

# TUBE & PIPE



JULY 2013

管道技術

# Technology

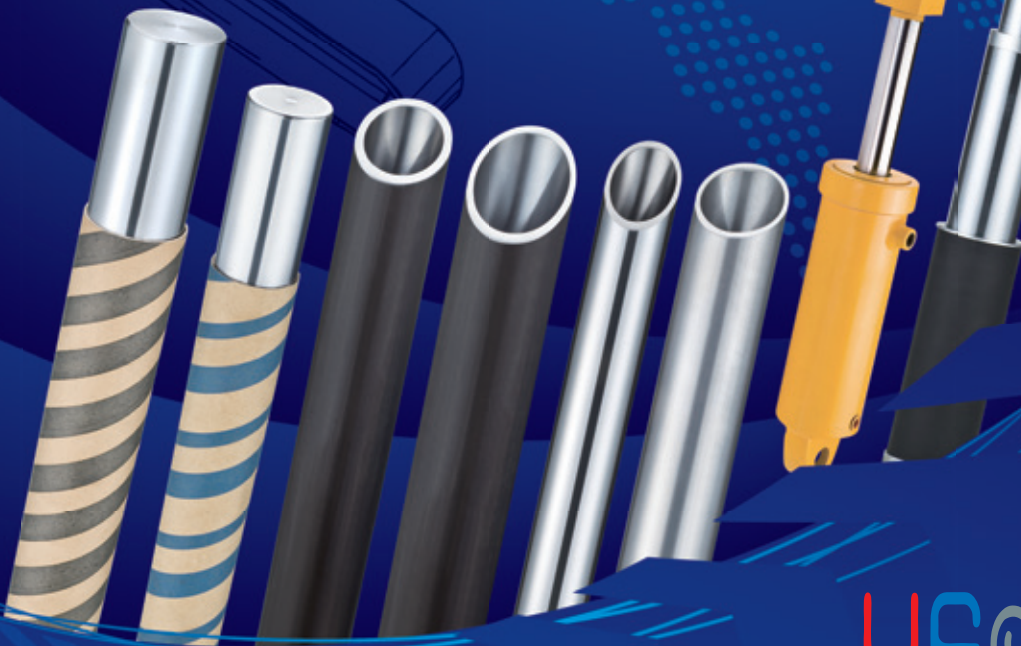
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Mill Solutions

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ANSHAN, CHINA 2007 - ERW/API 8"-24"Ø



J. BURG, SOUTH AFRICA 2008 - ERW/API 8"-24"Ø



SOHAR, OMAN 2010 - ERW/API 8"-24"Ø



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**MILLTECH**



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By Chris Ricketts, category director, BSS Industrial, UK

# The July Issue

Welcome to the latest issue of *Tube & Pipe Technology* magazine. This issue we have a special feature on bending, end forming and swaging and take an in-depth look at the technology needed to make PVC-O pipes as well as a feature on what drives choices regarding pipe material. We also have all the usual industry and technology news to keep you fully updated on the latest developments in tube and pipe machinery around the globe.

This month the magazine is being distributed at Tube Southeast Asia 2013 and the Intras team will of course be at the show offering our full support so please come and say hello. We would love to hear about your machine or talk to you about getting your news and product information in the magazine. It is a great and easy way to get your machinery seen by thousands of carefully selected readers every issue and you can personally send me your stories for publication free of charge. If you would like to complement your news with a marketing campaign please feel free to contact our expert team using the information on the right on this column.

Next issue we will be looking at Tubotech 2013 (see you there), EMO Hannover 2013 and have features on tube mills and roll forming, and tube extrusion and drawing, so please contact me at [rory@intras.co.uk](mailto:rory@intras.co.uk) if any of these areas are of interest to you and your team.



Rory McBride – Editor

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## Front Cover Story: Yee Young Industrial Co Ltd

Yee Young has always valued quality, clients, working efficiency and harmony with stakeholders since its establishment. Through continuing improvement it puts effort into providing reasonable prices and excellent products. All our employees have cooperated with upstream suppliers and downstream customers to beat several economic problems and create amazing performance in the hydraulic and pneumatic industry in Taiwan. As a member of global

enterprises the company pursues the largest benefits with the greatest appreciation for you and the world.

**Innovation:** new products, new technique, new knowledge, and new business management concepts.

**Quality:** meeting and exceeding the expectations of our clients is always the most important thing to us.

**Service:** delivery on time, provide best quality, retain rights of customers, and accept customers complaint so as to achieve the best satisfaction of customers.

**Efficiency:** sales, manufacture and management departments are required to possess high efficiency, and strengthen the capability of competition in the global market.

## Precision is a key to success

HIGH accuracy is the key to success for ultra high strength couplings used in down hole drilling applications. Easy thread up, reliable operation and strict adherence to API standards are the minimum requirements.

Since couplings are manufactured from micro alloyed quenched and tempered steel, high precision and high capability equipment is required for the first process step: cutting the blanks from the pipe. API couplings are furnished in two classes: Class T

and Class SM (metal spray). The latter has a superficial hardening process, based on nickel, chrome, boron and silicon, that provides better erosion and corrosion resistance.

A manufacturer of couplings in Central America decided to purchase the RingSaw® made by German manufacturer Reika. The machine features a cutting head that orbits the fixed workpiece. Due to the special cutting tool design and process, the cut is almost completely square and free from burrs.

Reika states that its RingSaw products provide outstanding lifetimes, high operating cost savings compared to conventional carbide saws, and higher output. The company was able to offer a solution for the production of API couplings with the RingSaw as its core. The line is completed by additional stations, such as built-in robot handling systems, automatic length measuring, and automatic palletising of couplings in special containers.

The RingSaw line of machines for cutting pipes, profiles and rods can be used for workpieces within a diameter range of 10 to 610mm with wall thicknesses from 1 to 150mm. The machine concept is purely electro-mechanical without any hydraulics, and is therefore oil-free. The cutting process is dry, but can be optimised either with a mini coolant or full-emulsion system.

The machine bed is totally oil-free and designed as a closed water draining and reservoir area, so there is no need for additional foundations apart from basic machine fixings. The chip conveyor can be connected directly to the machine bed. The RingSaw is equipped with a housing that offers operator safety and environmental protection.



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## Tube 2014 already well booked

AROUND one year before the number one international trade fairs wire and Tube get under way one thing is certain: both industrial fairs are already benefiting from a lot of bookings.

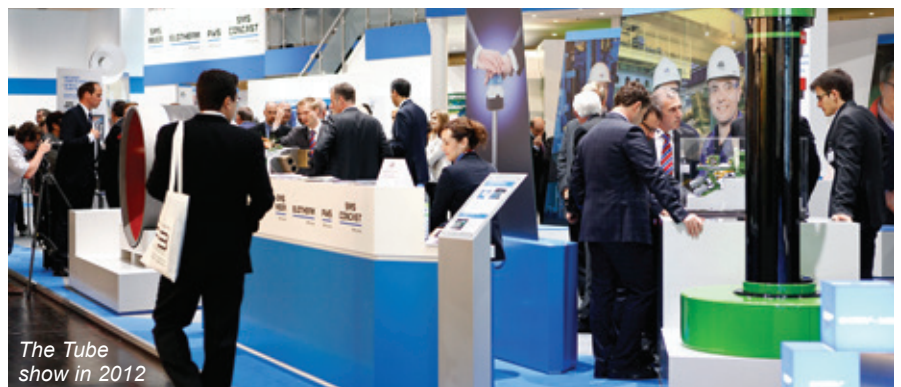
For 2014 exhibitor figures and booked space levels similar to 2012 are expected. 1,178 exhibitors showed innovations covering all aspects of pipe and pipeline systems in space of around 48,500m<sup>2</sup> at Tube 2012.

Tube, and tube and pipe accessories, will be in Hall 1 and in Hall 2 where a large Chinese contingent is present, while Halls 3, 4 and 7 are showing the pipe production and pipe retail sectors. Forming technology for hollow materials is being shown in Hall 5; pipe-processing machines along with

the major areas of welding, cutting and surface technology follow in neighbouring Hall 6. Machinery and plant for pipe production is located in Hall 7a and parts of Hall 6, while the

Plastic Tube Forum special show is being held in the adjacent Hall 7.1.

**Messe Düsseldorf** – Germany  
Website: [www.tube.de](http://www.tube.de)





# Largest integrated steel mill in ASEAN

THE Taiwanese Formosa Plastics Group has contracted German company Freidrich Kocks GmbH & Co KG to supply a 3-roll reducing and sizing block in heavy-duty design (RSB) for its Vietnam-based subsidiary Formosa Ha Tinh Steel Corporation.

Formosa Plastics Group, with some 100 affiliate companies and about 100,000 employees worldwide, is the largest private enterprise in Taiwan.

The RSB will be installed in the combined wire rod and bar mill of the new integrated steel mill project in the Vung-Ang Economic Zone of the Ha Tinh Province. This is located 410km south of Hanoi City and 1,300km north of Ho-Chi-Minh City. With a total production capacity of 15 million tons/year this will be the largest integrated steel mill in the ASEAN (Association of Southeast Asian Nations).

The 370mm heavy duty reducing and sizing block will be operated as finishing block in the new 600,000 t/a rolling mill for special bar qualities downstream the 16-stand roughing and intermediate mill. The RSB is equipped with four stand positions and is designed for controlled rolling at low temperatures down to 750°C. The 3-roll block rolls round bar in coils within the range from 20mm Ø to 55mm Ø.

The RSB allows rolling out of only one pass series with just five feeders from the roughing and intermediate mill. Due to the 'free-size' rolling capability any desired finished dimension within the complete dimensional range can be produced in any required sequence with a minimum number of roll sets and just a few stand changes. The optimum adjustment values for motor speed, rolls and guides as well as gear steps are calculated by the bar mill configuration system BAMICON in relation to the final product.

**Freidrich Kocks GmbH & Co KG** – Germany  
Website: [www.kocks.de](http://www.kocks.de)

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## Diary of Tube Events

### 2013



**16-21 September**  
**EMO Hannover** (Germany)  
International Exhibition  
[www.emo-hannover.de](http://www.emo-hannover.de)



**17-19 September**  
**Tube SE Asia** (Thailand)  
International Exhibition  
[www.tube-southeastasia.com](http://www.tube-southeastasia.com)



**1-3 October**  
**TubeTech** (Brazil)  
International Exhibition  
[www.tubotech.online.com](http://www.tubotech.online.com)



**12-14 November**  
**Stainless Steel World Expo** (Netherlands)  
International Exhibition  
[www.stainless-steel-world.net](http://www.stainless-steel-world.net)



**18-21 November**  
**Fabtech** (Chicago, USA)  
International Exhibition  
[www.fabtechexpo.com](http://www.fabtechexpo.com)



**19-22 November**  
**TOLexpo** (France)  
International Exhibition  
[www.tolexpo.com](http://www.tolexpo.com)



**11-15 March**  
**Metav** (Germany)  
International Exhibition  
[www.metav.com](http://www.metav.com)



**7-11 April**  
**Tube Düsseldorf** (Germany)  
International Exhibition  
[www.tube.de](http://www.tube.de)



**24-27 September**  
**Tube China 2014** (Shanghai, China)  
International Exhibition  
[www.tubechina.net](http://www.tubechina.net)



**28-30 October**  
**Tube India 2014** (Mumbai, India)  
International Exhibition  
[www.tubeindia.com](http://www.tubeindia.com)

### 2014

## HAZControl installed

ONE of North America's top producers of API products has completed the installation of a 1,200kW HAZControl™ Technology Dual (induction/contact) Solid State HF Welder and three ThermoTool® Seam Annealers at its manufacturing facility.

The manufacturer's new ThermoTool® HAZControl™ Technology Variable Frequency Dual Welder can operate

in induction or contact mode on the same mill, reducing changeover time between products. The equipment's intelligent software provides stable, precise heat input control of power and frequency independently in 1kW and 1kHz increments. The welder is used for welding 6<sup>5</sup>/<sub>8</sub>" through 20" OD P110 and other API grade steels with wall thicknesses between 7.1mm to

14mm at speeds up to 25m per minute. Three ThermoTool® Seam Annealers were installed to eliminate untempered Martensite in the weld seam as required by API specification. ThermoTool's Seam Annealing system is coupled with Smart Anneal™ software – an easy to use operator control system. Smart Anneal automates and simplifies many operators' tasks, the key to repeatable results and scrap reduction.

**ThermoTool Corp – USA**  
Website: [www.thermatool.com](http://www.thermatool.com)

## 15 years of lifting innovation

COMBILIFT Ltd, the specialist manufacturer of the Combilift 4-way forklift range as well as other innovative products, is celebrating 15 years in business in 2013. Established in 1998 by Martin McVicar and Robert Moffett, the company has achieved growth and success on a global scale in the materials handling sector and is now renowned in the market for long load handling solutions.

Before the arrival of the Combilift – the first engine-powered, all wheel drive multi-directional forklift operations that needed to handle and store long loads had to rely on a combination of other types of forklifts, none of which was actually designed for their

specific requirements. This not only compromised safety procedures but was also time consuming and required large areas to be set aside for manoeuvring and storing products.

The concept of a truck that could change the direction of its wheels to move forwards, backwards and side to side at just the touch of a button changed the face of materials handling: over 18,000 units have since been sold in more than 75 countries, and what was once seen as a niche solution for a few select applications is now an industry standard.

Managing director Martin McVicar cites substantial investment in R&D, customisation and the willingness to

listen to customer feedback as major factors in the company's success: "The latter has been pivotal for new product development. As there is no one typical set of requirements for individual applications our production line was configured at the outset to offer a very high degree of customisation. We also use standard and readily available components so that our products can be easily maintained and serviced wherever in the world they are being used."

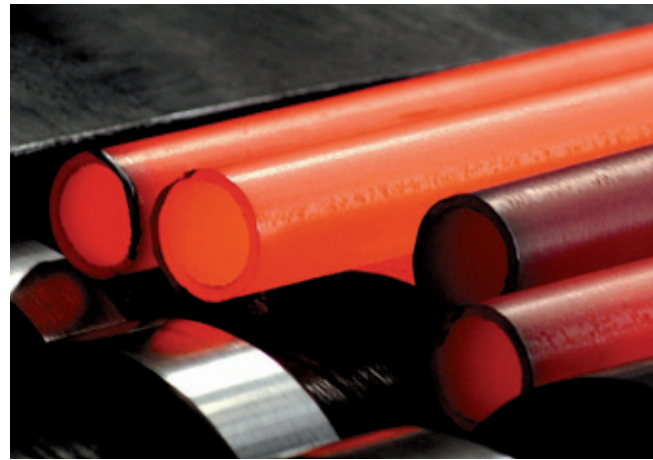
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Know-how for tomorrow

## Plastics producer installs 4<sup>th</sup> CNC router

TECHNO has announced the completion of its fourth machine installation into a large volume plastics production company. Due to the high level security and product classification Techno cannot divulge who the customer is, but congratulates them on their growth and success during the past several years.

The customer plans on adding two more new HDS machines this year, taking advantage of the 2013 Section

179 Tax Law. The customer claims it will be able to write off 50 per cent of many types of capital investments exceeding the deduction limit in the first year. This special provision was due to expire at the end of 2012, but Congress extended it. The definition of "qualifying assets" will continue to include computer software in 2013, as the new legislation extended this piece of Section 179 for one year.

The company claims the new tax law will save it over \$40,000 by adding the additional machines. It is also forecasting a 25 per cent growth this year, and does not see any slowdown in the near or distant future.

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## Revenues exceed €120mn for Kemppi Oy

GROUP revenue of Finnish welding industry solution provider Kemppi Oy grew in 2012 to reach €121mn (+10.4%) and profit (EBIT) reached almost €20mn. The business grew particularly well in the developing markets, while demand for equipment remained stable in the traditional markets of Scandinavia and Europe.

The company continues to increase

its investments in equipment, software and service concept development in order to offer the welding industry wider comprehensive production solutions. The number of personnel continued to grow in Finland and abroad. An increasing share of revenue is expected to come from the developing markets in the future. In January the company opened a new sales

office in Kuala Lumpur, Malaysia, to account for increasing Southeast Asian sales. Despite the generally uncertain economic environment, moderate growth is being targeted for the current year.

The quality and productivity management system developed by Kemppi (Kemppi Arc System) is expected to make a breakthrough during this year.

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Website: [www.kemppi.com](http://www.kemppi.com)

## SMS group acquisition of majority share in Paul Wurth wrapped up

THE SMS group has finalised its takeover of the majority share in Paul Wurth. In 2012, SMS Holding GmbH had announced its purchase of 59.1 per cent of the shares in Paul Wurth SA of Luxembourg. Previously, they had been owned by ArcelorMittal (48.1 per cent) and the Luxembourg investment company Luxempart (11 per cent). 40.8 per cent of the shares remain with the Luxembourg shareholders controlled by the state.

Paul Wurth will continue to operate

as an independent company within the SMS group. Boasting more than 1,500 employees and 26 subsidiaries, it ranks among the world's leading producers of blast furnaces, coking plants, and green technology for metallurgical plants. Sales of some €500 million are expected in the current year.

The product ranges of Paul Wurth and especially SMS Siemag complement each other perfectly. The merger creates the basis for the further growth of both companies.

With more than 11,000 employees, the SMS group generates sales of approximately €3bn. All under the roof of SMS Holding GmbH, it is a group of global players in plant and machinery construction for steel and non-ferrous metals processing. It consists of the two business areas SMS Siemag and SMS Meer as well as industrial participations.

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## Specialist Nadcap accreditation for welding

FINE Tubes, a manufacturer of precision metal tubing, has been recognised for its on-going commitment to quality and continual processes improvement by receiving the latest Nadcap Accreditation for Welding.

In meeting the stringent requirements of Nadcap accreditation, Fine Tubes has demonstrated its commitment to achieving the highest quality standards by satisfying customer requirements and industry specifications.

"Fine Tubes continually strives to enhance its special processes. Thus, in achieving this high-status accreditation, we have improved various areas of our welding procedures," explained Rob Eatwell, quality assurance manager at Fine Tubes. "The process controls were consolidated and formalised into documented PCMs which generated a formal approval process for weld mill operators and inspectors. This has led to improved training and awareness of the whole weld mill and technical teams."

Specifically, the Nadcap accreditation allows Fine Tubes to conduct longitudinal fusion welding of tubes and entitles the company to appear on the Quality Manufacturers List.

Mr Eatwell added, "Fine Tubes are now on the Nadcap accredited special process list for welding – joining our heat treating and NDE qualifications. Quality is at the foundation of all our operations and this will help to cement customer confidence in our tube welding processes as we aim to exceed industry standards."

Joe Pinto, vice president and chief operating officer at the Performance Review Institute, commented, "Achieving Nadcap accreditation is not easy: it is one of the ways in which the aerospace industry identifies those who excel at manufacturing quality product through superior special processes. Companies such as Fine Tubes work hard to obtain this status and they should be justifiably proud of it. PRI is proud to support

continual improvement in the aerospace industry by helping companies such as Fine Tubes be successful and we look forward to continuing to assist the industry moving forward."

Fine Tubes has a fully integrated facility for the manufacture and the research and development of high quality precision tubes in seamless, welded, and drawn forms. The company manufactures high precision tubes in stainless steel, nickel, titanium and zirconium alloys, and the standards and specifications for these tubes and coils are extremely high, aimed at applications in the most hostile operating environments. Fine Tubes products serve a wide range of markets such as the aerospace, medical, oil and gas, nuclear and power industries.

**Fine Tubes Ltd – UK**

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## US premiere for KraussMaffei

THE KraussMaffei Corporation (USA) kicked off 2013 with a US premiere. The GX series was presented for the first time in operating mode to a wide audience of experts during a "TechDay". This event was held at the plant in Michigan, USA together with Proper Group International, the cooperation partner for mould and process technology.

KraussMaffei presented a GX 400-4300 in operating mode during the world premiere. In particular, customers from the automotive and packaging/logistics industries reacted very positively to the new GX series, which is suited to many different injection moulding processes thanks to its efficiency and extensive catalogue of options as a basis.

The GX series currently covers the clamping force range from 4,000 to 6,500kN in different sizes and equipment variants for production requirements in a large number of industries. The GX machines are impressive during the production of free falling packaging/logistics parts for the automotive industry or the consumer goods sector.

"We received a large number of orders for machines last year, a fact which proves that the American market developed very positively," said a spokesman. "We have made a good start to the current fiscal year thanks to the continually high demand for our products and the very positive feedback from our customers regarding the quality of our machines and service." The company, which has been operating in the USA for more than 45 years, systematically acquired this status over a long period and also geared its product and service portfolio to this market. The result is a complete range of machines with clamping forces between 350 and 40,000 kN, including ideally adapted automation solutions. "The technology supplied by KraussMaffei corresponds precisely to the requirements of our customers on the American market," added the spokesman. "We have categorically proved this today through the live demonstration of our machines." Visitors to the plant in Warren were also able to see an all-electric AX 180-

380 and a MXZ 1600 multi-component machine in operating mode.

"The SkinForm procedure is used to produce premium quality polyurethane surfaces on thermoplastic carriers in a production cell. The technology competence of KraussMaffei can be clearly seen here throughout the entire process chain," said Frank Peters, vice president sales injection molding and machinery at KraussMaffei. "We supply machines, automation technology, mould technology and the trim solution, which are all based on our expert knowledge." In the USA KraussMaffei Corporation and Proper Group International in Warren (Michigan) have been cooperating since 2010 as part of a strategic partnership for turnkey solutions for processing polyurethane. Both partners also use the advantage of the joint technology centre in Warren where KraussMaffei injection moulding machines with a clamping force of 800 and 27,000 kN are available.

**KraussMaffei Corporation – USA**

Website: [www.kraussmaffeigroup.com](http://www.kraussmaffeigroup.com)

# Increasing levels of automation

LANDER Automotive Ltd produces a wide range of tube products for OEMs and Tier One customers.

Founded in 1877 as W Lander & Sons, the bending and welding technology used to manufacture various wire goods was later applied to tube, and in the 1950s the company began supplying the UK automotive industry with bonnet props, linkages and headrests. This culminated in the change of name in 1991 and re-location a year later to purpose-built premises.

In 2007 the company decided to sell its subsidiary factories in Hungary and Germany and to concentrate on creating a 'high quality, low cost' design and manufacturing centre of excellence in the UK, focusing resources solely on tube manipulation and cellular robotic welding.

Tube manipulation within Lander Automotive is a mixture of single piece manufacture and integrated cells featuring bending and end-forming machines supplied by BLM Group. These include Smart all-electric CNC

tube bending machines, AST Tube-Form ELE all-electric CNC tube end forming machines and AST 30 tube end forming machines.

"BLM is very strong on tooling design and has products that complement our lean manufacturing requirements," said Roger Whitehouse, Lander Automation's managing director. "We benefit from flexibility in terms of right- and left-hand bending on the same machine; relatively fast changeover times; and the capability to produce single parts in sequence ready for assembly on the line rather than in batches. Take underfloor heating pipes as an example: we make small, medium and large assemblies in that order, because one of each is needed for each vehicle build."

"We have progressively increased the level of automation within the factory, and there are now 40 robots involved in welding, materials handling and machine load/unload.

"Adaptability to future requirements is also crucial. We are subject to vehicle

life cycles, so as contracts come to an end we have to bring in replacement business, and to adapt quickly to changing production requirements as well as the inevitable on-going schedule changes. We buy BLM machines not just for current contracts but for the ones after that, so performance, flexibility and reliability are key criteria. Energy efficiency, too, is very important to us, hence the attraction of all-electric rather than hydraulically powered machines."

Suitable for bending tubes up to 28mm diameter, BLM Group's Smart all-electric (8 axes) CNC tube bending machines are programmed via proprietary VGP3D graphical interactive software.

**BLM Group UK Ltd – UK**  
Email: sales@blmgroup.uk.com  
Website: www.blmgroup.uk.com

**Lander Automotive Ltd – UK**  
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Progress is Life

## Weldability-sif exhibit at Schweissen und Scheiden 2013



WELDABILITY-SIF, the UK based one-stop source for all welding products, has booked a stand (7-F105) at the welding exhibition 'Schweissen und Schneiden' in Essen, Germany from 16 to 21 September 2013.

This is the first time that the company has exhibited at this show for a number of years, but it is continuing to develop its market and business both in the UK and overseas. The decision was made to exhibit the company's products to the world's buyers of welding equipment.

The theme for the stand is 'looking back and moving forwards' and visitors will have the opportunity to explore the heritage of Weldability-Sif and try the company's innovative new products first hand.

The company will be highlighting its extensive range of MMA, MIG and TIG welding equipment along with

plasma cutting equipment and welding consumables.

Among the new products on show will be the SifWeld 200 MTS portable multi process MIG, MMA and TIG welding inverter with an integral wire feed system, an OCV of 63V, a welding current range from 5 to 200A and rated 200A @ 25 per cent duty cycle.

Weldability-Sif is also closely involved with the training of welding apprentices and will be showing how it is now very easy for educational establishments to deliver a traineeship or apprenticeships in welding, especially with financial assistance from the Weldability-Sif Foundation.

On show will be NOS mapped work books and innovative and full interactive E-Learning package with leading edge Virtual Welding PCs as well as practical classroom and workshop solutions.

Also along for the ride will be the company's newest recruit, in the form of "Motorman", a 2m-high metallic sculpture that was put together by German artist Armin Ciesielski, one of three German metal sculptors who work together and have turned their talents to constructing grim aliens and predators from scrap metal and are now also recreating a few iconic and unobtainable automobiles from recycled, truck and automobile parts.

Weldability-Sif will be giving away free products each day of the exhibition with ten visitors per day having the chance to claim a product with a value of up to £163.

Steve Purnell, marketing manager at Weldability-Sif, said: "We took the strategic decision to attend Schweissen und Schneiden to show the world market our total capabilities ranging from a comprehensive range of welding and cutting machines together with welding consumables to apprentice training courses and virtual reality welder training. We are a one stop shop."

Weldability-Sif is a multi-million pound company operating from purpose built facilities in Hertfordshire, UK, supplying MIG, TIG, MMA, spot and oxy/fuel welding and plasma cutting machines, torches, accessories, consumables and personal protective equipment to both the UK distributor market and exporting to a number of countries around the world.

The company's Letchworth Garden City facility enables distributors to single source more than 2,000 different products and allows the company to maintain a stock of high volume consumables including the distribution of over 4,000 tons of mild steel MIG welding wire per annum to the international market.

**Weldability-Sif – UK**  
Website: [www.weldability-sif.com](http://www.weldability-sif.com)

## 50 years of honing

APPERLEY Honing, which is celebrating 50 years in the subcontract honing industry, has reported a strong start to 2013, with the used machine department having sold 12 honing machines in the first quarter.

Recent sales have included a Zanrosso CH 200 to a UK business restoring vintage cars, a Delapena HHM 15 to the United Emirates for honing parts for the oil industry, and a Barnes #3 machine to Norway, again

for honing parts for the oil industry. Other sales have included Estonia, Turkey and Finland.

"The success of the used machines department is really quite simple," explained Charles Sanders, managing director. "We use our experience and knowledge from the subcontract honing business and advise customers on the best machine for the job in hand. As an independent business we are not tied to any brand so will offer the best

solution for the honing problem."

With a new machine build often having a six-month lead-time, not all businesses can wait for that period of time or even have the capital available for such a large outlay. A second hand machine may be more cost-effective, and may be available almost immediately. Every machine sold by Apperley Honing is fully serviced and set up exactly to the customer's specification.

**Apperley Honing – UK**  
Email: [sales@apperleyhoning.co.uk](mailto:sales@apperleyhoning.co.uk)  
Website: [www.apperleyhoning.co.uk](http://www.apperleyhoning.co.uk)



## Weld box completed

RAFTER Equipment Corporation has completed a RT-4500 weld squeeze box for a major North American API pipe producer.

The box is part of an upgrade to the customer's existing HFI pipe mill. It is sized for up to 114.3mm OD x 6.7mm wall (4.5" OD x 0.262" wall) HSLA steel pipe. The design includes push-on-centre squeeze roll adjustments, high-capacity tapered roller bearings within the roll tools, and central lubrication piping. This project is the first of two weld box upgrades for this customer.

Rafter Equipment Corporation – USA  
Website: [www.rafterequipment.com](http://www.rafterequipment.com)

## NAP Gladu acquires BC Saw

QUINTEC, the tooling platform company owned by Tenex Capital Management, has announced the completion of the acquisition of BC Saw, Toronto, Canada, by its NAP Gladu subsidiary.

BC Saw has specialised in the sale and service of carbide saws, routers, insert tooling, diamond tooling, metal saws and custom tooling since 1966. The company has built a reputation of offering superior tool design, product quality, exceptional service and technical support, in addition to an extensive product catalogue. NAP Gladu currently operates a tooling service centre located in Mississauga, Ontario, that will be merged with BC Saw.

Co-owner of BC Saw, Doug Reid, commented, "BC Saw has developed a very strong core business in the Ontario market that will benefit from greater product offering, advanced custom tool design capabilities and investment support provided by NAP Gladu."

NAP Gladu president Brad Stack stated, "We are very excited about the addition of BC Saw to the NAP Gladu network of tool manufacturing and service operations in North America. Both companies serve a large base of premier customers in the woodworking and metalworking industries and our combined expertise will create exceptional value for our expanding customer base."

NAP Gladu – USA  
Fax: +1 800 457 7458  
Website: [www.napgladu.com](http://www.napgladu.com)

BC Saw – Canada  
Fax: +1 416 251 7268  
Email: [info@bcsaw.com](mailto:info@bcsaw.com)  
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## Extrusion press from SMS Meer

THE ATILIM University from Ankara, Turkey, has ordered a direct-indirect extrusion press with 10-MN press force from SMS Meer, Germany. The modern press will be installed in university's Metal Forming Center of Excellence and is to be used for fundamental research and test series by industrial companies.

