

# Tube Products

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## INTERNATIONAL

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October 2010



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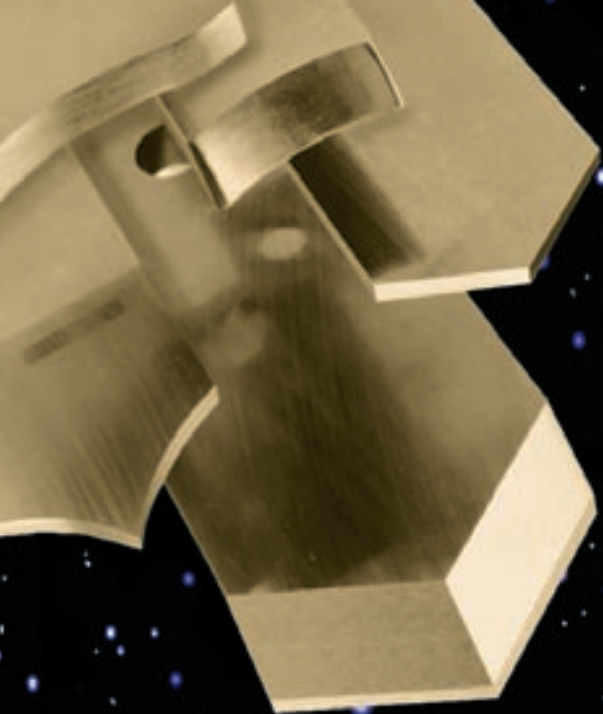
WT: 0.8-45mm



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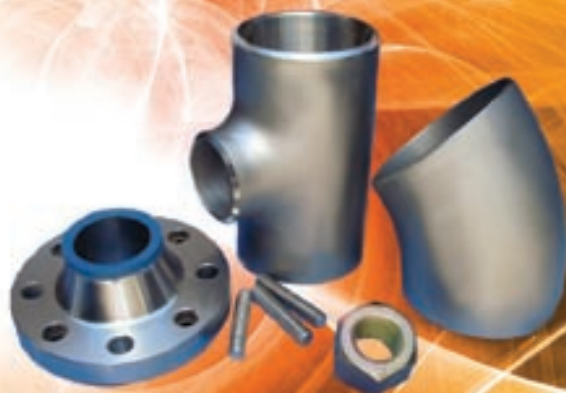




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October 2010

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# Tube Products INTERNATIONAL

The World of Tube & Pipe Products, Materials & Ancillaries

## A vital lifeline



Welcome to the latest issue of Tube Products International.

Tubes and pipes are offering a vital lifeline to the Chilean miners who are trapped for months below ground.

The thirty-three miners trapped 2,300 feet below ground are depending on food, medicine and supplies being dropped to them through a 4-inch-wide tube.

What comes out of that tube will have to sustain the men both physically and mentally for a long time – perhaps four months, experts say – while a shaft wide enough to pull a man through is drilled.

Chilean rescuers at the mine that collapsed last month have already started sending down five-foot long tubes called palomas, or “doves” in Spanish, to the miners. Rescuers have packed the tubes with rehydration tablets and a high-energy glucose serum to nourish the miners’ starved and fragile digestive systems.

Reports also indicate that a long hose was used to line the bore holes with a “metallic gel” to reinforce them and lubricate the passage of the palomas. A hardening material such as gunnite, which sees service in shoring up weak walls in mines, is often used for the same purpose creating what is essentially an ‘instant tube’.

Mine workers often also “case” straight up-and-down bore holes in the US and elsewhere, meaning they insert steel piping down the shafts to insure them against crumbling and to provide a smooth delivery canal to people below.

With three bore holes now functioning, the government has baptised the three tubes. “The first is ‘Hope’, the second ‘Perseverance’, the third ‘The Hand of God,’” said Walter Herrera, the manager of Geotec, a firm which has been instrumental in the drilling. “It was almost impossible to get to the point where we are, we had many problems with [drill holes] deviating. It was God’s will that guided us.”

The drilling of these holes in order to pass pipes down is an incredibly precise business, with even a tiny deviation meaning that the whole and the pipe would emerge many feet from where the miners are located.

The operation, which could take three to four months, will be using the state-of-the-art drill Xtrata, especially brought in from South Africa.

The machine is making an initial hole with a diameter of around 25 centimetres, which will later be enlarged to 66 centimetres. That space would be enough to pull the miners up to the surface.

But drilling that vertical 700-metre hole only solves part of the problem. Rescue teams also have to finish drilling three further holes to fit more tubes into, about 10 centimetres wide, through which they are to provide the miners with further food and water to keep them healthy during their ordeal. We wish them luck.

I hope you enjoy this latest issue of the magazine and please make sure that you send us your latest news for the next issue. The editorial closing date is 26 October. We have features on OCTG and pipeline products, profile materials for tube making and a show feature on Boru 2011 as well as all of the latest industry and technology news.

**Rory McBride**  
Editor

## events calendar

### 2010

**26-30  
October**

**EuroBLECH**  
International Exhibition  
[www.euroblech.com](http://www.euroblech.com)

**2-4  
November**

**Fabtech / AWS Welding Show**  
International Exhibition  
[www.fabtechexpo.com](http://www.fabtechexpo.com)

**30 November –  
2 December**

**Valve World Expo**  
International Exhibition  
[www.valveworldexpo.com](http://www.valveworldexpo.com)

### 2011

**8-11  
January**

**Tekno / Tube Arabia 2011**  
International Exhibition  
[www.tube.de](http://www.tube.de)

**11-14  
January**

**SteelFab (Sharjah, UAE)**  
International Exhibition  
[www.steelfabme.com](http://www.steelfabme.com)

**3-6  
March**

**BORU 2011**  
International Exhibition  
[www.borufuari.com](http://www.borufuari.com)

**23-26  
May**

**Tube Russia**  
International Exhibition  
[www.metallurgy-tube-russia.com](http://www.metallurgy-tube-russia.com)

**13-15  
September**

**Tube Southeast Asia**  
International Exhibition  
[www.tube-southeastasia.com](http://www.tube-southeastasia.com)

**19-24  
September**

**EMO Hannover**  
International Exhibition  
[www.emo-hannover.de](http://www.emo-hannover.de)

**4-6  
October**

**Tubotech (Brazil)**  
International Exhibition  
[www.cipanel.com.br](http://www.cipanel.com.br)

**13-16  
November**

**Fabtech / AWS Welding Show**  
International Exhibition  
[www.fabtechexpo.com](http://www.fabtechexpo.com)

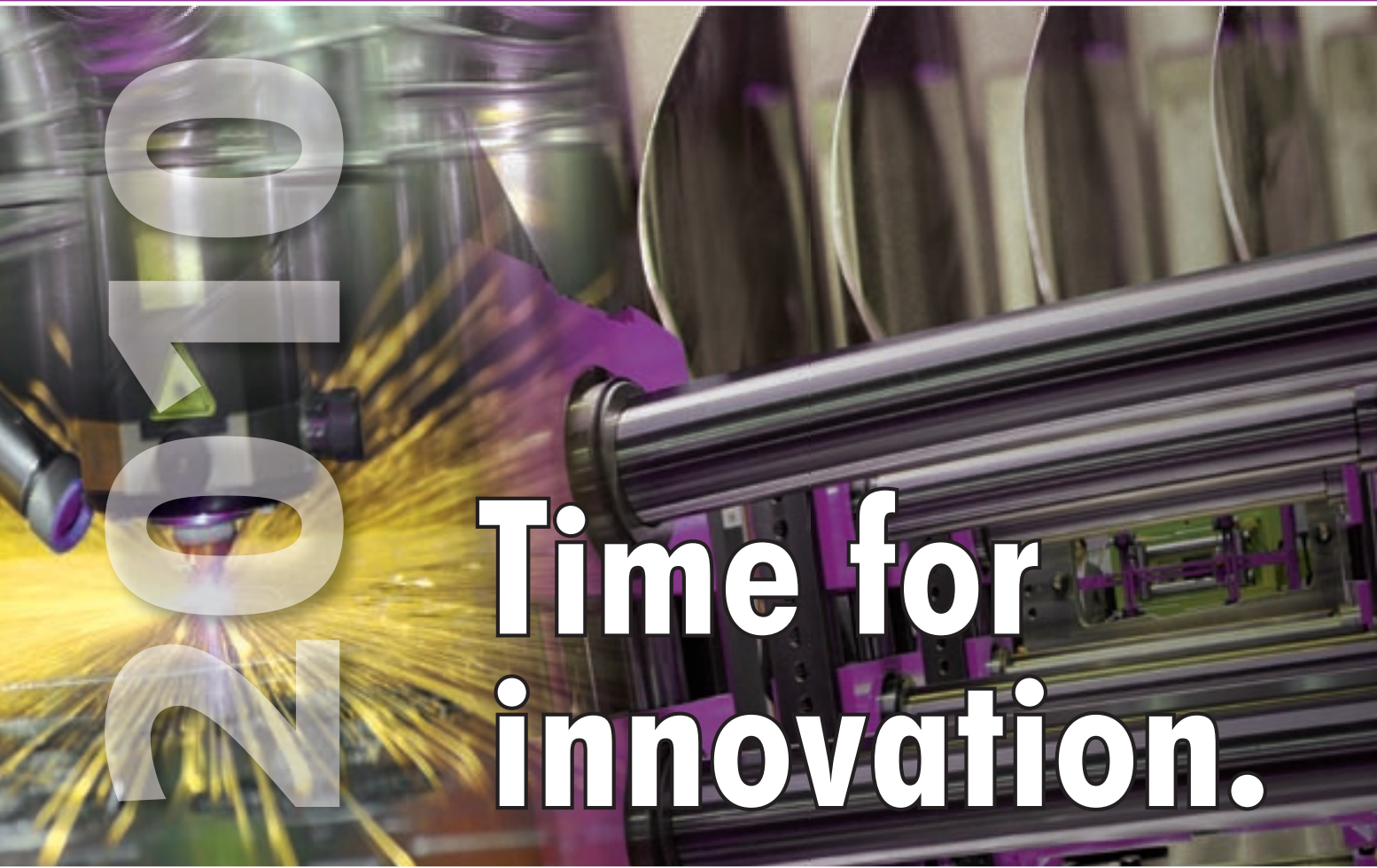
**TBA**

**Tolexpo (Paris)**  
International Exhibition  
[www.tolexpo.com](http://www.tolexpo.com)

*For further information on any of the above events please contact INTRAS Limited UK office (address and contact details on page 4)*



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# business & market news



*Carlo Grossi, Climaveneta CEO and Eurovent president*

## Climaveneta and Eurovent united for efficiency

The general meeting of the association of European manufacturers of air treatment, air conditioning and refrigeration equipment was held in Bruges, Belgium on 28 May. During the meeting Mr Carlo Grossi, vice president of the association and long time member of the board of directors of Eurovent Certification Company, took office as president.

Mr Grossi is Climaveneta SpA chief executive officer and director of the holding company De'Longhi Professional, that manages the activities of B2B De'Longhi Group, focused on solutions for comfort and temperature control in both commercial and industrial processes.

Eurovent is the association representing European industry of HVAC, and is

recognised by the European Commission. Founded in 1958 as CECMA, Eurovent now includes 14 national associations with headquarters in 12 countries and represents more than 1,000 companies.

Eurovent works in a collegial and democratic way – each association is placed on the same level as the others.

In this period of great legislative activity at European level, the Association works because, together with the development of solutions that provide better comfort, there is also constant research for intelligent use of energy.

Eurovent pushes these views within the European Commission, working actively in the drafting of the main directives and regulations on energy efficiency

in buildings, reducing environmental impact and total life cycle of plants.

In 1995 Eurovent founded certification programmes in Europe for the air conditioning industry in order to contribute to the improvement of HVAC products.

Today Eurovent certified performance is recognised as an authoritative certificate in the market, not only in Europe but also worldwide, together with the American AHRI Association. Certification of performance helps end users to choose more efficient solutions, contributing to market development and providing a platform for user evaluations.

**Climaveneta SpA** – Italy  
info@climaveneta.com  
www.climaveneta.com

## CRC-Evans acquired by Stanley Black & Decker

CRC-Evans Pipeline International has announced that CRC-Evans has been acquired by Stanley Black & Decker, a diversified global provider of hand tools, power tools and related accessories, mechanical access solutions and electronic security solutions, engineered fastening systems and infrastructure solutions.

Stanley Black & Decker and CRC-Evans are complementary international companies, and the acquisition should enhance CRC-Evans' global growth strategy and its services to customers

worldwide with expertise, expanded infrastructure, equipment and services.

R&D and technology leadership will continue to be emphasised, and Stanley Black & Decker's resources should enable CRC-Evans to achieve higher performance standards. "Our customers can expect that their relationships with CRC-Evans will not be interrupted," said CRC-Evans CEO Tim Carey. "It's business as usual. Our approach to the business will remain the same, and our operations will continue to be everything they expect – and more."

The acquisition of CRC-Evans is a significant step in Stanley Black & Decker's ongoing strategy to diversify its revenue base and build its Infrastructure Solutions growth platform through acquisitions. CRC-Evans will be an integral part of this platform.

**Stanley Black & Decker – USA**  
www.stanleyblackanddecker.com

**CRC-Evans Pipeline International – USA**  
www.crc-evans.com

## Interpipe opens new warehouse in Kazakhstan

On the back of its new warehouse development programme, steel pipe and railway wheels maker Interpipe has announced the opening of its newest pipe product warehouse in Atyrau, Kazakhstan. In addition to Atyrau, Interpipe has warehouse facilities in both Alma-Ata and Astana.

The new warehouse allows for 3,000 tons of pipe products to be processed

per month. Currently, there are 2,000 tons of pipes loaded at the warehouse.

Commenting on the opening, Vera Smal, director for industrial application sales at Interpipe said, "The opening of a storage platform at Atyrau will help us reduce the delivery terms of pipe products to the western region of Kazakhstan, and also minimise clients' expenses. Interpipe's products are in

demand and the new warehouse will help us satisfy customer's needs in a shorter time."

**Interpipe – Ukraine**  
press-office@interpipe.biz  
www.interpipe.biz

## Flow Smart acquires wire- and fabric-reinforced hose products business

FlowSmart, Inc, specialists in high-purity polymer solutions, has announced its purchase of the wire- and fabric-reinforced hose business from Elkton, Maryland-based Gore PharmBio Products, a division of WL Gore and Associates.

The transition, which is set to occur over the next few months, will see FlowSmart taking over all of the production and sales activities for the wire- and fabric-reinforced hose products. The sale agreement includes the acquisition of Gore PharmBio's existing production equipment for the hoses, as well as the group's current inventory and other peripherals. Additionally, FlowSmart will add key sales and production personnel to its staff.

"FlowSmart will focus on implementing production of the product as it is currently offered," said a company spokesman.

"Once we meet the demands of our supply chain we are planning process changes that will improve repeatability. As with all FlowSmart products, we will then begin adding a multitude of innovative ancillary products."

FlowSmart's principles' recent partnership with Linus Tooling, Inc, a state-of-the-art machine shop, will also aid in integrating the hose-fittings and crimping programme.

**FlowSmart – USA**  
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## Tekno/Tube Arabia

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## Eupora mill wins safety award

Plymouth Tube Co is a global supplier of speciality carbon, alloy, nickel alloy, and stainless steel tubing for mechanical, pressure, boiler and hydraulic applications.

The company's Eupora mill has won the Fabricators and Manufacturers Association/CNA Insurance Safety Award of Honor, in recognition of its perfect safety records and zero recordable injuries for the reporting period. The Eupora mill, manufacturer of HydraBrite® and DOM mechanical tubing, continues to celebrate 849 days of no lost time or recordable injuries.

Gerald Shankel, president and CEO of FMA, stated, "Plymouth Tube Company has demonstrated its commitment to recognising employees' safe work habits, stimulating interest in accident prevention, and promoting safety in the workplace."

In 2009 the Eupora mill received the *Tube & Pipe Journal's* TPJ Industry Award, which further reflected its success in operations, the marketplace and community involvement.

**Plymouth Tube Co – USA**  
info@plymouth.com • www.plymouth.com

## Welspun Gujarat Stahl Rohren becomes Welspun Corp Ltd

Welspun Gujarat Stahl Rohren Ltd, the flagship company of Welspun Group, has unveiled its new global corporate identity: Welspun Corp Ltd.

Since its inception, Welspun has been constantly evolving and responding to the dynamics of the market, from keeping up with the latest technology to servicing the world's largest oil & gas and retail companies. In the last three months, following internal research, brainstorming and consultations, the company decided that the words Gujarat and Stahl Rohren ('Steel Pipe' in German) are no longer relevant in today's context, and that the name is not contemporary and does not represent the company's international reach. The company's businesses include backward integration of steel plates and coils; oil and gas exploration; and a foray into the infrastructure and energy business.

Welspun Corp Ltd has supplied pipes for prestigious projects, including pipeline projects in the Gulf of Mexico, USA and other critical projects across the globe. Welspun's plate, coil and pipe plants are located in Dahej and Anjar in Gujarat, India, and Little Rock in Arkansas, USA. The company has also set up a spiral pipe mill in Mandya, Karnataka, India.

**Welspun Corp Ltd – India**  
www.welspun.com

## First major order for 6" push-fit pipes

Iron technology solutions provider Saint-Gobain PAM UK has secured its first major order for its 6" diameter Eezi-Fit range of push-fit cast iron above ground drainage pipes. The product is being used to refurbish the sanitary soil stacks at United House, a major residential development in Hastings, England, which consists of four 13-floor blocks, with each block containing 96 flats. The product was approved by consultant McCourts, following extensive trials on a three-floor stack in Eastbourne.

**Saint-Gobain PAM UK**  
www.saint-gobain-pam.co.uk



Saint-Gobain's 6" Eezi-Fit range

## Interpipe passes audit

Interpipe Niko Tube has successfully passed the second audit for pressure-operated pipes and vessels. The audit was carried out according to the demands of the European Equipment Directive, Pressure Equipment Directive 97/23/EC, and German instructions for pressure-operated capacities and boilers, AD 2000 – Merkblatt W0. The audit was carried out by the international certifying agency TUV NORD Systems GmbH (Hamburg, Germany).

The TUV NORD certification demonstrates that Interpipe Niko Tube has all the necessary conditions for the production of pressure-operated pipe

such as qualified personnel, modern equipment and a quality management system for the production of pipe with special application.

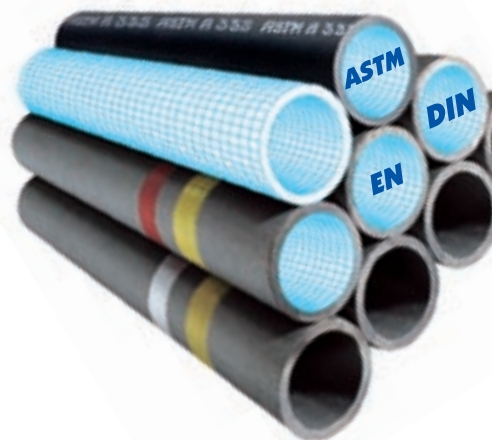
Andrey Bibik, director for machinery and power sales at Interpipe, commented, "Interpipe has passed the TUV NORD audit for pipes and vessels many times. The first audit pertaining to the European Equipment Directive was passed by Interpipe Niko Tube back in 2002, and AD 2000 in 2004. This certification is a necessary demand of the market in which we work and demonstrates the trust of buyers not only in Europe, but in the whole world."

