-R's patented alignable orifice assembly. The alignable orifice assembly enables a quick alignment of the cutting stream to the exact center of the focusing tube. This keeps the cutting stream itself from damaging the interior of the cutting nozzle, and further enhances the lifetime of the product. Adjustments to torque can also be made without affecting the nozzle's alignment.

I-R is now implementing an exchange program, allowing customers with previous I-R nozzles to upgrade to the new cutting nozzles at minimal costs. In addition, I-R backs the new nozzle with a 500/hour, four month guarantee. The system is designed to operate at 50,000 psi using an 80 grit red garnet abrasive at 0.5 lb. minimum abrasive rate.

For further information on the new XL-2000 cutting nozzle, contact Mike Dixon, Ingersoll-Rand Waterjet Cutting Systems, 23629 Industrial Park Drive, Farmington Hills, MI 48335, Telephone: (313)471-0888.

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## International Journal of Water Jetting Technology

**T**he International Society of Water Jetting Technology will publish the third issue of its journal this month. This journal is the first dedicated solely to the advancement of water jetting technology.

The first two issues included articles on abrasive jet cutting and piercing, a review of polymer blasting, and articles on granite cutting and impulse rock breaking. Also included were abstracts on papers given at the Second Pacific Rim International Conference on Water Jet Cutting held in Singapore and those given at the Tenth International Symposium of Water Jetting Technology held in Amsterdam.

Subscriptions to the journal are available from the **International Society of Water Jet Technology**, P.O. Box 46039, 2339 Ogilvie Road, Gloucester, Ontario, Canada, K1J 9M7, telephone: (613)993-2731, fax: (613)952-1395.

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## Jet Edge Introduces OmniJet II®

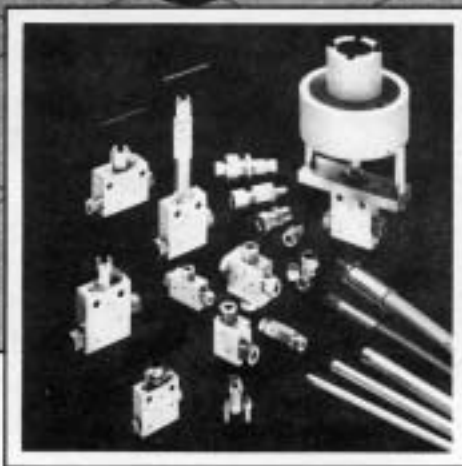
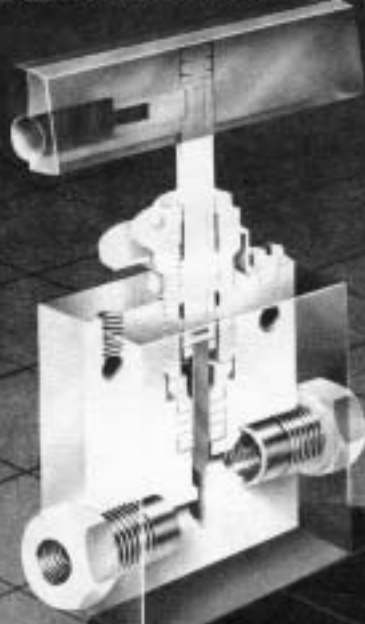


**J**et Edge, Inc. introduces the new OmniJet II Cutting Head for use with both precision water jet and abrasive jet cutting systems. The OmniJet II has been designed and extensively tested for improved component life under cyclic conditions at pressures up to 60,000 psi.

The OmniJet II has an overall length of 9.25 inches, diameter of 3.38 inches and weighs only 3.25 pounds. It features a pneumatically actuated, normally closed valve for safe, reliable operation and accepts orifice sizes ranging from 0.003 to 0.020 inches. When used for water jet applications, the orifices are premounted in a set-screw style retainer making it easy to change with an allen wrench. Superior stream coherency is achieved by stabilizing the water stream prior to entering the orifice. The OmniJet II valve is also designed for abrasive jet cutting with the Permalign® Abrasive Head. The OmniJet II with abrasive head weighs only 4.25 pounds and has an overall length of 11.38 inches. This compact, lightweight cutting head can be used for water jet and abrasive jet cutting with all robot and motion control systems.

For additional information regarding water jet cutting and the OmniJet II Cutting Head, contact the Jet Edge Sales Department at (800)-JET-EDGE.

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- Direct Pumping of Abrasive Suspension Jets; and
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### FLUID JET TECHNOLOGY Fundamentals and Applications

The companion handbook for the Water Jet Technology Association's Water Jet Short Course. This handy reference book includes nine chapters written by leading experts in the field. Hardcover, three-ring binding, 225 pages.

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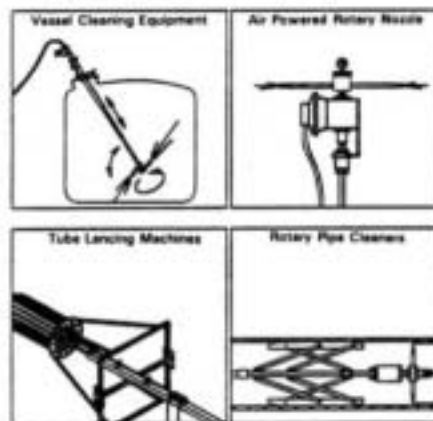


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