"We decided in favour of a press from SMS Meer because it offers us the latest technology from the market leader. Furthermore, SMS Meer will establish a cooperation with us and support us with process know-how and with lectures in the field of research and development,"

says A Erman Tekkaya, founding director of the Center of Excellence at the ATILIM University.

SMS Meer cooperates with several universities and research institutes worldwide, and supports these institutions through a practice-oriented know-how transfer.

The extrusion press at the ATILIM University will be provided with a piercing device able to integrate a mandrel at a later time and thus serving to produce seamless tubes.

The energy-efficient direct-indirect extrusion press has a billet loader and a cassette heater characterised by its

uniform temperature. The billet lengths for direct extrusion are 250 to 300mm, and for indirect extrusion 220 to 260mm. The ram speed ranges from 0.2 to 30mm/s.

Mr Tekkaya added "We will use the broad spectrum of the press, for example to verify simulations or to develop industrial application for the Turkish extrusion press operators."

Commissioning is scheduled for October 2013.

**SMS Meer GmbH** – Germany  
Email: [info@sms-meer.com](mailto:info@sms-meer.com)  
Website: [www.sms-meer.com](http://www.sms-meer.com)

## China Int'l Steel Tubes Expo 2013

CHINA International Steel Tubes & Fittings Exhibition 2013, sponsored by Chongqing municipal government and Chongqing Mechanical Engineering Society, will be held from 11 to 13 September at Chongqing International

Convention & Exhibition Center. It is estimated that the total show area will be over 20,000m<sup>2</sup>, and that the show will attract more than 25,000 purchasers, import and export traders, dealers and agents from home and abroad.

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Email: [dccybj@yahoo.cn](mailto:dccybj@yahoo.cn)  
Website: [www.dccybj.com](http://www.dccybj.com)

## Resistance welding and hot bar

MIYACHI PECO's new horizon line of modular resistance welders allows users to choose from among 24 modular components of weld heads and weld pincers to configure the perfect solution for their application. With hundreds of possible configurations, users can run their applications while reducing maintenance, and doubling process flexibility when ordering and using the products.

Miyachi Unitek's new 50 Watt ML-7350C Yb: fibre laser marker, designed

for high speed laser marking, laser engraving, laser cutting and laser ablation makes high contrast marks on both plastics and metals. 50W of power means the marker can provide distinct, fast, reliable and versatile markings of letters, numbers and graphics. The unit features low maintenance and investment requirements, minimising its overall ownership costs.

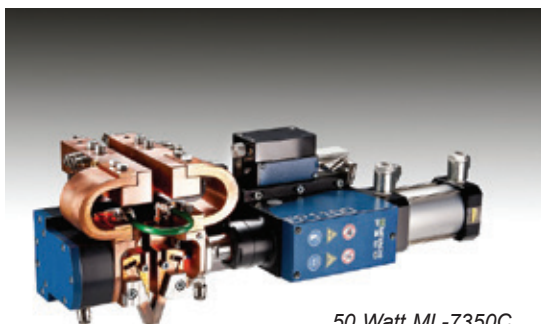
The MG3 Hot Bar offers precise measurement of all bonding processes, allowing for continuous control throughout during the entire process cycle in real time. Combined with existing Miyachi EAPRO hot bar products the new Miyachi PECO process monitoring device is an integral part of a unique system capable of measuring various parameters such as displacement, temperature and force in real time. The

compact and flexible device features high quality hot bar connections and high throughput, all within an easily adjustable frame construction.

Miyachi Europe is a market leader in developing, building and servicing machines and components for laser welding, laser marking, resistance welding, hot bar and systems.

Miyachi Europe solutions are an integral part of the production process to connect, to join, to automate, to identify or to customise components in a very reliable and very sustainable fashion. Miyachi products are in use in a variety of modern high-tech application fields. These application fields are the company's areas of expertise to the benefit of customers' and vendors' future growth in automotive, IT and multimedia, electronics/solar cells/batteries, medical, aerospace and defence.

**Miyachi Europe** – Germany  
Website: [www.miyachieurope.com](http://www.miyachieurope.com)



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# Cutting equipment for tube service centre

BEWO Cutting Systems has been selected to supply the tube cutting equipment for the Ruukki Tube Service Center.

Ruukki is a Finnish company that specialises in steel and steel construction, providing energy-efficient steel solutions. With an extensive distribution and dealer network across some 30 countries, including the Nordic countries, Russia and elsewhere in Europe and the emerging markets, such as India, China and South America, the strategic focus lies on construction and development of the speciality steel business.

A spokesperson for Ruukki commented, "We are following the increase in specialisation and the emerging markets. Strengthening our own international sales and service network, our network of certified partners and our portfolio of speciality steels is

the key to success in the business of special steel."

Costs per saw cut, quality and flexibility were important parameters for Ruukki. Bewo's integral approach, improved performance and innovative technology were criteria during the various meetings that led to the chosen configurations.

Bewo will deliver two fully equipped tube sawing solutions, where a total of eight machines will be connected. The first is a Sigma sawing line with bundle loader with a capacity up to 9m, servo controlled de-burring, digital length checking system and a fully automated SCR stacking robot with four flexible export stations.

The second solution will be the Bewo ECH-115 automatic saw system with bundle loader up to 13m, de-burring equipment, mechanical length control system and another fully automated

SCR stacking robot with four flexible export stations.

The Bewo Sigma sawing line can cut six tubes at the same time, 7,000 pieces per hour when in the 'in-line-mode', and 15,000 pieces per hour in the 'stand-alone-mode'. The servo controlled de-burring installation will blow scrap out of every tube separately without interfering with the movement of the tubes. The digital length checking system will store the output of every measurement and will be able to generate a quality document to the end user.

The Bewo ECH-115 saw line can handle diameters of 10 to 115mm and is robust enough for wall thicknesses up to 15mm. The machine is also very accurate and stable, and is equipped with a six-point clamping system. The de-burring system is used in combination with the tube length controlling system where at the same time the tubes are blown clean using 'walking beam' technology. As with the Sigma line, the mechanical length controller system will store each separately measured tube and provide a quality report.

On both lines, the stacking robots will be programmed graphically, and the complete saw lines will be programmed through 'cockpit' touch screen control panels with which the entire stacking process can be simulated.

If any problems occur, it is possible to check the status using touch screen where 3D E-drawings can show electrical and mechanical details. Both machines will be delivered with 3D E-drawings where all parts of the machine can be found, including part number. The Bewo lines will also be equipped with remote diagnostics for online support via eWON.

The complete systems for Ruukki are scheduled for delivery in the second half of 2013.

**Bewo Cutting Systems BV** –  
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Email: info@bewo.nl  
Website: www.bewo.nl

**Ruukki Oy** – Finland  
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Standard: API5 L/5CT, GB/T 9711

### ◆ SSAW

O.D.: 219.1 ~ 3 556mm; W.T.: 4mm ~ 25.4mm  
Material: Q235, Q345, S355, X42 ~ X100  
Forming method: forward pendulum, backward pendulum  
Welding way: step method submerged arc welding joint, preliminary fine welding  
Standard: API 5L/5CT, GB/T 9711

### ◆ Hydrostatic Tester

O.D.: 89 ~ 3 556mm; W.T.: 3mm ~ 25.4mm  
Material: Q235, Q345, S355, X42 ~ X100, stainless steel  
Test capability: 400 ~ 4000t  
Standard: API 5L/5CT, GB/T 9711

### ◆ End Beveling Machine

O.D.: 60 ~ 3 556mm; W.T.: 4mm ~ 25.4mm  
Material: Q235, Q345, S355, X42 ~ X100  
Standard: API, GB/T 9711.1, GB/T 9711.2

### ◆ Edge Milling Machine

Steel plate width: 800 ~ 2000 mm  
Milling thickness: ≤ 25.4mm  
Material: Q235, Q345, S355, X42 ~ X100

### ◆ Slitting Line

(which can meet slitting bar and cross opened plate)  
Material: hot and cold rolled low carbon steel, alloy steel, stainless steel, galvanized sheet  
Shearing width: 100 ~ 2200 mm  
Shear thickness: 3 ~ 16 mm

### ◆ Shearing Line

Material: hot and cold rolled low carbon steel, alloy steel, stainless steel, galvanized sheet  
Shearing width: 100 ~ 2200 mm  
Shear thickness: 3 ~ 25.4 mm



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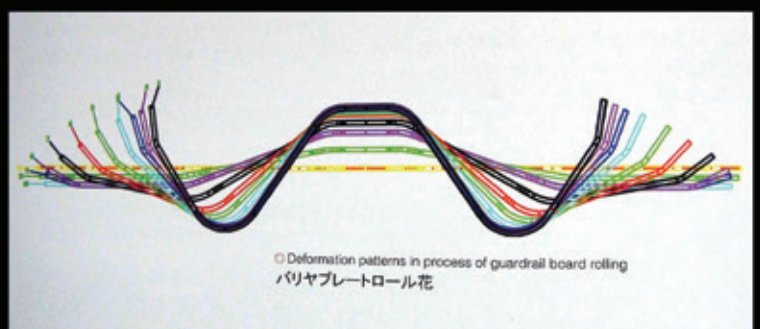
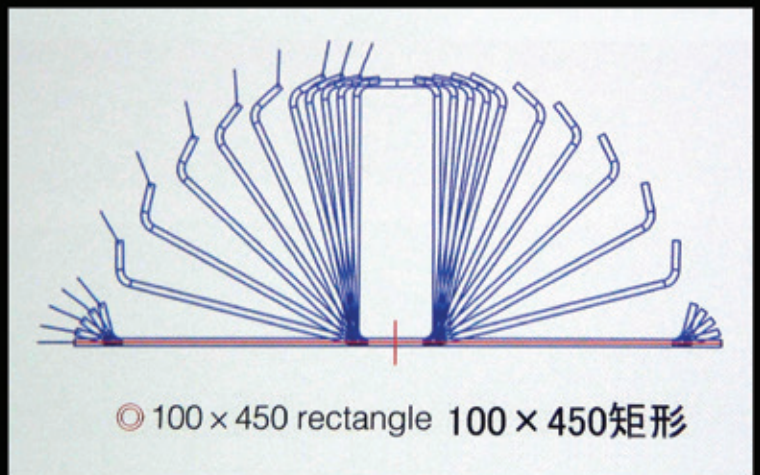
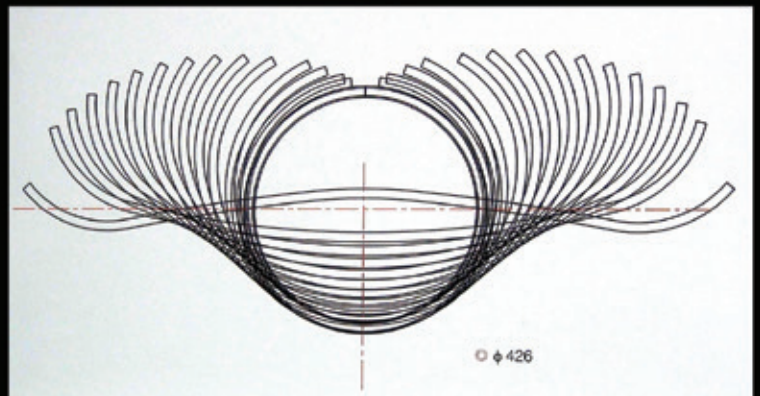
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E-mail: jinpinchina@yahoo.com



## Six schools provided with cutting and welding prize packages

VICTOR Technologies has announced the six winners of its "Innovation to Shape the World" contest for students in welding and cutting programmes at secondary and post-secondary schools.

The individual winners are Mikayla Bradford from Assabet Valley Regional Technical High School, Marlborough, Mass. (instructor Neil Mansfield); Rudy Gonzalez from Mississippi Gulf Coast Community College, Lucedale, Miss. (instructor Joshua Pierce); and Justin Clay from WEMOCO Career and Technology Center, Spencerport, NY (instructor Filipe Rocha).

The themes of the winning essays were the influence of oxy-fuel cutting at sites like Ground Zero to inspire Mikayla to want to be a Navy Seabee, Rudy's observations on innovations and human creativity, and the inspiration Justin receives from his instructor and his father (who is a welder and attended the same school) to make each weld better than the last.

The team winners hail from Assabet Valley Regional Technical High School (students Mitchell Miller and Jesse Lemanski, instructors George Aziz and Chris Wittmier); Santa Fe College, Gainesville, Fla. (students Zachary Adams, James Moore, Matt Taylor, Matt Parrot and Syson O'Brien Hall, instructor Joseph Mahoney); and Highland High School, Gilbert, Ariz. (students Brett Eschliman, Matt Focht, Jack Daniel, Zach Benn, instructor Curtis Willems).

Winning projects were a "two tank patriotic salute" in honour of the cutting and welding used to build and repair military equipment, "the mighty DUC," an ancient utility vehicle converted into the ultimate mobile welding cart using mostly scrap found on a farm, and 6-ft-long metal alligator constructed from 1/8" rod, pipe and scrap metal.

Individual winners won a \$250 cash prize for their winning essay. Members of the winning team each won a \$500 cash prize for their welding project. All

schools associated with the winners also won a cutting, welding and gas control package valued at \$4,000 each. Products in the package included a Victor® Journeyman Welding & Cutting Outfit, a Victor® Thermal Dynamics® Cutmaster® 42 Air Plasma Cutting Outfit, a Fabricator® 211i 3-in-1 Stick-MIG-TIG Welding Machine Kit and two Tweco® 4-sensor auto-darkening welding helmets.

"The winning students and schools demonstrate the spirit of innovation that enables them to use cutting and welding equipment to shape their careers and the world around them," said Martin Quinn, CEO, Victor Technologies.

Winner Justin Clay said: "I'm not only writing this to enter the competition, I'm also trying to get my message out to encourage anybody that has a chance to get to a CTE (Career and Technical Education) center while you are still in high school. It is the best decision I have made, and it can make a dramatic difference in one's life."

Mr Quinn also noted Mikayla's essay referred to the need for ironworkers at Ground Zero. Because the firefighters did not have the knowledge or expertise, the ironworkers came in and used cutting torches to help remove rubble and debris. Unknown to Mikayla, Victor created special, extended length torches for that very purpose.

Tom Wermert, one of the contest judges and senior brand manager for the Fabricator 211i 3-in-1 welder that was awarded, commented that, "The team winners demonstrated great imagination in turning what was often discarded scrap metal into works of function and beauty. In all cases, the project components only cost a few dollars, but the vision shown by the teams was priceless."

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## Strong international appeal at wire and Tube Southeast ASIA

TUBE Southeast ASIA returns to The Bangkok International Trade & Exhibition Centre (BITEC) from 17 to 19 September, 2013 in Bangkok, Thailand. The trade fair provides an attractive focal point and springboard for local businesses and international companies seeking to broaden their export of wire, cable, tube and pipe products and technologies. Organised by Messe Düsseldorf Asia, over 400 companies will be exhibiting their latest innovations during the three-day event.

As ASEAN prepares for further development with a major line-up of infrastructural projects in the pipeline, the wire and tube industries remain strong through robust support from the region and around the world. Seven national pavilions and country groups from Austria, China, Germany, Italy, Singapore, Taiwan and the USA have secured participation in the event ahead of its staging in September.

Recognised as the industry's much-awaited trade fair for the region, wire and tube Southeast ASIA 2013 will outperform its successful edition in 2011 with higher profile exhibitors from big international companies, approximately 15 per cent of whom are first-time exhibitors.

The mushrooming of infrastructural projects in Southeast Asia signals further expansion in the construction industry and sustained demand for related products and new technologies. For example, The Thai government is embarking on a US\$67bn infrastructure development to provide a new transport backbone. Over in the Philippines, the government has launched an estimated 30 major public works projects that range from road and rail to airport and water projects. Expansion and construction of underground rail systems and land highways will continue to be a regular feature on Singapore's evolving infrastructural horizon while similar plans have been mapped for Indonesia as the country braces for large-scale redevelopments at its newly positioned economic corridors across the archipelago.

Noting that almost all of the ASEAN countries have embarked on massive scale development projects, trade

fairs such as wire and Tube Southeast Asia provides an avenue to speed up ASEAN's development phase through the display of exhibits that acutely meet the unique manufacturing, supply and innovation demands required by each country to achieve cutting-edge developments. The combination of local and international exhibitors representing the wire and tube industries on the trade floor will showcase the best technological inventions in support of this.

With the formation of the AEC (ASEAN Economic Community), ASEAN governments will work towards maximising market opportunities created through the regional economic integration by enhancing private sector involvement and pulling in larger foreign international investors. With these regional developments proving as integral market indicators, the synergy of the wire and Tube Southeast ASIA 2013 exhibitions is well positioned to support

the burgeoning market demands for the wire, cable, tube and pipe products and technologies that buttress these major undertakings.

Over 6,500 local and foreign trade visitors are expected many of whom are targeted industry professionals who are attuned to the current economic and infrastructural developments in Asia. Visitors to the exhibition can expect closer visitor-exhibitor interaction at special events that specifically showcase innovative products with high interest value and meet their nation's industry expectations. In addition, there will be numerous product demonstrations by exhibitors and concurrent events happening on the trade floor to further enhance each visitor's experience at wire and Tube Southeast ASIA 2013.

**Tube Southeast ASIA 2013 – Thailand**  
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## High pressure equipment for Mozambique contract

PIPE Center is supplying specialist pipes, fittings and valves for use in mobile emergency response fire fighting systems manufactured by Hawkes Fire.

In the latest contract, Pipe Center supplied the manufacturer with Schedule 40 steel pipe, fittings and JET valves for use in fire fighting, pump trailers, foam proportioner systems, foam trailers and

storage systems for a petrochemical plant in Mozambique.

Equipment for the contract, which has been shipped, includes a foam system container, two pump trailers and associated fire fighting equipment. The high pressure components and valves control the flow of water within the foam system, in order to generate the large volumes required to

deal with intense petrochemical fires. The equipment is being used to replace and upgrade facilities at the plant. In a second project, Pipe Center is supplying pipe, valves and high pressure couplings for use in two large fire fighting pump trailer units for deployment at an oil refinery in the Middle East.

Andy Hawkes, managing director of Hawkes Fire, said, "We have a long-standing relationship with Pipe Center which goes back several years. They are competitive and give excellent service in terms of stocking and technical support. We pride ourselves in producing high quality, proven equipment that can be trusted to perform in the event of an emergency. This in turn depends on the components and materials we use in its manufacture."

**Pipe Center – UK**  
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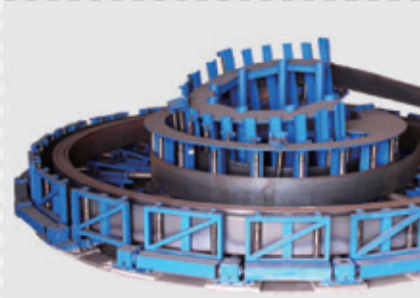
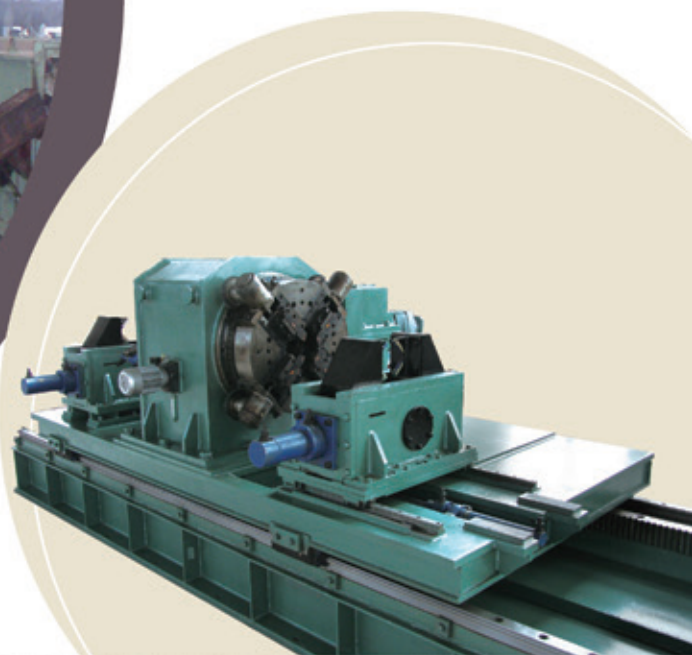
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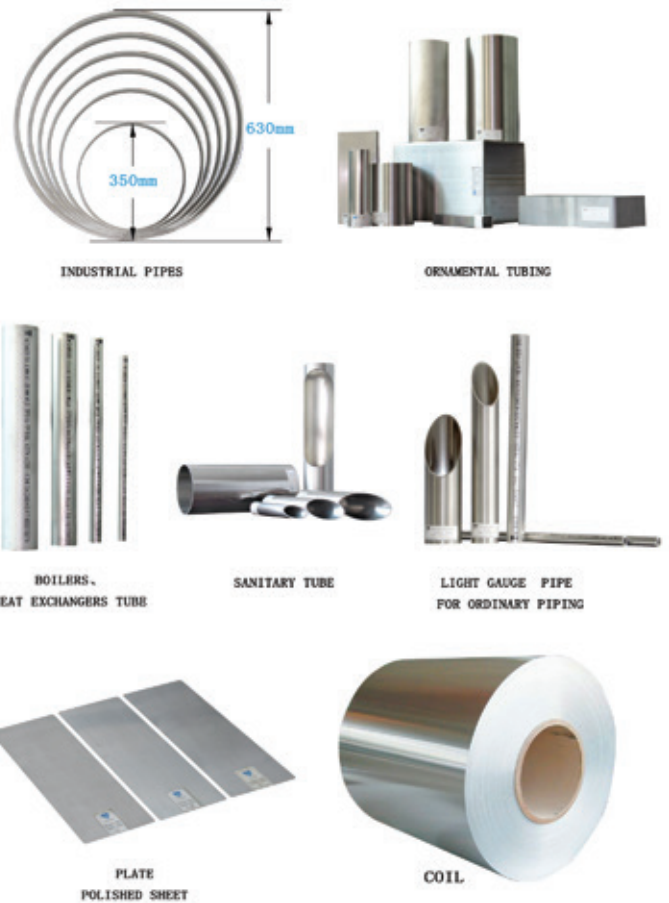


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# Shares acquired

LOI Thermprocess GmbH, a Tenova company, has acquired all the shares in Metall Technologie Holding GmbH (MTH) from European Capital SA SICAR. MTH, headquartered in Menden, Germany, is the parent of the companies Schmetz, Mahler and IVA in Germany, BMI in France, and Huisen in China.

The acquisition is subject to certain conditions, including approval by the anti-trust authorities.

MTH is a supplier of heat treatment technologies and services for the aerospace, machine tool and automotive industries. Its product range includes both vacuum and controlled atmosphere continuous and non-continuous furnaces.

LOI is a leader in the field of major furnaces for the heat treatment of modern materials in the steel, aluminium and automobile industries. With companies in Europe, China, the USA and other countries, LOI is represented in all the key markets.

"We are already a major supplier of furnaces for the treatment of components," said Erik Micek, chairman of the management board of LOI Thermprocess GmbH. "By acquiring MTH, we have laid the foundation for further successful growth in major markets which are still new to us. It was important for us to find a company with the same high standards in terms of production processes and product quality."

MTH will also benefit from the takeover. The facilities in other countries and integration into the international organisational structure of the Tenova Group will play a key role in expanding the international significance of MTH and its products and services.

**LOI Thermprocess GmbH** – Germany  
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 Website: [www.loi-italimpianti.de](http://www.loi-italimpianti.de)

**Metall Technologie Holding GmbH** – Germany  
 Fax: +49 2373 686 250  
 Email: [info@mth-group.com](mailto:info@mth-group.com)  
 Website: [www.mth-group.com](http://www.mth-group.com)

# New member

MARC Solvi, CEO of Paul Wurth SA, has been appointed to the managing board of SMS Siemag AG for 2013. The takeover of the majority share of 59.1 per cent in Paul Wurth by SMS Holding GmbH was finalised on in December 2012.

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# Sandvik to open new R&D centre

SANDVIK is to invest in a new high-tech research and development centre adjacent to its manufacturing facilities in Zhenjiang, an important milestone in the company's continuing development in China. At a symbolic ground breaking ceremony to mark commencement of

the development, Sandvik Materials Technology (SMT) management team and Zhenjiang local government officials turned the first soil on the site, watched by SMT China employees.

"This ceremony marks a further significant step in Sandvik's long

established commitment to the market in China and throughout Asia," said Johan Hedlund, SMT head of human resources.

Sandvik's investment in research and development provides the company with a route to introduce new products, and allows it to review and invest in product research and development programmes designed to bring long-term operational benefits in some of the most demanding applications.

On behalf of the Zhenjiang local government, Qiliang Gui, vice secretary of Zhenjiang Municipal Government and vice director of Zhenjiang New Area Administration Committee, emphasised, "SMT's new R&D centre in Zhenjiang will help to promote the pace of development of the Zhenjiang local market. Meanwhile, we, as a community, will continue to provide the best services and infrastructure to all international enterprises."

Building work on the 1,440m<sup>2</sup> centre will commence in the summer, with plans for the centre to be operational early in 2014. It will accommodate specialist laboratories, a learning centre, offices and an exhibition area.

Sandvik China president ZZ Zhang commented, "Our ambition in developing this new, dedicated centre is to create a powerful R&D team which covers all technical competence needed to support the demands of the Chinese market.

"It will work in close liaison with SMT R&D units worldwide. The laboratories will be equipped to the highest standards with modern analytical equipment, including scanning electron microscopes and advanced mechanical testing facilities."

The centre will support not only production units, but also the sales organisation and customers with technical training seminars and detailed research into material applications for the benefit of Sandvik customers. It will also provide materials analysis for other Sandvik business areas, especially Sandvik Construction and Sandvik Machining Solutions.

**Sandvik Materials Technology** – Sweden  
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## Big increase in enquiries from South America

CARDIFF-based Rhys Davies Forwarding has reported a significant increase in enquiries from the burgeoning South American market and is using its extensive knowledge and contacts in the region to negotiate exceptionally good rates for customers.

Brazil, the largest country in Latin America, is now the sixth largest economy in the world and other countries such as Chile and Argentina are also enjoying considerable economic growth. With Brazil hosting the World Cup next year and the Olympics in 2016 the world's eyes will be sharply focused on the region, which can only be good for its economy and future international trade.

Rhys Davies' freight forwarding manager, John Lyon, said, "We've been shipping goods to and from the South American countries for over 20 years and built up a network of contacts and local knowledge over that time. South America can be a difficult place to operate so having people out there you've known for years and can trust is very important; it's not just a matter of finding an agent on a screen and hoping for the best. That's not to say that technology does not have a role to play and we've invested heavily in the latest IT systems to support our operations and keep track of our shipments around the globe."

Rhys Davies is a member of The British International Freight Association (BIFA) and provides import and export services for a wide range of goods, including those that are hazardous or difficult to handle such as flammable gases, explosives, chemicals and paint, to and from any location in the world.

**Rhys Davis Forwarding – UK**  
Website: [www.rhysdavies.co.uk](http://www.rhysdavies.co.uk)

## Seamless pipe mill

TENARIS has announced that it will build its first US seamless pipe mill in Bay City, Matagorda County, Texas. With an estimated investment of US\$1.5bn, the new facility will have an annual production capacity of 600,000 tons of seamless pipe.

With its proximity to Houston and to Tenaris's North American headquarters, the location offers a combination of favourable geography, operational logistics and availability of a skilled workforce. "Our new facility will complement our integrated global manufacturing network and work closely with our existing North American operations to further strengthen domestic production," said Paolo Rocca, chairman and CEO.

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# US facility for application of insulation coating

BAYOU Wasco Insulation, LLC, in collaboration with the Dow Chemical Company, has commissioned a new facility to apply flow assurance systems for the offshore oil and gas market, including the award-winning Dow Neptune advanced flow assurance insulation system for application to line pipe.

Featuring a completely new and proprietary insulation material, Neptune P insulation coating for line pipe is designed exclusively for use with Neptune F insulation coating for field joints and Neptune C insulation coating for subsea architecture, to provide a true end-to-end solution. The complete Neptune system eliminates the need for multiple materials and adhesive tie layers, contributing to a thinner coating profile and maintaining a consistent low K-factor from tree to line pipe to field joint. The newly constructed Bayou

Wasco facility in New Iberia, Louisiana, is located in close proximity to the US Gulf Coast oil and gas market. The plant opening follows a successful application of Neptune P insulation coating to line pipe. Bayou Wasco and Dow collaborated on the full-scale qualification of the Neptune P insulation coating for line pipe and have worked to optimise the insulation application capability of the state-of-the-art plant.

"We are very pleased with the progress that has been made to successfully and quickly bring this brand new facility on-line," said Eldridge Indest, vice president – general manager, The Bayou Companies, LLC. "We built this plant with our offshore customers in mind, offering them favourable logistics with an accessible location near the Gulf of Mexico. Additionally, we believe they will be very interested in the end-to-end and elevated temperature insulation performance of the pipes coated with Neptune technology that we produce. The input we received from Dow during the start-up phase has been invaluable in determining production needs for the Neptune system."

Neptune P insulation coating for line pipe produced at Bayou Wasco's facility is intended solely for use with Neptune F insulation coating for field joints. The simple, reproducible field joint coating process for Neptune F insulation coating has been demonstrated to produce high-quality field joints with a competitive cycle time, high mobility, and a compact equipment footprint. Together with a

component for subsea architecture coating, the complete Neptune system protects assets from wellhead to delivery point, and offers a wide end-to-end installation and operating temperature range. It remains highly flexible down to -40°C (-40°F) and retains thermal stability for service temperatures of at least 160°C (320°F). The system was developed in cooperation with leading industry coating applicators, including Bayou Wasco, a joint venture between The Bayou Companies, LLC and Wasco Energy, Ltd that provides offshore insulation services to customers in North America, Central America and the Caribbean.