Interpipe is also building an electric arc furnace at Interpipe Steel (Dnepr steel) with a capacity 1.3 million tons of steel per year. The company's products are in compliance with API 5L PSL1/PSL2, API 5CT, ASTM, EN (DIN), NF, GOCT, AAR, UIC, and European norms. The quality management system is in compliance with ISO 9001, ISO 14001, API Spec Q1 and ДСТУ ISO 9001.

The company's mills are located in the Dnepropetrovsk region of Ukraine.

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## Ductile iron takes to the road

Ductile iron's suitability as a material for water and sewer pipe applications is to be taken the length and breadth of the UK thanks to an initiative from iron technology leader Saint-Gobain PAM UK. The company has developed a platform to take the ductile iron story direct to key decision-makers in the water industry and to demonstrate its abilities.

The iTEK Roadshow is a fully liveried demonstration vehicle which opens out like an exhibition stand and uses the latest communication techniques to demonstrate, in a highly visible and interactive way, the benefits of ductile iron and the quality, innovation and technical expertise of Saint-Gobain.

The display explains how ductile iron is different, why it should be specified, its durability, and how its cost, environmental attributes and performance compare with other materials. Touch screen technology allows visitors to see for themselves the latest innovations in action.

Paul Hancock of Saint-Gobain PAM UK explained, "Modern ductile iron is realistically the only material that can cope with any demand in pipeline applications. Recent innovations, based on extensive research and

development, have created advanced solutions which offer optimum durability and performance alongside ease of installation and cost-effectiveness."

Companies interested in a visit from the iTEK Roadshow should telephone Saint-Gobain PAM UK on +44 115 930 5000, to speak to a member of the technical support team.

**Saint-Gobain PAM UK**  
[www.saint-gobain-pam.co.uk](http://www.saint-gobain-pam.co.uk)



*The iTek Roadshow demonstration vehicle from Saint-Gobain*



## Kuwait Pipeline Technology Conference & Exhibition

The Kuwait Pipeline Technology Conference & Exhibition, to be held at the Hilton Hotel, Kuwait, 6 & 7 October 2010, is a new international platform for products, systems and services relating to the transport of oil, gas and water.

The focus will be on the entire value added chain, from planning, construction and operation to maintenance and repair.

The conference will provide participants with practical solutions for effective planning, design, construction,

operation, corrosion, mitigation and maintenance strategies applied to state-of-the-art pipeline networks.

The conference will also present detailed information and techniques needed to overcome pressing challenges in effective planning and management of pipeline systems.

The Pipeline Technology Conference combines all pipeline related topics, including: manufacturing materials and technologies; pipeline project management; design and construction; rehabilitation and maintenance; GIS/

database development; pipeline integrity management; pipeline automation and measurement; risk and reliability; protection, corrosion and monitoring systems; and standards and regulations.

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## Thomas & Betts board elects corporate executive officer

Thomas & Betts Corporation has announced that Peggy Gann, who joined the company in April as senior vice-president, human resources and administration, has been elected by the board of directors as an executive officer of the corporation.

Ms Gann will report to Dominic J Pileggi, chairman and chief executive officer, and will be responsible for developing and directing Thomas & Betts' global human resources organisation.

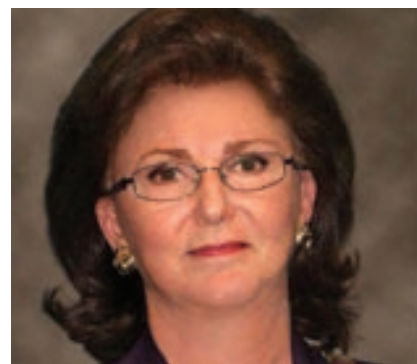
"Peggy brings a wealth of industry experience and a successful track record of designing and leading human resources systems that drive business results," said Mr Pileggi. "She will be a valuable addition to our management team as we continue to grow our leadership in global electrical markets."

Prior to joining Thomas & Betts, Ms Gann spent 20 years with Schneider Electric's North American division, most recently as senior vice president of human resources and administration. Earlier in her career, she held a variety of human resources positions at the Johns Manville Corporation. She earned a Master's degree in business administration from the Lake Forest Graduate School of Management and a Bachelor of Science degree from Barat College.

Thomas & Betts Corporation has three primary businesses: the design, manufacturing and marketing of electrical components used in industrial, construction, utility and communications markets; the design, manufacturing and marketing of highly engineered tubular steel structures used for the transmission of electrical power; and the design,

manufacturing and marketing of heating and ventilation products for commercial and industrial buildings. Headquartered in Memphis, Tennessee, the company has manufacturing, distribution and office facilities worldwide.

**Thomas & Betts Corporation – USA**  
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Senior vice-president Peggy Gann



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*Progress Through Co-operation*

# Pure closes acquisition of Pressure Pipe Inspection Company

Pure Technologies Ltd has announced that it has concluded the purchase of The Pressure Pipe Inspection Company (PPIC) for up to CAD\$34.9mn in cash and common stock of Pure.

PPIC, a privately-held company with headquarters in Mississauga, Ontario, is a leader in large-diameter water and wastewater pipeline condition assessment. PPIC is currently active in North America (including Mexico), South America, the Philippines and Hong Kong.

The base purchase price is \$30mn with provision for a maximum additional payment of \$4.9mn should PPIC generate revenues of \$24.9mn for the fiscal year ended 30 September 2010. The amount of the additional payment will be reduced on a dollar-for-dollar basis for every dollar that fiscal 2010 revenues fall short of \$24.9mn. The

purchase price is based on a PPIC working capital balance of \$800,000 at closing and will be adjusted up or down on a dollar-for-dollar basis depending on the actual working capital at closing. Consideration paid at closing was \$8,955,776 in cash and Pure issued 3,782,476 shares valued at \$4.44 per share, which was negotiated as part of the transaction. This consideration is net of a holdback amount, which when released, would be paid in cash in the amount of \$800,551 and a further 776,903 shares. Any additional payments will be paid approximately 29% in cash and 71% in Pure common stock with an attributed value of \$4.44.

Dr Brian Mergelas, formerly the chief executive officer of PPIC, is now Pure's senior vice-president, corporate strategy & development. Dr Mergelas has published over fifty papers in academic and industry journals, and is a recognised expert in the field of pipeline condition assessment. He will be a key contributor to shaping Pure's strategic direction and in identifying future opportunities to grow Pure's business.

Commenting on the transaction, Pure's chief executive officer, Mr Peter Paulson, said, "This is a significant milestone for Pure and for the international water technology sector. The combined Pure/PPIC entity will be a world leader in the field of condition assessment and asset management for water and wastewater pipelines. We are excited about the opportunity to work with Dr Mergelas and his team as we continue to build awareness of the need for cost-effective strategies and solutions for the enormous challenges facing pipeline operators around the world."

"Working together, we will be able to deliver a cohesive and powerful message to the industry about the value of technology-driven proactive asset management. We are also looking forward to working with PPIC's research and development team to accelerate the introduction of new condition assessment tools for pipelines."

**Pure Technologies Ltd** – Canada  
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# Interpipe addresses World Steel Conference

Duncan Pell, commercial director of Interpipe, took part as a speaker at the 16<sup>th</sup> World Steel Conference, held in March in Sharm El Sheikh, Egypt. The conference analysed investment in the steel industry, with particular focus on long, flat, raw materials and end-user markets.

Mr Pell gave a presentation on the 'OCTG and line pipe markets', and spoke about the key trends on the global pipe market, evaluating its size and the key market drivers, as well as making forecasts. He outlined that industry players may feel the market recovery by 2011 with consumption returning to 2007 levels. Mr Pell identified South America, North Africa and the Middle East amongst high growth regions.

Giving a comprehensive overview of the OCTG and line pipe market, Mr Pell said, "The increase in the prices of oil and gas, together with demand growth, will lead to improved exploitation activities, the development of distribution infrastructure and new challenging exploration locations."

"All these factors will greatly influence OCTG and line pipe markets, introducing higher requirements and specifications for suppliers. I believe Interpipe is able to meet these high standards delivering high quality products to its customers."

**Interpipe** – Ukraine  
press-office@interpipe.biz  
www.interpipe.biz





# HEBEI WENLONG PIPELINE EQUIPMENT CO.,LTD



PRODUCT RANGE:	MATERIALS:	STANDARD:
ELBOWS--LR 45DEGREE, 90DEGREE RETURN BENDS--LR SR 180 DEGREE TEES: STRAIGHT AND REDUCING REDUCERS--CON & ECCENTRIC SEAMLESS FITTINGS DIMENSIONS: 1/2"--40" SEAM WELDING FITTINGS DIMENSIONS: 26"--96"	A234-WPB, WPC, WP1, WP5, WP9, WP11, WP12, WP22, WP91, A860-WPHY42, WPHY52, WPHY60, WPHY65, WPHY70, WPHY80 A420-WPL3, WPL6, WPL9, WPL8 A403-WP304L, WP304, WP304H, WP316, WP316L, WP316H	ANSI B16.9, ANSI B16.28, MSS-SP-75 DIN2605-1, DIN2616-2, DIN2615-1, DIN2615-2 DIN2616-1, DIN2616-2 EN10253-1, EN10253-2



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## Metals firm wins energy conscious award

Bushwick Metals LLC, Bridgeport, Connecticut, is a distributor of carbon steel, high strength, low alloy steel, stainless steel and speciality products. The firm is an affiliate of Marmon/Keystone LLC of Butler, Pennsylvania, a distributor of steel and aluminium tubular products.

The Connecticut Energy Efficiency Fund (CEEF) has presented Bushwick Metals with an incentive cheque of \$14,067 for its participation in the Energy Conscious Blueprint programme.

Bushwick Metals installed 25 light pipes during a recent roof replacement, which offers ambient light to a portion of the warehouse at its facility. The light pipes are actually dome-shaped skylights

installed in the roof. This lighting technique lessens the need for electrical lighting during the day. Even on overcast days, the light pipes replace the need for 25 400W metal halide fixtures.

The light pipes will save Bushwick 33,375kWh annually, with an expected lifetime savings of 500,625kWh. Orion Energy Systems of Manitowoc, Wisconsin manufactured the lighting system.

“The new light pipes will not only help to reduce expenses at Bushwick, they also have a positive impact on the environment,” said John Schudy, director of operations, Bushwick Metals. “While it was the energy reduction and environmental benefits that drove

this project, we also achieved a more efficient work area. Our employees overwhelmingly prefer working under the brighter natural light and this factor alone has increased productivity.”

Bushwick Metals intends to pursue additional energy saving measures for the remainder of the facility, and is currently reviewing high efficiency lighting retrofit options for its existing high bay fixtures and additional light pipes for a second section of the facility.

**Marmon/Keystone LLC – USA**  
[www.marmonkeystone.com](http://www.marmonkeystone.com)

**Bushwick Metals LLC – USA**  
[sales@bushwickmetals.com](mailto:sales@bushwickmetals.com)  
[www.bushwickmetals.com](http://www.bushwickmetals.com)

## Copper tube continues to shine

Following the success of Yorkshire Copper Tube’s visit to PHEX in April, the company has signed up to the Manchester and Chelsea events. It will exhibit at Old Trafford on 13 and 14 October and at Stamford Bridge on

23 and 24 November, as part of its 60<sup>th</sup> anniversary celebrations of successful manufacture in Kirkby, Liverpool.

The copper tubing specialist, which supplies products to companies across

the globe, will be showing its range of plain, plastic coated and special finish copper tube, which are suitable for diverse applications such as gas, water and sanitation systems.

A team of Yorkshire’s expert technical staff will also be on hand to talk visitors about the benefits of using copper tube, and to answer any questions. There will also be competitions and giveaways during the exhibition, where installers will get the chance to win polo-shirts, fleeces, torches, tube cutters, umbrellas and more.

Yorkshire Copper Tube combines advanced manufacturing methods and sophisticated quality control techniques to ensure that only consistently high standard tubes are supplied to customers. The company is a member of the KME Group of companies, which together represent Europe’s largest producer of copper and copper alloy materials.

All of Yorkshire’s copper tubes carry the British Kitemark, and the company’s quality management system is BS EN 9001 approved.

**Yorkshire Copper Tube – UK**  
[info@yct.com](mailto:info@yct.com)  
[www.yorkshirecopper.com](http://www.yorkshirecopper.com)

*Uncoated coils  
from Yorkshire Copper Tube*



## Four trade fairs to run concurrently in India from 2012

Starting in 2012, India's leading trade fairs for the metal, wire, cable and tube industries and for welding and cutting will be taking place concurrently. From 29 to 31 October 2012, trade fair visitors will have the opportunity in Mumbai to gain an unparalleled overview of a comprehensive international range of products and services.

To better exploit the synergies between the individual product areas, Metallurgy India – International Exhibition on Metallurgical Technology Products and Services in India, Tube India International – All Indian Exhibition and Conference for the Tube and Pipe Industries, and Schweissen & Schneiden India – International Trade Fair Joining-Cutting-Surfacing, will be switching from the spring to the autumn, and will be organised in the Bombay Exhibition Centre to run parallel to Wire & Cable India, the trade fair for machinery and equipment for the wire and cable industry.

All four of these trade fairs will attract great interest on the Subcontinent, as India is one the most important steel producing regions in the world and ranks among the global top ten for steel processing and steel usage.

The exhibitions are organised by Messe Düsseldorf and its subsidiary Messe Düsseldorf India as well as Messe Essen, and are supported by the major international industry associations, including the International Wire & Machinery Association and the International Tube Association.

Schweissen & Schneiden, which is held every four years in Essen and attracts more than 1,000 exhibitors and over 60,000 trade visitors, is the most important event in the welding specialists' calendar. This world-class trade show has been present in the Indian Subcontinent since 2003, and events are also held in China and Russia.

Messe Düsseldorf organises wire and Tube, the leading global trade fairs for the wire, cable and tube industries. Every two years, these events draw more than

2,000 exhibitors and over 70,000 visitors to Düsseldorf. The range for this sector also includes important regional trade fairs which Messe Düsseldorf stages in the growth markets of Southeast Asia, China and Russia.

**Messe Düsseldorf** – Germany  
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www.messe-duesseldorf.de

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# Simona reports growth in sales volume and revenue

Simona AG is a manufacturer of thermoplastic products, including semi-finished products (sheets, profiles, welding rods), pipes, fittings and finished parts.

Benefiting from a resurgent economy, particularly in the area of mechanical engineering, automotive and chemicals, the Simona Group recorded a significant increase in sales volume over the course of the first half of 2010.

After a relatively sluggish start to the year, the group was able to achieve double-digit growth from March 2010 onward. In total, revenue amounted to €129.7mn, compared to €106.3mn in the previous year, which corresponds to year-on-year growth of 22%.

As at 30 June 2010, EBIT (earnings before interest and taxes) stood at €6.1mn, up 73% on the same period a year before. Owing to the spiralling prices

for polyethylene and polypropylene, however, margins declined over the same period. The company attributed the growth in earnings to, among other things, a more expansive volume of business and the continuing commitment to cost streamlining, which resulted in a €3.6mn reduction in operating expenses.

Total assets rose by €12.2mn compared to 31 December 2009. The decline in cash and cash equivalents by €22mn was due to a marked increase in receivables on the back of more buoyant business as well as an investment of €10mn made in fixed-interest securities.

The economic climate improved considerably for Simona, particularly in Asia. At the same time, both the plant engineering sector and the chemical industry in Germany showed encouraging signs of improvement. All sales regions served by the Simona

Group achieved double-figure growth, with 'Asia, the Americas and Australia' proving by far the most buoyant. "The official inauguration of our new Chinese plant in April 2010 serves as evidence that we are on the right track," commented Wolfgang Moyses, CEO of Simona AG. "Operating with our own local production facility, we are able to support our customers' regional growth more effectively and with greater speed and flexibility."

**Simona AG** – Germany  
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Stainless Steel: A403 WP304L,316/L...

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# Revenue recovery in Q2 after difficult start to year

Wavin NV, a supplier of plastic pipe systems and solutions in Europe, has announced its first half year 2010 results.

Revenue in the first half year increased 3.8% to €594mn. The weakening of the Euro had a positive 2.9% impact, as more than half of Wavin's revenue is sold in non-Euro countries. Adjusted for the exchange rate impact, like-for-like growth was 0.9% in H1. Following the slow start of the year, revenue in the second quarter picked up well. After nine consecutive quarters of decline, like-for-like revenue was up 5.4% in Q2.

Market trends in Europe over the first half year differed substantially per geography. Noticeable recovery was seen in the UK, Scandinavia and in emerging markets like Poland and Turkey. Developments in markets like the Netherlands and Italy but also some Eastern European economies still showed a downward trend.

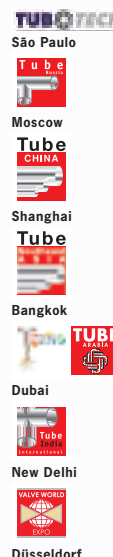
The Civils & Infrastructure business unit (below ground activities) was severely impacted in Q1 by the strong winter but enjoyed a solid performance in the second quarter. Revenue was up 2.6% to €349.8mn in H1. The increase in Q2 was a strong 10.6%, partly due to catching up on postponed activity in the first quarter.

Revenue in Building & Installation (above ground activities) grew 5.4% to €233.9mn, in spite of the fact that the number of housing starts remained low.

Philip Houben, Wavin CEO, commented, "After a very slow start of the year because of heavy winter conditions, it was certainly encouraging to see solid sales growth in the second quarter after more than two years of unprecedented market decline. Below ground activities picked up well as backlogs in infrastructural and civil works were partly recovered when the weather improved. Our above ground business showed a steady uptick in both quarters. As far as geographies are concerned, we saw a clear recovery of construction markets in the UK, Scandinavia, Poland and Turkey. In other countries the pace of improvement was moderate, whilst markets in Italy, Netherlands and some Eastern European economies were still in decline."

Mr Houben continued, "A strong increase of raw material prices, which usually takes 3-6 months to be passed on to the market, puts pressure on our margins. The savings of our cost reduction programmes largely offset this negative effect. Although there are increasing signs of a pick up, we remain cautious about our outlook as the pace of recovery in the European construction markets is still fragile and it takes time to pass on raw material cost increases. Nevertheless we are confident of realising top line growth this year and net profit will be significantly ahead of 2009."

**Wavin NV** – The Netherlands  
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# products & developments



*Dhattec's Pipe Raiser system places one pipe above another, to reduce the width of the total load*

## 'Pipe Raiser' cuts transport costs in half

The European guideline 96/53 for transportation limits the width of loading on trucks to 2.55m. This results in individual pipe transports for diameters above 50". Feeling responsible to increase the safety and efficiency in the logistics of line pipes, Dhattec BV found a solution. By raising one pipe above the other, the width of the total load can be reduced. The 'Pipe Raiser' allows for two pipes of 50" to 60" on one truck, and thus reduces necessary transports by half.

Is the new 'Pipe Raiser' system safe? According to the TÜV Nord it is. Thorough testing was arranged with the help of Wagenborg and Europipe who provided the truck and pipes. In Dreierwalde, Germany, the system was tested

according to the VDI 2700 standards during two days. The police witnessed the tests that included front and back braking, S-curves and U-turns in both directions. The necessary G-forces for non-linear motion were reached in all directions (0.5G to each side, 0.8G to the front, 0.5G to the back).

The U-turns, in which the truck would have keeled over if it weren't for the supporting wheels, were described as being spectacular.

The Pipe Raiser and the pipes, however, remained in place at all times. The trustworthy system together with supporting calculations convinced the TÜV Nord that the 'Pipe Raiser' is safe for road traffic. For this innovation, which

improves worldwide pipe transport, Dhattec received a TÜV certificate.