"We are very satisfied with the line pipe coating application process at Bayou Wasco's new facility," said Alexander Lane, Dow global business leader for oil and gas transmission. "The Dow Neptune system offers next-generation performance in extreme installation and operating temperatures, and having a new plant like Bayou Wasco's that is capable of applying Neptune P insulation coating to line pipes at full scale brings the Neptune system to the forefront as a true end-to-end flow assurance choice for customers."

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## Alliance for Working Together

THE Alliance for Working Together Foundation (AWT), a group that Roll-Kraft is heavily involved in sponsoring, was formed by local business executives to promote careers in manufacturing and focus on developing programmes to encourage students. Roll-Kraft has announced the programme's recent achievements. These accomplishments include: conducting over 1,500 seventh and eighth grade tours of AWT member manufacturing plants; developing an Associate's degree at Lakeland Community College with input from member companies; and introducing a new manufacturing high school programme at the local career centre.

**Roll-Kraft – USA**  
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# Weld-overlay elbows and tees for Brazil project

THYSSENKRUPP Mannex and Erne Fittings were recently able to secure a major order of seamless pipes, fittings and flanges for a project in Brazil.

Pipes, fittings and flanges are processed to spools in Suape/Recife and afterwards integrated into the refinery "Abreu e Lima RNEST".

The plant, which is located in Ipojuca in north-eastern Brazil, is a pilot project of Petrobras, Brazil's largest oil company.

In future, oil products with a high sulphur content will be processed into diesel with a very low sulphur content here, using high temperatures and hydrogen ("hydrotreating").

The over 200 cladded elbows and tees with a dimensional range of 457 x (29.4 + 3)mm are made from the heat-resistant base material WP22 and an inside weld overlay of 317L. Compliance with tightest manufacturing

tolerances during forming process and weld-overlay, as well as flexible weld-end preparation in accordance with the connection dimensions of the straight clad pipes, ensure problem-free welding of the composite materials.

Erne clad fittings combine high strength with excellent corrosion properties. The inner surface of a high-strength C-steel base material is coated with corrosion-resistant materials (eg austenite, Ni-based alloys). During use, the high-alloy weld-overlay layer prevents direct contact with the corrosive media and the ferritic base material ensures the required mechanical properties with regard to pressure and temperature, such as strength and impact toughness.

In contrast to solid CRA (corrosion resistant alloys), Erne clad fittings enable threefold cost savings: due to the lower price of C-steel compared to high-alloy steels; due to the reduction

in material used (the higher strength of the C-steel allows for thinner walls); and as thinner walls mean a significant reduction in the welding and inspection expenses when processing the fittings.

This saving potential is especially high when either large wall thicknesses are required due to high pressures and/or temperatures, or very complex and therefore expensive alloy concepts are needed due to the corrosive load.

Erne clad fittings are manufactured in cooperation between Erne Fittings and Uhlig Rohrbogen. Erne Fittings has produced high quality elbows, tees and reducers since the early 1920s, as a result of which the company has established itself as a premium supplier in the approved field.

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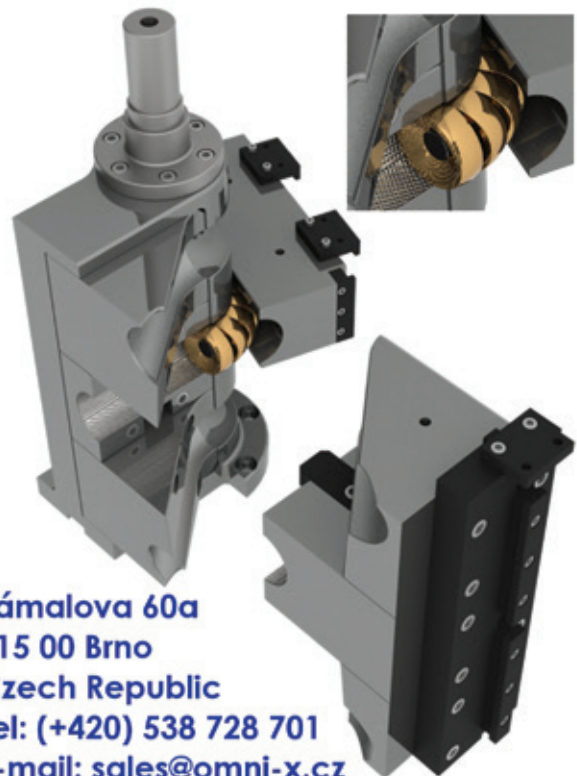
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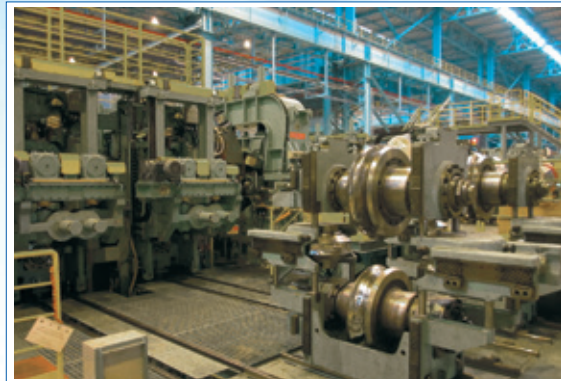
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# Burr Oak Tool website available in new languages

THE Burr Oak Tool Inc website is now available in three additional languages – Portuguese, simplified Chinese and Spanish. The languages can be selected from any page at [www.burroak.com](http://www.burroak.com)

Burr Oak Tool operates from Sturgis, Michigan with customers worldwide; the

new website translations simplify and enhance search efforts by international customers for their heat transfer and tube processing needs.

For more than 65 years Burr Oak Tool Inc has designed and customised production machinery for the heat transfer and tube processing

industries. Oak machines are installed and successfully operating in over 70 countries. Burr Oak prides itself on providing quality machines, service and parts to customers worldwide.

**Burr Oak Tool Inc – USA**  
Website: [www.burroak.com](http://www.burroak.com)

# The Williams F1 Team and Kemppi announce upgraded sponsorship agreement

THE Williams F1 Team has signed an upgraded partnership with Kemppi, a

leader in the manufacture of arc welding equipment.

Founded in 1949 by Martti Kemppi, the family run business has introduced many new innovations to the market over the past 60 years, serving industries such as shipbuilding, metal workshops and transportation. Headquartered in Lahti, Finland, Kemppi has a global presence with subsidiaries in 15 territories and customers in more than 70 countries worldwide. Kemppi first joined the Williams F1 Team's portfolio of partners in April 2012.

This upgraded agreement will see the Kemppi logo positioned on the front wing endplate of the Williams Renault FW35 and the sleeve of the drivers' overalls and team apparel.

Kemppi and Williams will also continue their technical cooperation which sees Williams benefit from Kemppi's expertise

in welding equipment, by integration of products at the factory and races.

Speaking about the partnership Anssi Rantasalo, chief executive officer of Kemppi, said: "We've been supporting Valtteri [Bottas, Williams's new driver] for several years now and it's great to see him get the chance to show what he can do on the world stage this season. It's also been a great honour for Kemppi to partner with one of the most successful teams in Formula One history and through this we will be hoping for more success for the Williams F1 Team this year. Our relationship also encompasses a technology partnership and we are showing that our welding equipment can meet the stringent demands of Formula One."

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Website: [www.kemppi.com](http://www.kemppi.com)



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Kemppi has signed a new deal with Williams F1

# Sales engineer for Arc Energy

WELD overlay cladding and fabrication specialist Arc Energy Resources has appointed Cliff Hall as sales engineer. Mr Hall, who has more than ten years' engineering experience in the machine tool and laser profiling industries, will initially focus on developing Arc Energy's close relationships with existing customers in the oil and gas, nuclear, marine and process industries.

Mr Hall is also tasked with building new associations in growing sectors such as wind and wave energy, where the benefits of corrosion resistant alloy cladding has the potential to extend the life of plant and equipment, and reduce maintenance downtime.

Commenting on the appointment, managing director Alan Robinson said, "We are delighted to welcome Cliff to the team where his experience will be invaluable in ensuring that Arc Energy remains the partner of choice for the supply of weld overlay cladding and complex weld fabrications."

Arc Energy's expertise provides

protection against corrosion and wear for a variety of process and pipeline equipment for use in any hostile environment. The company recently made a major investment in two new rotating head welding machines costing £500,000. This has increased productivity and extended the size and scope of work it can handle, which now includes complicated component geometries for the full or partial cladding and fabrication of a wide range of component sizes weighing up to 15 tonnes.

The company's in-house designed cladding workstations feature state-of-the-art control systems developed to suit its customers' specialised engineering requirements, and can clad bores up to four metres in diameter and areas of restricted access within bores as small as 20mm diameter.

Arc Energy also offers in-house test weld, heat treatment, PMI and NDT facilities. Industry certifications include ISO 9001:2008 quality management,



Cliff Hall

ISO 3834-2 fusion welding of metallic materials, and the internationally renowned ASME U and R Stamps, as well as ISO 14001:2004 environment management, Investors in People and OHSAS 18001:2007 Health & Safety management system.

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## Accreditation opens new opportunities

ADDING to its extensive capability in supplying material to the nuclear power generation industry worldwide, Sandvik Materials Technology has successfully achieved HAF 604 certification for its seamless stainless steel tube and pipe products for use in the Chinese civil nuclear industry.

China National Nuclear Safety Administration is the body responsible for accreditation and certification regarding the 'Supervision and Management Regulations for Imported Civilian Nuclear Safety Equipment'. Designated HAF 604, the certification means Sandvik can now offer a wider package of approved, dependable materials to the nuclear industry throughout China during its next phase of development.

"To achieve HAF 604 is a milestone and prerequisite for strengthening our position as a partner for tube and pipe for Chinese nuclear power generation applications," said Mikael Blazquez, SMT global sales and marketing manager.

Sandvik has long been a supplier of nickel alloy steam generator tubing and zirconium alloy cladding tube

for the nuclear power generation programme in China. "Gaining the HAF 604 certification will now provide us even more opportunities to support next generation Chinese nuclear power projects with our extensive seamless stainless steel tube and pipe technology," explained Mr Blazquez.

The nuclear industry has, in the past, widely used conventional stainless steel, but with the development of next generation nuclear power plants and in particular the Gen IV reactors in China, Sandvik is now supplying high performance austenitic stainless steel materials to this sector.

Through complete control of the entire manufacturing process, from raw material to initial melt, through to the finished materials, Sandvik is able to help meet stringent demands on product properties, quality assurance, testing and certification with total traceability, as required by the nuclear industry.

### Sandvik Materials Technology –

Sweden

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*Sandvik has gained HAF 604 certification for its seamless stainless steel products*

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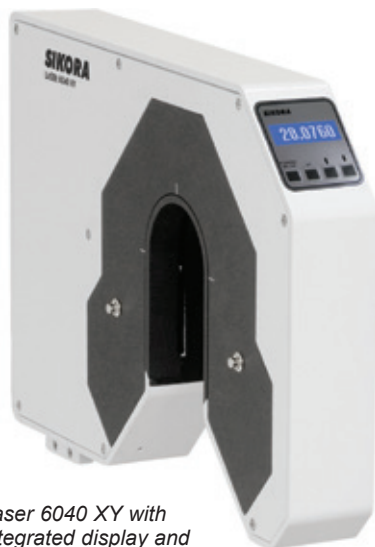
## Diameter gauge head measuring system

SIKORA'S Laser Series 6000 measuring devices deliver precise diameter measurement with reliable lump detection. The devices perform at a high measuring rate of 2,500 measurements per second, each with a high single value precision by default. With a dedicated accuracy of 0.2µm and a repeat accuracy of 0.1µm, the diameter of tubes and hoses is continuously measured online.

A wide size range of gauge heads covers a diameter range from 50µm to 500mm. Three gauge head models of Laser 6000 Series are available for product diameters from 0.2 to 78mm, and combine a large number of features which help to simplify daily production routines.

Sikora's R&D manager, Siegmund Lampe, commented, "Our development priority is to maximise the benefits to our users. Thus, we have developed many features for Laser Series 6000 that significantly support the user on the line."

The high measuring rate of the diameter measuring devices progressively and effectively enables the detection of lumps and neck-downs on the product surface. This reduces the cost of investment and increases space on the line, since only one gauge head need be installed.



Laser 6040 XY with integrated display and control panel

The LCD display and operator panel are directly integrated into the gauge head providing easier operation and process control. The operator can see the diameter results on the display at a glance. Simultaneously, the panel shows the diameter rated value and the control module can be activated. The control module automatically adjusts the diameter to nominal value via control of the line speed or extruder rpm.

The physical aperture of the gauge head is twice as large as the product

range, permitting easy and safe feed-through of the product. A special feature is the pivoting head design. The gauge head can be temporarily swung out of the production line path if required. The bottom of the unit is open, so water and dirt fall through, rather than contaminating the measuring field. The feeding of the connection cables is protected, directly in the gauge head stand.

The Laser Series 6000 offers an optional Wi-Fi interface, which allows direct connection to a smartphone or laptop. This interface enables diagnostics and quality control with video signal in addition to transmitting measuring results, trends and statistic data.

Sikora provides its own app for displaying measuring results, trends, statistics or video signals directly on compatible smartphones. Simply log in via the Wi-Fi interface and immediately you have measuring results on your smartphone. The app also offers the possibility to calibrate the gauge head according to ISO 9000.

Correct operation can be proved by comparing test probe measurements against calibration values, which are scanned in via QR code. The measured results are saved in a log-file, which may be transferred via Wi-Fi to the quality management department.

**Sikora AG** – Germany  
Fax: +49 421 48900 90  
Email: sales@sikora.net  
Website: www.sikora.net

## Order for API pipe straightening equipment

FIVES Bronx, the supplier of Bronx Taylor-Wilson finishing equipment and Abbey ERW pipe mill solutions, has received an order for a six roll straightening machine.

The order was placed by a Chinese company located in Corpus Christi, Texas, USA, for a Bronx Series 6CR10 pipe straightener that will handle a full range of API grades, with diameters ranging from 114.3 to 273.1mm and lengths up to 15m. The temperature ranges from ambient to 650°C, and pipes will be processed up to 100 mpm.

The Fives Bronx Series 6CR10 pipe straightener utilises the patented

Compass computer aided setting system to achieve size change set-up times in less than three minutes, and its design allows thin walled tube to be straightened accurately, without surface blemishes, at speeds up to 200m/min (approximately 600 fpm).

Located in seamless and ERW pipe mills worldwide, the hot and cold Series 6CR10 machines have a reputation for quality, durability and efficiency.

**Fives Bronx, Inc** – USA  
Fax: +1 330 244 1961  
Email: fivesbronx-sales@fivesgroup.com  
Website: www.fivesgroup.com



Fives Bronx 6CR10



# Hollow shaped universal forming from Oto Mills

THE range of universal hollow shapes mill developed by Oto Mills consists of three sizes, HSU 403, 604 and 1206.

HSU technology is, however, now very mature and Oto Mills is also available to evaluate extensions in the range upwards. In particular Oto Mills believes it may be interesting to extend the range up to 250x250x13 for structural HSU25013. This will depend on market demand.

It is important to note here some critical features that have been 'solved' in the design of HSU machine.

In particular it must be highlighted that the "easy access" and the "good visibility" features allow operators to easily perform maintenance and especially check the profile running

into the machine during production. "Good visibility" enables in particular the performance of very precise adjustments and allows the achievement of high quality standards for the final product.

All the settings are automatic and the operator should not make any judgments about how to act and what to adjust into the mill itself. The special software "mill manager" is designed to allow the operator to enter data related only to what is happening and referred only to the final product they are getting. Once he has entered the measurement of the finished product he is obtaining, taken with a simple and common caliper and knowing the final outcome goal in terms of dimensions, rounds and tolerances, the software automatically



The universal hollow shapes mill

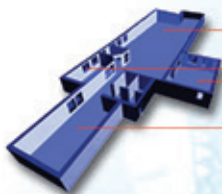
makes the needed adjustments on the entire line. It is still possible, in case of highly experienced professionals, to make adjustments at any time in the process on a single axis.

The mill is also able to produce special products – for instance to complete the inside scarfing of tubes for telescopic use.

**Oto Mills** – Italy

Email: [info@otocompany.com](mailto:info@otocompany.com)

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## Inclined is the new trend

THE only manufacturer of railway wheels in the Ukraine followed the worldwide trend in sawing large billets and relied on the type KSS 1600 inclined bed saw from Linsinger. This year in April a machine fully equipped with a material handling system was supplied to the customer. The total weight of the system designed for a hard 3-shift operation is 115 tons.

The concept of this inclined bed saw is based on integrating the advantages of horizontal and vertical sawing machines. The benefits quickly become clear when sawing large diameters. The sturdy, 3-point workpiece tension and the extremely quiet and vibration-free run of the saw guarantee a long tool service life.

Eleven inclined bed saws are already in use in Russia and the CIS states. Railway wheel manufacturers such as Vyksa Steel Works, NTMK Nizhny Tagil and NTRP Dnepropetrovsk are some of Linsinger's customers.

The orders allocated for wheel saws in the past years throughout the world were awarded to Linsinger, which is a confirmation of its consequential further development.

The ongoing costs for tools, calculated over the service life of the machine, make up several times the procurement costs of the machine. A lot of money can be saved in this area, but it can also be wiped out as well. Linsinger offers tools manufactured in the company so that customers are spared nasty surprises. These are aligned to the machine when it is commissioned on Linsinger's premises. Tests after commissioning on the customer's premises are therefore not required and production can start running with the agreed performance in the shortest time.

The development of new tool technologies is also one of Linsinger's concerns. The development of the Lincut® disc miller with screw connected carbide inserts sounded a new era in sawing. The panels achieve the longest life time thanks to the coating, they are easy to replace and help to significantly reduce the ongoing operating costs. This means, for example, that the costs per cut for a diameter of 450mm are just €2 (tool costs only). An added benefit is that the procurement and operating costs of a sharpening centre are avoided.

Three years of practical experience with the Lincut® side milling cutter confirm Linsinger's path of success. More than 40 Linsinger sawing systems with Lincut® are now in operation.

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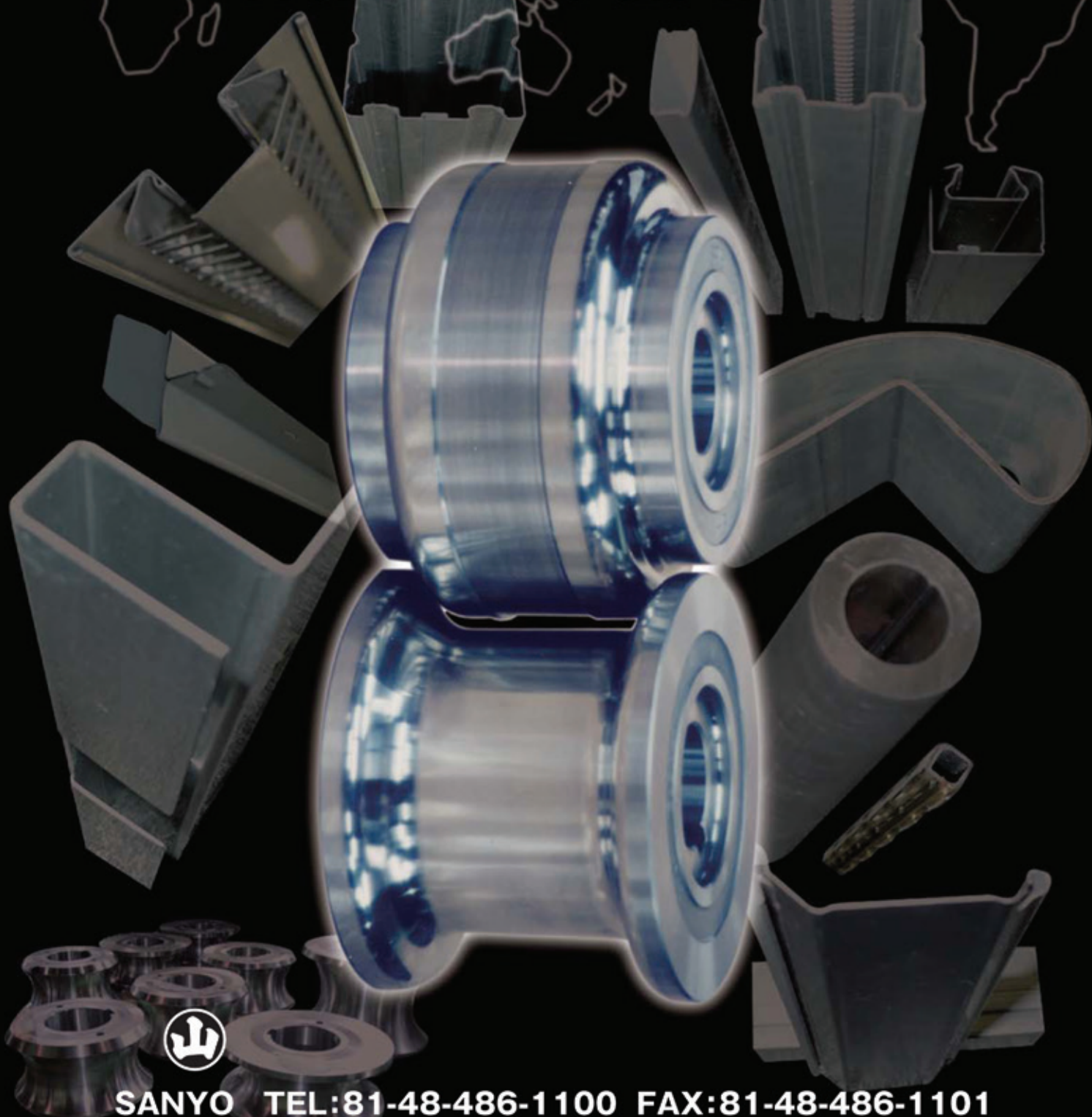
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## Pumps and valves for added safety

KLAUS Union Corporation was founded in 1946, in Bochum, Germany. The company holds numerous patents and stocks a versatile range of pumps and valves.

The company mainly supplies to the petrochemical and chemical industries, which expect a high quality of products and services.

Particularly when aggressive, toxic and explosive products are pumped, no compromises are allowed with regard

to quality, service life and safety. Klaus Union guarantees operational reliability and environmental protection to all stakeholders.

In 1955, Klaus Union developed the first magnetic drive and presented it to the world atACHEMA in Frankfurt, Germany. The company states that this magnetic drive is still considered one of the most secure sealing systems. Thanks to the magnet drive in combination with an isolation shell,

which prevents leakage of the pumped liquid to the atmosphere, shaft ducts, stuffing boxes or mechanical seals have become obsolete.

Since then, the company has developed titanium pumps and other magnetic systems, and has expanded its product range from the main products of gate, globe and check valves to additional valve types like overflow valves, bottom valves, y-type strainers and sight glasses.

The Klaus Union product range consists of pumps and valves for almost any industrial sector. Applications involve refrigeration and heat engineering, power plants, liquid gas plants and electroplating. Corrosion-resistant materials, often including alloys on a nickel or titanium base, constitute the basis of all products, together with steel and stainless steel. Due to the provision of materials to a wide range of industries, quality control is extremely important, and Klaus Union has a sophisticated internal quality management system that ensures high levels of safety in each product that the company produces.

Klaus Union Service GmbH was established as a separate entity, specifically to increase the efficiency of the provision of customer service. This branch allows the company to extend its service to include training programmes and seminars that reflect reality and not theory.

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## Seamless pipe machinery

DANIELI Centro Tube, part of Danieli Group, constructs machinery and turnkey plants for the supply of seamless pipe, mainly for the petroleum, energy and mechanical industries.

The company's equipment and technologies allow it to meet the demand for increasing seamless pipe quality requirements. It is able to cover plants up to one million tpy, from 1" to 28", including finishing lines and single equipment.

Danieli Centro Tube guarantees top process technology and mechanical

design of main machines in pipe plants, and is able to offer a complete package (mechanical, electrical, automation and reheating systems) under the same management, with the consequent advantages in coordination through all stages of the project up to the closing stages of commissioning.

Danieli W+K completes the supply programme for pipe production of Danieli & C with its portfolio in the (LD) welded pipe plant. The consolidated design of the German company with the Danieli group sales and service network and

through the worldwide manufacturing facilities creates a wider offering, from single equipment to turnkey projects including finishing lines.

The new Danieli portfolio for pipe plants now includes ERW lines for pipes up to 26"; longitudinal SAW lines for pipes up to 64"; and spiral SAW lines for pipes up to 120".

**Danieli & C Officine Meccaniche SpA – Italy**  
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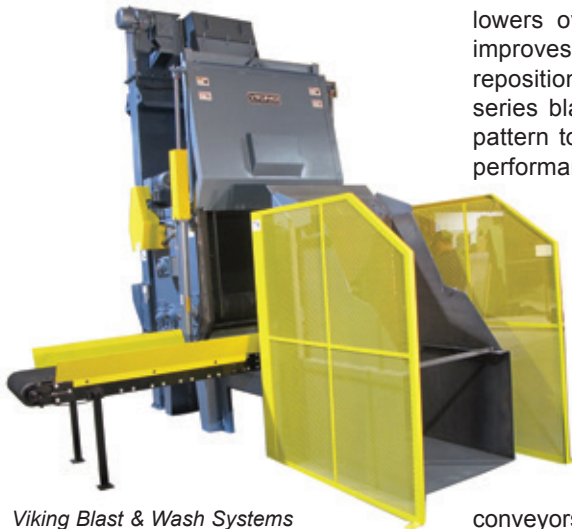
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## Tumble belt blast machine



Viking Blast & Wash Systems  
1200 belt blaster

VIKING Blast & Wash Systems has released a redesigned tumble belt blast machine – the 12 cubic foot model 1200. The latest version incorporates changes to the loader and discharge belt options that make it more durable in heavy duty and foundry operations.

The increased options make the 1200 a more versatile machine, providing wider applications to the many industries served.

The new 1200 has a smaller footprint by the integration of the media lift system and the elimination of the auger, which

lowers overall maintenance cost and improves component accessibility. The repositioning of the 25HP VKPowerMax series blast wheel optimises the blast pattern to make efficient use of wheel performance.

The drum heads and side liners are manganese alloy as standard and easily serviced. Other optional features include rotary scalping drum for removing debris from blast media, loader, take away belt, and auxiliary abrasive hopper. Front bucket loaders and custom unloading conveyors are common options for the 1200.

Peening requirements are satisfied with optional variable speed blast wheel control, electro magnetic abrasive control valve and classifier, as well as optional PLC and touch screen for pre-programmed, recorded, part-specific recipes.

All Viking cartridge style dust collectors are sold with NFPA required deflagration panels as standard.

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Website: [www.vikingcorporation.com](http://www.vikingcorporation.com)

## Quick tooth check device

SWISSCUT SW Wil produces HSS, TCT and friction saw blades.

The company is also a major re-sharpening of saw blades in its home market in Switzerland, re-sharpening more than 40,000 blades each year.

SW Wil sells not only saw blades, but also cutting technology, providing customers with a complete package.

The company decided to build the QTC (quick tooth check) device after observing that, in many cases, customers did not get the same cutting performance after performing their own in-house re-sharpening.

Customers were asking for a control unit, but there was none on the existing market, or the cost of a unit was too high.

The aims of making a control unit were clear: low cost, simple to use, and fast operation.

The QTC unit performs shape control in a first step, and angle check in a second step.

**SW Wil – Switzerland**  
Fax: +41 71 911 49 32  
Email: [swwil@sw-wil.com](mailto:swwil@sw-wil.com)  
Website: [www.sw-wil.com](http://www.sw-wil.com)

## A non-chlorine alternative

QUAKER Chemical continues to expand its front to back product offerings for the tube and pipe industry, now into precision seamless tube manufacturing.

Quaker Chemical's cold pilger lubricants, ATLAS™ 3374-140 and ATLAS™ 3374 – DPX, provide an alternative to the traditional chlorinated paraffin containing products for lubrication in the pilgering process. These two products were formulated together and designed to be fully compatible for internal and external lubrication.

ATLAS 3374-140 and 3374-DPX have successfully replaced their predecessors

and can be applied on stainless steel as well as on duplex alloys, since the products are non-chlorine containing and provide extreme pressure (EP) lubrication through sulphur.

The ATLAS 3374 brand provides an alternative that not only maintains productivity, but also easy disposal. Other advantages from this product line are secondary tool wear, high temperature resistance, and suitability for stainless steel deep drawing.

Quaker Chemical is a global provider of process fluids, chemical specialities, and technical expertise to a wide range of industries, including steel, aluminium, automotive,

mining, aerospace, tube and pipe, cans, and others. For nearly 100 years, Quaker has helped customers around the world achieve production efficiency, improve product quality, and lower costs through a combination of innovative technology, process knowledge, and customised services. Headquartered in Conshohocken, Pennsylvania, USA, Quaker serves businesses worldwide with a network of dedicated and experienced professionals whose mission is to make a difference.

**Quaker Chemical – USA**  
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## New project for straightening line for pipes up to 340mm

CARTACCI Srl, an Italian company, keeps on searching for the new technical solutions for new projects of finishing lines for tubes.

The experience obtained in almost 50 years is the important basis for the complete innovation of equipment design that meets the most demanding requirements of the market. Recently Cartacci has been commissioned

by Borusan Mannesmann Group for technological development of a new straightening line project for pipes of maximum diameter 340mm destined for the American market. Cartacci can boast a wide knowledge in the construction of straightening machines designed to meet all API standards: from 5D (for drill pipes) to 5CT (for tubing and casing) and 5L (for line pipes).

The machine will be designed with particularly short wheelbase and with large rolls surface. This new general geometry brings particularly important advantages in terms of quality of straightening, particularly on the pipe ends.

**Cartacci Srl** – Italy  
Website: [www.cartacci.com](http://www.cartacci.com)

## Contactless straightness measurement for rod and steel pipes

LASER measuring technology firm LAP has developed a new system for measuring the straightness of pipes and steel rod contactlessly. The Straightcheck contactless measuring system by LAP provides pipe and rod manufacturers with potential for online quality assurance – without time consuming manual measurement.

Many pipe and rod steel manufacturers are repeatedly confronted with the same problem. Does the straightened pipe satisfy the customer's quality standards? Straightness is a significant

criterion. If this is not satisfied, the rod steel or pipes cannot be sold. LAP has found a way around this problem with the Straightcheck laser measurement system. This dispenses with time consuming and complex checks using a straight edge.

The LAP solution can be integrated into the manufacturing process directly. Existing systems do not need to be adapted. "The METIS sensors in the Straightcheck system measure the straightness of steel products," explains Frank Lohmann, who works in sales

and distribution for the steel industry at LAP. "During the straightening process the pipe or rod turns at roughly 400 revolutions per minute on its longitudinal axis. The only logical solution therefore was to use our sensors to measure the straightness. We obtain this information by means of synchronised real time measurement. For this measurement to be possible online, all sensors must be fully synchronised when the scan is in progress. Straightcheck software provides data directly after the first straightening operation whether or not the product meets specifications. This also assures the production staff of the product as it passes into other manufacturing processes. In general, no changes to existing production lines are required."

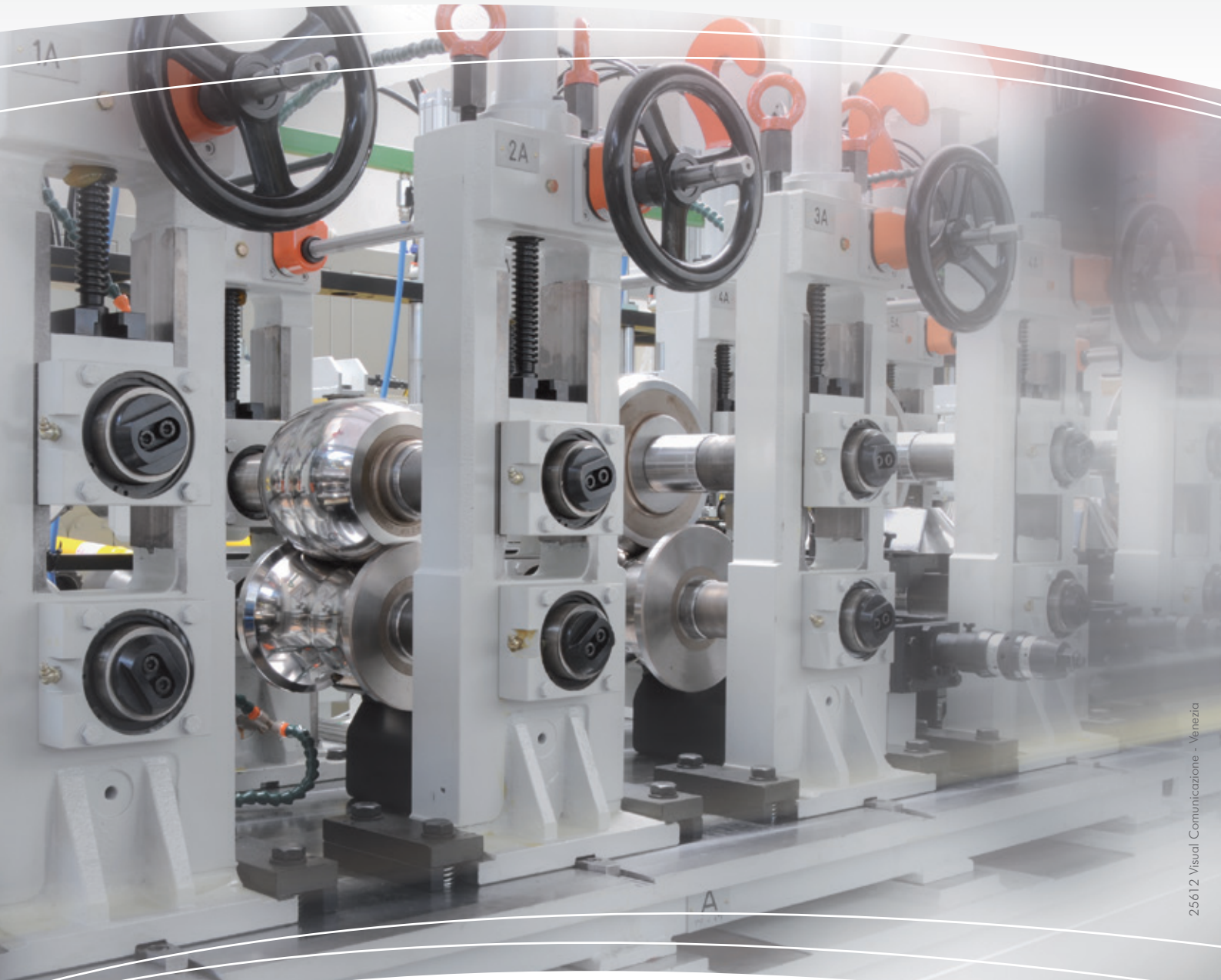
The laser measuring system can determine the straightness of extremely long pipes and rod steel, even for lengths up to 30 metres. To do so, the measuring range, ie the overall length of the products, is subdivided into one, two or three metre long segments. These are then measured separately in order to determine the straightness of the individual sections of the workpiece.

**LAP GmbH Laser Applikationen** – Germany  
Email: [t.armbruster@lap-laser.com](mailto:t.armbruster@lap-laser.com)  
Website: [www.lap-laser.com](http://www.lap-laser.com)



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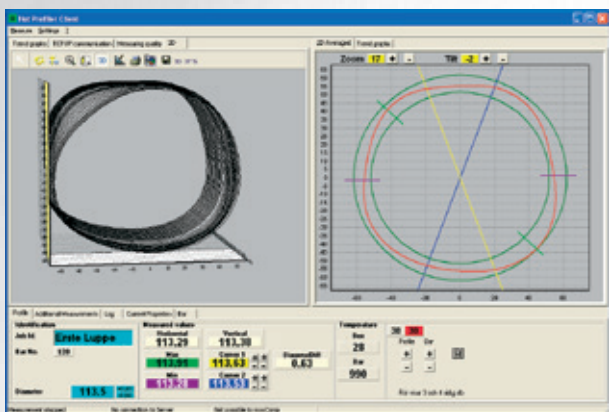
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## Engineered joining technology

THE pipe couplings of Norma Group are used in building and infrastructure projects all over the world. The connector products reliably join water supply pipes and drains, whether in sewage works, in hotels or at airports.

“With our pipe connectors, we contribute to making the water cycle work and ensure that not a single drop of this vital resource gets lost,” said Bernd Kleinhens, board member and responsible for business development at Norma Group. “Our clients trust in the reliability of our product solutions because they contribute to the success of their investment projects.”

Some examples of the company’s products in use around the world are detailed below.

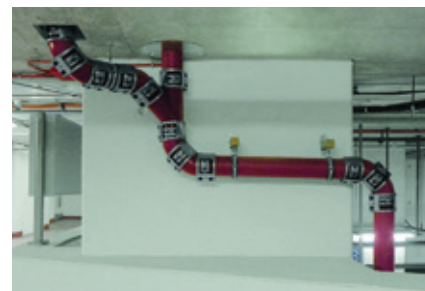
Tunisia’s largest sewage works in Choutrana near the capital are being upgraded in order to supply Tunis’s growing population with tap water. As part of this effort, 4.5km of new pipes are being installed overall to provide the new activated sludge tanks with compressed air. The compressed air pipes are connected with a total of 600 NormaConnect pipe connectors with diameters of between 100 and 900mm. They not only withstand pressures of up to 10 bar, but also make assembly quick and easy.

Hotels depend on reliable sewage systems. In the construction of a 170-room luxury resort in Benoa on Bali, the sewage pipes made of cast iron and other materials are connected with NormaConnect DCS Rapid couplings and NormaConnect DCS Fix to make them leak-proof. The pipe connectors bridge gaps of up to 3mm and compensate for extension resulting from extreme heat and temperature changes.

Approximately 57 million passengers per year use the 14,000 parking spaces of the Frankfurt Airport to store their vehicles safely out of the rain. The cast-iron pipes of the drainage system are connected with NormaConnect DCS Rapid couplings and NormaConnect DCS universal restraint collars. The two joining products withstand high pressures while keeping the system tight, and protect against downpours and large amounts of water.

Norma Group manufactures a wide range of engineered joining technology solutions in three product categories – clamp, connect and fluid – and offers around 35,000 products and solutions to approximately 10,000 customers in 90 countries. The company’s joining products can be found in vehicles, ships, trains, aircraft, domestic appliances, engines and plumbing systems, as well as in applications for the pharmaceutical and biotechnology industry.

**Norma Group AG** – Germany  
Website: [www.normagroup.com](http://www.normagroup.com)



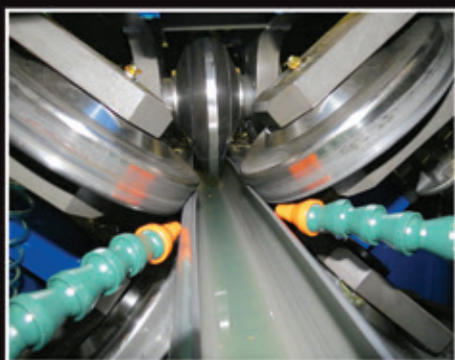
*NormaConnect DCS  
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# Exceptionally fast cycle and tool change times

METHODS Machine Tools Inc, a supplier of innovative precision machine tools, automation and accessories, has introduced the Nakamura-Tome NTJ-100 Multitasking Turn/Mill Center which is well-suited for a wide range of production needs. Applications range from low to high volume lots of medical, aerospace, general job shop components and more.

The new Nakamura NTJ-100 multitasking centre offers fast tool changes compared to a full tool spindle ATC machine. A large tool capacity, up to 54 tool stations for turning and 24 tool stations for milling tools, reduces set-up time. For faster cycle times, the new NTJ-100 has two high rigidity turrets, each with a Y-axis – 3.5" (80mm) on the upper and 2.6" (65mm) on the lower, facilitating pinch turn and pinch mill operations. An upper turret swivelling B-axis with a range of 182° is ideal for easily producing angular features, eliminating the requirement for expensive angle milling heads.

"The NTJ-100 is well positioned to serve a variety of industries including medical where angular features are found on components such as hip cups and bone plates," said Richard Parenteau, director of application development at Methods Machine Tools, Inc. "Also for example, special aerospace fuel fittings and control valves have many angled aspects which are an excellent fit for this machine." The Nakamura NTJ-100 is a great option for job shops looking for an economical, efficient multitasking turn/mill solution versus a full tool spindle machine.

Two milling-tool motors, each at 9.5/3 HP can double the performance

compared to traditional multitasking centres. Twin 6,000 min<sup>-1</sup> spindles offer faster motor acceleration and deceleration to improve machining efficiency. Synchronisation of the left and right C-axes is offered for parts simultaneously clamped by the left and right side chucks. The NTJ-100 has a maximum turning diameter of 6.9" (175mm), a maximum turning length of 26.7" (678mm) and a standard 1.6" (42mm) / maximum 2.6" (65mm) bar capacity.

The new NTJ-100 provides X-axis and Z-axis speeds of 787 ipm and 1,574 ipm respectively. Designed with a minimum 7.9" (200mm) and maximum 35.8" (910mm) distance between spindles to eliminate any interference of tooling during multitasking, the NTJ-100 allows for multiple tools in the cut simultaneously.

To ensure rugged, stable performance, the machine weighs 22,046 lb. (10,000kg). The NTJ-100 has a small footprint to maximise floor space of 149.6" (3,799mm) length x 78.7" (2,100mm) width.

For ease-of-operation, the NTJ-100 features a large 19" high-resolution, touch screen LCD panel. The Nakamura-Tome Intelligent Programming System (NT-IPS) is a PC-based control that is built into the machine.

It works in conjunction with the latest Fanuc 31iB-2 controller to give a high degree of functionality, coupled with fast processing speeds. New standard functions include a spindle speed override switch, a program number search, C-axis synchronisation and helical interpolation.

CAMplete TruePath Turn/Mill software is standard on Nakamura-Tome Multitasking Turning Centers. CAMplete Turn/Mill software is an integrated suite of G-Code editing, optimisation, analysis and verification tools, enabling a full range of turn/mill functions.

Methods recently introduced Version 6.0 of this software which includes several upgrades for greater macro language support, improved error handling, increased post processing capabilities and more.

**Methods Machine Tools Inc – USA**  
Website: [www.methodsmachine.com](http://www.methodsmachine.com)

*The NTJ-100 Multitasking Turn/Mill Center*



# High-speed measurement

FOR diameter measurement and simultaneous lump detection of hoses and tubes Sikora already offers the Laser Series 6000. With the Tiger Laser 6010 XY Sikora presents an additional innovative diameter measuring system, with special focus on the combination of diameter measurement with high-speed lump inspection. Characteristic for this

gauge head is the extremely precise and reliable inspection of the product surface for lumps and neckdowns. Optionally, the Tiger Laser 6010 XY can be combined with a device of the Ecocontrol-series to visualise detected faults. With the clear presentation manufacturers can evaluate faults realistically. There is also the possibility

to store the pictures with the processor system Ecocontrol.

The measuring principle of the Tiger Laser 6010 XY is based on the analysis of two high-resolution image sensors as they are common in digital cameras.

**Sikora AG – Germany**  
Website: [www.sikora.net](http://www.sikora.net)

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# ArcQuality convinces Outotec

MINERALS and metals processing technology company Outotec, Finland, has installed an ArcQuality welding quality management system from Finnish welding equipment manufacturer Kemppi Oy, for welding operations in its Turula engineering workshop. Outotec is also planning to expand the use of ArcQuality to its other workshops.

Plant director Ilkka Hiltunen commented that quality control for welding is a key part of the workshop's activities: "It is easier to improve the quality when production is in one's own hands. ArcQuality is a modern, up-to-date way of ensuring quality control."

Outotec's production development manager, Kari Koistinen, believes that high welding quality is achieved by making sure that the company employs excellent quality-control processes. Mr Koistinen said, "The manufacturer has to provide the client with the quality required and one needs to be able to prove the quality of the product to both the client and the quality assessment organisation."

Outotec Turula has a 21,000m<sup>2</sup> production facility along with an area for pre-treatment. The Turula workshop has around 70 MIG/MAG, TIG and MMA power sources. The ArcQuality system provides a method of verifying welding quality. Mr Hiltunen praised the system, explaining, "Previously, there were cases in which the client required data on who welded what and when. Now, the system collects all the required information automatically." Mr Koistinen added, "ArcQuality is a highly suitable

tool for the management staff, since it enables immediate intervention when there are noticeable deviations from the norm."

Welding co-ordinator Rauno Kakkola believes that ArcQuality should become a mainstay of welding schools and that it also affects how management operates, because real-time reports are readily available. "Management must make sure that welding procedure specifications are available. At first, the system requires guidance and training. It is used to make everyone's work transparent and employees should not feel that there is extra pressure on them because of this," Mr Koistinen stated.

Implementing the system requires an active approach from the company deploying it. Mr Kakkola emphasised that the principles of the system must be taught to each welder individually and the smart reader device must become a personal work tool for every welder. Mr Hiltunen added, "We must explain to the welders why we are using the system in the first place."

ArcQuality is provided as a cloud service via a secure server, so the system is accessible from anywhere and does not place a burden on the company's

own network. Updates and new features can also be quickly implemented.

With the ArcQuality service, it is easy to make sure that the entire welding process is carried out in accordance with welding procedure specifications. Monitoring by this service also ensures that the welders are qualified to perform the tasks they are assigned. Possible deviations are reported automatically and in real time.

The system can also be used in preparation for maintenance operations, and the smart reader compiles quality data even for weld-specific traceability, if necessary.

**Kemppi Oy – Finland**  
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*The bar code from the welding procedure specifications is read into the system before welding*



## New rotary draw bender

IN confirmation of its on-going commitment to meet the market's growing needs, Ercolina has launched a new and improved rotary draw bender: the TB130 Top Bender.

The TB 130, with its 130mm (5") capacity is suitable for producing consistent quality bends in large pipe, tube, squares, solids and other profiles. A strong cast iron design matched with high precision planetary reducer ensures quality, repeatable bends.

An interactive PLC touch screen

control offers easy access to auto and manual operating modes, programming, system diagnostics and multiple language capability. Programmable bend angles range from 0° to 180°, with up to 12 bends per program.

Other features include independent springback compensation for each bend; USB port for software updates and unlimited program storage; digital display of counter bend die axis and bend angle; bends to CLR as small as 2D; patented quick-change tooling

system with multiple radii available; and no hydraulic components, reducing cost and improving bend accuracy.

Auto load sensing improves bend productivity while protecting machine components.

Electrical components are UL, CSA and CE approved.

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Cimperial 1072C is a chlorinated soluble oil recommended for machining and grinding operations that offers good mix stability in high hardness, high sulphate and high chloride water conditions.

1072D is a soluble oil recommended for machining and grinding operations on mild steels,

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Cimperial 1072-HFP with FACT is a premium soluble oil recommended for a wide variety of heavy-duty machining operations including turning, drilling, tapping, reaming, gear cutting and broaching. It was developed for use in high fluid pressure applications.

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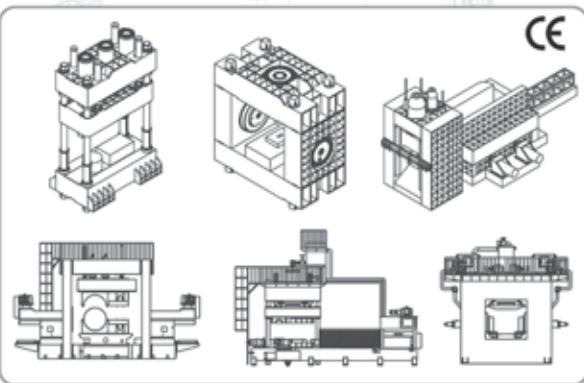
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## Pipe cutting and end preparation

MACTECH Europe is a supplier of pipe cutting and end preparation equipment, including lightweight and rigidly constructed machines that can be used in almost any environment, even subsea. The company is also able to provide a wide range of on-site machining services both in the UK and internationally.

All on-site retained service assignments are accompanied by qualified technicians who are well versed in applications such as weld excavating, to remove defective weld material, match boring to enable pipes with dissimilar wall thicknesses to be welded together, generating weld preparations in the standard 30 deg and 37 deg profiles along with compound or 'J' bevels and any other problems they may encounter.

The pipe cutting and end preparation machines are manufactured to be durable, and are maintained to the highest standards, ensuring that they will perform to demanding tolerances under virtually all conditions.

Mactech Europe has proven expertise across many major industry sectors, including petrochemical, power generation, LNG, shipbuilding, offshore oil

and gas, subsea, engineering and fabrication, and papermaking.

The Mactech Europe Air Operated Trip assembly has been introduced to offer safe remote operation of the feed trip pin combined with a two-handed start control. This ensures the operator has full control of the operation of the clamshell lathe while remaining outside the potentially hazardous zone.

The start handle and the trip assembly use air taken from the main air supply to the clamshell's pneumatic drive motor and no other power source is required. To start the machine the operator must use both hands; after start up, only one hand is needed to keep the machine running, leaving the other hand free to operate the control of the feed pin. If the operator releases the run control, the machine will come to a stop and the feed pin retracts automatically. The air operated trip assembly is a direct replacement for the manual version with no other modifications necessary.

**Mactech Europe Ltd – UK**  
 Fax: +44 1625 618147  
 Email: [info@mactecheuropa.co.uk](mailto:info@mactecheuropa.co.uk)  
 Website: [www.mactecheuropa.co.uk](http://www.mactecheuropa.co.uk)

## Cellular beam bender

BARNSHAW Section Benders has been involved in several large-scale energy and renewables projects. A recent job involved the company's structural division working with ASD Westok and Fisher Engineering, which is a part of Severfield-Rowen plc.

Working together with ASD Westok, Barnshaws was asked to produce some of the deepest cellular beams ever requested, the largest being a 1,594mm deep beam formed from one of the biggest universal beam sections that Tata produces. The beams were not only large in terms of depth, but also in length, with upwards of 23m of bar to be curved.

Barnshaws has also been curving a number of bars direct for Fisher Engineering, which includes a variety of sections and sizes ranging from 457mm deep universal beams to 400mm deep rectangular hollow section (RHS).

Both cellular beams and sections have taken the company's expert benders 3 to 4 months to form, and together they weighed approximately 500 tonnes.

Barnshaws has a strong relationship with ASD Westok, and the early consultations enabled the client to see that Barnshaws was willing to invest heavily in order to meet its requirements. Barnshaws has invested more than £70,000 on new equipment and tooling, which means that the company can now curve the largest cellular beams available. Barnshaw Section Benders is based at six manufacturing sites around the UK, located in the West Midlands, Manchester, and Hamilton in Scotland.

**Barnshaw Section Benders Ltd – UK**  
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## Fusion machine with large chassis

MCELROY has introduced a new ordering option for its TracStar® 28 model. Named the Super 28, the fusion machine pairs a 28 fusion machine carriage for fusing 2" IPS to 8" DIPS (63mm to 225mm) polyethylene pipe with a larger tracked chassis powered by diesel fuel.

TracStar machines are self-contained, self-propelled, track-mounted vehicles that can handle grades up to 30 per cent. The four-jaw fusion carriage can

be easily removed for in-ditch fusion. For tight installations, the outer fixed jaw of the carriage and the skid can be removed from the carriage, converting the unit to a three-jaw carriage.

The Super 28's chassis is the same as those on the larger TracStar 412 and 618 fusion machines. The diesel-fuelled carriage is better suited to certain jobsites than the standard gasoline-powered option of the original TracStar 28. The standard Super 28 features the diesel-

powered 28 carriage, TracStar 412/618 chassis, facer, heater, insulated heater stand and lifting assembly. The Super 28 can also be ordered as a combination unit, offering a saddle fusion capability that allows fusion of branch saddles with a maximum base diameter of 9.63" onto any size pipe main.

**McElroy – USA**  
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## Touch screen controls

ERCOLINA's rotary draw TB60 is suitable for producing consistent quality bends in pipe, tube, squares, rectangular, solids and other profiles to a 2½" capacity and a centre line radius as small as 2D.

This model offers simple controls with programmable bend angle and material springback compensation with readout.

The counterbending die vice position is monitored electronically for accuracy and repeatability. This portable two-speed machine has base wheels and a lift handle and includes a foot pedal which allows for hands-free operation. The TB60 Top Bender is a suitable choice to replace outdated ram-style hydraulic benders. An optional two-axis

positioning table increases productivity and versatility when bending multiple bends in two planes.

CML USA, Inc is the North American supplier of Ercolina tube, pipe and profile bending machinery.

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# Measuring baseline sawing performance in dollars and cents

SIMONDS International has introduced SnapShot, the latest addition to its Cutting Intelligence arsenal – a suite of analysis tools designed to help manufacturers identify savings opportunities. The SnapShot Bandsawing Calculator is a data-driven Microsoft Excel tool that identifies and measures the impact of improved productivity and performance on day-to-day bandsawing operations and their effect on profitability.

For those categories with indirect value, SnapShot allows customers to measure their value on 'soft' costs. The tool ultimately identifies opportunities for significant time and cost savings.

"In sawing, even small changes can yield significant time and cost savings. Taking a closer look at the scope of a bandsawing operation can uncover

some surprising results," said Dale Petts, global product manager, Metal Products, at Simonds International. "Some of our customers are seeing six-figure annual savings after implementing opportunities that were identified via a SnapShot analysis of their sawing operation."

Simonds SnapShot Calculator joins several other tools in the Simonds Cutting Intelligence family including QuickCalc, a program created to aid in the set up and optimum performance of bandsaw machines and blades; and Advanced Cut Calc, a program that allows users to specify the material to be cut, blade type and width, along with a short list of optional settings to generate cutting rates, estimated blade life, total cuts, cuts remaining, square inches remaining, cost per hour and

SIMONDS SnapShot™ LITE			
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Annual	\$ 17,875	\$ 17,875	
Blade Exp			0%
Average Sq Inches Per Min			
	Benchmarks	Test Blade	Difference
Cost/Min	2.80	2.26	10%
Each Shift	\$ 800	\$ 727	\$ 73
Annual	\$ 200,000	\$ 181,818	\$ 18,182
Grand Total			
Each Shift	\$ 872	\$ 799	\$ (73)
Annual	\$ 217,875	\$ 199,593	\$ 18,282
			8%
			Savings

burden on shop rate per hour. For more detailed information on SnapShot Calculator, go to [www.neveryieldtosteel.com/downloads/simonds-snapshot-additional-info.pdf](http://www.neveryieldtosteel.com/downloads/simonds-snapshot-additional-info.pdf).

Simonds offers an extensive array of professional grade products including a comprehensive line of bandsaw blades, power hacksaw blades, hand files, and a broad variety of wood-processing machine knives, as well as support equipment for many of its products which are sold through a comprehensive worldwide distributor base.

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# 360° pipe machining from a working position

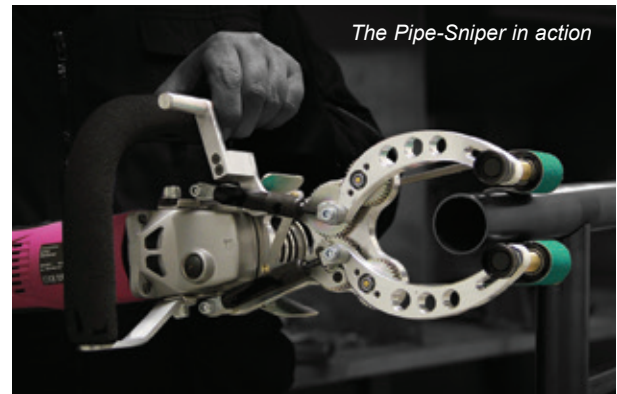
GERD Eisenblätter GmbH from Germany has developed a grinding system for pipes called the Pipe-Sniper® that enables pipe machining with 2/3 envelopment thanks to an optimised clamp gripping system and 360° machining from a single working position.

The frontal insertion ability is particularly worth emphasising – whereas conventional pipe machining tools mostly only have one single moveable arm, the technology of the new pipe machining system is based on a principle which up to now is unique.

Both gripper arms are flexible and can be controlled using a lever. 360° pipe machining from a working position: thanks to a 2/3 envelopment, complete grinding around the whole pipe is possible, without having to change the working position. The lever is fitted in such a way that it can be conveniently

operated by hand. The lever device and gas pressure shock absorber also considerably reduce the necessary force which has to be applied. Thanks to the design, with the Pipe-Sniper® it is also possible to work in narrow spaces without any problems. If the Pipe-Sniper® is lifted or lowered, the complete machining of the pipe is possible without changing the working position.

For pipe diameter of 25 to 42mm a 2/3 envelopment is possible without any problems. Even in the case of a 70mm diameter the tool can grip around 50 per cent of the pipe. Thanks to the new drive motor with 1,750 watts, the Pipe-



The Pipe-Sniper in action

Sniper® is one of the most powerful grinding machines for pipe machining currently on the market. The motor enables high torque and a constant high performance even during constant use.

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## Portable analysis of precious metals

SPECTRO Analytical Instruments has introduced the Spectroscout portable energy dispersive X-ray fluorescence (ED-XRF) analyser that enables the rapid, laboratory-class assay analysis of precious metals anywhere.

The new analyser weighs only 11kg and can be carried with a shoulder strap, but has as much analytical power as advanced bench-top laboratory analysers, according to Dirk Wissmann of Spectro: "The new Spectroscout is a small instrument, but a major step forward for end users. Its precision, speed and portability allow fast, accurate, confident decisions and improve productivity."

The Spectroscout brings laboratory-class advantages to precious metals assay analysis. The instrument's reliably accurate readouts can boost confidence



*The new Spectroscout portable ED-XRF analyser*

for less expert users and reassure customers. First results are displayed after only a few seconds, and higher accuracy can be achieved with longer measuring times. To achieve a high

degree of safety, each sample is tested for 21 elements simultaneously.

The Spectroscout's features include a large sample compartment, X-ray tube, on-board processor, high-yield battery pack, and integrated video camera supporting precise (1mm) spot testing, plus image storage. It provides precision and accuracy at a wide range of concentration levels typically present in precious metals alloys. It also offers rapid (30-300 second) readout.

The Spectroscout also features predefined application packages, an intuitive touchscreen interface, simple displays, and only two menu levels.

Spectro manufactures advanced instruments, and develops solutions for varying applications. Since its foundation in 1979, more than 30,000 analytical instruments have been delivered to customers around the world.

**Spectro Analytical Instruments GmbH – Germany**  
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## Large diameter pipe cutting and bevelling solutions

PIPE, established in 1989, is one of the world's leading suppliers of specialist pipework fabrication tools and handling equipment for on-site or workshop requirements.

PIPE manufactures and supplies a range of hot and cold cutting and bevelling solutions for pipes of almost any material, wall thickness and diameter and is able to cater for any cutting and bevelling requirements whether cold or hot cutting, for workshop or on-site environments.