The 'Pipe Raiser' is an extension of Dhattec's system for pipe transport, 'System88'. All of Dhattec's products aim to ensure the quality of line pipes throughout the logistic process from manufacturing to coating, transport, storage, handling and construction. In addition, Dhattec assists project managers to organise the logistics of pipeline projects. The company's knowledge and experience provides project managers with advice for damage prevention and on-site safety.

**Dhattec** – The Netherlands  
info@dhattec.nl  
www.dhattec.nl

## First of a kind laser tube cutting system installed in Ohio

Ohio Laser LLC is adding a new 3600 Watt Trumpf TruLaser 7000 laser tube cutting system to its high-tech metal fabrication business. Industry experts consider this laser tube cutting system to be one of the most advanced in the world, and it is the first system of its kind in Ohio and the Midwest.

The new laser tube cutting machine can process round, square and rectangle tubes and pipes from 0.6" to 10" in diameter and up to 1/2" wall thickness. The German-built machine can handle tubes up to 30ft long weighing a maximum of 500lb. Ohio Laser's system includes an automated loading system that handles up to 8,000lb of tubes at a time, allowing it to operate hours at a time without a worker present.

Other automated features include parts programming for quick set-up times when changing jobs. The advanced tube cutting technology features self-centring chucking jaws that do not need to be changed, and rollers that

guide the tubes through the machine and automatically adjust to their diameter. The system's laser focal point automatically adjusts to the material type and thickness of the tubes in the system at any given time. The machine's software also independently adjusts to the focus parameters, eliminating any set-up time.

Some of the key laser tube cutting and pipe cutting benefits include almost unlimited cutting configurations, elimination of stack up tolerances inherent in multiple operations, no tooling charges, reduced lot sizes and processing of a wide variety of metal alloys. The kink or plug in connections which this tube cutting system can generate also reduce weld fixture costs and increase production output.

Manufacturers in many industries can benefit from this leading-edge industrial tube cutting technology by outsourcing their work to Ohio Laser for production of frames, racks, supports, trusses,

manifolds or any other item made from cut tubes. Common products produced using this laser tube cutting technology include outdoor sign frames, hand railing, ornamental railing, point of purchase displays, sign stands, medical carts, industrial tables, display cases, roll bar cages, conveyer tubes, shelving and racking systems.

The new tube cutting technology combined with Ohio Laser's recent ISO 9001:2008 certification complements the company's current ability to provide laser cutting, tube cutting, pipe cutting and value added fabricating services. This includes engineering with 2D, 3D CAD/CAM drawings, PPAP Level I to Level IV, GMAW welding, FCAW welding and GTAW welding, bending, machining, heat treating and finishing, water jet cutting services, and sanding and grinding.

**Ohio Laser LLC – USA**  
sales@ohiolaser.com  
www.ohiolaser.com

## TÜV-certified system for high pressure applications

The egeplast HexelOne® Raised Pressure system has been certified as a complete system by the TÜV SÜD for use where there are increased operating pressures.

HexelOne pipe is a self-reinforced high pressure pipe, a mono composite made solely from polyethylene. This reinforcement makes new areas of application possible in the high pressure area, for operating pressures above applications previously covered using PE pipes. egeplast states that the

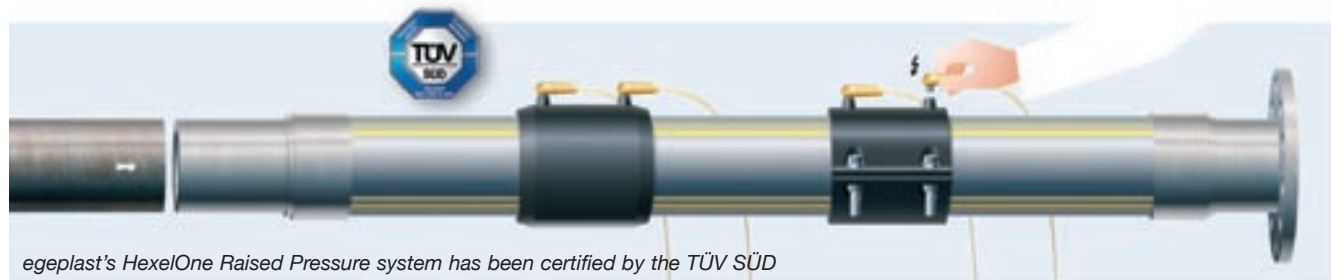
pressure resistance is double that of earlier polyethylene pipes.

The homogeneous material in the PE high pressure pipe has three functional layers. These facilitate medium durability due to PE 100-RC in the inner layer, enhanced pressure resistance due to a medium layer made of stretched PE 100, and a tried and tested weld property in compliance with DVS due to the outer layer made of PE 100. The dimensions of the pipe correspond to valid European standards.

The certification of the HexelOne Raised Pressure system for the dimension 110x10mm includes the pipe and a complete system with mechanical and welded connections and transition of materials to traditional materials.

The first HexelOne projects have been completed successfully.

**egeplast Werner Strumann GmbH & Co KG – Germany**  
info@egeplast.de  
www.egeplast.eu



egeplast's HexelOne Raised Pressure system has been certified by the TÜV SÜD

## Inauguration of Bihar Tubes Ltd Unit-II

Bihar Tubes Ltd (a unit of the Sudesh Group) has been a leader in the Indian tube industry for the last two decades, and is one of the few organisations that makes all types of tube (ie black round/hollow section, hot dip galvanised

round/hollow and pre galvanised round/hollow tubes).

Started in 1986, Sudesh Group until recently consisted of four companies (Bihar Tubes Ltd, Apollo Metelax and Apollo Pipes in North India, and Shri Lakshmi Metal Udyog Ltd in South India), manufacturing 13,000 MT/month of round and hollow sections in the size range ½" to 12".



Sudesh Group recently inaugurated its fifth unit – Bihar Tubes Ltd Unit II at Hosur (TN), South India, with the

*Bihar Tubes is increasing its manufacturing capacity with a new production unit*

commissioning of a ½" to 12" tube mill (capacity 4,000 MT/month), along with finishing equipment. Installation of a 2" to 6½" tube mill (capacity 9,000 MT/month) is in progress and production was planned to start in June 2010.

A 4" to 12" tube mill and a hot dip galvanising plant were planned to be commissioned by August/September 2010. This will complete the first phase of the unit, taking the production of the group to more than 30,000 MT per month. In the second phase, an 8" to 20" or 24" API tube mill is planned to be set up, along with finishing equipment and coating line.

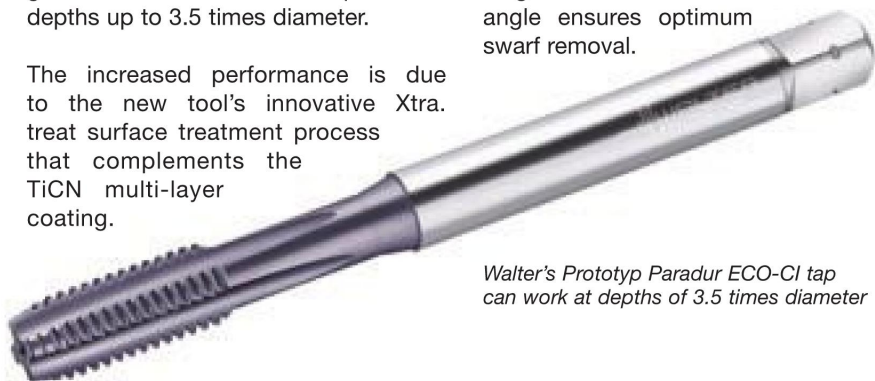
**Bihar Tubes Ltd – India**  
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www.bihartubes.net

## Taps offer cast iron savings

The Prototyp Paradur ECO-CI tap from tooling company Walter GB offers a route to fast and cost-effective thread generation in cast iron workpieces to depths up to 3.5 times diameter.

The increased performance is due to the new tool's innovative Xtra. treat surface treatment process that complements the TiCN multi-layer coating.

The resulting edge hardness increases the tap's resistance to abrasion, which equates to higher operating speeds and longer tool life. The tool's small rake angle ensures optimum swarf removal.



*Walter's Prototyp Paradur ECO-CI tap can work at depths of 3.5 times diameter*

As standard the Prototyp Paradur ECO-CI HSS-E-PM tap is available in a range of styles – M3 to M30, MF M6 x 0.75 – M30 x 1.5, UNC6 – UNC7/8, UNF6 – UNF 7/8 and G1/8 – G1.1/2.

Able to accommodate dry machining, the tap is also available in designs having axial or radial coolant supply, as well as in a short chamfer variant for effective thread generation at the bottom of the drilled hole.

**Walter GB Limited – UK**  
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## Steel tubes from China

Huacheng Corporation mainly specialises in the manufacture and marketing of precision cold drawn/rolled seamless, cold drawn welded, electrical resistance welded and special shape steel tubes to EN, ASTM, ASME, DIN, BS, JIS, GB and other standards. The size range is 6 to 114.3mm OD, 0.8 to 15mm wall thickness, with a maximum length of 24m.

Huacheng has five mills with a total capacity of 60,000 tons of cold drawn/rolled seamless steel tubes, 50,000 tons of electrical resistance welded steel tubes, 30,000 tons of cold drawn welded (DOM) steel tubes and 30,000 tons of cold drawn special shape/large diameter steel tubes. The tubes can be widely used in power plant boilers, heat exchangers, automobile

components, mechanical structures, bearing machining, ship-building, bridge construction, petroleum exploration, transportation and other related fields.

**Jiangsu Huacheng Industry Pipe Making Corporation** – China  
beststeel@gmail.com  
www.hc-pipe.com

## Bevelling benches for use on- and off-shore

Protem specialises in the design and manufacture of portable pipe-end preparation tools such as pipe bevelling, tube cutting and surfacing machines, ranging from 3 to 3,600mm OD. The company also designs specific

machining and welding equipment according to customer needs.

The company's electric BB machine can be used either on-site or in the workshop. The heavy duty beveller will

bevel, face and counterbore heavy wall pipes individually or simultaneously. It will perform repeatable high quality weld preps on most metal pipes including stainless, duplex, super duplex from 3" to 16" outside diameter (88.9 to 406mm), or from 12" to 24" outside diameter (323.9 to 610mm).

The bench beveller can be fixed to the floor and is easily installed. It clamps the outside diameter of the pipe, and can be controlled by one operator. Used with an optional profile tracking device, it will machine oval pipes, leaving a root face of a consistent width, which is required when using orbital welding heads.

**Protem SAS** – France  
contact@protem.fr  
www.protem.fr

**Protem GmbH** – Germany  
info@protem-gmbh.de  
www.protem-gmbh.de



*Protem's BB machine for outside diameters from 3" to 16"*

## ERW mechanical steel tubes

Tubular Steel Inc is a precision ERW mechanical steel tube producer with two locations in Toronto, Canada.

The company is able to roll mild steels, high strength low alloy, ultra high strength low alloy, and dual phase materials with outside diameters from 8 to 76.2mm, and gauges from 0.7 to 3mm.

Tube mills designed with the company's tube fabricating customers in mind allow Tubular Steel Inc to offer tight tolerances, whether the tube is round,

square, rectangle, or one of the company's unique shapes.

Tubular Steel's extensive R&D efforts allow it to process ultra high strength and dual phase materials to help customers achieve their goals in reducing the weight of their products. Small diameter, heavy wall tube is a speciality. The company can manufacture tube without secondary straightening at 12mm OD and 2.5mm wall thickness in any weldable grade up to 800 MPa tensile strength.

Tubular Steel currently supplies automotive, healthcare, lawn and garden, fitness, furniture and other industries. The company's employees are able to work with tube fabricators on solutions to their process challenges. State-of-the-art equipment, ISO/TS-16949 certification, unique tooling design, and a well-equipped quality lab are also part of the company's success.

**Tubular Steel Inc** – Canada  
tsi@tubularsteel.ca  
www.tubularsteel.ca

## History of copper tube on CD-ROM

Yorkshire Copper Tube is releasing a CD-ROM as part of its celebration of the 60<sup>th</sup> anniversary of manufacturing copper tube in Kirkby, near Liverpool, England.

Packed with information about what the company does and how it does it, the disc includes a timeline that pinpoints landmarks in the company's history and an animated video journey through the state-of-the-art production plant.

Yorkshire's roots date back to 1864, when it started life as Broughton Copper Company in Salford, Manchester.

The timeline starts here and highlights milestones such as the decision to build the Kirkby plant in 1948, and the addition of the multi-million pound, 5,000 tonne press in 1981, which is still in operation today.

Viewers can learn how copper tube is produced from half tonne copper billets, see the impressive spinner blocks and get an insight into the rigorous quality control processes.

In addition, all of Yorkshire Copper Tube's company and product literature is included on the CD.

Jack Wallace, Yorkshire Copper Tube's sales director, commented, "Our milestone anniversary

has been very exciting and feedback we have had about the CD-ROM so far has been fantastic. It is a more interactive way of telling people about the company and its history and we are thrilled with the end result."



*The Yorkshire Copper Tube CD-ROM*

A copy of the CD can be obtained by emailing [yorkshire@icgonline.co.uk](mailto:yorkshire@icgonline.co.uk)

**Yorkshire Copper Tube – UK**  
[info@yct.com](mailto:info@yct.com)  
[www.yorkshirecopper.com](http://www.yorkshirecopper.com)

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## Elastopipe ensures fire protection on Maersk FPSO



Trelleborg Offshore has installed its Elastopipe™ corrosion-free fire safety deluge system, to replace the existing carbon steel pipework on seven modules, on Maersk's Ngujima-Yin, a floating production storage and offloading (FPSO) vessel. The system was installed in under three months, without disrupting the vessel's oil and gas production schedule.

The Maersk Ngujima-Yin commenced operations at Woodside's Vincent field, offshore Western Australia, in 2008. With a daily production capacity of 120,000 barrels of oil and 100 million standard cubic feet of gas, the Ngujima-Yin is the largest FPSO in Australian waters and the largest FPSO in the Maersk fleet.

Christian Eilersen, director FPSO projects, Maersk, commented, "Trelleborg provided the complete survey, design, engineering, supply and installation package, as well as removing the old installation. It was important that operation of the FPSO was not affected in any way, and that safety was considered of paramount importance. Trelleborg ensured not only a quick and effective, but also safe installation."

The existing carbon steel seawater deluge system on the seven-module FPSO vessel had corroded over the two years since its installation. The system

required constant maintenance, cleaning and testing, and a replacement was required to reduce the long-term cost of ensuring essential fire protection.

The challenge with the installation was to replace the existing fire protection throughout the FPSO modules, without affecting the safety of the vessel as it continued output. The system required 1,687m (5,535ft) of pipe work, in diameters from 25 to 200 mm (1" to 8"), and associated fittings and accessories.

Hans-Leo Hals, Elastopipe product group manager, Trelleborg, commented, "Because Elastopipe is a synthetic rubber-based flexible piping system, it is installed without any welding or other hot work, such as high speed cutting, which could comprise the safety of the vessel. We installed a temporary Elastopipe deluge system for each module, removed the existing steel pipes, then completed the permanent Elastopipe pipework and fixings and moved the temporary deluge on to the next module. This method ensured that full fire protection was retained throughout the project. In addition, the flexibility and light weight of Elastopipe allow very rapid installation, compared to a rigid pipe system; it can be swiftly configured to confined spaces. The first two modules were completed in just a

month, in contrast to the estimated 15 months to install a comparable copper-nickel installation."

Elastopipe offers a 30-year minimum maintenance life for fire deluge and sprinkler systems, and because of its corrosion-free performance, system testing frequency can be reduced while maintaining full availability. Elastopipe is highly resistant to impact and jet fire (1,400°C/2,552°F for one hour), and its light weight, flexibility, ease of cutting and fitting ensure installation is rapid and simple.

Using advanced polymer material technology, Trelleborg Offshore provides high integrity solutions for harsh and demanding offshore environments. As part of the Trelleborg Engineered Systems Business Area of Trelleborg Group, Trelleborg Offshore specialises in the development and production of polymer and syntactic foam based seismic, marine, buoyancy, cable protection and thermal insulation products, as well as rubber-based passive and active fire protection solutions for the offshore industry.

Within its portfolio are long-established brands including CRP, OCP, Viking and Emerson & Cuming.

**Trelleborg Offshore Norway AS – Norway**  
[offshore.norway@trelleborg.com](mailto:offshore.norway@trelleborg.com)  
[www.clearlyflowassured.com](http://www.clearlyflowassured.com)

## Stainless products from China

Hongyue Metal Co Ltd specialises in the production of stainless steel tube, coil and sheet, including grade 201, 202, 301, 304, 304L, 316, 316L, 409, 410 and 430.

The company's products are exported to North America, eastern Europe, southeast Asia, the Middle East and western Europe.

**Hongyue Metal Co Ltd – China**  
[hymetals@gmail.com](mailto:hymetals@gmail.com)  
[www.fshongyue.cn](http://www.fshongyue.cn)

## Aluminium alloy factory frame systems

Misumi USA, Inc, a subsidiary of Misumi Corporation and a leading provider of fixed and configurable mechanical components for machine building and factory automation systems, has recently introduced a new line of factory frame systems, and has added a stainless steel pipe system to its existing family of versatile metal pipe systems.

Both systems are fully configurable, offering a convenient option for creating a wide array of temporary and permanent storage units, mobile conveyors and other equipment suitable for use in industrial, retail and commercial environments. Misumi's system-based approach to its factory frame and pipe systems allows users to design, configure and assemble units to meet their exact application requirements, with all components included in a single purchase order and deliverable within a short period of time.

Compared with conventional pipe frames, Misumi's aluminium alloy

Factory Frames are designed to offer improved squareness at assembly by setting the frame dents securely in the joint tabs.

There is no need to 'fix' several frames at a time, which enables easier assembly without the various parts twisting out of alignment. In addition, assemblers can make fine adjustments to each separate frame without disturbing adjacent or completed frames.

Misumi's new Factory Frame pipes include FFA (length dimension configurable from 60 to 4,000mm) and FFAKS (4,000mm fixed length, five pieces per pack). Both products feature aluminium alloy construction with a clear anodised surface finish. For assembly, Misumi offers a wide range of aluminium alloy joints in various configurations. Accessory parts for the aluminium Factory Frame system include saddles, inner caps, pipe stand, adjusting bolt sets and casters. Shipping time for the Factory Frame pipes is three days.

A new line of stainless steel pipe frames, joints and accessory parts has also been added to Misumi's range of metal pipe systems. The new stainless steel pipe products include PFSUS (length dimension configurable from 60 to 2,400mm) and PFSUSKS (4,000mm fixed length, five pieces per set). Both products feature 430 stainless steel construction.

For assembly, Misumi offers a wide range of structural steel joints (product number PBLSS) in various configurations, including orthogonal, 4 directional orthogonal, 4 directional parallel, 5 and 6 direction joints, cross type and free joints.

Additional accessory parts for the stainless steel pipe frame system include inner caps, insert nuts, adjusting bolt set and casters. Shipping time for the stainless steel pipe frames is six days.