Two of the most popular machines in its range are the split frame cutting and bevelling machines; the heavy duty steel frame "Supercutter" and the light-weight alloy body "MCA Clamshell". These machines are designed for the cold cutting and bevelling of pipes up to 60" outside diameter, where the use of a hot cutting method is prohibited or a machined bevel is required. The split frame design enables the operator to

mount the machine anywhere along a pipeline to cut and bevel the pipe simultaneously. Suitable for on-site work or in areas where there is restricted access to the pipe, due to their low profile design, once clamped on the pipe, the cut and bevel is produced by an inner rotating ring, housing cutting tools mounted in spring loaded toolboxes which follow the contour of the pipe to produce an accurate weld preparation.

Cutting tools are available to machine mild steel, stainless steel and exotic materials such as duplex and super duplex. Machines are available with electric, pneumatic or hydraulic motors. Models are available to cut from 1" to 60" pipe, with all types of weld preparation achievable on wall thicknesses up to 60mm.

The latest addition to PIPE's split frame cold cutting and bevelling machine range is the Hypercutter. This rugged, heavy-duty steel split-frame



machine is designed for the cold cutting and bevelling of pipes of up to 108" diameter, producing square cuts and weld ready machine finish bevels with ease.

The Hypercutter is hydraulically powered, giving it the strength to machine even the toughest of materials, in the most arduous of working environments. Each Hypercutter covers a 12" diameter range, making it a versatile large diameter cold cut machine.

**Prestige Industrial Pipework Equipment – UK**  
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Website: [www.pipe-ltd.com](http://www.pipe-ltd.com)

# Eddy current flaw testing unit

PROVEA has delivered a complete eddy current flaw testing solution to Cofrend Nord, a non-destructive testing official training and certification company.

This new bench, installed in the north of France, will be used in order to train and test future non-destructive experts, and enables the Cofrend group to respond to the growing demand for NDT training sessions in the tube industry.

The eddy current bench has been designed by Provea similarly to purely industrial eddy current flaw testing machines. Operators will be trained on a machine similar to the industrial application they can face in their own production facilities. Compared to the old system, the new bench has more

capacity: OD 10 to 90mm. Provea integrated on the bench the eddy current unit supplied by Foerster France (Defectotest – M90 Sensor System).

The bench is composed of a feeding conveyor, two centring guiding pinch rolls, a central frame for the eddy current magnetising yoke, and an exit conveying system. The eddy current unit can be set in two main directions (axis Y and Z), allowing non-destructive experts to accurately find the best mechanical positioning of the tube compared to the eddy current measuring unit. Operators can be taught on a bench very similar to the industrial process of any tube manufacturer.

The two pinch rolls are mechanically

linked so that the entry and exit speeds are exactly the same. The guidance has also been designed in order to ensure a repeatable and suitable position of the tube.

The general manager of the NDT training unit has been very satisfied with the investment, and has increased training and exam capacity, which was necessary in order to meet market demand.

**Provea – France**

Fax: +33 380 961 615

Email:

contact@provea-machine-tube.com

Website:

www.provea-machine-tube.com

# New thread tables

BRANDT Engineered Products Ltd has designed and delivered pipe handling equipment known as Thread Tables to a number of tube and pipe producers.

Brandt Thread Tables integrate with the most modern machine tools. These machine tools are big bore lathes, often called 'threaders', and are used to produce both API and premium threads on tube and pipe.

Brandt equipment positions material in and out of the threaders quickly, keeping up with the improved cycle times offered by the latest machine tool suppliers. Maintaining cycle times with threaders is a critical variable to ensure the investment in the machine tool achieves maximum return.


The Brandt Thread Table utilises adjustable stops to position one pipe at a time on the table. The table is designed with four independent idler rolls used to absorb vibration while the pipe is spinning during the threading process. The independent idler rolls were engineered and manufactured to reduce unwanted pipe movement at multiple locations along its length. This dampens the whipping motion of pipe, allowing the machine tool to produce API and premium threads on the end of each pipe with greater confidence.

Pinch rolls are used at the head of the Thread Table to protect the machine tool, while elevating V-rolls enable various diameter pipes to be fed into the machine tool at the proper elevation.

The new design is meant to eliminate costly repairs caused when pipes bump the machine tool upon entry.

**Brandt Engineered Products Ltd – Canada**

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## Sica goes green

ITALIAN pipe machinery producer Sica wants to contribute to saving energy, raw materials and keeping the environment

clean and safe. This is why all its latest research and development efforts are aimed at 'going green' and bringing pipe producers savings. In October, Sica's 'Green Machinery' will be on display at the K exhibition in Düsseldorf.

Practical examples include swarfless cut and chamfer technology for PVC pipe that saves raw materials, eliminates recycling, reduces maintenance costs, and assures a clean and noiseless environment; and

belling machines with short-wave ovens that are active only during the heating phase and for the time needed to reach the final set temperature of the material, for reducing energy consumption and avoiding scrap material.

Sica aims to bring its 51 years of history and know-how to the service of pipes producers, adding new technologies that will help them save money and at the same time will protect the environment.

**Sica SpA – Italy**  
Fax: +39 0544 81340  
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Sica's Unibell2 200JW belling machine

## New Oak apps

BURR Oak Tool has three new apps available through the Apple App store: BurrOak App, BurrOakLT App, and BurrOakSim App. These apps provide detailed information and even 3D tours of the machines available from Burr Oak Tool.

The BurrOak App offers specifications on the machines sold by Burr Oak Tool, with PDF files featuring operational and financial benefits and videos of most

of the machines in the Oak catalogue. Updates provide information on new products and releases.

BurrOakLT is intended for mobile devices. It includes complete machine performance statistics and operational requirements. No videos are available with this app.

The BurrOakSim App offers a 3D tour of the newest machines available from Burr Oak Tool, and will be updated as

new designs are released to the market.

For over 65 years Burr Oak Tool Inc has designed customised production machinery for the heat transfer and tube processing industries. Oak machines are installed and successfully operating in over 70 countries.

**Burr Oak Tool Inc – USA**  
Fax: +1 269 651 4324  
Website: [www.burroak.com](http://www.burroak.com)

## Battery-operated press connections

THE newly developed Pressgun 5 from system supplier Viega can press all dimensions from 12 to 108mm while powered by either battery or mains. The compact tool weighs just 3.2kg which, according to the manufacturer, makes it one of the smallest, lightest press tools on the market for so-called XL press connections.

Viega achieved the weight saving of over 20 per cent in comparison with the previous model through its compact structure, a light housing construction and a new lithium-ion battery. Although only half the size, it supplies twice the capacity with 18V/2.0Ah. As a result, it is possible to work a full day on the building site using the battery without the need

for recharging. The battery also has an improved cold-start feature. Integrated monitoring electronics effectively protect against deep discharge, ensuring a long lifespan.

If the battery capacity declines, the Pressgun 5 can be operated using the mains supply. Rather than having to choose either battery or mains operation, the best option can be picked depending on the installation situation.

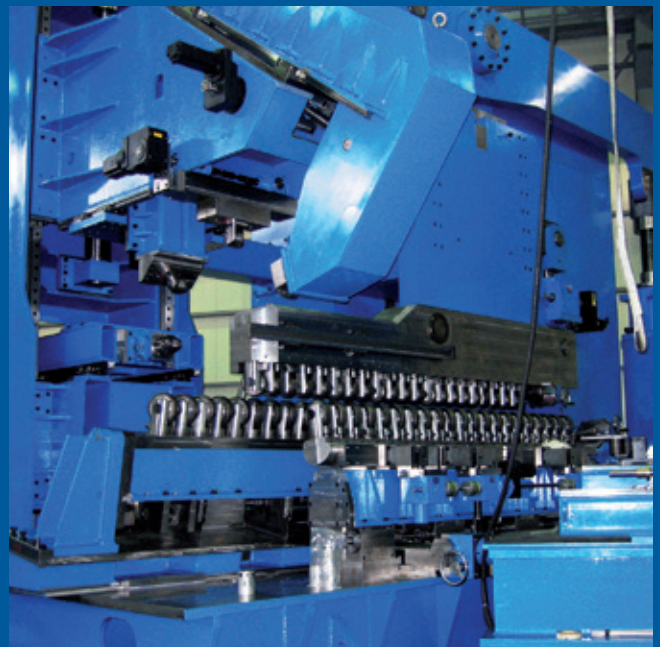
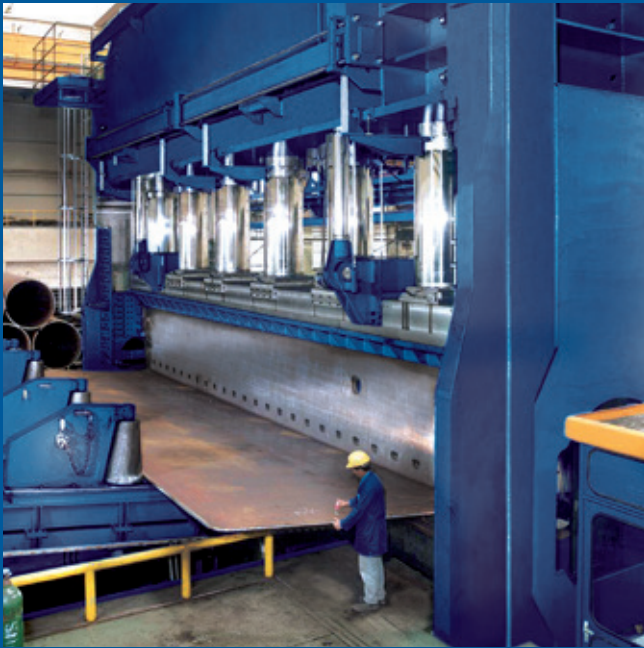
With a constant pressure of 32kN and a range of use of 12 to 108mm, it is equivalent to considerably larger press tools. The small design, combined with the flexible press rings by Viega and the 180° press head, is of particular benefit when space is tight. This is typical of

installation works in a shaft or close to the cellar ceiling. The ergonomic gun shape with soft-touch handle and integrated LED lamp for comfortable lighting of the pressing point also contribute to the simple handling of the Pressgun 5.

The tool can be used with virtually any press jaws and hinged press jaws from Viega. The mains power supply is also compatible with the battery versions of the previous Pressgun tools. The Pressgun 5 only needs to be serviced after 40,000 pressings (or after four years).

**Viega GmbH & Co KG – Germany**  
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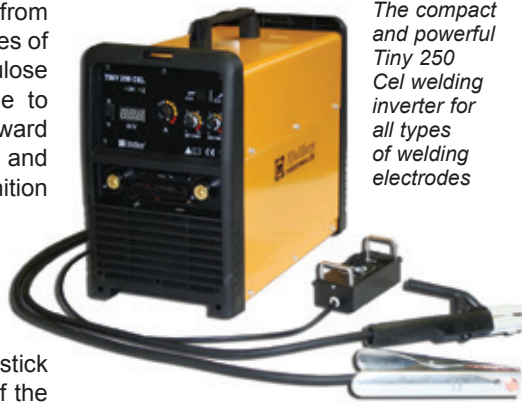


## Compact, all-round welding inverter

THE Tiny 250 Cel welding inverter from Kjellberg Finsterwalde welds all types of electrodes, including those with cellulose content and larger diameters. Due to its compact size and straightforward design, the Tiny 250 Cel is flexible and quick to use. The electronic ignition assistance Hot-Start guarantees a stable arc immediately.

During the welding process the current value is adjusted by Arc Force technology to avoid a shortening of the arc, while the anti-stick function helps to avoid a sticking of the electrode. With an additional torch, the Tiny 250 Cel is also suitable for TIG welding.

The inverter is especially suited to local cladding, as well as repair welding. The Tiny 250 Cel offers a wide range of possible applications in the areas of pipeline construction, mining and steel construction as well as for work in



*The compact and powerful Tiny 250 Cel welding inverter for all types of welding electrodes*

industrial and chemical plants and on construction sites. The inverter allows flaws to be repaired manually and the affected components do not have to be replaced.

For surface welding Kjellberg Finsterwalde offers a large number of electrodes of the types Fidur and Filit

that can be welded with the Tiny 250 Cel. The companies of the Kjellberg group offer diverse products and technologies for thermal cutting, joining and processing.

In the field of plasma cutting, Kjellberg Finsterwalde Plasma und Maschinen GmbH claims to be the oldest manufacturer in the market and one of market leaders. In particular, the HiFocus series with laser-like cut quality is evidence of the company's competence.

With customer-specific all-in-one solutions, Kjellberg Finsterwalde offers users in the metalworking industry competitive advantages.

Quality-tested welding electrodes are produced by Kjellberg Finsterwalde Elektroden und Zusatzwerkstoffe GmbH – one of Europe's most modern electrode factories. The product range includes more than 60 standard electrodes and numerous special electrodes.

**Kjellberg Finsterwalde** – Germany

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# Record car sales boosts honing tool demand

POSITIVE figures published by the Society of Motor Manufacturers and Traders showing cars sales in 2012 at record levels have also provided a boost to the manufacture and re-manufacture of honing tools at UK-based Delapena Honing Equipment.

In what is seen as generally encouraging news for UK vehicle manufacturers, 2012 saw all-time records for vehicle exports, with over 1.2 million vehicles leaving the UK and total output reaching the highest level since 2008 at 1.58 million units.

With popular UK-built vehicles such as the Ford Fiesta and Ford Focus leading domestic sales, this has had a positive effect on the tool manufacturing and refurbishment side of Delapena's business.

"The refurbishment of honing tools and heads for the automotive sector has increased significantly since the start of 2012," commented Phil Williams, Delapena's head of business development. "With car output projected to continue rising through 2013 we are confident that we can maintain the growth in our own business as well."

In the manufacture and refurbishment of honing tools, Delapena is capable of manufacturing to a wide range of OEM specifications, allowing it to provide a service for honing systems other than its own. From its manufacturing facility in Cheltenham, UK, it provides a rapid turnaround for refurbished honing tools, specifying, supplying and fitting 'stones', and can also provide a 'deliver-to-line' facility if required, ensuring a seamless



*Delapena's team of skilled technicians can refurbish honing tools from a wide variety of manufacturers*

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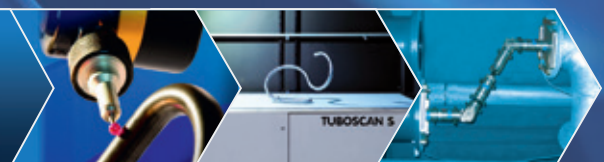
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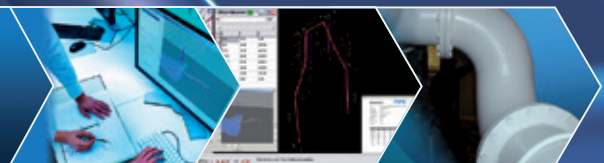
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# Proper care of circular saws

THERE are some fundamental safeguards that need to be taken to preserve the life and cutting quality of circular saw blades. Jay Forrest, vice president of Forrest Manufacturing Company, states, "It takes only a little extra time, effort, and forethought to prevent unnecessary damage and help maximise the effectiveness and longevity of a blade."

An important safeguard in protecting blades is to always use the proper type of shipping container. Mr Forrest explains, "If, for example, you are sending two or more blades to us for sharpening or repair, be sure not to pack them in a way that lets the blades rub against one another, or you are likely to get chipping. It's the same principle as when you are packing dishes. You carefully wrap each dish individually and use bubble pack or other appropriate materials. Otherwise, you will probably have breakage. In the case of saw blades, it's the tips that tend to break off."

Mr Forrest warns that circular saw

blades should never be rested on steel or cement surfaces, because metal on metal or metal on cement can dull the blade by chipping the top grind (the high point of the tooth). Instead, set the blade down on plywood or plastic. It is also advisable to avoid excessive moisture or humidity, otherwise the blades may rust and/or pit. This can require re-straightening and re-polishing.

Forrest's Blade Runner carrying case can prevent damage during storage or transit. It is made of high-impact plastic and can accommodate up to ten 10" blades, five on each side. The Blade Runner also has a locking steel arbor hold to keep blades securely in place, and a convenient carrying handle. The case is self-supporting and will stand on any level surface.

Keeping circular saw blades clean can play an important role in maintaining good performance. Removing grime can help produce a better cut and make the need for sharpening less frequent. However, great care must be taken

to clean blades properly so as not to do potentially serious damage in the process.

Forrest offers the Blade Kleen kit, which includes a brush, a spray bottle and an ammonia-based fluid – the same industrial-strength mixture that the company uses in-house. The company also offers a concentrated, all-purpose pitch and gum remover called Super Brite, which is supplied with a convenient spray applicator.

Forrest Manufacturing continues to provide in-factory sharpening and repairs of all makes of carbide-tipped circular saw blade. The company's two-step process uses automated, high-speed diamond-grit machines with flood cooling. The front of the tip is sharpened by face grinding, and then the top cutting edge is fine-finished.

**Forrest Manufacturing Company – USA**

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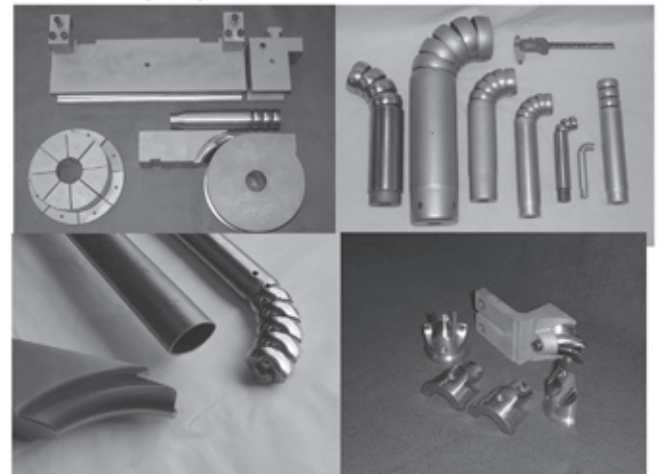
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Attaching or firmly fitting traditional caps is sometimes difficult with rough surfaces, distortions, or tolerances on end pieces.

This is why Pöppelmann Kapsto designed the new GPN 207 standard series. These protective caps feature interior, axial fins for levelling out larger tolerances, providing the necessary flexibility for a firm fit.

This design also offers another advantage: Due to these fins the fit of the protective caps is not airtight and the caps allow ventilation.

The new protective caps are made of natural-coloured polyethylene (PE-LD) and are largely chemical-resistant. Thanks to their semi-sheer finish you can check the caps for correct fit even once they have been attached. This new standard series is available in seven sizes to fit exterior diameters ranging from 5.2 to 15mm. In addition, Pöppelmann can quickly and cost-effectively develop other sizes as well as heat-resistant versions or custom-

made designs to suit any customer requirements.

The new standard series will be showcased at this year's Hanover trade show.

For more than fifty years, Pöppelmann Kapsto has been continuously expanding its standard parts programme, which today consists of more than 3,000 different plastic caps and plugs and is deliverable immediately ex stock.

Pöppelmann Kapsto engineers and technicians work on evolving this extensive standard and in partnership with customers to develop tailor-made solutions.

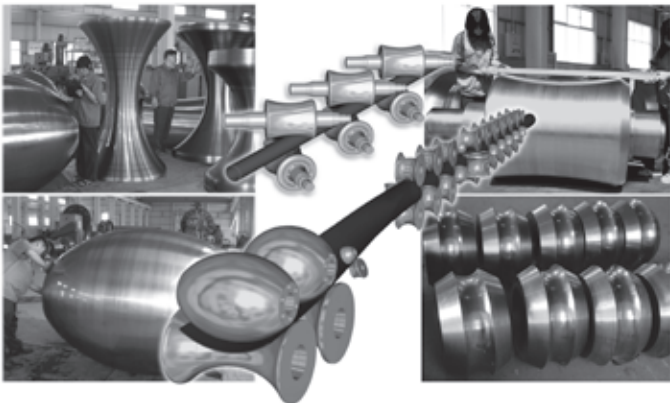
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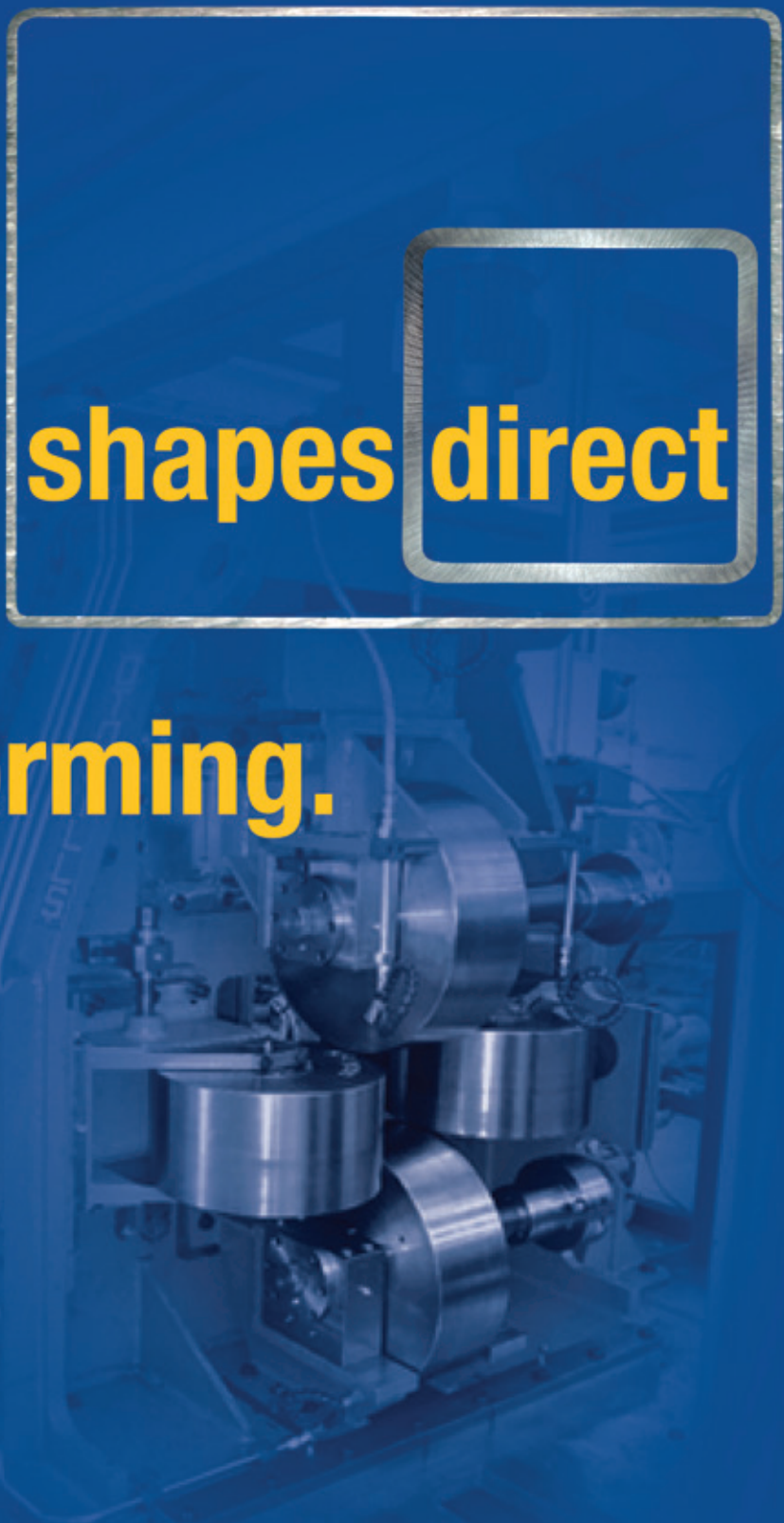
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## New innovative high-speed steel and plastic pipe cutting machines

FINNISH company Exact Tools Oy, which has developed a complete new method to cut pipes, has launched a brand new range of steel and plastic pipe cutting systems along with cutting accessories.

The award winning PipeCut range of pipe cutting systems are one of the fastest, easiest, safest and most precise ways to cut and bevel pipes and tubes on-site – producing a straight, ready to install finished surface in a multitude of diameters and materials, eliminating many of the problems associated with pipe cutting.

There are over seven different models available ranging from the PipeCut 170 and 170E systems for cutting 15mm to 170mm diameter steel and plastic pipe to the PipeCut P400 for cutting and bevelling in one process, plastic pipe from 100mm to 400mm in diameter with a wall thickness up to 25mm.

Each model can be supplied with a choice of three different blades – TCT (tungsten carbide tip) blades for general use in cutting steels, copper, aluminium, plastic and multi-layer materials; cermet with ceramic tips for heavy duty applications such as cutting stainless steel; and acid proof steel and diamond discs for cutting cast iron pipes. The Exact V1000 model can cut spiral duct tube ranging from 75mm to 1,000mm in diameter with wall thicknesses ranging from 1.5 to 6mm.

These systems are suitable for the professional industrial pipe installer employed in power generation, refinery and chemical plant, hospital and other construction sites, house building and renovation, shipbuilding, wood pulp, fresh and waste water systems, heating and cooling systems, gas installations, maintenance and repair work. They are very easy to use on steel, cast iron, stainless steel, aluminium, copper and most types of plastic.

The cutter firmly grips the pipe to be cut, with the blade being automatically positioned to cut correctly. In addition the entire weight of the cutter rests on the pipe. When started, the blade chips the pipe surface rather than grinding it, producing a burr-free cut surface that is ready for installation.

The operation is dust free and does not produce any sparks.

Each system comes supplied with its own set of pipe holders (except model V1000 which are an optional extra) pipe saw, allen keys, CD user manual and shoulder bag.

Other features of these products include the ability to cut pipe at floor level, improved working environment and user safety including fire safety, increased productivity through extremely fast cutting speeds, light to use, pipes can be cut everywhere where electric power is available, and work benches or large manipulators are not required.

Distributor companies interested in selling these products or end users seeking a no obligation demonstration are asked to contact Exact Tools sales director Steve Marsland.

**Exact Tools Oy – Finland**  
Email: [steve.marsland@exacttools.com](mailto:steve.marsland@exacttools.com)  
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*A new method for cutting pipes from Exact Tools*



## Precise pipe measurement

IN the steel industry and particularly in pipe manufacturing, quality and dimensional accuracy are essential. By integrating in the production line the automated measurement of all produced pipes using contact-free measuring systems, dimensional accuracy is significantly increased, and the process is faster and less complicated than the manual measurement of production samples. Robust LAP laser systems have proven themselves for years in real-world applications. They measure external diameters and ovality online and immediately identify flaws. LAP measuring systems help maintain consistent dimensions, reduce scrap and increase throughput.

Round pipes and rectangular pipes, high-pressure pipes, water pipes, oil and gas field pipes, boiler and construction pipes, axle and roller bearing pipes: Depending on the size and application, they are welded or manufactured without seams. Many pipes must withstand high pressures and external and internal forces. Quality and dimensional accuracy are essential.

The greater the dimensional accuracy of the pipes leaving the rolling process, the less they have to be refined, there is less scrap, and production is smoother. The time it takes to lay long oil and gas pipelines is significantly reduced when the pipes are dimensionally accurate. "It's amazing," notes Torsten Krüger, sales manager for the metal industry at LAP, "some manufacturers still use highly imprecise manual one- and two-point measuring systems. Workers place a caliper gauge directly on the glowing metal, sometimes wearing only safety glasses or protecting their face with their other hand." This type of manual measurement is time-consuming, imprecise and very dangerous.

"Modern," "safe" and "effective" are all words that describe automated measurement using contact-free LAP measuring systems. They allow 100 per cent control and high dimensional accuracy by collecting and evaluating data from different pipe production stages as well as the finished pipe. Modern pipe production lines that use LAP laser measuring systems are able to maintain narrower tolerances than required by the relevant standards.

For more than 25 years, LAP GmbH has specialised in the development, production, installation and commissioning of laser measuring systems for measuring the dimensions of unfinished and finished products in the metal and steel industry. LAP supplies solutions for extreme requirements. Despite the great amount of dust and scale, LAP laser systems yield highly precise measurements with fast processing times, including simultaneous measurement of several different sizes.

The robust RDMS systems by LAP measure the outer diameter of pipes while they are being rolled. RDMS measuring systems downstream from modern pipe reducing rolling mill stands have three measuring axes offset by 120°.

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## Aviation

### No longer confined to supplying parts for passenger jets built by others, Japan is set to reclaim a place in the air lanes

"As a boy, I didn't think that Japan would build a plane again. But it's been over a half-century. It's high time for Japan to give it another go." Teruaki Kawai's country is, in fact, poised for an aviation comeback after almost 70 years: and now, as president of Mitsubishi Aircraft Corp, he is well positioned to preside over it. Before the end of this year, his company will introduce its Mitsubishi Regional Jet, the 90-seat commercial plane announced in 2008. Conservative in its use of new technologies and materials, it is nonetheless billed as "a new concept from Japan for the skies of the world".

Recently the *New York Times* reviewed the distance that Japan has come since Mr Kawai, as a boy, watched American DC-3s take off and land at a small airport across an inlet from his home in Hiroshima. Banned from making planes after World War II, later restricted to making parts for American military jets, Japan's aircraft industry then moved up to supplying parts for passenger jets built by others – for decades.

"But we're finally heading into new territory," Mr Kawai said in an interview with Hiroko Tabuchi at Mitsubishi Aircraft headquarters in Tokyo. Ms Tabuchi, who covers Japanese economics, business and technology for the *Times*, provided readers with details of the new plane. ("Japan Re-Emerges in the Aerospace Arena With a New Jet," 9 April)

Noting that Mitsubishi's comeback was aided in large part by the outsourcing, by Boeing Co (Chicago), of much of its aircraft manufacture to Japan, Ms Tabuchi reported that Japanese suppliers account for a full third of the US plane maker's 787 Dreamliner. These include Mitsubishi Aircraft's parent company, Mitsubishi Heavy Industries, which makes the new jet's carbon-fibre composite main wings. "Even so," she wrote, "Boeing and Mitsubishi could not be further apart in their approach to jet-building. In contrast to the cutting-edge 787, Mitsubishi's regional jet uses only a little of the advanced carbon fibre that its parent company supplies to Boeing."