**Misumi USA, Inc – USA**  
<http://us.misumi-ec.com>



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**Type:**

Socket Weld Flange/Weld Neck Flange/Threaded Flange  
Plate Flange/Slip On Flange/Lap Joint Flange/Blind Flange  
Loose Plate Flange/Integral Flange

**Material:**

**Stainless Steel**  
F304 F304L F304H F316 F316L F316H F317 F317L F321 F51 F53  
**Duplex Stainless Steel**  
UNS S31803(SAF2205) UNS S32750(SAF2507) etc.  
**Alloy Steel**  
40Cr 5140 SCr440 41Cr4 F9 F11 F22 42CrMo 42CrMo4  
**Carbon Steel**  
A105 A350 SS400 S20C C22 IC22 C22.8 C21 Q235 Q345 20# etc.  
**Titanium**  
Gr1 Gr2 Gr3 TA1 TA2 TA3

**Standard:**

ASME/ANSI/API/AWWA/DIN/BS/JIS/JPE/EN/AS  
Non-standard Flanges can be supplied

**Size:**

3/8"–40" The maximum size is up to 200"

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**HEBEI CHIDA MANUFACTURE AND TRADE CO., LTD.**

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Website: [www.flangescn.com](http://www.flangescn.com) [www.cncnida.com](http://www.cncnida.com)

## Food and beverage suction and discharge hoses

Novaflex Connoisseur Food Hoses are designed to meet the demanding applications of the food processing industry. The hoses are built in a variety of constructions, all specifically designed with a white chlorobutyl tube that does not impart taste or odour.

The special ultra-smooth, microbe resistant tube is built on specialised

equipment for sanitary properties to meet microbe resistant environments. The hoses meet FDA, USDA, and 3-A Sanitary Standards Authorized (#1376), and are resistant to cleaning-in-place solutions.

Reinforcement is provided by multiple plies of polyester tire cord (available with or without helix wire or monofilament,

depending on hose style). Optional colour covers include white, grey, black, blue, green, red, purple and yellow. The temperature range is -40°F to +240°F, with cleaning-in-place up to 248°F (not for continuous steam service).

The range of Novaflex Connoisseur hoses includes Novaflex 6500 (Connoisseur food & beverage suction and discharge hose), Novaflex 6501 (Connoisseur discharge hose), Novaflex 6502 (high pressure, superior quality brewery suction and discharge hose), Novaflex 6505 (Connoisseur wine hose), and Novaflex 6506 (crush resistant connoisseur food and beverage hose). More hoses are available for other food transfer applications.

**Novaflex – USA**  
[sales@novaflex.com](mailto:sales@novaflex.com)  
[www.novaflex.com](http://www.novaflex.com)

## Aluminium precision drawn small diameter tube

Siddhi, India, manufactures aluminium precision drawn small diameter tube, used for a variety of applications, including cryogenic fuel supply lines for SLV (satellite launch vehicle), automobile air conditioners, condensers, heat exchangers, radiators, ferrules, and bushes for MCB (moulded circuit breakers).

The major alloys processed are 1, 3, 5 and 6. On special request, 2 and 7 series can also be processed. The size range is 1 to 110mm OD, and thickness from 0.15 to 10mm. The normal tolerance on OD or ID is  $\pm 0.09\text{mm}$ , and can be as close as  $\pm 0.02\text{mm}$ . Small diameter tube up to 20mm can be supplied in coil form, and maximum coil weight is 30kg.

**Siddhi Group – India**  
[sgmmktg@siddhiindia.com](mailto:sgmmktg@siddhiindia.com)  
[www.siddhiindia.com](http://www.siddhiindia.com)

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## HONGDA SEAMLESS PIPE MANUFACTURER

Guangzhou Hongda Steel Tube Co.,Ltd.  
is a professional manufacturer of seamless carbon steel tube and seamless stainless steel tube. The main products include:

seamless carbon steel tube: ASTM A53/A106/API 5L GR.B; ASTM A179; ASTM A192; ASTM A519 SAE1010, SAE1020, SAE1035, SAE1045; SAE52100; API 5CT J55/N80; ASTM A333 GR.6; ASTM A210 GR.A; ASTM A213 T11, T12, T22; DIN1629 ST37.0, ST52.3; DIN17175 ST35.8 GR.1; DIN2391 ST37.4; JIS G3461 STB340, etc. O.D.: 19.05mm–325mm, W.T.:1.65mm–25mm

seamless stainless steel tube: ASTM A312/312M, ASTM A213/213M, ASTM A269, JIS G3459, JIS G3463, DIN17456, DIN 17458, EN 10216–5 etc., with material: TP304/304L, TP316/316L, TP321, 321H, 310S, 316Ti, 317/317L, 347H, 1.4301, 1.4306, 1.4541, 1.4401, 1.4404, etc. O.D.: 4mm–325mm, W.T.: 0.5mm–25mm

**Guangzhou Hongda Steel Tube Co.,Ltd.**

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 Website: [www.hongda-steeltube.com](http://www.hongda-steeltube.com) [www.junjia-steeltube.com](http://www.junjia-steeltube.com)

## Non-round glass tubing in a variety of profiles

Schott Conturax Pro is a new type of glass tubing with profiles in a variety of different shapes, including square, rectangular and hexagonal. Combinations of round and angular profiles are also possible.

While other manufacturing techniques rely on complex and cost-intensive reshaping processes, Conturax Pro is manufactured directly from the melting tank using a continuous patented drawing method. The angular tubes made of high-quality 'Duran' borosilicate glass are available in lengths of up to four metres.

"Does tubing always have to be round? The form and the application need to be closely linked to produce a good product design. But the opposite may also be true. New shapes make new applications possible," explained Hermann Tietze, sales director for technical tubing at Schott-Rohrglas GmbH. "Our customers are impressed by our glass rods in different profiles. But a number of new challenges have arisen with this tubing."

There are other ways of manufacturing non-round profiles. To manufacture these, the round glass tubing has to be melted onto an angular mandrel or be blown into the respective shape. However, there are a number of disadvantages to these complex techniques: due to the fact that the process takes place in several steps, higher costs are involved and there is limited flexibility with respect to the dimensions. For this reason, Schott developed a new technique for manufacturing angular tubing profiles directly from the glass melt.

"Thanks to the direct drawing method, large volumes can now be produced at attractive prices," Mr Tietze explained. "Here, even customised designs that feature special angular dimensions and asymmetrical shapes are possible. The tubes can be used in a number of different ways, for instance product design, for lighting, architecture, plant construction, in addition to other technical applications."

Depending on the dimensions of the profile, the non-round glass tubes are redrawn at Schott using either the Vello or the down draw method. The respective products are available in lengths of up to 3,950mm. The tube profile can be manufactured with an edge length of between 45 x 30mm and 150 x 150mm. Wall thicknesses range from 1.2 to 5mm.

The high geometrical accuracy of the glass tubes also makes it easier to perform precise processing. The Duran borosilicate glass 3.3 is known for its high transparency and excellent physical and chemical resistance. The hard, smooth surface is highly resistant to scratches and therefore helps ensure high transparency and lasting cosmetic quality.

Robust and versatile Borosilicate glass was developed by Otto Schott around 1890. It has a low coefficient of expansion and is resistant to temperature fluctuations, as well as many aggressive chemicals such as those contained in conventional cleaning agents.

**Schott AG** – Germany  
[www.schott.com](http://www.schott.com)

Schott Conturax Pro profile glass tubing



## Hydraulic seamless steel tube

Shanghai Tianyang Steel Tube Co, Ltd specialises in seamless steel tube with high accuracy and brightness, which is mainly used in hydraulics and the automotive industry.

The company's hydraulic seamless steel tube conforms to standards DIN2391, DIN2445, EN10305, DIN1630, DIN1629 or ASTM A179. The tube is available in steel grades including ST35 (E235),

ST45 (E255), ST52 (E355) and ST37.4, and delivery condition include NBK (+N), GBK (+A), BK (+C), BKW (+LC) and BKS(+SR). Outside diameters range from 4 to 150mm, with wall thickness from 0.5 to 15mm.

Shanghai Tianyang's stainless steel tube is available in materials including 304, 304L, 304H, 316, 316L, 316Ti, 316LN, 317, 317L, 321, 321H, TP347,

347H, 310S, S32750, S32760, 904L and S32803, conforming to various ASTM, DIN, EN and JIS standards. OD dimensions range from 6 to 800mm, in thicknesses from 0.5 to 50mm, and up to a maximum length of 35m.

**Shanghai Tianyang Steel Tube Co, Ltd** – China  
[tianyangpipe5@steeltube-cn.com](mailto:tianyangpipe5@steeltube-cn.com)  
<http://en.steeltube-cn.com>

## How-to videos illustrate simplicity of anaerobic adhesives and sealants

To answer common questions and educate users on the simplicity of Loctite® brand anaerobic adhesives and sealants, Henkel Corporation has introduced a series of short videos that will appear on YouTube and on Loctite websites. Running approximately 60 seconds each, the videos succinctly illustrate the use, application and removal of these adhesives.

There are currently eight Loctite How-To instructional videos focusing on a range of topics: disassembling parts treated with Loctite red high

strength threadlocker; applying Loctite threadlocker in a blind-hole application; applying Loctite wicking threadlocker; applying Loctite retaining compound; applying Loctite 660™ Quick Metal® retaining compound; applying Loctite gasket eliminator on rigid flanges; removing Loctite gasket eliminator; and applying and removing the new Loctite 5203™ flange sealant.

“Over the years, we have received many questions about applying, using and removing Loctite threadlockers and sealants,” explained John Borden,

global market development manager for Henkel’s general industrial business. “As they say, ‘a picture is worth a thousand words’. This video series is our effort to illustrate anaerobic use visually for the end users of this technology in an easily accessible format, and to provide high quality, technically accurate information.”

The Henkel How-To videos can be accessed on YouTube at [www.youtube.com/loctite](http://www.youtube.com/loctite) and at [www.henkelna.com/loctitevideos](http://www.henkelna.com/loctitevideos)

**Henkel Corporation – USA**  
[www.henkelna.com](http://www.henkelna.com)

## Fused silica capillary tubing



*Fiberguide's capillary tubing*

Fiberguide Industries, Inc manufactures a comprehensive line of standard and custom high optical transmission fibres, OEM assemblies and ultra precision arrays. The company is part of the global Halma technology group. FDA registered as a contract manufacturer and custom device manufacturer, Fiberguide’s corporate and optical fibre manufacturing facilities are located in Stirling, New Jersey, with a manufacturing/assembly facility in Caldwell, Idaho.

The company has introduced a new line of fused silica capillary tubing that has proven effective in a number of scientific applications including protein

characterisation, small molecule and genetic analysis, proteomics, DNA sequencing and fragment analysis.

Fiberguide’s capillary tubing is manufactured from high purity synthetic quartz with a protective coating of polyimide. Applied to the outer surface of the tubing, polyimide has an upper temperature limit of 360°C. A wide variety of standard IDs are available, from 2µ to 700µ and ODs from 90µ to 850µ. Non-standard sizes can also be manufactured by request.

**Fiberguide Industries, Inc – USA**  
[info@fiberguide.com](mailto:info@fiberguide.com)  
[www.fiberguide.com](http://www.fiberguide.com)

## International standard galvanised ERW pipes and tubes

Conros Steels manufactures pipes and tubes to various Indian and international standards, including BS, EN, DIN, ASTM and IS. The company specialises in providing large wholesalers around the world with galvanised pipes and tubes.

The company’s Indian manufacturing facility currently manufactures black and galvanised ERW steel pipes and tubes and hollow sections from ½" to 6".

The company conforms to the ISO 9001:2008 quality management system, and its QC department ensures that all pipes and tubes are individually inspected for finish and uniformity, then weighed and tested to assure consistency of zinc coating. All material is shipped in sealed containers for protection from the elements and ease of processing upon receipt. Conros products are tailored and suitable for applications such as agriculture

(sprinklers, drill rods), irrigation (water distribution, submersible pump and water conveyance), structural (scaffolding, fences), industrial (general engineering, pumping applications, auto industry), oil sector (distribution of gas, crude and products), and electricity and telecommunications.

**Conros Group – India**  
[info@conros-group.com](mailto:info@conros-group.com)  
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## McCalc application quickly calculates fusion pressure

Pipe fusion experts McElroy recently introduced a pipe fusion focused application for iPhone, iPad and iPod Touch. The McCalc Fusion Pressure Calculator is a free application that helps a fusion machine operator find the correct fusion pressure calculations for a job.

To properly heat-fuse polyethylene pipe, fusion pressure must be calculated in accordance to the pipe manufacturer's recommended interfacial pressure.

When using the McCalc Fusion Pressure Calculator application, the operator selects or keys in the pipe size, pressure requirements and the fusion machine to discover the recommended theoretical gauge pressure.

"We've always felt that the best way to further the pipe fusion industry is to get easy-to-use tools in the hands of pipeliners," said Chip McElroy, president of McElroy.

"The McCalc Fusion Pressure Calculator application isn't the only tool for calculating fusion pressure that we've produced. On our website, we offer PDA software for download, the opportunity to order a slide rule calculator for use in the field, a web-based McCalc version and a tutorial on learning to calculate fusion pressure manually."



McElroy's McCalc app, running on the new iPhone 4

The McCalc Fusion Pressure Calculator application is simple to use. After downloading McCalc through the iTunes Store, open the application and choose the machine and the machine's total effective piston area (TEPA).

Next, choose the pipe size, wall thickness, interfacial pressure and drag pressure. Once all the parameters of the fusion are set, the 'calculate fusion pressure' button is selected and the calculation's answer displayed.

The web-based version of McCalc is available at [www.mcelroy.com/fusion/calculate.htm](http://www.mcelroy.com/fusion/calculate.htm)

**McElroy – USA**  
fusion@mcelroy.com  
[www.mcelroy.com](http://www.mcelroy.com)

## Seamless pipe and tube

Guangzhou Hongda Steel Tube Co, Ltd, established in 1988, is a seamless pipe and tube manufacturer with a modern workshop and advanced facility. The company's main products are seamless carbon steel pipe and stainless steel pipe, in sizes from 6 to 426mm OD, and wall thicknesses of 0.5 to 25mm.

The company has passed authentication of the ISO9001:2000 international quality management system; the ISO14001:1996 environmental management system; GB/T2800-2001 occupational health and safety management; PED97/23/EC & AD2000-WO/TRD100 manufacturer of material; and steel tube manufacturer for boiler and pressure vessel in China, which is issued by Quality Supervisory Quarantine Bureau of PR.

Guangzhou Hongda's annual capacity for stainless steel pipe is 10,000 tons per year, and for carbon steel the company can reach 150,000 metric tons per year. In order to ensure quality, the company's facility is equipped with eddy current test, ultrasonic test and hydraulic test machines, and other testing equipment.

The company has been appointed as first class supplier by Sinopec and PetroChina, and has supplied to many large oil and chemical projects.

**Guangzhou Hongda Steel Tube Co, Ltd – China**  
hongda@hongda-steeltube.com  
[www.hongda-steeltube.com](http://www.hongda-steeltube.com)

## Seamless and welded pipes from India

LG Pipes & Tubes is a stockist, exporter and importer of a wide range of seamless, EFsW, ERW, welded, LSAW and DSAW pipes and seamless tubes. The tubes are noted for their ability to withstand seawater corrosion and erosion.

The company uses stainless steel, carbon steel, alloy steel, nickel alloys and ferrous and non-ferrous materials to produce pipes, tubes, plates, sheets, pipe fittings, forged fittings and flanges.

Standard specifications include API, ASTM, ASME, BS, IS, DIN and AISI, and the company is ISO 9001: 2008 certified company by UKAS.

LG Pipes & Tubes' quality assurance programme covers all manufacturing, sales and services procedures.

The company exercises stringent quality control measures for ensuring the accurate dimensions and

mechanical properties of its products. Each product passes through the following processes and quality systems: material control system; process control system; machining and dimensional control; certification and supplementary test; and finishing and marketing.

**LG Pipes & Tubes – India**  
lgpipesandtubes@gmail.com  
[www.lgpipeindia.com](http://www.lgpipeindia.com)

## Lincoln Electric's new Pipeliner 80Ni1 MIG wire

The Lincoln Electric Company designs, develops and manufactures arc welding products, robotic arc-welding systems, plasma and oxyfuel cutting equipment, and has a leading position in the brazing and soldering alloys market.

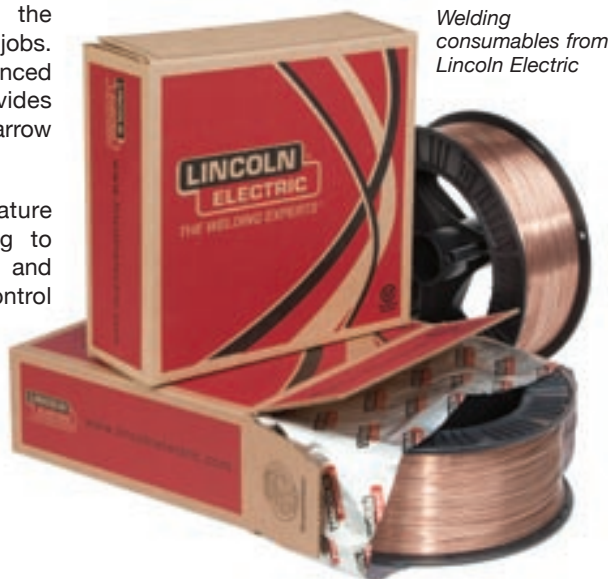
The company has introduced new Pipeliner® 80Ni1 MIG (GMAW) wire to its line of consumables developed to meet the demands of the global pipe welding industry. It is designed for semi-automatic or automatic welding of root, hot, fill and cap passes on up to X80 grade pipe and root passes on up to X100 grade pipe.

Pipeliner 80Ni1 is capable of producing impact properties of 69-95 J (51-70 ft.lb.)

at -50°C (-58°F), to meet the demands of tough pipeline jobs. The new wire features enhanced arc characteristics and provides optimal wire placement for narrow groove joint configurations.

All Pipeliner products feature ProTech® foil bag packaging to ensure reliable performance, and are manufactured to lot control standards and tested per AWS A5.01, Class S4 Schedule H. Certificates of test are available at the company's website.

**Lincoln Electric – USA**  
www.lincolnelectric.com



Welding consumables from Lincoln Electric

## Stainless steel process pipes

Erndtebrücker Eisenwerk (EEW) is a well-known name in all countries with important LNG, petrochemical, chemical and offshore industries. The company's stainless steel pipes are mainly used as process pipes for the transportation of liquids and gases within plants and as line, flow line and gathering pipes for longer distances. EEW serves end-users, EPC contractors and distributors/traders.

The EEW Group is a manufacturer of stainless steel pipes manufactured from plate. EEW offers a size range from 406 to 2,134mm OD (16" to 84"), with wall thickness from 8 to 63.5mm. Modern machines and equipment provide efficient production, and a yearly capacity of more than 24,000 tons is available.

EEW's strength is the efficient production of longitudinally welded stainless steel pipes in single lengths up to 12.2m/13.2m. Depending on the dimensions (OD/wall thickness), the pipes are manufactured with one or two longitudinal weld seams.

The company supplies longitudinally welded pipes from plate. The plate edges are milled, and forming can be performed by 3-roll bending or JCO press bending in combination with pre- or post-bending. Approved welding processes are GMAW, plasma, TIG, SAW, or laser hybrid in the near future. Heat treatment of stainless steel pipes is performed in-house, if required.

In 2004 EEW supplied 1,200 tonnes of 20" 22 Cr duplex pipes to Petro China's

Kela II project. These were said to be the first duplex pipes to be supplied to a project worldwide in double random lengths without jointers.

Since then the company has supplied duplex pipes in double random lengths to projects such as Woodside's Otway and NR2 projects, PDO's Kauther and Saih Rawl projects and Shell Nigeria's Gbaran project. LNG projects are also a speciality of EEW, having supplied stainless steel pipes for projects such as Yemen Gas, Sabine Pass, South Hook, RGX, QGX, Pluto and Khursaniyah.