After discovering that carbon fibre did not deliver the weight savings that its engineers had hoped for, Mitsubishi came down in favour of high-grade aluminium alloy for the craft's wings. (The *Times* pointed out that carbon composite materials promise greater weight savings for the much larger Boeing 787.)

➤ Neither does the Mitsubishi jet use the volatile lithium-ion batteries that have become what Ms Tabuchi plausibly termed "a major headache for Boeing," overheating on two planes in January and prompting American and Japanese safety regulators to ground the entire 787 fleet. Not until 19 April did the US Federal Aviation Administration approve Boeing's fix for the batteries, enabling the plane maker to make the necessary modifications on 50 grounded jets and move forward on some 200 orders for the 787 on the books.

After initially exploring the use of advanced lithium-ion batteries in its own new jet, Mitsubishi opted instead for conventional cadmium nickel packs. "It's too dangerous," Mr

Kawai said, of using lithium-ion batteries. "The technology isn't mature enough for a plane like ours."

Still, Ms Tabuchi observed, the Mitsubishi Regional Jet boasts about fuel savings of 20 per cent as compared with Brazilian-built Embraer 190 jets of a similar size. Much of this fuel economy may be attributed to new engines from the American manufacturer Pratt & Whitney.

Among other features cited by Mitsubishi to the *Times*, the wings of its new plane are thinner and thus more aerodynamic than those on comparable models, for greater energy efficiency. The Japanese company also says that the seats on its regional jet are wider than those offered by rival aircraft: 18.5" across, compared with 17.3" for Canada's Bombardier's CRJ700 series.

## Steel

### CEO Surma of US Steel: to counter the allure of alternative materials, the steel industry will emphasise consumer safety

"There are certain attributes – particularly on safety – that would resonate with consumers and individuals," US Steel chief executive officer John Surma said after addressing an Automotive Press Association luncheon in Detroit in April. As reported by Craig Trudell of *Bloomberg News*, Mr Surma – who heads the country's largest producer by volume – told reporters, "We're trying to take our communications up a notch." ("US Steel Says Industry Will Pitch Safety to Consumers," 11 April)

Mr Trudell noted that automakers are looking to materials such as high-strength steel, aluminium and magnesium to reduce vehicle weight and cut fuel consumption to help meet stricter US rules. According to the Washington DC-based Steel Market Development Institute, an industry lobbying group, to increase fuel efficiency North American automakers may triple their use of stronger, thinner steel by 2025.

Vehicles made in North America will contain an average of as much as 585 pounds of so-called advanced high-strength steel in 2025, the business unit of the American Iron & Steel Institute, also Washington-based, said in April. Use of the lighter-weight, stronger steels will keep unchanged the total of steel used in cars, the institute predicts. Steel makes up about 58 per cent to 60 per cent of a vehicle's weight.

*Bloomberg's* Mr Trudell pointed out that the steel lobby's outlook differs from that of counterparts representing other materials, such as the Aluminum Association (Arlington, Virginia). According to a study released by that group in September 2011, automakers may increase their use of aluminium to 550 pounds per vehicle in 2025 from 327 pounds in 2009.

### Elsewhere in steel . . .

➤ With the spread of new natural gas and oil pipelines across the US expected to pick up in 2013, demand for tubular steel products will likely follow, some industry observers suggest. According to data from Bentek, a unit of the energy

information provider *Platts*, gas mainline networks are set to grow by 667 miles in the year – just over twice the 331 miles completed and put into service in 2012.

“As we start to get a more robust economic recovery, you could see more crucial bottlenecks occurring” on gas pipelines, Michelle Michot Foss, director of the Center for Energy Economics at the University of Texas (Austin), told *Platts* (11 April). “That will definitely send a signal to the gas side” to pick up the pace of expansions.

Each major project would include millions of dollars’ worth of steel.

## Oil and gas

### A failure of Canada’s Keystone XL pipeline project is portrayed as potentially threatening to US infrastructure

The decision by US President Barack Obama whether or not to approve TransCanada Corporation’s contentious Keystone XL pipeline proposal is expected to be announced this summer. As the time grows shorter, the voices of both opponents and backers of the \$5.3bn project for transporting Canadian oil to refineries in Texas grow stronger.

A steady drumbeat of opposition is being kept up by American environmentalists, who assert that the pipeline would vastly increase greenhouse gas emissions and the danger of oil spills. In mid-April a new group, the All Risk, No Reward Coalition, introduced a 30-second TV commercial calling attention to the recent spill in Mayflower, Arkansas, of oil sands crude from a decades-old pipeline. “It’s happened before,” goes the message. “And now again.”

All Risk also noted that much of the oil that would travel through the proposed pipeline would be refined at Gulf Coast facilities and then exported. According to the TV spot, “Keystone XL doesn’t go to the US. It goes through the US.”

An indication of how much is at stake for Canada – suffering a heavy-oil glut attributed largely to tight US pipeline capacity – is evident from the new willingness of Canadians in high places to push back at the environmentalists. In April, during her fourth lobbying trip to Washington in 18 months, the premier of Alberta – the Canadian province with the oil sands formations that would supply Keystone XL – said opponents of the 1,700-mile pipeline were “far from reality” about its environmental costs.

The claim by Premier Alison Redford that developing the oil sands would have a negligible impact on global warming is disputed by opponents of the project, who say the high carbon content of the crude has the potential to disrupt climate. While acknowledging that pipeline spills occur, Ms Redford said the proposed 36” diameter pipeline would be safer and more technologically advanced than existing pipelines.



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"If we do have energy development, there really is the risk of unfortunate incidents happening – and it is a risk," Ms Redford said in a speech at the Brookings Institution. "But these are very isolated incidents, and they don't happen as often as people might suggest that they could."

A spokeswoman for the All Risk, No Reward Coalition begs to differ. Recommending that the Canadian official pay a visit to the site of the oil spill in Arkansas, Rachel Wolf said in a statement: "Perhaps [Ms Redford] should . . . see the true devastation of a tar sands spill and the risks that families would face before she schedules another speaking engagement promoting the pipeline."

## RAIL VS PIPELINE OIL DELIVERY

At the Brookings, Ms Redford made reference to other means of transport – rail, truck, river barge – that she said were much more environmentally damaging and far less safe than pipelines. Also on 9 April, TransCanada spokesman Shawn Howard very clearly invoked the significance of the Keystone XL pipeline to the infrastructure of the United States.

As reported by United Press International, Mr Howard told *Bloomberg News* that an "unintended consequence" of failure to build the pipeline would be an increase in oil deliveries by rail and offshore tankers. Those methods, he asserted on *upi.com*, are not as safe as moving oil by pipeline.

Authorities say that rail vs pipeline for oil delivery is a complex issue, but some data from the American Association of Railroads (AAR) may be pertinent. In March, petroleum and petroleum product deliveries by rail were up 54.3 per cent (to

19,295 carloads) from March 2012. Although pipeline spills are far worse in terms of volume of oil lost, according to the AAR railroads report nearly three times as many spills as pipelines. Oil transport by rail is faster but more expensive than pipeline delivery.

AAR reported that, overall, deliveries by rail in March were down 0.5 per cent (to 1.1 million carloads) compared to March of last year. The monthly decline was the lowest in more than a year.

While the American president, who is believed by Obama watchers to favour Keystone XL, mulls his decision on the pipeline, the US State Department is conducting a review to determine whether the much-delayed project is in the national interest.

For their part, the American Petroleum Institute and construction unions, which would see some 4,000 temporary jobs created if the pipeline gains approval, launched a print and online advertising campaign promoting the economic and employment benefits of the project.

"Keystone XL is more than a pipeline," the ads proclaim. "It's a lifeline."

## Heavily invested in American shale assets, Billiton's chief urges the US away from the ideal of energy independence

Writing in *Market Watch* (San Francisco), Robb M Stewart reported the chairman of BHP Billiton Ltd as saying that the US ought to be encouraging oil and natural gas exports rather than worrying about weaning itself off foreign crude.

Acknowledging a dislike for the terms "energy security" and "energy independence," Jacques Nasser told a business luncheon in Melbourne in April, "I think it would be really wrong for a country to go down that path."

Mr Nasser, a former president and CEO of Ford Motor Co who has headed the Anglo–Australian multinational BHP since 2010, believes that the US should be both an importer and exporter of energy. He said the export of onshore oil and gas, which has surged in recent years as new extraction techniques have been developed, would deliver geopolitical benefits to the world and also create a large number of high-skills jobs. ("BHP: US Should Promote Onshore Oil, Gas Exports," 13 April)

*Market Watch* noted that Billiton, whose chairman would like to see all forms of energy traded globally, is pumping billions of dollars into developing shale assets in the United States.

In 2011 the company expanded a petroleum portfolio that included operations in the US Gulf of Mexico, Australia and elsewhere by obtaining thousands of acres of shale assets in the US with the (US)\$12.1bn takeover of Petrohawk Energy Corp (Texas) and \$4.75bn purchase of Chesapeake Energy Corp's Fayetteville (Arkansas) operation. BHP, which also produces coal and uranium, has said it expects output of 240 million barrels of oil equivalent through June of this year.

"We're bullish on energy demand in total," Mr Nasser said in Melbourne.

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➤ If the US decides to take Mr Nasser's advice, it will likely have the wherewithal to become an exporter. Citing a 2012 estimate from the US Energy Information Administration, Mr Stewart of *Market Watch* noted that the country may expect an increase in natural gas output from 23 trillion cubic feet in 2011 to 33.1 trillion cubic feet in 2040, driven largely by shale production. Over the period 2011-2019 the expectation is for an increase in crude oil production from 5.7 million barrels a day to about 7.5 million bpd.

But the notion of energy export may take some persuasion. According to *Market Watch*, Cheniere Energy Inc, which is building a liquefied natural gas (LNG) export terminal in Sabine Pass, Louisiana, is the only company to hold permits to export gas out of the lower US where the bulk of shale production is centred. Several other companies have applied for export licences but await regulatory approval.

## Trade

### Punching well above its weight, Iceland enters into a free trade agreement with China

An accord meant to eliminate most tariffs over the next few years was signed 15 April by trade officials during a state visit to Beijing by Prime Minister Johanna Sigurdardottir of Iceland. When finalised it will unite two startlingly mismatched economies.

Commented David Jolly of the *International Herald Tribune*, "Iceland's 2011 gross domestic product of \$14bn was little more than a rounding error in China's gross domestic product that year of \$7.3tn."

Moreover, trade between the two countries is small by global standards. Iceland's exports to China last year totalled \$61mn, while China sent goods and services valued at \$341mn in the other direction.

Even so, in Mr Jolly's view the first such Chinese agreement with a European country is not necessarily a merely token affair.

As global warming and the retreat of polar ice render the Arctic increasingly accessible, China is seeking to join the Arctic Council, an intergovernmental body that promotes cooperation in the region, as a permanent observer. Its new ally in the North Atlantic could perhaps be of assistance to China in its quest for more influence in that area.

A day after announcing their trade accord, Reykjavik and Beijing issued a joint statement calling for new bilateral cooperation on "human rights, gender equality, labour issues, and *Arctic affairs* [italics ours], as well as cooperation on geothermal development, culture, education, and tourism."

The trade deal with Iceland will not mean backdoor access to the European market for China. Iceland is not a member of the European Union; and if it were eventually to join the bloc it would have to terminate all of its bilateral trade deals. But Iceland does enjoy access to the single market through

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its membership of the European Free Trade Association and the European Economic Area.

Currently there are two giant trade deals under discussion, both pivoting on the US: the Trans-Pacific Partnership being negotiated between Washington and a host of Asia-Pacific nations, and a comprehensive trade and investment agreement with the European Union. China is party to neither the Trans-Pacific Partnership nor the negotiations between Europe and the US. With the Doha Round of talks under the World Trade Organization largely moribund, Mr Jolly of the *Herald Tribune* pointed out that some nations have been seeking partnerships below the global level.

## Economics

### A significant but mysterious phenomenon: 65 per cent of all US \$100 bills circulate outside the country

Writing in the "Economix" blog of the *New York Times*, Bruce Bartlett recalled the theory that credit and debit cards and electronic bill-pay should make cash superfluous. Instead, as a new report from the Federal Reserve Bank of San Francisco makes plain, cash has not only held its own but continues to grow in popularity.

According to that report ("Cash Is Dead! Long Live Cash!"), as measured in dollar terms there is 42 per cent more US currency in the form of cash in circulation today than there was five years ago. To Mr Bartlett, an economics historian and conservative columnist, a key factor is the decline in interest rates, which has reduced the "opportunity cost" of holding cash relative to such interest-generating assets as bank deposits, money market funds, and Treasury bills.

Mr Bartlett also takes note of some less wholesome promptings. Many economists, he wrote, believe that the rise in cash is strongly related to growth in the so-called underground economy: tax evasion by people working off the books, as well as criminal activity.

Evidence for this proposition allegedly lies in the distribution of cash holdings by denomination. Some 84 per cent of the increase in cash since 1990 has been in the form of \$100 bills, which in 2012 had risen to 77 per cent of the value of cash outstanding, from 52 per cent in 1990.

The "Economix" blogger, who said his use of \$100 bills is confined largely to Christmas gifts for nieces and nephews, places an ominous construction on these data. He wrote, "Studies and common sense suggest that those people most likely to use large bills are doing so for nefarious purposes, especially drug dealing. One can easily fit \$1mn in \$100 bills into a briefcase."

#### A PROFITABLE EXPORT

Mr Bartlett also called attention to a rise in the amount of US currency being exported. And, according to the San Francisco Fed, the great bulk of US currency held abroad is in \$100 bills. Indeed, some 65 per cent of all 'C-notes' in existence circulate outside the US. ("America's Most Profitable Export Is Cash," 9 April)



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Of course, Mr Bartlett acknowledged, foreigners may have entirely plausible reasons for holding US currency, especially in countries suffering severe financial problems. Moreover, he wrote, economic strains in Europe have diminished the popularity of the euro despite the convenience of its 500-euro denomination (about \$645 at current exchange rates) for large cash transactions.

But he also observed that, as a crime-fighting measure some European Union countries have withdrawn that note, which has probably raised the popularity of what he calls "the good old \$100 bill," now the largest-denomination US note. Bills \$500 and larger are no longer produced and are taken out of circulation when they surface.

➤ Mr Bartlett, who held senior policy roles in the Reagan and George HW Bush administrations and whose speciality is the nexus of politics and economics, touched on another consequence of having much of the US money supply circulating abroad. The Commerce Department treats exported cash as an increase in foreign-owned assets in the United States. "But it is better thought of as an almost costless way of financing a good chunk of our current account deficit," wrote the author of *Tax Reform: Why We Need It and What It Will Take*. "It's like borrowing money from foreigners that most likely will never have to be paid back, at zero interest."

## Of related interest . . .

➤ Europe's efforts to crack down on tax havens gained momentum on 13 April as finance ministers from nine countries agreed to share more bank information. Ministers from Belgium, the Netherlands and Romania joined their French counterpart in a push for more automatic exchanges of

bank records that already had the backing of Germany, Britain, Italy, Poland and Spain.

"The surge in member states' appetite for progress and action in the fight against evasion is extremely welcome," Algirdas Semeta, the European Union commissioner for taxation, said at a news conference in Dublin after two days of meetings. The ministers discussed adoption of Europe-wide laws modelled on the Foreign Account Tax Compliance Act, a US initiative to find hidden accounts overseas.

## In brief . . .

➤ The International Monetary Fund said on 17 April that it expected global growth of about 3.3 per cent this year and 4 per cent in 2014. While that represents a percentage point reduction of 0.2 from the fund's January estimate for 2013, the report underscored that global financial conditions had improved markedly since last year. The Washington-based IMF attributed this in no small part to the vigorous monetary easing undertaken by the US Federal Reserve, the Bank of Japan, and the European Central Bank.

IMF officials have urged stronger European economies with lower borrowing costs, like Germany, to do more to foster growth across Europe and to move more aggressively toward a cross-border banking union to shore up investor confidence. The IMF also said that the US has been too aggressive in carrying out budget cuts, given its still-sluggish rates of growth and high unemployment levels. The fund expects the across-the-board \$85bn in budget cuts known as sequestration to act as a brake on US economic growth this year and beyond.

**Dorothy Fabian, Features Editor (USA)**



9<sup>th</sup> international Tube & Pipe  
Trade Fair for Southeast Asia

**17-19 September 2013**



■ **Venue**

BITEC  
Bangkok International Trade  
& Exhibition Centre  
Halls 102, 103, 104  
Bangkok, Thailand

■ **Organisers**

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Fax: +65 6337 4633 / 6332 9655  
Email: [tube@mda.com.sg](mailto:tube@mda.com.sg)

■ **Opening times**

17 & 18 September  
10.30am – 6.00pm  
  
19 September  
10.30am – 5.00pm



TUBE Southeast ASIA returns to The Bangkok International Trade & Exhibition Centre (BITEC) from 17 to 19 September 2013 in Bangkok, Thailand. The trade fair provides an attractive focal point and springboard for local businesses and international companies seeking to broaden their export of tube and pipe products and technologies.

Organised by Messe Düsseldorf Asia, over 400 companies will be exhibiting their latest innovations during the three-day event.

As ASEAN prepares for further development with a major line-up of infrastructural projects in the pipeline, the wire and tube industries remain strong through robust support from the region and around the world.

Seven national pavilions and country groups from Austria, China, Germany, Italy, Singapore, Taiwan and the USA have secured participation in the event ahead of its staging in September.

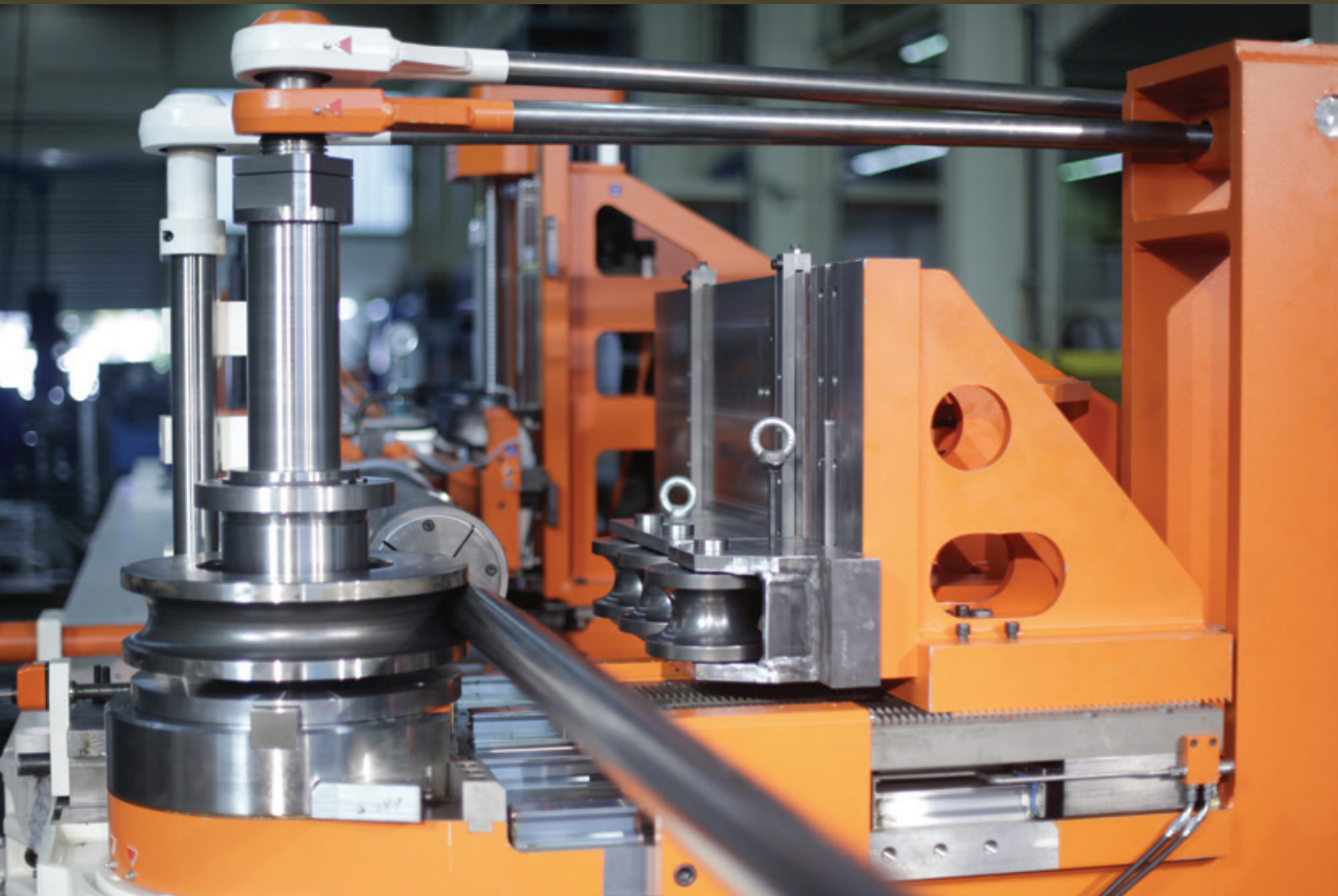
Recognised as the industry's leading trade fair for the region, tube Southeast ASIA 2013 will outperform its successful edition in 2011 with higher profile exhibitors from big international companies, approximately 15 per cent of whom are first-time exhibitors.

The mushrooming of infrastructural projects in Southeast Asia signals further expansion in the construction industry and sustained demand for related products and new technologies.



[www.tube-southeastasia.com](http://www.tube-southeastasia.com)

# Bending, end forming and swaging



*Photo: Schwarze-Robitec GmbH, Germany*

What may the customer of a state-of-the-art tube mill confidently expect of these specialities?

At the very least: bending without kinking; end forming with minimal material loss; and no distortion of outside and inside diameters during swaging.

In many industries, that degree of finesse would be associated with customised craftsmanship – even hand-finishing.

But it is regularly achieved by companies such as those whose names appear in this section of *Tube & Pipe Technology*.

Without sacrificing in the smallest degree the benefits won by computerisation, they have effectively erased the distinction between high-volume output and product that suggests the presence of an artisan.

# Complex manufacturing cells for heater spirals

IN air conditioning and heating technology, as well as in plant construction, spiral tube heat exchangers are on duty. The core for the production is one long tube part.

Special requirements of tube processing include the precise and parallel bending of the two ends of the spiral or a frontal sealing surface, in addition to the thread seal.

The specialists at transfluid have designed an intelligent automation system for heater spirals with lateral connection points for tubes with diameter from 1/2" to 1 1/4".

In the fully automatic process, after the rolling process the robot puts the spirals into a special right/left mandrel bending machine. "This very special bending machine is able to bend the two ends of the spiral exactly parallel," said Benedikt Hümmler, general manager of construction/production at transfluid.

"In fact this is possible when the outgoing units are on the face side as well as when they are on the side. To get the necessary precision and process reliability, the robot puts the spiral at first in a measurement unit. Here the diameter of the spiral and the lengths



The manufacturing cell has a fast cycle time of 90 seconds for the whole process

of the outgoing units are detected automatically and exactly."

The further processing of the ends also occurs in this machinery. A particular customer request for the manufacturing process was to also achieve a front-face sealing surface.

After the installation this area will be sealed with an additional element. The solution is a robot with double gripper, which takes the spirals from the bending machine to the processing machine.

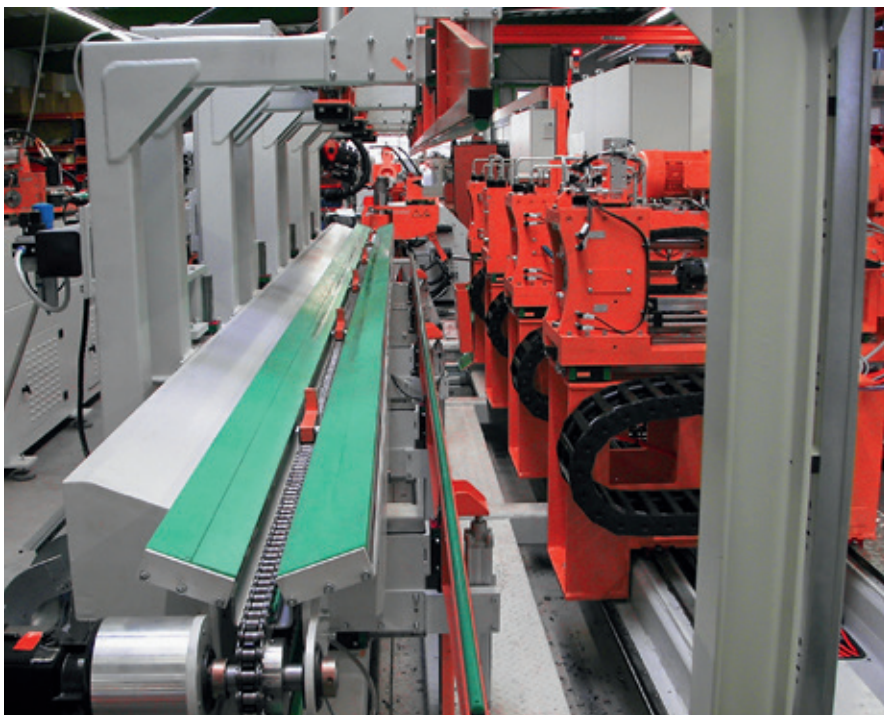
The measurements that are determined before bending are used here again to ensure that the length and the angle of both ends of the spiral coil are identical.

Afterwards, the tube ends are cut in an orbital chip-less cutting process, followed by a calibration process of the area where the thread and the frontal sealing surface are to be located. In the next step, the transfluid manufacturing cell cuts the threads and machines the frontal sealing surface.

"The handling and the positioning of the spirals is very difficult and ambitious because on one side the spirals are quite instable, on other side they're very heavy," said Gerd Nöker, general manager of the sales department/marketing of transfluid.

transfluid will be exhibiting its tube solutions in hall 14 at EMO Hannover in September, on stand B45.

*transfluid combines right/left bending with orbital and chip-less cutting for the production of heater spirals*



**transfluid Maschinenbau GmbH** –  
Germany  
Fax: +49 2972 97 1511  
Email: [info@transfluid.de](mailto:info@transfluid.de)  
Website:  
[www.tube-processing-machines.com](http://www.tube-processing-machines.com)

## Further growth for Omni-x

THE family owned business Omni-x has grown from a three-man operation into a large manufacturer of tube bending tools, with manufacturing locations in Colorado, the Czech Republic and Mexico. In addition it is in the initial stages of establishing manufacturing locations in the expanding markets of India and China, with a target start up date of 2015. With its current three locations it is able to provide localised service and products on a global scale.

Since 1987 the company has specialised in the design and manufacture

of consumable mandrels and wiper dies, as well as simple and complex multi-stack compound bending dies. Serving all industries, including automotive, aerospace, HVAC, shipyard, furniture and others, it provides solutions to any bending challenge for any size or shape tube/pipe and for any make/model tube bender. In addition to its time tested and innovative designs the company assists with process development, vendor managed inventory and consulting. The company continuously strives to improve its processes, customer service and

overall value to the customer so that it exceeds their expectations.

Omni-x has announced that it has increased its CNC lathe and milling capabilities with the acquisition of four new machines in the Czech Republic facility based in Brno. This will ensure it can continue to deliver the first class service its customers have come to expect.

**Omni-x – Czech Republic**  
Email: [info@omni-x.cz](mailto:info@omni-x.cz)  
Website: [www.omni-x.cz](http://www.omni-x.cz)

## Bending of variable radius pipes

ONE of the major challenges for pipe bending is pipes with a variable radius and rotation during the bending sequence. Not only do the rollers themselves need to be positioned with the utmost

precision, but the calculations of each position at every moment of the bending process are complex and involved.

In order to facilitate the bending of such complex geometries, 3R software solution developed RONIFreeformManager, which both calculates the CNC-data for bending and checks the bending process for collision.

The software can be used on both left- and right-bending machines with one or more bending levels. It also supports combination machines, which can perform both freeform roller bending and traditional rotary draw- or push-bending.