**Erndtebrücker Eisenwerk GmbH & Co KG – Germany**  
info@eew.de  
www.eew.de

**JPE**  
SUS TUBE FITTING  
www.yeanhern.com  
www.jpe-tubefitting.com

## Major projects supported by Chinese pipe manufacturer

Metals International Limited specialises in ERW line/casing pipe, longitudinal welded pipe (LSAW/DSAW), spiral/helical welded (SSAW) pipe, black/galvanised tube, seamless tubing and

pipings, alloy pipe, seamless/welded stainless tubes and pipes, concrete weighted coated (CWC) pipes, FBE/2LPE/3LPE/2LPP/3LPP coated pipes, hot/induction bends, monolithic

isolating joints, cast iron pipe, copper tube, flanges, pipe fittings, valves and pressure vessel plates.

Major orders for the company include 40,000 metric tons of API X70 PSL 2 24" ERW line pipe, and 20,000 metric tons of API 5L X52 40"/48" DSAW/LSAW line pipe for the Ambatovy Project, Madagascar; 105,000 metric tons of spiral welded line pipe for the New Skikda LNG Project, Algeria; and 1,200 metric tons of ASME SA213 T11/T22 38mm boiler tube for the Austria Boiler Project. The company also acted as agent to supply 200,000 metric tons of API 5L X70 PSL 2 42" UOE DSAW line pipe for the QGC LNG Pipeline Project, Australia, and various other steel pipes.

**Metals International Limited** – China  
metalsintl@klsteel.com  
www.klsteel.com



Steel pipe  
from Metals  
International

## Apple apps as marketing tool booming

Apple applications (apps), which can be used on the iPhone, iPad and iPod Touch, are becoming important marketing tools for companies. An app for the tube industry, called TubeCalc, is now available.

For years people have been trying to find an easy way to calculate certain values of a specific industry norm, avoiding the need to have to check various tables. In response, RiesArt initially tried to develop a traditional calculator.

This calculator was complicated to make, very expensive and carried a high risk of a critical mistake being made.

Inspired by the functionality of the iPhone, RiesArt, in cooperation with Bananas Design, has now successfully developed the TubeCalc app.

TubeCalc can be used to calculate important functions of hollow tube sections using the construction industry's European Standard EN10219 norm, while operating at the same time as an ordinary calculator. EN10219

applies to cold formed welded circular, square and rectangular structural hollow sections. TubeCalc allows the user to calculate mechanical data such as mass, (superficial) area, moment of inertia, radius of gyration, plastic and elastic modulus and the torsional.

Benefits of TubeCalc include instant outcomes on all tube size ranges covered by EN10219; reduced user errors; clear display showing inserted data at all times; minimised need to re-input data, as inserted data will remain in place; instant switch option between metric and US Standard units; the ability to use values from TubeCalc in the normal calculator mode; and no more need to check tables.

The iPhone caused a revolution when it was released in the smartphone market three years ago, and quickly gained a large market share. The iPad is set to do the same thing in the emerging tablet market. Together with the iPod Touch, there are already more than 85 million devices running the iPhone OS. An important factor of the success of

these devices is the App Store, where users can easily download and install applications. TubeCalc can now be found within the App Store.

Increasingly companies are discovering apps as a tool to promote their brand or product. An app is a more interactive experience than traditional marketing methods and can be especially powerful when the unique features of the device, such as the iPhone touch-screen and GPS location, are incorporated within an app.

While websites are still the dominant form of interaction with customers, apps can offer the same information in a much more interactive and personal form. Apps can be easily and relatively inexpensively designed for numerous functions, and Bananas Design and RiesArt anticipate that many more apps will be developed for the tube and pipe industry.

**Bananas Design** – New Zealand  
info@tubecalculator.com  
www.tubecalculator.com

## Delivering patient safety and equipment integrity

Harco Metal Products, a specialist in tube fabrication and systems integration, has secured a contract to manufacture MediGLIDER™ products for ConMediSys.

ConMediSys, a developer of safety products for health care facilities, created the MediGLIDER to address the growing risk and cost associated with staff injuries caused by physically lifting and moving patients. The MediGLIDER is a gurney with a built-in conveyor belt that allows one person to move a patient from one location to another without physically lifting them.

Harco manufactures the chrome side rails that keep the patient on the MediGLIDER during transport, along with the chrome end rails used for structural support to maintain the mechanical integrity of the unit. The company was first approached to assist with developing the product

in 2009. The development team faced issues regarding weight versus strength, design functionality and a cost-effective method to produce a high quality bright polished finish for the final assembly.

“Servicing the medical industry is a natural progression in Harco’s business model,” commented Harco president Jay Hall. “This project not only demonstrates our immense capability to produce parts of any kind for any industry, but it solidifies Harco’s reputation as a producer of accurate, safe, and reliable metal parts.”

Harco, based in both Arizona and Alabama since 1990, supplies fabricated tubular design, components and assemblies, including project management and systems integration.

**Harco Metal Products – USA**  
www.tubebending.net

## Copper tubes for refrigeration and air conditioning applications

Eumet Metallhandel GmbH has been providing customers with semi-finished products in various sizes, qualities and alloys for more than 15 years.

The company’s core business is distributing copper tubes for applications such as refrigeration, air conditioning, plumbing systems for domestic installation, as well as for electrical purposes.

Available copper qualities are CW 024 A, CW 008 A/CW 009 A, CW 004 A and CW 021 A, with more qualities on request.

Tubes can be produced in accordance with EN, AENOR, AFNOR, KIWA, UNE or GASTEC standards.

Eumet has also customised its product range to meet customer requirements

with composite tubes and pipes made from PE-RT and PE-X for the same applications. The materials meet all necessary national and international standards.

The company can deliver condenser and heat-exchanger tubes in alloys including CuNi10Fe1Mn, CuNi30Mn1Fe, CuNi10Fe1, 6Mn, CuZn20Al2As, CuZn28Sn1As and SF-Cu.

The tubes meet relevant standards such as EN, ASTM, ASME, GHOST, BS and NFA. Eumet’s product range also includes tube-sheets and circular blanks/discs for these tubes, manufactured in the same alloys.

**Eumet Metallhandel GmbH – Germany**  
eumet@eumet.de  
www.eumet.de

## Steel pipe distribution and finishing

SDL-Landini group, established in 1964, is a leading company in the European steel pipes market. The group is focused on steel pipe distribution and finishing, and operates a range of finishing lines for steel pipes, including a hot dipped galvanising line, a polyethylene polypropylene coating line and an internal epoxy line.

From the beginning, the group’s main goal has been to produce high quality products, as demonstrated by its ISO 9001 certification, issued by Sincert International. The company also aims to introduce efficient methods so that plant operation does not disturb the natural environment.

**Eurocoating Pipe Srl – Italy**  
info@sdl-landini.com  
www.sdl-landini.com

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Fax: 0086-21-65368725  
Website: www.recomb.com.cn  
E-mail: sales@recomb.com.cn

## OMS showcases pipe inspection tools at Rio Oil & Gas Expo

Optical Metrology Services Limited (OMS) is a provider of pipe measuring products and services, specialising in measuring equipment and consulting services for use within the pipe manufacturing and pipeline construction sectors, both onshore and offshore.

A key focus for OMS is the dimensional measurement of oil and gas pipes or other structures such as military gun barrels, processing industry tubes or manufactured cylindrical objects, where dimensions are critical.

At this year's Rio Oil & Gas Expo (13-16 September), OMS showcased pipe measurement and inspection tools, including the company's Internal Weld Scanning Tool and pipe end dimensioning tools.

The OMS internal weld inspection system inspects the internal size and shape of girth welds on pipes that are destined for use in deepsea subsea oil and gas applications.

The Internal Weld Scanning Tool internally scans welds inside pipes, both visually and dimensionally, enabling

inspectors to quickly and confidently assess the quality of the root weld.

The technology can be deployed onshore and offshore at different stages of the pipe welding process. The tool can be used on corrosion-resistant alloy-lined pipe to identify sour (aggressive) ingress points, in both clad butt-weld and clad weld inlay applications. The tool can also be used to improve weld procedure development efficiency and to check the root weld and geometry before next passes are deposited. The technology is also used in fatigue-sensitive applications (SCRs) where pipes are subjected to higher dynamic stresses.

The system can be mounted to a purge dam, with an integrated camera for positioning and inspection. Pipe can be inspected whilst being spooled onto a pipe laying vessel or during stalk fabrication/tie-in. The tool is retrieved using a winch-and-wire system, with weld positioning controlled by a camera and precision motorised system.

OMS also provides a complete range of measurement and inspection services

for the end dimensioning of fatigue-critical SCR and flowline pipes that are destined for deepsea subsea oil and gas applications, as well as aiding in the fit-up of land-based pipeline projects.

These services include the management of AUT (automatic ultrasonic testing) calibration block selection and use; software analysis tailored specifically to match customer requirements; and end-to-end matching (without counterboring) or counterbore parameters can be provided (removing minimum WT).

For end dimensioning, OMS uses its own automatic Pipe Checker laser measurement tool, which is capable of measuring more than 2,000 IDs and 2,000 ODs as well as being able to accurately measure the WTs for each pipe end in less than 20 seconds. This tool is accurate to 0.05mm and enables just two OMS staff to measure a minimum of 200 pipe ends in a single shift. This results in less time on-site, minimising project delays and costs for the customer.

The Internal Weld Scanning Tool and the Pipe Checker (end dimensioning) tool are both available on a rental-only basis, along with a trained operator/inspector provided by OMS.

OMS pipe measurement products and services provide benefits for major oil and gas companies around the world. In Brazil for example, OMS is currently working on two projects, the first directly for Petrobras on one of its onshore pipeline projects, the other working for Subsea 7 on its offshore P55 project.

OMS was also asked to demonstrate the Internal Weld Scanning Tool in 2009 to Petrobras engineers at their CENPES Research Centre in Rio, Brazil, which has resulted in further enquiries and demonstrations.

**Optical Metrology Services Limited**  
– UK  
info@omsmeasure.com  
www.omsmeasure.com



*The OMS Internal Weld Scanning Tool*

## Trimming and simultaneous forming of tube ends

Ends of pipes often require trimming because of the need for additional lengths for clamping during the bending procedure. It is often also necessary to carry out forming of the pipe ends. transfluid has designed a new machine to cut the pipes and, if necessary, form the pipe ends simultaneously.

The machines work with rotary knives from the inside outward to cut the pipe

*Pipe cut and formed simultaneously*



against the clamps. The minimum inside diameter is 22mm, and the maximum diameter of the pipes is 170mm. Cutting length varies depending on the pipe diameter. On diameters of more than 70mm the length will be 1.5 times the pipe diameter, while on smaller diameters length will be one times the diameter. If it is necessary to cut longer ends the machine can cut, in an automatic process, ends up to twice as long.

The operating time is independent of the tube size and, depending on the machine size, approximately 10 seconds. The clamps are provided with wearing plates to ensure low tool investments.

To improve results and achieve long tool lifetime, the set up of the distance between the knife and the clamps can be changed electronically and adapted to the conditions.



*Grooves rolled between the beads from outside to inside*

During the cutting process, a forming of the pipe ends can be accomplished, if required, particularly for bead on the ends with or without expansion, or general or tube hose connectors. The cycle time remains unchanged if the system is used for both operations. Additional processing steps such as de-burring are not usually necessary, as the results are burr free.

**transfluid Maschinenbau GmbH** – Germany  
info@transfluid.de  
www.transfluid.de

## Clean sweep with new inspection pig

A new inspection pig designed to test the inside of oil refinery furnace tubes after cleaning has been developed for pipeline cleaning company Cokebusters.

Created by Phoenix Inspection Systems, a specialist in the design and manufacture of ultrasonic non-destructive testing (NDT) equipment, the new development represents a significant upgrade to Cokebusters' previous inspection technology, including advances in battery power, ultrasonic accuracy, storage capacity and overall reliability.

Cokebusters provides furnace tube and pipeline cleaning services for oil refineries around the world from its base in Chester, UK. Refinery process tubes require regular cleaning as carbon or coke deposits build up on the tube walls. Scraper pigs are the most effective way to remove this build-up. Cokebusters' pigs, which have a complex laminated construction with gas-filled polymers, combine cleaning strength with flexibility to help prevent damage to walls. The

pigs are forced through the network of furnace tubes by pressurised water, and the coke that is removed is filtered out and removed for safe disposal. Once decoking is complete, ultrasonic inspection can be used to check the tube wall thickness and success of the cleaning operation.

This latest development means that Cokebusters can carry out inspections as part of the whole operation by replacing the scraper pig with the inspection pig, a 16-channel flaw detector incorporating probes and instrumentation in one compact package. It can operate independently without an umbilical, and can log data which can then be uploaded once the inspection is complete. The pig is designed for small diameter tubing in the range of 4" to 8".

John Phipps from Cokebusters commented, "Traditionally decoking and inspection have been carried out by two separate specialist contractors, which adds to plant downtime and makes the whole exercise more difficult to coordinate. There are also difficulties

with the ultrasonic inspection. Often it requires a complex framework of scaffolding to be set up, and there are access problems and hazards for staff working in such environments.

"The new inspection pig overcomes these problems by allowing internal inspections driven by the same pressurised water system as the decoking pigs. It means we can integrate decoking and inspection as part of the same operation, significantly reducing downtime for plant operators."

Dr Chris Gregory of Phoenix said, "The new device offers a clever solution to the problems involved in testing complex pipework systems. The technology also has a wide range of other potential uses and having the probe next to the data processing and storage instrument greatly improves detection capability.

**Phoenix Inspection Systems Ltd** – UK  
www.phoenixisl.co.uk

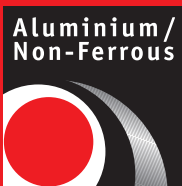
**Cokebusters** – UK  
www.cokebusters.com



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**Tube Russia 2011**  
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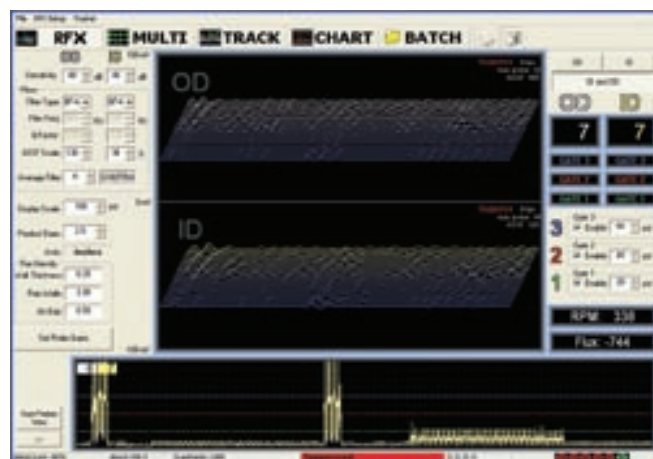
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www.messe-duesseldorf.de



## Eddy current and flux leakage technology

Magnetic Analysis Corporation (MAC) provides solutions for inspecting structural and mechanical tubing in full conformance to ASTM A513 standards.

For light to medium wall tubing (up to around 1/8" wall thickness) the MultiMac® eddy current tester coupled with a saturating tangent coil platform provides an economical solution. The DC (direct current) saturation eliminates permeability conditions, allowing deep eddy current penetration into the tube. By reducing the noise inherent in carbon steel product, lower frequencies can be used, allowing for the detection of defects other than surface notches or holes. The MultiMac eddy current tester complies with the standards in ASTM E309.



Flux Leakage test screen detecting defects on the ID and OD

For structural and mechanical tubing with heavier wall thickness, MAC is developing a flux leakage test head based on the technology used in its established rotary testers for oil country tubular goods. In this case, the magnets are held in a fixed position on either side of the tube with an array of detectors covering the weld zone. This type of system is able to detect both OD and ID longitudinal defects as well as through holes in heavier wall tubes. MAC's flux leakage technology meets the specific standards of ASTM E570.

**Magnetic Analysis Corporation – USA**  
contactus@mac-ndt.com • www.mac-ndt.com

## Non-ferrous product range

Rajshree is a manufacturer and exporter of copper and copper alloys. The company uses non-ferrous metals, including copper, brass, cupronickel, bronze, aluminium, lead and zinc, to create pipes, tubes, coils, flats, bus-bars, sections, profiles, sheets and plates, conforming to national and international standards and specifications.

**Rajshree Overseas – India**  
info@rajshreeoverseas.com • www.rajshreeoverseas.com



## Efficient blast cleaning of steel pipes

Terex Cranes, a leading crane manufacturer, has purchased the new Rösler RDR 500 pipe blaster for its plant in Zweibruecken, Germany. At this location Terex produces lattice boom cranes with a payload of more than 300 tons, which can move under full load ('pick & carry').

Models manufactured at the site include the CC 8800-1 Twin, which can lift 3,200 tons and still move under full load. An essential section of this type of crane is the lattice boom that is fabricated from steel tubes of different diameters and lengths. The RDR 500 tube/pipe blaster allows Terex to de-scale and de-rust tubes with a length of up to 18,000mm and a diameter of up to 500mm, prior to flame cutting.

A major factor in choosing the RDR was that Rösler had already supplied a number of nearly identical tube blast systems to OEMs and steel trading companies. Another important point was that Rösler was able to adapt the machine design to the Terex requirements by conducting processing trials in the Rösler test lab. The trials showed that the required degree of cleanliness, according to the Swedish Standard of SA 2.5 ('near white') surface conditions are achieved in the machine with travel speeds from 2 to 6.5m/min due to the two high performance Hurricane® H42 blast wheels, which are driven by 22kW motors. These easy-to-maintain single disk blast wheels are mounted sequentially on the blast chamber.

The blast chamber itself is fabricated from wear resistant manganese steel.

*The two Hurricane H42 blast wheels are driven by 22kW motors*



The precisely defined blast angle ensures that the required blast results are consistently achieved in the specified time, even with tubes of a relatively large diameter. Since the Terex specifications only call for the blast cleaning of the outer tube surface, the open tube ends are masked. However, Rösler also offers solutions for applications where blast cleaning of the inside and outside of the tubes is required.

Transport of the tubes through the blast machine, which is equipped with an entrance and exit vestibule, takes place with two 18m-long roller conveyors with a rated load of 500kg per running metre. The blast-cleaned tubes are directly transported from the exit vestibule into the flame cutting system. Since the supplier of the flame cutting system, HGG Profiling Equipment BV from the Netherlands, and Rösler have a long-term and friendly cooperation, the interface issues between the controls of the two systems were easily resolved.

Besides blast performance and a robust machine construction, the maintenance-friendly design of the tube blaster was another factor that convinced Terex to buy the Rösler equipment. Very large inspection/maintenance doors in the entrance and exit vestibules, as well as in the blast chamber, allow easy and ergonomic access to all areas requiring maintenance. The maintenance door in the blast chamber is protected against wear from the blast by slide-in manganese plates that cover the inspection door without showing any gap.

**Rösler**  
Oberflächentechnik  
GmbH – Germany  
info@rosler.com  
www.rosler.com



*Steel tubes are transferred into the shot blast machine with a roller conveyor*

## Universal bronze

Ampco Bronze is a universal material used in applications where marks, galling or friction problems could decrease quality in an unreparable manner. The alloys can provide solutions in bending and forming processes, especially for stainless steel and titanium, and where severe load and wear conditions must be resolved.

Ampco 25 is suitable for tube forming (forming, welding and sizing rolls), while Ampco M4 is ideal for tube bending (mandrels, balls and wiper dies). Ampco Metal SA claims that Ampco 25 has significantly better compressive strength (1,551 MPa) and average hardness (370 HB) than comparable materials.

Other advantages of the Ampco M4 material include no coating requirement, no corrosion starting point and an extended life time.

**Ampco Metal SA** – Switzerland  
info@ampcometal.com  
www.ampcometal.com

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46 Holly Walk, Leamington Spa, Warwickshire CV32 4HY, UK  
Tel: +44 1926 334137 Fax: +44 1926 314755 tpi@intras.co.uk

## Advanced surface finishing solutions

Costa Levigatrici SpA, an Italian company located in Schio, Vicenza, and established in 1982, is a specialist in advanced solutions for surface finishing. The company, which has a production area of 17,000m<sup>2</sup>, supports customers with branches all over Europe, the Americas, Asia and Australia.

Over 8,000 Costa Levigatrici wide belt sanders are in operation today, being used on ferrous and non-ferrous materials.

Products include: wet and dry polishing, brushing, grinding, buffing and brushing lines for sheet to sheet and coil to coil lines; wet and dry universal de-burring and polishing machines; wet and dry universal brushing and polishing



Costa Levigatrici's MK3 CC polishing machine



machines for sheets, tubes and flat bars; wet polishing machines for flat bars and tubes; and woodworking sanders.

**Costa Levigatrici SpA** – Italy  
com@costalev.com  
www.costalev.com

## Carbon and stainless steel pipes and fittings

Petek Boru Sanayi AS has been involved in the production and coating of carbon and stainless steel pipes and fittings, as well as the production of polyethylene pipes and fittings, since 1979.

The company's spirally welded steel pipe production line can manufacture pipes between 219.1 and 1,626mm (8" to 64") in diameter, in a 3.2 to 14mm wall thickness range, via continuous on-line UT (ultrasonic test) control. Current production capacity is 18,000 tons per year.

Petek Boru is experienced in the external coating of all types of steel pipes with PE (polyethylene), FBE (fusion bonded epoxy), liquid epoxy, bitumen, varnish, primer and wire-mesh reinforced external cement mortar. For internal lining, solvent-free and coal-tar epoxy lining as well as cement mortar lining are the most used methods. Thermal insulation of pipes is another area of expertise.

Products include spirally welded steel pipes (carbon steel and stainless steel); fittings (carbon steel and stainless steel); elbows, tees and reducers; and coatings and linings (polyethylene

coating, fusion bonded epoxy coating and lining, solvent-free epoxy coating and lining, bitumen coating, concrete lining, and thermal insulation).

The company also manufactures HDPE 100 polyethylene pipes and fittings, chimney pipes, victaulic pipes, sigur-headed pipes, and threading and coupling, as well as selling natural gas and petroleum pipes.

Petek Boru has EN 10217-1, EN 12201-2 and ISO 9001- TUV SUD certifications and can produce according to ASTM A-53 standards. The company exports over 35% of its turnover, and is finalising a new 40,000m<sup>2</sup> facility in Sakarya, Turkey, to increase its production capacity.

**Petek Boru Sanayi AS** – Turkey  
info@petekboru.com.tr  
www.petekboru.com.tr



# Fittings



*Stainless steel products from Kuhn Special Steel*

## Stainless steel components

Kuhn Special Steel is a privately owned German company specialised in the production of stainless steel components for capital goods.

Using the centrifugal casting technique, Kuhn Special Steel produces up to 260 tons of raw, pre-processed or finish-processed stainless steel products per week.

The company's large material spectrum ranges from low-alloy steels to iron-free alloys including austenitic steels, martensitic and ferritic stainless steels as well as a large number of duplex steels.

The large variety of materials in combination with the efficiency of the centrifugal casting technique ensures quality and is a competitive alternative

to forged materials wherever rotation-symmetrical geometries are required.

For 50 years the company has manufactured components according to customers' drawings and specifications for more than 30 different industries, where high wear-resistance, corrosion-resistance and precision are required, such as shipbuilding (eg bushes for rudder stocks, engineering parts for diesel engines), decanter industry (conveyor bodies, decanter bowls), food industry (bushings, drums), and steelworks (mono cast rolls and bimetal-component rolls or shells).

**Klaus Kuhn Edelstahlgießerei GmbH**  
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m.wittlich@kuhn-edelstahl.com  
www.kuhn-edelstahl.com

## Miniature pressure regulators

The new PRD3HP miniature pressure regulator from Beswick is capable of reducing inlet pressures as high as 3,000 psig down to 0.5 psig. The regulator, which weighs only 79g and has a space saving diameter of only 1.03", was a finalist in *Design News* magazine's Golden Mousetrap contest. The PRD3HP joins Beswick's extensive range of miniature pressure regulators. The company's catalogue can be downloaded at [www.beswick.com/resources/catalogue.php](http://www.beswick.com/resources/catalogue.php)

**Beswick Engineering Co, Inc** – USA  
besales@beswick.com  
www.beswick.com

## Universal media safety valve for liquid and gas applications

Dresser Consolidated has launched the new 1900 universal media pressure relief valve, to meet demand for a pressure-reducing valve certified for both liquid and gas, while requiring no adjustments.

Users can operate the 1900 universal media valve on either liquid or gas at the same set pressure without making any adjustments, making it highly flexible.

Because of its efficient blowdown the 1900 universal media valve returns processes back to normal operating pressure very quickly while minimising the amount of process media released from the system. The valve builds on the proven Dresser Consolidated 1900 safety relief valve to more easily accommodate process changes.

“A major challenge for our customers is ensuring that they have equipment and components that integrate well for maximum flexibility, precision and efficiency,” said Joshua Scott, global director of product management for Dresser Consolidated. “The new 1900 universal media valve offers our customers a complete solution through its ability to transition between multiple media types with no adjustment to the set pressure.”

The 1900 universal media pressure relief valve offers improved performance and simplifies maintenance needs for the end user.

Other benefits of the valve include reduced noise (less noise when popping on gas), and decreased customer inventory, as it reduces the level of needed inventory for multiple valves by being interchangeable between liquid and gas.

**Dresser Consolidated – USA**  
inquiries.consolidated@dresser.com  
www.dresserconsolidated.com

## SAE flanges

Schwer Fittings supplies a wide range of SAE flange combinations in various sizes.

All items are available in standard series 3,000psi/ISO 6162-1 (SAE J518 Code 61) and in the heavy series 6,000psi/ISO 6162-2 (SAE J518 Code 62).

The company stocks flanges in both stainless steel AISI 316TI and carbon steel zinc plated chrome VI free.

As standard, flanges are supplied with FKM seals 85/90 shore for stainless steel and NBR seals 90 shore for steel.

Counter flanges are standard without O-ring and with female threads. The flanges are forged and of high tensile strength. SAE flanges are used in areas where strong vibration, high pressure peaks and mechanical stress occur, in industries such as offshore, shipbuilding, hydraulic, petrochemical and paper machines.

Schwer Fittings SAE flanges with welding ends are offered as butt weld or socket weld.

**Schwer Fittings GmbH – Germany**  
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## Simple and efficient clamp fittings now accommodate PE-Xa

Time- and cost-saving installation in water and in industrial applications is of great importance.

Additionally, the used materials should be long-term, efficient and easy to assemble. FIP (Formatura Iniezione Polimeri SpA), a subsidiary of Axialis group, offers the Magnum® compression fittings system as an alternative to conventional joining techniques to bond or weld.

Magnum clamp fittings made of PP are said to be particularly resistant, with high hardness, thermal stability and chemical resistance. The fittings are suitable for high tensile strength, and the detachable connection of plastic pipes of equal and different plastic types, such as HDPE 80/100, LDPE, PP, PVC-U/C (with special ZCKO clamping ring), and now also for PE-Xa (up to d63).

By tightening the nut, the clinching ring is released and clamps the pipe while the compression bush compresses the O-ring, creating a permanently tight connection, which can be further re-tightened for maintenance if necessary.

The Magnum system, which is distributed in Germany by Akatherm FIP GmbH (Mannheim), provides a secure connection of the pipeline thanks to the dynamic user-sealing system, and it is mainly implemented in the fields of irrigation, household connection, swimming pools, horticulture, mining and telecommunications.

By DVGW approval, it is a reusable system for drinking water pipes up to a maximum operating pressure of 16 bar (d20-d63) or 10 bar (d75-d110) in water at 20°C applications.

In addition to the standard fittings, Magnum transition fittings, with a one-sided plastic or metal thread, solve the critical problem of transition to plastic or metal counter. Through the use of Magnum universal transition fittings, metal pipes such as copper, lead and steel can also be easily connected.

The Magnum clamping system includes fittings, couplings, elbows, tees, reducers, end caps, transition fittings with tapered external or internal threads, universal flanges, universal transition fittings and accessories.

**FIP SpA – Italy**  
info@fipnet.it  
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## Electrofusion fitting

A system is only as good as its weakest component part. In pipe systems, this weak point is the joint, as a rule. Pipe systems from Rehau aim to break that rule. Apart from the permanently tight compression sleeve jointing technique, the polymer processor offers in its range the temperature-resistant Fusapex electrofusion fitting, a jointing technique designed for district heating and industrial pipe systems.

The electrofusion fitting made of cross-linked polyethylene is used in district

heating supply systems, in heating installations or in the transport of thermal waters, chemicals as well as hot aggressive media. It can be employed up to temperatures of 95°C and ensures absolutely tight joints. Together with the pipe systems for district heating (Rauthermex or Rauvitherm), for industrial heating (Rautherm-FM) and for chemicals, water, compressed air or inert gases (Raupex), it produces a fully polymer and thus corrosion-resistant system. In addition, the Fusapex jointing technique can be used in the

special system Raufrigo-FW for heating installations with integrated Rautherm-FW basis pipes.

Rehau's basic idea of a fully polymer system is pursued by the extension of the range of fittings of Fusapex. The new Fusapex reducing adapters and flange connections are made of PE-Xa and can be used universally with all Fusapex fittings with integrated heater coils.

The new Fusapex flange connections made of PE-Xa are chamfered on the inside of the flange and therefore allow unproblematic opening and closing of commercially available flange-connected flaps. There is no need for special flaps for pipes made of polymer material. The integrated lapped flange facilitates the installation and cannot be forgotten.

The new flow-optimised reducing adapters made of PE-Xa are available in every combination in a dimensional range of 75 to 160mm. On account of the compact construction, every dimensional reduction can be set up depending on the site's requirement, even in a very small space.

Fusapex fittings in the dimensions 50 and 63mm have been added to the range. In addition, Rehau offers a suitable welding tool for uncomplicated processing.

**Rehau AG + Co** – Germany  
[www.rehau.de](http://www.rehau.de)



*Fusapex fittings*



*Fusapex being used to connect pipes in the Rauthermex district heating system*



*Fusapex assembly*



# De-aeration valves for automatic air bleeding of radiators

Aladdin Autovent radiator air bleeding valves are fully automatic, requiring no manual adjustment. The Hygroseal™ technology (patent pending) uses a 'dual-seal positive valve closure' that eliminates leaks and extends the working life of the valve. A backup safety mechanism closes off the valve at the eventual end of its life. The valve can then be re-activated with a new cartridge, without draining the radiator.

Autovent valves, which are guaranteed in operation for five years, are made of chromed brass and can work at any angle, designed to fit both panel and towel radiators. The HV30C and Micro valves are BSRIA approved.

The valves can save plumbers considerable time on installations, with 1 or 2 hours often saved on a typical job. Call backs by the customer are greatly reduced, as no return visit to bleed radiators is required.

The fact that Autovent valves do not need bleeding by the end customer is especially important for managed properties, commercial offices and government organisations, as well as private homes. Efficient running of the radiators also ensures optimum operation of the boiler, avoids unnecessary corrosion and extends the life of system components.

**NLB Engineering Limited – UK**  
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## PBV series ball valves

Industrial Specialties offers a complete line of PBV series ball valves. With four body materials (Kynar, nylon, PVC and polypropylene), three seal materials (Buna-N, EPDM and Viton), and multiple end connections, the PBV series covers a wide range of applications. The valves are available with or without panel mount thread. Connections include 1/8" male and female NPT, 1/4" male and FEMALE NPT, and 1/8", 1/4", 5/16", 3/8" and 1/2" hose barbs.

If the standard products do not meet the requirements of a particular application, the company's team of experts can build a fitting to customers' specifications. All products are manufactured and typically shipped directly from the company to the end-user.

Industrial Specialties also supplies miniature pneumatic, vacuum and fluid circuitry components to OEMs and distributors.

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SGP: JIS82313  
EN: EN10253-1, EN10253-2

MATERIAL:  
ASME: A234 WPB, A234 WP1, A234 WP5,  
A234 WP9, A234 WP11, A420, WPHY42,  
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# Water, drainage and underground tubes



Product innovation in water, drainage and underground tubes is being driven by a mixture of imperatives, including health and safety, regulatory issues and concern over the long-term performance of more traditional drainage products.

Water is fundamental to life and the first urban settlements were established near natural water resources, before the building of aqueducts rendered life possible where water was non-existent or scarce and drainage and underground tubes now serve a similar purpose in modern-day life.

## HDPE pipes and fittings

Valsir HDPE pipes and fittings have been used all over the world in many projects. The versatility of the system makes it a viable solution for trade waste installations. Valsir HDPE is suitable for use with more than 700 chemical effluents, and is corrosion resistant, virtually unbreakable, guaranteed to 95°C continuous, UV resistant and environmentally friendly. The pipes can also be embedded in concrete and installed underground.

With this range of properties, Valsir HDPE (supplied from 40 to 315mm) meets almost all requirements for high rise buildings, industrial and laboratory systems, and other heavy duty piping installations. To meet growing demand, Valsir has developed the ventilation branch in both 110mm and 160mm, to minimise the size of the stack with the same flow rates.

**Valsir SpA** – Italy  
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Valsir HDPE  
pipes and fittings

## 300<sup>th</sup> WRc approved certificate awarded to Saint-Gobain PAM Blutop range

Iron technology solutions provider Saint-Gobain PAM UK has been awarded a WRc Approved certificate for its Blutop™ range of water pipes.

This approval was significant for both parties as it marks the 300<sup>th</sup> WRc Approved certificate awarded.

Dr Andy Russell, senior consultant at WRc, presented Dr David Smoker, business development director, and Paul Hancock, product manager (water and sewer) for Saint-Gobain PAM UK, with the WRc Approved certificate at the recent Wastewater seminar held by SBWWI (Society of British Water and Wastewater Industries).

Dr Smoker commented, “We are extremely proud of the quality and innovation behind the Blutop range so are thrilled to have been awarded this WRc Approved certificate after such a thorough testing process. The approval is important to us as it gives independent verification of Blutop’s performance and our quality systems, and gives our customers the reassurance they need to be able to take advantage of the cost-savings that Blutop demonstrates against other materials. We are especially pleased to be celebrating the milestone 300<sup>th</sup> certificate with the WRc and look forward to continuing our relationship in the future.”

Dr Russell, senior consultant at WRc, added, “The WRc Approved scheme is totally independent and offers manufacturers an opportunity to demonstrate the performance of their products for water and wastewater applications in a controlled environment. Products are put through rigorous testing to evaluate their performance in relation to the manufacturer’s claims and various integral aspects, such as factory quality control, installation procedures and

on-site practice, so only the highest standard of products achieves approved status. We would like to congratulate David, Paul and the team at Saint-Gobain for being our 300<sup>th</sup> certificate – it’s a real milestone for both parties.”

Saint-Gobain PAM UK currently has four WRc Approved products and services.

**Saint-Gobain PAM UK**  
www.saint-gobain-pam.co.uk

Dr David Smoker (left) and Paul Hancock (right), receiving the approval certificate from Dr Andy Russell



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## What's driving drainage?

The drainage market in the UK is currently worth more than £850mn per year, which can be split into around £600mn in the below ground sector, and around £250mn in the above ground sector. The above ground sector, whilst smaller, is a very dynamic and innovative part of the drainage market. Product innovation is being driven by a mixture of imperatives, including health and safety, regulatory issues and concern over the long term performance of more traditional drainage products.

Tom Wilson, business development director for BSS Drainage, has identified five key issues which are driving the drainage market:

### Acoustics

Pipe acoustics and sound insulation is increasingly a priority within the building industry, particularly in buildings such as hotels, schools, hospitals, care homes and libraries where increased levels of soundproofing are required. Part E of the Building Regulations does not currently include noise levels for plumbing and drainage systems, but as acoustic improvements are made in other areas of a building, noise generated from above ground drainage systems are likely to become more noticeable to users of the property.

There are numerous products currently on the market that use a variety of techniques to deal with the acoustic issue. Among these are increased density products and those with ribbed fittings for use near water impact zones. Other products use triple layered pipe, whilst bracketing can come with rubber-lined jackets or insulated pipe brackets, with the aim of reducing noise transmission in the stack. Many of these acoustic products are compatible HDPE systems currently in the marketplace.

### Backflow

Part H of the Building Regulations has provisions which limit the effects of surcharging drains to prevent foul sewage entering properties (particularly basements) in the event of flooding. The Environment Agency currently says that 80 per cent of buildings are at risk from flooding as a result of sewers backing up resulting in 'blackwater' flooding. As a response, the agency recommends

the fitting of non-return valves to drains and water inlet and outlet pipes. This will prevent waste water from flowing into the property during a flood. BSS Industrial is witnessing a significant increase in tendering contracts specifying backflow systems, and expects this trend to continue in the future.

### Grease (FOG) management systems

There are approximately 200,000 sewer blockages throughout the UK every year, of which up to 75% are caused by fat, oil and grease (FOG). Clearing these blockages can cost millions of pounds a year, which is reflected in customer bills. Businesses also risk blocking their own drainage systems, which results in extra costs being incurred in clean-up efforts. These fat blockages can result in sewer flooding, odour problems and the risk of rat infestations, both near and beyond business premises.

Part H of the Building Regulations specifies that drains serving hot food premises must have grease separators installed. Modern grease separators have evolved from a trap which needs emptying weekly to become a point of treatment with the introduction of liquid digestion media. Many can be installed as a free standing item or on the floor of the premises.

### Cast-iron corrosion

Cast-iron remains a very important product, both for period and listed building restoration, and also in the London area where it continues to be the most popular drainage material. However, it is clear that in the rest of the UK there is an opportunity to displace cast-iron as a first choice material, particularly in building refurbishment projects.

It is a fact that cast iron corrodes over time, and BSS is witnessing increasing numbers of specifications for 1960s buildings, involving drainage systems which have corroded to a point where soil pipes are leaking. Often this is the result of a blockage due to a build-up of waste, such as fat oil and grease, which clings to the rough insides of a cast-iron pipe. In one case, a 6" diameter soil pipe had been reduced to the diameter of a 50p coin (less than 30mm).

### Health and Safety

More than a third of all over-three-day injuries reported each year to the Health and Safety Executive and local authorities are caused by manual handling, namely the transporting or supporting of loads by hand or by bodily force. An estimated 12.3 million working days are lost each year due to work-related manual handling injuries. On average each sufferer took about 20 days off in that 12-month period.


Inevitably, the building industry has been seen as a priority for manual handling regulations and drainage is a key area of focus. Modern HDPE systems are approximately one-third the weight of cast iron and can be easily prefabricated on-site or off-site for ease of transportation and assembly.