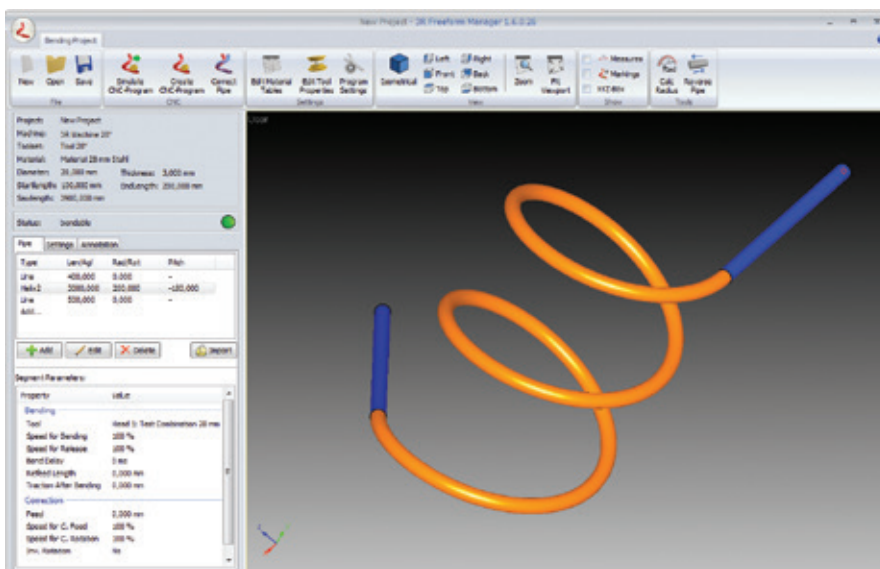
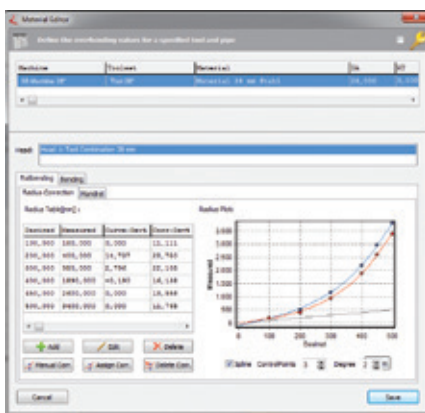
RONIFreeformManager imports the pipe data from CAD-files to create a model of the pipe geometry and

also provides facilities to modify the geometry manually. Combined with 3D models of the machine and the tooling, the software graphically simulates the bending process, detecting collisions with potential interference points in the machine's environment. Just like 3R's RONIKolli7 software, RONIFreeformManager then attempts to find an alternative bending sequence that avoids these collisions. If a feasible sequence is found the CNC files are generated and sent to the machine. After bending, the pipe's measured result can be compared to the desired pipe through a comparison report.

Another feature of the RONIFreeformManager is that it corrects the bending data by using a smooth interpolation method, which means that the corrections for material factors are precise, even if only very few test measurements are taken for the according material. In fact, the software can be interfaced with measuring software to correct the bending values for subsequent pipes based on a comparison of the target geometry with the actual geometry after bending. This allows for faster calculation of the correct CNC-data and less need for test bends.

The software is intended to be efficient and versatile while still remaining intuitive and easy to operate. This means that an operator does not require intensive training over multiple weeks in order to learn how to use the software.

**3R software solution – Germany**  
Website: [www.3-r.de](http://www.3-r.de)



# Tube bending software

2020 Software Solutions Inc, a worldwide provider of tube bending software, has announced the debut of a new program called TS Engineer. TS Engineer allows its user to take an XYZ or LRA document and convert it to YBC, LRA or XYZ data. In addition, part designs can be imported from major CAD systems via STEP (.stp/.step) or IGES (.igs/.iges) files.

“When developing the TS series we focused on three major points: easy-to-use graphical interface, product bundling for consumer needs and price points, and easy language adaptation,” said Cris Merry, president and manager of software development. “We have been working on this new series for several years and feel it will be a very nice fit for our commercial customers and dealers.

“Developing and supporting the tube and pipe bending industries is nothing new to us; our company has extensive experience in calculating pipe and tube layouts with our Bend-Tech Software series and its 15,000 plus customers.”

The TS Engineer software consists of the TS-Core and several designers and plug-ins.

TS-Core is the backbone of the TS features, libraries, settings and calculations.

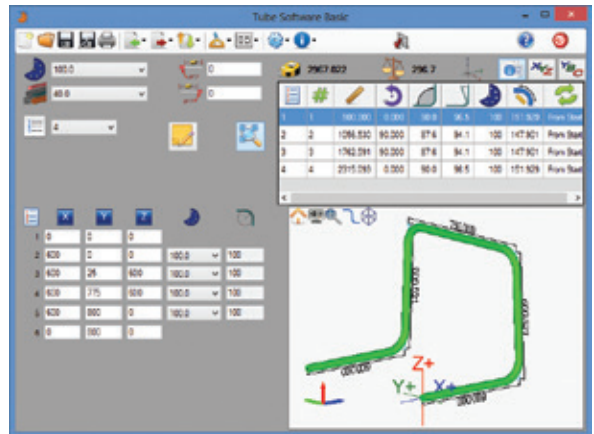
In addition, TS-Core adapts the TS Designers and Plug-ins in the product grouping and has open slots for more TS designers and plug-ins in the future.

The most prevalent designers and plug-In with TS Engineer would be the XYZ Designer, LRA Designer, and the Import (STEP & IGES) Plug-In.

Each of these designers work with the TS-Core to calculate manufacturing data: cut length, bend locations, bend angles, spring back angles, rotations between bends, straight tube lengths, bend lengths, weight, and LRA, YBC and XYZ values.

2020 Software Solutions Inc, based in Lindstrom, USA, is a software company for the tube and pipe industry founded in 2001. It serves a global customer base with tube and pipe bending software.

**2020 Software Solutions Inc – USA**  
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## Tube and pipe end forming for welding

FOR more than 20 years, PIPE has been one of the world leaders in the supply of specialist pipeworking equipment and tools to the wide range of sectors within the pipework fabrication industries, including nuclear, petrochemical, oil and gas, pharmaceutical, dairy and water.

One of the key ranges in PIPE Ltd's extensive portfolio is their i/d locking pipe bevelling machines, or 'end-prep machines', as they are sometimes known.

Rudimentary methods of bevelling pipes, such as using angle grinders, have been used for many years, but these methods come with many problems: they are messy, time-consuming, and, due to increasingly stringent health and safety concerns, are prohibited from use in many environments and on certain job sites due to the concerns of sparks and injuries such as vibration white finger associated with continued power tool use. The main issue with using angle grinders

for pipe bevelling is accuracy; it is near-impossible to produce an accurate consistent bevel angle, and can take a vast amount of time, which is paramount for a good quality weld.

PIPE's range of bevelling machines are specifically designed to machine perfect weld preparations (or bevels, as they are commonly called) onto the ends of pipes of any material, and any size in a matter of seconds. These dedicated portable units can be supplied in electric, pneumatic or hydraulic power options, offering the versatility to bevel pipes on-site for inspection and repair work, or in the assembly workshop, prior to fabrication.

These end prep machines are offered with a range of tooling and accessories for the machining of all types of bevel geometry on pipes, flanges, elbows, T-pieces and other fittings. Tooling is available off the shelf to machine all of



the standard weld preparations, including J-preps and compound bevels. Tooling is also available for weld removal and J-prepping of tubes and tube sheets in heat exchangers, condensers and boilers. Tooling for carbon steel, stainless steel, duplex and other exotic materials is available off the shelf.

Pipe Ltd's range of equipment will be on display at the upcoming Schweissen & Schneiden Exhibition.

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Established in 1994, Shanghai Yueyuechao Steel Pipe Group mainly deal with seamless steel pipe, seamless square/rectangle steel pipe, large OD LSAW manufacture. The specification for LSAW of Shanghai Yueyuechao Manufacture Tube Co., Ltd is  $\Phi 356\sim 1422 \times 8\sim 60\text{mm}$ . The specification of cold drawn seamless steel tube for Jiangyin Yueyuechao Manufacture Tube Co., Ltd, ranges from  $\Phi 6\sim 426 \times 1\sim 20\text{mm}$ , hot expanded tube specification ranges from  $\Phi 168\sim 630 \times 4\sim 50\text{mm}$ . Quality standards are API/ASTM/GB/ISO/DNV/JIS.

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## New bending technology for tube

ACCORDING to estimates by the International Energy Agency (IEA), the energy demand of the world population will increase drastically in the coming years: in 2030, around 5.5 billion people will have access to the electricity supply – this is equivalent to growth of 1.5 billion consumers within only slightly less than two decades. To meet the increased energy demand, in addition to investment in renewable energies, the construction of new power plants and modernisation of existing facilities in particular are vital. One critical criterion here is to significantly improve efficiency in the power plant process. The requirements for the installed tube systems and tube materials are therefore also increasing, as they make a noticeable contribution to increasing efficiency. Schwarze-Robitec has developed special bending machines for precisely this application area, which bend high-strength, thick-walled high-pressure tubes as well as boiler tubes, tube coils and entire membrane tube walls accurately and both time and cost-effectively.

The requirements for liquid and steam line systems in modern power plants are increasing: significantly higher pressure, flow and temperature values result in increasing strain on the systems. At the same time, the legal constraints and requirements are intensifying. Leakages can result for example in costly repairs or – which is worse – investigations, fines and even a deactivation order from the relevant regulatory authorities. This makes the use of durable, safe and effective tube systems and solutions all the more important. Whereas thick-walled high-pressure tubes and pipes have been welded together for decades



The CNC 100 DB Twin booster machine

from various straight and pre-bent tube components, modern tube bending processes offer significant advantages with respect to safety, subsequent maintenance and the requirements of the present tube parameters as well as appreciable benefits in terms of manufacturing costs and times.

The semi-automatic SR 320 tube bending machine and the automatic CNC 320 HD from Schwarze-Robitec GmbH produce complex tube systems in one operation from a single tube, for example for pressure and steam lines, manifolds and similar tubes. Being equipped with special tools, the machines bend thin and thick-walled tubes with a maximum diameter of 323.9 x 17.5mm. With a tube size of 323.9 x 10mm, for example, they have no problem producing a bending radius of 1.5 xD, which is equivalent to a bending radius of 485mm in the example mentioned. The semi-automatic machines in the SR series are particularly suitable for the production of single bends and small series. The automatic, CNC-controlled machines are also suited to

complex tube systems with several bends or large batch sizes. "Compared with the induction bending processes, our cold bending process offers huge time savings in the production process," Schwarze-Robitec plant manager Jürgen Korte explains.

"Whereas hot shaping of these work pieces takes around eight hours, our customers require an average of only six minutes for one bend." Depending on the specific application, Schwarze-Robitec offers the machines from their heavy duty machine series for various diameters and wall thicknesses up to 610 x 21.4mm.

The machines are available in semi-automatic design with SR control and in automatic design with CNC control. All machines can be equipped with a tube magazine and tube feed and enlarged up to fully automatic bending cells.

Very different but similarly exacting requirements now also exist for boiler tubes and tube serpentine in power plant construction. The production of smaller boilers with greater capacity, for example, requires the use of extremely tightly bent tubes. Depending on the tube diameter, it is not uncommon for the required minimum bending radius to be 1xD (sometimes under 1xD).

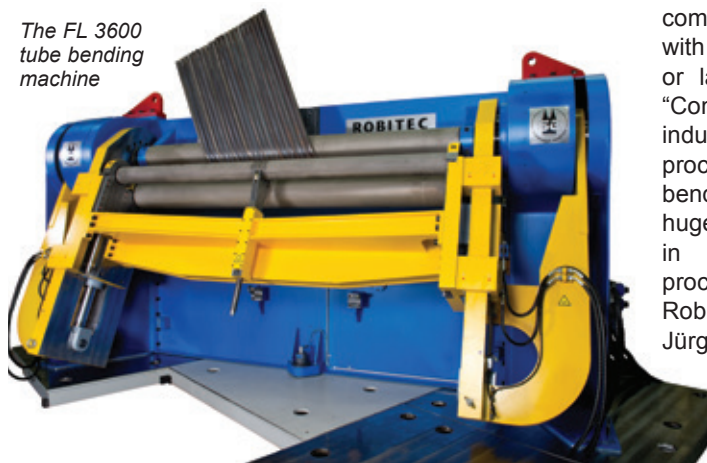
The semi-automatic booster bending machines and automatic CNC pressure bending machines from Schwarze-Robitec are designed precisely for these requirements.

The unique cold-bending process from Schwarze-Robitec offers utmost precision and surpasses the tolerance requirements for wall thinning and out-of-roundness of European standard EN 12952, American Society of Mechanical Engineers ASME B31.1 and all other international standards. The CNC-controlled booster bending machines are also equipped with a tube positioning device, which facilitates fully automatic bending of tube systems. For efficient processing of very large and complex tube serpentine, Schwarze-Robitec offers the CNC Twin series machines: this machine series, which is available in three different sizes up to diameter 88.9 x 11mm, uses two vertically and horizontally movable bending heads (1x left-bending, 1x right-bending), which alternately bend the tube clockwise and anticlockwise.

Consequently, the tube serpentine does not need turning after each bend, which ensures quick and economical production processes and the manufacture of large leg lengths.

**Schwarze-Robitec GmbH** – Germany  
Email: [sales@schwarze-robitec.com](mailto:sales@schwarze-robitec.com)  
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The FL 3600 tube bending machine







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## 7-axis all-electric tube bender

LANGBOW Ltd is the sole UK supplier of SOCO machinery, including the SB-32x7A-2S-V-U.

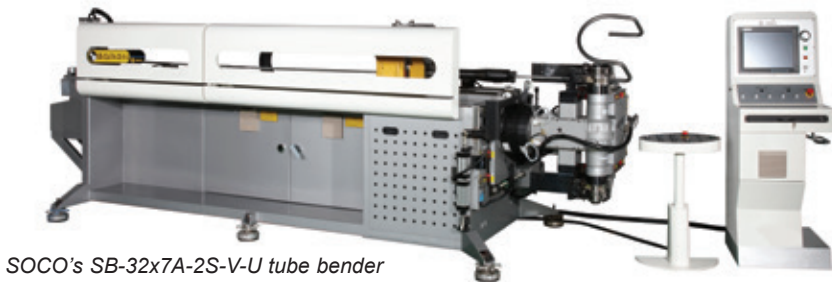
This CNC tube machine features an all-electric tube bender (seven electric servo control axes), which is equipped with left and right bending technology for maximum flexibility and minimal interference, with capacity up to 32mm OD.

The new SOCO CNC tube bender combines draw, roll and dual direction bending way technology. The line is suitable for complex parts and shapes, such as automotive exhaust pipes, and health care and fitness equipment. It is equipped with seven electric CNC axes and 2+2 bending stacks, and uses SOCO's DGT technology (direct gear transmission) for high speed and accuracy.

It may also be optionally provided with automatic loaders and automatic unloaders for full automation. The company states that the tube bender can offer one of highest performance solutions available.

The machine features bending, rotation, feeding, machine head seat horizontal moving, machine head rotation, clamping die, and pressure die clamping, along with left and right bending capabilities in the same cycle.

Other features include easy programming, automatic mandrel lubrication, touch screen with industrial PC, and multi-stacks/multi-radius.



SOCO's SB-32x7A-2S-V-U tube bender

**Langbow Ltd – UK**  
Fax: +44 1889 578872  
Email: sales@langbow.com  
Website: www.langbow.com

## Induction spool bending machines

COJAFEX has introduced a new line of smaller-sized spool bending machines for diameters ranging from 2" to 24". The PB450R for pipes up to 18" is the larger brother of the PB Special model.

"We are very happy with the PB Special, which we have had for 15 years, and the addition of this machine allows us to serve a significantly larger market," said Tormod Lie, CEO of NIRAS, after installation of the first PB450R.

The machines are designed to

automatically create spool pieces with bends of 1.5 DN and greater. Spools can be made out of standard pipe, eliminating the need for elbow fittings. This reduces the cost of bevelling, welding and inspection.

"The PB450R has been designed to outdo its predecessors on performance," commented Mr Alders, technical director of Cojafex. "It can process 50 per cent stronger pipe and it has 55 per cent more induction power. Manipulation of

the pipe in between the bends is also significantly faster thanks to the ability to rotate the pipe 180° in one go."

Pipes are automatically loaded and positioned into the machine by a pipe feeder, eliminating the use of cranes during loading and reducing the load time to less than two minutes.

"Because of market demand Cojafex is currently engineering a PB600FBR for pipes up to 24" and a PB100R machine for pipes up to 4" along these same lines," said Mr Alders. "This is a welcome addition to our standard line of machines, which goes up to 64".

Induction bending is a method of producing pipe bends in a wide range of materials. It is claimed that induction bends can be produced more accurately than their cold bent counterparts and with better wall thinning and ovality. A free choice of radius and angle takes away the design limitations of spools made with fittings, and this can be done without investing in costly additional tooling.



Cojafex PB450R with spoolbend

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## Integrated Turn-Key Pipe Testing systems

### SMLS

#### SEAMLESS TUBES TESTING with ULTRASONIC + EDDY CURRENT

SONOTRON™ FB system is equipped with more than 120 test channels and is capable of providing full volumetric and surface coverage of tubes, according to API and other International standards, for outside diameters ranging between 90~460mm (3.5~18in).

Longitudinal and transversal flaw detection, as well as 100% continuous thickness monitoring is carried out in real-time and is graphically displayed as open pipe view, where I. D. and O. D. flaws are color-coded. Detection of oblique oriented flaws in fixed or variable angles is available without reducing testing speed.

The system features precision inspection of short untested ends thus potentially eliminating the need for additional inspection of pipe ends. A robust real-time operating system is used to perform high-level data acquisition and processing of hundreds of channels simultaneously.



### SAW, ERW

#### ULTRASONIC INSPECTION of WELDED TUBES ON-LINE and OFF-LINE

SONOTRON™ ERW is an ultrasonic testing system for detection of anomalies in ERW (Electric Resistance Welded) tubular products. The system can be supplied in stages for:

- On-line monitoring of strip coil quality before forming
- On-line monitoring of internal scarf condition
- On-line flaw detection in welds and HAZ (Heat Affected Zones)
- Off-line full body inspection of cut-to-length product



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## Narrow-gap TIG welding of P92

TWI is managing a TSB collaborative project named "Verified approaches to life management and improved design of high temperature steels for advanced steam plants – VALID", a three-year research programme focused on the application of advanced processes for P92 pipe welding, which started in March 2011.

The project is a collaboration between the following organisations: TWI Ltd, Polysoude SAS Air Liquide UK Ltd, Centrica Energy plc, Doosan Power Systems Ltd, E.ON New Build & Technology Ltd, Metrode Products Ltd and SSE plc. The project is managed by TWI Ltd and is partly funded by the TSB under the Technology Programme ref: 100816.

The research programme includes the production of P92 pipe welds with the narrow-gap TIG (NG TIG), TOPTIG, variable-polarity submerged-arc (VP SAW), flux-cored (FCAW) and electron beam (EB) welding processes. The soundness of the experimental welds is verified via non-destructive testing (NDT) and mechanical testing. Following these, an extensive creep testing programme is planned to determine their high-temperature properties.

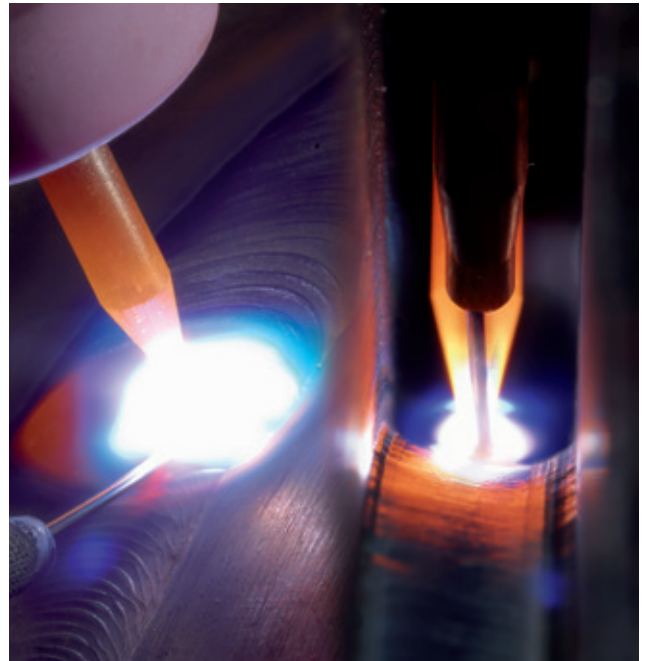
The preparation and NDT/mechanical testing of the narrow-gap TIG has been recently completed with successful results. Before commencing the welding activities, Polysoude reviewed its database of welding procedure, to determine the process parameters to be applied when welding P92. The following were selected: Narrow groove joint: 9mm wide with a 2° slope, accounting for cross seam shrinkage, hence enabling the maintenance of a constant groove width after each welding pass,

and the use of pure argon welding gas, known for its universal availability.

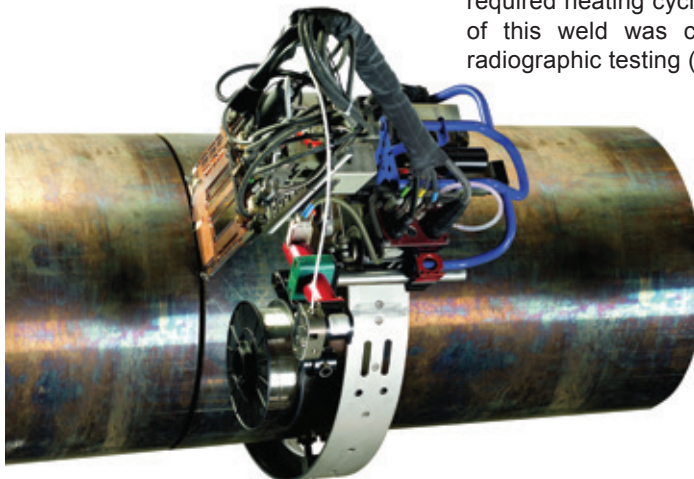
At the same time, the various phases of the heating cycle, such as pre and post-heating, as well as the post weld heat treatment (PWHT) conditions, were agreed by the project partners, based on the current practice (Ref 1). A grade 92-matching filler metal was supplied by Metrode (trade name: 9CrWV). The heating cycle is a key factor in obtaining optimum results when welding P92, in order to ensure the required high temperature properties.

Following this stage, Polysoude prepared a preliminary test weld in order to develop and then optimise all welding variables, in particular the operational weldability of the selected welding wire and the cross seam shrinkage curve obtained with such consumable.

A first P92 weld was then produced on a spare pipe to confirm the welding parameters and to make the necessary adjustments. Considering that high magnetisation had been observed for this test weld ( $\pm 15$  gauss or 1,200A/m), the pipe pieces to be used for the final weld were de-magnetised prior to welding. The final weld was then carried out according to the developed procedure and conforming to the required heating cycle. The soundness of this weld was confirmed through radiographic testing (RT).



*Polysoude carriage-type welding head with narrow gap torch*



*Narrow gap TIG welding*

The total arc time was two hours and eighteen minutes, whereas approximately six hours would be expected for a conventional weld groove, which shows the high productivity obtainable with the narrow-gap hot wire TIG process.

Following RT, the test piece was heat treated at  $760^{\circ}\text{C} \pm 10^{\circ}\text{C}$  for 4 hours. Four monitoring thermocouples were installed at different locations on the inside and outside surface of the welded pipe, in order to verify that a uniform temperature could be reached and maintained throughout the pipe wall thickness.

Prior to delivery to TWI and the other project partners, Polysoude carried out the NDT and mechanical tests typically required by international standards for the qualification of welding procedures, namely penetrant testing (PT), RT, macroscopic examination, transverse tensile testing, hardness survey, impact testing, bend testing as well as weld metal chemical analysis and all-weld-metal tensile testing. No defects were detected and the mechanical test results were in compliance with the acceptance criteria established for the project. This allowed progression to creep testing which is currently underway at Doosan Power Systems' and E.ON's laboratories.

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## More stable pipelines for oil, gas and water

LARGE pipes, such as those used to construct pipelines, are either welded together as spirals or with a longitudinal seam. In cooperation with Swiss company Maurer Magnetic, the plant and machinery manufacturer Schuler has now developed a process that can demagnetise large pipes during their production. This improves the quality of the welds, which in turn enables pipelines to withstand greater pressures.

Magnetisation results from the bending, machining and rolling of steel sheets, and also from the submerged welding of the spiral or longitudinal seam. When pipe ends are welded together on-site, the arc can be deflected if there is too much residual magnetism, reducing the load-bearing capacity of the weld. This is not the case with demagnetised pipes. Recent research results also indicate an increased incidence of corrosion on magnetised pipes.

"Pipelines are exposed to extreme loads, as they often have to span

hundreds of kilometres of inhospitable territory with extreme temperatures," explained managing director Jochen Früh. At the same time, the pressure inside the pipes is constantly being raised in order to extend the distances of the transported materials – such as oil, gas or drinking water – and to bridge the growing distances between individual extraction areas.

In the process developed by Maurer Magnetic and Schuler, the welded pipes are pushed through an electromagnetic coil and demagnetised. "There is no delay at all in production," said Marek Rohner, head of technology at Maurer Magnetic. "We have therefore patented the process."

Tests at Schuler's site in Weingarten, Germany, have shown that the method is suitable for spirally welded pipes with a wall thickness of up to 30mm and a diameter of 1,422 to 3,500mm. Pipes with longitudinal welds can have diameters of around 2,500mm

and a wall thickness of 20 to 40mm. Maurer Magnetic's experts also use their patented Maurer Degaussing Technology for the process. The large pipes are completely demagnetised by an alternating magnetic field, which can reach a field strength of up to 80kA/m in the high-performance coils.

Schuler supplies machines, production lines, dies, process know-how and services for the entire metalworking industry. Customers include car manufacturers and their suppliers, as well as companies in the forging, household equipment, packaging, energy and electrical industries. The company also supplies systems solutions for the aerospace and railway industries.

Since the year 2000, Maurer Magnetic has entered new markets with its newly developed and patented technologies in the field of magnetising and demagnetising applications.

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## Bending large radii accurately

SCHWARZE-Robitec has further developed its freeform bending concept for all-electric tube bending machines. The technology allows the precise creation of large bending radii and variable radius paths on tubes and profiles.

A high level of repeat accuracy is achieved, even with new, higher-strength materials. At the same time, the system supports the combination of freeform and mandrel bending in one clamping operation and is therefore particularly suitable for users from the automotive and agricultural machinery industries, as well as for stair lift and furniture manufacturers.

The requirements for freeform bent tubes and profiles are growing: increasingly complex bending paths and the reshaping of higher-strength materials demand improved bending machines and software concepts. The current renaissance in hydroforming is also reinforcing this trend. In order to equip the tube and profile processing industries for these and future market requirements, Schwarze-Robitec has

improved the freeform bending concept for its all-electric tube bending machines. The manufacture of large bending radii of size 6xD is more precise with this technology.

"At the same time, the production process is accelerated by up to five times, or even ten times in individual cases," said Jürgen Korte, plant manager of Schwarze-Robitec. "This is because the revised concept allows very high bending speeds and the setup times previously required are appreciably reduced due to the increased precision."

In the freeform process, the bending radii are created not with fixed tools, but by means of independently mounted rollers. The desired bending radius is defined by the feed angle of a reshaping roller. Very large radii and complex radius paths can be created with bending radii of varying sizes.

The technology is used in all of the all-electric bending machines in the CNC 40 E TB MR to CNC 160 E TB MR series. Using robust bending heads, even high-strength materials can be manipulated into the desired

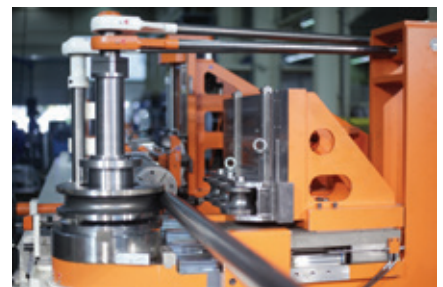
shape with no problem by means of the freeform process.

"We have recently delivered an all-electric tube bending machine with this new technology to Mexico, to one of the world's largest automotive suppliers," Mr Korte said. The machine, which has been expanded to be fully automatic – including loading unit for machine feed, measuring system and handling robot for onward transport of the bent parts – ensures fully automated and therefore very fast and economic bending processes.