### BSS Industrial – UK

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## Pipes in concrete or plastic

Ecetas is both an infrastructure company and a pipe manufacturer. Being a contractor provides several benefits to EBS clients, such as providing extensive technical knowledge and supervisory services. Ecetas is experienced in the installation of sewage systems in unfavourable conditions. The company has wide knowledge, especially in sheet pile applications in low bearing capacity

soils where the groundwater level is relatively high.

Beyatas (Beton Yapı Elemanları Sanayi ve Ticaret AS), a sister company of Ecetas, produces concrete and reinforced concrete pipes and fittings in a variety of diameters and ready mixed concrete in compliance with national and international codes, in its factories in Manisa and Adapazarı, Turkey.

Derived from extensive pipe manufacturing expertise with its two concrete pipe manufacturing plants, Ecetas Construction Industry Incorporated has been servicing the infrastructure industry for more than 25 years. With new investments in state-of-the-art machinery in various types of plastic

pipes manufacturing, the company now offers to the Turkish and global markets polyethylene pipes (PE100, PE80, PE63, PE80 gas, steel wire reinforced thermoplastic PE100, corrugated, metal reinforced polyethylene) and GRP (glass fibre reinforced polyester) pipes and fittings, manufactured under the EBS (ECE Pipe Systems) brand.

The manufacturing plant in Manisa consists of a 7,500m<sup>2</sup> covered area and 50,000m<sup>2</sup> open area, including the stock yard. Additional factory locations are under construction for undergoing new investments.

New pipe manufacturing machinery in Manisa will broaden the EBS product portfolio, resulting in an increased capacity in plastic pipe manufacturing.

**Ecetas Insaat Sanayi ve Ticaret AS – Turkey**  
ecetas@ecegrup.com.tr  
www.ecegrup.com.tr



Pipes from Ecetas

## Directional drilling for new water pipeline

The installation of a new water pipeline at the heart of Maidenhead Town Moor, England, called for zero environmental and social impact. The use of polyethylene pipes from GPS PE Pipe Systems enabled this aim to be achieved.

Rich with wildlife, popular with visitors and close to the town centre, the site presented a challenge to the contractor Clancy Docwra. Not only did it have to minimise impact on the surrounding area, it also had to return the Moor to its recreational use as quickly as possible, in time for a major public event in August.

As the pipeline had to cross the Moor's waterside in three areas, directional drilling was chosen as the optimal technique to prevent disturbance to its wetland habitat and species. Minimal disturbance is achieved by digging a pit at each end of the pipe section and boring horizontally underground with a removable drill head matched to soil conditions and a series of drill stems to push and rotate the head. The head of the tool is steered from one pit to the other using a mobile transmitter. Once the pilot bore is completed, a reamer is attached to the drill stem and pulled back, enlarging the bore to accommodate the pipe that is subsequently pulled into place.

Pipes used in directional drilling must meet exceptional demands, as they may be pulled through underground tunnels over considerable distances. South East Water took advantage of Excel® high performance polyethylene (HPPE) pipe manufactured by Cambridgeshire-based GPS PE Pipe Systems. With its resistance to rapid crack propagation, long term stress cracking and corrosion,

Excel has proven to withstand the heavy loads associated with directional drilling. In total 660m of butt-fused 500mm pipe in SDR17 and SDR 11 was supplied to complete the work.

With the watercourse left undisturbed and less disruption to visitors, the work was completed within the planned timescales and all parties were satisfied with the outcome. Installed by open-cut in the 'dry' sections of the pipework, Excel reduced the installation time through its ability to be 'snaked' into the trenches, as flexible pipe strings welded from multiple 12m lengths. The directional drilling method also saved time.

The new £2.3 million pipeline forms part of the wider £390mn five-year infrastructure programme by South East Water to secure future water supplies. Its completion will see an extra 2.5mn litres of water transferred from a nearby water treatment works into Maidenhead's water supply network.

**GPS PE Pipe Systems – UK**  
www.gpsuk.com



Maidenhead Town Moor

# Italian water technology

Water is fundamental to life. The first urban settlements were established near natural water resources, before the building of aqueducts rendered life possible where water was non-existent or scarce. This primary asset is still given the utmost attention, dedicating its safeguard to the best of technologies.

A noteworthy modern aqueduct is being completed in the Sultanate of Oman, in As Seeb. The gigantic development consists of eight projects that together will create a new infrastructure of potable water, sewerage and irrigation for the new district of Oman's capital, Muscat, a city that embraces close to one million inhabitants.

450km of HDPE pipes are being laid, requiring accurate and comprehensive study and planning. HDPE was chosen for its stability, duration and hygienic qualities. The main stern is constituted by OD 900mm pipes, SDR 11; secondary branchings start with OD 560mm pipes. The diameter of the ducts reduces progressively as the peripheral waterworks systems are reached.

Arab Contractors and NUEV Sultanate of Oman joint venture opted for the Italian welding technology of Ritmo SpA to butt fuse the pipes. Ritmo's Delta machines have passed all the tests and proven themselves to be reliable, precise and practical under such demanding circumstances and prescheduled deadlines.

The most critical job was given to three Delta 1000 machines, which were assigned the welding of the entire OD 900mm main stern.



The welding of these pipes had to be perfect in order to allow the entire system to keep operating without failure for generations to come.

*Pipe laying in Oman*

One of the Delta 1000 machines featured a crane to assist and accelerate the operations. The welding of the secondary branchings was done with other machines from the Delta family: Delta 630, Delta Dragon 315B, Delta Dragon 250B, and Basic 160.

The fabrication of the fittings (bends, Ys, tees and crosses), used to complete the infrastructure and take the water to every house, was also entrusted to Ritmo's systems: the Sigma 400 Pro band saw machine was used to cut the pipes into segments that were successively welded together with the Alfa 400 CTB, one of Ritmo's workshop fittings welding machines. Once the weldings were completed, the ducts were buried at a depth of 2 to 3m.

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# PVC, PE & XLPE pipes



“A rational choice” is the first entry in a respected handbook on polyvinyl chloride (PVC) pipe; and it is also a good choice of chapter heading. Tube and pipe incorporating PVC can promise resistance to aggressive environments (weathering, abrasion, corrosion, chemical attack); robustness to earth and live loads and surge pressures; longevity; and much else besides.

Also high among the distinguished “cousinage” of the engineered thermoplastics are PE (polyethylene), its nonpolarity and high resistance to solvents enabling it to substitute for steel in oilfield flowline applications; and XLPE (cross-linked polyethylene), its dielectric and low- and high-temperature properties commending it for hydronic radiant heating systems.

It is a toss-up whether the competing merits of these superb polymers most benefit the tube maker or the customer and end user. What is certain is that their availability ensures an extraordinary range of excellent choices for applications and products across a broad range of industries.



# Harnessing ground energy from boreholes to cool and heat

An advanced ground source heat pump system that harnesses free energy from boreholes sunk beneath a rugby pitch is providing low cost, low carbon energy to heat and cool Wyke College, in Hull, England. The green initiative is part of a £20mn development at the college, culminating in the construction of a state-of-the-art new wing, the Oak Building.

The pioneering ground source heat pump system uses 50 boreholes, each 112m deep, sunk into the college's playing fields. It provides all-year-round indoor comfort conditions for students using the new college facilities, which include a library, theatre, sports hall, recording studio and lecture rooms.

A low carbon strategy for the building was developed by consultant Beverley Clifton Morris, using detailed Dynamic Simulation option appraisals. The solution selected has ground source heat pumps at the heart of the building's services. The heat pump system was designed and installed by Ecovision Systems Ltd, working with Neville Tucker Heating Ltd. More than 1km of HDPE ground pipe work required for the project was supplied by Pipe Center. The main contractor was Hobson and Porter.

The project had to take into account the unique thermal conductivity and properties of the rock and soil at the site. From this came the design specification for the heat pump system, which determined the number and depth of boreholes required. Most of the energy needed to heat and cool the building will be provided by the boreholes and heat pump system – even in the depths of the harshest winter and the hottest summer.

Some 75% of total energy required comes from the ground, with the remaining 25% being contributed by electricity used to drive the four Glen Dimplex heat pumps. The 50 boreholes, each spaced 10m apart, are arranged in an array about the size of a rugby pitch, and took between one and two days

each to drill. Each borehole has a 40mm diameter HDPE input and return pipe, joined with a fusion-bonded u-bend connecting flow and return at the base. The head of each borehole is linked to its neighbour by 75mm HDPE pipe set into a sub-surface trench. Finally, flow and return for the entire array to the plant room is laid in larger 180mm HDPE pipe.

The boreholes are used in three ways: to supply energy for upgrading by the heat pumps for heating the building; to provide 'free cooling' via an under-floor system, with heat from the building being transferred back into the ground during summer; and as an energy source to drive reversible heat pumps to provide refrigerant-based cooling via air handling units. The normal temperature of the ground 100m beneath the surface is a steady 10°C throughout the year. As a result of the boreholes and operation of the heat transfer system, this can fall to as low as -1°C in winter. In summer, energy is returned to the ground as the free cooling potential is tapped, with temperatures below ground rising at the end of the season to as high as 20°C.

The ground pipe work is designed as a closed-loop system. It contains 5,000 litres of glycol solution, which is passed through a brazed plate heat exchanger to extract and receive energy from the building. A 3kW pump on each heat pump keeps the loop circulating. The



Wyke College has installed a ground source heat pump system

entire heating and cooling system is under the control of a sophisticated building management system (BMS) that constantly monitors and ensures optimum use of energy sources at all times.

Ecovision's technical manager, Mark Witzemberger, who designed the system, said: "It is a superb installation and a great example of what can be achieved. The savings over the lifetime of the building will be substantial. With the cost of energy rising all the time, the investment will pay for itself many times over." He added, "People are waking up to the fact that natural energy sources can be harnessed to provide much of the needs of our buildings. Heat pumps have been around for some time, but their full potential is only now being realised. All it takes is a little imagination and a willingness to invest, and projects can pay for themselves quickly – with savings accruing over the lifetime of the building. We believe it is the future for heating and cooling buildings."

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Drilling the boreholes: the project used 1km of HDPE pipe in 50 boreholes

## Innovation in the PE pipeline

By Richard Graty, marketing manager, GPS PE Pipe Systems

*“Large alder trunks, with bark remaining, had been bored through with an auger to create a 5cm pipe for the water. The individual lengths were connected by rectangular slabs of oak, without any use of iron or lead fittings”.*

This account, given in 2005 by an archaeologist working at the Vindolanda Roman fort, in Northumberland, England, describes a timber water main installed approximately two millennia before it was unearthed. Water is thought to have been supplied from a nearby spring and distributed around the fort through the main and a network of similar wooden pipes, fastened together by oak pegs.

It is perhaps curious that the Romans were using timber pipes at a period when they were already masters of pipe production in lead and terracotta, and had built brilliantly engineered aqueducts serving urban populations. Yet the fact that water was still ‘on tap’ (or at least, flooding daily into the archaeologists’ trenches at Vindolanda just five years ago) is testament to this ancient pipe making technique.

More importantly it illustrates that pipes were, even then, becoming diverse in their design and construction. Rather than adhering to the most technologically advanced solution of the age, pipe makers used locally abundant materials to minimise cost, time and effort. The exploration of new materials for pipes and pipe fittings has since produced a wealth of options, leading to the widespread use of polyethylene pressure pipe systems.

Incidentally, the ability to contain water under pressure was not as relevant

to Roman potable water pipes as it is today. Flow was achieved by gravity and siphoning, and common practice was to allow water to flow continually at the point of use. In the case of lead pipes this counteracted the damage to public health, as it reduced contact time between the potable supply and the poisonous metal.

Centuries after Roman occupation, during the Industrial Revolution, trees were once again playing a part in the history of the British pipe industry, this time in the form of charcoal. Iron was traditionally smelted using charcoal and pipes made from cast iron produced in this way were certainly in use here in the late 17<sup>th</sup> century. (Cast iron pipes are actually recorded as early as 1455, in the German town of Dillenburg. However, the economics of manufacturing water pipes in this material were apparently not widely favourable until much later.)

As a forerunner of modern pipe systems, cast iron pipes received a boost in 1709, with the appearance of Europe’s first successful coke-fired blast furnace. Abraham Darby rebuilt the existing furnace at Coalbrookdale and fuelled it using coke, which was far better than coal for iron smelting, and at this time was more readily available than locally made charcoal. This was a significant technological breakthrough and laid the foundations for British cast iron production on a large scale.

In London, cast iron was used for public water supply from the mid-18<sup>th</sup> century, although this was restricted to trunk mains. Examples are documented: approximately 1,500 yards of 12" pipe were laid at Chelsea in 1746 and in



Richard Graty

Scotland, Edinburgh subsequently installed six miles of 9" cast iron mains.

At this time flange ends provided the common method of jointing cast iron pipes. It appears this was not particularly reliable, as contemporary engineers recorded numerous failures caused by expansion and contraction, due to seasonal temperature changes. However, in the late 18<sup>th</sup> century Thomas Simpson introduced a repair method for flanged pipelines, which used molten lead to join broken pipes. He was credited with developing the run-lead spigot and socket joint in 1785, which accommodated thermal movement more successfully than flanges.

The nascent metal pipes industry, with the industrial Midlands at its centre, created companies that were to develop, amalgamate and go on to produce polyethylene pressure pipe for water. It also ultimately led to the formation of the UK’s largest ever single organisation in this field, Glynwed Pipe Systems Ltd.

A noteworthy step came in 1862, when A&J Stewart and Menzies Ltd of Glasgow produced the first gas pipes in the UK. In 1895 this company was merged with Lloyd and Lloyd Ltd of Birmingham, thus forming Stewarts and Lloyds. At this point both companies had existed for more than 40 years and had risen to become the largest iron and steel pipe manufacturers in Britain.

Around the same period the first UK factories for lead pipe and copper pipe production were established at Ironbridge (Glynn Brothers) and Bilston (Wednesbury Tubes), respectively. The two were later to become united under the name Glynwed. The growth of Glynwed, in parallel with that of Stewarts and Lloyds, culminated in the creation of Glynwed Pipe Systems Ltd in 2000.

Along the way, Stewarts and Lloyds acquired the Victaulic Company, which

Remains of the Vindolanda Roman fort



Lead pipe at the Roman baths in Bath, England



*Stewarts and Lloyds was formed in 1895, by the merger of A&J Stewart and Menzies Ltd and Lloyd and Lloyd Ltd*

began life in 1919 when Lt Ernest Tribe of the Royal Engineers founded the Victory Pipe Joint Company. His Victaulic joint was invented in 1922 and was the basis of what is still today an extremely robust and reliable jointing method for pressure pipe. This was also the branch of the group that in 1930 gave birth to the Viking Johnson high tolerance pipe coupling, suitable for joining dissimilar pipes.

This was also a critical period in the development of plastic pipe systems. Polyvinyl chloride pipe was in production between the wars, although it was largely reliant on fabrication of relatively short pipe lengths. The way forward lay in producing plastic pipes by continuous extrusion, and by the time extrusion technology was maturing in the 1950s, high density polyethylene (HDPE) had appeared on the scene. The arrival of HDPE offered a superior material to PVC for piping pressurised water.

The inherent strength of HDPE was significant in its suitability for water and gas pipes but above all its ductility – resistance to brittle failure – was key. Coincidentally, ductile iron was also introduced in the UK as a pipe material in the 1950s and has remained a competitor to PE since then.

As PE pipe systems began to be accepted and installed by the water and gas utilities, the Glynwed companies (the antecedents of today's UK manufacturer GPS PE Pipe Systems) were prominent in developing new products and manufacturing methods. These included, in 1979, the UK's first electrofusion joint, with electrically

heated wires embedded in a moulded coupling.

In the following year the PushFast spigot and socket system was introduced, and by the end of the 1980s the group had brought in the 'Rolldown' trenchless pipe installation technique, high strength PE100 pipe and had manufactured the UK's largest diameter PE pipe. This was a 630mm pipe installed by Thames Water at Blake's Lock, Reading.

Over the next decade GPS was responsible for taking the application of PE pipe systems in a number of new directions. In 1994 the group produced the first skinned PE pipe, for the Severn Trent Water Authority. Providing protection for the pipe surface during installation and enabling a clean surface to be presented for electrofusion jointing, this innovation was developed

into the GPS peelable pipe, Secura-Line. This was quickly followed by a multi-layer barrier pipe for petrol and the first barrier pipes for potable water in contaminated land, Protecta-Line.

From very early beginnings pipe systems have diversified in terms of their materials and design, undergoing rapid development in recent decades. In the water and gas industries, this has culminated in HDPE pipe systems that offer an extremely long service life, high performance and installation benefits. There are currently no better alternatives to take their place. On this basis innovative manufacturers, such as GPS PE Pipe Systems, continually seek to offer new solutions in water and gas distribution using this versatile material.

**GPS PE Pipe Systems – UK**  
[www.gpsuk.com](http://www.gpsuk.com)



*A stack of modern plastic pipes*

## Clear PVC duct

SF PVC (thermo plastic PVC) duct from Novaflex features a special molecularly bonded construction, for reduced turbulence and increased flow efficiency.

The duct is suitable for many industrial applications, including the transport of particles and gaseous media.

The duct is constructed from premium clear polyvinyl chloride, allowing for continuous visual monitoring, and is manufactured with FDA approved materials. It is suitable for light duty

material handling, and has good resistance to oil, alkali and acids, as well as being very flexible, with good abrasion resistance.

The duct is available in sizes from 1.5" to 24", in 25 and 50ft lengths (up to 8" diameter) or 20ft lengths (10" diameter and greater). The temperature range is 20°F to 165°F.

**Novaflex Group – Canada**  
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## Pipes and fittings made in Germany

Bänninger Kunststoff-Produkte GmbH was founded by the German Bänninger family over thirty years ago.

Although no longer owned by the family, the company is an independent, flexible working enterprise with modern production sites in Reiskirchen, near Frankfurt, and Stassfurt, near Magdeburg.

Bänninger produces pipe fittings, pipes and installation accessories to various technical regulations and standards, and from the best raw materials. The company's pipes and pipe

fittings are all continually tested and approved to ensure full compliance with the strictest safety standards and regulations.

The Bänninger programme now includes pipe fittings made of PVC-U, PE100 and PP-R, with more than 2,100 different products for cold or hot water, drinking or waste water, rain water, gas and all sorts of chemicals.

In close cooperation with users, the company has developed new materials that are suitable for specific applications and new techniques and

products for quick and easy installation. The company's PP-R CT-pipe, despite using the same pressure rate as the classic PP-R pipe, has a claimed 17% higher volume flow (m<sup>3</sup>/h).

State-of-the-art logistics ensure that products are delivered promptly, within just 24 hours inside Germany and 48 hours maximum to foreign markets.

**Bänninger Kunststoff-Produkte GmbH** – Germany  
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## CPVC – protecting Olympic athletes

The Olympic site now under construction in Stratford, east London is described as the largest building project in Europe. IPS Flow Systems is part of a national effort to make London 2012 the most

environmentally friendly and carbon neutral Olympics ever staged.

The Olympic Delivery Authority (ODA) is making great effort to ensure that this

is a safe and a happy project for the workers, who are creating what is to be a landmark event in British history. IPS Flow Systems entered the 'team trials' almost three years ago, working along with Bovis Lend Lease to develop the specification to install automatic fire sprinklers in the 3,500 apartments that will serve as home for the world's athletes during the Games.

The specification of the BlazeMaster<sup>®</sup> fire sprinkler system, made from CPVC plastic, was a natural choice to ensure state-of-the-art fire safety in the 11 high rise buildings that will constitute the Athletes Village. The ODA, keen to ensure that only the most environmentally friendly materials were used, gave a thorough examination of the BlazeMaster pedigree. A careful comparison was made with more traditional materials such as copper and carbon steel, both of which are more expensive to install.

BlazeMaster finished ahead of the field in sustainability trials. The system is quick and clean to install, and any off-cuts from the installation can easily be recycled. The BlazeMaster CPVC fire sprinkler system earned its place on the Olympic team, receiving the accolade of 'Site Wide Approval' from the ODA.

**IPS Flow Systems** – UK  
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IPS Flow Systems fire sprinkler systems will be used in the London 2012 Athletes Village accommodation

# Pipes with increased resistance to slow and rapid crack propagation

Owing to refinements made to the thermoplastic polyethylene and the pipes and fittings manufactured from this material, the fields of application of these products have increased. Pipes, fittings and customised components can be used in water supply and disposal networks with pipe laying methods that were inconceivable only 20 years ago.

In the past, the properties of PE for industrial applications as well as water supply and disposal systems were developed with regard to internal pressure resistance. This is reflected by the basic standard DIN 8074/75 – polyethylene (PE) pipes – PE 63, PE 80, PE 100 and PE-HD.

In this context the material designation and the load classification for pipes refer to internal pressure creep rupture strength (MRS = minimum required strength) for 20°C, 50 years and the test medium water. The underlying MRS figures are 6.3 N/mm<sup>2</sup> for PE 63, 8 N/mm<sup>2</sup> for PE 80 and 10 N/mm<sup>2</sup> for PE 100. Owing to the soft pipe surfaces, PE pipes were embedded in sand, in accordance with the laying recommendations, in order to prevent damage, and hence a reduction in service life.

With the further development of pipe laying methods, when installing new pipes and rehabilitating buried water supply and disposal pipelines it was necessary to improve the material in such a way that a high level of resistance to external mechanical damage would be achieved.

This goal was achieved thanks to the development of bimodal PE 100 materials with high resistance to slow and rapid crack propagation. Classification of these materials is set out in PAS 1075 – Pipes made from Polyethylene for Alternative Installation Techniques: Dimensions, Technical Requirements and Testing.

In PAS 1075 (PAS = publicly available specification), which is a supplement to existing standards and guidelines, there are three different types of RC (resistance to crack) pipe.

Type 1: single-layer solid wall pipes made of PE 100-RC

Type 2: pipes with dimensionally integrated protective layers of PE 100-RC

Type 3: pipes with dimensions conforming to DIN 8074/ISO 4065 with an outer protective casing; inner pipe made of PE 100-RC

In order to meet the high demands made by PAS, for the 'Material' approval test the pipe must pass an FNCT (full notch creep test at 80°C and a test stress of 4 N/mm<sup>2</sup> in a 2% solution of Arkopal N 100 for more than 8,760 hours) and a point load test (under the same test conditions). The approval test for the pipe must take the form of a 2NCT (2 notch creep test at 80°C and a test stress of 4 N/mm<sup>2</sup> in a 2% solution of Arkopal N 100 for more than 3,300 hours) and a point load test (under the same test conditions but for more than 8,760 hours).

Based on this requirement profile it is possible for the user and planner to select a pipe that is technically and commercially optimised for a particular application.

On the basis of material specifications and proofs it is possible to recommend using pipes conforming to PAS classification types 1 and 2 for sand bed-free laying of PE pipes, eg in prepared, compactable excavated trench soil. If extreme loads are to be expected, as with the alternative pipe laying methods of pipe bursting and wash-boring, type 3 should be used. This largely corresponds to the recommendations in DVGW code of practice GW 321 (Controllable horizontal wash-boring methods for gas and water pipelines; requirements, quality assurance and testing), and GW 323 (Trenchless renewal of gas and water supply pipelines by bursting; requirements, quality assurance and testing).

Simona AG is a manufacturer of thermoplastic products, with production facilities and sales offices around the globe.

The company's product portfolio includes semi-finished products (sheets, profiles, welding rods), pipes and fittings as well as finished parts.

*Author: Dipl-Ing Jürgen Allmann, product manager pipes, Simona AG*

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# Tube expansion issues and methods

by Mark Bloodworth, HydroSwage® product manager, Haskel International Inc

Tight, durable seating of tubes in tubesheets is one of the critical functions in manufacturing heat exchangers for nuclear steam generators, boilers for conventional power generation, food and pharmaceutical processing systems and condensers.

In selecting the best method for expanding the tube within the sheet, producers must examine factors including safety, speed, cost, operator skill requirements, repeatability and overall quality.

With the number of tubes in a sheet ranging from the hundreds to tens of thousands, and the expansion process being done manually one by one, the stakes for achieving the best balance of quality and cost are high.

This article will explore how the four common expansion, or swaging, methods in common use – two hydraulic and two mechanical – meet those key considerations in various applications.

## Tube and tubesheet issues

As a general rule the smaller the clearance the better, from the expanding point of view, no matter what expanding method is used. What establishes the clearance used by manufacturers is their ability to stuff the tubes through the tubesheets and baffles. This varies with the size of the structure, its configuration and the tube diameter.

From a practical standpoint, the best quality will be obtained by using the TEMA Special Close Fit drilling tolerances and adhering to tubing manufactured in complete conformity with Section II of the ASME code.

To some degree, all tube-to-tubesheet joints leak. While welded expanded joints are the most leak resistant, hydrogen may pass through welded joints. When welding the tubes to the front face of the tubesheet for tightness or strength, subsequent expanding beginning about  $\frac{3}{8}$ " to  $\frac{1}{2}$ " beyond the weld should be called out to avoid failure of the welds which may result due to cyclical loads from vibration or various loadings to which the tubes are subject.

Axial scratches in the hole or tube material will cause leaks in any expanded tube to tubesheet joints, regardless of whether expanding by rolling, near contact explosions, compressing a rubber expander, or by hydro-expanding. Therefore it is recommended that scratched holes be reworked to be free of axial scratches or an optimal groove be cut into the tubesheet.

## Tube expansion methods

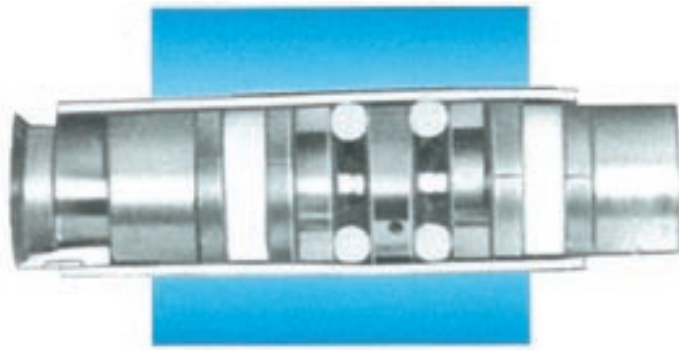
By expanding the tube inside the tubesheet, swaging ensures that the space between the two components is always forced closed.

Hydraulic expansion is the direct application of high internal pressure within a tube or sleeve in order to form a tight joint between the tube and tube sheet or a tight seal between the sleeve and tube. Two processes are used to accomplish such expansions:

- In direct hydraulic expansion, the tube is sealed at its expansion zone ends and fluid pressure is applied directly to the inside surface of the tubular section being expanded.
- Explosive expansion involves an explosive charge inside the tubular running the length of the tubular that is sealed on both ends. A charge is detonated and the pressure generated expands the tubular out against the existing casing. The outside is generally sealed to the existing casing with a layer of fibreglass impregnated resin. A mandrel may then be pulled through the expanded liner to complete the expansion process.

In mechanical rolling, a set of hardened rolls in a cage rotate around a tapered mandrel. The rolls travel up the mandrel causing an increasing radial force exerted at the contact point between the rolls and the tube.

This increasing force moves the tube material outwards until it contacts the ID of the tubesheet hole and continues until supposedly the tubesheet material is just below its yield point.



*HydroSwage mandrel in tube*

Two primary methods of mechanical expansion are linear swaging and rotary swaging:

- In linear swaging, the tube is either affixed to the existing casing or is suspended on the wire line or tubing string. A mandrel is then forced through the tube to expand it.
- Rotary swaging typically utilises a cone with external rollers to expand the tube. The cone is rotated while it is pulled through the tube, decreasing the axial stresses as compared to linear swaging but increasing the torsional stresses on it.

## Application considerations

### **Explosive Expansion**

Almost all explosive expanding is done on constructions where the primary seal of the tube to the tubesheet is by welding. Explosive expansion has been successfully applied to expand tubes into tubesheets as thin as 1½" and as thick as 33". Most experience with explosive expansion has been with 6" or thicker tubesheets. With explosive expansion, tube materials such as titanium and austenitic stainless steels frequently must be shot twice. Depending upon the materials, tube diameter, gauge and tubesheet thickness, explosive expanding may be considerably more expensive than hydraulic expansion.

Experience has shown that leakers may occur with only one explosive detonation. There have been instances where explosive expanding caused measurable ligament movement with consequent availing of adjacent tube holes as well as cracked ligaments. It is advisable and customary to install ligament supports in surrounding tubes when setting off another explosive charge to seal a leaking joint.

With explosive expansion, the calculated appropriate explosive charge must be verified experimentally and tube ends must be cleaned after expanding, though a residue remains and there is some discoloration of the tube. Special training and certification is required for technicians who perform explosive expanding.

It is generally unsafe to set off explosives on-site in chemical plants, pharmaceutical plants and oil refineries because of the hazard of igniting volatile materials. The noise level during explosive expanding requires hearing protection for

technicians and others within hearing range. Organisations that do explosive expanding must deal with government requirements for purchasing and using explosives. Special permits may be required to transport explosives across state lines.

### **Mechanical Rolling**

When one roller expands tubes into grooved holes, tube metal extrudes into the grooves. But mechanical rolling may cause tube-end fatigue, depending upon the frequency and amplitude of the stresses the rollers apply. The frequency is far more effective in producing fatigue than the amplitude. That is why five or seven roll expanders are used when the tube material is subject to fatigue. By comparison, from the fatigue standpoint hydro-expanding is like having an infinite number of rolls.

The high contact stresses imposed by rolling make it more likely that stress corrosion will cause tube-end failure. When leakers are re-rolled after hydro testing, the tube wall is further reduced. The transition from the reduced wall is a possible trouble source in rolled tubes. Also, ligaments may move enough to start other leaks and even cause ligament damage around the other tubes. This can result in having to chase the leaks completely around the tubesheet.

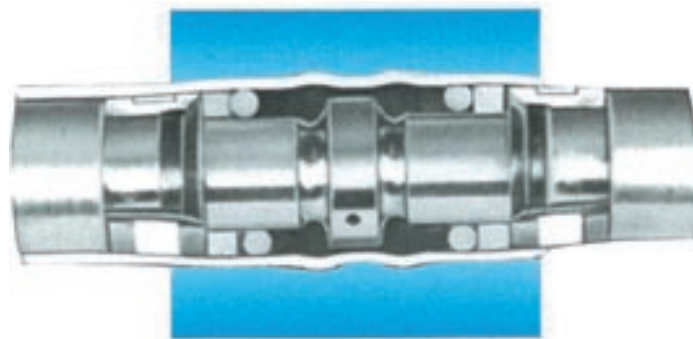
Mechanical rolling reduces the tube wall by a) stretching the tube radially; and b) imposing high unit rolling forces that cause the tube to extrude axially. To roll tubes into tubesheets thicker than 2", you must step roll. This is time consuming and requires a tremendous amount of skill. Because mechanical rolling pushes the tube material out the rear of the tubesheet, a very noticeable rear crevice is created, often resulting in premature tube failure.

In mechanical rolling, whether using torque setting or apparent percent tube wall reduction, the degree of expansion cannot be directly correlated.

Furthermore, torque controllers measure only the power drawn by the rolls, which can vary with the condition of the rolls and mandrel, lubrication, operator fatigue and other factors.

Accuracy and quality are heavily dependent on operator 'feel' and skill. Over rolling will break the bond between tube and tubesheet, increase leakage and reduce joint strength. An under pressure condition will reduce joint strength and increase tendency to leak.

*High pressure expansion of tube*



### Hydraulic Expansion

The newest expansion method, hydro-swaging, was developed by request from Westinghouse engineers who were seeking a more effective method than roller expansion for nuclear steam generators.

Because expansion pressures are applied uniformly, tube after tube, hydraulic expansion yields consistent joints throughout the tubesheet. The system is easy to operate with minimal training and the method has been applied successfully to expand tubes into tubesheets as thin as 3/4" up to as thick as 33".

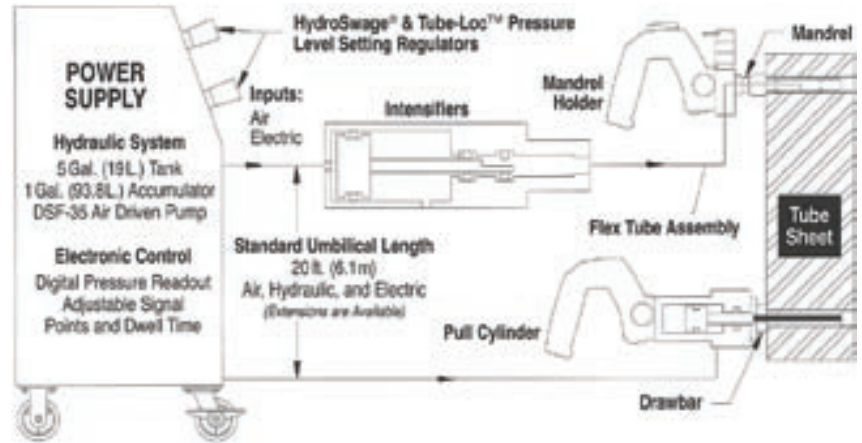
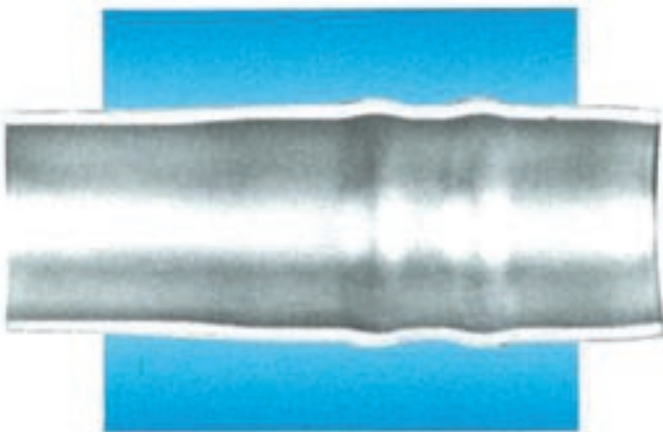
Water pressure is applied to the tube ID over the full length of the joint in an accurately prescribed pressure zone, in one step producing clean and consistent joints. With this process stress, crevice corrosion and metallurgical changes are minimised. Because expansion is accomplished using only distilled or purified water, no lubricant is forced into the tube surface and there is no surface flaking or spalling inside the tube.

A smooth transition from expanded to unexpanded areas, along with no change in tube material properties, greatly reduces strain hardening, tube fatigue and stress induced corrosion cracking.

When hydro-expanding tubes into grooved holes, the tube bulges into the groove, providing additional tightness at the contact of the groove edges with the tube. The recommended groove for hydraulic expansion should have a width of three times the tube wall thickness and a depth of 0.2 times (20%) the tube wall thickness. The recommended shape of the groove is rectangular, and the edges of the groove need to be clean and square with no interruptions.

Hydro-expanding produces no surface effects on the tube and almost no work-hardening. Bell shaped or hourglass shaped tube ends never occur and the tube-to-wall contact is always uniform.

*Smooth transition from expanded to unexpanded areas groove penetration is accurate*



HydroSwage diagram

Hydraulic expanding leaves no residue and does not change the appearance of the tube ends because de-ionized water is used to expand the tubes. Used consistently and successfully on both non-weld and welded joints, it is successful in out-of-round holes and in holes distorted by tube plugging.

As the pressure applied to the joint is controlled accurately hydraulic expansion does not cause ovaling or cracked ligaments, and because of its uniformity, it further reduces the probability of axial scratches when re-tubing.

Extraction of hydro-expanded tubes is extremely even and uniform, producing cleaner tube holes ready for re-tubing. If a leaker occurs, the exact pressure that will provide a seal without disturbing any of the adjacent holes is known. Because of the fine control hydraulic expansion offers, it is not necessary to insert ligament supports in surrounding tubes when re-expanding.

Tubes may be hydro-expanded to the exact rear face of the tubesheet, thereby reducing the chance of crevice corrosion at the rear. This is accomplished by pressure being applied uniformly to the entire tube length at the same time.

Advanced hydro-swaging systems have a multi-member seal design that allows the operator to perform many expansions without replacing any elements of the sealing package. In addition, touch-screen and PLC technology is being adapted to hydraulic systems to allow storage and download of expansion data.

Hydraulic expansion is quieter than most machines used in heat exchanger factories and in locations that utilise the heat exchangers, and it can be done safely anywhere.

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- Profile Materials for Tube Making
- Show Feature: Boru 2011

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- Stainless Steel Tubes
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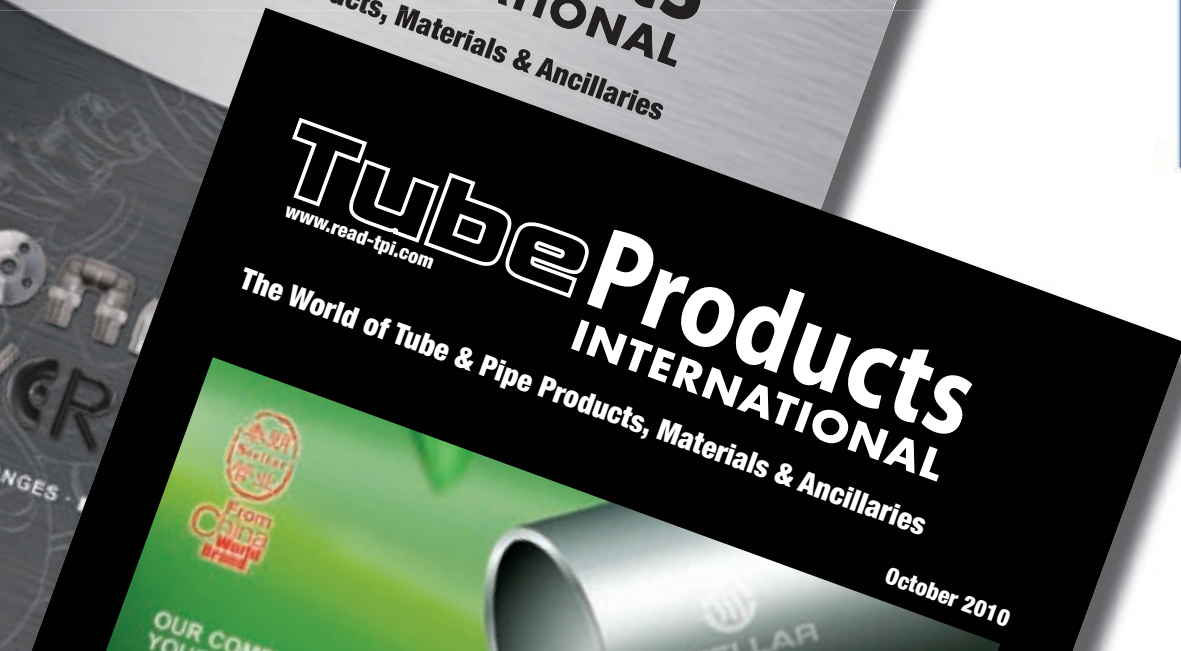
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