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这一栏目专为我们  
的中文读者介绍  
国际管道行业  
的最新技术和行  
业新闻的综合信  
息。

## Lemont收购大直径车削中心

Inductotherm Group集团公司T&H Lemont宣布了最新收购的Hwacheon Hi-Tech 850YMC 数控车削中心投入全面生产。这一增加继续扩展T&H Lemont进入大型工具市场，通过扩大公司的整个直径和长度能力，以及直径45"的最终产品和长度延伸100"的产品。

公司表示该车床有多动力5轴加工工位座，被证明能很快完成大型复杂轴和矫直机轧辊工作，以及大直径轧管机轧制工具。对这些较大型工具车削和精整需求已经加大，因为客户扩大SBQ生产以及用于API和石油国家管状产品的更大直径的工具。

Hwacheon Hi-Tech 850 数控车床被开发来满足顶级车削中心性能要求。其独特的设计使其成为同类中有最大加工能力以及轴功率车床。可通过CAD/CAM接

口或手动使用传统输入来轻松地远程处理机床编程。

Inductotherm Group集团提供先进的技术，用于金属熔炼、加热、热处理、锻造、镀锌、涂漆、切割和焊接用热处理设备的设计、制造和服务。集团汇集了19个国家的40家公司，38个制造厂，在全球提供创新产品。

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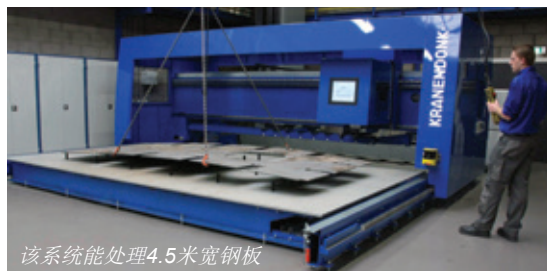
## 自动铣边

PSPC涂料规范正在给造船厂施加压力。用于压载舱的钢板需要有2毫米的半径。船厂正在寻找有效满足这些新规范的方法，但目前没有其他的选项，除了手动磨削所有钢板边缘。

荷兰公司Kranendonk推出了自动铣削机。边缘准备系统使用能三向移动的力控铣头。该机器可以在任何钢板外围边缘磨削出一致的2毫米半径。

自动化铣边过程的难度包括钢板的不精确。钢板拉拔的不同源于等离子坡口、温度差异和板材内材料应力。应对

这些偏差需要系统本身的智能性。Kranendonk开发了力控铣头，可提供这种灵活性。硬件和软件组件紧密合作完成完美的半径，即使是在不精确的钢板边缘。Kranendonk表示他们的客户正在寻求在同一个方向磨削钢板顶部和底部边缘的系统。为次，钢板被吊起来，为磨削底边提供工具空间。边缘准备系统的编程使用的是钢板切割机相同的文档，因此可在任何现代化船厂内应用。



该系统能处理4.5米宽钢板

**Kranendonk Production Systems BV – 荷兰**

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## 加工机械用混合动力驱动系统



transfluid的混合动力系统提供精度、能效和性能

在开发新技术时，妥协往往阻止了最好的解决方案。在管道加工中，这尤其适用于弯曲机、成形机或制造单元动力系统的选择。电动驱动能源效率高、精度高而且非常不受外部影响。液压驱动功率密集且稳定。没有系统可以同时涵盖这两种系统作为标准。

transfluid Maschinenbau GmbH的工程师们开发了一种结合这两种系统优点而且规避了缺点的一个系统。这种混合动力驱动有效地满足了相对应机器的要求。新系统的液压装置配备了定量泵并由一个大功率伺服电机驱动。系统几乎整个控制都通过电机的动力或旋转速度完成，能源效率提高了15%到20%，因动力总是按照消费量提供。

该技术的优点在需要强大动力以及几个不同大小和速度的液压缸的时候显示出来的。特别适用于弯曲工艺和轴向成

形设备。混合动力比较小，操作安静，而且过程中加热最少。液压单元所需油量减少20%，外部冷却器所需性能也相对较低。混合动力系统可以定位精确。因每个消耗体都有具体的油量，因此位置可以接近1/10mm范围。通过电气控制，消耗量可以预选或储存，并通过驱动电机转速准确提交。专门设计的控制系统依所需量同步提供所需的速度，确保不产生多余的量。

transfluid的产品系列为五种不同种类的机器提供解决方案，满足所有管道加工要求。

**transfluid Maschinenbau GmbH – 德国**

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# Arc Machines自动轨道焊接设备提高换热器产量

在发电、石油&天然气和加工工业领域，换热器高效精确的焊接对确保安全操作来说是至关重要的，安全必须放在首位，而且对于尽可能减少停机时间同时最大化生产率来说也是很重要的。

高性能自动轨道焊接系统将提高生产率，同时在焊接工业加热和冷却设备时，确保熟练和具有成本效益的引弧时间，这些设备必须以非常高的标准制造，以满足安全和操作要求。

Arc Machines Inc (AMI)在开发用于换热器制造的自动轨道焊接应用方面有着悠久的历史。AMI的管道对管板的焊接头在各种材料上焊接了数百万的焊缝，使制造商能满足紧张的交货期以及严格的质量要求。

通过开发自动轨道焊接，南非最大的气冷式换热器供应商在约翰尼斯堡工厂的制造时间减少了3/4，为公司赢得

了更多的订单，并帮助公司获得了全球创新奖。在赢得为南非石化巨头提供因科镍铬825合金气冷式热交换器合同后，GEA Aircooled Systems转向Arc Machines公司的自动轨道焊接设备。

因气冷器管道空间有限，限制了整个制造过程中手工焊接量，因此GEA订购了两个AMI的Tube Welding Model 207焊接电源、以及M9-2500和M9BT-1500焊接头，帮助公司提前一个月完成了合同。

GEA的国际焊接工程师Angel Krustev表示：“焊缝质量非常好。我们在有限的空间里在1"的管道上焊接了1000道焊缝。制造时间减少了75%，大大提高了我们的生产率。”

同时，英国最大的壳式和管式换热器制造商Wellman Hunt-Graham在获得来自英国最大的石油公司之一的一份重大合同之后安装了4套AMI的M227电源和M6焊接头。

Wellman Hunt-Graham在客户指定自动焊接后确定用AMI的管道对管板设备完成该工作。严格的检测和预购焊接试验后，4套自动设备全部开始为苏格兰最大的精炼厂之一焊接1.000"x0.065"、22Cr双相钢管。石化工厂和发电站的管道工程材料广泛，包括铬、不锈钢、双相钢和低合金钢，因此实现和利用自动轨道焊接技术是非常有意义的，使换热器制造商确保在TIG可焊材料上进行安全、有条理的、高效的焊接操作。

AMI的Model 96管道对管板焊接头能够焊接各种材料，包括不锈钢，直至活性钢种，如整个焊接周期要求100%气体保护的钛钢。Model 6焊接头包括径向作用的AVC以及机载送丝，用于较重的应用，这些应用需要额外的填充焊丝来实现有强度的角焊缝，满足更高的运行压力要求。

公司欧洲副总裁Michael Allman表示：“大多数换热器在轴向和径向上通道受限，使用人工焊接具有挑战，因此紧凑的轨道焊接头更精确，以及能实现更精确的结果。焊缝的完整性始终是非常重要的，但遇到换热设备和应用如果焊缝有缺陷的话会有蒸汽、水或冷却剂损失风险，这会导致整个系统停机，并导致财务问题。”

准备工作是进程的95%，确保准确一致的高质量焊缝对电力、石油&天然气和工艺领域来说非常重要，这就是为什么在Arc Machines我们取样并进行前置程序试焊。Arc Machines UK Limited公司也能够编制焊接时间表，如果客户需要的话。

自动化轨道焊接系统通过减少焊接不合格率正越来越显示出大大减少施工时间和减低成本的潜力，而且也不牺牲安全。该技术适用于各种应用，如涡轮轴的精密焊接、配管、容器制造和高压过热蒸汽管道的修理和维护。

Arc Machines – 英国

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## 无控制电缆或电源电压电缆的TIG焊接

MASTERTIG LT 250是来自Kemppi UK Ltd公司的一种新型、轻质(12.6千克)、气冷式、电子TIG/MMA焊接电源，该电源由一根来自单个母直流焊接电源直径35毫米的连接电缆驱动，无需控制电缆和电源电压电缆，包括移动电焊发电机、以及最低40伏极电压的MIG/MAG和MMA机器。一些大小合适的电源将能够在任何时候全功率运行4台LT250装置。TIG和MMA焊机有着90伏的开路电压，额定功率在250A，占空比为35%，这种高规格的工业TIG / MMA焊机进行TIG焊接时焊接范围为5到250A，MMA焊接时，范围是10到250A，设计用于现场施工和极端的工作环境，从高环境温

度、高达40°C的潮湿气候到-20°C的零下温度。

直流TIG和MMA焊接精确的高频和接触引弧使焊接容易，即使是焊炬长度延长到10米。焊接参数的设置简单，有清晰的数字显示帮助，后面板安装的气体控制仪允许局部化保护气体流量控制。

其他特点包括前置和后置气体控制、陡度调整计时器以及2T和4T焊炬开关闭锁。

Kemppi (UK) Ltd – 英国

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来自Kemppi的新型MasterTig LT 250 TIG/MMA焊接电源

## Combilift制造更多的空间

THYSSENKRUPP Energostal SA公司是波兰最大的贸易公司，自2001年起，该公司已属于German ThyssenKrupp Materials International GmbH有限公司。由于销售网络的迅速扩大，公司已着手实施一项计划来扩展它的仓储设施，并由靠近华沙的Blonie工厂的物料搬运已发生了变化，因为收购了7台Combilift 4向叉车车队。

Blonie工厂搬运的主要材料是轧制钢管、不锈钢管以及钢管和管道，但也处理一定数量的非金属物件如聚碳酸酯板。当考虑到替代叉车来取代先前车队主要的搬运车4向电动卡车时，更好的储存密度和改善的搬运程序是运营部门的主要目的。

选择Combilift主要是因为其叉车的多功能性、室内和室外能力以及动力选择范围。最初的C4500 Combilift投入使用，该叉车取得的成功使另外6台3吨的C3000 Combilift叉车被订购。

卡车将卸载从ThyssenKrupp自己的工厂或从其他供应商那里交付的货物，将它们从外面的进货场拉到仓库，并在重新装货派遣前在客户交付的货物核对后出货。

液化气驱动的Combilifts有7.5米双桅杆和侧移叉，易于处理各种重量和尺寸的搬运荷载，如2公吨重的长包的管道，或4米x1.5米的聚碳酸酯货板。他们的机动性也使他们能够与按个别客户要求的定长切割机密切合作。

ThyssenKrupp利用公司设计工程师们提供的Combilift的仓库布局服务，他们提供一个货架布局样品来说明在22,000m<sup>2</sup>存储面积内可用空间的优化布局。他们还建议引入一个导向通道系统，这是在使用以前的卡车时所不能实现的。用于6米长的管道货架之间的通道宽度现减小到稍稍比卡车本身宽一点点，这样可以容纳更多的场地。卡车上导辊和导轨的结合使其更容易更快速地驱动出入通道，减少产品损坏风险。

“尽管我们有相对大的仓库，我们能搬运的货物量意味着我们需要利用每一寸空间，”主管Tomasz Groszyk表示，“Combilift的产品以及设计工程师们的专业知识使我们现在能够搬运最大的货物并确保客户的快速周转。”

Combilift产品系列至少包括15个基本车型，能力为2.5至25公吨，由液化石油气、柴油或交流电驱动。自1998年成立



以来，公司产品获得了很多合同，目前约有17000套装置在全全球运行。

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## 旋转式在线尺寸测量

在线测量和监控系统制造商ZUMBACH Electronic公司开发了一种旋转式激光扫描工艺，以每秒6000次的速度对圆形和多边形形状扫描成像。

为了使生产过程尽可能高效，现代在线测量设备不仅要以非常高的速度测量一些参数，如直径、椭圆度、宽度和高度，还要即时检测出形状偏差和轧制误差。Zumbach的Steelmater装置多年来一直用于钢铁生产，用来提高热轧和冷加工过程监控。

冷应用: Steelmater SMR用于冷轧条钢旋转测量



尺寸测量和误差检测一直以来都是通过静态或振动检测设备根据应用需要来完成。这些设备能以极高的精度测量圆形和非圆形如方形、六边形和平面产品外部尺寸和对角线，不管旋转和旋转角度如何。

新一代Steelmater SMR 产品提供精湛的技术，是创新的、旋转更快的测量系统。该系统以三个Odac®系列全同步激光测量头为基础，用旋转原理360°检测外形尺寸、对角线、直径和横截面。

每个Odac 激光测量头以100rpm转速旋转，以每秒2000次对扫描产品成像，形成精确的产品外形图。这样，每分钟可以产生600个外形图。这样使制造商减少了废料同时保持1/2和1/4DIN 的更严格的公差。

Steelmater SMR测量系统能测量直径约为135毫米、气温高达12000°C的钢材和金属材料的不对称形状、多边形和不规则形状。

该系统能在测量装置内非接触式传输功率和信号。Steelmater SMR软件非常灵活，可以使统计

数据、数字和图形显示以及记录可以按生产环境要求和工作实践在线自由配置。

Zumbach开发了EPM方法（增强型外尺寸测量）用于检测不规则或不对称几何图形形状偏差。尤其是可以获取和计算可能出现在一些轧制过程或随后的去皮/磨削操作后的多边形形状。

对于所有形状，他都将以非常高的精度，不仅测量出最小、最大和平均直径，还将测量出ISO/TS 12181-1规定的真正的失圆偏差RONT，以及MICI内切圆和外接圆MCCI。

可选的模块FPS，尤其是对于三辊机组，可计算精确的直径值，通过手动三点测微螺杆就可以发现（如果两个读数都与室温相关）该值。这种FPS模块可另外计算对初始轧辊设置非常重要的“接触”和“间隔”直径。

软件包里的动态回归分析意味着旋转和旋转角度不再影响测量结果。这使得废料率较低并确保符合严格的公差。不管位置、振动、材料温度和光照强度如何都可以使用该技术。

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## 非接触式 温度计

ELECTRONIC Temperature Instruments Ltd (ETI)公司推出了迷你RayTemp非接触式红外测温仪。

这种紧凑型轻量温度仪只需简单瞄准和扣动触发器就可以操作,可测量-50°到+330°C的温度,对于0到330°C,精度可达±2°C。这一范围外的(即-50°到0°C),精度为±4°C。

Mini RayTemp有一个清晰易读的液晶显示器,可以低电量、背光显示,一个自动关闭装置在十秒后关掉仪器,使电池寿命最大化。该温度计适用于难以接触的温度测量。

该温度计还集成了激光对齐作为标准,来协助确定测量面积。该装置包含一个12:1光学比(目标距离/直径比)以及一个0.95的固定发射率,使其适用于更广泛的应用范围。

**Electronic Temperature Instruments Ltd – 英国**

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## 雨水管理手册

FRÄNKISCHE Rohrwerke 专门从事雨水管理:所有产品和系统被设计用来以最好的方式使雨水回到自然循环,即使是大面积已铺设道路。

来自德国哥尼斯堡的管道专家现已推出了第六版雨水管理手册(Handbuch zur Regenwasserbewirtschaftung)。除雨水管理的基本知识和计划支持外,该手册还描述了Fränkische 新的先进的产品,包括SediPipe XL-Plus 沉淀系统、系统节流轴与UFT涡流阀的详细信息,以及Rigofill 检测滞洪/渗滤系统的各种批准。

Fränkische 的雨水管理手册使公司多年来一直是土木工程和交通路线工程、绿化、以及工业工程和商业工程强大的合作伙伴。超过100多页的最新版雨水管理手册侧重于工程相关的和定制的完整解决方案。效率、维护友好性、可靠性和100%兼容是面向未来的一些优势。

雨水管理手册可从公司网站免费下载。还可以通过网站或电子邮件免费获取打印版。

**Fränkische Rohrwerke Gebr  
Kirchner GmbH & Co KG – 德国**

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## 过去两年Davi销售eleventh angle角度矫正机

DAVI重型角度矫正机赢得全球偏爱是因为努力制造充分满足顾客期望的结果。只有在机器满足弯曲大直径钢梁所需性能是这才是可能的,从HEA 300 (W 12")困难的方式,不是一件容易的事,但对DAVI角辊来说是不成问题的。

DAVI机器在五大洲都有安装,用于钢结构、桥梁以及体育拱形结构,这些地

方机器的性能受到限制。客户喜欢坚固的构造和超大的轴,这表明机器能承受能力范围内所有荷载,无任何屈服。弯曲钢梁和管材的质量是完全满足质量控制的,证实了DAVI角度矫正机的高质量和精度。

**Davi – 意大利**

网址: www.davi.com

## 精密钢管

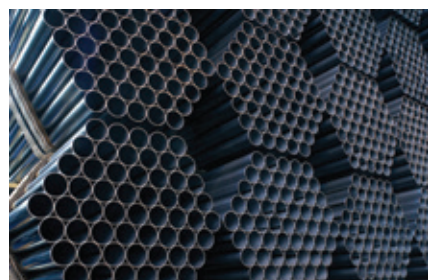
FORSTER公司按照EN 10305-2、EN 10305-3和EN 10305-5标准制造符合客户特定要求的焊接和冷拔精密钢管。

对于使用昂贵的无缝或冷拔钢管(EN 10305-1 或 EN 10305-2),Forster表示在很多情况下都能为焊接替代品(EN 10305-3)节约成本。

Forster焊接了外径16至76毫米、壁厚0.8到6毫米的精密钢管,对于冷拔,加工外径范围为10到60毫米,壁厚为0.8到5.5毫米。

**Forster Rohr- & Profiltechnik AG –**

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Forster精密钢管



## 截面测量加快了抗拉试验

材料试验机控制器制造商DOLI公司在德国大型管道制造商的实验室里安装了一台半自动截面测量装置。管道样品测量比以前更有效率。实验室经理将该项目委托给了Doli,因为之前与Doli有对材料试验机进行现代化改造的积极体验。

刚生产的管试验样品几乎每分钟都在实验室进行抗拉试验。Doli的任务是提高管道横截面测量。

新试验装置的功能通过管道样品重量、长度和密度来确定截面面积。操作员将样品放入装置并将账号输入电脑。很快,天平发出嘟嘟声确定称重成功。

然后操作员移动杠杆测量管道长度。随后将需要计算截面面积来计算样品抗拉试验过程中当前的应力。所有测量数据都可以在电脑屏幕上查看。条形码打印机打印标签贴到管道上;这些标签包含获取的所有数据,作为条形码,而且都是文本形式的。样品用账号识别,并准备在实验室的一台抗拉试验机进行试验。

开始抗拉实验前,机器操作员将标签上的数据通过条形码扫描器输入软件。几秒钟就可以开始抗拉试验,无需进一步输入软件。测量读数和记录以及数据在机器间的传输以前通过手写纸完成,现在由截面测量装置完成。这使得样品准备过程更快、更可靠。

该装置的主要组件——一个高精度天平以及一套复杂长度测量系统——安装在不锈钢外壳里。长度测量系统由精确导向的两个可移动铁砧组成。测量力由弹簧提供。样品的位置由支撑导向结构确定,铁砧和管端之间的触点被确定。

连接到铁砧的一个高精度磁致伸缩长度传感器测量长度,一个Doli EDC 220控制器收集测量数据并与电脑沟通。

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# The air technology to achieve the most of PVC-O pipes

By Mr Ignacio Muñoz, Molecor Tech CEO

Nowadays when the world is in crisis the manufacturer has to juggle to make their business profitable. The new air based system developed for bi-oriented PVC pipes brings excellent opportunities for PVC-O, improving performances and savings in raw material and becoming the key for competing in the market.

Molecular orientation has been known since the 1950s and the systems for PVC-O piping to this day are clearly defined in two ways – in batch and in line systems, both having their own advantages and disadvantages.

In batch systems orientation is produced by means of the expansion of a feedstock pipe against the wall of a tubular mould, which provides the final diameter to the pipe.

On the other hand there is the in line system, where the orientation is produced by expanding the pipe by means of a rigid mandrel, a flexible device or others, during the extrusion process.

In batch systems advantages are:

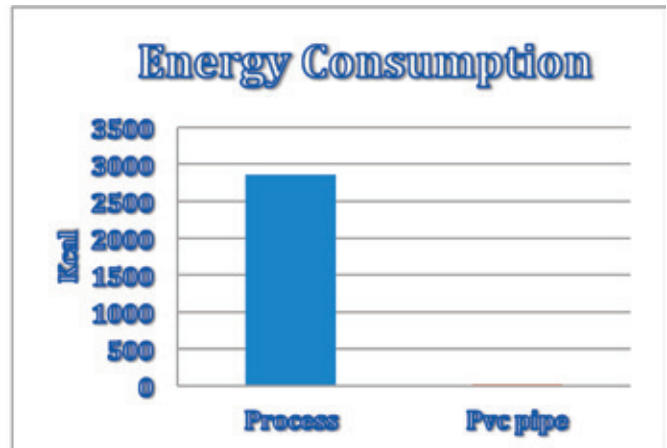
- Maximum degree of orientation recognised by the standards.
- High stability because the conditioning of the pipe is carried out piece by piece.
- Big range of products: this kind of system allows most of the geometries and large wall thickness and diameters, making it possible to design pipes of any pressure or diameter.

In line systems brought a clear improvement with regards to the disadvantages of the in batch systems mainly in:

- Orientation integrated in the line drastically reduces the cost of manufacturing PVC-O pipes.
- Lay-outs in a linear shape, easy to adapt to standard factories.

In spite of these evident advantages, in batch systems were inefficient mainly because of their low output per mould and the high manufacturing costs due to labour and a high consumption of energy.

During the process of orientation the plastic has to be heated up and cooled down 80°C at the same time the mould and the water involved needs to be heated and cooled and this is the reason behind its high energy consumption. Considering the specific heat for three materials (water 1 Kcal/Kg °C, Steel 0,11 Kcal/Kg °C, PVC 0,26 Kcal/Kg °C) we consider the following formula.



$$Q = \alpha \cdot m \cdot \Delta T$$

Where:

Q: Heat; Energy consume

A: Specific Heat

ΔT: Variation in Temperature

m: Mass

From this, we know that only 0.7 per cent of the energy applied in the process is really used to condition the plastic.

A novel project was started with the only purpose of gathering the best advantages from both systems: a highly stable process allowing the highest orientation and thus reporting important savings in raw material, being efficient at the same time, easy to use, and fully compatible with any lay-outs.

After a thorough research and taking into consideration all the improvements that needed to be implemented the conclusion was that water could not be the means of orientation and the use of air would be the key for success.

## A new air-based system for PVC-O

From the beginning the system to improve was the in batch system, mainly because of the stability and the target class 500. The main points to be improved were: speed and reduction of energy, of needed space and labour.

The use of air brings many advantages: the process is clean, and safe, and leakages do not pose a problem. The process with air spares the use of expensive stainless steel or anticorrosive material. The process is faster because the conditioners of air, in this case, are much faster than the water ones.

At this point there were still important issues to be accomplished from a technical point of view. The pipe conditioning was one of them. The pipe had to be heated up homogeneously with extreme accuracy in the three cylinders coordinates: axial, hoop and radial. Other kind of heating methods like radiation or contact were discarded because they were not able to guarantee these specifications.

A special oven was designed for that purpose, with high internal air movement speed, allowing close to a hundred renovations per minute. Isolation was very carefully designed to prevent heat loss and noise. Up to this point the prospects of output and homogeneity were fulfilled.

The speed of expansion is very important in orientation. This was another important challenge to deal with. Whereas the speed of expansion is quite easy to control using water with air this aspect is more sophisticated.

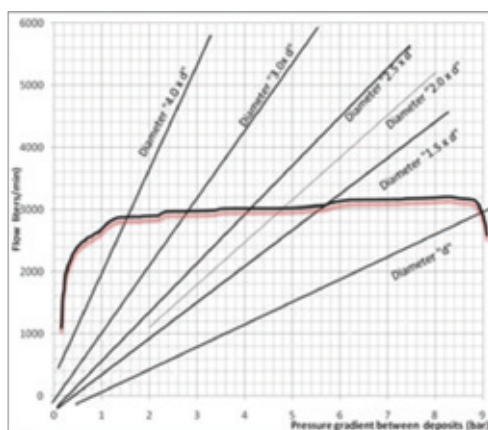
The expansion is executed by communicating tanks of compressed air at higher pressure than the one needed to expand. In the first place, the pipe to expand is at atmospheric pressure, and the tanks are at high pressure. Graph 1 represents the flow that is able to pass through a hole of certain diameters depending on gradient of pressure between two different pressures.

As shown in the experimental graph, in order to maintain constant, for example, a certain flow of 3,000 litres per minute, from a deposit of nine bars to the pipe at atmospheric pressure, the passing orifice has to change from a certain diameter to a diameter four times bigger.

Thanks to the electronic regulation and fast answer pressure detector and servo valves, this required flow can be maintained during the main part of expansion stage, and a constant speed of expansion is guaranteed.

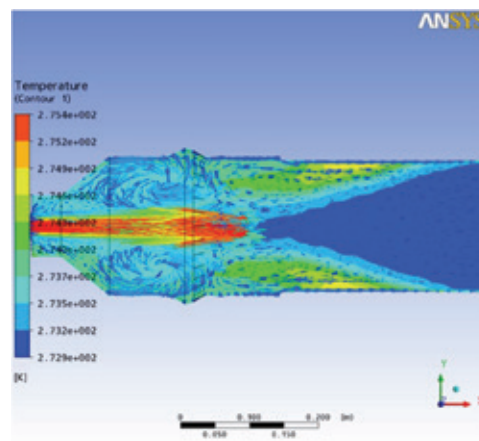
Air chilling was another drastic change in the PVC-O concept. It consists of freezing the pipe from orientation temperature to a temperature below Vicat without water.

Following this a research project just for freezing was started. Aspects such as speed of flow, geometry of pipes or even air humidity were considered and the results obtained, as shown in Graph 2, were used to design the final equipment, optimising energy consumption and output.

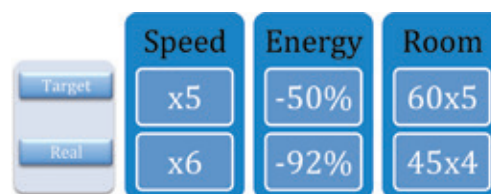


Graph 1: Flow passing through some holes of different diameters, and real curve obtained after regulation with a consigned flow of 3,000 litres/min

Graph 2: Results from a simulation process of freezing a pipe internally with air. Map of temperatures



A real machine was built to produce pipes from 160mm to 400mm Ø and tested in regular production with an extrusion line based on a Cincinnati Argos 93. The mixture used was based on PVC resin from Solvin and Naftosafe from Chemson. The following results were obtained:



These huge savings resulted from maintaining constant the mould temperature and avoiding the use of water as fluid for the process. The energy for conditioning is only applied to the plastic to be processed. The equipment is so compact that the length of the whole line for manufacturing up to 400mm Ø can be of 45m and the width is less than 4m. The line is fully automatic, so no extra labour is needed.

Other positive features were also implemented such as swiftness in mould changing, an operation that now takes less than one hour for two people. All the technical developments were implemented in a recipe system; in this way the manufacturer only has to choose the pipe he wants to produce and all the parameters change automatically to the new conditions.

The global situation with ever increasing prices of raw materials and the standardisation activities in many countries are making PVC-O one of the most attractive investments in the plastic industry. The superb quality of the product, in addition to the important raw material savings that can reach 50 per cent in many cases, and access to more profitable markets for high pressure applications, forecasts a bright future for this material.

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# What drives choices regarding pipe material?

By Chris Ricketts, category director, BSS Industrial, UK

When exploring the various drivers behind the specification of piping systems, it seems that cost still reigns as the determining factor.

However, it is not just the cost of the material itself, but the cost of the overall installation that needs to be calculated.

Chris Ricketts, BSS Industrial category director, explains how value engineering is shaping trends in piping sales and how money is being saved on-site.

Value engineering has traditionally been a tool reserved for larger scale commercial projects, but the struggling economy means that cost cutting is now an integral part of any construction plan. Rather than a post pricing activity as historically been implemented, value engineering is being employed up-front, pre-submission of pricing to clients.

Whilst other areas of a build are easily value engineered to introduce more cost effective suppliers and an alternative product, the piping systems industry has seen more complex changes, which take the overall cost of an installation into consideration, rather than just the initial cost of purchasing the material itself.

That said, there are still a number of instances where a simple change in material can aid a cash strapped building project.

## Cost stability

For many years, habitual specification has meant that copper was often the material of choice for hot and cold water systems, but this is changing.

The volatile price of metal can now cause major discrepancies in quantity surveying, with price fluctuation changing the cost between the time of specification and purchasing. This uncontrollable price increase has made piping systems a key area of consideration for those in charge of value engineering.

It also means that finding an alternative material that can deliver savings can be imperative to a successful project.

As the cost of metal remains unpredictable, there is a visible trend in material substitution in order to bring cost stability to the specification process.

Copper is a 'one material fits all' product and is suitable for a wide variety of building services piping applications, so the process of value engineering this particular aspect of a build isn't straight forward.

More often than not, the copper in a specification will need to be replaced with a number of different substitutes to suit the variety of piping systems in the project.

Although this sounds time consuming, it is a worthwhile task and extensive cost savings can be made by switching to alternative piping and jointing systems such as press fit and grooved jointing solutions.

## Initial outlay vs overall cost

Switching to a cheaper material might seem like the obvious solution, but value engineering managers are looking at the bigger picture to ensure that savings are maximised.

Other considerations for the installation include fittings and joints, labour costs, on-site insurance, health and safety implications, flushing and cleaning cost and completion times, which can all result in substantial cost savings which outweigh the initial outlay cost of a more expensive material.



## Fitting and installation

Traditionally, a copper system would be soldered together on-site, requiring 'hot works' insurance and specialist skilled labour, which both come at an additional cost.

Adding to this is the need for an end of working day cooling period after any hot works before a site can be vacated, resulting in lost available working time. Complete 'flushing and cleaning' of the system is required to rid it of any surplus solder and flux. Both of these factors take time and as with any aspect of construction, more time means more expense.

While copper is, in many cases, still considered the ideal material for some applications such as hot and cold water services, heating and gas, value engineering is introducing the use of press fit joints which eliminate the need for hot works such as soldering.

A press fit copper or plastic system, does not require specialist or chemical flushing and cleaning and could even allow for a change in labour force, as specialist skills may not be needed.

The installation of a piping system using press fittings is quicker and cleaner, meaning work can continue at optimum speed.

## Prefabrication

A popular construction method across many trades, prefabrication is a trend that has gripped the industry as a whole and the piping systems arena is no different.

Prefabricated piping systems use lighter materials such as plastics rather than metals which can be heavy to manoeuvre into place once combined into larger 'modules'.

Piecing together these systems off-site means that other trades can continue working on the build without any restriction.



The prefabrication of chilled, heating, hot or cold water systems is often combined with the installation of electrical services, which can all be integrated into a modular riser system or corridor module and assembled together on-site.

This is a popular method of construction for larger buildings and particularly prevalent in heavy service orientated situations such as hospital corridors and riser shafts.

## The future of piping materials

The process of value engineering may become more prevalent in times of financial hardship, but the lessons that are being learnt from it will undoubtedly continue for many decades to come.

As a process, it has challenged preconceptions about piping materials and the habitual specification of conventional methods of construction to reveal cost, time and energy savings that will remain valuable as the economy continues to recover.

Value engineering has opened the eyes of many who would have otherwise continued to use traditional pipe materials.

The result has been the development of modern, market leading solutions, which are now proving to be a popular choice for achieving a project that is delivered on time and on budget.

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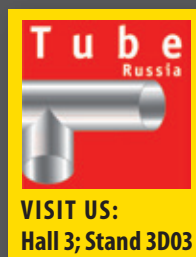
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Please visit booth P01 at the upcoming Tube Southeast Asia (Sept. 17-19) for further information on how Thermatool's HAZControl™ Technology can improve your production process.

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